

# PROFILES

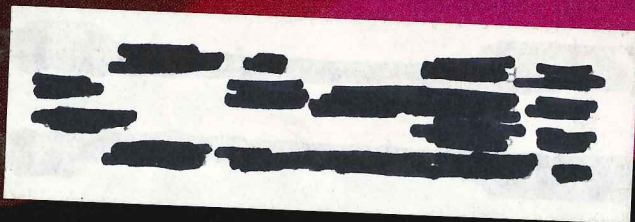
The Magazine for Kaypro Users  
June 1986

## CD-ROMs: New mass storage medium on the horizon

Business simulations



Speed-up kits and  
higher density drives



# HANDYMAN

TURN YOUR KAYPRO ON TO HANDYMAN!!!

**AUTO DIALER**

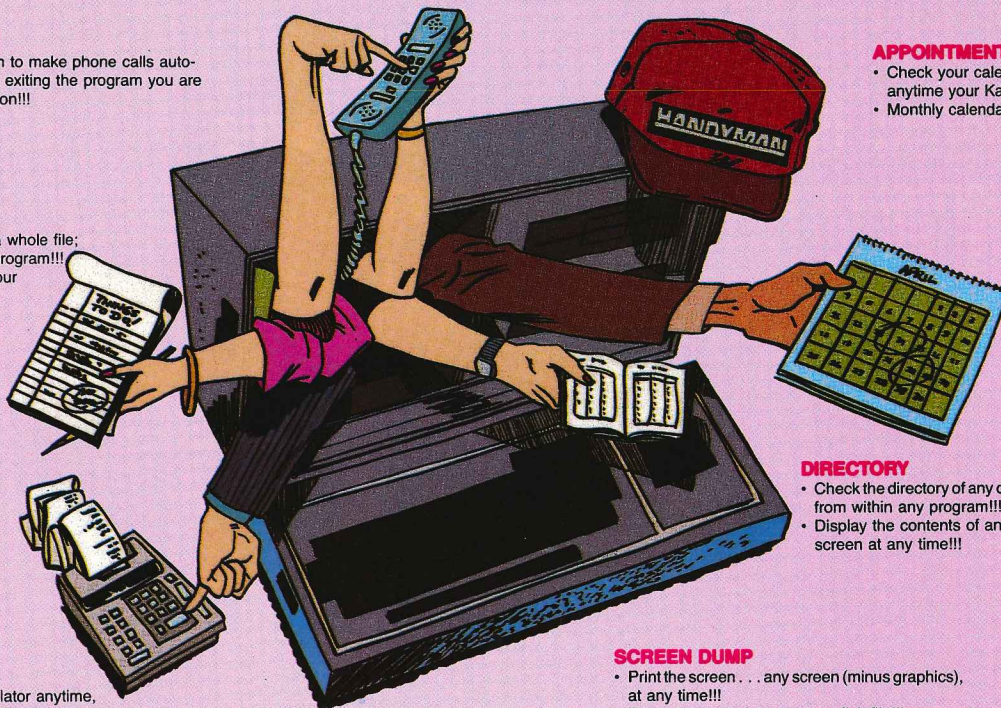
- Use your modem to make phone calls automatically without exiting the program you are already working on!!!

**APPOINTMENT CALENDAR**

- Check your calendar, schedule appointments anytime your Kaypro is on!!!
- Monthly calendars 1752-2099 AD!!!

**NOTEPAD**

- Write a note, paragraph, letter, a whole file; anytime, from within any other program!!!
- Edit another file without leaving your current file!!!



**DIRECTORY**

- Check the directory of any disk, any user number, from within any program!!!
- Display the contents of another file on your screen at any time!!!

**CALCULATOR**

- Punch up a four function calculator anytime, whenever your computer is on!!! Works in decimal, binary, hex!!! Works from within a spread sheet, or any other program!!!

**SCREEN DUMP**

- Print the screen . . . any screen (minus graphics), at any time!!!
- Dump to your printer, or to a disk file!!!

- "Disk Full" message? With **HANDYMAN** you can check the disk directory and erase superfluous files from within any program!!!



Turn your Kaypro on!!! **HANDYMAN** is there!!!

**HANDYMAN** Is a plug-in board for your Kaypro!!!

**HANDYMAN** Works with all Kaypro CP/M models!!!

**HANDYMAN** Easy to install!!!!

**HANDYMAN** We'll talk you through it over the phone!!!

**HANDYMAN** Includes software in ROM and its own working RAM!!!

**HANDYMAN** You never have to load it!!!

**HANDYMAN** Single stroke commands!!!

**HANDYMAN** is compatible with all CP/M application programs!!!

**HANDYMAN** Uses no main memory!!!

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- All brand new components mounted in a Kaypro 10 case.
  - 20 Megabyte Seagate 65 millisecond hard-disk drive.
  - 800 Kbyte (quad-density) Panasonic floppy-disk drive. (Reads single and double sided double-density disks too.)
  - 84 series Kaypro main board with modem and real-time clock.
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- Now enter Appointments with a single keystroke.
- Now available with Advent Turbo ROM or MICROCode KPLUS ROM. (Call)
- And much more. **HANDYMAN Still uses No Main Memory.**

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I use \_\_\_\_\_ (Wordstar or Perfect Writer).

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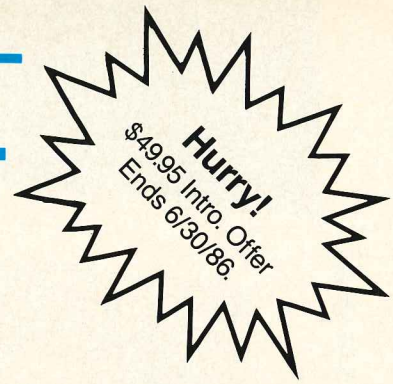
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- Thomas Tucker, PROFILES

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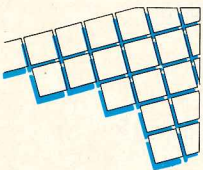
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Take a good look at this photograph. Can you do this with the "drawing" program you have now? If not, maybe it's time to move up to the only *true* drawing program for your Kaypro—SCS-Draw.

SCS-Draw turns your mild-mannered Kaypro into a powerful drawing machine, with features that no other program can offer:

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*"A fabulous program . . . SCS-Draw permits you to draw to the best of your abilities—and your computer's"*

—Chris Meeks, March '86 Profiles

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# PROFILES

The Magazine for Kaypro Users • Volume 3, Number 11 • June 1986

## FEATURES

### 550 Megabytes ..... 20 on a Bit of Rainbow

by Brock Meeks

Could a CD-ROM drive become part of your system?

