THE APPLE II MAGAZINE

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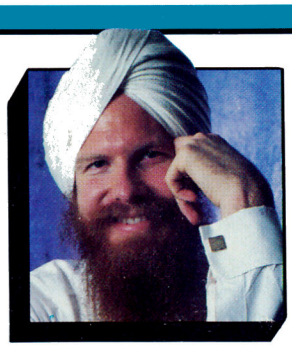

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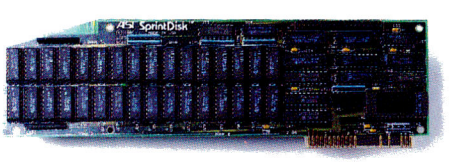

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Senior Editor Eileen T. Terrill
Technical Editor Paul Statt
Assistant Editor Lafe Low
Proofreader Peter Bjornsen
West Coast Editor Wendy Lea McKibbin (415) 328-3470
Field Editor Babs Cringely

Advertising

Sales Manager/Northeast Sales Representative Paul Boulé (800) 441-4403 (603) 924-7138
Southeast and Central Sales Representative Fiona Davies (800) 441-4403
Sales Manager/Northwest Donna Pomponi 1060 Marsh Road Menlo Park, CA 94025 (415) 328-3470 (800) 344-4636 in CA
Sales Manager/Southwest Sanford L. Fibish 1060 Marsh Road Menlo Park, CA 94025 (415) 328-3470 (800) 344-4636 in CA
Advertising Coordinator Kim Labbe (800) 441-4403
Marketing Services Manager Michael Duran

Design

Art Director Donna Wohlfarth
Production Supervisor Phyllis Pittet
Ad/Graphics Production Rosemary Gibson

Graphic Services

Graphic Services Manager Dennis Christensen
Manufacturing Manager Susan Gross
Typesetting Supervisor Linda P. Canale
Typesetter Nancy Salwen

CW Communications/Peterborough

President/CEO James S. Povec
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Director of Credit, Sales, and Collection William M. Boyer
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inCider's BBS (bulletin-board system)
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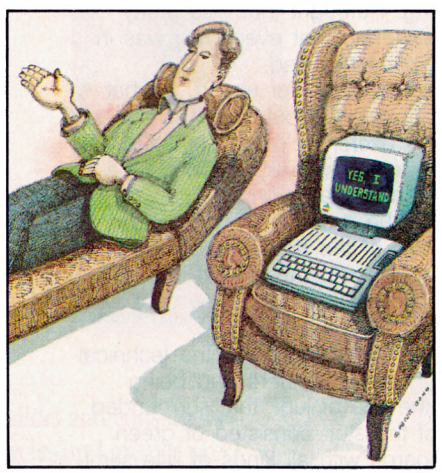

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INCIDER'S VIEW

It's Not Weird Anymore—I Am

"We're constantly in the process of tinkering with our machines. There's something about the Apple II that invites you to play with it."

by Deborah de Peyster

This has all come upon me quite by surprise. Looking back, it's hard to pinpoint exactly when it began, but suddenly I realized I was actually interacting with my computer in a way I never expected.

I noticed it first, I think, while I was sitting at my Apple //e in the office and typing away with AppleWorks. I was listening to the disk drive whir when I noticed I'd been working with the top off my computer. And I realized I'd been using it that way for some time. Now to many of you, using a computer with its insides exposed doesn't sound weird. But when I first came to this job last November, I remember noticing that everyone was using a computer with its insides showing. I thought that was pretty weird and assumed that everything was in the process of being fixed.

Actually, I wasn't too far wrong. If what I've recently learned about myself is true for other Apple II users, we're constantly in the process of tinkering with our machines. Things aren't necessarily *broken*, they're just always in the process of *becoming*. I'm always thinking of the next enhancement I want to add. Keeping the top off is a way of reassuring myself that that new card will be here sooner or later.

I also remember visiting with the technical editor in my early days here and being amazed at the pile of junk that surrounded him. Most of the stuff consisted of green computer boards with all kinds of little semiconductor chips, colored humped-looking things, and round silver blobs on them. It was an undecipherable mass of clutter as far as I was concerned. But then, not too long ago, in that very room I found myself eyeing those little green boards with the same lust I reserve for a hot-fudge sundae with nuts and marshmallow sauce.

I also remember the first time my printer failed and produced all kinds of gobbledygook. I threw up my hands, babbled some unprintable words, and stormed into the technical editor's office to say, "Fix it! I can't stand it anymore!"

Once again, I muttered to myself while pacing his office and waiting for him to deal with my problem, my computer had come between me and what I want to do.

But something funny happened to me. The last time my printer burped up the same kind of gobbledygook, it didn't faze me. In fact, I took the cover off the printer, reached for my own small screwdriver (can you believe this?), and readjusted the DIP switches. And I didn't even think, until now, about what I had done. What's happening to me?

Here's the real clincher. The other night I was talking with my husband, a lawyer who has yet to allow a computer into his life, and I heard myself telling him about peeks, pokes, and pointers. I didn't notice what I was doing until I heard his otherworldly reply, "Oh, you mean pig in a poke?"

And I thought his response was weird! I remember the first time I heard about peeks, pokes, and pointers. My eyes glazed, I mumbled a few "uh, huhs," and changed the subject as soon as I could.

Programming, I thought—how could anyone want to spend time doing that when so many good applications are available?

But between you and me—and this is how I know I'm really getting weird—there's something about the Apple II that invites you to play with it: to interact on more than a nonpersonal level, to really find out what makes it tick. So here it comes—I'm going to type in a listing. I don't have any big reason for doing it, other than that I really want to see how it works and see if I can do it. And then once it's all in, maybe I'll change a few lines and see what happens. ■

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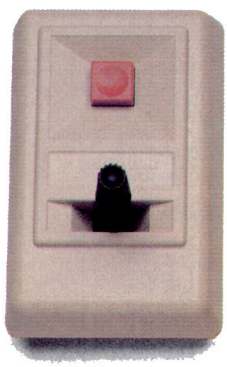

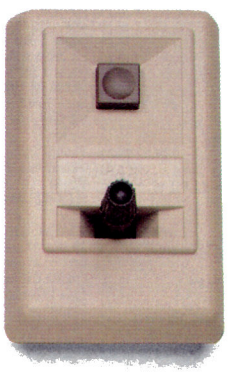

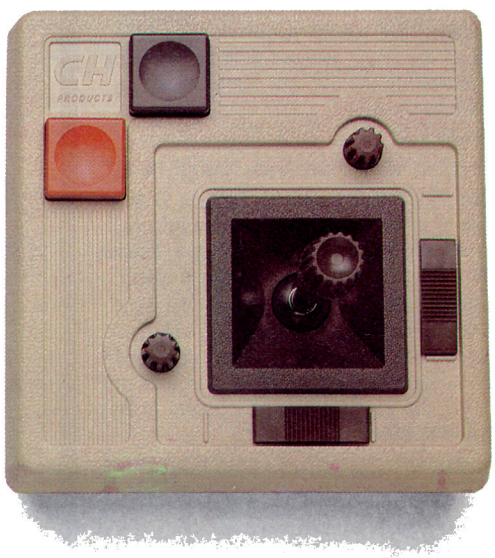

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LETTERS

Where's the Program?

I live in a small farming community that would make Peterborough look like New York. It often gets down to 45 degrees below zero, and our computers take a beating.

I'm the only person up here even resembling a hacker, and I wouldn't call myself that by any means. Your magazine and others are constant companions, since no one here talks about computers. *inCider* means a trip to town every month—some 120 miles away. (A subscription would rob my wife and me of the reason for going to town.)

So it's with great disappointment that I have to agree with the person who wrote in the last ATACC (Alberta Teachers Association Computer Council) newsletter that "the quality of *inCider* has slipped somewhat in the last little while." He pointed out that at one time there were many programs. Now there are virtually none.

We used to get interesting ways of dumping vectors, bizarre little two-liners (which are very useful teaching tools), and great games. *inCider* had its pulse on what we wanted. Now there seems to be some confusion.

I like *inCider* very much, but I think something can be done to enhance it and make it more useful to those of us who really enjoy reading it.

Jerome Cherry
Box 126
Worsley, Alberta
Canada T0H 3W0

BASICally Professional

I'm writing in response to advertisements for a Pascal language that frequently appear in your magazine and state in no uncertain terms that "professional software isn't written in BASIC." On the off chance that some of your readers might believe that statement, I'd like to contradict it.

I'm a research biochemist, and use computers in the laboratory extensively. Among the software I've recently purchased and find quite useful are Hi-Res Electronic Design, Scientific Plotter, GrafPak II, and QuickShape, all of which are written in BASIC. I also write my own programs in BASIC for statistical analysis of data, data capture, and plotting. Although I run programs written in everything from machine language to FORTRAN, BASIC programs are the most useful to me because they're the most interactive and the easiest to adapt to my lab's specific needs.

When you say something like "professional programs are not written in BASIC," you're creating a personal definition of "professional." I suspect most *inCider* readers realize that, but I wanted to provide some relevant facts on the subject.

Phillip W. Albro
808 Griffis Street
Cary, NC 27511

//c Portability

As small-business owners, my wife and I several years ago chose Apple //e's for our business needs. Needless to say, we've been very pleased with the hardware and software available.

Upon reading your article concerning Judy Collins (March 1986, p. 18), we identified with her in several ways. First, we're products of the 1960's and enjoy her music. Second, it's inconvenient not being able to use an Apple //c on the road to do research and communicate with our offices.

We purchased a //c with Apple's promise that it would be portable. After the $600 "lemon" LCD screen came out, I wrote Apple a letter concerning the portability of the //c, and even quoted *inCider*'s review of the LCD (June 1985, p. 95). I have yet to get any help from Apple in solving the portability situation to make the //c worth the price. *inCider* could help many of us by putting together an article on making the //c really portable—LCD screens, power packs, cases, and so on.

Thanks for your time and concern.

James R. Muir
1424 DeAnza Street
Barstow, CA 92311

Church Users

I'm a new subscriber to your magazine, and so far, I'm really enjoying it. We have two Apple computers we're using in our church.

I was wondering if you could help me get in touch with some kind of "church user group."

Howard Gwartney, Pastor
Central Free Will Baptist Church
3200 Blue Ridge Extension
Grandview, MO 64030

In doing the research for our September 1985 cover feature "Not for Hackers Only" (p. 16), our news editor didn't come across any church-related user groups. If any readers know of church-affiliated computer clubs, please contact Reverend Gwartney at the above address.—eds.

They're Enhanced

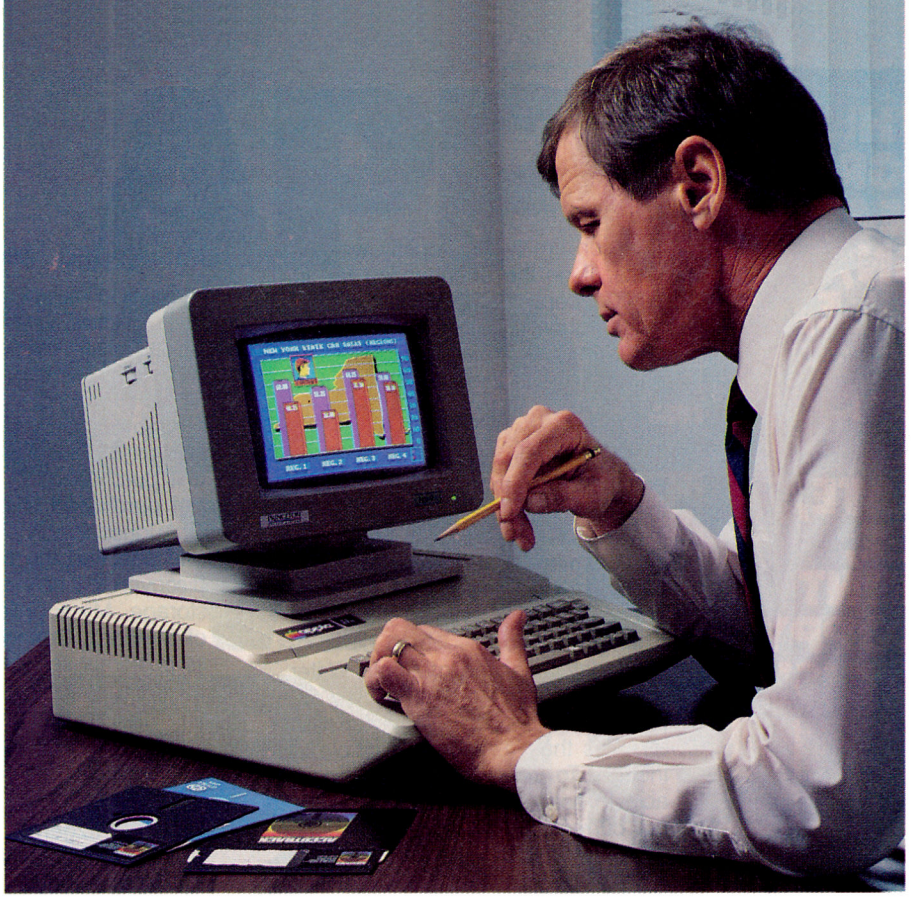
I'm confused. I've been a devoted Appler for many years, and I'm very happy with my //e at home. I teach writing courses at Towson State and was very pleased when the College of Education decided to go with Apple. We've recently added several new //e's, because everything we already had was Apple and therefore interchangeable. But the new //e's aren't really the same—they're enhanced.

The rude awakening came when the old Apple Writer wouldn't function on the new units. When I inquired at a local dealer's, he responded, "No problem. Just send the Apple Writer disk to Apple with $50 and they'll upgrade it." Huh? Fifty dollars? In the end I merely copied the new ProDOS Apple Writer, and we now use it with both units.

It was his follow-up comment that really bothered me. He said, "These new //e's are 'enhanced.' They think they're //c's." If I wanted //c's, I would have ordered //c's, but I didn't. Just what is this enhancement all about?

Some input from others, as well as Apple, would be greatly appreciated—especially now, when I'm feeling a little down. The "new" Apple //e may be enhanced, but I'm not.

William L. Gehring, Ph.D.
Towson State University
Towson, MD 21204



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12 Circle 247 on Reader Service Card.

LETTERS

When I'm typing rapidly with Apple Writer II on the unenhanced //e, it can't accept characters fast enough, and frequently skips. The machine can't read the keyboard letters fast enough to get them into the buffer. One solution is to use a faster chip, like the one in the enhanced version.

Apple Writer II doesn't work on the enhanced //e, though. When you load the program, goofy symbols appear in the text-editor display. When you type something in, it doesn't go to the end of the line on the monitor, but stops about an inch short.

A solution to this would be to get an updated version of Apple Writer compatible with the enhanced //e. We have more than 45 floppy disks of text files that must be accessible, though. To date, no one has been able to assure us that we can run our current text files on the enhanced //e with either this software or a newer version.

In the meantime, we're stuck with a machine and a system that has a very cumbersome feature. Help from any source would be greatly appreciated!

Peter S. Vail
9 Elysian Drive
Andover, MA 01810

Those "goofy symbols" you see on your enhanced //e or //c are called "mousetext" characters. They replace inverse capitals—like the text-editor display—in the newer Apple II's. They make it easier for II's to use a Mac-style display, but harder for you to use Apple Writer II and other early 80-column software.

You have several choices. First, you could ignore the mousetext. When Dawn Matthews, inCider's *managing editor, uses Apple Writer II on her //c, she "escapes" to a screen with no inverse characters in the text-editor bar, and goes on as before (although capital letters under the cursor will also be unrecognizable on screen). Or get the new ProDOS Apple Writer II and convert all your files—it's not difficult. (This is what Apple wants you to do.)*

You could buy a Franklin Ace 2000, which lets you enable and disable mousetext with a switch. Or, best of all, get a faster word processor, such as AppleWorks. —eds.

Mislabeled Megabytes

As a follow-up to your fine article on hard-disk drives ("Hard-Driving Disks," September 1985, p. 24), please issue this word of caution. The Apple ProFile comes in 5- and 10-megabyte versions, but the storage capacity is not clearly marked on the unit purchased.

I purchased a 10-megabyte ProFile in August. When I formatted the disk and checked the block allocation, I discovered I only had 5 megabytes of storage. My supplier, Programs Plus, of Stratford, Connecticut, admitted that its customer-service people couldn't tell the storage capacity of the disk, and had shipped me the wrong one. I've been waiting nearly two months for a replacement to arrive from Apple, via Programs Plus.

John F. Fitzgerald
Central Office Systems
11 Davis Avenue
Valhalla, NY 10595

Corrected Hint

Joseph Movich of LaVerne, California, correctly informed me that my "hint" on page 40 of the November *inCider* is incorrect in one particular. The problem with GET and Escape isn't that the escape key doesn't set the high bit, but that the 80-column-monitor routines preempt escape (unless you have a //c or an enhanced //e). Thus, in Listing 1, line 30040 is superfluous.

Dan G. McCartney
3010 Turner Avenue
Roslyn, PA 19001

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inCider *welcomes readers' comments regarding articles, letters, or other topics of interest. We reserve the right to edit letters for clarity, style, and space. Please address your correspondence to Letters,* inCider, *80 Pine Street, Peterborough, NH 03458.*

CORRECTION

The address of COMPUTER:applications, makers of II in a Mac emulation software, was printed incorrectly in our February 1986 issue (p. 12). The actual address is 12813 Lindley Drive, Raleigh, NC 27614.

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Apricorn Apricorn 64K Extend-It	89.00
Apricorn 16K Ramcard II+	68.00
AST Research MegaRamPlus	Call
SprintDisk	Call
Caribbean Computer	
Extend 80	78.00
Checkmate Technology	
Multiview 80/160	205.00
Multiram CX Cards	Call
65C816 CX Kit	Call
MultiRam / /e Cards	Call
MultiRam / /EX 65C816 Card	Call
Information Appliance SwyftCard	69.00
Legend Industries	
Legend E' Card *(64K to 1 MB)*	Call
Legend S' Card *(64K to 1 MB)*	Call
Micro Sci Micro Sci 80/64e	69.00
Micro Sci 80/256e	149.00
Microsoft	
Microsoft Softcard II	265.00
MTC MTC Speed Demon	159.00
Titan Industries Saturn 128K Ram	175.00
Neptune 80 Col. w/64K	185.00
Accelerator / /e	219.00
Videx Videx Videoterm w/SS Inv.	178.00
Videx Ultraterm	189.00

Multifunction Cards

AST Research Multi I/O Card	155.00
Checkmate Technology Gambit	Call
Prometheus VERSAcard	135.00
Quadram Multicore w/256K	295.00
Extended Multifunction Board	179.00
Street Electronics	
Business Card Parallel	155.00
Business Card Serial	135.00
Videx PSIO Dual Function Interface	135.00

Printer Interface Cards

Apple	
Apple Super Serial Card	109.00
Apricorn Apricord / /c	49.00
Super Serial Card	79.00
Interactive Structures	
Pkaso/U Interface	115.00
Orange Micro	
Serial Grappler Plus	75.00
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PrinterFace	49.00
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Print-It! (Parallel or Serial)	125.00
Thirdware	
Finger Print Plus II+ ,/ /e,/ /c	89.00

Clock/Calendar Peripherals

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TimeMaster H.O.	99.00
BSR Interface	39.00
/ / c System Clock	65.00
Practical Peripherals	
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Pro Dos Clock/Calendar Card	65.00
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Seiko Datagraph 2001 w/Time Trax	149.00
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Thunderware Thunderclock Plus	105.00

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Apple Mouse / /c	79.00
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Hayes Mach III Joystick	33.00
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Kraft Joystick	26.00
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ImageWriter Rainbow Pack (6 Colors)	27.00
Environmental Software: Apple Skins	
Apple / / c or / / e w/Monitor II Cover	19.00
Apple / / c w/Color Monitor Cover	21.00
Apple / / e Professional System Cover	23.00
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5¼" Blank Media	
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Elephant 5.25" SS/DD *(box of 10)*	10.95
Verbatim 5.25" SS/DD *(box of 10)*	12.50
Sony 5.25" SS/DD *(box of 10)*	12.50
Maxell 5.25" SS/DD *(box of 10)*	13.50
Nashua 5.25 SS/DD *(box of 10)*	12.50
Memorex 5.25" SS/DD *(box of 10)*	13.50
3M 5.25" SS/DD *(box of 10)*	16.95
Dysan 5.25" SS/DD *(box of 10)*	19.95
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Sony 3.5" DS/DD *(box of 10)*	31.00
Fuji 3.5" DS/DD *(box of 10)*	31.00
Verbatim DS/DD *(box of 10)*	31.00
Maxell 3.5" DS/DD *(box of 10)*	31.00
3M 3.5" DS/DD *(box of 10)*	31.00

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HR-35	665.00
TwinWriter 5	839.00
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DH45 Dual Head Printer	839.00
Citizen MSP-10 (160 cps)	245.00
MSP-15 (160 cps)	365.00
MSP-20 (200 cps)	335.00
MSP-25 (200 cps)	505.00
C.Itoh ProWriter 8510 SP Plus	329.00
ProWriter 1550 SP Plus	469.00
Epson	
AP-80 *(Imagewriter Compatible)*	Call
LX-80/90 Call For Most Recent Prices	209.00/259.00
FX-286	Call
DX-10/20	Call
JX-80	Call
LQ-800/1000/1500 Low! Low!	Call
SQ-2000	Call
Juki 6000 Par. or Ser.	179.00
6100 Par.	339.00
6200 Par.	509.00
6300 Par. or Ser.	649.00
NEC SpinWriter e.l.f. 360	379.00
SpinWriter 2030P (20 cps)	615.00
SpinWriter 3530P (35 cps)	975.00
PinWriter P2-2P (180 cps)	489.00
PinWriter P3-3P (180 cps)	689.00
Okidata Okimate 20 Color Printer	119.00
Microline 182P	209.00
Microline 183P	379.00
Microline 192P	339.00
Microline 193P	475.00
Microline 192 Apple	369.00
Microline 193 Apple	545.00
Panasonic KXP-1091	225.00
KXP-1092	345.00
KXP-1592	395.00
KXP-3131	245.00
KXP-3151	375.00
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P-341 Parallel Only	759.00
P-341 Parallel & Serial	789.00
P-351 Parallel	1025.00
P-351 Parallel/Serial	1025.00

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Apple UniDisk w/Controller	279.00
Apple UniDisk 3.5 w/Apple / / Utilities	359.00
Apple UniDisk 3.5 w/Catalyst	385.00
Apple Unidisk 3.5 Accessory Kit (II+ ,/ /e)	59.00
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MicroStor 10 MB Hard Disk Only	1249.00
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A5 Slimline / /c	159.00
Micro Sci C2 Controller	45.00
Mitac AD-1 Full Height / /e	139.00
AD-3C Slimline / /e or / /c	129.00
Pico Products	
Apple Half-Height II+,/ /e, / /c	139.00
Quark	
QC-10 Hard Disk / /e, / /c or Mac	819.00
QC-20 Hard Disk / /e, / /c or Mac	1139.00

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Video 300A 12" Amber Monitor	119.00
Color Monitor 300 (Composite)	209.00
Color Monitor 600 (RGB)	385.00
DVM III RGB Interface	119.00
Apple	
Color Monitor / /e	289.00
Color Monitor / /c	289.00
Panasonic	
TR120M1 Hi-Res Green	110.00
TR120MD Hi-Res Amber	110.00
DTS101 Dual Mode Color 10"	165.00
DTH103 10" Super Hi-Res RGB	369.00
DTM140 14" Super Hi-Res RGB	319.00
Princeton Graphics	
HX-9 9" RGB Color	389.00
HX-12 RGB 12" RGB Color	409.00
RGB-80 Interface	140.00
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SA-1000 Amber	115.00
SC-100 Composite Color	149.00
SC-200 RGB Color	379.00
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CVUE Flat-Panel Display / /c	389.00
Taxan	
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116 12" Hi-Res Amber	115.00
220 14" Composite Color	209.00
610 12" Hi-Res RGB Color (510x200)	345.00
620 12" Hi-Res RGB Color (640x200)	385.00
410-80/64 RGB-II Interface	169.00
Teknika	
MJ-22 RGB Color Monitor	289.00

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NEWS LINE

edited by *inCider* staff

Cheap Copies

You may have heard the term "site license," usually in a sentence that begins, "I wish software manufacturers would offer a . . . ." In the software industry, *site license* basically means a volume discount. It gives you the okay to make an agreed-upon number of copies of a software application for a price that's more than the cost of one application, but much less than the cost of each application if purchased at retail.

Site licenses are particularly of interest to businesses and schools, where one application may be used by as many as several hundred people. To get the required numbers, those applications are often copied illegally. When disks are copy-protected, far fewer are purchased than are actually needed. In both cases, everyone loses. But not very many software companies offer site-license agreements, and even fewer offer such agreements for education.

But a new product called LogoWriter, from Logo Computer Systems Inc. (LCSI), promises to make teachers honest again. For $395 a school can purchase the programmable word processor and make as many copies as needed in the classroom. For an extra $150, each student can take a copy home. And $99 a year brings updates and new products at no extra cost.

Each site license includes software for 64K Apple II's, Commodore 64's, and IBM PCjr's for one price. If the school changes brands later, or if Apple announces a customized 128K Apple II for schools, the school will get the program it needs at no extra charge.

The company "wants to create a partnership, an atmosphere of trust, between the educational-software industry and teachers," says William Nisen, marketing vice president of LCSI. To that end, LCSI also supplies LogoWriter package materials for teachers, a hotline for technical and educational support, a free bimonthly newsletter, and an open forum for teachers to publish original LogoWriter programs for payment.

Seymour Papert, chairman of LCSI and creator of the Logo language, has long called for "equity of access to powerful machines." With its straightforward plan to give schools the software they need, LCSI is trying to give children that access, Papert says.

No More Towers of Babel

Apple and 23 other high-tech companies, including IBM, Hewlett-Packard, DEC, and Wang, have banded together to form an industry organization called the Corporation for Open Systems (COS), which will push for telecommunications standards. Should the group agree on a standard, individual computer users will find they can connect to a greater variety of services than is now possible. They'll also be able to transmit data more easily and with fewer errors, according to Apple's director of data-communications development, Karl Kimball.

Kimball explains that vested-interest groups and regulatory agencies have produced variations on everything from document-interchange procedures to algorithms for encoding digital information.

"COS is an attempt by industry members to identify the most important standards, get behind them as a group, and bring them to ground zero," Kimball says. "Or in other words, to get standards everyone can agree on."

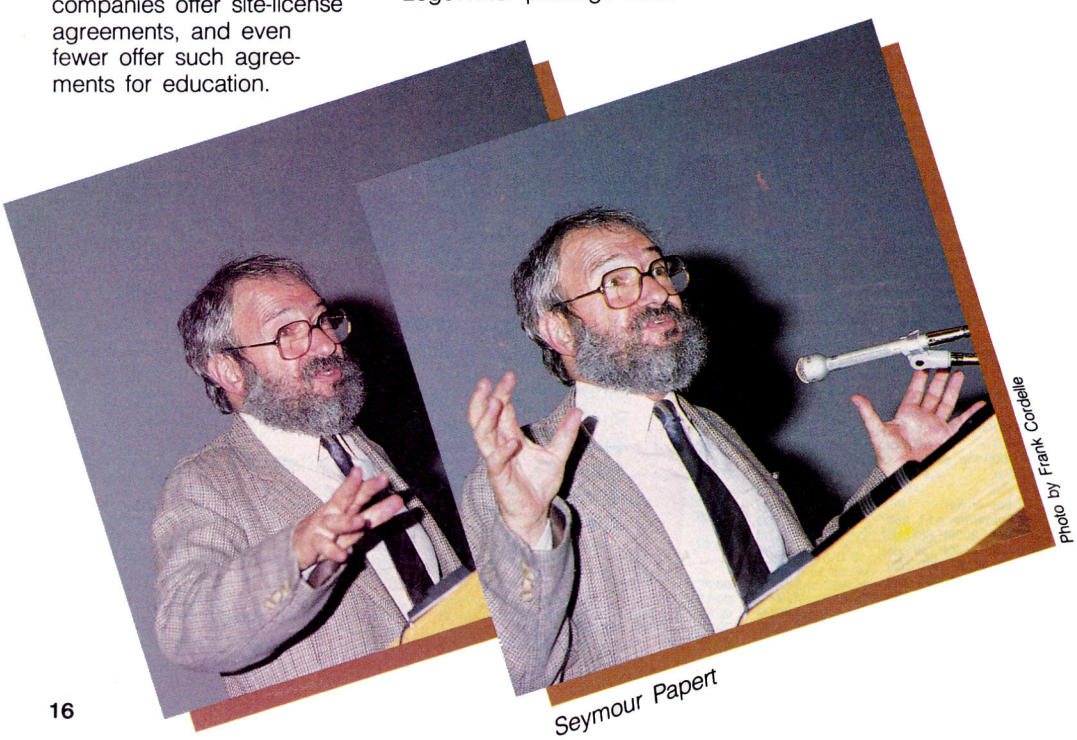


Photo by Frank Cordelle

Seymour Papert

Making 1200 Baud Obsolete?

When Pacific Bell releases a patent-pending technology next year, it may have a chilling effect on the sale of modems as we know them today.

The as-yet-unnamed communications product (code-named Project Victoria) will operate at 9600 baud, or eight times faster than a 1200-baud Hayes Smartmodem. It will also convert a single phone line to five data channels and two voice lines. That means a Pacific Bell box hooked up to a single phone line at home will give the personal-computer owner a dedicated data line to the outside world and four channels of communication for services such as fire-

and burglar-alarm systems, energy management, or paid-television selections. It will still leave two phone lines free for voice communication.

The price? Pacific Bell estimates the cost will be roughly equal to that of a quality 1200-baud modem. Gary Betty, vice president of sales for Hayes Microcomputer Products, of Norcross, Georgia, says the company isn't concerned about Project Victoria, though.

"Everyone's always predicting an end to the modem market, whether because of local-area networks, integrated systems, digital networks (ISDN), or modem servers," Betty says. "With only one out of four personal-computer owners currently using a modem, there's still a tremendous market opportunity for us. In fact, the Pacific Bell product may even be a stimulus for spurring sales for our modems, since the community of people involved in telecommunications will be increased."

Apple's Evangelist

They dined as a small, intimate group by candlelight at San Francisco's Maxwell Plum restaurant, danced to the Temptations at a gala party at the San Francisco Galleria, and met with key Apple executives, including Apple president John Sculley, to learn about programs and support from Apple.

They were a group of Apple computer users who were invited to attend the AppleWorld Expo and be part of the first Apple program arranged by its new Apple User Evangelist, Ellen Petry Leanse. The idea for a user-group evangelist actually came from users themselves. During a meeting with Apple last summer, users made their need clear: someone within Apple to represent the user.

Courtesy of Apple Computer, Inc.

Ellen Petry Leanse

Apple apparently thought it was a good idea, too, and appointed Ms. Leanse. "Her primary role is to be the Apple contact who funnels all the information from user groups and ensures good two-way communication," an Apple spokesperson says. Besides throwing a good party, Ms. Leanse is setting up an on-line user service based on AppleLink, which should be in operation soon. She has also appointed a User Group Advisory Council to keep her apprised of user needs.

And she wants to make sure she hears from all the user groups out there. If your group hasn't made contact yet, have your representative call (408) 973-2700 and ask for Ellen Petry Leanse, User Group Evangelist. (Yes, that's really what's printed on her business card.)

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.*

CALENDAR

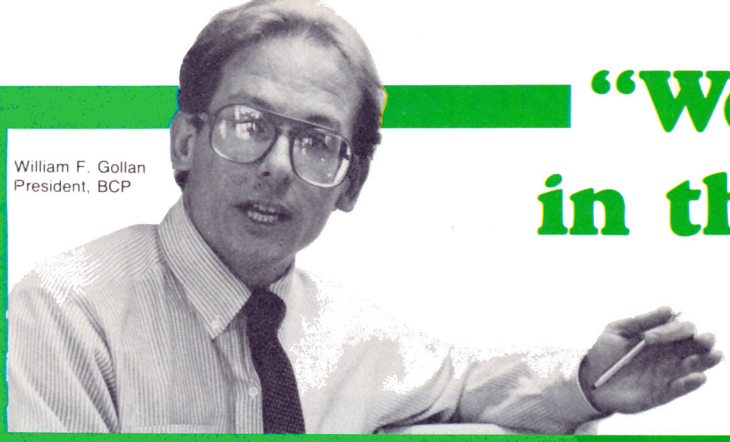
April 28–May 1
COMDEX/SPRING
Atlanta, GA
contact:
Linda M. Yogel
Linda Hanson
Interface Group
300 First Avenue
Needham, MA 02194
(617) 449-6600

May 3
BAY AREA COMPUTER SWAP
San Francisco, CA
contact:
Janet Maineri
MicroShows
1209 Donnelly Avenue
Suite 203
Burlingame, CA 94010
(415) 340-9114

May 8–10
Houston, TX

May 15–17
Minneapolis, MN
COMPUTER AND BUSINESS EQUIPMENT SHOWCASE
contact:
Interface Group
300 First Avenue
Needham, MA 02194
(617) 449-6600

May 11–15
COMPUTER GRAPHICS '86
Anaheim, CA
contact:
Linda Baker
Sheila Donoghue
National Computer Graphics Association
2722 Merrilee Drive
Suite 220
Fairfax, VA 22031
(703) 698-9600



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The Hardware

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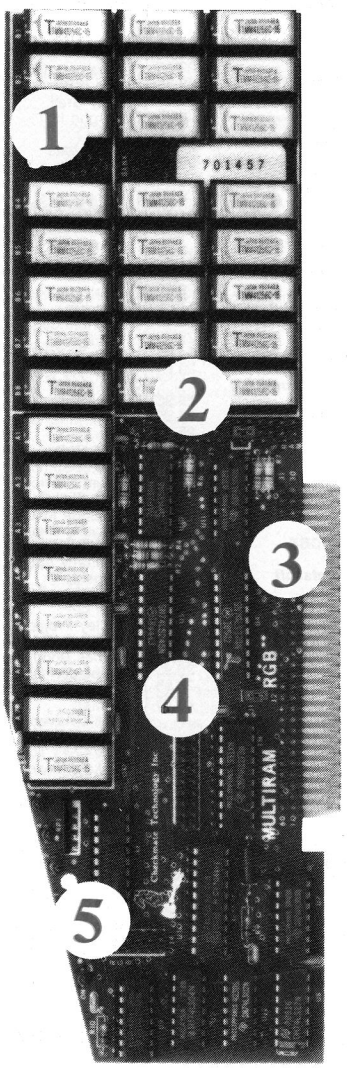

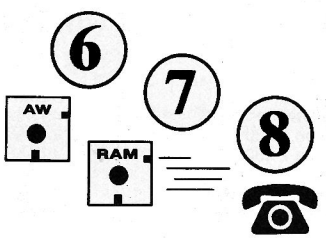

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6. ***AppleWorks expansion software*** is included with MultiRam™ RGB to expand AppleWorks from 55K to 3,034K, the largest Desktop available. AppleWorks expansion software lets you • automatically segment and save large files to floppy • load all or parts of AppleWorks into RAM (even printer routines) for supercharged speed • easily use a RAM disk along with an expanded Desktop to store Pinpoint and Jeeves accessories for immediate response • create databases of more than 5,300 records vs the ordinary 1,350 records • create word processor files over 5,300 lines (more than 100 pages) • and show date and time on screen with any ProDOS clock and enter them into databases with one keystroke. And we're adding new features all the time.

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Circle 227 on Reader Service Card.

APPLE CLINIC

by Jim Sather

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

Sams Computerfacts

I received some samples of Sams Computerfacts *for Apple-related equipment this month (see Ralph Olson, September 1985, and Dallis J. Christensen, February 1986, letters to Apple Clinic). I'm impressed. For years, Sams has been in the business of providing information on home electronic appliances to service technicians. All American TV technicians are familiar with Sams* Photofacts. Computerfacts *are* Photofacts *for computers and peripherals.*

A typical Computerfact *package is about 30 pages long, and contains schematics with test points and waveform pictures, location photos, IC pinouts, parts information, and alignment and checkout procedures for the equipment covered. They're excellent guides for technicians who need to repair unfamiliar equipment. As such, they would also be very useful to Apple Clinic readers who aren't technicians, but have some knowledge of electronics and want to attempt to repair their malfunctioning equipment.*

Computerfacts *aren't without weaknesses. For example, the Apple II/II Plus* Computerfact *poorly documents revisional differences, and provides waveforms and logic-probe tables only for RFI-revision Apples with Integer BASIC in ROM. The greatest strength of* Computerfacts *is that they often contain information that's unavailable elsewhere to the general public. Where else can you get a schematic of an ImageWriter printer?*

Computerfacts *are available for the Apple //e, //c, II/II Plus, Disk II drive, several printers and monitors, and a variety of other computing equipment. The Disk II* Computerfact *has alignment/test procedures for use with a Dysan alignment disk (not included). Write Sams (see the accompanying Product Information box) for a list of available* Computerfacts.

//e Enhancement and Peripherals

It's true that an Apple Super Serial interface isn't required for a printer to work with an enhanced Apple //e. Your statement that "any printer-interface card that works with the old Apple //e firmware will work in an enhanced Apple //e" (November 1985, p. 46) is incorrect, though.

My Gemini 15X printer and Tymac PPC interface card quit working with some programs when I enhanced my Apple //e. I called the Creative Peripherals Unlimited customer-service number, and the people there told me that others had experienced the same problems with that interface card. I installed an Apricorn interface card, and all programs printed perfectly.

The enhanced firmware is incompatible with my old interface card. Please advise others to check not only for software compatibility prior to enhancement, but also for compatibility with peripheral cards.

Stephen P. Dwyer
Fort Eustis, VA

I stand corrected. It's always possible that a change in Apple firmware will cause compatibility problems with some peripheral cards. Most older Apple //e cards, however, do work with the enhanced //e. Thanks for the information, Stephen.

Stuck with European Apple

I have an international Apple //e with a Rev A motherboard I can't get Apple to convert to Rev B. I'm in the Navy and bought the unit while stationed overseas. When I found out that Apple was upgrading all Rev A models to Rev B, I took mine to my Apple dealer, only to be told it couldn't be done, since its international guts were different.

This doesn't seem right to me, since I didn't know I had bought an irregular Apple. I even wrote a letter to the president of Apple, but received no reply. I want to get the revision so that I can install a 65C02 and use a color monitor (apparently the color signal is different on my Apple).

I've gotten nowhere with this problem and would appreciate any help you can give. Maybe Apple will at least talk to you.

J. Adcock
Monterey, CA

The Rev A/Rev B situation is a little different for European Apples than for American Apples. Briefly, you've got all the features on your Rev A European Apple that you'd get by converting an American Apple from Rev A to Rev B. In other words, you already have double high-resolution graphics capability. You don't need Rev B—you need an American Apple //e.

Conversion by Apple is out of the question. The Apple //e simply wasn't designed to be converted from European to American and vice versa. You can perform a limited conversion by installing an American IOU and 14.31818 MHz crystal on your motherboard. This will make your Apple scan at American TV frequencies, so you can use it with a transformer and American monochrome monitor. You can't drive an American color TV or monitor with your Rev A or Rev B European Apple, though. You might also get an unpleasant flickering effect if your Apple doesn't have the color/mono switch, which wasn't present on the earliest European Apples.

I'm sorry for this rather gloomy assessment of your situation, but your best solution is to sell the European machine and buy an American Apple. Perhaps one of inCider*'s many overseas readers will see this and make an offer. Maybe someone has the opposite problem and is interested in a swap. I'll be happy to forward any offers I receive.*

I hope other readers can benefit from Lt. Adcock's story. Americans temporarily overseas should buy American Apples and use them over there with a transformer and NTSC display device. Barring that, Americans should sell their European Apples overseas when they find they're returning to the States permanently. It's hard to switch over once you come home.

Incidentally, you don't need Rev B to install a 65C02. The 65C02 will work in any Apple //e purchased anywhere.

Descrambling Video

With the recent talk about scrambling almost all signals you can receive through a satellite down-station TV antenna, I was wondering if there's some way my Apple II Plus could act as a descrambling device. If it could, would you know where I could obtain a program for this?

Robert L. Rogers, Jr., M.D.
Lenoir, NC

I'm not an expert in satellite TV scrambling, but I'm pretty sure that no program can make the Apple descramble satellite TV signals. Video-signal scrambling/descrambling is accomplished in real time at speeds far exceeding the Apple's ability to sample and process. High-frequency signal processing is a job for fast analog circuits, not stored-program digital computers.

Video descrambling circuitry could be engineered to work in an Apple peripheral slot, and it's truly amazing what smart engineers can do with an Apple peripheral card. I know of no video-descrambling cards available for the Apple, though.

Whatever It Takes

In the December 1985 Apple Clinic, you advised David Swain (p. 102) to use printer code in the format PRINT CHR$(9);"GR". My DEC LA-34 printer doesn't respond to code in that format. Although it doesn't make sense to me, I have to write that statement as PRINT CHR$(9) + "GR". My printer commands don't work unless I build up the strings via plus-sign concatenation. I hope this information will be useful to other users.

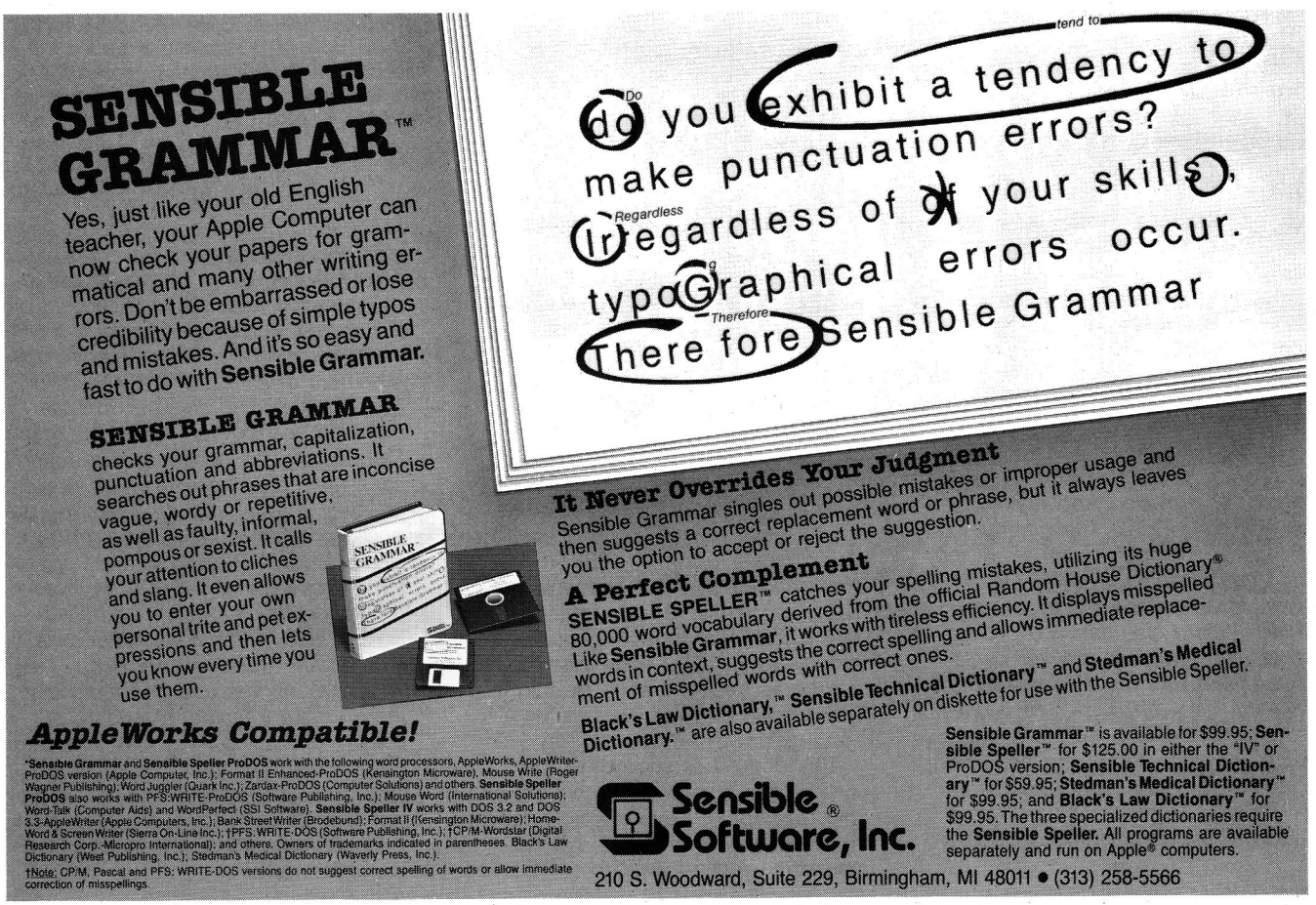
Raymond J. Schuerger, D.V.M.
Pittsburgh, PA

Your results make no sense to me, either, Raymond. PRINT CHR$(9); "GR", PRINT CHR$(9)"GR", and PRINT CHR$(9) + "GR" all make your computer send the same character string—$89 $C7 $D2 $8D—to the active character output driver (COUT). The only difference is a slight variation in time between characters. If your printer or interface card is sensitive to that variation, you probably have some sort of circuit malfunction.