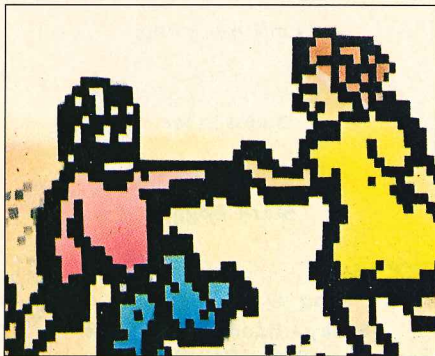


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If you can handle a screwdriver, the job isn't hard

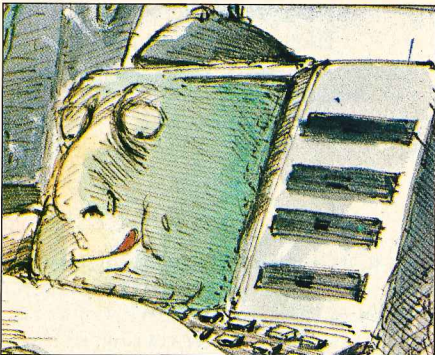


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It can do a lot more than most people think



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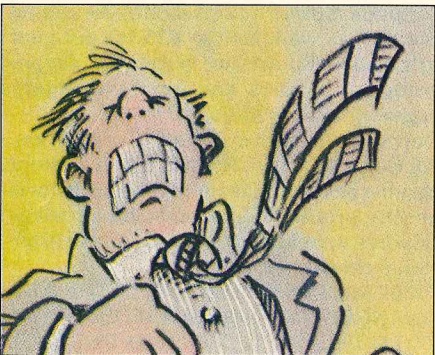
by Fred L. Ray

Electrify your Kaypro II with more speed and storage

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by Barry Brenesal

Gain that competitive edge using simulation software



Business Games ..... 52

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by Don and Sharyn Conkey

### On the cover:

It's the dawn of a new age for data storage. CD-ROMs, cousins to audio compact discs, are emerging as the storage device of the future. Photographer R.S. Powers presents these laser-written, laser-read discs with appropriate visual flair.

# Keep in Mind

**A**s you read *PROFILES*, there are a few things we recommend you keep in mind.

First, *PROFILES'* readership includes users with all levels of experience, from beginner to advanced, as well as users of both the CP/M and MS-DOS operating systems. A legend at the beginning of each feature article indicates which operating system and what expertise level it addresses.


For example, **Beginner/8/16** indicates that the article is for novice users of either the CP/M (8-bit) or MS-DOS (16-bit) machines.

We will strive to provide a full range of material in each issue to meet the needs of all our readers.

Second, there is unavoidably at least a three-month delay between the time we receive an article and the time it is published. We make every effort to provide current information, but both commercial and public domain software is revised frequently, so the versions discussed in *PROFILES'* articles may not be the latest ones.

For this reason, we suggest that before you purchase *any* program you call the manufacturer for details about the latest version, including the version's number, date of the last revision, and specifics about what makes the latest version different from previous ones.

The same general rules also apply to hardware purchases. The important point here is to be sure about which model *and* series ('83 or '84) the hardware works with.

And third, while reading articles note that all commands are in boldface type. You should enter everything that's bold, including colons, semicolons, etc. This is to help you easily pick out what is a part of the command and what is not. If it's not boldfaced, then it's not part of the command. 

## About PROFILES

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We know that floppy disk users don't appreciate shuffling four or five disks in and out per application. We know that no users like to abort in the middle of an application to change printer pitch. We know that users don't like copy protection and complex licensing agreements. We don't believe that any systems with these 'features' can be considered easy to use so we left them all out of CPI Business Systems.

Fancy packaging and expensive type set manuals add greatly to the cost of most application packages but have little lasting value. Once your system/s are up and running for a week or so their real worth is their day-to-day productivity and responsiveness; the other materials gather dust. CPI Business Systems include **comprehensive manuals, sample data files, tutorial sessions, etc.—everything you need is included.**

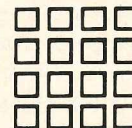
No system is perfect; CPI Business Systems are not exceptions. That's why users are entitled to support when they need it and that's why CPI continues to enhance each system regularly based on user's suggestions.

Most users need a little support when getting started so we include 45 days of FREE support with each application. Others charge hundreds of dollars extra. Users of CPI Business Systems can extend support for a full year for less than ten cents per day per application.

CP/M users may become MS-DOS users in the years ahead; CPI has planned ahead for this possibility and we provide data file conversion service to any user. CPI will, however, continue to support and enhance these fine systems for CP/M users for years to come. Your investments today will not be obsolete by tomorrow's technology.

These powerful systems are described briefly below. If you don't feel confident yet ask for our 30+ page overview or try an application demo system at half price (demo prices apply to future system orders).

There are no extra charges for shipping, COD, etc. American Express, Mastercard, VISA card orders welcome. We ship in 48 hours. Please tell us what format you want (II/2X/4/10/16), etc. Demo systems in KAYPRO formats only.



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CP/M MS-DOS  
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A complete payroll system supplied with current tax routines for every state. Multiple pay rates, multiple overtime rates, multiple other pay rates, eight user deductions (each can be an amount, a rate or %), deductions may be taken before or after taxes. Commissions, tips, tips considered as wages, earned income credit, SUI, SDI, etc. are all included. In short it's a very comprehensive payroll system but one which is very easy to use. Its functions include Employee File Maintenance; Employee Lists in multiple levels of detail; Input Worksheets; Time Card Entry; Regular, Overtime, Other, Commissions, Tips, Misc. Pay. Exception Processing is the rule so you need only enter variable data. Manual checks are processed quickly and easily. Weekly, Bi-Weekly, Semi-Monthly, Monthly pay cycles (run individually or combined); Departmental Payrolls; Checks; Check Registers; Deduction Registers; Earnings Reports; 941's; W-2's; Unemployment Reports; Multi-state; Manual Checks; G/L interface for Federal, FICA, State and Local Taxes, Federal/State Add-Ons, FICA, FUTA, SUI, SDI, EIC, 8 user deductions. CAPACITIES - 600/2000 emp. (CP/M/MS-DOS), 98 Tax File Rcds.

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**HARDWARE REQUIREMENTS**  
CP/M: 64K (53K TPA) & CP/M 2.0 or higher.  
MS-DOS: 128K (or more) & MS-DOS/PC-DOS 2.0 or higher - ANSI.SYS.  
Printer: 132 columns (compressed pitch supported), continuous forms.  
Disk/s: Dual Floppies/Hard Disk/Both - 191K recommended, less works.  
CRT: 80/24 with Clear, Home, Clear to EOL, Up, Down, Left, Right.

## CURRENT UPDATE :

SEVERAL ENHANCEMENTS MADE TO GENERAL LEDGER - COMPLETELY NEW PAYROLL SYSTEM WITH EXPANDED DEDUCTIONS, MULTIPLE RATES, ETC. CPI CONTINUES TO ENHANCE AND EXPAND THE POWER OF ITS FULL LINE OF CP/M AND MS-DOS APPLICATIONS.

MORE NEWS NEXT MONTH!

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# Letters

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## Handyman

A funny thing happened to my review of Handyman on its way from my Kaypro 10 to page 47 of the April issue of *PROFILES*: it was turned into something I had not written, would not have written, nor could have written. Yet my name appeared beneath the title.

The faintness of the praise that *PROFILES* permitted to remain from my original article made it appear that I was damning what in fact is an excellent product.

For the record, as I made clear to *PROFILES* from the beginning, I wholeheartedly endorse and recommend Handyman. In my opinion, it is unquestionably the best product of its kind.

Three statements were wholly invented by the magazine and put into the Handyman article under my name. Two of these statements are false. The other is an expression of opinion with which I vehemently disagree.

1. The Handyman article states that "Handyman . . . programs are on a diskette." I did not make this statement in my original article. The statement is false.

The Handyman programs are in ROM. They are built in to the 3 x 6-inch Handyman add-on mini-board. You never load a Handyman program from a diskette. The Handyman programs are there whenever you turn on your Kaypro.

The disk that comes with the Handyman board contains the Help files and a copy of the Handyman directory program that is *already in ROM*.

2. In my original article, I wrote "Handyman uses no machine memory," and "Handyman uses no RAM whatsoever." *PROFILES* eliminated these clear and true statements and wrote instead that "Handyman works by bank switching its 16K of RAM into the RAM space normally occupied by part of Kaypro's CBIOS. This allows Handyman to operate without reducing the RAM available for nor-

mal programs."

These statements are fundamentally and technically incorrect. Handyman simply does not function in the manner *PROFILES* states.

And the implication that Handyman poaches on the RAM that the Kaypro operating system uses is also false. It does not. I stand by my original statements, which are true.

3. Under my name, *PROFILES* states that "Handyman, with its limited onboard RAM, must bow before MS-DOS desktop software, but since it is only for CP/M machines, it should only be compared to other CP/M desktop utility programs."

Not only did I not write this, I am on record as being in fundamental disagreement with its obvious bias.

Handyman does not suffer by comparison to MS-DOS desktop software. It has all the basic features of Sidekick, for example. But unlike Sidekick, it never has to be loaded in a specified sequence into RAM. And because Handyman is functioning inside its own RAM, and because its software (written entirely in Z-80 assembly language) resides permanently in its own ROM, Handyman is actually faster in its internal operation than comparable MS-DOS desktop utilities.

*PROFILES* continues to editorialize under my name by saying, "It [Handyman] does offer advantages in speed and, to varying degrees, features over these [other CP/M desktop utility programs]. It does not appear to affect the speed at which applications programs run—perhaps its chief claim to fame—and certain details of its features are unique."

In fact, Handyman runs circles around the other CP/M desktop utility programs, both in speed of operation and fullness of features. The others are RAM based, taking up machine memory and slowing down application programs.

What I had originally written was "Handyman uses no RAM whatsoever, so it can't retard any application program." And that's the truth.

The final quarter of the article consists of six paragraphs of editorial comment, marked as such. The information presented there, unnecessary at best, misleading at worst, is not attributed to me.

But I feel guilty by association with the negative tone and slant of the *PROFILES* comments. High Tech Research, contrary to the impression *PROFILES* has given, has an outstanding record of customer service and support.

William Hogan  
Burbank, California

*We'd like to respond to your points in order. First, it was not our intent to make you appear to be damning the product by faint praise. However, because you were a beta tester and had closely followed the product's development, we specifically requested only a description of Handyman's features and capabilities, not a review, evaluation, or endorsement. We therefore felt justified in deleting words and phrases that had the tone of an endorsement.*

*Second, we acknowledge our error in saying that Handyman's programs are on the diskette. Although the Help files, the .COM file version of the directory, and a sample application or two are on the diskette, all the active programs are indeed in ROM and do not need to be loaded from the diskette. *PROFILES* regrets the error.*

*Third, you insist that Handyman uses no RAM whatsoever. In an effort to resolve this question, *PROFILES* asked a systems-level programmer for Kaypro Corporation to contact product developer William Nesting directly. Our understanding, as result of that discussion, is that Handyman's*



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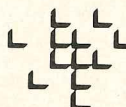
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board contains both ROM (32K) and RAM (16K), that the programs are in Handyman's ROM, and that Handyman relies on a technique commonly referred to as "bank switching" to enable the use of its expanded EPROM (Erasable Programmable ROM) and its RAM. Therefore, it is technically inaccurate to say that Handyman uses no RAM whatsoever.

Please note that we did not imply that Handyman poaches on the RAM that the operating system uses. In fact, we specifically stated that it does not "reduce the RAM available for normal programs." We would like to emphasize again that Handyman does not impinge on the RAM available for normal program operation. Also, a key point—that application programs are not slowed down—was left intact.

Fourth, based on discussions with other users familiar with Handyman and both CP/M and MS-DOS desktop utilities, and because Handyman is a CP/M product, we felt that the comment about comparing Handyman to CP/M desktop utilities, rather than MS-DOS programs, was appropriate. This is not your stance, however, and we regret that it appeared as such.

Fifth, because we felt end-users would wish to know about any difficulties they might encounter in using the product, as well as its strong points, we talked with other sources who had used Handyman extensively and incorporated their comments in the Editor's Notes at the end of the article. We pointed out that our sources praised the product, and their comments were presented as points to keep in mind, not as faults. This was, as you say, not represented as your material.

Finally, PROFILES made no comment, expressed or implied, negative or otherwise, about High

Tech Research's record of customer service and support. We understand it to be quite good.

### **Error in listing**

*Ed. Note:* In our May 1986 issue, the article "Mastering Your Master Menu" contained a listing for customizing your MASMENU program. This listing, on page 29, titled "Model Menu," has typographical errors in it which will cause the modified Master Menu not to work.

The errors are in lines 8, 14, 20, 29, 37, 44, 52, 58, and 63. These lines contain a word surrounded by quote marks, a comma, and a zero. **The comma should be placed after the righthand quote marks**, not before, as it currently appears. Also, in line 14, there should be quote marks **before** the word WordStar—currently there are none.

When these changes are made the listing will work as described.

### **Patches for MS-DOS?**

You've got one of the best magazines in the business, so keep up the good work! I run CP/M, MS-DOS, and Apple DOS 3.3, so you have two out of three covered now. How about a WordStar patching article for MS-DOS like the one you ran sometime back for CP/M?

I don't understand the grumbles you get from the 8-bit community about being short-changed—you have a pretty fair balance now, I'd say.

Jack Lederer  
Oxnard, California

### **The family that computes together**

We enjoy your magazine in this household as owners of a Kaypro 2X. I thought I might offer an idea that has been on my mind. I am a housewife working part time, and my husband works for the railroad. We have four children, ages 8 to 15-1/2. I am involved in my chil-

dren's education, and I also type files, proposals, and maintenance schedules for my husband.