Lots of things I don't understand work. If PRINT CHR$(9) + "GR" is necessary for correct operation of your interface card and printer, use it. I just want any reader out there who understands it to write and tell the rest of us why it works.

AppleWorks Printouts

I own an enhanced Apple //e, Apricorn Graphics Printer Interface, and Panasonic KX-P1091 printer. I use AppleWorks extensively in my day-to-day business activities. My problem is that every line of my AppleWorks printouts has a P at the far left. The Apricorn people sent me a new card, but the problem still exists. They think



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something's probably wrong with my printer.

Is this problem a function of the AppleWorks program? I'm afraid to buy new word-processing programs until I know what's happening. Can you please advise me as to the best course of action?

Arthur S. Connor, Jr.
Fort Riley, KS

Your letter shamed me into figuring out why my own KX-P1091-compatible printer was producing junk at the left margin with AppleWorks. AppleWorks doesn't do much for me personally, so it hadn't been worth the hassle. This is just my opinion, but I think the AppleWorks scheme of canned printer support really fails. It doesn't support enough printers, and doesn't support all the features of some models with which it's compatible (for example, italics and mid-line switching of character pitch). If the canned printer support is going to be so poor, I'd much rather use Apple Writer's embedded control characters for printing.

You didn't tell me the printer information you specified in AppleWorks. This is probably the cause of your problem. The following configuration works with the 1091. (Consult chapter 13 and Appendix B of your AppleWorks reference manual for details if you don't know how to specify printer information.)

Add a printer to the AppleWorks list, and specify the custom-printer option. Set the interface-card control string to whatever works with your interface card. Control-I-zero-N and "none" both work with my Grappler+. Try them with your Apricorn. The default control-I-80-N might also work. Type in the printer information in ***Table 1****, based on data from the 1091 reference manual. You can find control codes for other printers in their respective manuals.*

AppleWorks sends the current character-pitch control code at the beginning of every printed line. For this reason, the single-line double-width control code, control-N, is appropriate. This also explains why you get a P at the left side of each line. AppleWorks is sending incorrect character-width code for your printer at the beginning of each line, and the printer responds by producing a P.

Table 1. AppleWorks KX-P1091 custom-printer information.

Functions	Control Code
bold on/off	ESC,G/ESC,H
alternate bold (italics)	ESC,4/ESC,5
superscript on/off	ESC,S,0/ESC,T
subscript on/off	ESC,S,1/ESC,T
underline on/off	ESC,-,1/ESC,-,0
1/6-inch line space	ESC,2
1/8-inch line space	ESC,0
5 characters/inch	ESC,P,CTRL R,CTRL N
6 characters/inch	ESC,M,CTRL N
8 characters/inch	ESC,P,CTRL 0,CTRL N
10 characters/inch	ESC,P,CTRL R
12 characters/inch	ESC,M
17 characters/inch	ESC,P,CTRL 0

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MacroWorks streamlines AppleWorks word processing with a multitude of new features. For example, one quick keystroke now deletes the *character* or the *word* at the cursor.

```
Return to our office:

    Harvey R. Smith
    6502 Disk Drive
    Uptown, CA 92103
```

Macros let you type almost anything with just one keystroke.

Use one keystroke* to jump to the start or end of a line of text. Another keystroke will erase an entire line. Change your mind? Apple-U will instantly "Undo" your last delete command!

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MacroWorks will convert any series of keystrokes into a new one-keystroke AppleWorks command. Use MacroWorks' built-in macros, or define your own. For example, make Apple-N type your name and address. Or let Apple-X Save or Print *all* of your desktop files, nonstop.

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The possibilities are endless. For example, you may want to skip unwanted questions like *"How many copies?"* and *"Are you sure...?"*. Or search and replace printer commands (change all underlined words to bold, etc.).

** These are Solid-Apple commands. All original commands stay intact.*

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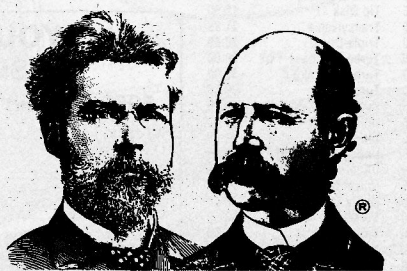

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MacroWorks' *File Analyzer* program prints a sorted list of every word it finds, and reports the number of occurrences of each word, and the average word length. Great for making an index or glossary, or for analyzing your writing style.

```
COUNT WORD
----- ----------
10    A
1     ADDRESS
1     ADDRESSES
6     ALL
1     ALMOST
1     ALWAYS
```

```
1     WORK
1     WRITING
9     YOU
1     YOU'VE
8     YOUR
----------------
TOTAL WORDS: 402
CHARACTERS : 2013
CHARS/WORD : 5.0
```

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Table 2. Epson FX to KX-P1091 AppleWorks patch.

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$28F2	1B 70 31	12 1B 6F
$28F6	1B 70 30 12 1B 50 0E	1B 50 12 0E 0E 0E 0E
$28FE	1B 70 30 12 1B 4D 0E	1B 4D 0E 0E 0E 0E 0E
$2906	1B 70 30 1B 50 0F 0E	1B 50 0F 0E 0E 0E 0E
$290E	1B 70 30 12 1B 50	1B 50 12 12 12 12
$2915	1B 70 30 12 1B 4D	1B 4D 12 12 12 12
$291C	1B 70 30 1B 50 0F	1B 50 0F 0F 0F 0F

*SEG.PR file BLOADed to $2000

AppleWorks doesn't let you specify proportional-print on/off for custom printers, so you can't use that feature of your 1091 with unmodified AppleWorks. This rankled me, so I worked out a patch to the AppleWorks Epson FX control codes to make them work with the 1091. This patch lets you add an Epson FX to the AppleWorks printer list, then achieve proportional print on your 1091.

To make the patch, install a copy of your AppleWorks program disk in one drive. Type BLOAD SEG.PR, A$2000,TSYS to load the configuration file. Enter the Monitor and make the changes detailed in ***Table 2****. Type BSAVE SEG.PR,A$2000,L$E56, TSYS to save the patched file.*

Table 3. Code locations for AppleWorks-menu printers.

Printer	Location
Apple DMP, ImageWriter	$2446
Apple Scribe	$2542
Apple, Sprint 11 daisy	$25F1
Qume, Sprint 5 daisy	$27B5
Epson FX	$28CD
Epson MX	$29AA
Epson MX with Graftrax	$2A4A
Epson RX	$2B02
custom printer	$2BCA

The margin computations for proportional printouts are all messed up when you use the patched Epson FX codes with a 1091. Through experimentation, I worked out the following method of setting margins. Where DLS equals desired left margin and DRM equals desired right margin, set RM to zero, LM to (DLM × 2.2) − .5, and PW to DLM − DRM + 10.3. This is clearly a nuisance, but the proportional print looks great.

Other readers may want to examine the canned AppleWorks printer codes to see why they've been getting unexpected results in their printouts. I've located the control code for the other AppleWorks-menu printers. It's stored sequentially as strings of code preceded by their lengths. For example, $02 $1B $4D is the 2-byte control string $1B $4D (ESCAPE-M). ***Table 3*** *shows the code locations when SEG.PR is BLOADed to $2000. Note that models with proportional-print capability (the first five) precede those without (the last four).*

There's no control-code table for Apple Silentype features, since the Silentype has no features AppleWorks uses. This provides a quick solution for someone who wants a uniform character-pitch printout with an unsupported printer: Just add the printer to the list as a Silentype. No control codes will be sent, so all features of the printer will be left as is, and no garbage will be printed at the left margin.■

Product Information

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Howard W. Sams & Co.
P.O. Box 7099
Indianapolis, IN 46206
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Reader Service Number 349

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SYSTEM REQUIREMENTS - The **quikLoader** will work in an APPLE][,][+, or //e. If used in a][or][+, a slightly modified 16K memory card is highly recommended in slot Ø. A disk drive is required to save data.

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DOS 3.3, Integer BASIC, FID, and COPYA are copyrighted programs of APPLE COMPUTER, INC. licensed to Southern California Research Group to distribute for use only in combination with quikLoader.

PROmGRAMER™

Designed by Bob Brice•Software by Bob Sander-Cederlof

The PROmGRAMER is an inexpensive **EPROM** (**E**rasable **P**rogrammable **R**ead **O**nly **M**emory) programmer for the **APPLE**][,][+, and //e computers. The unit plugs into any slot of the computer, and allows the user to program any standard 5 volt, 27 series **EPROM.** The ZIF (zero-insertion force) socket allows rapid programming, copying, duplication, or modification of **EPROM**s.

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Designed by Chuck Shaffer

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Designed by Mark Hansen

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FOR APPLE][AND][+ ONLY

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//c KEYPAD kit

This kit gives you an "embedded" keypad within your built-in keyboard. You may instantly switch between the keypad or the standard keyboard. CAUTION – Requires expert soldering ability, and disassembly of the computer. Estimated installation time - about one hour. Comes with step-by-stp instructions, new keyboard PROM, solder, socket, and a set of decals for the keycaps. **$29.95**

BOOKS BY JIM SATHER

Understanding the APPLE][- The definitive source of information about how the APPLE][works. Forword by Steve Wozniak. $22.95

Understanding the APPLE //e - The companion volume to "Understanding the APPLE][". Covers the additional information needed to know details of the hardware of the computer $24.95

"***Understanding the Apple** //e leaves no stone unturned in the search into the inner workings of the Apple //e computer*" – **Steve Wozniak**

SWITCH-A-SLOT

Designed by Joy George

The **SWITCH-A-SLOT** is an expansion chassis, which allows the user to plug in up to four peripheral cards in one slot. One of these cards is selected for use, and *only* that card draws power.

This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers. **$179.50**

SWITCH-A-SLOT and **EXTEND-A-SLOT** work well with most slow to medium speed cards, such as modems, printers, clock, music, etc. They are not recommended for high speed data transfer devices such as disk drive controllers, alternate processor, and memory cards.
Due to the nature of these products, and unit-to-unit variations of computers and peripherals, we are unable to guarantee that these products will work with any particular system. However, as with all our products, we offer a ten-day trial period. If our product does not operate to your satisfaction, return it for a prompt refund.

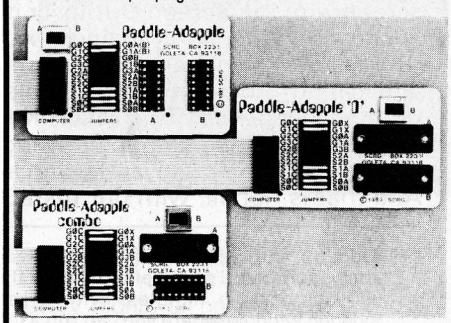
EXTEND-A-SLOT

The **EXTEND-A-SLOT** brings a slot outside your APPLE™, allowing an easy change of cards. The 18" (45cm) cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability. **$34.95**

Paddle-Adapple

The **PADDLE-ADAPPLE** is a game plug expansion adapter that plugs into the interior game I/O socket, and is designed to operate in one of two modes. In the first, it allows you select between one of two devices, such as Koala Pad™ and joystick. The device is selected by the flip of a switch. In the second mode, the **PADDLE- ADAPPLE**, with appropriate software, allows the use of two joysticks simultaneously.

The are three versions to adapt to any combination of the newer type APPLE connector (the 9-pin D sub-miniature), or the older 16-pin plug.



- The **PADDLE-ADAPPLE** has two 16-pin sockets.
- The **PADDLE-ADAPPLE 'D'** has two subminiature 'D' (9-pin) connectors.
- The **PADDLE-ADAPPLE COMBO** has one 'D' subminiature and one 16-pin connector.

$29.95

9-16 Adapter

for APPLE //e & //c

The 9-16 adapter permits the use of most 16-pin I/O devices with the APPLE //e or //c. Plugging this adapter into the subminiature 'D' connector allows the use of 16-pin device, such as the **PADDLE-ADAPPLE**, paddles, joystick, 16 pin Koala Pad™, etc. The only limitations are those devices that use the annunciators or the $CØ4Ø strobe. **NOTE**–the //c does not support the simultaneous use of two joysticks. **$14.95**

16-9 Adapter

for APPLE][and][+

With this adapter, owners of early APPLEs can take advantage of the newer 9-pin game products, such as paddles, joysticks, **MUPPET LEARNING KEYS**™, etc. **NOTE** – If you have more than one game I/O device, consider purchasing our **PADDLE-ADAPPLE COMBO** or **PADDLE-ADAPPLE 'D'** instead. **$14.95**

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★ SideJob ★ MacroKey ★ InstaDOS ★ Screen Dumps ★ Copy Program ★ Clock

EasyCard is a peripheral card for Apple II+ and IIe that allows you to suspend execution of any application program. At that point you can run any of the EasyCard software systems; you can organize your desk with the **SideJob**, print the content of the screen with the **Screen Dump** or make a copy of the application program in memory with the **Copy Program**. And when you are done, return back to your application program with a single keystroke, as if nothing happened. The **MacroKey** system allows you to assign long character strings to a single key and play these back any time with a single keystroke. And that is not all; with our **InstaDOS** system you can load DOS 3.3 or ProDOS without ever reaching for a diskette. On board **Clock** is of course DOS/ProDOS compatible.

All of the EasyCard software systems are resident in the card; so there are no diskettes to load. Future additions to the EasyCard software family will be available on simple to install EPROM's. Unlike the so called "enhancers" the EasyCard does not steal any Apple's memory from your application programs. **The *EasyCard* hardware and software is compatible with all 6502/65C02 application programs. Absolutely no modification is needed for your software.**

★ **SideJob** is to Apple what SideKick is to IBM PC. Modeled after the Borland's top seller of 1985 the SideJob will clean-up your desk in minutes. With a keystroke get into the SideJob window where you can run a Calculator with numerical and logical functions, jot down notes on a Note Pad, glance at the ASCII Table or do decimal-hex-binary conversions. When you are done, single keystroke gets you back to your application program as if nothing happened.

★ **MacroKey** is a perfect solution to repetitive typing of lengthy character strings. Just assign strings of characters to keys of your choice and everytime you press these again while holding EasyCard's secret key the strings will be typed in automatically. To all application programs this will appear as if typed by you. Now that's artificial intelligence working for you!

★ **InstaDOS** is like having DOS 3.3 or ProDOS built directly into your Apple. Now you can store each of these utilities in the EasyCard memory and download them without ever using the diskettes again. What a time saver!

★ **Screen Dump** will give you a hard copy of what is on the screen. Exactly as you see it and any time you want it! Prints text, HI and DOUBLE HI RES graphics or mixed displays at a push of a button. Can even blow-up graphics to twice the size! Compatible with most popular printers and interface cards. Unlike other screen dump software or cards this system works also on protected programs.

★ **Copy Program** is an extensive utility software package. It allows you to make backup copies of all (including protected!) memory resident programs of up to 128k at a push of a button. Copying time is less than 30 seconds. The copy produced is unprotected and subject to study or change. Special software included allows the copy to run without the EasyCard in the Apple. Other functions can be used to single step and trace through any program.

★ **Clock** is of course ProDOS compatible. But now you can also check the time/date while in the middle of any application program. That is something no other clock can do!

Pricing Information: *EasyCard* board without any software: $119.99; for each software system add $29.99. Buy packaged sets and save: Starter Set with the board, the Copy Program, Screen Dumps and SideJob: $159.96 (save $50); Advanced Set with all six systems: $219.93 (save $80). Add $5.00 for shipping and handling. Calif. residents please add 6% (L.A. County 6.5%) Calif. Sales Tax. Please specify computer, printer and interface card when ordering.

ATL's *EasyCard* . . .

don't use your Apple without it!

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Circle 243 on Reader Service Card.

REVIEWS

Managing Your Money, ProModem 300c, Let's Talk, Viewtron, GEnie, BetterWorking Word Processor with Spellchecker, Echo Plus

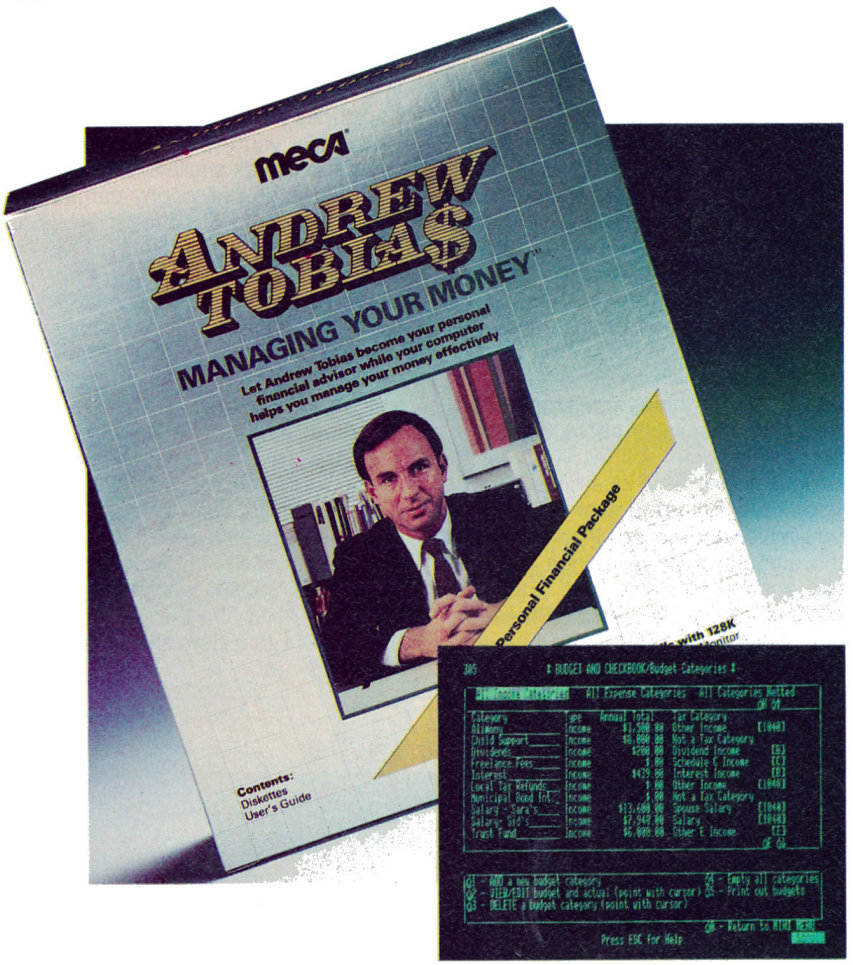
Cash Cruncher

MANAGING YOUR MONEY

MECA, 285 Riverside Avenue, Westport, CT 06880

Home-finance software; Apple //c or 128K //e, two drives
$199.95

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



The best thing about Managing Your Money, MECA's home-finance tracking system, is that any of these programs automatically sends data to each of the others. When you write a check for health insurance, for example, the package subtracts the amount from your checkbook, tags it as deductible from your income tax, enters it into your budget in the right place, and even deducts it from your net worth.

Managing Your Money prints checks (an easy process) and lets you type in information from handwritten checks, cash transactions, credit-card charges, payments, interest, and so on.

Through all phases of the program, you control the amount of detail with which you want to work. If you want to lump all your travel expenses into one category, that's fine. If you want to separate business and personal travel, that's also fine. In addition, you can itemize your trips by airline, month, type (including deductible or not), or any other feature.

Getting Started

The manual accompanying Managing Your Money is 110 pages long, but you can skim through it and use the program without much further reference. The program is filled with help screens you can call up with the escape key. All screens sport a window format—one for instructions and one for data entry.

Managing Your Money checks your system each time you start it. If you've installed an Apple II Memory Expansion card, you have, in effect, a RAM disk. The program takes advantage of this by letting you work with detailed "what-if" scenarios that don't affect your real data.

The program also supports the new Apple UniDisk 3.5. The entire package fits on a single disk, and works with either one microfloppy-disk drive and a standard 5¼-inch drive, or two microfloppies.

The first time you use Managing Your Money, it leads you through an easy set-up procedure, taking into account the right number and type of data disks you'll need. The program comes on three double-sided, non-copy-protected floppies. Sample data on disk help you get the feel of the program, but they're easy to remove from your files when you're ready to type in your own information.

The program includes a memo pad to note upcoming events (mortgage payment due or Aunt Millie's birthday) and an automatic reminder to jog your memory a few days in advance. These memos can be repeating (every month or once a year, for instance), or just one-time reminders.

Basics and Extras

The heart of Managing Your Money is the budget and checkbook section, in which you list in detail what you expect to collect and spend, then record what actually happens to the cash you take in and send out. You always know where you stand financially.

As with any recordkeeping system, the key to Managing Your Money is that you actually have to sit down and put the figures into your Apple.

inCider's Ratings

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

This program makes the whole process easy—even fun sometimes. (Error messages, for example, are gentle reminders that give you a chuckle as you correct your mistakes.)

The package includes a tax estimator that gives you a pretty close idea of what you'll owe for federal and state income taxes, based on what you earned and the types of deductions you can take. It's very easy to update the program's tax tables whenever Congress and the IRS fiddle with the tax laws.

There's a section on insurance that gives advice (which you may or may not like) on which types to buy and where to buy them. You type in your age and other facts about your life, and the program will tell you your life expectancy. It asks questions about your lifestyle, the number of children you have, and so on, then calculates the amount of life insurance you need (the answer will startle you). It also records and organizes your policies.

Managing Your Money includes a financial calculator that's definitely unlike the one on your desk. It lets you talk to your computer in nonfinancial terms, simply by filling in blanks on your screen. This part of the program also includes powerful analysis worksheets that help you evaluate real-estate investments, tax shelters, and so on.

The same philosophy carries over into the portfolio manager, which is much more than a place to record the shares of stock you own. It helps you decide what you should do—if anything—with your investments by examining your tax situation under different conditions, even to the point of tracking hypothetical portfolios.

All of this comes together in one place, when Managing Your Money calculates your net worth. As with most parts of this package, you can ask for as much detail as you want. If you want to list household furnishings that total $5000, that's what the program will do. On the other hand, if you want to record the value of your TV set, the cost of your stereo, how much cash you've invested in computer hardware and software, or whatever, the package will track each detail for you. If you do go to the trouble of providing the program with a complete household record, it gives you a terrific list for insurance purposes.

At the end of each year, the system automatically creates disks for your archival data, and formats new data disks for the upcoming period.

All sections of Managing Your Money let you store your data and analyze your financial information. And while you may not have an IRA account, stocks, rental property, or tax-deferred bonds right now, the program contains information about these matters for a time when you may need it. You'll never outgrow this program.

I Wish. . .

Managing Your Money would be improved if it let you use a slot besides slot 1 for your printer. If you ask to print when the printer isn't connected or turned on, the program just stops without letting you know the nature of the problem.

While the manual should get extra credit for its simplicity, it isn't perfect. For instance, in the Net Worth chapter, one menu selection lets you "delete all non-extract items below Assets and Liabilities." When you choose this option, you get an on-screen warning: "Please verify your decision to purge Net Worth. Only Net Worth, Assets, Liabilities, and Extractible items will remain."

I didn't understand that when I first read it. Neither "extract" nor "extractible" nor "purge" is in the manual's glossary. Fortunately, pressing the escape key brings up help screens that clarify these items, but the details should be described in the manual, too.

I'd also like to see graphs to examine financial data. Too often, all those numbers are hard to understand. A picture of your figures tells you exactly what's happening.

The Bottom Line

Managing Your Money has been touted as a reason to own a personal computer. Is it that good? A certain amount of effort is required to type in your data, and you must maintain it on a regular basis. (If you forget where you spent some of your cash, the results will be meaningless.) But if you're willing to invest some time in your own financial interest, Managing Your Money can pay for your com-

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Backup utilities are also available for the IBM, Macintosh and Commodore 64/128.

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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."
—*inCider*

"Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks. . . I like the product so much that I am buying one for my own system."
—*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."
—*inCider*

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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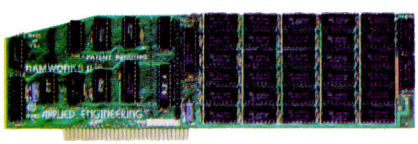

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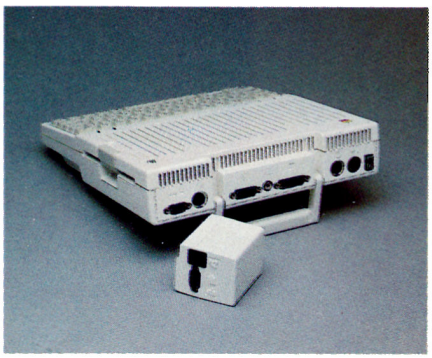
puter the first year you use it, just by letting you experiment with the system's "what-if" capabilities. ■

Gregory Glau
Prescott, AZ

Editor's note: Nancy Lepper of MECA reports that the company is in the process of sending updated program disks free of charge to all registered owners of Managing Your Money. The printer problem has been remedied, and the new version also sports increased speed and RamWorks compatibility.



The Easy Connection

PROMODEM 300C

Prometheus Products, 4545 Cushing Parkway, Fremont, CA 94538

Direct-connect external modem; Apple //c
$119

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

If you've been putting off buying a modem for your Apple //c, wait no longer. The ProModem 300c is styled specifically for the //c, offers practically every feature you could ask for, and carries a remarkably low price tag.

Simple and Portable

When you open the package, you find the smartly designed ProModem 300c itself, two floppy disks with the copyable ProCom-A communications software, and a spiral-bound *Installation and Instruction* manual.

The ProModem 300c is cube-shaped, color-matched to the //c, and about 3 inches on each side. It connects directly to the modem and game-controller ports near the right rear corner of the Apple //c.

What happens if you want to play a game? No problem. The ProModem 300c includes a game-controller port, thereby "moving" it to the right side of the //c (see the accompanying photo), so attaching a joystick or mouse is easier than ever. Above this "transported" port is the RJ-11 port for connecting your telephone.

I installed the ProModem 300c in a matter of minutes—seconds, actually—even without reading the manual. Like the //c itself, the ProModem 300c is inserted directly into a jack via a phone cord, so if you want to use it without unplugging the phone, you have to purchase a T-adapter from your local electronics or hardware store.

Unlike the Apple Personal Modem and other modems, the ProModem 300c draws its power from the //c, and therefore requires no separate power source, and no power cord to clutter up your workspace. The modem's compact shape, method of attachment, and low-power CMOS circuitry make the ProModem 300c perhaps the only transportable modem for the //c.

Like many higher-priced modems, the ProModem can automatically dial The Source, Dow Jones, or your buddy's computer on the other side of town. If you want to receive an important message when you're not home, your ProModem 300c can answer the phone for you. Because human callers will hear a deafening, high-pitched tone when your modem picks up the phone, it's best to have a phone line specifically for your computer in this situation.

The ProModem 300c has a built-in speaker, so you can hear the dialing process. It distinguishes between touch-tone and pulse phone lines, and automatically adjusts itself accordingly. What if the phone on the other end is busy? Just relax while the ProModem redials the number as often as you like.

Software Operation

The ProModem 300c is Hayes-compatible, an attribute that has become an important standard for communications products. You can boot up your favorite Hayes-compatible software and use the standard Hayes commands. Or, even better, you can try ProCom-A and let your fingers do the walking.

ProCom-A gives you a built-in electronic telephone directory in which

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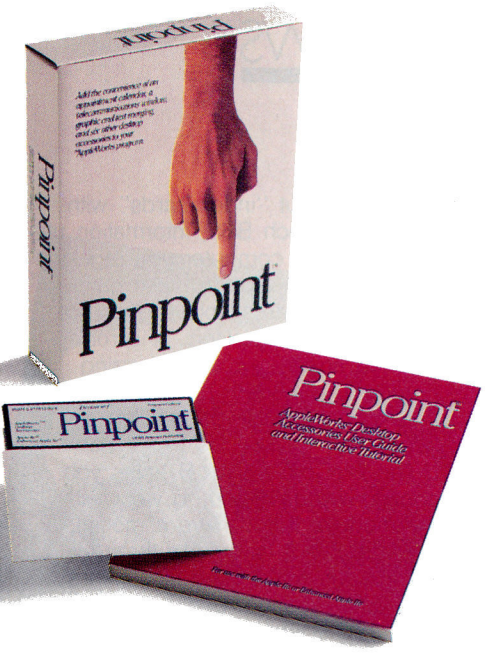
Michael Fischer, Columnist, Bay Area Computer Currents.
Author, 65816 Assembly Language Programming, 1986, Osborne McGraw-Hill.



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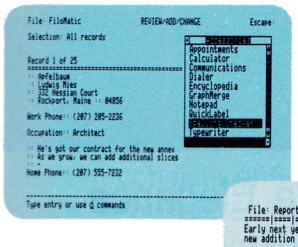

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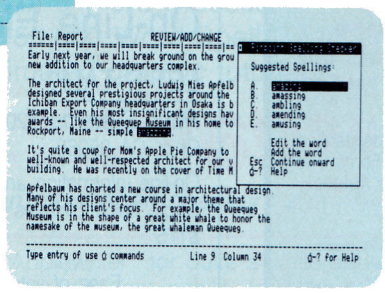

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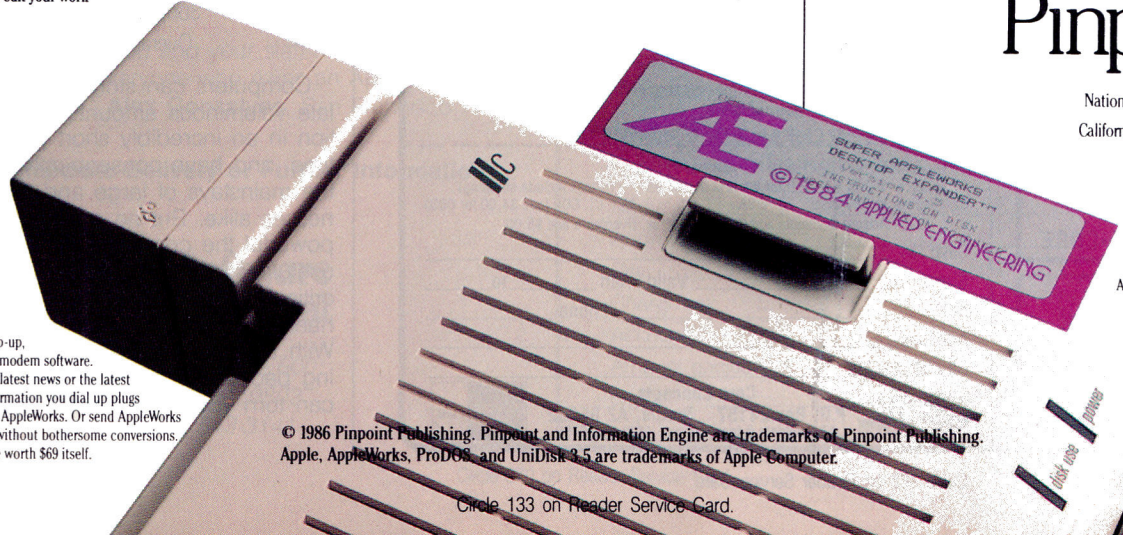

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you can fill out "index cards" with data about each BBS, information utility, or friend's computer you regularly call. Once you type in these notes, logging on is as simple as moving the mouse and clicking, or scrolling with the arrow keys and pressing Return. The modem takes over and automatically dials—and redials if necessary.

The ProCom-A Disk B helps you configure your system to work with the modem. If you have a mouse, you can use it to browse through menus and make selections with a click of the button. Each submenu looks like a tabbed index card on screen. To move back to the previous menu, simply press the escape key.

Using ProCom-A for sending electronic mail is a snap. You can use the built-in word processor or your favorite ProDOS word processor. Once your file is in memory (ProCom-A recognizes Apple's UniDisk 3.5 as a storage drive), you direct the modem to dial a BBS or your editor and send the document.

You can upload (transmit) a file in a couple of different ways. You can use Xmodem protocol, which sends one block of data at a time, and checks to see that each was received intact. Or you can send a file without error checking.

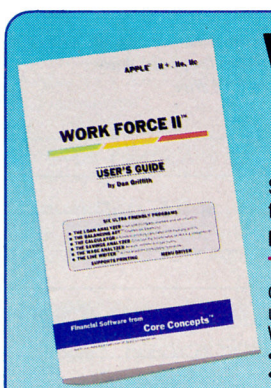
Downloading (receiving a file) is even easier than uploading. You can view incoming data on screen—for instance, when you're browsing on CompuServe or trying your hand at your local BBS trivia quiz. You can direct incoming data to the ProCom-A word processor, your disk drive, or printer. These options can save you money because they reduce the amount of connect time—not to mention AT&T time—you're on line.

Though the ProModem 300c and ProCom-A software are quality products, the Prometheus documentation leaves a lot to be desired. The print size is so tiny you tend to avoid reading the manual. When you do, you won't find any index. And the message on page A-4, "put Figure 4-1 from 1200A manual here," tells us that some "error checking" is needed.

The ProModem 300c with ProCom-A software is reasonably priced compared to other modems, including the Apple Personal Modem (300/1200-baud, $399). It may be the modem of choice for users needing a transportable, Hayes-compatible, full-featured modem with advanced communications software. ■

Cynthia E. Field
Wakefield, RI

Editor's note: Tom McShane of Prometheus Products apologizes for the difficulty readers are having with the ProModem 300c manual: "We'll set the next version in a larger type size."



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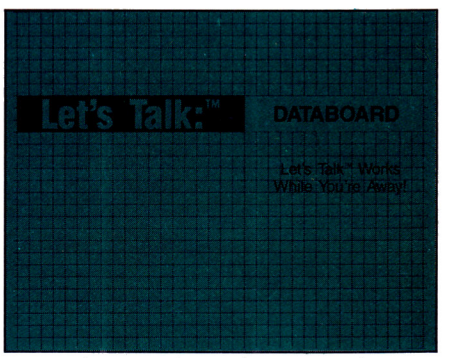

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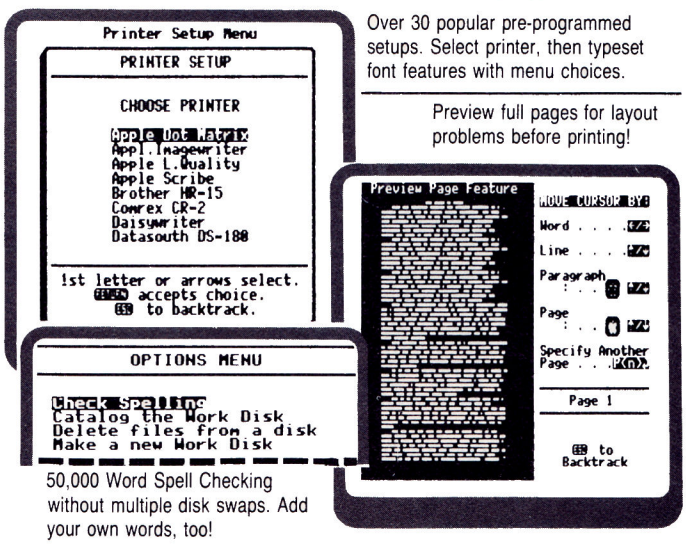

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cated information-exchange system to help you stay a step ahead of the competition.

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In This Corner. . .

The presentation disk is the heart of the Let's Talk system, since on this disk you place the menus and information that will be available to people who call your bulletin board. The presentation disk also reveals the simplicity—and elegance—of the Let's Talk system. Its on-line menus are nothing more than ProDOS directory files, while your information is contained in ASCII text files.

Setting up a logical, orderly on-line system is easy with Let's Talk. You don't get bogged down in the details of your telecommunications system. You devote your time to ensuring the quality of the information you present.

The volume directory of the presentation disk is the main menu of your on-line system. It contains four directories: Introduction, Public.Access, Private.Access, and Quit. A first-time caller can choose Introduction to get a feel for how the system works. Public.Access leads to the menus and information files you want to make available to anyone who calls the system. For example, you can list product information here for potential customers and take their orders on line. Public.Access is generally used as a gateway to nonconfidential information.

Private.Access leads to menus and files containing confidential data. For instance, you could use it to give your sales force updated information on pricing and availability, or to handle private messages. You would normally password-protect the Private.Access directory, and with Let's Talk, that's easy.

Talk Back

Besides presenting information, you can use Let's Talk to gather data—customer orders, user feedback, electronic mail, and the like. Let's Talk lets you insert prompts into your text files that direct callers to leave data on the system. You control whether the information one caller leaves will be available to others. You also control the attributes of each file in the presentation: Some files will accept input from callers, others are strictly read-only.

In addition to straight ASCII text transfers, Let's Talk supports Xmodem file transfer. Using this error-checking protocol is critical to the safe transmission of important information.

One Let's Talk utility may be worth the price of the entire package. Indenting lets you see the structure of your on-line presentation by displaying the names of all the directories and text files on the presentation disk. It shows the relationship between directories and files. This utility would be perfect for hard-disk users.

Practically Speaking

To try out Let's Talk, I set up a presentation for *inCider* authors. In

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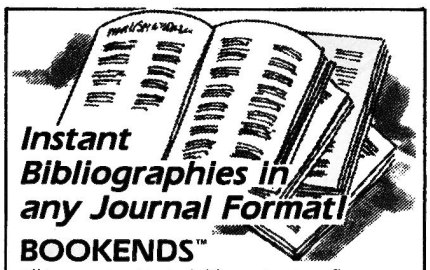

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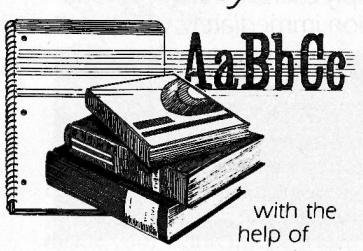

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REVIEWS

the Public.Access section, I let callers view our editorial calendar for 1986, check our authors' guidelines, and leave queries for the editors. In the Private.Access section, I set up mailboxes for editors and frequent contributors. We asked a few *inCider* regulars to submit their columns and features via Let's Talk.

Since the system was running on a borrowed modem, it was up for only about three weeks (and only at night). Response was favorable, though. Authors especially liked not having to play "telephone tag" with editors—Let's Talk saved them time and aggravation. It also provided a fast, easy way to get their manuscripts into the hands of the editorial staff.

Let's Talk worked without a hitch. It proved to be much more flexible and convenient than a mere bulletin-board system. And from the operator's point of view, Let's Talk is easy to maintain. It gives people who aren't experts in telecommunications the opportunity to take advantage of the communications potential of their Apples.

Thorns Among the Roses

My major problem with Let's Talk concerns the documentation. Its approach isn't "how-to" enough to be much help to the average user. Luckily, the presentation disk makes up for the manual's deficiencies. The examples on the presentation disk are their own best documentation.

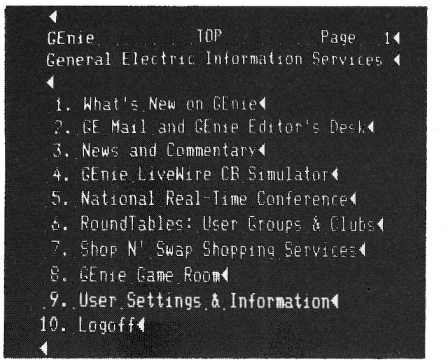
My other gripes are minor. For instance, I didn't especially like the editor that comes with Let's Talk, so I simply used my own word processor.

Conclusion

Let's Talk is the best messaging system available for the Apple II. I recommend it for small and medium-sized businesses (and for departments of larger organizations) needing a fast, economical way to disseminate information. Although I found the generic presentation disk to be more than adequate, Russ Systems plans to market Let's Talk with a number of different presentation disks, each directed toward a specific vertical market, such as lawyers and educators.

Let's Talk isn't perfect, but for the price, you won't find a better, more powerful solution to your problems of information distribution. ■

Bob Ryan
Sharon, NH



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

If imitation is the sincerest form of flattery, then CompuServe Information Service must be sporting quite a corporate blush lately. Would-be competitors Viewdata and General Electric, undoubtedly marking the success of CompuServe's telecommunications gold mine, have opened what you might call "roadshow" versions of C.I.S.

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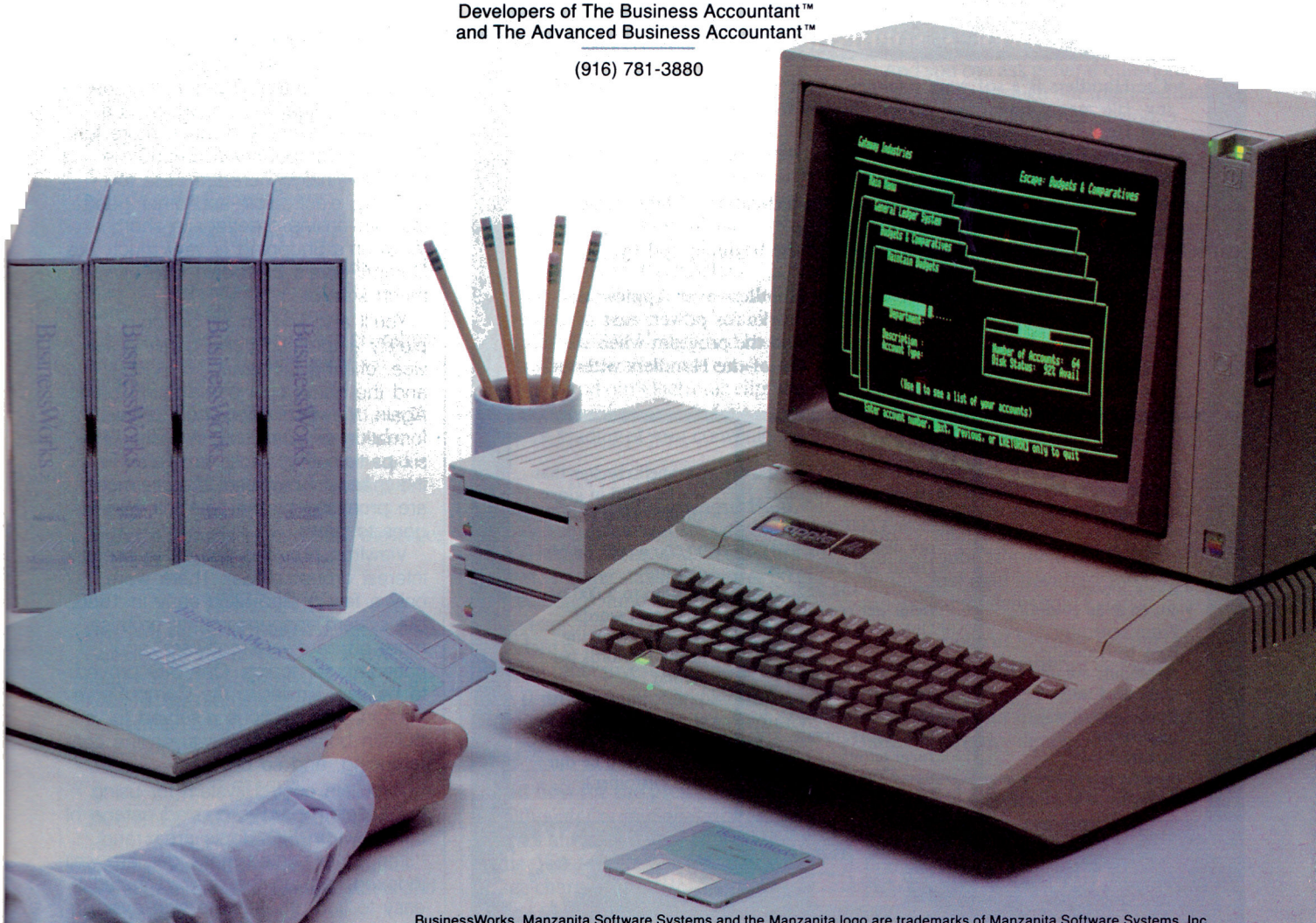

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the features one has come to expect from information utilities.

Joining Viewtron is refreshingly inexpensive. The starter kit, which includes a hardware-specific communications-software disk and manual, is free (with $2.50 postage and handling). Once you've logged on, the evening connect charge is 9 cents a minute (6 p.m. to 7 a.m. Monday through Friday and all weekend), and 22 cents a minute during business hours. There's no minimum monthly charge (à la The Source) and no supplementary charge for 1200-baud modems (à la almost every other information utility). Charges are billed directly to your Visa, MasterCard, or American Express card.

Superior organization and ease of use differentiate Viewtron from the competition. It's very easy to navigate within the system. Rather than memorizing page numbers or abbreviations, as you must to use The Source and CompuServe, just type a keyword on the command line. The words are logical and simple to remember. For example, if you want to play games, type GAMES. If you want to talk on CB (on-line conferencing), type CB. If you want to go shopping, type SHOPPING. Commands don't come any easier than that.

A Range of Services

Viewtron's content is quite similar to CompuServe's. Its features include CB, special-interest groups, and electronic mail (the easiest to use I've ever seen). There are also news services of every kind, shopping, and games—word games, trivia, and so forth, but no mega-adventures like those on CompuServe. You'll also find travel information (including an Official Airline Guide, with a flight-booking feature for an additional fee), and stock quotes (also for an extra fee).

Viewtron differs from CompuServe, The Source, and other services not so much in the types of services it offers as in their extent and quality. In Shopping, for example, you won't find any CompuStore, but you do get a crack at J.C. Penney and Burdines catalog computers. There's also the BidQuik on-line auction, which is a continuous event and much more fun than the CompuServe/CompuStore version. Finally, there's access to clothing, electronics, and other goodies with on-line ordering. In short, Viewtron's Shopping is very much like CompuServe's Electronic Mall—just much smaller.

You'll also find an almost completely automated home-banking service, offering bill-paying, checking, and the name of a participating bank. Again, Viewtron differs from other information services only in scale. Only six participating banks are listed in the manual I received, though more are promised by the time this review goes to press.

Viewtron provides access to special-interest groups (SIGs). There were only a few on-line SIGs early in 1986, but system announcements promise more on hardware, software, and noncomputer topics. One SIG proved to be very similar to the CompuServe version, with sections reserved for a bulletin board, club news, on-line conferencing, and so on.

A built-in control system for using the bulletin board is one advantage of this Viewtron SIG. Topic areas and "strings" of related messages are well indexed, making the desired material easy to find. It's easy to skip over un-

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Here's how to use CompuServe.

CompuServe is "menu-driven," so beginners can simply read the lists of options on their screens and then type in their selections.

Experts can just type in "GO" followed by the abbreviation for whatever topic they're after.

In case of confusion, typing "H" for help brings immediate instructions.

And you can ask general questions either online through our free Feedback service or by phoning our Customer Service Department.

How to subscribe.

To access CompuServe, you'll need a CompuServe Subscription Kit; a computer, terminal or communicating word processor; a modem and in some cases, easy-to-use communications software.

With your Subscription Kit, you'll receive a $25 usage credit, a complete hardcover Users Guide, your own exclusive user ID number and preliminary password, and a subscription to CompuServe's monthly magazine, *Online Today*.

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Circle 124 on Reader Service Card.

wanted memos. Special-interest clubs are available, offering further communion among kindred spirits. I saw a few hardware-specific clubs and a general-interest club when I "visited."

News services reflect Viewtron's organizational flair. Stories are broken up into regional and topical categories. Stories appear on menus and are dated, so you'll be able to find the latest edition without wasting time—and money—browsing through entire files of articles.

On-Line Conferencing

CB is probably the most popular service on any utility offering it. Viewtron's CB is adequate, but it provided only five channels when I monitored it in January, and those were drastically underutilized. Viewtron's CB is as dull as CompuServe's is raunchy and witty. There's an atmosphere of rigid monitoring on Viewtron's CB. Only an on-line CB with liberal standards of expression and perfect isolation for "private" talkers can hope to compete with CompuServe's version.

The other problem with the Viewtron CB is the way it handles text entry. The CB is normally in text-display mode. You have to jolt it into text-entry mode with a command before you can write (for example, Apple users must press F3). It's a pain in the neck to have to keep hitting those keys before you can type in text. Equally annoying is having to keep track of what you're typing so that you don't overflow a 20-character line. At the end of a line, you have to type a TAB command to continue writing. All this does is slow up the pace of the CB.

Despite some problems with its CB, Viewtron has a lot of potential. It comes more or less full-flower, with a number of features and special services in place. All it needs now is subscribers. So far it has about 15,000—not a bad start for being on line nationally only since last fall.

CompuServe Junior

G.E.'s GEnie system, on the other hand, has a lot of growing up to do. At the start of 1986, it was pretty much a CB with a few information utilities tacked on, at a cost of $5 an hour off-peak.

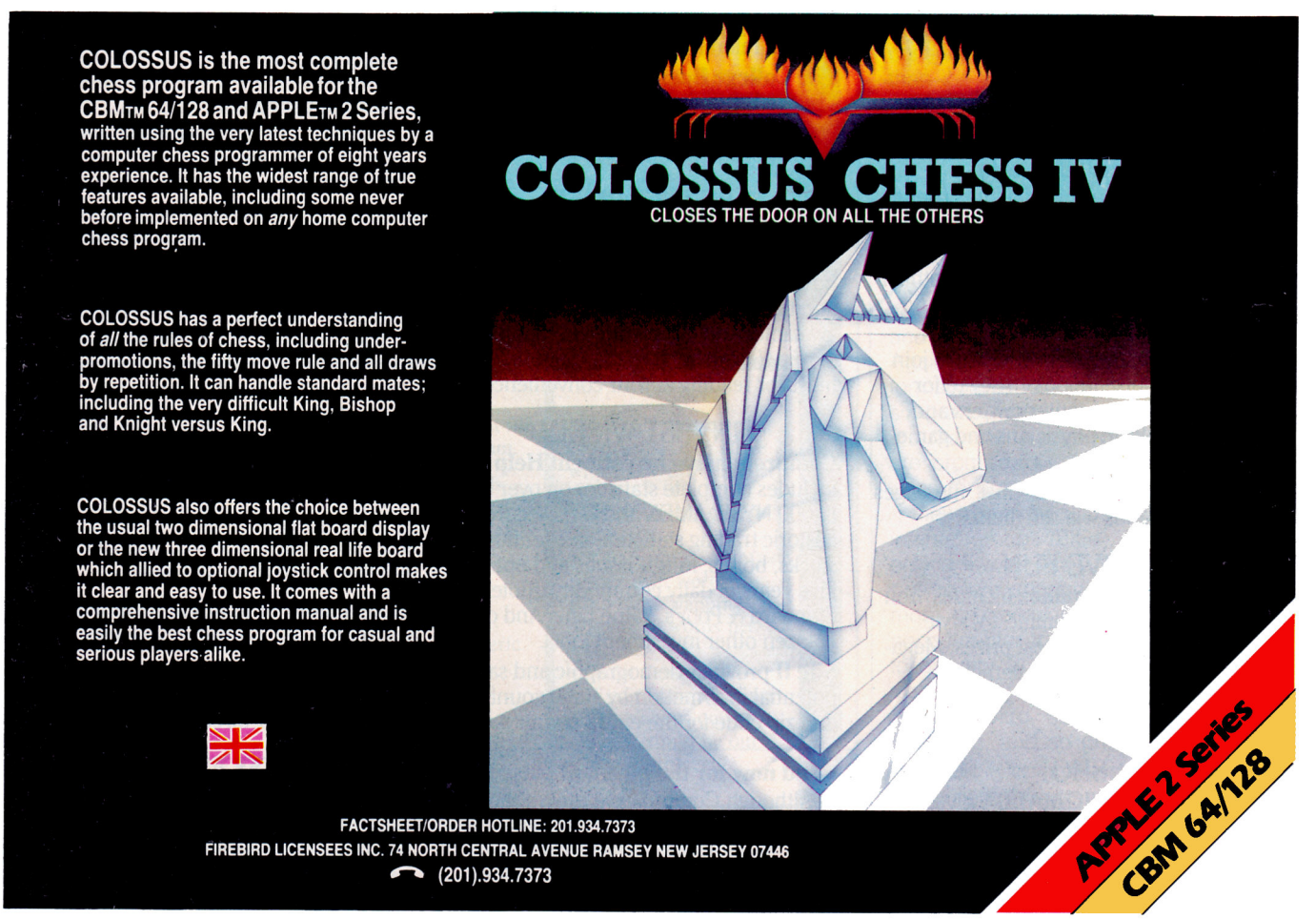
This information service will probably be voted "Closest CompuServe Look-Alike." The command structure is slightly different—you can use a few keywords or page numbers from an on-line index—but the on-screen appearance and organization are very close to CompuServe's.

GEnie's categories of service consist of E-mail, news, CB, real-time conferencing, clubs and SIGs, shopping, games, and various help files. The problem is that none of these categories is very full, with the exception of CB.

CB enthusiasts won't be disappointed with the GEnie version, since it works like CompuServe's (the commands are only slightly different) and costs a buck less per hour. All the GEnie CB needs is more users. As with Viewtron, it was a very quiet Saturday night on GEnie CB.

SIGs and clubs are almost exclu-

Continued on p. 98.



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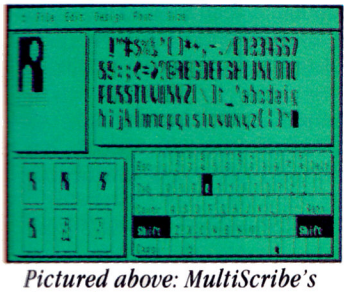

Pictured above: MultiScribe's font editor.

If you're afraid of mice, don't worry.

With MultiScribe, you have the option of using a standard keyboard or a mouse. Use your mouse to pick and click commands from the pull-down menus . . . or use the arrow keys for "keyboard mouse" action. Each MultiScribe option has a keyboard equivalent displayed right on the menu, giving you the best of both worlds.

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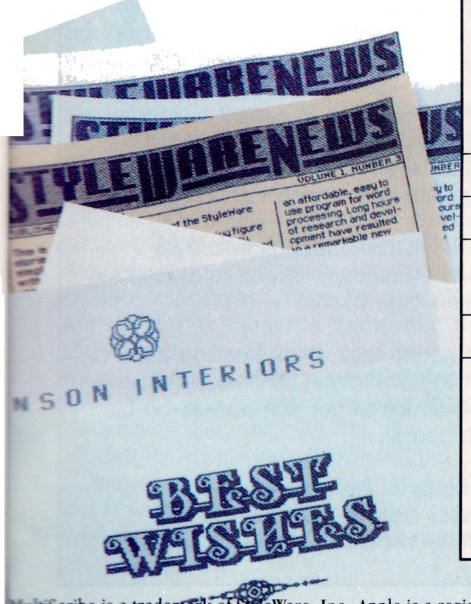

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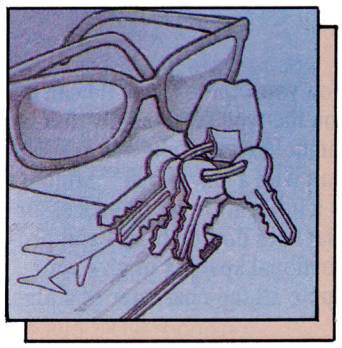
For fun and profit, let on-line data bases show you the world of information at your fingertips.



WHAT'S

by Wendy Lea McKibbin, *inCider* staff

If you're a professional using your home computer to run a business or catch up on some work, chances are you've already discovered the world of on-line resources. You know that with an outlay of less than $100 for a 300-baud modem, you can tap into information as diverse as the current movies playing in Boston, to free advice for animal-rights workers on a bulletin board in Colorado.

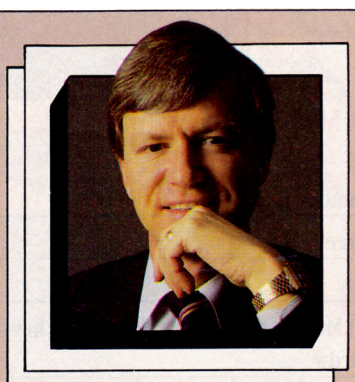
Electronic services for shopping and banking, news, weather, and sports reports, electronic mail, guides to travel fares, business-information data bases, and free bulletin boards on everything from hobbies to patent laws—perhaps you've already encountered this mind-boggling smorgasbord of information and share the common dilemma of the end user: "Where do I start?" and "What do I choose?"

If your head is swimming from information overload, you might consider going on line for professional enrichment. Forget adult fantasy games, astrology, and recipe clubs. Concentrate instead on services that can help you beef up your investment portfolio, find the best buys on computer equipment or other goods and services, locate economical travel opportunities, help you shop for a prospective employer, or aid you on the fast track to promotion. (Of course, if you're an incurable gamester, you may still find yourself tuning in to *Sports Form* newspaper's **Sportel** from Las Vegas.) But at least with a clear-cut objective, you can wade through the ocean of inconsequential data to arrive at information that's meaningful for you.

Going On Line for Profit

"Information is power" is the cliché of the '80's, but it's nonetheless true when it comes to investments. Elizabeth Ferrarini, author of ***Infomania***, relates in her book that a teenager in Framingham, Massachusetts, became so eagle-eyed at watching the stock market through the Dow Jones News/Retrieval Service that he parlayed a $50 birthday gift into $5000.

Investment information is often the lure that tempts the computer user to take his or her first plunge into on-line searching. Fortunately for the neophyte, several excellent sources await. Probably the three most widely known vendors in this field are **The Source**, **CompuServe**, and the



FRED MIDDLETON

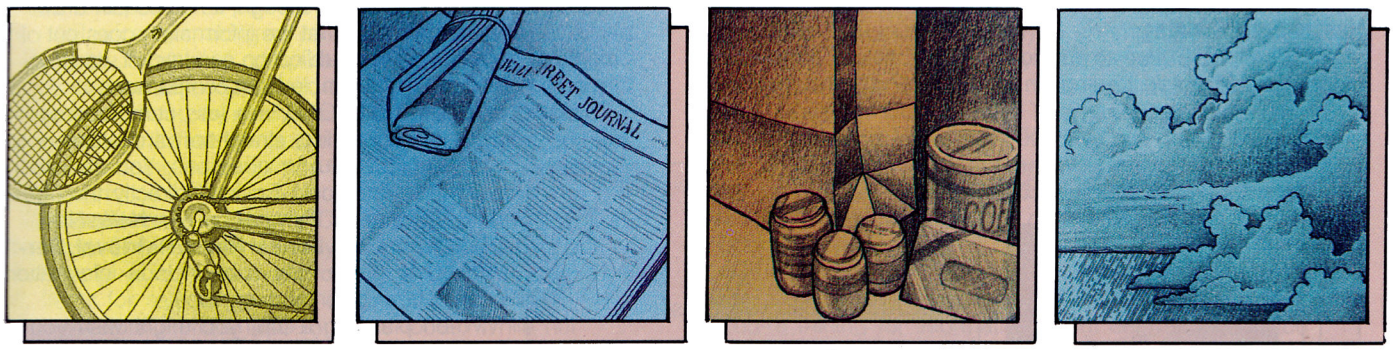
LOCATION: San Francisco, CA

PROFESSION: President of Morgan Stanley Ventures, formerly chief financial officer of Genentech Inc., a genetic-engineering technology firm.

SERVICES USED: Dow Jones News/Retrieval Service and associated data bases.

Fred Middleton spends a couple of hours each week tracking more than 100 companies, looking at earnings estimates, financial forecasts, and product news. By closely watching the larger companies, he can identify opportunities for smaller companies.

"Following the trends and developments at larger companies in the industries we watch in the on-line data base helps us make better decisions in funding new-product development at smaller companies."



ON LINE?

Dow Jones News/Retrieval Service, although **Nite-Line** also delivers a credible product at a bargain price.

The Dow Jones service, owned by Dow Jones & Company in Princeton, New Jersey, tracks more than 6000 companies, 30 major industries, and a number of U.S. and foreign government agencies. Its four most important data sources of investment information are **Dow Jones Quotes/Current**, **Dow Jones Quotes/Historical**, **Media General Financial Services**, and **Corporate Earnings Estimator**.

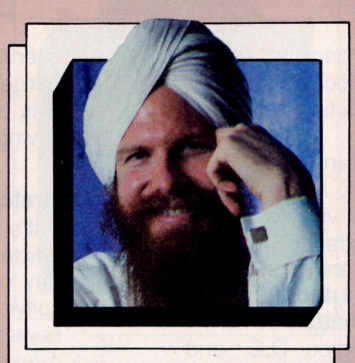
Quotes/Current gives price updates for stocks listed on the New York, American, Midwest, and Pacific stock exchanges and the NASDAQ Over-the-Counter market. Quotes/Historical provides quarterly, monthly, and daily summaries on common and preferred stocks for the same markets. For the historical performance of a common stock traded on the New York, American, and OTC exchanges, try Media General, which tracks 3200 stocks and certain industry groups. For a look ahead, the Corporate Earnings Estimator projects earnings per share for 2400 major firms.

Other noteworthy data bases on Dow Jones include **Disclosure II**, which monitors the financial health of more than 9900 publicly owned companies; Standard & Poor's **Online**; Money Market Service's **Economic and Foreign Exchange Survey**; and Zachs Investment Research's **Corporate Earnings Estimator**.

While Dow Jones may be king of the financial- and business-information services, The Source and CompuServe are no less viable resources for investors.

The two major financial data bases to watch on The Source are **Unistox** and **Stockvue**. Unistox reports daily activity on Wall Street while Stockvue, like Dow Jones' Media General Financial Services, provides historical perspective.

CompuServe has three data bases of interest to the potential investor: **QuickQuote**, **MicroQuote**, and **Ticker Retrieval**. MicroQuote contains next-day trading information, as well as historical data on stocks, bonds, government issues, and options, while QuickQuote gives daily price information. Ticker Retrieval is a research tool available on CompuServe's **Executive Information Service**. It



SAT TARA SINGH KHALSA

LOCATION: Chicago, Illinois

PROFESSION: Co-founder of Kriya Systems, Inc., creator of Typing Tutor III; managing general partner of Infotel, a resort hotel and conference center; founder of the Information Institute.

SERVICES USED: GTE Telenet, CompuServe Official Airline Guide.

Sat Tara uses Sikhnet on GTE Telenet to reach members of the same religious group. In a timely way, new teachings on Yoga, meditation, and nutrition are exchanged and jobs are sought and found.

"We are a several-thousand-person extended family. With Sikhnet, we can disseminate information quickly all over the country. We can keep up on what's going on with the latest teachings on Yoga and meditation."

covers more than 9000 security issues and lists other information on prices and dividends.

Hassle-Free Banking

You don't have time to run to the bank with all the money you've made trading on Wall Street? Then consider the fast-growing service known as home banking. California, Boston, and New York are the best locations for banking by modem, but many other institutions are eyeing the phenomenon.

For a nominal fee, you can pay bills, transfer funds, check your statements for the past month, and in some cases communicate with bank employees via electronic mail. The most prominent organizations offering home banking are **Bank of America** in San Francisco; **Shawmut Bank** of Boston; and **Citibank**, **Manufacturers Hanover**, **Chemical Bank**, and **Chase Manhattan** in New York. **Madison National Bank** in Washington, D.C., and **Louisiana National Bank** in Baton Rouge also offer successful services.

If you're interested in the ultimate convenience in personal money management, check with the larger institutions in your area to see if they've climbed onto the "bankwagon." If not, don't be discouraged. Experts predict that three-quarters of the commercial banks in the country will offer home banking via computer by 1990.

JON SHIRLEY

LOCATION: Bellevue, Washington

PROFESSION: President and CEO of Microsoft Corp., a major microcomputer-software developer.

SERVICES USED: Dow Jones News/Retrieval Service

Jon Shirley spends about five to 10 minutes on line every day checking on the prices of stocks, searching for information on the industry and other companies, and finding low-cost airfares. He spends about $500 a year on it and finds it well worth the cost.

"I access the OAG through Dow Jones. It's excellent in finding direct lowest-cost flights. However, its ability to find connections rather than direct flights is limited."

Travel the Friendly Skies

It's not unusual nowadays at trade shows or on airplanes to see businesspeople scanning copies of the ***Official Airline Guide***, to find a better flight connection or another routing. This pocket-sized manual is published by Official Airline Guides, Inc., of Oak Brook, Illinois.

Like most printed directories, though, it has certain drawbacks. Chief among them is that the information goes out of date more quickly than the publication can track it. Its structure makes it difficult to do simple flight comparisons.

The electronic version of OAG is a less cumbersome approach to finding straightforward answers to your flight-scheduling questions. You can access the "Electronic Edition" directly through **GTE Telenet** or **Tymnet**, or via **NewsNet**, **Dialog**, or **Dow Jones News/Retrieval Service**. (The guide may soon include information on hotels and rental cars, too.)

When planning a trip, you might wish you had access to more information than just the best plane fares. If you'd like a good overview of transportation alternatives, accommodations, and things to do when you arrive in a city, you should add **Travel Scan**'s phone number to your on-line directory. This comprehensive travel service, available through GTE Telenet or Tymnet, contains information on everything from airplane and bus schedules to special "getaway" packages and listings of restaurants, theatres, and other entertainment opportunities in the city of your choice.

Travel Scan, which can take you into the data base maintained by Pan American World Airways' reservation system, lets you do your own flight scheduling and ticketing electronically and pay for it with VISA or Mastercard.

If you'd love an exotic escape to Maui, but your budget can't keep pace with your mood, check out the New York-based service **CompuTrav**. A bargain-hunter's delight, CompuTrav tracks sudden vacancies on package air and sea tours and offers other cost-saving information on air fares and cruise tickets.

Stretching Your Dollars, Saving Your Time

It's probably safe to assume that anyone reading this article will periodically be interested in locating the best buy on new or used computer equipment and the right software for special applications. One of CompuServe's newest data bases, **MicroSearch**, is a good place to start if you're in the market for enhancements or a new system.

Produced by Information Inc. in Washington, D.C., MicroSearch is touted by its creators as one of the most comprehensive data bases ever compiled on the microcomputer industry. With thousands of product reviews from the 200 top computer magazines, MicroSearch provides a fast way to become acquainted with the best and the worst of the new offerings. The manufacturers furnish product literature and toll-free telephone numbers for more information.

If you're searching for software and want to get a bird's-eye view of the industry, check out the **International Software Database's Software Catalog** on Dialog. It covers more than 50,000 programs for microcomputers and larger systems.

What if you locate the software you need and want to purchase it on the spot? The **Electronic Catalog** lets you do it. Subscribers to this data base and shopping service, produced by One Point Corporation of Walnut Creek, California, can choose from major IBM PC and Apple software.

The Catalog evaluates the major IBM PC and Apple software packages according to error handling, documentation, ease of use, and price. You can save as much as 40 percent off the retail price by making an on-line purchase.

Even the most avid computer enthusiast occasionally shops for mundane consumer items like luggage, cameras, stereo equipment, or hardware. If you abhor crowded malls and don't feel compelled to touch what you buy, an on-line shopping service from GTE Telenet and Tymnet might be for you.

CompuStore, a service of Comp-U-Card International of Stamford, Connecticut, not only saves you time, but can offer many of its consumer products at up to 40 percent off. Items for sale range from electronic equipment to department-store merchandise to exotic foods. While not everything listed on CompuStore is a bargain, one young research analyst in New York swears that it saved his sanity one busy Christmas. So for your mental health alone, you might check out CompuStore.

The Resumé Game

Another type of shopping in which almost every professional engages at one time or another is job hunting. Whether you're looking for a new position, a whole new career, or a new employee, on-line resources can help.

Dialog, one of the largest search services in the world, is a good place to start when looking for a new job. As a first move, you might consider listing your employment profile in a Dialog data base produced by **Career Placement Registry** of Alexandria, Virginia. Here you can state your geographical preferences, pertinent job experience, educational background, and so on, and have it viewed by as many as 500 companies nationwide per month. It's also a good place to hunt for prospective employees. Depending on your anticipated salary, you pay a small fee of up to $40 to be listed on the service for six months.

If you have a student in the family or you're looking for student help, consider the companion data base, **Career Placement Registry/ Student**, from the same company. College seniors and recent graduates are listed for six months at a time during the current academic year. Career Placement Registry maintains full resumés for job hunters in both categories.

Don't want to pay to find a job in the computer industry? Consider **JobNet**, which caters to writers, engineers, and programmers in the high-tech industries, or **Softview**, which finds positions for data-processing professionals. Both data-base services let you list your resumé free of charge for an indefinite period of time.

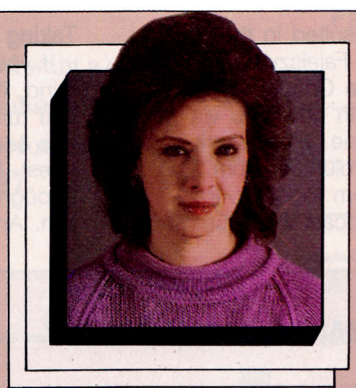
For the impatient who would rather seek than be sought, an electronic classified-ad service called **CLEO** in Torrance, California, posts openings for engineers, technical writers, and other positions in leading electronics firms. For the cost of a phone call, you can find out what's stirring in Silicon Valley and other high-tech areas. If a job sounds interesting, leave your name and address in an on-line mailbox or mail a resumé to the company.

On Top of the News

Suppose you've just taken a new job and need to do a quick study of the company and its products, or, better yet, of the competition. Or maybe an important meeting looms ahead, and it requires you to be well informed about a particular issue. If so, you might want to tune in to the **news on Dow Jones**. This news data base consists of stories no more than 90 days old drawn from *The Wall Street Journal*, *Barrons*, and the Dow Jones wire service. Information more than 90 days old is stored in the **Free Text Search** data base on the Dow Jones News/ Retrieval Service.

Sometimes a local newspaper, rather than a national publication, is a better source of information about a firm. If you're mining for information about companies located in Allentown, Lexington, Miami, Philadelphia, Sacramento, Washington, Boston, Detroit, Houston, Chicago, Wichita, or surrounding towns, consider subscribing to Knight-Ridder Newspapers' **Vu/Text Information Service**, which offers the full text of newspapers published in the cities mentioned above.

Of course, for serious research, every on-line addict should know about the incomparably rich resources of **Nexis**, produced by **Mead Data Central** of Dayton, Ohio. Nexis offers articles within 24 hours of their publication by 14 newspapers, top magazines from McGraw-Hill and Time-Life, multiple wire services, newsletters, and other sources. Although accessing Mead Data Central once required special equipment, it's now possible for owners of IBM and Apple personal computers to subscribe to the service.



ELIZABETH FERRARINI

LOCATION: Boston, Massachusetts

PROFESSION: Writer

SERVICES USED: CompuServe, Connexions Database (no longer in existence)

Elizabeth answered an ad for a research assistant at Houghton Mifflin Publishing on the Connexions Database. She didn't get the job, but met someone there to publish her book, *Infomania*. She will appear on the *Today Show* as a result of a message she left for the booking agent on CompuServe.

"The strength of the medium is in the connections it provides for you. If you're hunting for a job, going on line can be a good way to network."

Bulletin Boards

Bulletin boards deserve a special mention in a discussion of on-line resources. According to Matthew Lesko, author of ***The Computer Data and Database Source Book*** and ***Information USA***, bulletin boards may be one

of the richest and most inexpensive sources of information around. If you look long enough and hard enough, you're bound to find a bulletin board on practically any subject of interest, from hobbies and programming languages, to free advice on almost anything.

A bulletin board in St. Louis answers questions about racquet sports; a Texas service addresses questions about copyright protection; a Colorado group posts information about animal welfare and protection; and a bulletin board in northern California caters to bicycle enthusiasts.

The best place to start looking for a bulletin board is your local computer club. Also check out The Source and CompuServe, or start subscribing to ***Bulletin Board Systems*** magazine, published in Westport, Connecticut. If all else fails, call your local computer dealer.

On-Line Romance

How can a single woman find 20 new men in two days? Try **CompuDate**, says Elizabeth Ferrarini, whose on-line ad on The Source in 1981 brought a flurry of response.

Her electronic S.O.S. to meet other professionals put her into contact with a colorful cast—including the owner of a radio station; a romeo from Florida "who made Burt Reynolds look sick"; a psychiatrist; a gynecologist; the son of F. Lee Bailey; and, of course, a few dozen hard-core computer enthusiasts.

"A lot of people like the electronics medium as a way to socialize," Ferrarini says. "It's anonymous, discreet, safer than a bar, and very intensive." She adds that if you want a real relationship, though, you must eventually make "the human connection."

Two people whose on-line friendship resulted in the ultimate human connection are Pamela Ann Falejczyk and Mark Crosby, who married in the Wayside Chapel in Palos Park, Illinois, last October after a ten-month courtship via modem. Naturally, the wedding was on line. While Mark and Pam took their vows at the altar, a volunteer from **People/Link**, the service that brought them together, transcribed the event on computer and broadcast it to guests watching from Scotland, England, California, New York, Las Vegas, and other parts of the world.

Pam, formerly a customer-service manager for People/Link in Chicago, relates that she was nervous when she first met Mark face-to-face after months of on-line conversation. But at the same time, she says, "I felt as if I knew him." The couple discovered through their electronic communication that they shared an interest in photography, motorcycles, travel, and computers.

People/Link is a videotext service operated by American Home Network of Arlington Heights, Illinois, with about 4000 subscribers. It's but one of many outlets you might consider as a way to add fun, zip, and variety to your social life. Another is **Playnet** in Troy, New York, which hosts on-line parties, board games, bulletin boards, and E-mail. For the more adventuresome, there's a swinging adults-only service called **X-Net Computer Services** in Halesite, New York, and a **Gay News and Information and Communications Network** in Woodbury, New York.

Of course, CompuServe and The Source are good places to seek people with similar interests. On The Source you can "type-talk" on "Chat" with other subscribers, or try your hand at CompuDate. Like The Source, CompuServe has a type-talk feature. Or if you prefer, games, interesting forums, electronic mail, and bulletin boards are available.

Are you ready to make friends around the country or even around the world? Are you tantalized by the prospect of becoming an electronic voyeur? If so, then give yourself a "handle" (that's a name, for you non-CB radio buffs) and dial up an adventure.

Taking the Plunge

If you're ready to go on line, keep a few simple rules in mind. It's best to start by defining your objectives, before you run up costly connect charges in what may be a fruitless search. Take some time to research your area of interest. Excellent directories are available to guide you through the seemingly endless stores of electronic information. And don't overlook organizations such as the **Information Industry Association** and the **Videotext Industry Association** as places to get ideas.

Finally, consider the alternatives. The information you need may be available from a free government-agency data base, a local bulletin board, or a free pamphlet. Do your homework and you won't end up paying for information you could get just as easily in another form. With a sound plan of attack, you're bound to get maximum mileage from your on-line dollars. ■

Write to Wendy Lea McKibbin at 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025.

MARK and PAM CROSBY

LOCATION: Dallas, Texas

PROFESSION: Pam is a marketing coordinator at Future Computing Inc., Mark is a mechanical engineer at Watson Inc. in Fort Worth.

SERVICES USED: People/Link, a videotext network for social interaction.

Pam and Mark use People/Link as a way to make on-line friends. In fact, they actually met each other through the service.

"It's easy to become real close friends with the people you talk to on line. We found that the minute one of us would think about asking a question, the other thought about asking the same thing simultaneously."

Product Information

American People/Link
3215 North Frontage Road
Suite 1505
Arlington Heights, IL 60004
(800) 524-0100
(312) 870-5200 in Illinois
$14.95 reg. fee (incl. first 3 hours)
$3.95 300 baud, standard time
$4.95 1200 baud, standard time
$10.95 300 baud, prime time (7 a.m.–6 p.m.)
$12.95 1200 baud, prime time

Reader Service Number 332

Bulletin Board Systems
Meckler Publishing
111 Ferry Lane West
Westport, CT 06880
(203) 226-6967
$26.50 per year

Reader Service Number 333

Career Placement Registry
302 Swann Avenue
Alexandria, VA 22301
(703) 683-1085
$95 per hour

Reader Service Number 334

CLEO
Computer Listings of Employment Opportunities
2164 West 190th Street
Torrance, CA 90504
(213) 618-0200

Reader Service Number 335

CompuDate
The Source
Source Telecomputing
1616 Anderson Road
McLean, VA 22102
(703) 734-7500
$49.95 for men (one-time membership)
Free for women

Reader Service Number 336

CompuServe
5000 Arlington Center Boulevard
P.O. Box 20212
Columbus, OH 43220
(614) 457-8650
$39.95 one-time fee,
up to $12.50 per hour

Reader Service Number 337

CompuStore
Comp-u-Card International
777 Summer Street
Stamford, CT 06901
(203) 324-9261
$25 per year,
$5 to $18 per hour

Reader Service Number 338

CompuTrav
Lanexssa International
622 Broadway
New York, NY 10012
(212) 759-8555
$30 one-time fee,
$12 per hour

Reader Service Number 339

Dialog Information Services
3460 Hillview Avenue
Palo Alto, CA 94034
(415) 858-3792
$6 to $8 per hour

Reader Service Number 340

Dow Jones News/ Retrieval Service
P.O. Box 300
Princeton, NJ 08450
(609) 452-2000
$75 one-time fee,
$3 per month

Reader Service Number 341

Electronic Catalog
One Point Corporation
2835 Mitchell Drive
Walnut Creek, CA 94590
(415) 947-0850
$35 one-time fee,
$8 per hour

Reader Service Number 342

GTE Telenet
GTE Telenet Communications
8229 Boone Boulevard
Vienna, VA 22180
(703) 442-1000

Reader Service Number 343

Information USA
4701 Willard Avenue, #1707
Chevy Chase, MD 20815
(301) 657-1200

Reader Service Number 344

JobNet
JobNet, Inc.
10 DeAngelo Drive
Bedford, MA 01730
(617) 275-3010
$350 per hour

Reader Service Number 345

NewsNet
945 Haverford Road
Bryn Mawr, PA 19010
(215) 527-8030

Reader Service Number 346

Nexis
Mead Data Central
9393 Springboro Pike
P.O. Box 933
Dayton, OH 45401
(513) 865-6800
$20 per hour

Reader Service Number 347

Nite-Line
National Computer Network
1929 North Harlem Avenue
Chicago, IL 60635
(312) 622-6666
$30 one-time fee,
up to $26 per hour

Reader Service Number 348

***Official Airline Guide,* Electronic Edition**
2000 Clearwater Drive
Oak Brook, IL 60521
(800) 323-3537
$50 one-time fee,
$6 per hour

Reader Service Number 391

Softview
Software Career Link
67 South Bedford Street
Burlington, MA 01803
(617) 229-5813
Up to $9000 per year

Reader Service Number 392

The Source
Source Telecomputing
1616 Anderson Road
McLean, VA 22102
(703) 734-7500
$49.95 one-time fee,
$.46 per minute

Reader Service Number 393

Sportel
Sports Form
P.O. Box 1182
Las Vegas, NV 89125
(702) 873-1151

Reader Service Number 394

Travel Scan
Travel Scan Videotext
5 Penn Plaza
New York, NY 10001
(212) 695-5492
$50 one-time fee,
$15.50 to $19.80 per hour

Reader Service Number 395

Tymnet
OnTyme
Tymshare Corporation
20705 Valley Green Drive
Cupertino, CA 95014
(408) 446-6000

Reader Service Number 396

UniNet
10951 Lakeview Avenue
Lenexa, KS 66219
(800) 821-5340

Reader Service Number 397

Vu/Text
Vu/Text Information Services
1211 Chestnut Street
Philadelphia, PA 19107
(215) 663-3300
$30 to $300 per hour

Reader Service Number 398

Is keeping fit, managing stress, or balancing your diet needed in your life? Here's software to help you achieve your perfect self.

YOU CAN DO BETTER

by Cynthia E. Field

Thirty-six years ago Jan Smuts died. Were he alive today, *60 Minutes* would probably interview him about his experiences as former Prime Minister of South Africa.

But Jan Smuts was more than a military leader and a political figure in a troubled country. When he was middle-aged, he developed the theory we call Holism. Thanks to Smuts, we know we are not just gallons of salty water packaged in muscle and wrapped in skin. We know we're much, much more—or at least we strive to be.

During our 40,000-year journey on this planet we've gathered tools to help us work toward Smuts' holistic ideal: Literature. Medicine. Philosophy. Apple II's.

How can your Apple help you become a more well-rounded person? In this article, I've classified nearly three dozen products that claim to enhance the physical, mental, and emotional aspects of life.

All but a sprinkling of these products require only 48K and one disk drive. It's nice to know that you don't have to be a power user to increase your personal power.

On the Home Front

Psychologists tell us that one of our basic physical needs is shelter. No one has yet designed a computer that can pour a foundation or shingle a house. Programmers, though, have written software that can install partitions and move furniture around, at least figuratively.

For younger members of the family and adults who share the growing interest in miniatures (we used to call them doll houses), CBS Software has published **Dream House**. With this program, you can customize and furnish any of four different homes: a colonial farmhouse, a penthouse, a Victorian home, and a cottage.

While Dream House is a colorful outlet for creative play, programs from Avant-Garde provide you with the tools to put your *House Beautiful* fantasies into blueprint-like form. The **Design Your Own Home** series includes three separate packages: **Architectural Design**, **Interior Design**, and **Landscape Design**.

The Avant-Garde series brings computer-assisted design to the homebuilder-to-be. The programs calculate distances and angles, give you scale diagrams, and provide you with an inexpensive way to experiment with different plans. The series uses standard architectural symbols and prepares printouts for your contractor, interior decorator, or landscape designer.

Here's to Your Health!

We've come a long way since snake-oil days. Quality medical care is a fact of modern life. We're more knowledgeable about our bodies and about what we should do to stay well. Much of this knowledge we've gained through books, magazines, and newspapers.

At least three software-based medical advisers are available. None of them claims to substitute for a physician; such a claim would be illegal and dangerous. These programs in large part do substitute for the written word; they are, more or less, electronic page turners.

Avant-Garde's program, **An Apple a Day**, claims to be a medical counselor that can save you time and money. The program contains a health-records and telephone-directory option. Both are merely index-card files on disk. As for advice, the fine print on the package reads in part: "Avant-Garde gives no assurance that the opinions or judgment of the author are reliable and accurate." A statement like that hardly instills confidence.

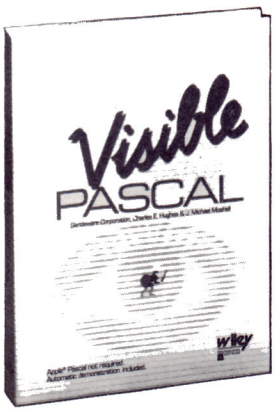
HouseCall '86 claims to be only what it is: a computerized *Home Medical Encyclopedia*. The program contains an indexed data base with hundreds of topics. You can search by index entry or by symptom. The program is much more comprehensive than An Apple a Day, and it provides information on timely topics like AIDS.

The best of the three, and the only one prepared by a medical doctor, comes in the plainest package. In the preface to **Personal Health**, Dr. Buckley humbly writes: "I have tried very hard to make the information available on this disk program as accurate as possible."

Personal Health contains more than a disability and disease data base. Dr. Buckley has included sections on Your Doctor, Medicines, Cancer, and Lab Tests. This program is probably the most holistic of the three. While not eschewing medical treatment when it's needed, Dr. Buckley seems to believe in letting the body heal itself whenever it can. Many of us would agree that "the fewest number of X-rays, hospitalizations, operations, and medicines, the better."

If you want or need more information about a particular subject, the Personal Health reference section contains about 100 entries from such well-regarded periodicals as *The New England Journal of Medicine* and respected medical-text publishers like W. B. Saunders.

FREE 15-DAY TRIAL OFFER



"Visible Pascal is one software package that anyone considering learning a computer language should look into."

—Erik Sandberg-Diment
The New York Times
August 6, 1985

The critics are raving about **Visible Pascal. Visible PASCAL,** the first interactive learning tool, has added fun to learning the PASCAL programming language.

Take advantage of this FREE 15-day trial offer. Call Wiley Professional Software at 212-850-6788.

Visible PASCAL $59.95 ISBN 0471-88820-6

Developed by Gentleware Corporation

Requirements: Apple® II, (with language card), II+, IIc or IIe, 64K RAM. Game paddles or joysticks recommended, though not required except for the Artist program.

Examine the documentation only FREE for 15 days. Either keep your **Visible PASCAL** and return the accompanying invoice with your payment (including postage and handling, plus local sales tax) or return it within 15 days without further obligation.

Note: Returns will not be accepted if the seal covering the program disk is broken.

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Eat, Drink, and Be Merry

Your hurried, harried lifestyle probably makes it difficult for you to eat right. Despite your good intentions, many of the foods you find in the supermarket are sliced, diced, and spiced to death. While food-processing techniques provide us with a varied, safe food supply, some methods rob otherwise healthful foods of their nutritional value.

Your Apple II, as the speedy calculator it really is, can help tremendously with nutritious meal planning for you and your family. Without a computerized food data base, you'd need a copy of the U.S. Department of Agriculture's *Handbook No. 8.*

Once you found the food you were interested in analyzing, you'd probably have to do some mathematical conversions because the metrically thinking scientific community determined the recorded values for nutrients. After you'd converted the values for all the nutrients to ounces, cups, and slices, you'd go back and look up the next food. Believe me, this process gets stale pretty fast!

With computerized nutrition programs, you type in the food name, and the program searches its data base. When it finds the food, the program asks you what serving size to calculate. Most programs speak English—not metric. The process may seem slow compared to the speed with which your Apple can recalculate a spreadsheet or move Bruce Lee to karate-chop a foe. Realize, however, that using *Handbook No. 8*, a pencil, and a calculator is like being a scribe in a medieval monastery.

All three of the programs described here take into account the RDA (recommended dietary allowance) for important nutrients. RDA values vary with your gender and age. Pregnancy and breastfeeding also affect the RDA.

Nutriplan is a computerized version of *Handbook No. 8.* The program assesses 21 nutrients, including saturated fats, cholesterol, vitamins, and minerals. Its data base lists more than 400 foods, and you can add more. (Guess where you get the information. Right—*Handbook No. 8*, or a valid substitute.)

While Nutriplan is a "meat and potatoes" nutrition program, **Weight Loss and Nutrition Center** and **The Original Boston Computer Diet** add the condiments. Not only do these programs calculate the nutritional value of your food intake, but (Smuts, are you listening?) they counsel you!

Both programs are geared to helping you shed pounds and control your weight. In Weight Loss and Nutrition Center, Dan's your man. In The Original Boston Computer Diet, your counselor is George, Shirley, or Amy. Because eating is not just a physical event, but a psychological one as well, these programs help you deal with your reasons for eating. You become attuned both to your hunger level and your emotional state.