My children have varied attitudes toward computers, from the 14-year-old, who doesn't touch it, to the 10-year-old, who reads the manuals and will try anything with it.

My idea came to me while I was reading a general computer magazine that regularly features a computer family (what initiated the purchase of a computer, why they chose the computer they did, what they had accomplished with their computer, and where they wanted to head in computing).

Could PROFILES perhaps do something along that line? Sometimes your magazine is so technical that I get lost. We are joining a KUG, but you need to remember that there are even kids such as mine out there trying to do with the Kaypro what their friends do with other popular computers. As you are such a large representation of the Kaypro, don't you think that you would do well to serve a more domestic audience also?

Diane V. McLauchlan  
Snohomish, Washington

*Although we certainly appreciate your interest, we don't think a feature similar to the one you describe would work for this magazine. Such a feature seems to be intended to help families decide whether they need a computer, what they might use it for, and which brand they should buy, and this material would not be appropriate for PROFILES because nearly all our readers already have made these decisions.*

*Beyond that, we're not sure what you're asking for when you suggest that we try to "serve a more domestic audience." However, if you—and any other readers with similar interests—can be more specific about what you want to see, we are willing to listen.*

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by Tom Enright

*We welcome and read all your letters. Some are of general interest and are printed in the Letters column; others are pleas for technical help. Those that lend themselves to simple, concise answers are dealt with here, while more advanced topics develop into articles or discussions in the Technical Forum.*

*Due to the volume, we simply can't respond individually to requests for assistance. For immediate help, contact your dealer. You can call Kaypro Technical Support, but be aware that they give dealer calls priority over those from end users. Call them at (619) 481-3920, or write to Kaypro Software Technical Support, P.O. Box N, Del Mar, CA, 92014. Please include a daytime phone number.*

### Printer compatibility

I own a Kaypro 4'83 that I have enjoyed very much. I would like to get some information that is difficult to obtain locally since I'm a serviceman stationed outside the United States. The computer dealerships in this area cater mainly to Commodore and IBM users, and I can't get any information about adding a printer. What kind of printer should I look for, and what kind of modifications will I need to make?

My second question is how can I upgrade my system to include graphics capability? I'm interested in what hardware modifications would be required and what the limitations might be. And if I do modify my computer, would it be compatible with graphics programs that are already available?

Bruce H. Guthrie  
APO, New York

*Your Kaypro came with both a serial (RS-232C) and a Centronics parallel interface on the back panel. This will let you use either serial or parallel printers. Parallel printers are easier to find and*

*require only a standard Centronics parallel cable to interface. Kaypro automatically assigns the parallel port as the system printer. The only thing to remember is that IBM does not use a standard parallel printer cable, so the dealer will have to find or make a straight-through cable with Centronics connectors on both ends.*

*Serial printers nearly always require someone who knows serial interfacing to fool around with the cable before everything works. If you do get a serial printer, you'll have to use the CONFIG program to reassign the system printer to TTY: on all your disks. If at all possible, stick with parallel.*

*I was unable to find anyone who offers a method to upgrade '83 series Kaypros to '84 series graphics capability. If anyone does offer this upgrade, perhaps they'll let us know after reading this letter.*

### RAM disk problem

As the owner of a Kaypro PC, I have a couple of questions that have been bothering me. I've upgraded the memory of my computer to the maximum of 768K of RAM. I also invoke the RAM disk driver in my CONFIG.SYS file to establish a 128K RAM disk. I chose 128K because that is the difference between the 640K that DOS can address and the amount of RAM that I have. According to my *User's Guide* the RAM disk should use the memory above 640K first.

The problem is that when the RAM disk message signs on the screen, it says I have 489K of main memory remaining. Doesn't this mean that the RAM disk is using memory from DOS's 640K area instead of the 128K above that boundary? Am I doing something wrong in the installation?

Another problem I have is in using WordStar. When I run CorrectStar, it doesn't underline or highlight misspelled words the

way the manual says it will. Also, when marking blocks of text, I can only see the ending marker. When I mark the end of the block, the beginning marker disappears. Any ideas?

Paul G. Pilliteri  
New York, New York

*First problem first. When you added RAM to the Multi I/O board, did you reset the dip switches on switch block #1? There are two blocks of dip switches on the Multi I/O board. Switch block #1 tells the system how much memory has been installed. For a 768K system, switch block #1 should be set with switches #1, #2 and #3 on; #4 should be off. Be certain you are changing switch block #1, not switch block #2. The block of switches you want is along the bottom edge of the card partially behind the disk shield. You may have to remove the card to get at the switches (up is on; down is off).*

*The problems you encounter with both CorrectStar and with block markers could stem from the same thing—incorrect selection of color options in WordStar. Try running WINSTALL, and from the INSTALLATION MENU select item "C" (Menu of WordStar Features). From that menu select item "T" (Color Installation). For menus, select none (black)/white, and for normal text select white/none (black).*

*Selections made with a color monitor in mind can result in an attribute that displays nothing on a monochrome monitor. If this doesn't solve your problem, get your dealer to exchange your WordStar disks for new ones.*

### '83 series upgrades

Ted Silveira's "Flea Market" in the January 1986 issue stimulates my curiosity. I have a Kaypro 4'83 and wonder if it can be updated in the ways that Mr. Silveira describes. Specifically, would it be possible to

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make the following modifications:

- upgrade the clock speed
- install an internal hard disk
- install an external hard disk
- improve the ROM
- add a RAM disk.

Also, I understand it's possible for an owner to do some maintenance work on these machines himself. Does Kaypro have a maintenance manual that covers cleaning the keyboard, lubricating disk drives, etc.?

Bradford Lyttle  
Chicago, Illinois

*In a word, yes. Several vendors offer upgrades for one or more of the modifications you list. Not all of the modifications will work with one another unless they all come from the same vendor. There would be some conflicts in installing the necessary adapters. However, Advent Products designs its upgrades to work together through one adapter board. If you plan on installing all or most of the upgrades you mentioned, you should contact Advent Products.*

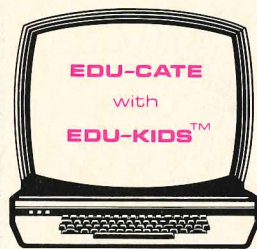
*Kaypro publishes a technical manual, but it doesn't cover cleaning or lubricating, although a competent technician can show you how to clean keyboard contacts. The greatest danger is too much maintenance (overlubrication, foreign matter from cleaning materials, or solvent residue), rather than too little.*

### CP/M TREE program

In your "Technical Forum" on MS-DOS in the December 1985 issue, you said that the TREE program would list any directories that were on a disk. Does anything like the TREE program exist for CP/M?

Jaro Mayda  
Rio Piedras, Puerto Rico

*Even though CP/M uses a fixed user area structure rather than the dynamically created directo-*



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## Q & A

ries of DOS, STAT can give you some of the information that TREE gives. The command **STATUSR**: will list which user areas of the currently logged disk have files in them. Also, most public domain directory programs, like D.COM, can list all files on a disk and show which user area each file is in.