Both programs have modifiable food data bases and emphasize the importance of exercise as a great way to refresh the psyche and burn calories.

Aerobic Computing

Jane Fonda hasn't (yet) written a computerized exercise program. But the people at HRM have. **Cardiovascular Fitness Lab** brings some of the benefits of the local health club into your home. The program, which helps you determine your cardiovascular status and train for improved fitness, comes with a pulse sensor and an Apple //e/II Plus interface card. A long extension cable lets you

Continued on p. 61.

Some More Facts About RAM Cards!

You could put a FLIPSTER or Apple™ 1 meg memory expansion card in slot 4 and add another FLIPSTER or Apple 1 meg memory expansion card in slot 5 (The FLIPSTER and Apple's card only expand to 1 meg). You'll need a separate 80 column card for the auxiliary slot. Oh, and put a printer buffer card in slot 2. If you want RGB color, you'll need an RGB board in slot 7 then buy a hard disk (if you have any slots left).

You'll have a bigger AppleWorks desktop, but you'll still be limited to a maximum of 1350 records in the data base. And you're stuck at 2250 lines in the word processor. And AppleWorks won't automatically load itself into memory, and make sure you don't create a file bigger than your disks can hold because neither FLIPSTER nor Apple's memory card will segment a file onto multiple disks.

Or
You could get RamWorks II!®

You'll have a bigger desktop.

You'll also have up to 15,300 records (not 1350) in the data base and up to 15,300 lines in the word processor (not 2250). AppleWorks will now automatically load into RAM. And if you create a file greater than your disk capacity, no problem. RamWorks II will automatically save it on multiple disks. And because of our built-in printer buffer, you can continue to use AppleWorks while your printer is printing. Nice. RamWorks II has an RGB option, 16 bit option and is expandable to 5 megabytes. And don't forget, RamWorks II is the software industry standard for memory expansion in the IIe. RamWorks II is automatically recognized by virtually all memory intensive programs (and many more are on the way) and is 100% compatible with all IIe software. Clearly the new RamWorks II has more features, more capabilities, and most importantly, is recognized by more commercially prepared programs than any RAM card. RamWorks II is fully compatible with DOS 3.3, ProDos, Pascal 1.1, 1.2, 1.3 and all CP/M versions 2.2 through 4.0. No other memory card enhances software better. And RamWorks II is the acknowledged standard with all serious AppleWorks users.

There's only one card like RamWorks II. If someone tempts you with an imitation, please call us to get both sides of the story. You'll discover why RamWorks II offers the best enhancements to AppleWorks and a long list of other programs.

	RamWorks II®	FLIPSTER/ Apple's Card
Maximum Desktop	2277K	1012K
Maximum Number of Records in Database	15,300	1350
Maximum Number of Lines in Word Processor	15,300	2250
Autoloads AppleWorks	YES	NO
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	5120K	1024K
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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9 AM - 11 PM
7 Days a Week

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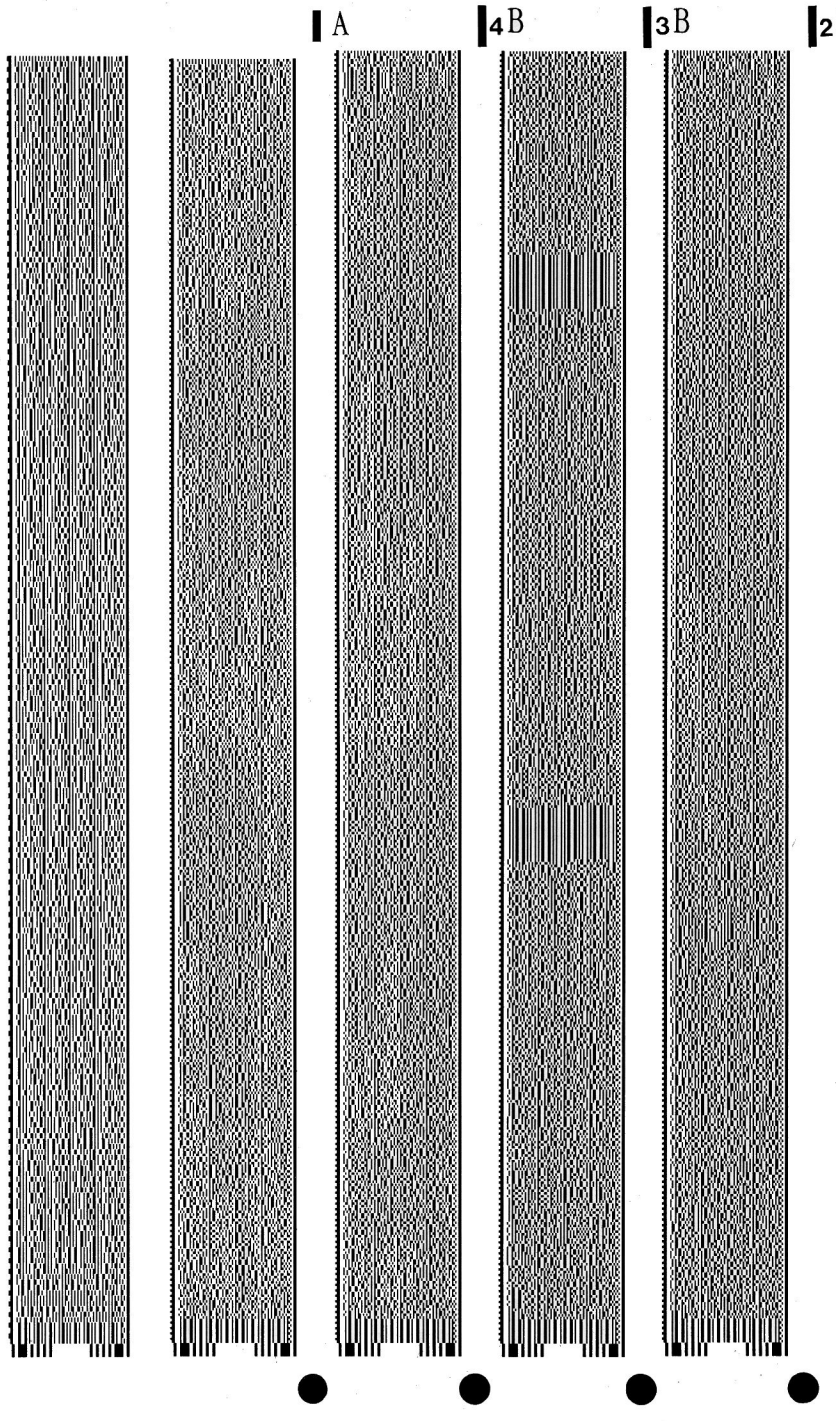


It's a question more and more Apple owners are asking. And no wonder. What everyone is talking about is Softstrip™. The revolutionary technology that is changing the shape of computer software.

The Cauzin Softstrip System is more than just software or data on paper. Because when you invest in this system, you can do much more with your computer, and for far less than you are probably spending now. You can even create and print out your own data strips.

But that's only the beginning of an offer that's going to make you wonder why you haven't stripped yet . . .

Softstrip
COMPUTER READABLE PRINT

RIPPED YET?

The data strips on these six pages feature nine entertaining programs and a directory. They include:

A — Directory

B — Softball Statistics*
track your favorite players with this sports data base

C — Bubble Sort**
a colorful illustrated animation of a classic sorting technique

D — Poster Printer*
express yourself by making banners and messages

E — Tower Puzzle**
an intriguing full color version of Towers of Hanoi

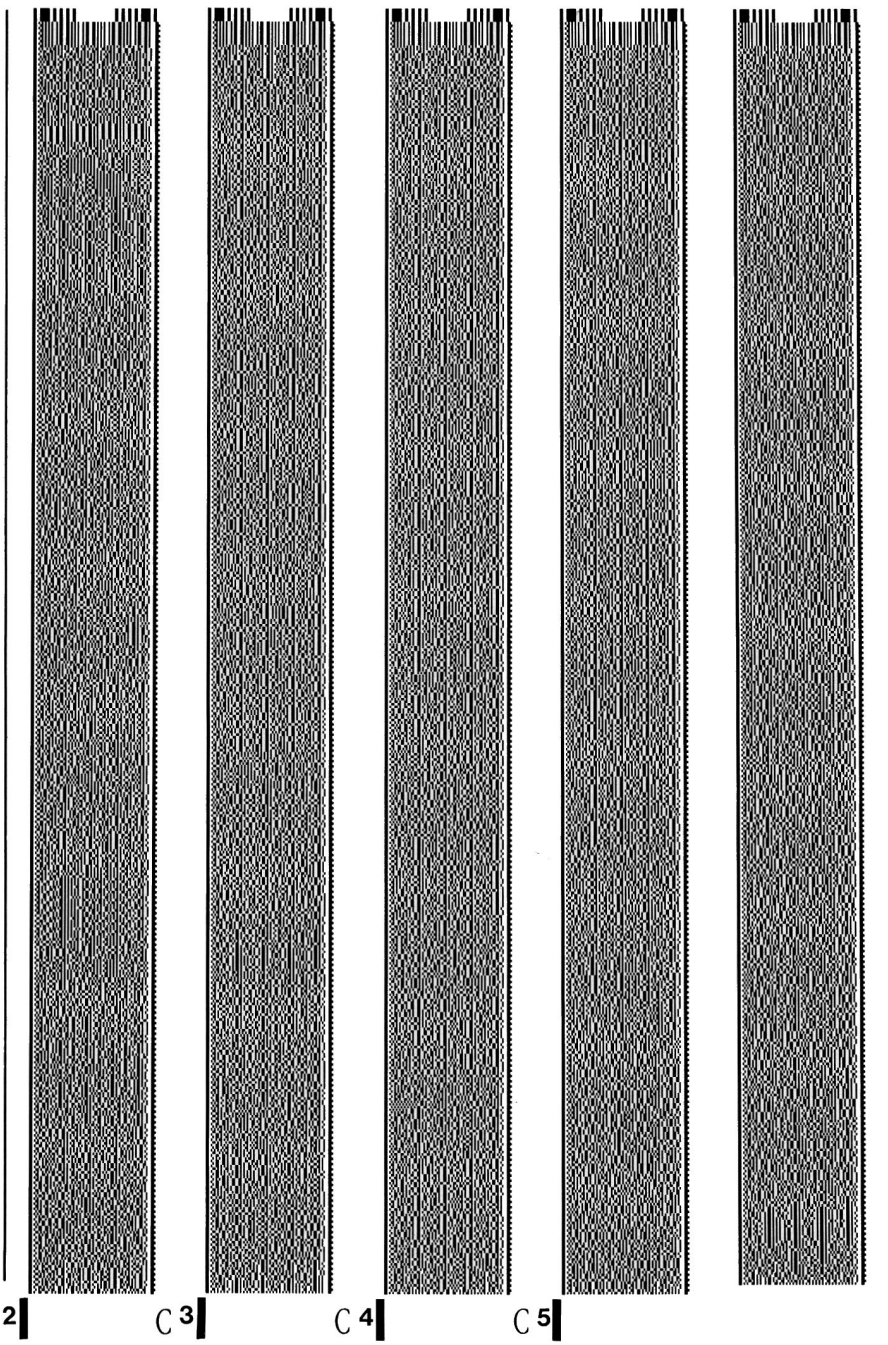
F — Bongo's Bash*
arcade style action in one challenging maze after another

G — Starwatch**
test your knowledge of constellations and comets

H — Robot Minefield***
a battle of wits and precision timing for survival

Grand Prix***
life in the fast lane as you race to the checkered flag

Kentucky Derby***
it's post time and the thoroughbreds are at the starting gate



C 1 C 2 C 3 C 4 C 5

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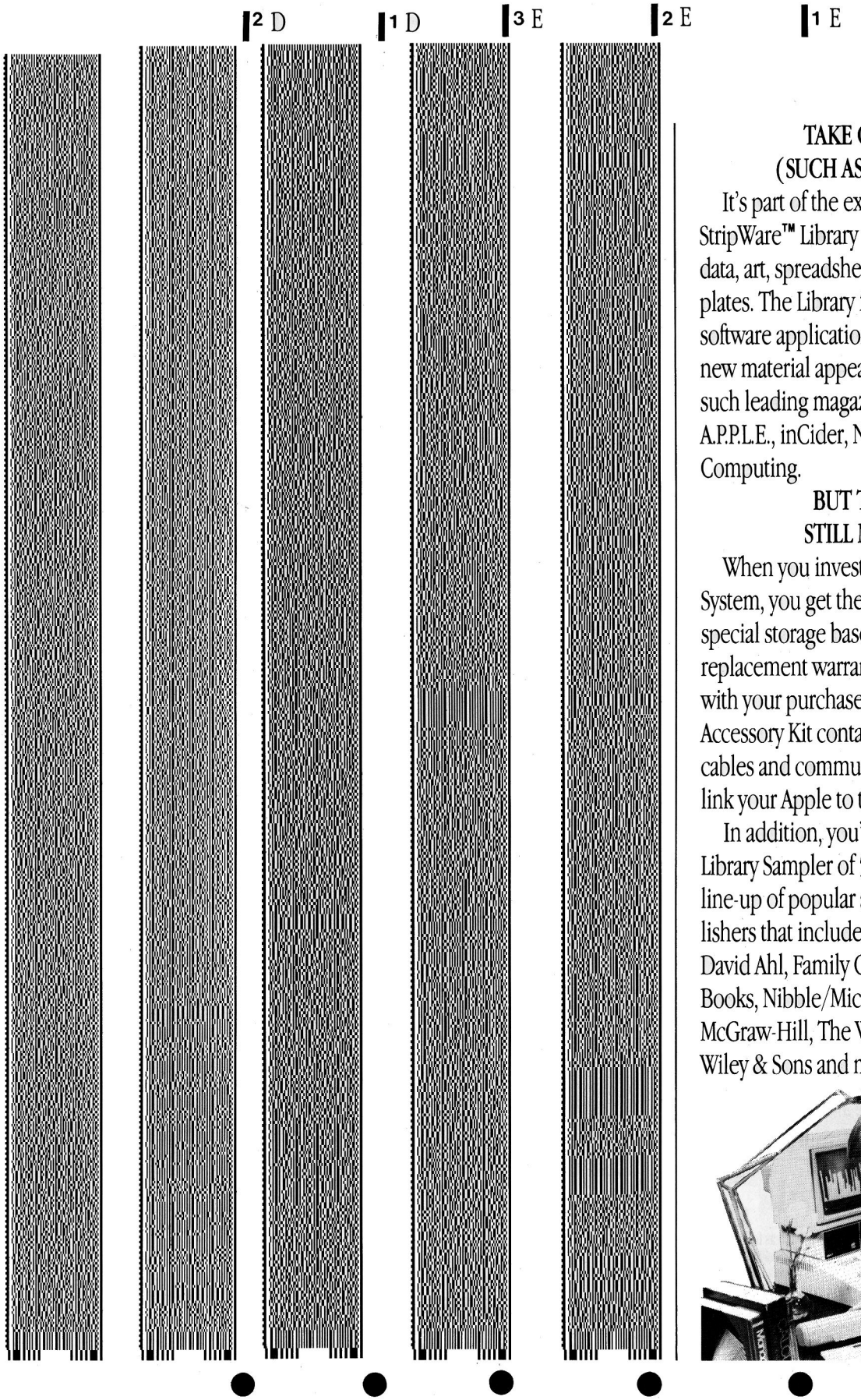
***from Tim Hartnell's Giant Book of Computer Games and Second Giant Book of Computer Games, copyright 1983, 1984, 1985 Tim Hartnell, published by Ballantine Books

StripWare Library Nos. 208-216



TAKE OUR ADS (SUCH AS THIS ONE)

It's part of the expanding Cauzin StripWare™ Library containing programs, data, art, spreadsheet macros and templates. The Library features a variety of software applications and you'll find new material appearing each month in such leading magazines as A+, Call A.P.P.L.E., inCider, Nibble, and II Computing.

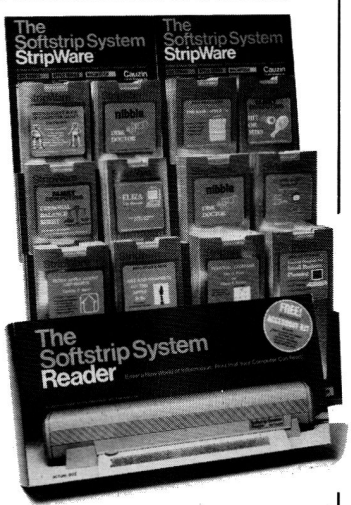
BUT THERE'S STILL MORE . . .

When you invest in the Softstrip System, you get the Softstrip reader, a special storage base, and a full one-year replacement warranty. Also included with your purchase is a complete Accessory Kit containing connector cables and communications software to link your Apple to the reader.

In addition, you'll find a StripWare Library Sampler of 50 programs from a line-up of popular authors and publishers that includes Addison-Wesley, David Ahl, Family Computing, Hayden Books, Nibble/MicroSPARC, Osborne/McGraw-Hill, The Waite Group, John Wiley & Sons and many others.

When you become a Softstrip reader owner, you also get a FREE one year StripWare Club membership with programs mailed to you monthly. You'll even receive a FREE Cauzin Effect Newsletter filled with the latest updates and news about Softstrip developments.

There's also StripWare™ brand software in authorized Softstrip dealers across the country. Our collection of titles include everything from utilities, graphics and entertainment to business programs. All for only $2.98 to $19.98!



Softstrip
COMPUTER READABLE PRINT

F 1 F 2 F 3 F 4 F 5

AND IF THAT'S NOT ENOUGH TO START YOU STRIPPING...

Do you want to create you own data strips? Well, now you can with a special StripWare program called "STRIPPER." It lets you print your disk files as strips using your own Imagewriter or Epson dot matrix printer. The printing software is only $19.95, but just think of the things you could be stripping. Store backup files on paper. Print, copy and mail your own programs to others easily and inexpensively.

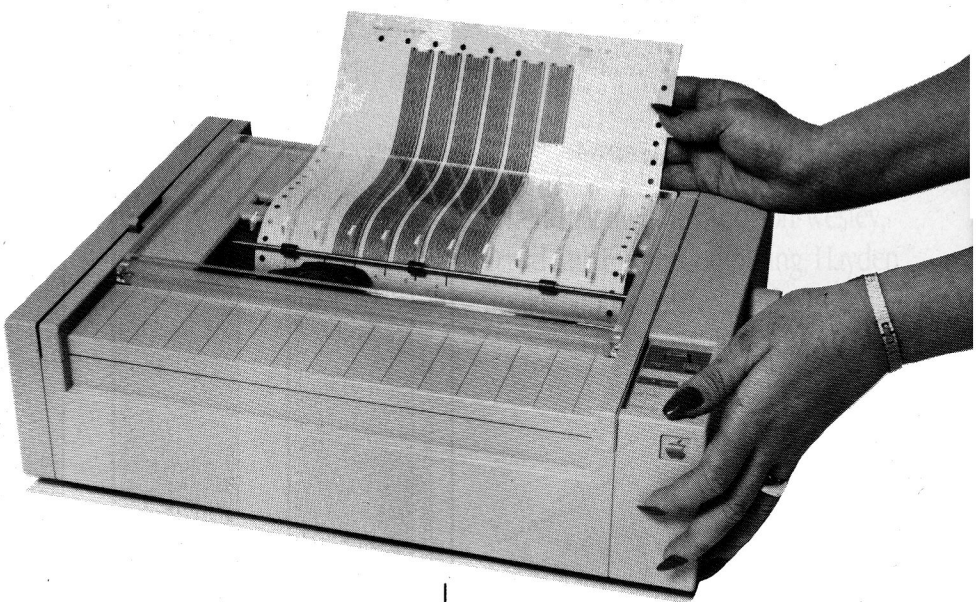
And all you need to start is the Softstrip System. You get everything you need to read strips (like the ones you're seeing in this magazine and others) for just $199.95.

The CAUZIN SOFTSTRIP SYSTEM. It's what Apple owners everywhere are talking about. So what are you waiting for? Shouldn't you be stripping too?

For the Softstrip System Dealer nearest you (or if there isn't one in your area, to order), call toll free:

1-800-533-7323
(in Connecticut, 203-573-0150)

Softstrip
COMPUTER READABLE PRINT



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StripWare and Softstrip are trademarks of Cauzin Systems, Inc.
Apple, Imagewriter, ImageWriter II, and Super Serial Card are registered trademarks of Apple Computer, Inc.

HOW TO STRIP

It's easy to read strips.

1) Just load Cauzin's communications software into your Apple.
2) Pick up the reader and lay it on the strip.
3) To the side of the data strip you'll see a black dot and a short black line (such as the ones found on these pages). These are your alignment marks. Place the reader so that its loop fits over the black dot and the edge of the reader just touches the black line.
4) Just press a single key command and then RETURN to "Read Strip".
5) That's all you have to do. The strip is read automatically, and its contents are saved to disk. You can use the program in the same way as if it had come on disk originally.

NOW YOU CAN PRINT YOUR OWN STRIPS!

"STRIPPER"

It's the make-it-yourself Softstrip™ data strip program. STRIPPER software lets you strip your disk files onto paper.
Put up to 800 bytes on each strip and up to 7 strips on each page.
And, if you use a good copier, duplicate the strips you've made.

REQUIRES:
— The Cauzin Softstrip System Reader
— Apple II, Apple II Plus, Apple //e or Apple //c
— Apple Imagewriter or Epson FX or RX printer
— Printer interface card: either a Super Serial Card (built into the Apple //c), Grappler graphics card, or Dumpling graphics card

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ONLY 19.95

Circle 233 on Reader Service Card.

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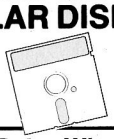

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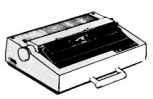

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Continued from p. 52.
use your computer as an adjunct to your stationary bicycle or rowing machine.

Make Mine Caffeine

Besides diet and exercise, drugs influence our psychophysical well-being. In the area of substance-abuse education, as in other areas of education, the Apple shines. At least three publishers offer programs to help you deal with your own or your children's concerns about drugs, including alcohol and tobacco.

Marshware offers two programs—**Alcohol: The Party** and **Tobacco: To Smoke or Not to Smoke**. Both programs include tutorials about the dangers of these drugs and simulations in which you take an active role.

In Alcohol, you attend a party and make decisions about drinking and driving. During the party, the computer displays a graph of your simulated blood-alcohol level. You get to play a rigged video game with the same klutzy lack of coordination you would experience if you were "under the influence."

In Tobacco, you make decisions about smoking for a hypothetical friend. You follow his or her life from youth to old age. You share in disappointments over losing friends, being ousted from the swimming team, and becoming ill.

From Sunburst Communications, you learn startling statistics about tobacco in its program, **The Smoking Decision**. Instead of deciding for a make-believe friend, you decide for yourself. Like another wellness program, **Make It Click: Seatbelt Safety**, The Smoking Decision is designed for school children but can easily be used at home.

Alcohol/Drug Abuse, a program developed by the Parents' Resource Institute for Drug Education (PRIDE) in Atlanta, is a fact-filled computerized reference guide. More than two dozen commonly abused drugs are described. This educational, even shocking, program contains a special section on marijuana and a listing of drug hotline numbers. A spokesperson for the publisher claims that the program is for young people, but adds, "Many of us grew up before the drug culture [evolved] but need to be prepared to deal with it."

Arghhh!

Maybe you're one of the lucky ones. Your body's in shape, you eat right, exercise. Your kids are straight-A, prefer milk to Pepsi, and Mozart to rock videos. Sure.

We don't need experts to tell us that we all experience stress, some of it good, some of it deadly. Your Apple probably can't help you avoid stress. In fact, feverishly working with a computerized tax-return program or losing an important data base would likely add stress to your life.

Your computer, though, may be able to help you deal with stress more effectively. Three companies provide stress-reduction programs for the Apple II. All include hardware as well as software, all cost at least $100, and all center around some aspect of biofeedback, a method in which you become attuned to your body's usually unrecognized responses to stress.

The physiology of stress is complicated and subtle. Stress responses are mediated by hormones from the brain and from the adrenal glands that sit on top of the kidneys. In a research laboratory, using animal models

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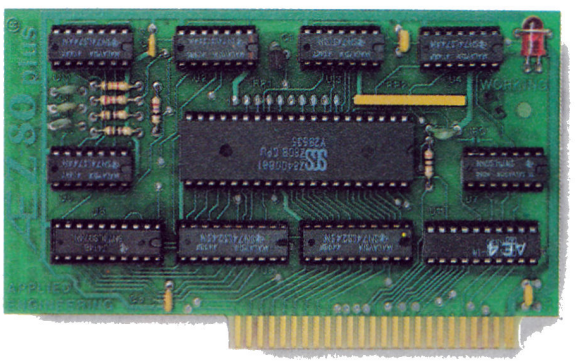

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The new 4.0 boasts advanced features like built-in disk emulation for popular memory expansion boards, boosting both system speed and storage capacity. And menu-driven utilities that let you get to work faster. The Z-80 Plus also lets you run older CP/M programs — all the way down to Version 1.6 (2.2 is the most popular).

The Z-80 Plus is the only card on the market capable of accessing more than 64K in an Apple IIe. If you have an extended 80-column card, all 128K is usable, and if you have RamWorks, up to 1088K is available.

Each Z-80 Plus comes with our CP/M Ram Drive software, enabling IIe owners to use an extended 80-column card or a RamWorks card as a high-speed Ram disk which runs CP/M software up to *twenty times faster.* So packages like WordStar and dBASE II run at blinding speed.

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Can Intelligence Be Artificial?

When you first hear the term artificial intelligence (AI), you may think of Big Brother, that omnipresent villain in Orwell's *1984*. In reality, AI represents a powerful, and somewhat overrated, trend in software development.

AI programs (or expert systems, as they're sometimes called) can be designed for nearly any area of human endeavor. Right now, however, AI software for personal computers seems to be limited to the area of interpersonal relations.

In the Apple II software line, for all practical purposes, Human Edge Software Corporation is AI. Human Edge is the publisher of Mind Prober and Mind over Minors, two home products described in the accompanying article.

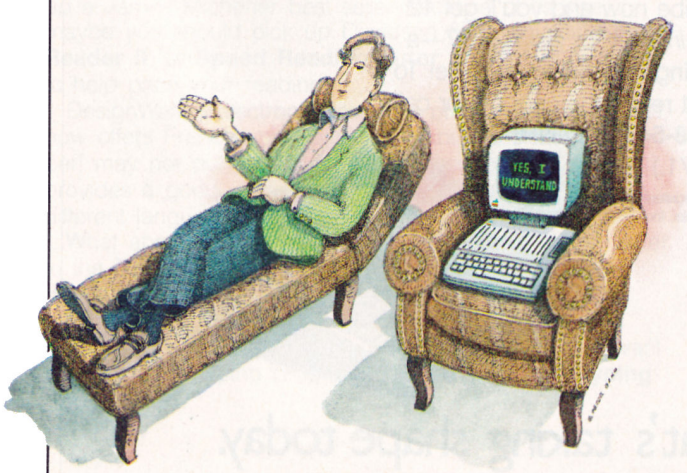
Human Edge also offers high-end (read: expensive) AI programs in its **Business Strategy Software** series: **The Communications Edge**, **The Sales Edge**, **The Management Edge**, and **The Negotiation Edge**.

All of these programs are based on extensive research in human relations and psychology. They operate in a simple, straightforward fashion. When you first use any of the Human Edge business-psychology programs, you profile yourself by responding in an affirmative or negative fashion to statements like "A strong defense is necessary for America's survival," or "I have more energy than others at work."

Next you profile your colleague, client, customer, or subordinate by agreeing or disagreeing with adjectives the program presents to describe the person you have in mind. There's no room for doubt, no allowance for shades of gray. You either agree or disagree with such terms as Concerned, Affiliative, or Afraid.

Once the profiles are complete, the program generates a three- to ten-page report highlighting ways in which you should interact to communicate, sell, manage, or negotiate.

While you may not dispute the research that serves as a basis for Business Strategy Software, you may wonder how you can effectively "read" people you may not know very well. Some qualities ("flashy") may be easy to discern. But how do you tell if a customer is "obedient," "innovative," or "aspiring"? Sometimes all you can do is guess.□ **—C.E.F.**



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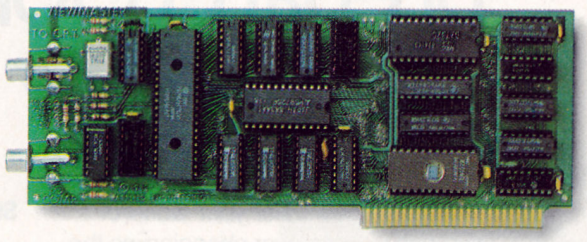

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and appropriate instrumentation, an Apple computer could monitor the effects of stress directly.

At home, it isn't practical to dissect oneself or insert probes into the brain or adrenal glands. It is practical to use noninvasive types of measurements. This indirect approach is precisely the method used in **Biofeedback Microlab**, **Relax!**, and **Learning to Cope with Pressure**.

Biofeedback Microlab measures four types of feedback: muscle tension, sweat-gland activity, skin temperature, and heart rate. The sensors you need to monitor all four responses accompany the software, which graphs and displays your progress on screen.

Like Biofeedback Microlab, the Relax! program includes an interface box that serves as a go-between to connect the special headband that comes with the program to the Apple. Unlike Biofeedback Microlab, however, Relax! concentrates on muscle tension only. A cassette tape contains a relaxation exercise you listen to while you observe the real-time Relax Graph on your monitor screen. The software also includes a Balloon Game in which you perform better if you're more at ease. Quite a change from games in which your blood pressure seems to rise in direct proportion to your score!

Instead of measuring muscle tension, Learning to Cope with Pressure monitors galvanic skin resistance (GSR), an indicator of sweat-gland activity. You rest your hand on the GSR biosensor, which connects by cable to the game port.

The software includes a Physical Stress Test and a Psychological Stress Test as well as three methods for managing stress. A cassette tape included with the program offers a brief monologue on biofeedback and an oh-so-mellow relaxation exercise.

Because Learning to Cope with Pressure is sold primarily to schools, it includes lesson plans and classroom activities. With a little imagination, you could modify these for family use.

Skill Builders

Whatever the cause and extent of stress in your life, healthy escapes can help you cope. Losing yourself in a good novel can rejuvenate you. So can learning a new language, or finally accepting the challenge of learning to type using the Qwerty or Dvorak method instead of the Columbus method.

All of these relaxing activities involve skills your Apple can help you attain. If you find yourself hesitating to pick up a James Michener best seller because of its size, maybe you should pick up Davidson & Associates' **Speed Reader II**, or **Speed Reading Tutor** from Kriya Systems, to help pace your reading.

DesignWare's electronic flashcard program, **Remember!**, now offers French and Spanish vocabulary disks. Remember! may not put Berlitz out of business, but the program provides a good start for people who would like to learn different languages.

What about that letter you owe Aunt Alice? Or the Letter to the Editor you've been meaning to write? If only it didn't take so long to hunt and peck at the keyboard!

Not only can your Apple process your words, it can teach you how to type them in the first place. If you want a by-the-book typing program (with video game), **Typing**

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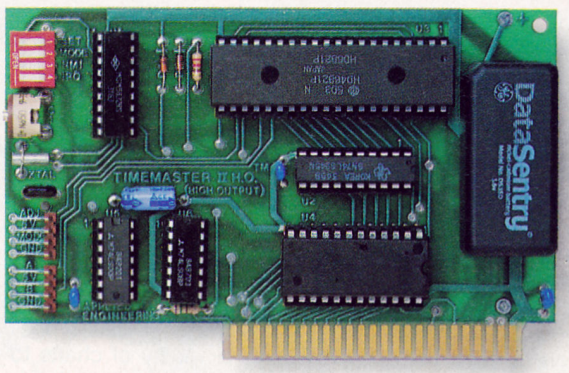

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Tutor III may be the best. If a little out-of-this-world entertainment is in order, either **New Improved MasterType** or **Keyboard Cadet** should suffice.

If variety of exercise, including typing-practice variants of PacMan and Gunsmoke, is what you desire, take a look at **Typing Well**. All four of these programs will teach you correct finger placement and provide hours of fun and satisfaction.

Getting to Know You

Our physical, mental, and emotional health depends on our relationships with people, past and present.

Alex Haley showed us through his book, *Roots*, that who we are is keenly influenced by those who came before us. A software program for your Apple called **Family Roots** can help you learn more about your ancestors.

The program has other interesting applications. One New York physician is using Family Roots to keep track of data accumulated in his study of the genetic aspects of cystic fibrosis.

Acclaimed by genealogists, Family Roots keeps track of names, dates, birthplaces, and myriad other details, including anecdotes. The program prints a variety of charts to help you sort out the folks who helped make you the person you are.

But what about your contemporary relationships? Software to help you in this area presents a strange mix. On the one hand, **Mind over Minors**, from Human Edge Software, assists you in dealing with your children or students. This program shows how your personalities mesh, or fail to.

Mind over Minors asks you to agree or disagree with a series of adjectives about you. You profile your young person the same way. The program then prepares an analysis explaining how you can interact, motivate, and discipline. (For a look at business-psychology software, see the accompanying sidebar.)

On the other hand, Activision's **Alter Ego** is a game in which you play "what if" and watch your imagined life unfold on the screen. You participate in numerous vignettes and make choices from infancy through old age—if you make it that far.

When I played Alter Ego, I was an arrogant fool who ignored the stress in my life. The program chided me, "Your lack of desire to take care of yourself was selfish. Now your family and friends will have to suffer the loss. This game is over." Poof.

Then there's **Mind Prober**, a program touted as psychological software that helps you get to know other people as they are. Mind Prober works like Human Edge Software Corporation's other home-psychology program, Mind over Minors. The main difference is that in Mind Prober you profile only the other person, not yourself.

To boldly go at speeds no Apple has gone before.

Get TransWarp™. The fastest accelerator you can buy for your Apple™ IIe, II, or II+.

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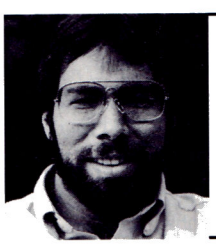
It's an experience you shouldn't miss. And with TransWarp, you won't have to. Because TransWarp will run your software up to *3.6 times faster* — leaving other accelerators in the stardust!

No more yawning while your Apple™ slowly rearranges text or calculates spreadsheets. With 256K of ultra-fast RAM, TransWarp speeds up *all* Apple software — including AppleWorks, Supercalc 3a, Visicalc, and all educational software, graphics and games. And it's compatible with all standard peripheral cards (such as RamWorks II and Apple memory cards), Profile and Sider hard disks, 3½" UniDisks, 80-column cards, modems, clock cards, mouses and more! You name it, TransWarp accelerates it. There's even a 16 bit upgrade chip available should 16 bit software become available for the Apple.



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Steve Wozniak, the creator of Apple Computer

An important difference.

TransWarp's not the only speedup card on the market. But it's the only one that accelerates your Apple's main memory, ROM *and auxiliary memory.* And with more and more programs residing in auxiliary memory, buying anyone else's accelerator makes less and less sense. TransWarp even works with most D.M.A. devices including the Swyft™ card.

There's one more difference. Since TransWarp doesn't use memory caching, it accelerates *all* software — and not just most of it.

A cinch to use.

Simply plug TransWarp into any slot in your Apple II, II+ or IIe — including slot 3 in the IIe. Instantly you'll be computing at speeds you only dreamed about before. And should you ever wish to run at normal speed, simply press the ESC key while turning your Apple on.

Since TransWarp is completely transparent, you won't need preboot disks or special software. It's ready to go right out of the package!

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Imagine the productivity gains you'll achieve when your programs are running over three times faster. TransWarp is so powerful, your Apple will make IBM PCs™ and even ATs™ look like slowpokes — whether you're planning taxes, plotting charts or playing games! Take a look at a few of the features that set TransWarp apart:

- 3.6 MHZ 65C02
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- Accelerates main *and* auxiliary memory
- Low power consumption for cool operation
- Totally transparent operation with all software
- Plugs into any slot, including slot 3 on the Apple IIe
- Accelerated 16 bit option available

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Give *your* Apple the TransWarp advantage. With our risk-free 15-day money back guarantee, you have nothing to lose but wasted time. Call today!

TransWarp Accelerator $279
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Mind Prober's detractors insist that the program's power is illusory because its conclusions may be based on erroneous perceptions and first impressions. To its credit, Mind Prober works best with people you already know, and it's a ton of fun to read the program's assessments of those unique characters among your family and friends.

In a more serious vein, one of the most rewarding things in life is to know someone who shares your dreams and helps you work toward your goals, whether those objectives relate to health or to wealth.

Alter Ego Development has a software surrogate for those who lack such a confidante or mentor. The developers call their program **Personal Friend**, and somewhat bizarrely refer to it as "Living Software."

Imagine! If Personal Friend is ever released in 3½-inch disk format, you'll be able to carry your "true friend" in your shirt pocket and threaten him with a magnet if he betrays you.

Humanizing a floppy disk, whether implicitly or explicitly, leaves me saddened. Your Apple can open up new vistas for you and make you a well-rounded person, but computerware, even if endowed by its "creators" with "intelligence," can't substitute for the companionship and camaraderie that only other human beings can offer. ■

Write to Cynthia Field at 10 Border Avenue, Wakefield, RI 02879.

For a look at NutraHelp, inCider's free nutrient-analysis program listing, turn to p. 94.

Product Information

Alcohol/Drug Abuse, $39
Personal Health, $49
RAM Resources
100 Lynn Street
Peabody, MA 01960
(617) 532-4535
Reader Service Number 303

Alcohol: The Party, $49.95
Tobacco: To Smoke or Not to Smoke, $49.95
Marshware
P.O. Box 8082
Shawnee Mission, KS 66208
(816) 523-1059
Reader Service Number 304

Alter Ego, $49.95
Activision
2350 Bayshore Frontage Road
Mountain View, CA 94039
(415) 960-0410
Reader Service Number 305

An Apple a Day, $49.95
Architectural Design, $99.95
Interior Design, $69.95
Landscape Design, $69.95
Avant-Garde Publishing
P.O. Box 30160
Eugene, OR 97403
(503) 345-3043
Reader Service Number 306

Biofeedback Microlab, $350
Cardiovascular Fitness Lab, $175
HRM Software
175 Tompkins Avenue
Pleasantville, NY 10570
(800) 431-2050
Reader Service Number 307

The Communications Edge, $195
The Management Edge, $250
Mind over Minors, $59.95
Mind Prober, $49.95
The Negotiation Edge, $295
The Sales Edge, $250
Human Edge Software
2445 Faber Place
Palo Alto, CA 94303
(800) 624-5227
Reader Service Number 308

Dream House, $39.95
CBS Software
One Fawcett Place
Greenwich, CT 06836
(800) CBS-ASK4
Reader Service Number 309

Family Roots, $185
Quinsept
P.O. Box 216
Lexington, MA 02173
(617) 641-2930
Reader Service Number 310

HouseCall '86, $39.95
Rocky Mountain Medical Software
5680 South Syracuse Circle, Suite 500
Greenwood Village, CO 80111
(800) 233-3556
Reader Service Number 311

Keyboard Cadet, $39.95
Mindscape
3444 Dundee Road
Northbrook, IL 60022
(800) 221-9884
Reader Service Number 312

Learning to Cope with Pressure, $99
Make It Click: Seatbelt Safety, $59
The Smoking Decision, $59
Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570
(800) 431-1934
Reader Service Number 313

New Improved MasterType, $39.95
The Original Boston Computer Diet, $79.95
Scarborough Systems
25 North Broadway
Tarrytown, NY 10591
(914) 332-4545
Reader Service Number 314

Nutriplan, $75
Micromedx
187 Gardiners Avenue
Levittown, NY 11756
(516) 735-8979
Reader Service Number 315

Personal Friend, $69
Alter Ego Development
123 West 28th Street
New York, NY 10001
(212) 563-2311
Reader Service Number 316

Relax!, $139.95
Synapse Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170
Reader Service Number 317

Remember!, $79.95
DesignWare
185 Berry Street
San Francisco, CA 94107
(800) 572-7767
Reader Service Number 318

Speed Reader II, $69.95
Davidson & Associates
3135 Kashiwa Street
Torrance, CA 90505
(800) 556-6141
Reader Service Number 319

Speed Reading Tutor, $89.95
Kriya Systems
6 Export Drive
Sterling, VA 22170
(703) 430-8800
Reader Service Number 320

Typing Tutor III, $49.95
Simon & Schuster Electronic Publications
1230 Avenue of the Americas
New York, NY 10020
(212) 245-6400
Reader Service Number 321

Typing Well, $49.95
Learning Well
200 South Service Road
Roslyn Heights, NY 11577
(516) 621-1540
Reader Service Number 322

Weight Loss and Nutrition Center, $79.95
ISC Consultants
14 East 4th Street
New York, NY 10012
(800) 882-3438
Reader Service Number 323

Beagle Bros Apple® Software Report

Ad Number 251 — *"All the News That Fits"* — *Spring 1986*

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Print any Apple image on your dot-matrix printer.

Use Triple-Dump with any Apple II and your dot matrix (graphics capable) printer to print:

- Hi-Res graphics
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- Lo-Res graphics
- Double Lo-Res graphics
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Make "hard copies" of all kinds of images with absolutely no programming knowledge.

Or, if you're a programmer, use Triple-Dump's print routines in your own Applesoft programs.

Triple-Dump offers many special graphics effects options such as picture cropping, rotating and magnifying, plus the ability (on many printers) to adjust the print density.

BIG BANNERS TOO: Triple-Dump puts your printer to work making giant-letter 8½"-high signs for all occasions.

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SHAPE MECHANIC

Hi-res shape animation and fancy hi-res typefaces

Shape Mechanic converts your hi-res drawings into "shape tables" so you can create title screens, charts and animation with Apple's built-in *Draw* and *Xdraw* commands. "List and Learn" demos on the Shape Mechanic disk teach you how to create your own hi-res programs.

HI-RES TYPE: 30 proportionally spaced hi-res screen display fonts (both large and small) are included on the Shape Mechanic disk. Each character may be redrawn as you choose.

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Shape Mechanic's new **"SHAPE CAPTURE"** feature lets you convert a section of any normal hi-res picture into a shape table.

No fee required to use Shape Mechanic's fonts & routines in programs that you sell. Just credit Beagle Bros in your program and manual.

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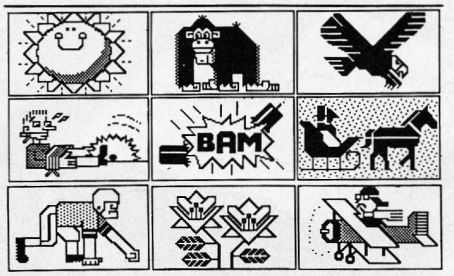
MINIPIX Disk#1

200 pictures for The Print Shop™ and other graphics programs



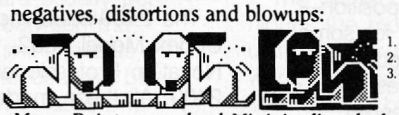
Here are 200 copyright-free pictures on disk, for you to use with the most popular Apple graphics programs, including...

- **The Print Shop**
- **MousePaint**
- **Shape Mechanic**
- **Alpha Plot**
- **Apple Mechanic**
- **Beagle Graphics**

...and almost any other Apple graphics program that deals with unprotected hi-res pictures.

Attention, PRINT SHOP owners!

Use Minipix pictures straight from the Minipix disk on your greeting cards, banners and signs. And now you can convert part of *any* normal hi-res picture into Print Shop format! And use Minipix's picture editor to create special graphics effects like instant mirror images, negatives, distortions and blowups:

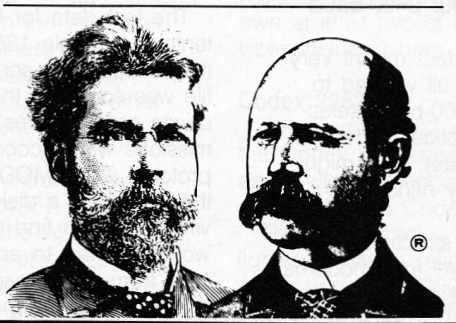


1. Normal
2. Mirror
3. Negative

MousePainters can load Minipix directly from the disk. *Alpha Plotters* can "clip" Minipix off the screen and "paste" them onto their own pictures. *Shape Mechanic* and *Apple Mechanic* fans can use Minipix in shape table format.

$29.95 *Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II Minipix pictures by Fred and Sara Crone*

"The Print Shop" is a trade mark of Broderbund Software, Inc.



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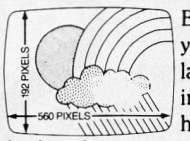
BEAGLE GRAPHICS

Double-high resolution plus 16 hi-res colors!

DOUBLE HI-RES FOR THE ARTIST...

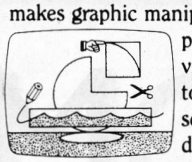


Beagle Graphics lets you use your 128K Apple to draw and label impressive double hi-res images (up to 560 pixels horizontally) using the Apple keyboard or, optionally, a joystick, AppleMouse, Koala Pad or Graphics Tablet.

And you can display *16 hi-res colors* with over 200 color-mixes and fast area "color fills".

A **Variety of Typestyles** is included for labeling double hi-res pictures and charts.

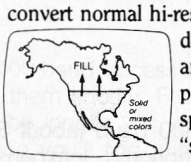
Beagle Graphics' CUT AND PASTE feature makes graphic manipulations a snap—Any



picture section may be individually altered or relocated to a new position on the screen. Or onto a completely different picture!

...OR FOR THE PROGRAMMER

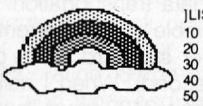
You get 33 new commands for drawing, filling and manipulating double-res images. You can convert normal hi-res programs and pictures into



double hi-res, save and load any image section, compress picture data to 1/3 disk space, produce double hi-res "slide shows" and more.

READ THE REVIEWS: *Family Computing,* Feb. 86, gives its highest rating (★★★★) to Beagle Graphics in $-Value, Graphics Quality, Documentation and Overall Performance.

$59.95 *Unprotected, ProDOS and DOS 3.3 Compatible with any Apple IIc or 128K IIe Written by Mark Simonsen*



```
]LIST
10 HGR2: CLEAR: ONERR GOTO 10
20 P=1+(P=1): POKE 49238-P,Z
30 POKE 230,32+P: POKE 28,C
40 CALL-3082: POKE 49235+P,Z
50 C=C+1: GOTO 20
```

FONT MECHANIC

30 new hi-res typefaces for Shape Mechanic (and Apple Mechanic)

Font Mechanic's fonts work with all of the programs on Shape Mechanic and Apple Mechanic:

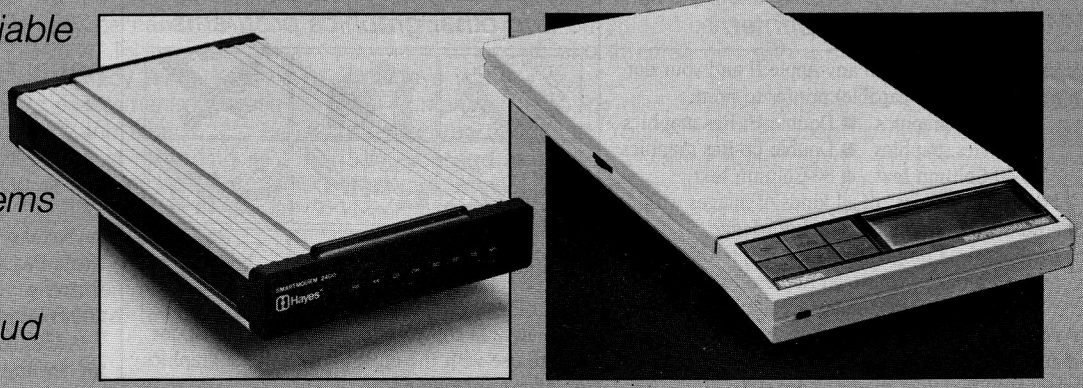
Old English CRATE FINE
ZEBRA UNCLE BRANDING
Caesar HOLLYWOOD
BELLS SANDWICH TIMES
U.S. OPEN EDISON
COUNTDOWN ROOSEVELT

FONT UTILITIES: Font Mechanic lets you convert fonts from other disks (DOS Tool Kit, the Penguin disks, etc.) into fonts for Shape Mechanic and Apple Mechanic. Distort fonts too (s-t-r-e-t-c-h, COMPRESS, etc.) for hi-res copy-fitting and special effects.

$29.95 *Unprotected, ProDOS and DOS 3.3 Compatible with any Apple II Written by Mark and Jon Simonsen*

Circle 179 on Reader Service Card.

Looking for fast, reliable telecommunication? Check out inCider*'s sampling of high-speed modems for your Apple II, plus our selection of "no-frills" 300-baud models.*



MORE BAUD

by Bill O'Brien

Communication at 300 baud (about 30 characters per second) is a time-honored, inexpensive proposition—but it's old technology and intolerably slow for some applications. In the last five years, 1200-baud modems have come to the forefront, but almost as soon as they became standard, new and faster modems appeared. We'll look specifically at what the new high-speed modems have to offer, then see what's still around in 300 baud if all you need is basic data transportation.

The fastest, most reliable speed currently available for telecommunications over standard voice phone lines is 2400 baud (bits per second). When I called several manufacturers to research their 2400-baud modems, though, I was very disturbed when they all said, "Our 2400-baud modem doesn't work with the Apple II."

I assured them that what they knew as fact meant very little to me, and I was right. The modems all worked to the same degree. In fact, although the 2400-baud selections came from Codex, Hayes, U.S. Robotics, and Novation (whose product emerged as my favorite), they might have all been the same modem—with very minor exceptions.

They all follow the Hayes AT command structure—but their compatibility goes deeper than that. All four modems have "S" command registers, and use the same registers and parameters to set the same functions.

The differences also occurred in the register area. Strict compatibility was maintained only among the first 11 registers, S0–S10, but these are the most important for setting the more common functions, such as how many rings to receive before answering. Codex supports no additional register settings, U.S. Robotics and Novation permit 15 in all, and Hayes supports 22. I'm not sure this difference is at all consequential. Some of the Hayes register commands take the place of switch settings (the 2400-baud modem has no switches), while others perform such functions as adjusting the volume of the internal speaker.

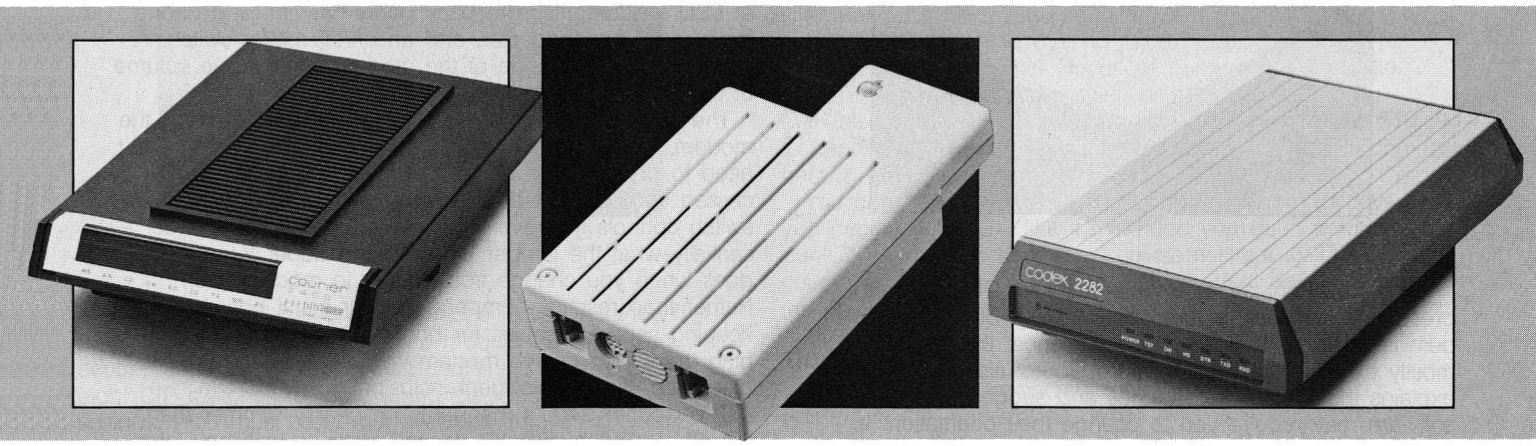
The Test Vehicles

The 2400-baud modems evaluated in this article are the Codex Model 2282, the Hayes Smartmodem 2400, the Novation Professional 2400, and the U.S. Robotics Courier 2400. All these modems are 2400/1200/300-baud capable and were tested on an Apple //e with enhanced video firmware. I used Softerm II as the Apple's communications program. On the other end of the line, a 512K Macintosh simulated an information service for transmission and reception of data. I also took a look at three "no-frills"-type 300-baud models: DAK Industries' Computer Infograbber modem phone, Anchor Automation's Volksmodem, and the Apple Personal Modem.

The test data for the 2400-baud modems were the contents of a single 135K file transmitted between the two machines to the screen and then a DuoDisk. Because the file was so large, the //e was forced to access its disk drives several times during the transfers. Also, all file transmissions were accomplished without any special transfer protocol (like XMODEM). Dumping information straight to the screen or a disk drive more closely resembles the environment you find with an information service (although it would be rare to encounter a continuous 135K flow of data from any service).

At first, none of the modems worked correctly—even when slowed to 1200-baud operation. Inevitably, after 40 or 50 lines of text were transmitted to the //e, the screen would start to scramble as characters were missed, but I expected this to happen.

When the computers were cabled directly together with no intervening modem, the scrambled screen results were the same for all speeds above 300 baud, unless XMODEM protocol was used (although the errors occurred later in the file as the speed dropped).



FOR THE BUCK

The reason is, of course, that certain functions like writing to the screen and accessing the disk drive take time. And they can take longer than usual on the Apple //e. To accommodate that, communications software usually permits a secondary level of communication between machines for signaling when such time-consuming events occur. If the receiving computer is about to become busy, it sends a signal to the other machine, which asks it to wait before sending more data.

This process can take either of two forms—hardware handshaking or software control. I've yet to see a program effectively use hardware handshaking on an Apple II. At speeds below 300 baud, the Apple "standard," no control is needed at all, and few programs have ever bothered to address the issue. Above that rate, if you rely on hardware handshaking, chaos takes over the screen.

Software control is a different story. When the computer becomes too busy to monitor the RS-232 lines, the receiving computer sends a special control character to halt transmission. The originating machine waits until the other computer sends a second character before it resumes transmission.

There are several methods of software control in use: ACK/NAK, ETX/ACK, DC1/DC3, and XON/XOFF. Essentially, they all work the same way. One of the ASCII control codes stops data transmission, and the other restarts it. The tricky part is to make sure the telecommunications software on both computers understands the same method.

I used XON/XOFF and it immediately corrected the problem on the Apple //e. (In fact, with the computers cabled together, I've run text-file transfers using that protocol at 9600 baud with no difficulty.)

Restrictions on 2400 Baud

Theoretically, there are no restrictions on using 2400 baud, but it represents a new standard. You'll discover that information services are slow to catch up. Some, like CompuServe, have 2400-baud access numbers already. Others will be adding them shortly. For personal bulletin boards, the wait may be longer.

The primary restriction you'll find arises from the techniques the modems themselves use. There are three popular "standards" for microcomputer telecommunications work, and each depends on communication speed: Bell 103 for 300 baud, Bell 212A for 1200 baud, and V.22 bis for 2400 baud.

It's essential that the modems on each side of the dialogue use the same speed, and operate under the same standard. You'll find some maverick devices, for example, that use Bell 212B for 1200 baud, or a proprietary "standard" for 2400-baud operation. Some modems use a V.22 bis standard for 1200-baud work and ignore Bell 212A. (This is usually the result of a manufacturer wanting you to own at least two of his or her modems.) None of the devices included here falls into that category.

Codex 2282

The Codex 2282 is sold as a Macintosh product, and the Codex marketing people seem unaware that you can use it with the Apple II. (It's actually a Motorola modem sold under the Codex brand name.)

The front panel is equipped with a full array of status lights, indicating relative speed (green at 2400, red at 1200, and off at 300), connect, data transmission and reception, and TST. The test light flashes as the modem goes through a self-testing procedure when you first turn it on and continues until you send it any AT command. It also indicates transmission errors when you use MNP protocol. (See the accompanying sidebar on MNP.)

The back panel includes line and telephone jacks, reset button, volume control for the internal speaker, 25-pin connector, and a bank of DIP switches. (These switches are preset at the factory and should not be changed.)

Under the front panel, another bank of DIP switches presents a problem for the Apple II user. Since this modem is aimed at the Macintosh audience, the manual mostly explains the Mac software Codex also supplies. It explains the front-panel switches and suggests that other software may require you to change their orientation. It even shows their factory-preset positions, but it doesn't mention what they control.

A quick call to Product Support revealed that information (see the **Table**). Product Support uses an answering machine, and that worried me. But I had a call-back in less than an hour, and I didn't identify myself as a writer with *inCider.*

There's no power-off switch on the 2282. It's meant to be left on or unplugged (the typical procedure for devices used with mainframes and minicomputers). Also, the six-pin connector from its power transformer isn't keyed, but seems to work no matter what its orientation in the receptacle.

Table. Front-panel switch-equivalency functions for the Codex 2282.

Sw #	Up	Down
1	Use DTR	DTR always high
2	Verbose result codes	Numeric result codes
3	Send result codes	Do not send result codes
4	Echo on	Echo off
5	Auto-answer on	Auto-answer off
6	DCD follows modem	DSR & DCD always high
7	212a mode (inhibits 2400-baud operation)	Permits 2400-baud operation
8		Always down

The Codex's MNP compatibility makes it an important modem to consider if you'll be attempting specialized file transfers.

Courier 2400

If seniority counts for anything, U.S. Robotics should have achieved prominence in the modem field long before anyone else. That it hasn't might have something to do with the fact that its modems were always pictured as bulbous, nondescript white things. Now that's changed.

The Courier 2400 is slim and black, with a gold faceplate and a red plastic lens covering the standard series of LED status lights. The back panel has line and phone jacks, a 25-pin connector, and an on/off rocker switch. A slide switch on the side of the modem controls the volume of the internal speaker.

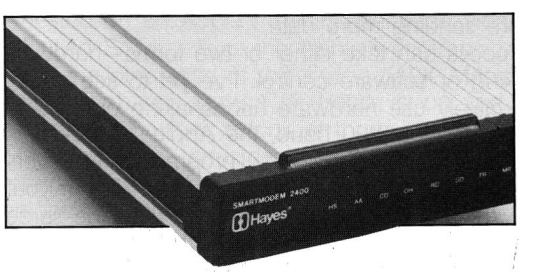
The DIP configuration switches are on the bottom of the modem. They're arranged in an open panel, so you won't need to pry anything up to reach them, but they're recessed so you can't accidentally reset them. Another switch controls the reversal of pins 2 and 3. (This is essentially what the jumper block on the Super Serial Card does when you change from printer to modem use.) Rather than resetting jumpers on your serial board, or keeping separate cables for printer and modem, just flipping the switch on the modem will usually make up the difference. It's an intelligent inclusion.

The Courier 2400's manual is noticeably slimmer than the other modems', but it doesn't seem to lack any information. In fact, along with the modem set-up and operation procedures, it contains a very good discourse on telecommunications theory I'd suggest any user read.

If you don't need the communications theory, you can almost throw the Courier 2400's manual away. You don't need it to configure the modem. U.S. Robotics has reprinted the AT commands, the S-register settings, a description of the status-light display, DIP-switch controls, and pin assignments for the RS-232 connector on the bottom of the modem. Provided you don't lose the modem, you don't need the manual.

Smartmodem 2400

Nothing can be more Hayes-compatible than a Hayes modem. If that's what you're looking for, go no further. The modem itself is pretty much standard Hayes fare, with a full complement of front-panel LEDs.



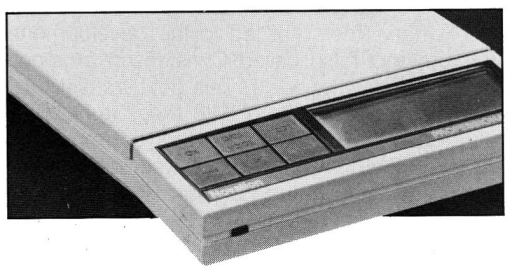
The back panel now has line and phone jacks, 25-pin connector, power receptacle, and on/off switch. There's no volume control—one of the S registers takes care of that.

The manual is another Hayes original, with cover-to-cover information. I might sound somewhat blasé about this modem, but Hayes is the stuff from which standards are made, and I've come to expect the level of excellence the company provides.

Professional 2400

I have an early 300-baud Novation modem on a shelf somewhere, and I expected the Professional 2400 to be simply a faster version of that slim, black box. I was wrong. From a purely subjective point of view, the Professional 2400 is an incredible exercise in fantasy.

This basic tan box is about two-thirds the height of the Hayes modem, and about a half-inch longer. The only light on the front is the red power-on LED. The volume control is a rotary switch partially recessed into one side (not the back).



The back panel has line and phone jacks, a standard 25-pin connector, and a "feature module." This last accoutrement is a plug-in module containing three banks of eight DIP switches for configuring the modem's default settings. (You must reset four switches from their factory positions to force DCD, DTR, DSR, and CTS high before the modem will work with the Apple.)

A small panel on the top of the front end of the modem is actually the most interesting. It has five membrane switches: On/Off, Data/Voice, Test, Mode, and Speed.

A 2-by-¾-inch LCD screen on the panel indicates all status information. When you first turn on the modem, or if you press the test switch, it plays several tunes as various types of information are printed across your screen, detailing the modem's condition in English, not LED. While you're using the modem, it even flashes the words "send" and "receive" as data leave and enter it.

The manual details the operation of the modem itself with any generic software. Appendix B even supplies some cable configurations for various computers, although the Apple II is conspicuous by its absence.

One feature I can't applaud enough is the 2400 Professional's power supply. While other modems I've reviewed here have bulky power transformers with built-in power plugs, which can dominate a power strip or totter from a wall outlet, Novation terminates its transformer in a cable with a standard three-prong wall plug (much the same as Apple did for the //c). Also noteworthy is the fact that the Professional 2400 is the coolest-running of the four. This one exudes intelligent design.

Basic Data Transportation

Your data-communications needs might not be exotic enough to require the capabilities and expense of a 2400-baud modem. The idea of a cheaper, "no-frills" alternative is what sparked the creation of the Volkswagen Beetle, the Yugo, and roller skates.

It's also the root cause of the second section of this look at modems. While these other modems aren't sold in white boxes with a generic label "Modem" written across the front, they do represent compromises (sometimes significant) when compared to the current state of the art.

Computer Infograbber

The Computer Infograbber modem phone, manufactured by Unitech, is the least expensive modem I reviewed. This is a basic, bare-bones 300-baud modem. DAK Industries sells it for a meager $49 (latest catalog price). If you're wondering how much of a modem it can be at that price, you might as well know it's also a tone/pulse-dial phone with ten-number memory and a speaker.

That's the nature of DAK's products. The company is almost a "Gadgets 'R' Us" operation that's mail-order only. The merchandise it sells is inexpensive and usually acquired because a manufacturer made a slight blunder (like making a billion 300-baud modem phones just as the industry was switching over to 1200 baud).

The Infograbber is not Hayes AT command-compatible. It doesn't auto-dial, auto-answer, or auto-anything. But DAK also sells telecom software for the //e and //c for $10 to handle the communications basics. (DAK also sells connecting cables and a serial interface for the //e.)

You can return the Infograbber to DAK within 30 days if you decide you don't like it (provided you don't double-dunk it in your fish tank or otherwise mistreat it). Of course, at $49 you might forget the modem entirely, once the novelty wears off, and just use the phone.

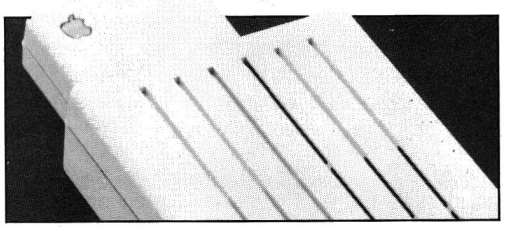
The Volksmodem

The name is an immediate indication of this product's position in the marketplace. While Anchor Automation sells quite a variety of modems (including an MNP-compatible 300/1200/2400 model), the Volksmodem, at $80, is its least expensive model. It shares the same dumb qualities as the Computer Infograbber and has been around almost as long as its namesake. The Volksmodem has a nonstandard connector for which Anchor can supply appropriate cables that work with a wide variety of computers.

For about $60 more, you can take the next step up. At press time, Anchor was adding a new model to the 300-baud Volksmodem line. The newcomer is Hayes-compatible and full-featured.

The Apple Personal Modem

If desk or table space is a problem, Apple has solved it for you with the Personal Modem. The whole modem plugs into your wall outlet or power strip. Although it's styled with the Apple //c in mind, the Personal Modem doesn't look like very much. It's only about 3 by 2¼ by 1 inch (if you don't count the plug module), but it works at 300 and 1200 baud and is totally Hayes AT-compatible.



The top of the modem contains a single three-contact connector for the detachable plug module. The bottom has a volume control for the internal speaker (I don't know where they found the room to put it), line and phone jacks, plus a nonstandard 8-pin DIN connector (for space considerations—it requires ⅕ the room of the usual DB-25 connector). There's no on/off switch, but the unit is only rated at .1 (1/10) ampere.

There is one LED positioned on the top. But assuming that your wall outlets are just above the baseboard, as are mine, this light probably won't be useful. There's always the internal speaker. It chirps when you first plug in the modem and again during the initial stages of connection with another modem.■

Write to Bill O'Brien at P.O. Box 1010A, Fort Lee, NJ 07024.

MNP Protocol

A quick look down an ASCII chart will show you that any of the characters you might include as text fall within the ASCII decimal values of 32 and 126. These include the space bar, all upper- and lowercase characters of the alphabet, the numbers zero through nine, and any other symbols that appear on your keyboard (127 is the decimal code for the delete key; tab, return, escape, and all control codes fall below 32). These first 127 characters are called the standard character set, and the ASCII codes that define them are the same for all computers.

The nice thing about this is that in binary, the language of your computer, the equivalents of those decimal values are the range 0100000 (32) through 1111110 (126). If you count the ones and zeros, you'll discover there are seven binary digits, or bits.

When transmitting information by modem, the simplest communication protocol is called parity. It can be set for even, odd, or none. When a text character is transmitted, the sending program counts the number of ones in the 7 data bits. If you're using even parity and it finds an odd number of ones, it adds a one as the 8th bit. If you're using odd parity and there's an even number of ones, it also adds a one as the 8th bit. If the number of bits is correct for the version of parity you're using (or if you've selected no parity), it adds a zero as the 8th bit.

That works very well as low-level error correction for text data. If you know anything at all about ASCII or your Apple, though, you already know there are 256 possible ASCII characters (decimal 0–255), and that those above 127 require 8 bits. Decimal 255, the highest number your 8-bit computer can understand, is binary 11111111.

The characters above decimal 126 are used as symbolic shorthand in data files that aren't stored in text format, or for information contained in programs on your disk. Since these characters haven't been standardized, each computer manufacturer is free to use them as best suits the machine. For a while, they constituted the Apple II's extended character set. They're also the //e's Mouse Text characters.

Because these upper characters already require 8 bits, you can't use parity error checking to transmit or receive these binary files. That led to the development of XMODEM protocol (also called Christensen protocol, after the man who developed it). This 8-bit transfer method sends data in packets of 128 bytes (typically), then waits for confirmation from the other computer (also using XMODEM) that the packet was successfully received before it transmits the next one. If the transmission fails, it sends the information again until it succeeds or until a predetermined number of tries has elapsed, when it stops and tells you the transfer failed.

But we're moving on. Certain machines, like the Macintosh and possibly some future version of the Apple II, need more than simple 8-bit capability. The successor to XMODEM appears to be something called *MNP* protocol (which can also be used in an 8-bit environment). It's an effective, but currently alien, system that follows the Open Systems Interconnect model defined by the International Standards Organization.

Basically, it functions on four levels or layers. The first, or bottom, layer is the *physical* layer, composed of the actual computer hardware. The second, or *link* layer, provides verification services for the higher levels. This can occur under normal streaming transmissions (character by character) or under packet conditions.

The *session* layer defines the communications framework. When the session is initiated, each communications system tells the other what type of computer it is. If the same computer exists on both ends of the transmission, the session layer assumes they're using the same file formats and does relatively little. If they're different models, it invokes the next layer.

For different computers, the *application* layer translates a file into a virtual format particular to MNP and not to either of the computers. On the receiving end, this fourth layer then retranslates the virtual file into one that corresponds to the destination computer's file-system requirements.

Codex and Anchor Automation modems currently support this protocol. Apple, MCI, GTE Telenet, IBM, and other companies are seriously considering it for their own communications requirements. With computer needs and communication over voice-grade phone lines increasing, MNP will most likely play an important role in the telecommunications revolution.■ **—B.O'B.**

Product Information

Codex 2282, $795
Codex
20 Cabot Boulevard
Mansfield, MA 02048
(617) 364-2000
Reader Service Number 324

Computer Infograbber, $49
$10 (software)
DAK Industries
8200 Remmet Avenue
Canoga Park, CA 91304
(800) 423-2866
Reader Service Number 325

Courier 2400, $699
U.S. Robotics
800 McCormick Boulevard
Skokie, IL 60076
(312) 982-5001
Reader Service Number 326

Personal Modem, $399
Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
Reader Service Number 327

Professional 2400, $795
$895 (with software)
Novation
20409 Prairie Street
Chatsworth, CA 91311
(818) 996-5060
Reader Service Number 328

Smartmodem 2400, $899
Hayes Microcomputer Products
705 Westech Drive
Norcross, GA 30092
(404) 449-8791
Reader Service Number 329

Softerm II, $195
Softronics
3639 New Getwell, Suite 10
Memphis, TN 38119
(303) 593-9540
Reader Service Number 330

Volksmodem, $80
Anchor Automation
6913 Valjean Avenue
Van Nuys, CA 91406
(818) 997-7758
Reader Service Number 331

MAKE A MODEM

If you're technically inclined, building a modem may be just the project you've been looking for.

by Perry Donham

If you're in the market for an inexpensive modem, this one is *cheap*. It's also ugly. I'm telling you that up front, so that when you've put it together, you won't call me in the middle of the night to complain about its looks. I need my sleep.

So what does this modem do? How much will it cost? Why would anyone want to build one? Reasonable questions. First, the what.

I think we all know what a modem *is*. Everyone's seen *War Games* and realizes that a modem is something you hook up to your telephone to talk to other people's computers. So let's ask instead what a modem *does*—specifically, this modem. I'll have to throw in a bit of *how* it does it, too.

The modem described here transmits and receives information at 300 baud (bits per second). To use it you'll need a telephone and a serial card in your Apple. It doesn't matter which Apple model you have. In fact, you needn't use an Apple at all, but this is an Apple magazine, so we'll stick with that. You might also need an empty Kleenex box, but we'll worry about that later.

Looking at the accompanying **Photos**, you may have noticed that this modem has no phone jack. It's acoustically coupled. Putting that handy little jack on the back costs quite a bit in design and in dollars, so we'll just leave it off—you can spend the extra money on the phone bill you'll get when you start using your new modem.

One more thing. You can't receive telephone calls with this *wunderbox*; you can only dial out. You can call a computer, such as the *inCider* bulletin board or CompuServe, but a computer can't call you. This shouldn't pose a problem unless you want to set up your own BBS.

How much will your project cost? About $30, less if you have some parts lying around. The accompanying parts list (see the **Table**) shows prices for new components.

Construction

I'm going to assume that you know what a resistor looks like, and which end of an integrated circuit is the front. If you don't, find someone to help you.

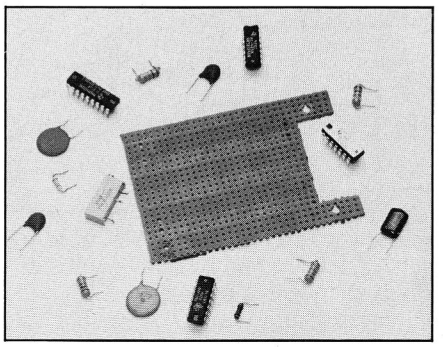
Start by cutting a piece of perfboard to measure 2½ by 3½ inches. If you have the brown phenolic kind from Radio Shack, be *extremely* careful—it tends to shatter. Cut a slot in one of the narrow ends to fit a DB-25 connector; 1½ inches wide and ⅝ of an inch deep should do it. Use a metal fingernail file to enlarge the perf holes enough so that the connector's hardware will fit. (The best file to use is the kind that has a little hook on the end.)

Next install the sockets. Layout isn't critical, but it's easier to wire the sockets if you leave a bit of room between them. Leave a small space for the potentiometer.

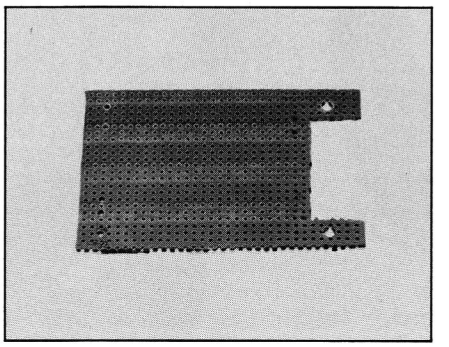
Wire the power and ground leads first, leaving about 6 inches of extra wire at the end. It's a good idea to check for continuity with an ohmmeter: Simply put one lead on the first connection, the other lead on the last connection, and make certain the path is a short circuit (zero ohms).

Continue connecting the sockets together according to the schematic diagram (see the **Figure**). When you come to a nonsocketed component, such as the potentiometer, just solder a wire to the appropriate terminal. If you're not confident in your wire wrapping, check each circuit path with an ohmmeter as you go.

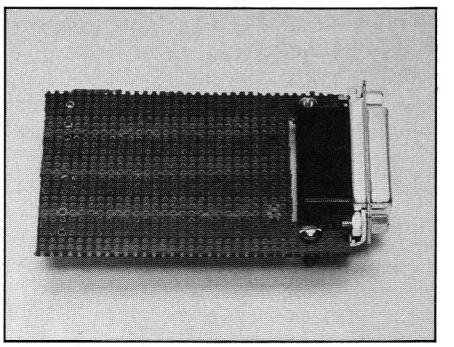
Once you're satisfied that the whole circuit is wired correctly, you can start on the acoustic coupler.



Step 1. How much will your project cost? About $30, less if you have some parts lying around.



Step 2. Start by cutting a piece of perfboard to measure 2½ by 3½ inches. . .



Step 3. Cut a slot in one of the narrow ends to fit a DB-25 connector: 1½ inches wide and ⅝ of an inch deep. . .

The most difficult part of this project was figuring out what to use to attach the modem to the telephone. I could have splurged and bought real acoustic-coupling cups somewhere, but they would have cost more than the rest of the parts combined.

I looked at balls, toilet flappers, all kinds of things in my local hardware store. Finally I just wandered around, hoping something would come to me. What I found was a little rubber thing that holds soap down on your sink. It has tiny suction cups all over both sides. I also found some small plastic funnels with a wide opening exactly fitting the soap suckers.

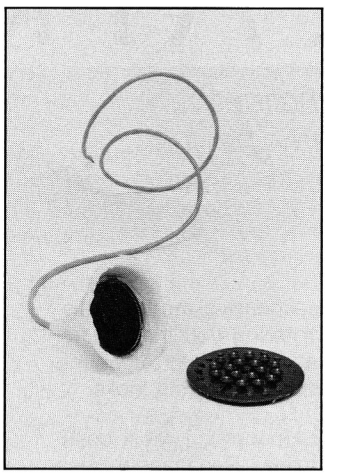
To make the acoustic funnels, first wire both the speaker and the microphone, and leave a couple of feet of cable on each one. I happened to have some three-conductor intercom cable on hand, but you can use individual wires if you like. Be careful when you solder wires to the microphone element: Too much heat applied for too long can ruin it. Use superglue or a hot-melt glue gun to mount the speaker and mike. (The mike fits very nicely into the narrow neck of the funnel.)

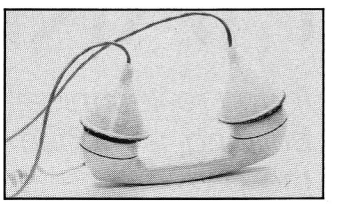
Now cut the little suction cups off on one side of each of the two soap holders. You need to remove only the outer ring. Cut a small hole in the center of each holder, then glue them to the funnels. While you're gluing, drop a little into the spot where the cable enters the funnel (this will anchor the cable).

Installation

Installing your modem can be a little tricky if you have peripheral cards in your machine. The best place to tap the power bus is right next to the power supply, so look for a spot on the left rear of your computer. I used the DB-25 connector to mount the modem in hole number 10; it just fits with Apple's 64K/80-column card in the //e's auxiliary slot. You don't have to mount the modem inside the computer, but you'll get fewer rude comments from your friends if you do.

To get power to your modem, tap four capacitors on the upper left corner of the motherboard (near the power supply): C9 for +5 volts, C12 for +12 volts, C17 for −5 volts, and C15 for −12 volts. Solder your power line to the *right-hand* lead of the capacitor for *negative* voltage,





Suppliers

Jameco Electronics
1355 Shoreway Road
Belmont, CA 94002
(415) 592-8097
(any part except crystal)

Reader Service Number 300

JAN Crystal
P.O. Box 06017
Fort Myers, FL 33906-6017
(813) 936-2397

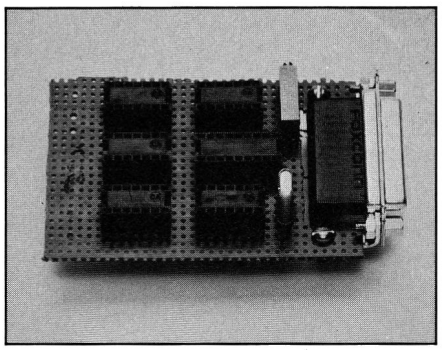
Reader Service Number 301

Tandy/Radio Shack
National Parts Division
900 East Northside Drive
Fort Worth, TX 76102
(817) 870-5662
(any part except crystal and modem chip)

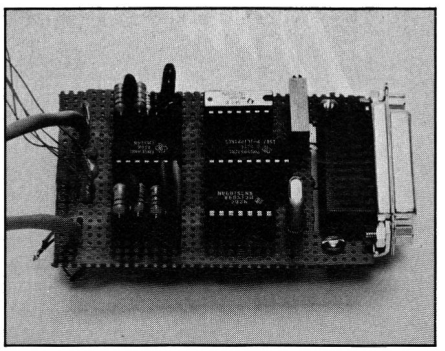
Reader Service Number 302

Table. Parts list for modem project.

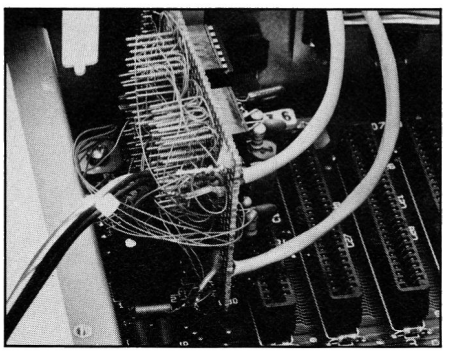
Equipment	Price
Resistors (¼ watt)	
680	$ .19
10k	.19
22k	.19
56k	.19
220k	.19
330k	.19
10M	.19
100k pot	.50
Capacitors	
18 pF (2)	.80
.1 mF (2)	.80
Integrated circuits	
1488 line receiver	1.79
1489 line driver	1.79
TM99532	9.95
LM324 quad op amp	1.29
Miscellaneous	
4.032 MHz crystal, parallel resonant, +/− .005%	6.50
Electret microphone	.79
2 soap holders	1.58
2 2-ounce funnels	.58
perfboard	1.49
2-inch speaker, 8 ohm	1.89
DB-25 male, pc-mount	3.29
IC sockets	
5 14-pin, 1 18-pin	1.80



Step 4. *Next, install the sockets. Layout isn't critical.*



Step 5. *Wire the power and ground leads, first leaving about 6 inches of wire.*



Step 6. *The best place to tap the power bus is right next to the power supply.*

and to the *left-hand* lead for *positive* voltage. Wrap your ground lead around a small screw and attach the screw to the power-supply case.

Configure your serial card to send and receive data at 300 baud. Connect the appropriate cable between the modem and your serial card (male DB-25 on the modem end; check your serial card's manual for the right connector for the other end). Take a deep breath, and turn on the power. (I've gotten into the habit of doing this from under a heavy table.)

Operation

With luck, you now have a working modem. To use it, get into BASIC and type PR#2 <return>, then IN#2 <return>. If your serial card is in a slot other than 2, just substitute that slot number. These two commands direct output (PR#) and input (IN#) to and from the device in slot 2. Now pick up your telephone and dial a number a computer will answer, such as the *inCider* BBS, (603) 924-9801.

Firmly attach the speaker/funnel to the mouthpiece of the phone, and attach the microphone/funnel to the earpiece. Gently lay the handset aside. (If your handset tends to tip over, try sticking it in an empty Kleenex box.) The distant computer will answer its telephone, and you can begin your session. Hang up the phone when you're finished.

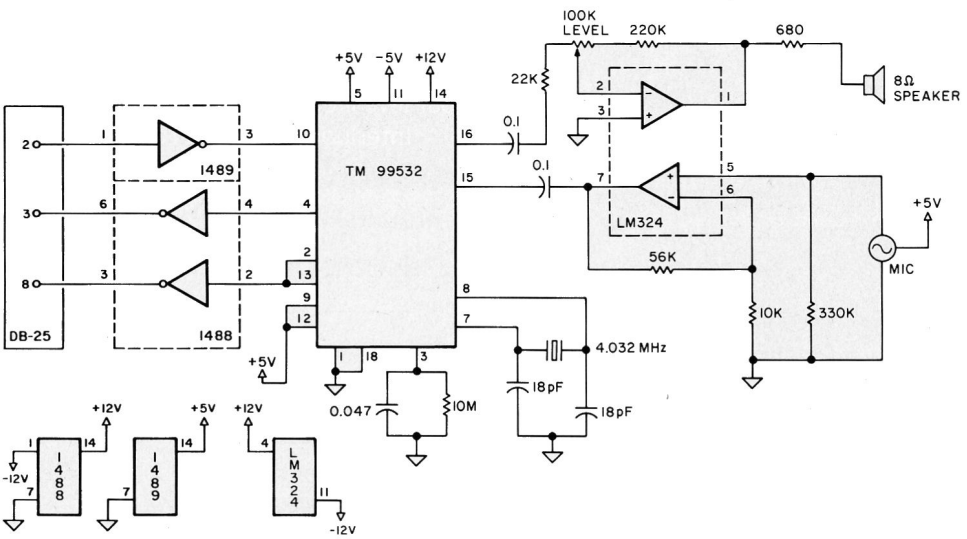
You should also be able to use your new modem with commercial communications packages such as Apple Access II.

Last Bits

The design of this modem is a modified version of a circuit published in Texas Instruments' data manual for the TM99532. If you're interested in enhancing this basic circuit or are curious about single-chip modems, contact TI (P.O. Box 1443, Houston, TX 77001) and cajole the customer-service people into sending you the data book. I found the starving-author routine very effective, but you might want to be a little more original.■

Write to Perry Donham at Route 2, Box 229B, Rindge, NH 03461.

Figure. *Schematic diagram for modem project.*



Interlude II

A BED OF ROSES—INTERLUDE #136

Why did you bring me so many roses?

It was Interlude's idea.

Oh?

Imagine lying in a bed of roses...

Sounds a bit thorny.

Just the petals, darling...cool, velvety, fragrant.

Oh. Oooooooh.

Interlude II. The long-awaited sequel to the first adult computer game in history is finally here. It's provocative and playful! Outrageous and romantic! It has all the excitement of the original Interlude, plus significant new features.

The computerized interview, which is taken by one or both players, has been greatly expanded. It probes your innermost desires to discern your mood of the moment, your secret longings, your special fantasies, and then suggests for your pleasure one of its more than 160 Interludes. You can ask the computer for an Interlude for now, or one for later. Special options give each player added control over surprises and special erotica hidden in the Interludes.

Six years ago the original Interlude took the computer world by storm, creating a media sensation:

FORUM Magazine: *"The Interludes are imaginatively and sensitively written... the computer's recommendations are uncannily appropriate.*

US Magazine: *"The most edifying third party to join couples between the sheets since The Joy of Sex."*

Chicago Tribune: *"This marriage of computer technology and sex is natural... erases forever the image of computer-users as dull guys with slide rules in their pockets and square roots on their minds."*

Money Magazine: *"Sometimes it's easier to tell a computer what you want than it is to tell your partner."*

Interlude II will take you to the outer limits of fantasy and romance. And, if the computer selects Interlude #99 your love life may never again be the same.

Interlude II. Are you ready for it?

Circle 253 on Reader Service Card.

Send your check for $39.95 plus shipping charges of 3.00 (outside U.S.A.–10.00 shipping) or charge information to:
INTERLUDE, 11011 Richmond, Suite 600, Houston, TX 77042

NAME _____ AGE ____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CHARGE CUSTOMERS MUST SIGN HERE _____

___ MASTERCARD ___ VISA ACCOUNT NO. _____ EXPIRATION ____

CHARGE CUSTOMERS: **1-800-752-7001 ext. 829**
(in Texas call 1-800-442-4799 ext. 829)
Available for Apple II, II+ and IIe.[1]

[1]Trademarks of Apple Computer, Inc.

APPLEWORKS IN ACTION

Cutting and Pasting with AppleWorks

by Ruth K. Witkin

Integrate last month's spreadsheet price quote with an AppleWorks word-processed document.

If this month's column were a movie, it could be called *Rocky Hill III*, the last in a trilogy starring the Rocky Hill Hardware Supply Company. The saga that began with mailing labels and a spreadsheet now winds up with the integrated document shown in **Figure 1**.

In this episode, you compose a price quote letter, then "cut" a piece from the quotation spreadsheet and "paste" it into the letter—without scissors, tape, or staples. It's all done electronically and, yes, effortlessly. If you haven't created the spreadsheet (see last month's *inCider*, April 1986, p. 76), now is a good time to do it.

The letter is a form letter you might send to any customer requesting a price quote, but there's something special about this one. AppleWorks lets you stop the printer to type information specific to each customer, which makes even a form letter look unique.

Creating the Document from Scratch

Use the Startup and Program disks to bring up a new word-processor screen. Name this file **QUOTE LETTER**. You should now see the Review/Add/Change screen. To avoid switching disks in midstream, slip the disk containing the QUOTE spreadsheet into the current drive. When you see such key combinations as OA-Z, hold down the open apple key and type Z.

Entering the Text

Figure 2 shows the text of the letter. Those gaps in the salutation and the first and last paragraphs are places where the printer pauses to let you enter information from the keyboard. The numbers at the left correspond to the line numbers that appear at the bottom of the screen as you type.

Word wraparound makes any word that can't fit at the end of a line move down to the next line automatically. You press the return key only to end a paragraph or insert a blank line between paragraphs, indicated in **Figure 2** by dotted rectangles called *blots*. Press OA-Z to keep the blots on the screen as you work.

Now enter the text according to the instructions you see in the **Table**.

Figure 1. AppleWorks quotation spreadsheet integrated with a letter to a customer.

Rocky Hill Hardware Supply Co.
5 Main Street
Abner, New York 11999

(516) 555-0505

May 1, 1986

Mr. Robert J. Nissen
Owner
Nissen Brothers, Inc.
905 Linden Mall
Abner, New York 11999

Dear Bob:

We are pleased to submit the following quote to Nissen Brothers, per your request of April 29, 1986.