## '83 series character graphics

The March 1986 "Technical Forum" states that '83 series Kaypros can access the Greek character set after you enter ESC-G, but you must reset the computer to get back to the regular character set. Not true. ESC-A works just fine.

Pamela Flammini  
Malden, Massachusetts

You're right—thanks for the information.

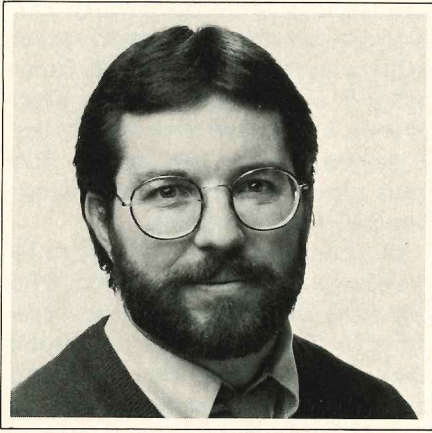
## HAM operator

I am a HAM radio operator and am interested in using my Kaypro 2X with an interface to receive morse code and RTTY. I'm interested in both hardware and software that might assist me in this area. I would like to communicate with other Kaypro owners using their computers with amateur radio.

John Stocksdales — WB6ABW  
Lancaster, California

My best advice is to sign up for CompuServe. There is an excellent amateur radio SIG (Special Interest Group) accessible by entering GO HAMNET once connected to CompuServe. Starter kits for CompuServe are available at many computer stores or even book stores such as B. Dalton's.

BBSs frequently have sections devoted to amateur radio; some may be entirely dedicated to that subject. Information, and phone numbers, on those SIGs is available from the CompuServe SIG.



by Brock N. Meeks

**D**r. Oliver Wendell Holmes, the late Chief Justice of the U.S. Supreme Court, was a rather small man, but there was nothing diminutive about his spirit. Once when he was present at a gathering of unusually tall men he was asked, as a joke, if he didn't feel somewhat small and insignificant in the company of such big, strapping fellows. "Indeed I do," replied Dr. Holmes tartly. "I feel like a dime among a collection of pennies."

By conservative estimates there are 4,000 bulletin boards operating in the United States alone. That amounts to quite a "penny collection." If you log on to a variety of BBSs, I'm sure you'll agree that, after a while, most begin to look like the plain-wrap, generic products in any supermarket. True, each BBS holds a special place in the hearts of its users, but there are comparatively few "dimes" online.

During a recent jaunt on the bitstream I discovered a few of these special BBSs. See if you don't agree with me as we take a look at 40 cents' worth.

### **Dial-A-Guru**

**Board Name:** Dial-A-Guru #1

**Location:** New York, NY

**Phone Number:** (718) 624-8614

**Hours of Operation:** 24 hours/day

**Log-On:** Password issued

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# Life at 300 Baud

*Looking for dimes among the pennies*

### **Baud Rate:** 300/1200

"You are a lonely traveler climbing higher and higher, deep within the snow-peaked Himalayan mountains. The wind is blowing, but you do not care, you are looking for the highest truth. Then . . ."

You are connected to the most popular BBS in New York. Dial-A-Guru is a blending of Eastern philosophy and Information Age technology. Sysops Vipramkhya Swami and Daruka (Wayne Boyd and Ed Leonforte, respectively) have established this board as a meeting place for "spiritual enhancement," as Boyd puts it.

The main board consists of six conference areas dealing with topics such as philosophy and vegetarianism. The general conference area, "What's Up," serves as an electronic soapbox, allowing users to let off steam.

An excerpt from the philosophy section reads: "One can attempt to go to any planet he desires, but this is only possible by psychological changes in the mind or by yogic powers."

You be the judge. This board is definitely not the norm—it isn't for everyone. If you like it, however, I'm assured that mantras are accepted as passwords. (By the way, this board has spawned a clone: Dial-A-Guru #2 in Philadelphia, PA at (215) 247-9022.)

### **Something for nothing**

**Board Name:** ApcomNet

**Location:** San Jose, CA

**Phone Number:** (408) 996-9277

**Hours of Operation:** 24 hours/day

**Log-On:** Password issued

**Baud Rate:** 300/1200

This board is set up "to function as a community," says Fred Silver-

---

*ApcomNet is a means  
of communication and  
coordination for many  
non-profit networks.*

---

There are several corresponding data bases from which to download files. Most of these are text-based. A few of the gems in the "What's Up" data base are "Meeting Calvin Klein," "A BBS Horror Story," and "The City of Nine Gates." The vegetarian data base contains recipes for such delicacies as *phal ka halava* (fruit pudding).

man, the board's former sysop. The entire system exists to provide a means of communication and coordination among several hundred community non-profit networks.

The board is sponsored by Apple Computers, Inc., as part of its community grants program. You don't have to own an Apple—anyone can call.

After logging on, you are asked to take a walk through the board's "community." (This is actually a well-planned online tutorial of the system.) Good idea. In your excitement to get the copy buffer turned on you might overlook an interesting "side street."

Off the main menu are two divisions of non-profit networks: educational and community. Each of these is divided alphabetically. For example, under "community development," the part labeled "Adopt-Commdev" covers those networks concerned with a broad range of issues, from adoption, advocacy, and arts to cancer, child behavior, and "child alone" (latch-key kids).

In a separate area you will find a master menu of all the grantees, specific groups in each network, names and addresses, and a general statement of the purpose of each network. These networks are involved in everything from helping small businesses expand to assisting single fathers to transferring appropriate technology to developing nations.

Silverman, Communications Specialist for Apple's Corporate Grants program, says that more than 700 non-profit organizations have been given computers. That adds up to a tremendous knowledge base.

"We're trying to make sure groups across the country doing similar work are sharing their insights and problem-solving techniques," says Silverman.

If you want to see just what grassroots organizations are doing with computers, you have found out where to look.

### **Edit mode**

**Board name:** Writers' Electronic Bulletin Board (WEBB)

**Location:** Branson, MO

**Phone Number:** (417) 546-2188

**Hours of Operation:** 24 hours/day

**Log-On:** Password issued

**Baud Rate:** 300/1200

Branson, Missouri, may not be the first place you would look for a professional writers' forum, but

that didn't stop Jory Sherman from deciding to set up WEBB.

"I thought it would be a good idea to set up some kind of network with the other bulletin boards for writers," says Sherman, author of more than 100 books. "With so much information out there, I think it would be great to get market updates from cities like New York and San Francisco every week."

The WEBB is well-stocked with publication market updates. Its update sections include both novel and magazine markets. If you've ever read the *Writer's Digest* market updates you'll know what to expect here.

There is also a classified section on the board where you can advertise cheaply. For a dollar you can buy up to 24 lines of advertising space (two bucks for a border). Advertisers range from manuscript editors to literary agents willing to read new material.

of the modem. Its sole purpose is to make information available to the modem user. Topics include telecommunications hardware and software, commercial information utilities such as The Source, CompuServe and Delphi, and modem reviews. The board serves all types of modems, from the boxcar 300 baud types to the life-in-the-fast-lane 2400 baud models.

The board is run on a Kaypro 10 by veteran sysop Frank Fallon, who also runs the Kaypro SIG on CompuServe. Fallon doesn't cut much slack on his board. He sets down the rules and expects no one to deviate from them. This is a little too rigid for me. The MUG, however, is thriving. (At one point when reading a round of discussions, I felt like I was quaffing a few beers with the guys at the local pub). Text files in the data base section carry important information for any modem user.

## *The Modem Users Group's sole purpose is to make information available to the modem user.*

The board counts publishers, editors, and literary agents among its regular users. Available in various sections are abstracts from *Publisher's Weekly* and information from Western Writers of America and Writer's Guild of America.

The board's "Let's Talk" section discusses the basics of the writing trade. The board is open to writers at every level, "though most of the regular users tend to be professional writers," says Sherman.

### **Modem evangelist**

**Board Name:** Modem Users Group (MUG)

**Location:** Farmingdale, NY

**Phone Number:** (516) 742-0039

**Hours of Operation:** 24 hours/day

**Log-On:** Membership required

**Baud Rate:** 300/1200/2400

This board preaches the gospel

MUG's data base section carries files on proposed legislation that will affect modem use should it become law. Files on packet radio are also available, along with notes about specific communications software packages.

There is an annual \$20 fee for full access. Your \$20 also entitles you to a subscription to *Modem-Lines*, a newsletter edited by Fallon.

Your time online is limited to 30 minutes per day. That shouldn't present a problem, because this is a message-only board. If you're looking for the latest update to your favorite CP/M software utility, you've come to the wrong board.

You can call direct and sign up online. Or, for more information, write to Modem User's Group, P.O. Box M, 132 Gazza Blvd., Farmingdale, NY 11735.



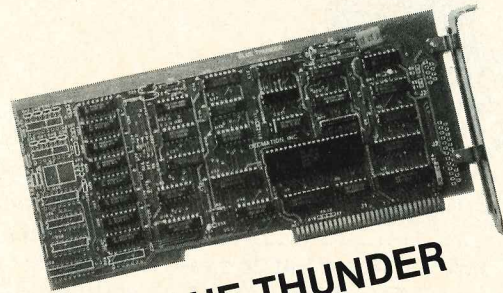


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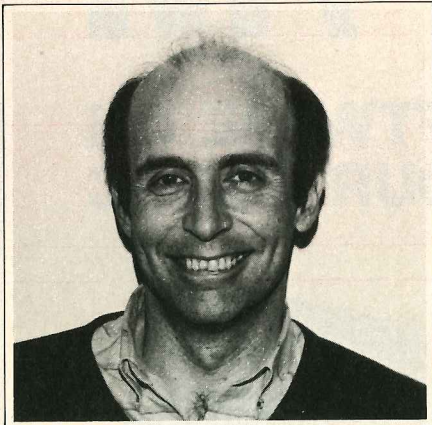
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# Flea Market



by Ted Silveira

Last year I wrote an article on patching WordStar ("WordStar Deluxe," July/August 1985) that covered every patch I knew. Of course, as soon as the article came off the press, I started getting letters asking for patches I didn't know, especially for a way to change the default tab stops on WordStar's ruler line and a way to set a default right margin greater than 76. Thanks to some help from the bulletin boards and from a reader in Manila, I've now got the patches for both of these.

To make these patches, you need to be familiar with hexadecimal numbers and know how to use DDT (you can't use the WINSTALL patcher this time). If you haven't patched WordStar before, you can read "WordStar Deluxe," which will give you the information you need to get started. Those of you who've already struggled through "Deluxe" should be old hands by now.

## Changing WordStar's right margin

WordStar comes from the factory with its right margin set to 65—that's the *default* (the value or setting you'll find when you start up WordStar). In WordStar 3.3, this default value is stored at location 036Bh in WS.COM; in WordStar 3.0, it's stored at location 0380h. To change the default right margin,

## Sequel to "WordStar Deluxe" and DOS file-handling programs

you change the value at this location, inserting the hexadecimal value of the right margin you want *minus one*.

But there's a catch. As it stands, WordStar won't accept a default right margin value greater than 76 (the screen width minus four). You can patch in a greater value, but WordStar will still default to 76. To remove this limit, you have to patch the WordStar overlay file WSOVLY1.OVR. As always, patch a *copy* of your working version of WordStar, never the working version itself and never, never the master.

For WordStar 3.3: Using DDT, load WSOVLY1.OVR into memory. With the **D** command, display the bytes starting at address 1384h. The first three bytes starting at this address should be **DA 88 76**. If you don't find these three bytes, don't go any further—get help from an experienced patcher to find out what the problem is.

If you do find these bytes at the proper location, use DDT's **S** command to change the three bytes to **00 00 00**. Then exit DDT and at the CP/M prompt enter **SAVE 131 WSOVLY1.OVR**. Test it by patching the default right margin in WS.COM to something greater than 76.

For WordStar 3.0: Everything is the same as for WordStar 3.3, except that you'll find the bytes **DA 88 70** at address 1384h, and when you're done, you need to **SAVE 133 WSOVLY1.OVR**.

This patch was sent to me by Bob Ferris of Manila, who dug the information out of MicroPro. Many

thanks to him (to MicroPro, too).

## Changing the default tab stops

WordStar's default ruler line has normal tab stops (rather than decimal tab stops) set every five columns, starting at column 6 and ending at 56. (Decimal tab stops provide decimal point alignment for columns of numbers. When you use **^I** to skip to a decimal tab stop, the cursor stops in the column where the decimal point is to appear, and all numbers you type appear to the left of the cursor until you type a decimal point.)

If you want to alter these default tab stops—change them to decimal tabs, add new stops or delete old ones—you can patch the default ruler line stored in WS.COM.

Using DDT, load WS.COM into memory and display the bytes starting at location 3434h (for WordStar 3.3). Starting at that location, you should see the following two-digit bytes:

```
38 00 00 01 00 00 10 00 01 00
```

The actual display of zeros and ones will continue beyond these, but these first 10 bytes will do for the demonstration.

The first byte, **38h**, records the column number of the last tab stop on the ruler line. If you convert this hexadecimal number to decimal, you'll come up with 56, which is the last tab stop on the default ruler line. You'll only need to change this byte if you modify the ruler line so that the last tab stop isn't at column 56. If, for example, you add a tab stop at column 61, then you

---

must convert that value to hexadecimal (61 decimal = 3D hexadecimal) and insert it at location 3434h.