We've just introduced a new Phillips screwdriver, catalog #259, to replace #256. It's stronger and has a wider grip that fits the hand remarkably well. Better yet, the price is 35 cents less per piece, a savings of $4.20 per dozen.

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

We appreciate your business, Bob. Please call me or Ron Dugan with any questions.

Cordially,

Herbert C. McCall
President

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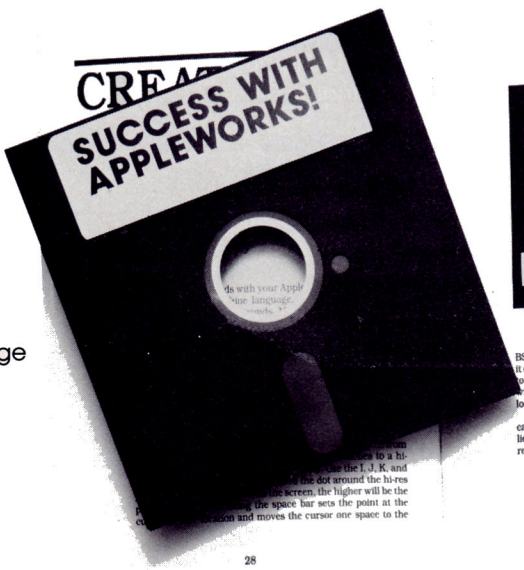

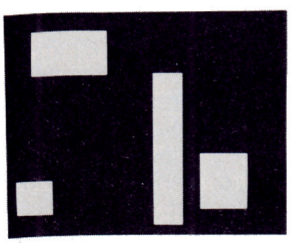

Photo 2. Example using the FILL routine.

BSAVE it with different parameters. FILL should be saved so that it doesn't cross a page boundary. Once you relocate FILL, be sure to change the CALL statement to reflect its new location. You will also have to relocate HIMEM to protect the routine in its new location.

When using FILL, be certain that the point you HPLOT before calling the routine is inside the object you want to fill. If the point lies on the border or outside of an object, you'll get some strange results. ■

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- **Build a Mailing List**
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- **Personalized Form Letter**
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Figure 2. Text of the customer letter created on the AppleWorks word processor.

```
LINE
   1  Dear :
   2
   3  We are pleased to submit the following quote to , per your
   4  request of .
   5
   6  We've just introduced a new Phillips screwdriver, catalog
   7  #259, to replace #256. It's stronger and has a wider grip
   8  that fits the hand remarkably well. Better yet, the price is
   9  35 cents less per piece, a savings of $4.20 per dozen.
  10
  11  We appreciate your business, . Please call me or Ron Dugan
  12  with any questions.
  13
  14  Cordially,
  15  Herbert C. McCall
  16  President
```

Where you see *(space)*, press the space bar once. Be sure there is *only one space between characters* at that point. If you make a typo, press the delete key to back up the cursor and erase the character before it. Your cursor should be in line 1 column 1.

Check the text to make sure it agrees with **Figure 2**. If something is missing, place the insert cursor (the blinking underline) on the character to the right of the insertion. If you discover a typo, place the overtype cursor (the blinking rectangle) atop the character you want to replace. Press OA-E to switch between the cursors.

The following keys move the cursor from one place to another: the left and right arrows move the cursor one character at a time in the direction of the arrow. The down and up arrows move the cursor one line at a time. OA-left arrow and OA-right arrow hop the cursor from word to word. OA-1 to OA-9 jump the cursor vertically through the document in proportional increments.

Inserting the Printer Pauses

The next step is to tell AppleWorks where you want the printer to pause for keyboard input, indicated in **Figure 3** by carets (^). Press OA-1 to jump the cursor to line 1 column 1. Let's start with the date. Press OA-O to bring up the Printer Options screen. Now type **EK**, press Return, press the escape key, and press Return again.

The cursor is now in line 2 column 1. Repeat these steps five more times to insert stops for the recipient's name, title, and address. In each case, press OA-O, type **EK**, and press Return. Then press Escape and Return to move to the next line down. When you finish, the cursor should be in line 7 column 1 (atop the D in Dear). Now press Return to insert a blank line.

The next stop enters a pause for the name in the salutation. Move the cursor to line 8 column 6 (atop the colon) and press OA-O, type **EK**, press Re-

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turn, then press the escape key.

Now, in the same way, insert printer stops at the following places, the first for the company name, the second for the RFQ date, and the third for the recipient name:

Line 10 column 49 (atop the comma)
Line 11 column 12 (atop the period)
Line 18 column 30 (atop the period)

Compare your screen with **Figure 3** to make sure the carets are in the right places.

Skipping Lines

Traditional letter spacing calls for four blank lines between the date (the first stop) and the recipient's name (the second stop). Pressing Return to insert lines is fast and easy, but use the Skip Lines feature instead. Press OA-1 to jump the cursor to line 1 column 1. Now press the down arrow key to move the cursor to line 2 column 1. The cursor is atop a caret, so you see *Enter Keyboard* at the bottom of the screen instead of the line and column numbers.

Table. Instructions for entering form letters.

Line	Action
1	Type *Dear(space):* and press Return twice to end the paragraph and insert a blank line. The cursor moves to line 3.
3	Type *We are pleased to submit the following quote to(space), per your request of(space).* Press Return twice. The cursor moves to line 6.
6	Press the space bar only once between sentences and type: *We've just introduced a new Phillips screwdriver, catalog #259, to replace #256. It's stronger and has a wider grip that fits the hand remarkably well. Better yet, the price is 35 cents less per piece, a savings of $4.20 per dozen.* Press Return twice. The cursor moves to line 11.
11	Type *We appreciate your business,(space). Please call me or Ron Dugan with any questions.* Press Return twice. The cursor moves to line 14.
14	Type *Cordially,* and press Return. The cursor moves to line 15.
15	Type *Herbert C. McCall* and press Return. The cursor moves to line 16.
16	Type *President* and don't bother to press Return. The cursor should now be in line 16 column 10.

Press OA-O to bring up the Printer Options screen. Tell AppleWorks to skip four lines: Type **SK**, press Return, type **4**, and press Return again.

Justifying the Text

Justifying prints the text with an even right edge. You are still in the Printer Options screen, so type **JU** and press Return. Press the escape key to exit the Printer Options screen.

Skipping More Lines

To allow room for a signature, skip four lines after *Cordially*. Press OA-8, then down arrow twice to move the cursor to line 24 column 1. Now press OA-O, type **SK**, and press Re-

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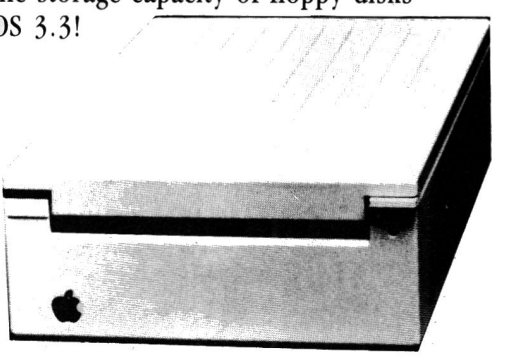

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turn. Type **4**, press Return, and press the escape key. To store the letter on disk, press OA-S.

Working with the Quotation Spreadsheet

The next step is to load the quotation spreadsheet so you can "cut and paste" it into the letter. Be sure the disk containing QUOTE is in the current drive. Return to the main menu, confirm *Add files to the Desktop* and confirm *The current disk* by pressing the escape key, then Return twice. At the *AppleWorks files* menu, press the down arrow key until the highlight is on QUOTE and press Return.

First, keep the spreadsheet header (file name and date) from printing: Press OA-O, type **PH**, and press Return. Press the escape key to return the spreadsheet to the screen.

The next task is to "cut" the quote part of the spreadsheet and print it to the clipboard, which holds information destined for another file. Move the cursor to row 3 by pressing OA-2, then up arrow. Now follow these steps to start the Print command, select the *Rows* option, and highlight rows 3 to 14: Press OA-P, type **R**, press OA-5, down arrow, and press Return.

Tell AppleWorks to print these rows to *The clipboard (for the Word Processor)* by typing **2** and pressing Return. AppleWorks confirms that the spreadsheet is indeed on the clipboard and can now be transferred to a word-processor document. Switch to

Figure 3. Customer letter with carets showing the printer pauses for keyboard input.

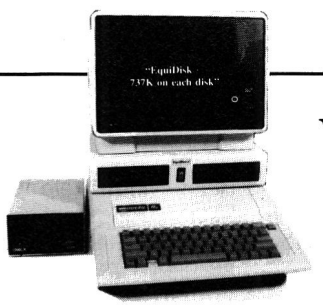
```
^
^
^
^
^
^

Dear ^:

We are pleased to submit the following quote to ^, per your
request of ^.

We've just introduced a new Phillips screwdriver, catalog
#259, to replace #256. It's stronger and has a wider grip
that fits the hand remarkably well. Better yet, the price is
35 cents less per piece, a savings of $4.20 per dozen.

We appreciate your business, ^. Please call me or Ron Dugan
with any questions.
```

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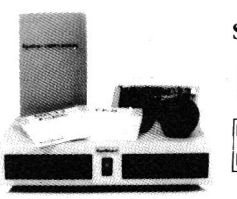

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the Desktop Index and bring QUOTE LETTER to the screen: Press OA-Q, press the up arrow key, and press Return.

Press OA-7 to jump the cursor to line 20 column 1. Now "paste" the spreadsheet into the letter by pressing OA-M and typing **F**. Ah, sweet success—but only to a point. The standard width of the letter is too narrow for the spreadsheet, making the right column huddle at the left margin.

Formatting the Document

Reducing the left and right margins gives the spreadsheet room to spread out. Press OA-1 to jump the cursor to the top line. Press OA-O to bring up the Printer Options screen. Now type **LM**, press Return, type **.8**, and press Return again. Type **RM**, press Return, type **.8**, and press Return.

A two-inch top margin allows room for a letterhead. You are still in the Printer Options screen, so type **TM** and press Return. Type **2** and press Return again. Press the escape key to return to the spreadsheet. Now press OA-6 to see the result. That's more like it. The wraparound is gone and everything is as it should be.

It's a good idea to preview the page breaks before printing to see if further changes are needed. To do this, press OA-K, press Return, and press OA-9. Uh-oh. Page 1 ends between McCall's name and his title. That will never do. The simple solution is to reduce the bottom margin. Press OA-1 to jump the cursor to the top line. Press OA-O, type **BM**, and press Return. Now type **1**, press Return, and press the escape key.

Let's check the page break again: Press OA-K, Return, and OA-9. The Page 1 indicator shows that everything will print on one page. Press OA-S to store the document on disk.

Printing the Document

Turn on your printer and follow these steps to start the Print command, confirm *Beginning*, printer, and one copy: Press OA-P and then Return. Press Return (or type a printer number, then Return) and press Return again.

Entering Information from the Keyboard

The printer pauses, awaiting input from the keyboard. Take your time, and if you mistype anything before pressing Return, the delete key backs up the cursor.

Now type **May 1, 1986** and press Return. The printer pauses again. Type **Mr. Robert J. Nissen** and press Return. At each pause, type an entry and press Return until you type in all of the following entries: **Owner**, **Nissen Brothers, Inc.**, **905 Linden Mall**, **Abner, New York 11999**, **Bob**, **Nissen Brothers**, **April 29, 1986**, **Bob**. Your letter should now look like the one in **Figure 1**.

Next month, I'll explain how to create an AppleWorks spreadsheet to do price-volume analysis. ■

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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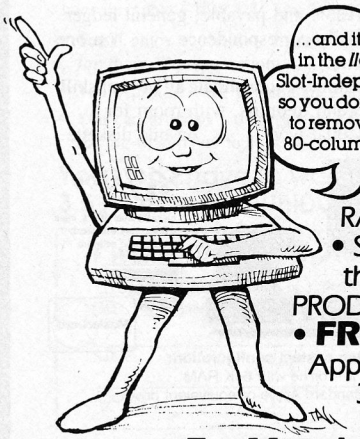

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APPLESOFT ADVISER

Enhancing Your Applesoft Bar Builder

by Dan Bishop

In March's Applesoft Adviser (p. 92), I presented Bar Builder, a program that uses low-resolution graphics to build a bar graph, or histogram, from a single set of data containing up to 38 elements. That program produces two alternating colors for contrast, letting you display two sets of data by ensuring that all odd-numbered entries come from the first data set and all even-numbered entries from the second.

This month I'll expand on Bar Builder (see the **Program listing**), to let it handle up to four sets of data. The resulting graph (see the **Figure**) will be more interesting visually, since the bars for each group of points will partially overlap, creating a three-dimensional effect. The Applesoft concepts this program illustrates are multidimensional arrays, the PLOT command, and the SCRN function.

Upgrading Bar Builder

When you begin designing enhancements for an existing program, the first thing you should consider is how much of the original program you want to keep. Since the original Bar Builder is useful for one or two data sets, you'll want to be sure that the changes you make in the program don't interfere with these functions. To emphasize this, I'll call attention to the effect each alteration has on the original program.

In expanding the program from one data set to four, you must first determine the appropriate data structure. Line 100 in Bar Builder is:

```
100 DIM D(40),ND(40),T$(3)
```

with the D array containing the raw data points you want to graph, and the ND array containing the adjusted, or "normalized," values.

Bar Builder II must still be able to handle 40 data points for single sets of data, but must also accommodate up to four separate data sets. The simplest data representation for this is a two-dimensional array. The original arrays the first Bar Builder program dimensions must now be dimensioned differently for Bar Builder II:

Multidimensioned Applesoft arrays let you create lo-res overlapping bar graphs in color.

```
100 DIM D(40,4),ND(40,4),T$(3)
```

The second subscript in the D and ND arrays refers to the specific data set to which each element belongs. When you use the program for a single set, all elements will use 1 as the second subscript, as in D(23,1).

Next you must look through the original program for all references to the D and ND arrays, and change them to reflect their new dimensionalities. To begin, lines 120 through 150 in Bar Builder initialize the D array to contain all zeros. This requires a single loop, since D has just a single dimension. Bar Builder II requires two loops nested within each other to handle two-dimensional arrays (lines 130 through 150).

Line 100 in Bar Builder II also dimensions four new arrays. The C(i) array contains four color codes the graph assigns to the COLOR command. The W(i,j) array handles bar widths, and the MG(i,j) array takes care of the left margin for the display. The original Bar Builder uses a mathematical algorithm based on number of data points to calculate values for W and MG. Bar Builder II still uses this algorithm for a single data set. (I've moved the algorithm from lines 3180 through 3230 to 12450 through 12490 to keep similarly functioning parts of the program together.)

For graphs containing two, three, or four data sets, however, it's easier to simply anticipate every situation, since there are considerably fewer cases to handle. A new Bar Builder II subroutine (lines 300 through 390) gives the MG and W arrays the data they need for each combination of number of sets and data elements. For example, the program reads the first two DATA elements, 17 and 4, into MG(1,2) and

Program listing. *Bar Builder II.*

```
5  REM
6  REM  *********************
7  REM    BAR BUILDER
8  REM    MAIN PROGRAM
9  REM  *********************
10  TEXT : HOME
20  GOSUB 10000: IF N = 0 THEN 90
25  GOSUB 1300
30  GOSUB 12300: GOSUB 12500
40  INPUT "CONTINUE <C>  OR  END <E>...";X$
50  IF X$ <  > "C" AND X$ <  > "E" THEN 40
60  IF X$ = "E" THEN 90
70  TEXT : HOME : GOSUB 1200
80  GOTO 30
90  TEXT : HOME : END
95  REM
96  REM  *********************
97  REM   VARIABLE INITIALIZATION
98  REM  *********************
```

Listing continued.

W(1,2). If you're plotting only one data point for two sets, the left margin will be 17 columns wide, and each bar will be four columns wide.

The fourth new array, MX(i), contains the maximum number of data elements allowed for each of the four combinations of data sets. These values are assigned in line 160. The graph can handle 38 data points for a single set (or two sets plotted as alternating points in the single-set mode), ten data points per set for two data sets, eight points for each of three sets, and six points for each of four sets.

Running the Revised Program

When you execute Bar Builder II, the program first asks you to type in the number of data sets you want to plot. Bar Builder II stores this value in the variable S. It then asks you to type in the number of data elements in the largest set, which it stores in N. After that, it prompts you to type in data elements; you must enter the first element for each set before proceeding to the second element. This is the same order in which the bars will appear in the graph, from left to right. If it's easier to type in your data one complete set at a time, simply reverse lines 12020 and 12030, and change line 12060 to read NEXT I,J.

The next item Bar Builder II asks you to type in is a value (or zero) it will subtract from every data element in each given set. As I explained last month, this lets you "zoom in" on the upper regions of the bars to study variations among data points in a specific set. It also lets you compare variations within each of two data sets having values that are very different from each other on the same graph. For example, suppose you'd like to see if the market fluctuations that occurred in your favorite penny stock also affected IBM stock. Reducing all data points for the IBM figures by, say, 130, would let both sets show up on the same graph.

Some applications may require you to multiply or divide rather than subtract all elements of a given set by a common factor. If that's the case, simply change the minus signs in lines 12310 and 12360 to the appropriate symbols. You'll also have to change the operation in line 1220 (now addition) to the appropriate operation that reverses the one you chose for lines 12310 and 12360. A multiplication or division factor changes the overall size of each entry by an amount relative to its original size. This, in effect, magnifies or reduces the entire bar rather than magnifying just the top portion.

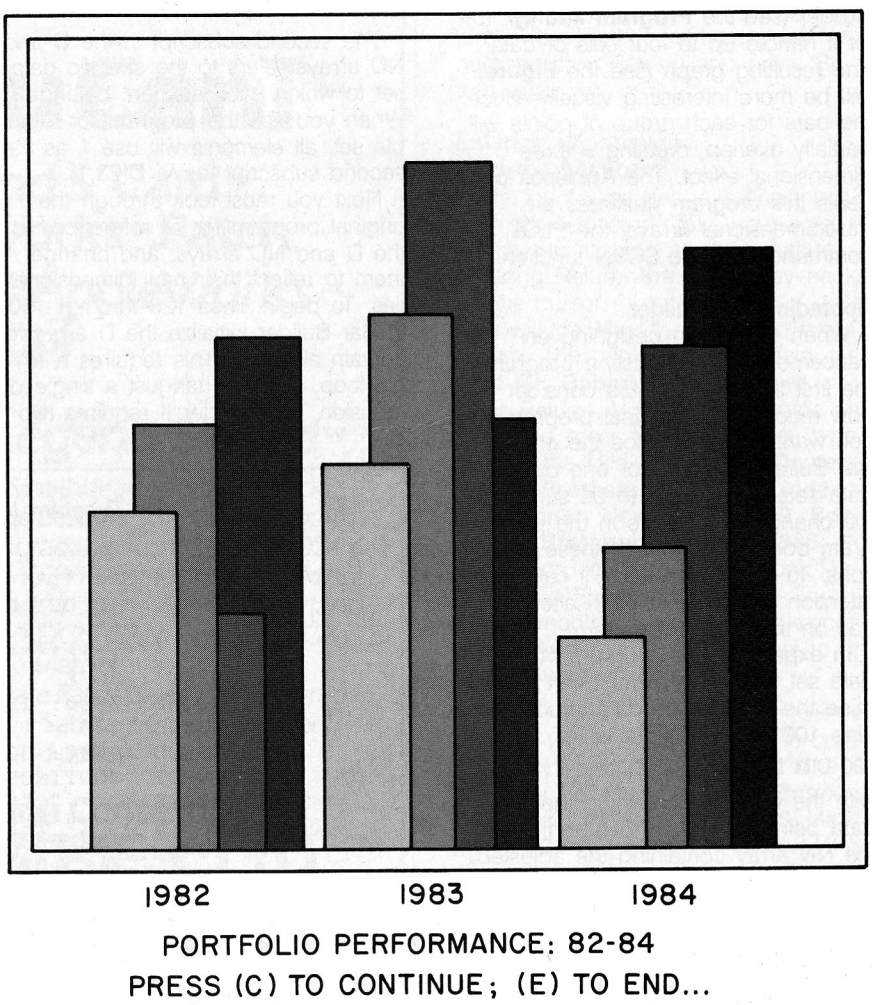
Finally, Bar Builder II lets you change any entry to correct typos or edit. Then the program normalizes all the data so that they'll fit into the vertical display space, and puts the graph on screen. When you're finished viewing the graph, you'll have another opportunity to change any element (including the subtraction factors, which the program stores in element zero of each set) and redisplay the graph. Bar Builder II automatically readjusts all data elements to their original values (lines 1200 through 1240) before letting you make changes in your graph, so that the additional step I described in the original Bar Builder is unnecessary.

Overlapping the Bars

When bars are lined up side by side, as in the case of a single data set, all you need is Applesoft's VLIN a,b AT c function, which draws a vertical line in column c between rows a and b inclusive. To make the bars overlap, however, you have to take a different approach.

Bar Builder II uses the VLIN function to draw the bars for elements from the first data set that appear in the foreground of the graph. Bars for elements from the second set appear to be located behind and just to the right of the first set's bars. The accompanying **Figure** illustrates this effect for a graph with four data elements in each of three sets. You can use VLIN for sets 2 through 4 only for those parts of the bars that appear in their entirety.

Figure. Simulated screen display for Bar Builder II with three data sets of four data elements each.



To draw the upper part of a bar that disappears behind its neighbor to the left, Bar Builder II uses the PLOT c,r command instead of the VLIN command. The PLOT c,r function produces only a single point in the currently defined color at column c, row r, so you must use it in a loop to create a line. The command VLIN 12,38 AT 3 has exactly the same effect as the following series of commands:

```
100 FOR I = 12 TO 38
110 PLOT 3, I
120 NEXT I
```

Lines 12650 through 12680 handle the plotting loop. With the PLOT command, you have total control over whether or not the program will plot a point in the proposed line. And if another bar already occupies the location for a point to be plotted, Bar Builder II immediately terminates the loop. So if the program draws the bars top to bottom, it will plot points only until it encounters the top of a previously plotted bar.

To make this determination, Applesoft includes the SCRN function. SCRN(x,y) returns the color code of the point at column x, row y on the display screen. If that point is black, the color code is zero. Before using the PLOT command to PLOT P,L (line 12670), Bar Builder II tests to be sure the point is black.

The following line ends the loop if the program encounters a previously drawn bar:

```
12660 IF SCRN(P,L) <> 0 THEN L =
      38:GOTO 12680
```

Conclusion

As you look over Bar Builder II, you may note that the D and ND arrays contain a number of vacant elements. This results from dimensioning them to allow for a single data set with several elements as well as for multiple data sets. In fact, the data for four complete graphs could easily fit into the defined arrays with room to spare. Try your hand at expanding the program to accommodate data entry for up to four graphs without changing the dimensions of the D and ND arrays. Your program should let you select any of the four graphs for display, and correct any data element in memory by specifying the graph, the data set in that graph, and the specific element in the data set you'd like to change.■

Write to Dan Bishop at 4124 Beaver Creek Drive, Fort Collins, CO 80526.

Listing continued.

```
 99  REM
 100  DIM D(40,4),ND(40,4),T$(3),W(10,4),MG(10,4),C(4),MX(4)
 110 C(1) = 5:C(3) = 13
 120 C(2) = 12:C(4) = 1
 130  FOR I = 0 TO 40
 135  FOR J = 0 TO 4
 140 D(I,J) = 0:ND(I,J) = 0
 150  NEXT J,I
 160 MX(1) = 38:MX(2) = 10:MX(3) = 8:MX(4) = 6
 170  RETURN
 195  REM
 196  REM  ************************
 197  REM   INVALID ENTRY RESPONSE
 198  REM  ************************
 199  REM
 200  PRINT : PRINT "INVALID ENTRY.  "
 210  INPUT "PRESS <RETURN> TO CONTINUE...";X$
 220  RETURN
 295  REM
 296  REM  ************************
 297  REM   MARGINS & BAR WIDTH
 298  REM  ************************
 299  REM
 300  FOR J = 2 TO 4
 310  FOR I = 1 TO 10
 320  READ MG(I,J)
 330  READ W(I,J)
 340  NEXT I
 350  NEXT J
 360  DATA  17,4,13,4,10,4,6,4,2,4,5,3,2,3,0,3,2,2,0,2
 370  DATA  16,4,11,4,6,4,2,4,5,3,2,3,2,2,0,2,0,0,0,0
 380  DATA  15,4,9,4,3,4,6,3,2,3,2,2,0,0,0,0,0,0,0,0
 390  RETURN
1195  REM
1196  REM  ************************
1197  REM  DATA ENTRY CORRECTION
1198  REM  ************************
1199  REM
1200  FOR J = 1 TO S
1210  FOR I = 1 TO N
1220 D(I,J) = D(I,J) + D(0,J)
1230  NEXT I
1240  NEXT J
1300  PRINT "---------------------------------------"
1310  PRINT "DO YOU WISH TO CHANGE ANY DATA ENTRIES?"
1320  INPUT "(Y/N)...";X$
1330  IF X$ <  > "Y" AND X$ <  > "N" THEN  GOSUB 200: GOTO 13
     00
1340  IF X$ = "N" THEN 1390
1345  PRINT : INPUT "WHICH DATA SET...";ES
1346  IF ES < 1 OR ES > S THEN 1345
1350  INPUT "WHICH ENTRY NUMBER...";EN
1351  IF EN < 0 OR EN > N THEN 1350
1360  PRINT "ENTRY "EN" IN SET "ES" IS "D(EN,ES)"."
1370  INPUT "WHAT VALUE SHOULD IT HAVE? ";NV
1380 D(EN,ES) = NV: GOTO 1300
1390  RETURN
2995  REM
2996  REM  ******************
2997  REM  BLUE GRAPH BORDER
2998  REM  ******************
2999  REM
3000  GR : CALL  - 1994
3010  COLOR= 2
3020  VLIN 0,39 AT 0
3030  VLIN 0,39 AT 39
3040  HLIN 0,39 AT 0
3050  HLIN 0,39 AT 39
```

Listing continued.

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Listing continued.

```
3060  RETURN
3495  REM
3496  REM  ***********************
3497  REM   PLOTTER FOR SETS=1
3498  REM  ***********************
3499  REM
3500  HOME
3510 CØ = C(1)
3520  GOSUB 3ØØØ
3530  FOR H = 1 TO N: COLOR= CØ
3540  FOR LW = 1 TO W
3550  IF ND(H,1) = Ø THEN LW = W: GOTO 357Ø
3560  VLIN 39 - ND(H,1),38 AT MG + W * (H - 1) + (LW - 1)
3570  NEXT LW
3580  IF CØ = C(1) THEN CØ = C(2): GOTO 36ØØ
3590 CØ = C(1)
3600  NEXT H
3610  HOME
3620  PRINT T$(1)
3630  PRINT T$(2)
3640  PRINT T$(3)
3650  RETURN
9995  REM
9996  REM  ************************
9997  REM   GET NO. OF DATA SETS
9998  REM  ************************
9999  REM
10000  HOME : PRINT
10010  PRINT "****************************************"
10020  PRINT "            BAR BUILDER II"
10030  PRINT "****************************************"
10040  GOSUB 1ØØ: GOSUB 3ØØ: PRINT
10050  PRINT "HOW MANY SETS OF DATA (1-4) DO YOU"
10060  PRINT "WISH TO PLOT SIMULTANEOUSLY? ";
10070  INPUT " ";S
10080  IF S < 1 OR S > 4 THEN  GOSUB 2ØØ: GOTO 1ØØØ
10090  PRINT : PRINT "HOW MANY DATA POINTS IN YOUR LARGEST"
10100  PRINT "SET (1-";MX(S);". ENTER Ø TO END)...";
10110  INPUT "";N
10120  IF N < Ø OR N > MX(S) THEN  GOSUB 2ØØ: GOTO 1ØØ9Ø
10130  IF N = Ø THEN  RETURN
10140  PRINT
10150  FOR T = 1 TO 3
10160  PRINT "ENTER TEXT LINE #"T": "
10170  INPUT "";T$(T)
10180  PRINT
10190  NEXT T
11995  REM
11996  REM  **********************
11997  REM   DATA ELEMENT ENTRY
11998  REM  **********************
11999  REM
12000  PRINT
12010  PRINT
12020  FOR I = 1 TO N
12030  FOR J = 1 TO S
12040  PRINT "DATA POINT #"I" FOR SET "J": ";
12050  INPUT "";D(I,J)
12060  NEXT J,I
12070  PRINT
12080  FOR J = 1 TO S
12090  PRINT "WHAT COMMON VALUE (OR Ø) IS TO BE SUB-"
12100  PRINT "TRACTED FROM EACH VALUE IN DATA SET "J":
         ";
12110  INPUT "";D(Ø,J)
12120  PRINT
12130  NEXT J
12140  PRINT "THESE VALUES WILL BE STORED IN ELEMENT  ZERO
       OF EACH SET."
```

Listing continued.

Listing continued.

```
12150  RETURN
12295  REM
12296  REM  ***********************
12297  REM     NORMALIZE DATA INTO ND
12298  REM  ***********************
12299  REM
12300  FOR J = 1 TO S
12310 D(1,J) = D(1,J) - D(0,J)
12320 D(40,J) = D(1,J)
12330  NEXT J:HV = 0
12340  FOR J = 1 TO S
12350  FOR I = 2 TO N
12360 D(I,J) = D(I,J) - D(0,J)
12370  IF D(I,J) > D(40,J) THEN D(40,J) = D(I,J)
12380  NEXT I
12390  IF D(40,J) > HV THEN HV = D(40,J)
12400  NEXT J
12405 NF = 37 / HV
12410  FOR J = 1 TO S
12415  FOR I = 1 TO N
12420 ND(I,J) =  INT (D(I,J) * NF)
12425  NEXT I,J
12430  IF S = 1 THEN  GOTO 12450
12435 W = W(N,S)
12440 MG = MG(N,S)
12445  GOTO 12490
12450 W = 1
12455  IF N < 20 THEN W = 2
12460  IF N < 13 THEN W = 3
12465 MG =  INT ((38 - N * W) / 2)
12470  IF MG < 1 THEN MG = 1
12490  RETURN
12495  REM
12496  REM  ***********************
12497  REM   PLOTTER FOR SETS=2 TO 4
12498  REM  ***********************
12499  REM
12500  IF S = 1 THEN  GOTO 3500
12510  HOME : GOSUB 3000
12520 P = MG
12530  FOR H = 1 TO N
12540  FOR J = 1 TO S: COLOR= C(J)
12550  IF J > 1 THEN 12600
12560  FOR LW = 1 TO W
12570  IF ND(H,J) = 0 THEN LW = W: GOTO 12590
12580  VLIN 39 - ND(H,J),38 AT P + (LW - 1)
12590  NEXT LW:P = P + W: GOTO 12720
12600  IF W = 2 THEN P = P - 1
12610  IF W > 2 THEN P = P - 2
12615  IF ND(H,J) = 0 THEN P = P + W: GOTO 12720
12620 T = 39 - ND(H,J)
12630 LW = 1: IF W > 2 THEN LW = 2
12640  FOR K = 1 TO LW
12650  FOR L = T TO 38
12660  IF  SCRN( P,L) <  > 0 THEN L = 38: GOTO 12680
12670  PLOT P,L
12680  NEXT L
12690 P = P + 1: NEXT K
12700  VLIN T,38 AT P:P = P + 1
12710  IF W > 3 THEN  VLIN T,38 AT P:P = P + 1
12720  NEXT J
12730 P = P + 1
12740  NEXT H
12750  HOME
12760  PRINT T$(1)
12770  PRINT T$(2)
12780  PRINT T$(3)
12790  RETURN
```

End of listing.

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PASCAL PRIMER

Pascal Sets

by Tom Swan

Learn how to create data sets for efficient Pascal programming.

The most astonishing characteristic of Pascal sets is that, no matter how much you put into them, they never grow larger. A set of one or two items often takes the same amount of memory as a set containing hundreds of items. How to create and use these magically efficient data types is the subject for this month.

Declaring Set Variables

To create a set variable, use the keywords SET OF and a data type in a Variable or Type declaration. The following defines variable ASCIISet as a set of characters:

```
VAR
  ASCIISet : SET OF Char;
```

A better approach, as with other Pascal structures, is to declare a new type first, then create variables of that type. For example:

```
TYPE
  CharSet : SET OF Char;
VAR
  Digits, Letters : CharSet;
```

Once you define the new data type, you can create as many CharSet variables as you want. Just separate each variable with commas as shown above.

You can also pass character sets to procedures and functions. To do that, use the new type identifier in a parameter list. As an example, the function in **Listing 1** takes a character-set parameter GoodChars and returns a single character.

The GoodChars parameter defines the set of characters the function can return. The Boolean expression (ch IN GoodChars) is True only if Pascal finds ch in the GoodChars set. IN, Pascal's *set-membership* operator, tests to see if a set variable contains a specific element—in this case, the character in ch. If GoodChars equals the set of characters ['A','B','C'] and you type D, GetChar writes chr(7)—the control character that causes the Apple speaker to beep—to indicate an error. If you type A, B, or C, the function returns that character and the program continues.

You can use the GetChar function any time you want a user to type a specific set of characters. A common example is prompting for one of several menu selections. If you want someone to type E to edit, P to print, and Q to quit, you could write:

```
Write( 'E(dit P(rint Q(uit: ' );
Ch := GetChar( [ 'E', 'P', 'Q' ] );
```

Assigning Values to Sets

To assign a list of elements to a set variable, enclose the elements in square brackets. The order of elements is unimportant. The statement below assigns digit characters to the Digits set variable:

```
Digits := [ '0' . . '9' ];
```

The two-period ellipsis indicates a subrange between two constants. This shorthand lets you avoid writing the equivalent statement below:

```
Digits := [ '0', '1', '2', '3', '4'
            '5', '6', '7', '8', '9' ];
```

Notice that the digits are characters, not numbers.

If you want a set of integer values, you would first declare a set variable this way:

```
VAR
  TenSet : SET OF 0 . . 9;
```

then assign the *values* zero to nine to the set variable:

```
  TenSet := [ 0 . . 9 ];
```

Set Limitations

Set elements must be simple, scalar data types. A scalar type is one whose elements fall into whole-number steps. Integers, characters, and Boolean true/false values are scalar. Real numbers, because they're infinitely divisible, are not scalar. Unlike mathematics, therefore, Pascal cannot have real-number sets. The same restriction applies to structured data types: Records, strings, and arrays cannot be elements of Pascal sets.

Apple Pascal further restricts sets to a maximum of 512 elements. Other Pascal compilers impose different limits on the number of set elements you can have—a fact worth remembering if you want your programs to compile on other computers. One notable example, Turbo Pascal, which requires a CP/M card, limits you to 256 elements, half the number Apple Pascal permits.

Internally, single bits represent individual set elements. Because of this, set variables take up memory space according to the formula below:

Listing 1. Function that returns a single character from character-set parameter GoodChars.

```
FUNCTION GetChar( GoodChars : CharSet ) : Char;
VAR ch : char; Okay : Boolean;
BEGIN
   REPEAT
      Read( Keyboard, ch );
      Okay := ( ch IN GoodChars );
      IF NOT Okay THEN Write( chr(7) );
   UNTIL Okay;
   GetChar := ch
END; (* GetChar *)
```

2 * (1 + ((n - 1) DIV 16))

N equals the maximum number of elements a set can have. Therefore, a set of up to 32 elements takes 4 bytes no matter how many elements it actually contains. A set of up to 48 elements takes 6 bytes, and a set using the maximum of 512 elements takes 64 bytes.

Prompting for Commands

Prompting for one of several commands is a common program operation. Because this is something you'll frequently need to do, a standard procedure in all your programs will save you time.

Listing 2, CommandTest, shows how to write this procedure with sets. GetCommand in line 18 displays a prompt message at the bottom of the screen and returns a character in parameter Command. Similar to the earlier GetChar function, GetCommand limits characters to those passed in the character-set parameter, CommandSet.

Line 44 uses a different method to assign a character set. Instead of literal characters like 'A' and 'C', the assignment uses the built-in chr( ) function to convert ASCII values to character data types. You could rewrite the line as shown below:

```
VisibleChars := [ ' ' . . '~' ];
```

Not all Apple keyboards have a tilde (~) key, however. If you plan to publish your programs for others to type in, remember there are those who still have older (or should I say "more mature"?) Apple II's.

Another example of how to insert unusual characters in sets appears in line 13, which tests ch for membership in the set of lowercase letters. (Not long ago, a similar group of statements forced me into a few late-night editing sessions while I was finishing my first two Pascal books. I remembered almost too late that not all Apple keyboards can produce lowercase letters!)

Another function, UpCase (lines 10–16), finds its way into most of my programs. It's especially handy at times when you don't want to distinguish between upper- or lowercase letters, as in lines 27–28 where any character you type is immediately converted to uppercase.

When you run the program, notice how the FOR loop at lines 36–37 displays the set of expected characters. Try making mistakes—type a letter when the program asks for a digit—to see the FOR loop in action.

Other Kinds of Sets

Besides characters and digits, you can create sets of other data types. In combination with an enumerated data type of your own creation, you can often use sets to write programs that are almost entirely composed of English words. **Listing 3**, States, demonstrates how to use sets this way to increase the readability of your programs. The entire 80-line program has only six literal values, three of which are zero and one.

Before typing in and running the program, create a text file with the names of the 50 states. Type each state name on a separate line in the same order as listed in lines 3–12. Save this file as STATE.TEXT. The program reads it in lines 32–34 to initialize the StateNames array.

The enumerated State data type at line 3 shows how to create your own enumerated, scalar types in Pascal. Enumerated data types take the form:

<identifier> = ($Value_1$, $Value_2$, . . ., $Value_n$)

where $Value_1$ through $Value_n$ are the names of the elements you want to declare.

In States, the elements are state names. In another program, they could be colors, planets, species—anything with a list of elements you can name, up to 512 items. The elements are called enumerated types because the Pascal compiler translates them into numbers.

The identifiers—in this example, the state names—are conveniences for your sake. In the compiled program, those same identifiers are simple numbers. After compiling, Alabama

Listing 2. COMMANDTEST.

```
 0: PROGRAM CommandTest;
 1: CONST
 2:    ClrEoln = 29;   (* ASCII value to clear to end of line *)
 3:    Prompt  = 'TEST: D.igit, L.etter, Q.uit';
 4: TYPE
 5:    CharSet = SET OF Char;
 6: VAR
 7:    TestCh, Command : Char;
 8:    DigitSet, LetterSet, VisibleChars : CharSet;
 9:
10: FUNCTION UpCase( ch : char ) : char;
11: (* Convert lowercase chars to uppercase *)
12: BEGIN
13:    IF ch IN [ chr(97) .. chr(122) ]   (* [ 'a' .. 'z' ] *)
14:       THEN UpCase := chr( ord(ch) - 32 )
15:       ELSE UpCase := ch
16: END; (* UpCase *)
17:
18: PROCEDURE GetCommand(     Prompt     : string;
19:                           CommandSet : CharSet;
20:                       VAR Command    : Char     );
21: (* Prompt for and return Command from CommandSet *)
22: VAR
23:    CommandIsGood : Boolean; ch : char;
24: BEGIN
25:    REPEAT
26:       Gotoxy( 0, 22 ); Write( Chr( ClrEoln ), Prompt, ':' );
27:       Read( Keyboard, Command );
28:       Command := UpCase( Command );
29:       IF Command IN VisibleChars
30:          THEN Writeln( Command )
31:          ELSE Writeln( '<CTRL>' );
32:       CommandIsGood := Command IN CommandSet;
33:       IF NOT CommandIsGood THEN
34:       BEGIN
35:          Write( 'Please type: ' );
36:          FOR ch := chr(32) TO chr(127) DO
37:             IF ch IN CommandSet THEN Write( ch:2 )
38:       END (* if *)
39:    UNTIL CommandIsGood;
40:    Page( Output )  (* Clear screen *)
41: END; (* GetCommand *)
42:
43: BEGIN
44:    VisibleChars := [ chr(32) .. chr(126) ];
45:    LetterSet := [ 'A' .. 'Z' ];
46:    DigitSet := [ '0' .. '9' ];
47:    REPEAT
48:       GetCommand( Prompt, [ 'D', 'L', 'Q' ], Command );
49:       IF Command = 'D'
50:          THEN GetCommand( 'Enter a digit', DigitSet, TestCh ) ELSE
51:       IF Command = 'L'
52:          THEN GetCommand( 'Enter a letter', LetterSet, TestCh )
53:    UNTIL Command = 'Q'
54: END.
```

Listing 3. STATES.

```
 0: PROGRAM States;
 1:
 2: TYPE
 3:    State = ( Alabama, Alaska, Arizona, Arkansas, California,
 4:              Colorado, Connecticut, Delaware, Florida, Georgia,
 5:              Hawaii, Idaho, Illinois, Indiana, Iowa,
 6:              Kansas, Kentucky, Louisiana, Maine, Maryland,
 7:              Massachusetts, Michigan, Minnesota, Mississippi, Missouri,
 8:              Montana, Nebraska, Nevada, NewHampshire, NewJersey,
 9:              NewMexico, NewYork, NorthCarolina, NorthDakota, Ohio,
10:              Oklahoma, Oregon, Pennsylvania, RhodeIsland, SouthCarolina,
11:              SouthDakota, Tennessee, Texas, Utah, Vermont,
12:              Virginia, Washington, WestVirginia, Wisconsin, Wyoming );
13:
14:    StateSet = SET OF State;
15:
16:    NameArray = ARRAY[ State ] OF String[15];
17:
18: VAR
19:    StateNames : NameArray;
20:    CoastalStates,
21:    LandLockedStates,
22:    GreatLakeStates : StateSet;
23:
24: PROCEDURE Initialize;
25: CONST
26:    FileName = 'STATES.TEXT';    (* Each state on a separate line *)
27: VAR
28:    TextFile : TEXT;
29:    OneState : State;
30: BEGIN
31:    Writeln( 'Reading ', Filename );
32:    reset( TextFile, Filename );
33:    FOR OneState := Alabama TO Wyoming DO
34:       Readln( TextFile, StateNames[ OneState ] );
35:
36:    CoastalStates := [ Washington, Oregon, California, Texas,
37:                       Louisiana, Mississippi, Alabama, Florida,
38:                       Georgia, SouthCarolina, NorthCarolina,
39:                       Maryland, Virginia, Delaware, NewJersey,
40:                       NewYork, Connecticut, Massachusetts,
41:                       RhodeIsland, NewHampshire, Maine ];
42:
43:    GreatLakeStates := [ Minnesota, Wisconsin, Illinois, Indiana,
44:                         Michigan, Ohio, Pennsylvania, NewYork ];
45:
46:    LandLockedStates := [ Alabama .. Wyoming ] -
47:                        ( CoastalStates + GreatLakeStates )
48:
49: END; (* Initialize *)
50:
51: PROCEDURE List( s : string; VAR StateList : StateSet );
52: VAR
53:    OneState : State;
54:    Column : integer;
55: BEGIN
56:    Writeln;
57:    Writeln( s, ' STATES:' );
58:    Column := 0;
59:    FOR OneState := Alabama TO Wyoming DO
60:    BEGIN
61:       IF Column >= 4 THEN
62:       BEGIN
63:          Writeln; Column := 0
64:       END; (* if *)
65:       IF OneState IN StateList THEN
66:       BEGIN
67:          Write( StateNames[ OneState ]:18 );
68:          Column := Column + 1
69:       END (* if *)
70:    END; (* for *)
71:    Writeln
72: END; (* List *)
73:
74: BEGIN
75:    Initialize;
76:    List( 'COASTAL',  CoastalStates );
77:    List( 'GREAT LAKE',  GreatLakeStates );
78:    List( 'LAND-LOCKED',  LandLockedStates )
79: END.
```

becomes zero, Alaska one, and Wyoming 49—the names no longer exist. But your program can ignore this technical fact and use the more descriptive names instead.