The bytes starting at location 3435h actually paint a picture of the ruler line itself, with each single digit standing for one column position. If the digit is 0, the column contains no tab stop. If the digit is 1, the column contains a normal tab stop. And if the digit is 7, the column contains a decimal tab stop.

For example, the first byte of the ruler line shown above is 00. The first (lefthand) digit is 0, which tells us that column 1 has no tab stop. The second (righthand) digit is 0, so column 2 has no tab stop. The next byte is also 00, which tells us that columns 3 and 4 are without tab stops. The following byte is 01. The lefthand digit is 0, indicating that column 5 has no tab stop. But the righthand digit is 1, which tells us there's a normal tab stop in column 6.

The next two bytes contain four 0s, indicating that the next four columns (7-10) have no tab stops, and the following byte is 10, indicating a normal tab stop in column 11 and no stop in column 12.

Notice that in deciphering this ruler line, you're taking each byte, which you'd normally treat as a single two-digit value, and breaking it into its individual digits.

So suppose you want to eliminate the first tab stop, the one at column 6. You must use DDT to change the fourth byte from 01h to 00h. Once you do, the opening part of the ruler line will look like this:  
**38 00 00 00 00 00 10**

And if you also wanted to place a decimal tab at column 8, you would have to change the fifth byte from 00h to 07h. The results would look like this:

**38 00 00 00 07 00 10**

If you're a little unsure about this procedure, get a piece of paper and copy down all the bytes of the default ruler line in one horizontal line. Label each digit of each byte to show which column it represents. Then write down a new ruler line

with your new tab stop locations, directly below the original (and keep your columns lined up). Now you'll be able to see clearly which bytes you have to change. And if you don't get it right the first time, you can always go back to the original line and start over.

The above information applies to WordStar 3.3. If you're using WordStar 3.0, you'll find everything exactly the same except that your ruler line will start at address 3448h. And in DOS WordStar 3.31 the ruler line is at 43B9h.

All this information about patching the WordStar ruler line came from a text file, credited to Robert Petrie, that I found on a California bulletin board. Thanks, Robert, wherever you are.

### *The MS-DOS corner*

The first three shareware and public domain file-handling programs I'm going to cover are all descendants or translations of some CP/M programs (SWEEP/NSWP and VFILER). Those of you who've used the CP/M programs will feel right at home.

ally return to PCSWP21 when it's done. You can log into a sub-directory and even create new sub-directories. You can also use a "library" mode to "log in" to an LBR file (a number of small files collected into one large file) and perform all the usual file functions, including adding, extracting, deleting, renaming, and viewing the member files. With this library mode, PCSWP21 comes close to being a do-it-all program.

PCSWP21 has disadvantages, too. First, the program is big—45K. Second, PCSWP21's menu is very crowded, making it harder than it should be to locate the command you want. Third, the program forces you to switch to a different mode for single- or multi-file operations, and it's very easy to forget which mode you're in. Fourth, PCSWP21's screen writing is slow. Every time you call for the menu, it scrolls up from the bottom of the screen, line by line. In actual seconds, it doesn't take that long, but compared to the screen performance of good MS-DOS programs, it crawls.

---

## *PCSWP21, an MS-DOS shareware program, looks and acts very much like NSWP.*

**PCSWP21.** PCSWP21, a shareware program from Sandi and Shane Stump, looks and acts very much like CP/M's NSWP. Typing a question mark (?) will bring up the menu of commands, most of which are the same as NSWP's. Files are listed in a single column, each file with its size, date of creation, and attributes. You can copy, delete, rename, unsqueeze (but not squeeze), view, and print files. By tagging and untagging files, you can also work on groups of files.

PCSWP21 isn't just a copy of NSWP, though; it has a few unique features of its own. You can invoke another program and automati-

**CWEEP214.** CWEEP214 by Gary Berg has been released free for non-commercial use. Like PCSWP21, CWEEP214 has the look and feel of CP/M's SWEEP/NSWP—the menu looks much the same, the files are listed in a single column with their sizes, and many of the commands are the same. And like PCSWP21, CWEEP214 supports sub-directories, though it can't create them.

CWEEP214 has several advantages over PCSWP21. It's smaller, only 26K instead of 45K. Its menu display is cleaner and its screen display seems a bit faster, though new screens still scroll up from the

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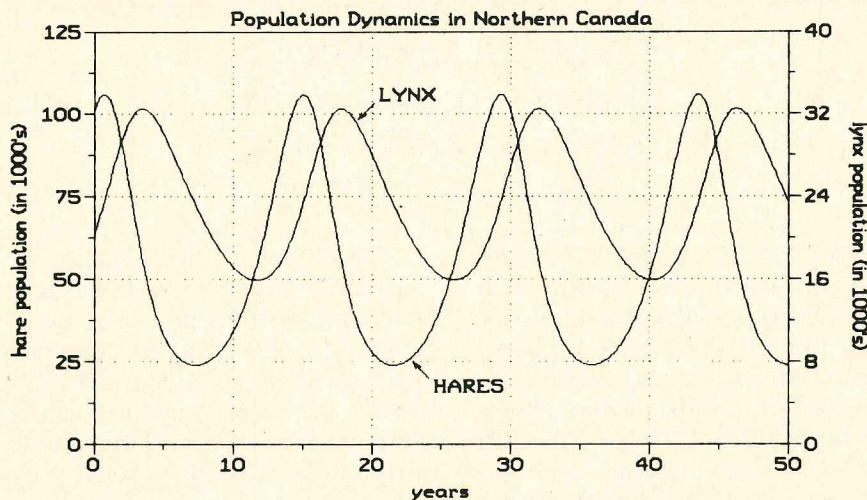


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bottom rather than being instantly zapped into place.

CWEEP214 also has its disadvantages. It doesn't have some extra functions that PCSWP21 does—no unsqueezing of files, no library mode for LBR files, no execution of other programs. Its screen speed, while better than PCSWP21's, isn't what you'd call snappy. And its file-viewing command scrolls continuously instead of showing one screenful at a time as the other programs do.

Overall, CWEEP214 offers fewer functions than PCSWP21 but delivers them in a smaller, neater package.

**VFIL28.** VFIL28 (the author is unknown to me) is an almost direct translation into MS-DOS of CP/M's VFILER (by Rick Conn). Though it has the same basic functions as CWEEP214 and PCSWP21, it has a different look.

Unlike CWEEP214 and PCSWP21, which show a single column of files, VFIL28 shows a whole screenful of file names, arranged in four columns, with a command prompt at the bottom of the screen. You can use either the arrow keys or the WordStar "cursor diamond" keys to move your cursor horizontally or vertically to the file you want to work on. If you type a "?," the screenful of files is replaced by a menu of commands—typing any key returns you to the file screen.

Aside from this unique screen layout, one of VFIL28's main advantages is size, only 11K. Also, its screen display seems a bit faster than CWEEP214's. And like PCSWP21, VFIL28 can execute another program and return.