Line 14 declares variable StateSet as a set of the enumerated State data type. StateSet can therefore hold any combination of states from Alabama to Wyoming.

The program uses this idea to assign groups of states to three set variables—CoastalStates, LandLockedStates, and GreatLakeStates. It initializes the three set variables in lines 36–47, then displays those states bordering ocean water, the Great Lakes, and other states. As with character sets, individual set elements are separated by commas and surrounded by square brackets.

Set Operators

The relational inclusion operators, < = and = >, test whether one set is a subset of another. The following expressions are both true:

['A','Z'] < = ['A'. .'Z']

and

GreatLakeStates > =
[Ohio,Pennsylvania,NewYork]

The first expression says that the two-character set A,Z is a subset of the letters A through Z. The second expression states that GreatLakeStates is a superset of the three-state set shown. To better remember how to use these operators, you can pronounce < = as "is a subset of" and > = as "has the subset."

You can also compare two sets for equality with the usual operators, = and < >. Consequently, the following statements are true:

['A','B','C'] < > ['D','E','F']

and

[1, 2, 3, 4] = [4, 2, 3, 1]

In the second expression, the order is different, but the sets are equivalent. The ordering of elements in a set never affects the set's value.

Three other operators combine two or more sets according to the rules in the **Table**. Set union is similar to addition. The result of SetA + SetB is a set containing all the elements of both SetA and SetB.

Set difference resembles subtraction. SetA – SetB results in a set with all the elements of SetB taken away from SetA—if those elements were in SetA to begin with.

The third operator, set intersection, combines the common elements of

Table. Set operators.

Operator	Rule
+	Set union
–	Set difference
*	Set intersection

two sets. The expression SetA * SetB produces a set whose elements are found in both original sets.

Listing 3 uses the union and difference operators (lines 46–47) to calculate the set of LandLockedStates. This set is equivalent to the difference between all the states and the union of the CoastalStates and GreatLakeStates sets.

Pascal News

New products include a Duplicate bridge-scoring program from Hampton Mulligan, 1799 Tularosa Road, Lompoc, CA 93436. Not being a bridge player, I cannot give Hampton's program a fair review, but if you're in a Duplicate club, you might want to write for more information.

I also received several programs from DogStar Software, P.O. Box 302, Bloomington, IN 47402. DogStar sells a text editor, monitor, and various other utilities written to operate under the Apple Pascal operating system. One caution about DogStar products: They appear to write directly to the Apple screen memory and, therefore, will not work with external terminals. I had to remove my serial card from slot 3 to get them to run.

And Finally. . .

Pascal sets are useful in a variety of situations. Character sets are particularly good for limiting responses to specific keys. Other sets may be combined or tested using one of several set operators. Because single memory bits represent set elements, set variables are extremely efficient and can store hundreds of items without changing size.

In my next column, I'll turn to a subject that seems to perplex many people—pointers.■

Tom Swan is the author of the Apple Pascal series, Pascal Programs for Business, Pascal Programs for Games and Graphics, *and* Pascal Programs for Data Base Management, *published by Hayden Book Company. Address correspondence to Tom at P.O. Box 206, Lititz, PA 17543. Please enclose a self-addressed, stamped envelope if you want a personal reply.*

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NUTRAHELP

Are your meals nutritious? Find out with the help of this easy-to-use food-analysis program.

by Vincent D. O'Connor

How would you like to type in a recipe and get back the same kind of nutritional information you find on packaged food at your local grocery? NutraHelp (see the **Program listing**) gives you the number of calories and the amount of sodium, fiber, fat, protein, and carbohydrates in each serving.

To use the program, type in the number of servings and the number of ingredients for each recipe, along with the measurements used and the number of those units for each ingredient. (Don't list spices, because their nutritional value is minimal, but don't forget to include sugars.) If an item is canned, fresh, or frozen, you must type in that information before the ingredient—for example, FROZEN PEAS TABLESPOON 8. All entries must be in capital letters.

If NutraHelp can't locate in its data base one or more of the items listed in your recipe, it warns you that the nutritional value per serving it comes up with is based only on the ingredients it found. You can add ingredients to the program at line 2000, but they must be in alphabetical order. You must list each new item with the ingredient first, followed by the number of calories, the amount of sodium in milligrams, the amount of fat, fiber, protein, and carbohydrates in grams, and the unit of measure. Also, change the variable DI in line 5—the number of ingredients for which the program has nutritional data—to reflect the new total.

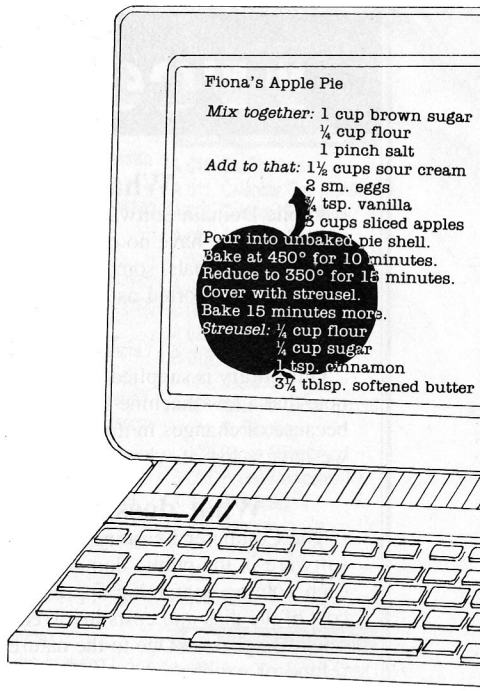
NutraHelp also converts measurements for you. If you type in cups, for example, the program automatically converts them to tablespoons. (It can't convert all measurements, though.) For fresh ingredients, like fruit, you must type in EACH as the measurement, followed by an amount such as ½ or 2, and so on.

NutraHelp runs under DOS 3.3 or ProDOS. You can make it self-booting by using it as the HELLO program when initializing (INIT) a disk under DOS 3.3, or saving it as STARTUP under ProDOS.■

Write to Vincent O'Connor at 2607 Hayes NE, Minneapolis, MN 55418.

Program listing. *NutraHelp.*

```
5 DI = 58
10  HOME : VTAB 2:T$ = "NutraHelp": GOSUB 3100
15  VTAB 6:T$ = "by": GOSUB 3100: VTAB 10:T$ = "Vince O'Connor": GOSUB 3
    100
20  DIM I$(15),C(DI),S(DI),F(DI),FB(DI),P(DI),CB(DI),UN$(DI),IN$(DI),NU$
    (15),AM(15),NA$(15)
25  FOR I = 1 TO DI
30  READ IN$(I),C(I),S(I),F(I),FB(I),P(I),CB(I),UN$(I)
35  NEXT I
40  VTAB 16:T$ = "Press <RETURN> to begin": PRINT  TAB( (40 + 1 -  LEN (
    T$)) / 2)T$;
45  GET A$: IF A$ <  > CHR$ (13) THEN 45
100 F1 = 0: HOME : VTAB 12: PRINT "Number of ingredients (15 MAX)?";
105  GOSUB 1100
110 NI =  VAL (A$)
115  PRINT : PRINT "Number of servings (15 MAX)?";
120  GOSUB 1100
125 SV =  VAL (A$)
170  FOR I = 1 TO NI
175  HOME : VTAB 10: INPUT "Ingredient: ";I$(I)
180  PRINT : INPUT "Measurement: ";NU$(I)
185  PRINT : INPUT "Amount: ";AM$: GOSUB 1200
190  PRINT : PRINT "Is this correct (Y/N)?";
195  GET A$: IF A$ <  > "Y" AND A$ <  > "y" AND A$ <  > "N" AND A$ <  >
    "n" THEN 195
200  IF A$ = "N" OR A$ = "n" THEN 175
205  NEXT I
210  HOME : VTAB 10:T$ = "CALCULATING NUTRITIONAL VALUE": GOSUB 3100
215  VTAB 12:T$ = "OF EACH SERVING": GOSUB 3100: GOSUB 3000
217  IF F1 = 1 THEN  GOSUB 1300
220  HOME : VTAB 3:T$ = "NUTRITIONAL VALUE PER SERVING": GOSUB 3100
225  PRINT : PRINT N1;" Calories": PRINT N2;" milligrams sodium"
230  PRINT N3;" grams fat": PRINT N4;" grams fiber"
235  PRINT N5;" grams protein": PRINT N6;" grams carbohydrates"
240  PRINT : PRINT "Another Recipe (Y/N)?";
245  GET A$: IF A$ <  > "Y" AND A$ <  > "y" AND A$ <  > "N" AND A$ <  >
    "n" THEN 245
250  IF A$ = "Y" OR A$ = "y" THEN 100
255  HOME : END
1099  REM       GET CHOICE
1100  GET A$
1105  IF A$ < "1" OR A$ > "9" THEN 1100
1110  PRINT A$;
1115  GET B$
1120  IF B$ =  CHR$ (13) THEN  RETURN
1125  IF B$ =  CHR$ (8) THEN  PRINT  CHR$ (8);" "; CHR$ (8);: GOTO 1100
1130  IF B$ < "0" OR B$ > "5" THEN 1115
1135  GET C$
1140  IF C$ =  CHR$ (13) THEN 1155
1145  IF C$ =  CHR$ (8) THEN  PRINT  CHR$ (8);" "; CHR$ (8);: GOTO 1115
1150  GOTO 1135
1155 A$ = A$ + B$: IF  VAL (B$) > 15 THEN  PRINT  CHR$ (8); CHR$ (8); CHR$
    (8);"  "; CHR$ (8); CHR$ (8);: GOTO 1100
1160  RETURN
1200  REM       CONVERT FRACTIONS TO DECIMAL
1205  IF AM$ = "1/8" THEN AM(I) = .125: RETURN
1210  IF AM$ = "1/4" THEN AM(I) = .25: RETURN
1215  IF AM$ = "1/3" THEN AM(I) = .33: RETURN
1220  IF AM$ = "1/2" THEN AM(I) = .5: RETURN
1225  IF AM$ = "2/3" THEN AM(I) = .67: RETURN
1230  IF AM$ = "3/4" THEN AM(I) = .75: RETURN
1235 AM(I) =  VAL (AM$)
1240  RETURN
```




```
1300  HOME : VTAB 2:T$ = "WARNING": GOSUB 3100
1305  PRINT : PRINT "The following ingredients in your"
1310  PRINT "recipe do not have nutritional data"
1315  PRINT "available.": PRINT
1320  FOR Q = 1 TO NA: HTAB 15: PRINT NA$(Q): NEXT Q
1325  PRINT : PRINT "Press <RETURN> to continue";
1330  GET A$: IF A$ <  >  CHR$ (13) THEN 1330
1335  HOME : VTAB 6
1340  PRINT "What follows is the nutritional"
1345  PRINT "value of the recipe based only on those"
1350  PRINT "ingredients with data available."
1355  PRINT : PRINT "Press <RETURN> to continue";
1360  GET A$: IF A$ <  >  CHR$ (13) THEN 1360
1365  RETURN
1399  REM       BINARY SEARCH
1400 L = 1:H = DI
1405 M =  INT ((H + L) / 2)
1410  IF I$(I) = IN$(M) THEN  RETURN
1415  IF L >  = H THEN FL = 1: RETURN
1420  IF I$(I) > IN$(M) THEN 1430
1425 H = M - 1: GOTO 1405
1430 L = M + 1: GOTO 1405
1499  REM       CHANGE MEASUREMENTS
1500  IF (NU$(I) = "OUNCE" AND UN$(M) = "TABLESPOON") OR (NU$(I) = "PINT
    " AND UN$(M) = "CUP") THEN AM(I) = AM(I) * 2: RETURN
1505  IF NU$(I) = "TABLESPOON" AND UN$(M) = "OUNCE" THEN AM(I) = AM(I) /
    2: RETURN
1510  IF NU$(I) = "TEASPOON" AND UN$(M) = "TABLESPOON" THEN AM(I) = AM(I
    ) / 3: RETURN
1515  IF NU$(I) = "TABLESPOON" AND UN$(M) = "TEASPOON" THEN AM(I) = AM(I
    ) * 3: RETURN
1520  IF NU$(I) = "CUP" AND UN$(M) = "TABLESPOON" THEN AM(I) = AM(I) * 1
    6: RETURN
1525  IF NU$(I) = "CUP" AND UN$(M) = "TEASPOON" THEN AM(I) = AM(I) * 48:
     RETURN
1530  IF NU$(I) = "TABLESPOON" AND UN$(M) = "CUP" THEN AM(I) = AM(I) / 1
    6: RETURN
1535  IF NU$(I) = "TEASPOON" AND UN$(M) = "CUP" THEN AM(I) = (AM(I) / 16
    ) / 3: RETURN
1540  IF NU$(I) = "TEASPOON" AND UN$(M) = "OUNCE" THEN AM(I) = (AM(I) /
    2) / 3: RETURN
1545  IF NU$(I) = "OUNCE" AND UN$(M) = "TEASPOON" THEN AM(I) = (AM(I) *
    2) / 3: RETURN
1550  HOME : VTAB 8: PRINT "Please enter the number of ";UN$(M)
1555  PRINT "of ";IN$(M);":";: INPUT AM$: GOSUB 1200
1560  RETURN
1565  VTAB 12:T$ = "OF EACH SERVING": GOSUB 3000: RETURN
2000  DATA  APPLE,80,2,1,1,0,20,EACH
2002  DATA  ASPARAGUS,2.5,1,0,.1,.25,.5,EACH
2004  DATA  BANANA,85,2,0,.9,0,23,EACH
2005  DATA  BLACKSTRAP MOLASSES,45,18,0,0,0,11,TABLESPOON
2007  DATA  BROWN SUGAR,820,66,0,0,0,212,CUP
2010  DATA  BUTTER,100,116,12,0,0,0,TABLESPOON
2015  DATA  BUTTERMILK,100,257,2,0,8,12,CUP
2020  DATA  CANNED BEETS,55,479,0,.8,2,12,CUP
2025  DATA  CANNED CARROTS,45,386,0,.5,1,10,CUP
2027  DATA  CANNED CHERRIES,105,10,0,2,2,26,CUP
2030  DATA  CANNED CORN,110,384,1,1.6,4,33,CUP
2032  DATA  CANNED LIMA BEANS,260,5,1,0,16,49,CUP
2035  DATA  CANNED PEACHES,200,15,0,.6,1,51,CUP
2040  DATA  CANNED PEARS,195,15,1,2,1,50,CUP
2042  DATA  CANNED PEAS,150,493,1,1.4,8,29,CUP
2043  DATA  CANNED PINEAPPLE,190,7,0,.4,1,49,CUP
2045  DATA  CANNED SKIM MILK,200,294,1,0,19,29,CUP
2047  DATA  CANNED WHOLE MILK,340,266,19,0,17,25,CUP
2050  DATA  CELERY,5,25,0,.3,0,2,EACH
2060  DATA  CHEDDAR CHEESE,115,176,9,0,7,0,OUNCE
2065  DATA  CHICKEN,1326,366,91,0,114,0,POUND
2070  DATA  COD,777,483,23,0,128,0,POUND
2073  DATA  CREAM,210,671,2,1.6,5,51,CUP
2075  DATA  CREAM CHEESE,100,84,10,0,2,1,OUNCE
2080  DATA  DRY NONFAT MILK,245,644,0,0,24,35,CUP
2085  DATA  EGG,80,59,6,0,6,1,EACH
2090  DATA  EGG WHITE,15,50,0,0,3,0,EACH
2095  DATA  EGG YOLK,65,9,6,0,3,0,EACH
2100  DATA  FRESH ASPARAGUS,12.5,1,0,.1,.25,.5,EACH
2105  DATA  FRESH BLUEBERRIES,85,1,1,2,2,19,CUP
2110  DATA  FRESH BROCCOLI,45,23,1,1.9,6,8,EACH
2115  DATA  FRESH CARROTS,30,34,0,.9,1,7,EACH
2117  DATA  FRESH CAULIFLOWER,30,17,0,1,3,26,CUP
2120  DATA  FRESH CORN,70,1,1,.8,2,16,EACH
2125  DATA  FRESH PEACHES,40,1,0,1,1,10,EACH
2130  DATA  FRESH PEARS,100,1,1,2,1,25,EACH
2135  DATA  FROZEN BROCCOLI,50,35,1,1.9,5,9,CUP
2140  DATA  FROZEN CAULIFLOWER,30,18,0,1,3,31,CUP
2145  DATA  FROZEN CORN,130,7,1,.8,5,31,CUP
2150  DATA  FROZEN PEAS,110,264,0,6,8,19,CUP
2155  DATA  FLOUNDER,914,1065,37,0,137,0,POUND
2160  DATA  GRANULATED SUGAR,770,2,0,0,0,199,CUP
2165  DATA  GROUND BEEF,1307,282,91,0,112,0,POUND
2170  DATA  HAM,1547,5904,117,0,85,0,POUND
2175  DATA  HOT DOG,170,627,15,0,7,1,EACH
2180  DATA  LAMB,1675,307,75,0,107,0,POUND
2185  DATA  LEMON,20,1,0,0,1,6,EACH
2190  DATA  LIGHT MOLASSES,50,3,0,0,0,13,TABLESPOON
2195  DATA  MARGARINE,100,140,12,0,0,0,TABLESPOON
2200  DATA  ORANGE,65,1,0,0,1,16,EACH
2205  DATA  PEANUT BUTTER,95,81,8,.9,4,3,TABLESPOON
2210  DATA  POWDERED SUGAR,385,1,0,0,0,100,CUP
2215  DATA  QUICK RICE,180,13,0,.4,4,40,CUP
2220  DATA  SOUR CREAM,495,96,48,0,7,10,CUP
2225  DATA  SWISS CHEESE,105,74,8,0,8,1,OUNCE
2230  DATA  TUNA,907,1606,37,0,133,0,POUND
2235  DATA  WHITE RICE,185,6,0,.3,4,41,CUP
2240  DATA  WHOLE MILK,150,122,8,0,8,11,CUP
3000 N1 = 0:N2 = N1:N3 = N1:N4 = N1:N5 = N1:N6 = N1:F1 = 0:FL = 0:NA = 0

3005  FOR I = 1 TO NI
3010  GOSUB 1400
3015  IF FL = 1 THEN FL = 0:F1 = 1:NA = NA + 1:NA$(NA) = I$(I): GOTO 303
    5
3020  IF NU$(I) <  > UN$(M) THEN  GOSUB 1500
3025 N1 = N1 + AM(I) * C(M):N2 = N2 + AM(I) * S(M):N3 = N3 + AM(I) * F(M
    )
3030 N4 = N4 + AM(I) * FB(M):N5 = N5 + AM(I) * P(M):N6 = N6 + AM(I) * CB
    (M)
3035  NEXT I
3040 N1 =  INT ((N1 / SV) + .5):N2 =  INT ((N2 / SV) + .5):N3 =  INT ((N
    3 / SV) + .5)
3045 N4 =  INT ((N4 / SV) + .5):N5 =  INT ((N5 / SV) + .5):N6 =  INT ((N
    6 / SV) + .5)
3050  RETURN
3099  REM       CENTERING ROUTINE
3100  PRINT  TAB( (40 + 1 -  LEN (T$)) / 2)T$
3105  RETURN
```

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☐ E07	☐ E16	☐ E25	☐ E34	☐ E43	☐ E52	☐ E61	☐ E70	☐ E79	
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The Master Diskette is **required** to play EAMON. It is used to create your character and stores the character data between adventures. This volume also contains the Beginner's Cave—a short (but not entirely safe) romp for your new character. (Highly recommended training for new adventurers.)

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sively hardware-oriented. They follow the CompuServe model—bulletins, club notices, downloads, and conferencing. On-line conferences are actually for all GEnie members, not just SIG users. Some include guest "speakers" GEnie provides, and some are on topics of general interest. You can also have impromptu conferences whenever you feel inspired.

Shopping, when I accessed it late in 1985, was fairly empty, except for a sort of "yard sale" of items users were offering. Games looked a little hardier, boasting a multiplayer, space-conquest adventure and a few other complex pastimes. News and Commentary was fairly bleak, containing information relating more or less only to GEnie activities.

What we have in GEnie is, as a GE advertising assistant told me on CB, "a baby." GEnie is so new—and so skimpy, except for CB—that it's unfair to draw any conclusion about it just yet. Let's hope, though, that instead of merely imitating CompuServe, it develops some unique, compelling features.

Information utilities give you contact with a wider part of the outside world. CB creates real addicts who are on all night long, night after night. Join the fun, but be prepared to pay the cost.

With charges made automatically against your credit-card account, an information utility can drain you more quickly than you can say "Dracula." Just ask one CBer I met on GEnie, who confessed that his monthly CompuServe bill was more than $1700 ($6 an hour adds up fast). He had dumped CompuServe and joined GEnie because, at $1 less per hour, he hoped to slow his cash outflow. That's a user gone out of control. Have fun, but don't make the same mistake.■

Brian J. Murphy
Fairfield, CT

Not the Last Word

BETTERWORKING WORD PROCESSOR WITH SPELLCHECKER

Spinnaker Software, 1 Kendall Square, Cambridge, MA 02139

Word-processing software and spelling checker; any 64K Apple II
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Ease of learning ■■■
Ease of use ■■■
Documentation ■
Support ■
Overall ■■

The BetterWorking Word Processor with Spellchecker, the third package in Spinnaker's BetterWorking series, claims to be "ideal" for "all your writing needs." It's better working than its predecessors, File & Report and Spreadsheet (see *inCider*'s review in the September 1985 issue, p. 75), and for some users, Word Processor may even be an improvement over programs like Bank Street Writer. Spinnaker's product has some rough edges I can't tolerate.

This package should appeal to owners of unadorned, unenhanced Apple II's. For example, the program offers two display options on one disk—40- and 80-column. Word Processor's features are more or less the

kyan

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kyan pascal (Version 2.0) for the Apple $69.95

kyan pascal is a ProDOS-based compiler for the Apple II. It's a full Jensen-Wirth/ISO implementation, designed for both beginning and advanced programmers. It's easy to use, lightning fast, and loaded with features like:
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same for both versions, but the 40-column display is a joy to work with and closer to WYSIWYG (what you see is what you get) than the 80-column. Underlining and boldface appear on screen as they would on the printed page. You may appreciate the clear readability of the 40-column display, as well.

Menu Selection

BetterWorking Word Processor presents all menu choices in checklist format in a rectangular box. The Main Menu contains major word-processing and computing tasks: Edit, Save, Spellchecker, Print, Help, Housekeeping, New Document, Tabs, Quit WP, and Exit. You move up and down the list of choices by pressing the up- or down-arrow keys, and make a selection by hitting the return key.

This menu-selection procedure is the easiest mouseless method I know. It's quite similar to the horizontal selection process in the Bank Street series. Sometimes when you gain, though, you lose. Experienced—or impatient—users may tire of this rather tedious approach. The Spellchecker (on the flip side of the Word Processor disk) and Print programs load very slowly, and may also frustrate experienced users.

Once in memory, Spellchecker works quickly. It "knows" 50,000 words, and you can add terms not normally found in *The American Heritage Dictionary*, on which Spellchecker is based.

If you're a novice, the Please Take Note boxes on screen will help you use the program and avoid mistakes. For instance, the program doesn't let you open a new document (clear memory) without warning you that the "current document will be lost unless you have saved it." You confirm by selecting the Yes or No option from the box.

Extensive Commands

You choose editing and formatting functions by means of control commands. Some of them are mnemonic, but it may take a while to figure them out. For example, you execute the option to "move to beginning of document" by pressing Control-F, and "move to end of document" with Control-L (first and last?).

Other commands are clearly mnemonic and easy to learn. Control-O is the overwrite/insert toggle. A certain few commands, such as Control-Z to mark a block and Control-P to hide markers, are nonmnemonic.

The commands for accessing the majority of routine functions are the same in both the 40- and 80-column versions of Word Processor, but there are a few differences. Boldface in 40-column mode is activated with a Control-B, Control-b toggle. In 80-column mode, you have to call up "micro-commands," a series of features activated with Control-X. Boldface in 80-column mode requires a Control-X-B, Control-X-b sequence. Other micro-commands tell your printer when to underline, put in subscripts or superscripts, and change to italic, elite, double-width, or condensed mode.

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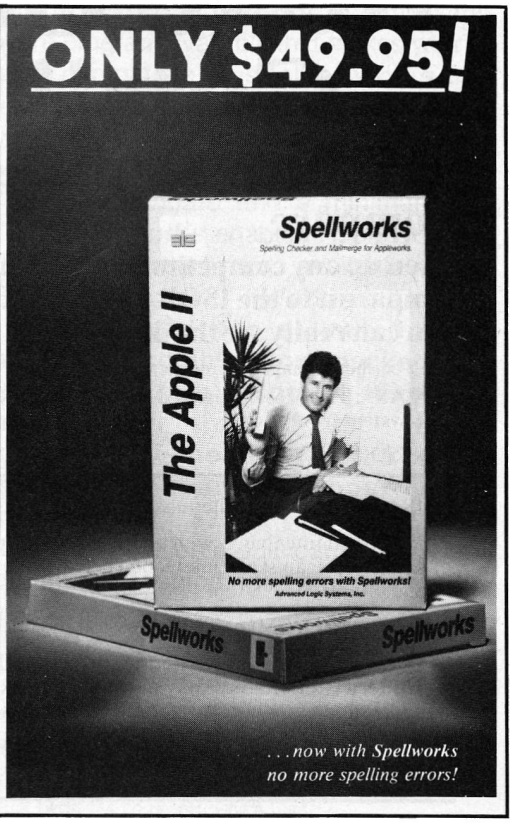
- Utility that merges Appleworks Data Base with Appleworks Word Processor.
- 90,000 Words
- Checks 10 words per second
- Word count 10 per second
- All on one diskette!

...I am impressed by Spellworks, not only because of the errors it detects, but also for the number of errors which it does not detect. By this I mean that it has a powerful vocabulary, and it recognizes a large number of variations of words so that it does not incorrectly call errors. The program is easy to use. I didn't even have to use the manual which came with the program. Good job and keep up the good work *Manager, Electrical Engineering* *Kenneth McCuen*
Solitec, Inc., Santa Clara, CA



Advanced Logic Systems, Inc.

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Circle 61 on Reader Service Card.

Besides control commands and microcommands, Word Processor uses embedded commands to help you set up your page layout (margins, justification, line spacing, page numbering, headers, and footers). Instead of the dot commands you may know from Apple Writer, you use exclamation-mark commands. Most are mnemonic: !LM5 sets your left margin at column 5, for instance.

So many commands! A large number of commands is the price you pay for the many features Word Processor offers. They're not that difficult to learn, though, and Spinnaker includes a Quikstart card you can keep near your computer, for times when your memory needs a boost.

Printing Problems

If you consider purchasing Word Processor, make sure it can work with your printer. It supports many popular dot-matrix models—the Apple ImageWriter, Scribe, and Dot Matrix, Epson RX and FX, Gemini 10X, Centronics, and Okidata. Word Processor is supposedly compatible with the Brother series of letter-quality printers, as well, but my Brother HR-10 wouldn't operate. I tried the Universal printer option, but that didn't work, either.

I called Spinnaker and explained that the printed page looked like abbreviated nonsense. The customer-service people told me to simply "change the alphabet" by using a Word Processor feature that lets you define keys as foreign-language characters. I fixed the problem myself, by using the Apple ProDOS Utilities to set the serial port on my //c before booting Word Processor.

If you own a basic Apple system and are looking for an easy-to-use word processor, Spinnaker's release may serve your needs. Just don't forget that Word Processor may not be ideal for *all* your needs.■

Cynthia E. Field
Wakefield, RI

Editor's note: Cynthia found the documentation that accompanied Word Processor an "embarrassment," and Andrea Werboff at Spinnaker agreed: "Some misprinted documentation was shipped, and some early versions. We apologize for the error and ask that customers with problems please call." The new documentation, which we at inCider *have checked, is complete.*

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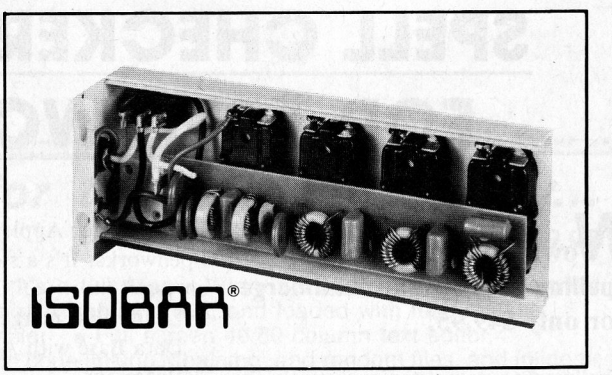

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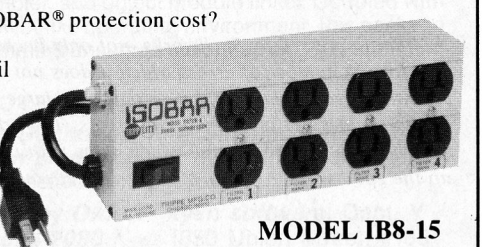

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tected disk goes south on you in the middle of a data-base session, just when you can't afford to wait a couple of weeks for a replacement disk. Echo Plus, descendant of the very efficient Echo 1.0, offers many additional features that will make backing up your copy-protected software even easier. The merits of the program may not warrant trading in your present copy program, but first-time buyers should give it serious consideration.

The most unusual feature of Agranat's latest offering is its automatic-copy mode: Echo Plus analyzes the disk being copied and changes its copy parameters to match those it determines will most likely provide a successful copy. Consequently, you can copy many software programs without setting any parameters.

Echo Plus also provides other sophisticated features. A track editor, for example, lets you examine and modify individual bytes on a disk, and the program's nibble counter compares the number of bits per track on the original and target disks. An examination mode helps you determine the type of copy protection being used, and a disk-drive speed analyzer lets you check or adjust the speed of both the source and target drives.

The documentation supplied with Echo Plus is well written and well suited to its task. In addition to describing the use and purpose of each of the program's features, the manual provides a 12-page section describing how information is stored on a floppy, how a normal disk is formatted, and how several of the more popular copy-protection schemes work. The manual is also nicely organized, separating advanced features from more routine ones.

I had no problems with the program. If you do, though, you can get assistance only "through the mail," as the manual does not provide a number for telephone support. Another odd point about Echo Plus is that the program is not only copy protected, but is protected so well that you can't use it to make a back-up copy of itself. Agranat does provide a single back-up disk to purchasers for $15, however. If the program isn't crucial to your operation, you can replace a defective or damaged disk for $5 upon returning it to the company.

Overall, Echo Plus is a darned good product. The manual explains its various features well, and the program's automatic mode sets it apart from its competitors. ■

Timothy P. McDonough
Springfield, IL

Editor's note: Ian Agranat reminds readers that although users cannot call Agranat Systems, the company is eager to provide customer support and will quickly respond by phone to written queries. In addition, Echo Plus is now officially called Agranat Systems Copy Program.

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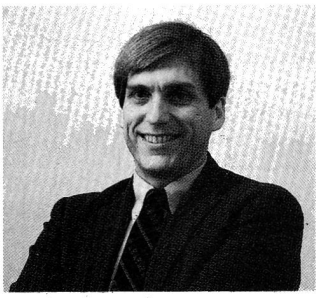

Help Wanted

by Paul Statt, *inCider* staff

"I'm no machine-language programmer. But you don't have to compose symphonies to enjoy listening to Beethoven."

I need help. My friends laughed when I told them I had been promoted to technical editor at *inCider*. "You majored in German, not Pascal," they smirked. "You're a better first baseman than programmer. You're going to need help."

Guilty as charged—I can't touch-type in assembler any better than I can in English. So I need—and get—a little help from my friends. And at the risk of making my job obsolete and shrinking my paycheck, I'm willing to pass a little help along to you.

This wisdom was first passed to me by Bob Ryan, sometime *inCider* tech editor and now with *AmigaWorld*. Esoteric cults prefer the guild system to college, anyway—an apprenticeship at the motherboard of a master.

"When someone asks a question you can't answer," Bob mumbled, "look it up in Sather's book."

Jim Sather's book—and mission in life—is ***Understanding the Apple //e*** (Quality Software, 21601 Marilla Street, Chatsworth, CA 91311, 818-709-1721, $22.95). As Steve Wozniak says in the introduction, "Anyone who is at all concerned about the workings of the Apple //e will benefit from this book, as will students and programmers who have a need for reliable material."

I might have said it better, but whom would you believe, a German major or Steve Wozniak?

Sather takes care of memory management and the //e input/output routines in succinct style—reason enough to own *Understanding the Apple //e*, because those two topics are critical to understanding memory expansion and new storage media. Jim tells you what you need to know about //e hardware.

To solve software problems, you need common sense and patience. If all else fails, read the documentation—or get ahold of a dependable reference.

For instance, for AppleWorks troubles, I first consult the same source I look to for help with ProDOS and DOS 3.3. My source is reliable and witty. And ***Open-Apple*** comes every month.

Open-Apple (P.O. Box 7651, Overland Park, KS 66207, $24 per year) is a tidy newsletter, written, edited, and obviously loved by Tom Weishar, former author of the "DosTalk" column in *Softalk*. *Open-Apple* is indispensable. Weishar explains what you need to know and doesn't bore you with what you don't. For instance, his description (April 1985) of the enhanced //e, and how it is and isn't compatible with earlier Apples, gives me all the information I need on that topic. The greatness of *Open-Apple* is that Weishar explains, at the same time, how machine-language programmers get text on the screen.

Weishar is a damned good writer. That's half the pleasure of his trim monthly missive. The other half is the part devoted to readers' problems. Don't settle for a mere subscription: Spring for a complete set of back issues (a little more than a year's worth now) for $28, because chances are that Tom has already solved your problem.

I'm no machine-language programmer. But you don't have to compose symphonies to enjoy listening to Beethoven, even in a "technical" way—that is, to appreciate that genius' "technique." PEEKs and POKEs are an easy way into the 6502 for outsiders like me. That's why every Apple owner should get a Beagle Bros **Peeks, Pokes and Pointers** chart (Beagle Bros, 4315 Sierra Vista, San Diego, CA 92103, 619-296-7636, free with purchase).

Another good source, and an indicator of Apple Computer's corporate sanity, is **Addison-Wesley Publishing**. All Apple ***Technical Reference*** manuals, which Apple used to attempt to sell through dealers, are now available from Addison-Wesley. The books are cheaper now and easier to get—at bookstores or directly from Addison-Wesley, One Jacob Way, Reading, MA 01867, (800) 238-3801.

You can pick up the *Applesoft Tutorial* (with disk), $29.95; the *Applesoft Reference Manual*, $22.95; *Basic Programming with ProDOS* (with disk), $29.95; *ProDOS Technical Reference Manual*, $29.95; and the *Apple //e* and *//c Technical Reference Manuals*, $24.95 each. You'll need all these if you want to be a tech editor—and not be embarrassed by your pals' giggling.

From you, dear reader, I ask only for letters, questions, and problems. And stop giggling. ■

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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

It's nice to report that George Lucas' foray into home-computer games is still, for the most part, successful. A few months ago I took a long look at Rescue on Fractalus (see the January 1986 Game Room, p. 114) and liked what I saw. Since then, I've acquired three more Lucasfilm games. All have a science-fiction or fantasy theme. One is excellent, one is quite good, and one is just so-so. Let's begin with the best of the bunch.

Ballblazer

★★★★

Epyx Computer Software
1043 Kiel Court
Sunnyvale, CA 94089
Any 64K Apple II,
joystick optional
$29–$39 (dealer-determined)

Ballblazer is a welcome treat. It's an original game with fast action and high tension. It demands a cool head, hair-trigger reflexes, and an alert mind.

You pilot a ground-skimming *rotofoil*—a real triumph of 31st-century technology that uses force fields to capture and shoot the "ball," a glob of energy called a *plasmorb*. The car zips over a checkerboard playing field that's 275 meters long by 105 meters wide.

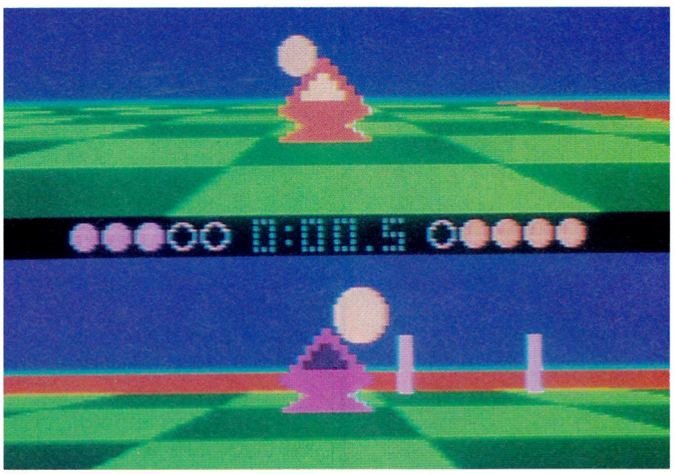

Photo 1: *Aim for the goalbeams in Ballblazer.*

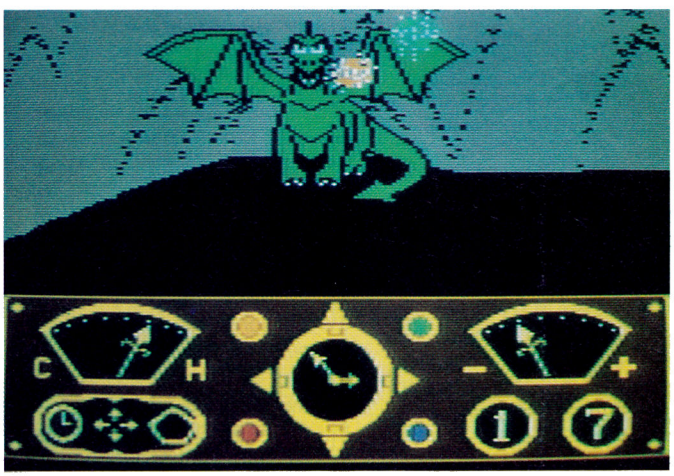

Photo 2. *A dragon awaits you in The Eidolon.*

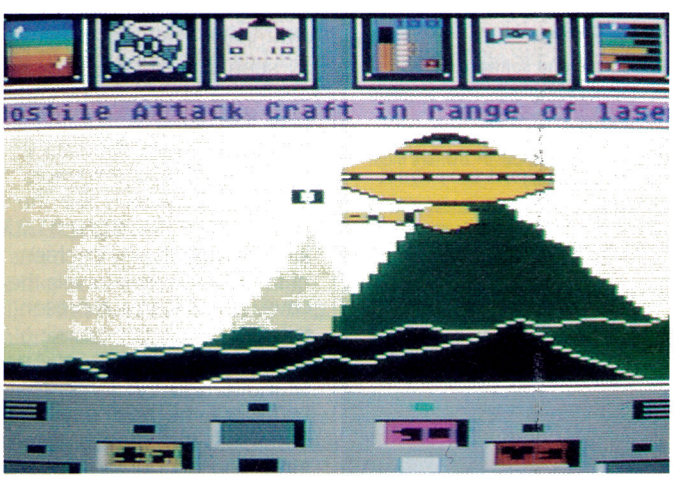

Photo 3. *Flying saucers harass you in Koronis Rift.*

The field is so large that the moving goal at either end is sometimes lost over the horizon. It's a good thing this game isn't real, because the g-forces an actual player would pull to travel these distances would be brutal. As it is, the lightning-quick action on screen is dizzying and disorienting enough.

All you have to do is shoot the plasmorb between the goalbeams to score a point. At a certain distance from the goal, your shot is worth two points. Each time you score a goal, the space between the goalbeams shortens, making subsequent scores more difficult. Also making the play a bit more challenging is a second player (human- or computer-controlled), who's desperately trying to steal the plasmorb and score a goal at the other end of the field. Soccer players will feel right at home.

A split-screen color graphic shows the view from your rotofoil and from the other participant's. Good players will keep an eye on both, to recognize opportunities to steal the plasmorb and to watch for attempted thefts by the opposition. It's disorienting at first, but you'll take pleasure in the technique as your abilities develop. As you improve, you can take on "droid" opponents of increasing skill and determination. At the highest levels of competition, the challenge to just stay in the game, much less win, is almost overwhelming.

Ballblazer offers pure play and pure fun. The graphics are great and the animation outstanding. The

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Game Room

sensation of flying along a playing field miles long is compelling. Ballblazer is so realistic you can easily immerse yourself in it for hours and hours. It's the first arcade game I've been able to recommend wholeheartedly in a long time—this is real arcade addition you shouldn't pass up.

The Eidolon

★★

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$29–$39 (dealer-determined)

Fantasy is definitely the theme of **The Eidolon**, a title that refers to a sort of interdimensional, mind- and magic-powered traveling machine built by a certain Dr. Josef Vincent Agon back in the 1850's. Behind the controls you travel into a realm of caverns filled with bizarre creatures, roaming fireballs, and trolls. As you complete the exploration of one level, you're admitted to the next (once you've discovered the secret of the guardian dragon). After finishing seven levels or so, the secret of the entire game awaits you.

I know it all sounds very old-hat. That's because it is—the plot isn't significantly different from that of any of dozens of adventures and role-playing fantasies we've all seen before. The level of challenge is good, but you play the game wondering if this trip is really necessary.

The Eidolon is enjoyable in some respects. I like the point of view in the graphics—through the windscreen of the Eidolon as it travels the cave, rather than a representation of a machine traveling a maze, a la Temple of Apshai. It's also fun trying to figure out the best way to cope with the various creatures you encounter. But, as I asked before, is this trip necessary? Not really.

Koronis Rift

★★★

Epyx Computer Software
Any 64K Apple II,
joystick required
$29–$39 (dealer-determined)

Koronis Rift is a variation on the game system of Rescue on Fractalus. In the earlier game you skimmed a toxic planetscape in search of downed pilots, while hostile flying saucers harass you. In this adventure you skim a radioactive planetscape in search of ancient technological artifacts, while—you guessed it—hostile flying saucers harass you. Sound familiar?

In all fairness, the two games aren't completely identical, and the differences make Koronis Rift well worth your attention. Your ship comes with a robot to evaluate the modules you collect. He'll help you decide whether to keep them as a commodity to pile up points, or to integrate them into your ship's systems to improve its performance on the prowl and in combat. These devices may include weapons, sensors, propulsion units, energy generators, or shields. Some of the modules drain power from your ship's systems and bring you to a halt. Others work only under certain conditions. Be careful choosing the alien devices you want to use.

Twenty rifts full of these hidden marvels await your search. This will prepare you for the final showdown with the enemy saucer base.

Aside from its similarity to Fractalus, Koronis is an outstanding science-fiction adventure. It's thoroughly engrossing—an excellent introduction to the genre. ■

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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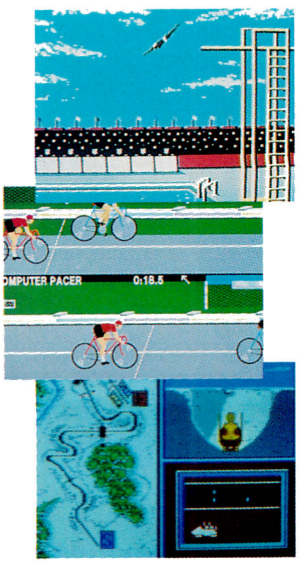

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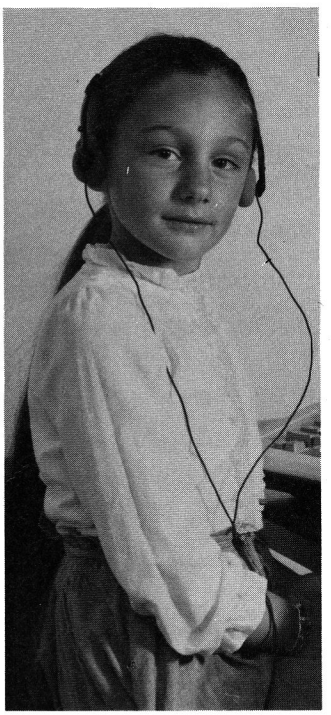
NEW PRODUCTS

edited by Paul Statt

Hardware



The LittleJack headphone lets kids study—and gives parents peace and quiet.

Quiet Please

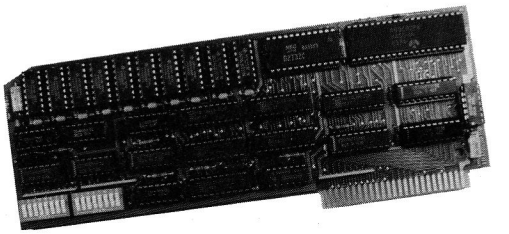
LittleJack, a **telephone headset** for the Apple II, II Plus, and //e, lets children, gamesters, and musicians work or play at the keyboard without disturbing teachers, parents, or coworkers. LittleJack installs in minutes, and at $24.95, also makes an inexpensive stereo hookup. An adapter that allows eight listeners at once is no extra charge, from Educational Software Review, 1400 Shattuck Avenue, #774, Berkeley, CA 94709, (415) 528-2788. For more information circle number 351 on the Reader Service card.

More Equal

The EquiDisk+ subsystem for the Apple II Plus and //e **increases data storage to 737 kilobytes on a 5¼-inch disk**: You get the storage capacity of a hard disk and the convenience of floppies. EquiDisk+ drives hold five times the data of standard Apple drives and work at twice the speed. And Apple CP/M users are no longer limited to Apple-disk-format CP/M software—the EquiDisk+ can access CP/M with an alternate format. The controller card, high-capacity drives, and startup, format, and copy software sell for $679, from H&M Disk Drive Services, 1101 East Pacifico, Anaheim, CA 92805, (714) 385-1146. For more information circle number 350 on the Reader Service card.

Nice Network

GCM GridNet, a new **local-area network**, uses a building's existing AC-power wiring in place of cumbersome cables to bring error-free data transmission and reception to users who need more than one Apple. GridNet offers all the advantages of electronic mail, peripheral sharing, and software savings without the headaches of electrical interference. Connect the network with your Apple's RS-232C or parallel interface to the GridComm GC-1400 ($549) or GC-1100 ($449), and plug into any AC outlet: instant network. From GridComm, 20 Old Ridgebury Road, Danbury, CT 06810, (203) 790-9077. For more information circle number 370 on the Reader Service card.



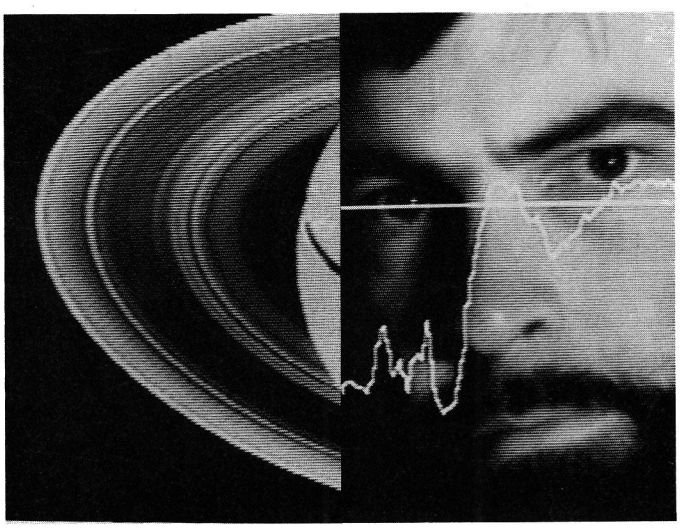
AE's Transwarp accelerates Apple software.

Shades of Gray

The ImageWorks card gives the Apple II series a **full gray-scale display** for graphics-image processing. The ImageWorks image store is 256 lines by 256 columns, with 256 levels of gray for pictures of near-photographic quality. The ImageWorks card contains its own 64K of random-access memory so that the image doesn't squander any of your Apple's RAM. ImageWorks can help display any digitized-image information, and a color option adds up to 256 colors, as well as a video-image-capture option. ImageWorks sells for $195, the capture and color cards $95 each, from Redshift Limited, 2727 Midtown Court #7, Palo Alto, CA 94303, (415) 322-7536. For more information circle number 352 on the Reader Service card.

Timewarp Again

Applied Engineering's Transwarp **accelerator card** makes Apple software run 3½ times faster. The accelerator works with all Apple II Plus and //e software, including AppleWorks, SuperCalc3a, and VisiCalc, as well as with all standard peripheral cards. Transwarp accelerates both banks of memory in a 128K Apple, and complements the huge RamWorks AppleWorks files AE makes possible with faster, more convenient access. Transwarp needs no additional software and fits any slot; you can easily disable its operation with the escape key. Transwarp is priced at $279, from Applied Engineering, P.O. Box 798, Carrollton, TX 75006, (214) 241-6060. For more information circle number 359 on the Reader Service card.



ImageWorks lets you paint in 256 colors or shades of gray.

Software

Food for Thought

ThinkWorks brings AppleWorks aficionados **AppleWorks-compatible outlining power**. ThinkWorks works by itself or with Apple's integrated package. You construct outlines in the standard form—with indenting, labeling, and paragraphing—and integrate them into an AppleWorks word-processor file. You can even merge outlines with ThinkWorks, or pull parts from one outline into another. Outline power for $125, from MegaHaus, 5703 Oberlin Drive, San Diego, CA 92121, (619) 450-1230. For more information circle number 362 on the Reader Service card.

Sign of the Times

The Micro-Interpreter II is a **computerized animated vocabulary of American Sign Language**. More than 2100 words can be converted into animated American Sign Language—the signs were developed from 5000 photographs of speakers of ASL. No knowledge of ASL or programming is needed. Simple key commands let you stop motion, repeat signs, slow the speed, and so on. Words are grouped into families such as Health and Recreation, Religion, and Verbs. You can order individual disks or the complete package of 16 at prices of $29.95 to $49.95 each, from Microtech Consulting, P.O. Box 521, Cedar Falls, IA 50613, (319) 277-6648. For more information circle number 361 on the Reader Service card.

LogoWriter includes word processor, Logo, and extra materials.

Think It Out

The all-new Out-Think is a low-cost **outline processor** for CP/M computers. Out-Think lets you classify text into a familiar outline structure, then access and alter the text based on that structure. You can hide or highlight details as you like, or concentrate on the forest amidst the trees. Out-Think's full-screen text editor lets you control the text you insert or edit in your outline. Copy and move functions are supported, along with a host of other features, for $49.95, from Kamasoft, 2525 Southwest 224th Avenue, Aloha, OR 97006, (503) 649-3765. For more information circle number 358 on the Reader Service card.

Roll Your Own

Gary Kitchen's GameMaker: The Computer Game Design Kit helps you **create your own computer games** without sophisticated programming languages or man-years of your time. Using a joystick, the "designer" selects from a menu of commands to create and animate characters and draw backgrounds. Sound effects and music can be included. Saving your masterpieces to blank disks for gifts—or sales—is easy. GameMaker costs $39.95, from Activision, 2350 Bayshore Frontage Road, Mountain View, CA 94043, (415) 960-0410. For more information circle number 356 on the Reader Service card.

School Graphics

The Low Resolution Graphic Plotter lets students beginning computer programming and logic **create exciting graphics images and print them in low resolution** on the Apple II series. It's easy to use, and you can produce a full-page color-graphic design in about a minute. Almost all popular printers, including the new Apple ImageWriter II and Epson FX85, support the Low Resolution Graphic Plotter. The cost is an affordable $39.95, from Burke Software, P.O. Box 515, Park Ridge, IL 60068, (312) 823-1357. For more information circle number 355 on the Reader Service card.

Playing War

Strategic Simulations has two new **simulations of historic battles and campaigns**: Nam ($39.95), by Roger Damon, puts you into the thick of any of six vicious battles in the jungles of Southeast Asia; and BattleGroup ($59.95), a sequel to Kampfgruppe, by Gary Grigsby, follows the Allied armies battling Hitler's forces in every major engagement from North Africa in 1943 through the war's climax in Germany. Three new **fantasies** demonstrate SSI's commitment to the genre: Phantasie II ($39.95) takes you to the Isle of Ferronrah to fight Mikademus the Dark Lord; Rings of Zilfin ($39.95) uses strong animated graphics to help you seek the missing rings and destroy the evil forces of Dragos; or you can wrest the pilfered Wizard's Crown ($39.95) from behind enchanted walls in the fallen city of Arghan. All from Strategic Simulations, 883 Stierlin Road, Building A-200, Mountain View, CA 94043, (415) 964-1353. For more information circle number 357 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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NEW PRODUCTS

The Last Word

LogoWriter is a **programmable word processor** for schools that lets children learn to program and to use applications, as well. Developed by Logo Computer Systems and Seymour Papert, creators of the original Logo language, LogoWriter is a powerful word processor and programming language. Children can write with it, draw with it, make music, and program: Each of LogoWriter's parts augments and simplifies the others. Best of all—for teachers with moral scruples and schools with tiny software budgets—a true-site license for LogoWriter, permitting unlimited copies in each school, costs only $395 and includes extensive support materials. From Logo Computer Systems, 9960 Côte de Liesse Road, Lachine, Quebec, Canada, H8T 1A1, (514) 631-7081. For more information circle number 364 on the Reader Service card.

Apple LaserWriter

Don Lancaster's LaserWriter/Apple Writer Utilities give you **superb //e text and graphics**. Apple desktop publishers will enjoy the automatic formatting, boxes and fancy borders, daisywheel changers, envelope and label routines, fast form letters, grids and rulers, hires converters, and numerous other features all available from Apple Writer. Who needs a Mac? Apple Writer does it all better and faster. The LaserWriter/Apple Writer Utilities retail for only $39.95, from Synergetics, 746 First Street, Thatcher, AZ 85552, (602) 428-4073. For more information circle number 354 on the Reader Service card.

Strong Silent Type

Typing Made Easy is a **complete touch-typing course**. It has all the strengths of a conventional typing course coupled with the real advantages of the Apple computer. Eight lessons teach the keys a few at a time. You keep practicing keys you've already mastered while continuously learning new keys—as well as posture and other good habits. Best of all, you see nothing on screen until you complete the drill. Typing Made Easy costs $59.95, from QED Information Sciences, P.O. Box 181, Wellesley, MA 02181, (617) 237-5656. For more information circle number 360 on the Reader Service card.

New Tricks

Quality Software's Bag of Tricks 2 is a completely new set of **disk-utility programs** that brings Apple II users all the programs of the original and more. For instance, ProDOS—not supported by the original—is fully covered in Bag of Tricks 2, as are 3½-inch floppies, hard disks, and RAM disks. Damaged disks can be repaired, lost directories restored, and disk data analyzed and modified. The 150-page manual contains useful examples and tutorials. Read and use the latest work of Don Worth and Peter Lechner, authors of *Beneath Apple DOS* and *Beneath Apple ProDOS*, for $49.95 (5¼-inch disk) from Quality Software, 21601 Marilla Street, Chatsworth, CA 91311, (818) 709-1721. For more information circle number 363 on the Reader Service card.

Product Updates

● Speaking of **Newsroom**: Scholastic Software (730 Broadway, New York, NY 10003, 212-505-3000) sells a **school edition** of the popular word processor and graphics combo for $74.95.

● A new software technology—you saw it on the cover of the *Scientific American* "Software" special issue in September 1984—is being developed for the Apple II series. **"Grasp" technology**, developed by VPL Research in Palo Alto, California, is a visual programming language operated by a glove-input device. Grasp technology uses pictures, sound, and animation to create visual effects in real time. Curious? Call ShareData, 7122 Shady Oak Road, Eden Prairie, MN 55344, (612) 829-0409.

● It's true: **UCSD Pascal**—with lots of improvements—is now to be had at Pecan Software Systems, 1410 39th Street, Brooklyn, NY 11218, (718) 851-3100. Forget SofTech Microsystems—this is the true-blue real-McCoy p-system Pascal.

● Manzanita has released the **Accounts Receivable** package for **BusinessWorks** ($395) and has announced that BusinessWorks works with all kinds of RAM cards—Applied Engineering, AST, and Apple—and the ever-popular Pinpoint. One Sierra Gate Plaza, Suite 200-A, Roseville, CA 95678, (916) 781-3880.

● Need **RamWorks** help? Applied Engineering's new tech-support number is (214) 241-6069. Sales are still at P.O. Box 798, Carrollton, TX 75006.

● How about an animated murder mystery that stars some heavies—and heroes—from classic films of the Forties, and can be played over and over again? Intrigued? Call Kinemation at (603) 924-3076 in Peterborough, New Hampshire, and ask about **Intrigue**.

● The **SwyftCard** is growing up. Not only does Information Appliance have a new address (1014 Hamilton Court, Menlo Park, CA 94024, 415-328-5166), but it's produced a baby sibling for the SwyftCard—**SwyftCard //c**.

● The latest **Let's Talk** from Russ Systems (320 Dufour Street, Santa Cruz, CA 95060, 408-427-1540) offers an AppleWorks data-base search and networking capability for up to 63 users.

● Logo fans tired of high tech, try this high-touch turtle: a soft, cuddly **turtle hand puppet** that obeys all your commands. $19 for a pettable pair. K–12 MicroMedia, 6 Arrow Road, Ramsey, NJ 07446, (800) 922-0401.

● Pinpoint now pops a **spelling checker** into AppleWorks—you get a 55,000-word dictionary, as many as ten alternative spellings, and instant reformatting in AppleWorks. Pinpoint and the Spelling Checker are $69 each. Take both for $125, and some of the nicest people in the Apple world will throw in the $20 RAM-enhancement kit at no cost. From Pinpoint Publishing, P.O. Box 13323, Oakland, CA 94661, (415) 654-3050.

● Still think Springboard's **Newsroom** is a printing press for kids? Well, it is, but check out the **Clip Art Collection, Volume 2**, with 800 illustrations designed for publications in businesses large and small—medicine, accounting, finance, computers, and lots of serious stuff. From Springboard Software, 7807 Creekridge Circle, Minneapolis, MN 55435, (612) 944-3915.

● Star Trekkers befuddled by the microcomputer game of that name might be beamed up by the helpful **Star Trek Hints** offered by Simon & Schuster, 1230 Avenue of the Americas, New York, NY 10020, (212) 245-6400.

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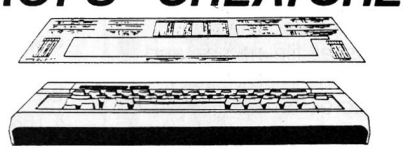

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ProDOS Cataloger

by Ed Verdelotti

Cataloging all your ProDOS program disks in a master file is one boring, laborious task. If you've got better things to do with your time, let ProDOS Filer rescue you. ProDOS Filer reads the file names in the volume directories—and subdirectories—of your program disks and stores them in text files. Then it merges and sorts *all* file names and places them into one master file, which you can scroll on the screen or send to your printer to create a disk catalog.

Before ProDOS Filer will work properly, you must do two things to the disk on which you plan to save the **Program listing**: Rename the volume /CATALOG/ and create a directory called VOLUMES by using the command CREATE/CATALOG/VOLUMES. (Refer to the *ProDOS User's Manual* for information about renaming volumes and creating directories.) To use different volume and directory names, make the appropriate changes in the string variables in line 170. This is important because the program as it stands looks for /CATALOG/VOLUMES before it saves or retrieves files.

You can use the program with one or two drives without any modification. If your system has only one drive, ProDOS Filer prompts you when you need to change disks. If you have a two-drive system, it's best to leave the /CATALOG/ disk in drive 2 after you load the program.

Table 1. ProDOS Filer menu options.

Option	Description
1	Catalog a disk
2	Read a disk catalog
3	Update master file
4	Read master file
5	Print master file
6	Delete a disk catalog
7	Exit program

Program Options

Table 1 illustrates the program's menu options; **Table 2**, the corresponding program lines. The subdirectory VOLUMES is initially empty, so your first step is to use option 1 to read the directories of the ProDOS disks you want to catalog. The program prompts you to put the disk to be cataloged into drive 1. Then, after it reads the disk's directories, it prompts you to insert the /CATALOG/ disk into drive 1 (unless it has already found that disk in drive 2). Repeat this process until ProDOS Filer has cataloged all your ProDOS volumes.

Table 2. ProDOS Filer line descriptions.

Lines	Function
100–190	Initialize
200–340	Program menu
350–710	Read disk catalogs
720–970	Read volume directories
980–1180	Read subdirectories
1190–1360	Save disk catalogs
1370–1440	Delete disk catalogs
1450–1650	Update master file
1660–1860	Sort routine
1870–2070	Display master file
2080–2260	Print master file
2270–2350	Error trapping

Once you've created this master file, you can do several things. First, you can read the file names from any of the individual volumes—simply select option 2. ProDOS Filer catalogs the VOLUMES directory and asks which volume you want to read, then scrolls on screen the file names contained on that volume and lists any subdirectory names after the file name and type.

With option 3, you can update the master file. The program loads the file names of all the volumes into an array that will hold up to 500 files, then sorts them and saves the sorted files in MASTER.FILE.

Option 4 lets you read the master file. ProDOS Filer displays 21 sorted file names at a time on your screen until it has scrolled through the entire master file. You can then scroll again or exit the routine. Along with the file name and type, the program displays the file's volume (and subdirectory if applicable).

If you want a hard-copy catalog of your master file, choose option 5. The program doesn't use any unique printer codes, so the printer routine is as compatible as possible with the various printer/interface configurations. The program assumes your printer interface is in slot 1. If it isn't, change the slot number in line 2150. At six lines per inch, ProDOS Filer prints a two-line header, 60 file names, and four blank lines (see the **Figure**). It then repeats the header at the top of the next page and prints the next 60 file names.

Option 6 deletes any volumes you no longer use. When you type in the name of the file, the program removes it from the VOLUMES directory. It isn't necessary to delete a volume you're updating with option 1,

Program listing. ProDOS Filer.

```
100  REM ================================================
110  REM                  ***  PRODOS FILER  ***
120  REM                     BY ED VERDELOTTI
130  REM                          5/1/85
140  REM ================================================
150  REM <<=========== MENU ============>>
160  PRINT  CHR$ (21):D$ =  CHR$ (4)
170 VOL$ = "/CATALOG/":DIR$ = "VOLUMES"
180  DIM A$(75),L$(50),SD$(25),MF$(500)
190  ONERR  GOTO 2280
200  TEXT : HOME :MF = 0
210  FOR I = 1 TO 40: PRINT "=";: NEXT I
220  HTAB 14: INVERSE : PRINT "DISK FILER MENU": NORMAL
230  FOR I = 1 TO 40: PRINT "=";: NEXT I: PRINT
240  VTAB 6: HTAB 10: PRINT "(1) = CATALOG A DISK"
250  PRINT : HTAB 10: PRINT "(2) = READ A DISK CATALOG"
260  PRINT : HTAB 10: PRINT "(3) = UPDATE MASTER FILE"
270  PRINT : HTAB 10: PRINT "(4) = READ MASTER FILE"
280  PRINT : HTAB 10: PRINT "(5) = PRINT MASTER FILE"
290  PRINT : HTAB 10: PRINT "(6) = DELETE A DISK CATALOG"
300  PRINT : HTAB 10: PRINT "(7) = EXIT PROGRAM"
310  PRINT : HTAB 10: PRINT "ENTER SELECTION (1-7)-> ";: GET
     A$
320 A =  VAL (A$): IF A < 1 OR A > 7 THEN 240
330  ON A GOTO 730,360,1460,1880,2090,1380,340
340  PRINT D$"PREFIX";VOL$: HOME : END
350  REM <<======== SEE DISK FILES ========>>
360  PRINT
370  PRINT D$"PREFIX";VOL$;DIR$
380  TEXT : HOME :T = 0
390  PRINT D$"CAT"
400  INPUT "READ WHICH CATALOG (E=EXIT) ?";N$: IF  ASC (N$) <
     65 OR  ASC (N$) > 90 THEN V =  PEEK (37): VTAB V: CALL  -
     868: GOTO 400
410  IF N$ = "E" THEN 200
420  IF N$ = "MASTER.FILE" THEN 1880
430  PRINT D$"VERIFY";N$
440  HOME : VTAB 2:B$ = ""
450 SP$ = ""
460  PRINT D$"OPEN ";N$
470  PRINT D$"READ ";N$
480  INPUT PR$: INPUT FMAX
490  FOR I = 1 TO FMAX
500  INPUT A$(I)
510  IF A$(I) =  CHR$ (13) THEN I = FMAX GOTO 520
520  NEXT I:B$ = ""
530  FOR I = 1 TO 40: GET A$:B$ = B$ + A$: NEXT I
540  PRINT D$"CLOSE"
550  IF MF = 1 THEN  RETURN
560  PRINT PR$;"  ";FMAX;" FILES";: HTAB (25): PRINT "SUBDIRE
     CTORY"
570  FOR I = 1 TO 40: PRINT "-";: NEXT I
580  POKE 34,3: PRINT
590  FOR I = 1 TO FMAX
600 T = T + 1
610 A = 21:SP$ = " ": IF  LEFT$ (A$(I),1) = "*" THEN A = 22:S
     P$ = "  "
620 Y =  LEN (PR$):A$(I) =  LEFT$ (A$(I),20) + SP$ +  MID$ (A
     $(I),A + Y,14)
630  IF I < 10 THEN  PRINT " ";
640  PRINT I;":";: IF  LEFT$ (A$(I),1) <  > "*" THEN  PRINT "
      ";
650  PRINT A$(I)
660  IF T = 18 THEN  PRINT "ANY KEY TO CONTINUE": GET A$:V =
      PEEK (37): VTAB V: CALL  - 868:T = 0
670  NEXT I
680  PRINT : PRINT SP$
690  PRINT "ANY KEY TO CONTINUE 'E' TO EXIT";: GET A$
700  IF A$ = "E" THEN 200
710  GOTO 380
720  REM <<======== SAVE DISK CATALOG ========>>
730  HOME : VTAB 10: HTAB 5: PRINT "PUT DISK TO CATALOG IN DR
     IVE #1"; CHR$ (7)
740  VTAB 20: INVERSE : PRINT " ANY KEY TO CONTINUE OR 'E' TO
      EXIT ";: NORMAL : GET A$
750  IF A$ = "E" THEN 200
760  PRINT D$"PREFIX,D1": PRINT
770  PRINT D$"PREFIX"
780  HOME : VTAB 8
790  INPUT "VOLUME NAME";PR$: HTAB 15: INVERSE : PRINT PR$: NORMAL
     : PRINT
800 A$ =  MID$ (PR$,2, LEN (PR$) - 2)
810  HTAB 5: PRINT "CATALOGING VOLUME  : ";A$: PRINT
820 FMAX = 0:N = 1
830  PRINT D$"OPEN";PR$",TDIR"
840  PRINT D$"READ";PR$
850  INPUT L1$: REM   READ NAME
860  INPUT L2$: REM   READ TITLE
```

Listing continued.

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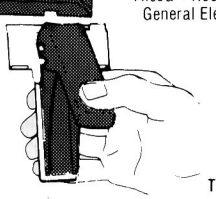

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since the program deletes the old file and replaces it with the updated file.

Additional Notes

As written, ProDOS Filer disregards any system files (SYS) it finds on your disks. To include system files in your catalog, delete line 920.

To stay within the limits of the 40-column screen, the program hyphenates any combinations of volume and subdirectory names that would cause a line to exceed 39 characters.

So stop procrastinating—cataloging's easy with ProDOS Filer.■

Write to Ed Verdelotti at 216 Missimer Lane, Vinton, VA 24179.

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Figure. One page of a printed master catalog.

```
    FILE NAME          TYPE  VOL.DIR./SUBDIR.     NOTES
================================================================================
  ADDRESS              BAS /EXAMPLES/PROGRAMS
 *APA                  BIN /UTILITY/
 *APA                  BIN /EXAMPLES/EXTRAS
  APPLESOFT            TXT /EXAMPLES/PROGRAMS
  APPLESOFT            TXT /VISI.DATA/
  APPLESOFT.PROG       BAS /EXAMPLES/DIRECTO-
  APPLESOFT.VARS       VAR /EXAMPLES/DIRECTO-
  ASSEMBLY             TXT /VISI.DATA/
  BINARY               BIN /EXAMPLES/DIRECTO-
  BLACK.BOOK           TXT /EXAMPLES/DATA
  CATALOG              TXT /EXAMPLES/PROGRAMS
 *CONFIG.GPLE          BAS /UTILITY/
  DIRECTORY            DIR /EXAMPLES/DIRECTO-
  DISCARD              TXT /UTILITY/
  DISK.FILER           BAS /UTILITY/
 *ESCAPE.PRINTER       BIN /UTILITY/
  ESCAPE.SAVE          BAS /UTILITY/
  FILE.SAVER           BAS /VISI.DATA/
  GAMES                TXT /VISI.DATA/
  GET.FILES            BAS /VISI.DATA/
  GET.TEXT             BAS /EXAMPLES/PROGRAMS
 *GPLE                 BIN /UTILITY/
  GRAPHICS             TXT /VISI.DATA/
  HARDWARE             TXT /VISI.DATA/
 *HELP                 BIN /EXAMPLES/
 *HELPSCREENS          TXT /EXAMPLES/
  LISTFILE             TXT /EXAMPLES/DATA
  MAKE.TEXT            BAS /EXAMPLES/PROGRAMS
  MEM.FILLER           BAS /UTILITY/
  MENU                 BAS /UTILITY/
  MISC                 TXT /VISI.DATA/
  PICTURE              BIN /EXAMPLES/DATA
  POKER.EXEC           TXT /EXAMPLES/DATA
 *POSTAGE.RATES        BAS /EXAMPLES/EXTRAS
 *PRODOS.FILER         BAS /CATALOG/
  PROGRAMS             TXT /VISI.DATA/
 *READ.DIRECTORY       BAS /EXAMPLES/EXTRAS
  REF.1                TXT /VISI.DATA/
  REF.FILE.1           TXT /EXAMPLES/
  REFERANCE            TXT /EXAMPLES/PROGRAMS
  REFERANCE            TXT /EXAMPLES/DATA
  REFERANCE            BAS /EXAMPLES/
  RELOC.CODE           REL /EXAMPLES/DIRECTO-
 *REMOVE.GPLE          BIN /UTILITY/
 *RRC                  BIN /UTILITY/
  SCREEN               BIN /UTILITY/
  SHOWOFF.EXEC         TXT /EXAMPLES/DATA
  SOFT.REV             TXT /VISI.DATA/
  SORT.PROGRAM         BAS /EXAMPLES/
  SORTED.TEXT          TXT /EXAMPLES/
  SPLT.SCREEN          BIN /UTILITY/
  STARTUP              BAS /UTILITY/
 *STARTUP              BAS /CATALOG/
  STARTUP              BAS /VISI.DATA/
 *STARTUP              BAS /EXAMPLES/
  SYSTEM.PROGRAM       SYS /EXAMPLES/DIRECTO-
  TC                   TXT /VISI.DATA/
  TEXT                 TXT /EXAMPLES/DATA
  TEXT                 TXT /EXAMPLES/DIRECTO-
  TEXT.GEN             BAS /EXAMPLES/
```


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Listing continued.

```
870  INPUT L3$: REM     READ BLANK LINE
880  FOR I = 1 TO 50
890  INPUT L$(I): IF L$(I) = "" THEN I = 50: GOTO 940
900 L$(I) =  LEFT$ (L$(I),20) + " " + PR$: REM   READ FILES
910  IF  MID$ (L$(I),18,3) = "DIR" THEN  GOSUB 1170:SD$(N) =
     MID$ (L$(I),2,X):N = N + 1: GOTO 890
920  IF  MID$ (L$(I),18,3) = "SYS" THEN 890
930 FMAX = FMAX + 1
940  NEXT I
950  INPUT L5$: REM   READ BLOCK COUNT
960  PRINT D$"CLOSE"
970  ON MF GOTO 1190
980  IF N < 2 THEN 1190
990  FOR T = 1 TO N - 1
1000 F = FMAX + 1
1010  IF  LEFT$ (SD$(T),7) = DIR$ THEN 1150
1020  PRINT D$"OPEN";SD$(T)",TDIR"
1030  PRINT D$"READ";SD$(T)
1040  INPUT L1$
1050  INPUT L2$
1060  INPUT L3$
1070  FOR I = F TO F + 25
1080  INPUT L$(I): IF L$(I) = "" THEN I = F + 25: GOTO 1120
1090 L$(I) =  LEFT$ (L$(I),20) + " " + PR$ + SD$(T)
1100  REM  X =  LEN (L$(I)): IF X > 39 THEN L$(I) =  LEFT$ (L
    $(I),39) + "-"
1110 FMAX = FMAX + 1
1120  NEXT I
1130  INPUT L5$
1140  PRINT D$"CLOSE"
1150  NEXT T
1160  GOTO 1190
1170  FOR T = 1 TO 16:B$ =  MID$ (L$(I),1 + T,1): IF B$ = " "
     THEN X = T - 1:T = 16
1180  NEXT T: RETURN
1190 N = 1
1200  PRINT D$"PREFIX";VOL$;DIR$
1210 N = 0: IF "/" + A$ = VOL$ + DIR$ THEN 1290
1220  HTAB 8: PRINT "SAVING ";A$;" TO DISK"
1230  PRINT D$"OPEN";A$
1240  PRINT D$"CLOSE";A$
1250  PRINT D$"DELETE";A$
1260  PRINT D$"OPEN";A$
1270  PRINT D$"WRITE";A$
1280  PRINT PR$: PRINT FMAX
1290  FOR I = 1 TO FMAX: PRINT L$(I): NEXT I
1300  IF MF = 1 THEN  RETURN
1310  PRINT L5$
1320  PRINT D$"CLOSE"
1330  HOME : VTAB 8: HTAB 9: PRINT " CATALOG ANOTHER DISK ? "
1340  VTAB 11: HTAB 14: PRINT "ENTER (Y/N) ";: GET A$: IF A$ =
    "N" THEN 200
1350  IF A$ <  > "Y" THEN 1330
1360  GOTO 720
1370  REM <<============ DELETE A VOLUME FILE ============>>
1380  PRINT D$"PREFIX";VOL$;DIR$: TEXT : HOME
1390  PRINT D$"CAT"
1400  INPUT "ENTER VOLUME TO DELETE (E=EXIT) ? ";N$: IF  ASC
    (N$) < 65 OR  ASC (N$) > 90 THEN V =  PEEK (37): VTAB V:
     CALL  - 868: GOTO 190
1410  IF N$ = "E" THEN 200
1420  PRINT D$"VERIFY";N$
1430  PRINT D$"DELETE";N$
1440  GOTO 200
1450  REM <<=============== UPDATE MASTER FILE =========>>
1460  HOME :MF = 1
1470  PRINT D$"PREFIX";VOL$;DIR$
1480  PRINT D$"OPEN MASTER.FILE"
1490  PRINT D$"CLOSE MASTER.FILE"
1500  PRINT D$"DELETE MASTER.FILE"
1510  GOSUB 770: HOME
1520 L = FMAX:FMAX = 0:N = 0:P = 0:SP$ = "  "
1530  VTAB 2: HTAB 10: PRINT "UPDATING MASTER FILE"
1540  FOR I = 1 TO 40: PRINT "-";: NEXT I
1550  FOR F = 1 TO L
1560 N$ = L$(F): IF  MID$ (N$,18,3) <  > "TXT" THEN 1650
1570 N$ =  LEFT$ (N$,15): HTAB 15: PRINT N$
1580  GOSUB 450
1590  FOR I = 1 TO FMAX
1600  IF  LEFT$ (A$(I),1) <  > "*" THEN A$(I) = " " + A$(I)
1610 Y =  LEN (A$(I)): IF Y > 39 THEN A$(I) =  LEFT$ (A$(I),3
    8) + "-"
1620 MF$(N + I) = A$(I)
1630  IF I + N =  > 500 THEN N = N + I:F = L:I = FMAX: PRINT
    "CATALOG FULL": FOR I = 1 TO 1000: NEXT I: GOTO 1650
1640  NEXT I:N = N + FMAX
1650  NEXT F:FMAX = N
1660  REM <<============== SORT ROUTINE ================>>
1670 I = 1
1680 I = 2 * I: IF I <  = FMAX THEN 1680
```

Listing continued.

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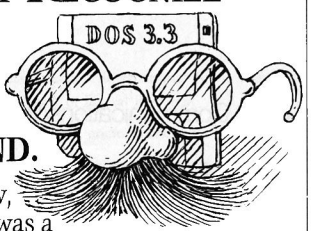

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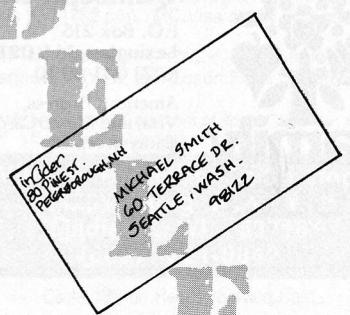

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Listing continued.

```
1690 I =  INT (I / 2): IF I = 0 THEN 1780
1700  HOME : VTAB 10: HTAB 12: PRINT "SORTING ";FMAX;" FILES"
1710  FOR F = 1 TO FMAX - 1
1720 A = F
1730 L = I + A: IF L > FMAX THEN 1760
1740  IF  MID$ (MF$(A),2,14) >  MID$ (MF$(L),2,14) THEN A$ =
     MF$(A):MF$(A) = MF$(L):MF$(L) = A$:A = A - 1: IF A > 0 THEN
     1730
1750  VTAB 14: HTAB 10: PRINT "PASS ";P;" SORTS/PASS ";F
1760  NEXT :P = P + 1
1770  GOTO 1690
1780  HOME : VTAB 10: HTAB 10: PRINT "SAVING MASTER FILE"
1790  PRINT D$"OPEN MASTER.FILE"
1800  PRINT D$"WRITE MASTER.FILE"
1810  PRINT PR$: PRINT FMAX
1820  FOR I = 1 TO FMAX
1830  PRINT MF$(I)
1840  NEXT I
1850  PRINT D$"CLOSE"
1860  GOTO 200
1870  REM <<============ SEE MASTER FILE ================>>
1880  PRINT D$"PREFIX";VOL$;DIR$
1890  PRINT D$"VERIFY MASTER.FILE"
1900  HOME : PRINT D$"OPEN MASTER.FILE"
1910  PRINT D$"READ MASTER.FILE"
1920  INPUT PR$: INPUT FMAX
1930  FOR I = 1 TO FMAX
1940  INPUT MF$(I)
1950  NEXT
1960  PRINT D$"CLOSE"
1970  IF PR = 1 THEN  RETURN
1980  HOME :L = 0
1990  FOR I = 1 TO FMAX
2000  IF  LEFT$ (MF$(I),1) <  > "*" THEN  PRINT " ";
2010  PRINT MF$(I)
2020 L = L + 1
2030  IF L = 21 THEN  HTAB 10: INVERSE : PRINT "ANY KEY TO CO
     NTINUE": NORMAL : GET A$:V =  PEEK (37): VTAB V: CALL  -
     868:L = 0
2040  NEXT I: PRINT : HTAB 10: PRINT "***** ";FMAX;" FILES **
     ***": PRINT
2050  INVERSE : PRINT "* END OF LIST * SCROLL AGAIN? (Y/N) ":
      NORMAL : GET A$
2060  IF A$ = "Y" THEN 1980
2070  GOTO 200
2080  REM <<================ PRINT MASTER LIST ===============
     =>>
2090  PRINT D$"PREFIX";VOL$;DIR$
2100  PRINT D$"VERIFY MASTER.FILE"
2110  HOME :L = 0:PR = 1: GOSUB 1900
2120 SP$ = "                    ": REM  20 SPACES
2130  VTAB 10: HTAB 13: INVERSE : PRINT " PRINTER ON !! "; CHR$
     (7): NORMAL
2140  VTAB 12: HTAB 10: PRINT "ANY KEY TO CONTINUE": GET A$
2150  PRINT D$"PR#1": REM   ACTIVATE PRINTER (SLOT #1)
2160  PRINT "    FILE NAME       TYPE  VOL.DIR./SUBDIR.   NOTE
     S"
2170  FOR I = 1 TO 79: PRINT "=";: NEXT I: PRINT
2180  IF L > 1 THEN L = 0: RETURN
2190  FOR F = 1 TO FMAX
2200 L = L + 1
2210  IF  LEFT$ (MF$(F),1) <  > "*" THEN MF$(F) = " " + MF$(F
     )
2220 P = 39 -  LEN (MF$(F)): IF P > 1 THEN MF$(F) = MF$(F) +
      LEFT$ (SP$,P)
2230  PRINT "   ";MF$(F);"
      ": REM     37 ' '
2240  IF L > 59 THEN  PRINT : PRINT : PRINT : PRINT : GOSUB 2
     160
2250  NEXT
2260  PRINT D$"PR#0":PR = 0: GOTO 200
2270  REM <<============ ONERR ROUTINES ===============>>
2280  PRINT D$"CLOSE": HOME
2290  IF  PEEK (222) = 6 AND N = 1 THEN  HOME : VTAB 10: HTAB
     7: PRINT "INSERT CATALOG FILER DISK ": VTAB 15: HTAB 10:
      PRINT "ANY KEY TO CONTINUE";: GET B$: GOTO 1200
2300  IF  PEEK (222) = 6 THEN  VTAB 10: HTAB 10: PRINT " PATH
      NOT FOUND ": FOR I = 1 TO 1500: NEXT I: GOTO 190
2310  IF  PEEK (222) = 7 THEN  HOME : VTAB 10: HTAB 7: PRINT
     "NO SUBDIRECTORY PATH FOUND": VTAB 15: HTAB 10: PRINT "A
     NY KEY TO CONTINUE";: GET B$: GOTO 190
2320  IF  PEEK (222) = 8 THEN  HOME : VTAB 10: HTAB 7: PRINT
     "NO DISK FOUND IN DRIVE #1 ": VTAB 15: HTAB 10: PRINT "A
     NY KEY TO CONTINUE";: GET B$: GOTO 190
2330  IF  PEEK (222) = 13 THEN  VTAB 10: HTAB 10: PRINT "NOT
     A TEXT FILE ": FOR I = 1 TO 1500: NEXT : GOTO 190
2340  IF  PEEK (222) = 53 THEN  VTAB 10: HTAB 10: PRINT "ILLE
     GAL QUANTITY ": FOR I = 1 TO 1500: NEXT : GOTO 190
2350  PRINT "ERROR # "; PEEK (222);"AT LINE # "; PEEK (218) +
      PEEK (219) * 256: END
```

End of listing.

What you should know about the International Apple Core.

If you're like most Apple users, you don't realize the many benefits of an IAC membership. Or what it can do for you and your computer.

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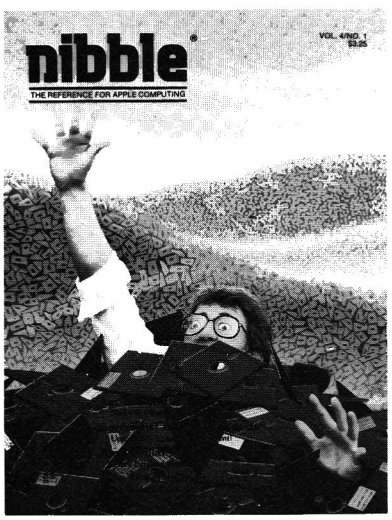

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EDITORS' CHOICE

Homework Helpers: Tools for Learning

When your youngster gets bogged down in math problems and composition, two new programs from Spinnaker can answer your cry for help. A student can use **Homework Helpers** throughout several grades, and in a number of subjects.

Homework Helper: Math Word Problems is the first in what promises to be a series from Spinnaker. You remember word problems: "Kevin can run two meters farther than Jim each second. They live six kilometers apart. If they run toward each other, it takes them ten minutes to meet. How fast does each boy run?"

Word problems were the worst—impossible to understand. But word problems are also the best—maybe the only—link in high-school algebra to what theoretical mathematicians call reality. Word problems intimidate young people, and timid people turn away from math. And they grow up to not understand loans or household finance.

Teachers and parents agree, after hours with a student who "doesn't get it," that he or she usually needs to be prodded continually into putting the information from the problem—numbers, times, speeds, and ages—into a grid, then into an equation. "I can solve the equation," the youngster always says.

Homework Helper does what you or a tutor would do: asks kids the right questions, draws a box to organize the information, asks what the key words in the problem are.

Helping sounds easy. It isn't. It's a good job for your Apple, because the computer is endlessly repetitive, and infinitely patient. Homework Helper is less likely than you are to scream in dismay, "No! Put the number of dimes *first*," after 30 word problems.

Homework Helper is no panacea—your child has to be able to read, and know some basic arithmetic. But the program actually helps the student solve the problem without solving it *for* him or her.

"Homework Helper is a tool for learning," technical editor Paul Statt, a former math teacher, says. "It's a very workmanlike tool without frills, or bells and whistles or exploding balloons. It does a job people hate, and does it better than any person could. That's what I expect from a computer."

Managing editor and mother Dawn Matthews appreciates a "break from the homework battleground." Of course, *The A-Team* is another sort of truce, but Dawn likes Homework Helper because "it encourages logical thinking."

Homework Helper: Writing is a companion product that helps students put words on paper. It asks questions like "What are you trying to say?" and "To whom are you talking?" and walks kids through writing the same patient way Word Problems handles math.

Homework Helper: Math Word Problems and Homework Helper: Writing are priced at $49.95 each, and are available now from Spinnaker Software, One Kendall Square, Cambridge, MA 02139, (617) 494-1200.■

Editors' Choice singles out one product each month that the inCider *editors feel is a significant addition to the Apple II family of products.*

Let's compare Apples™ to Apples™.

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.

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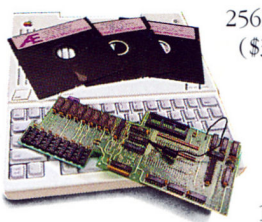

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Steve Wozniak, the creator of Apple Computer

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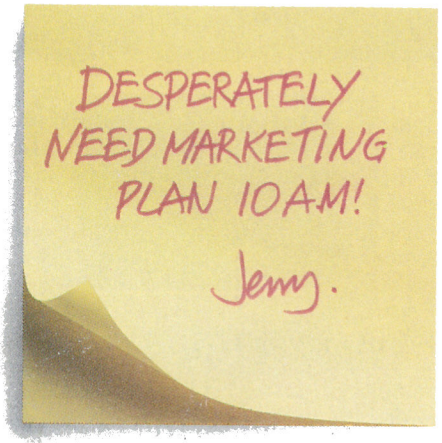

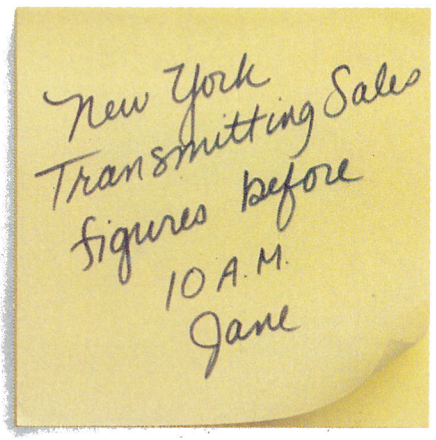

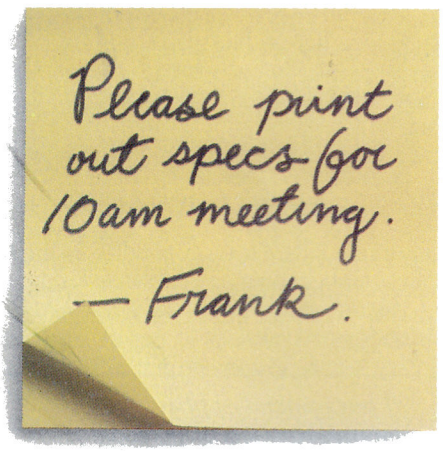

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