VFIL28, too, has disadvantages. It doesn't show the file size on the screen next to the file name; you have to use a command. And it lacks the extra unsqueeze and library functions PCSWP21 has.

But wait! These three programs are not your only choices. Next month I'll look at a new batch of file-handling programs that aren't translations of CP/M programs, including one that can be made memory-resident.

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# 550 Megabytes on a Bit of Rainbow

Could a CD-ROM drive become a part of your system?

by Brock N. Meeks

Virginia Bostwick can't tell a bit from a byte. She doesn't know what a RAM-resident program is, and frankly, she couldn't care less. However, ask her about a compact disc read-only memory (CD-ROM), and she will tell you: "It saves lives."

Last January Bostwick found her three-year-old son, Tommy, unconscious and barely breathing on the kitchen floor, an empty bottle of ant poison still clutched in his tiny hand. Not waiting for an ambulance, she drove her son to a nearby emergency room.

The emergency room was equipped with a toxicology data base published on a CD-ROM. Using the CD-ROM, the attending doctor was able to track down the antidote in a mere two seconds. Before the installation of the CD-ROM data base in the emergency room, an antidote trace was done with microfiche, an awkward and time-consuming process—one that might not have saved Tommy's life that day.

The computer industry, rife with hyperbole, has seldom seen the likes of the CD-ROM, an aluminum-coated disc on which hundreds of megabytes of information can be stored. (Ed. Note: By convention, "disc" is spelled with a "c" when referring to optical discs, and with a "k" when referring to magnetic disks.)

Industry pundits proclaim it will do for the computer industry what Gutenberg did for print. Outspoken advocates of the CD-ROM speculate that someday the personal computer will be considered a peripheral to the CD-ROM, instead of the other way around.

Jack Taub, founder of The Source, is a staunch advocate of using optical disc storage to bring mass information retrieval into the educational market. Taub says: "Perhaps for the first time in history a new technology isn't being hampered by engineering problems, but by the limits of our own imaginations."

## From research to real world

N.V. Philips, a Dutch company, pioneered optical disc research in the late 1960s. Once out of the laboratory in the late 1970s, optical disc development followed three distinct paths.

The video industry first developed the videodisc in 1979 as a consumer entertainment device, making movies available in the new medium. However, video discs could not be recorded on and suffered in competition with video cassette recorders (VCRs), so they came to be used primarily for interactive training and point-of-sale demonstrations.

Audio discs followed three years later. The compact disc (CD), a substitute for the traditional vinyl record, permitted nearly perfect music reproduction and was the first mass-marketed application of optical storage technology.

A third application was expensive peripheral data storage for large mainframe computers. These "libraries" could store as much as 80,000 megabytes.

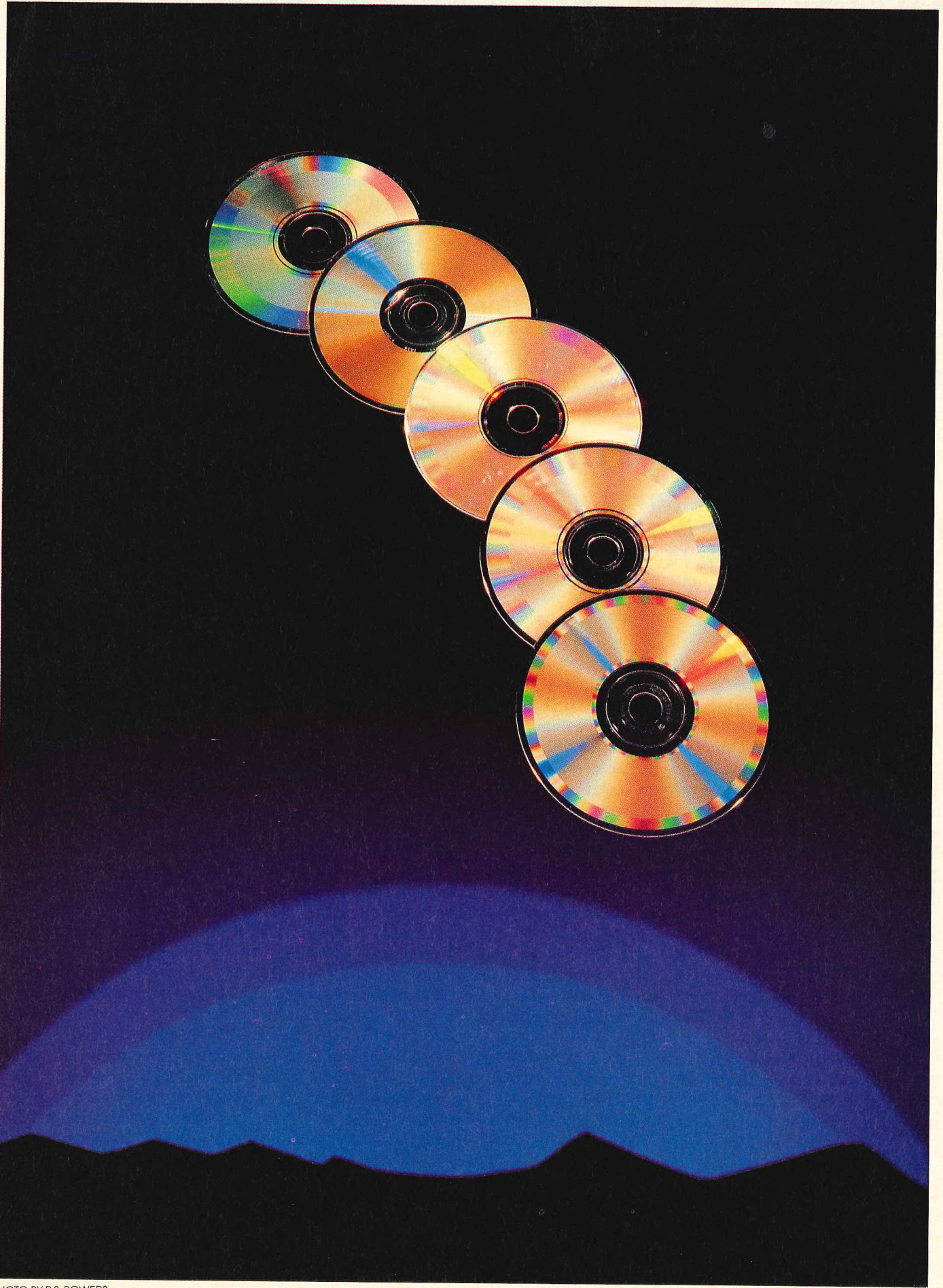
The success of the audio CD resulted in an unexpected technological windfall that became the CD-ROM. Using the same discs and adapting the players, engineers were able to produce CD-ROM drives less expensively than had ever been thought possible.

The ability to *write* to an optical disc, called WORM technology, is a different subject altogether. WORM stands for Write Once Read Many times and is a separate branch of the optical disc industry. This article focuses on CD-ROMs only.

## What manner of beast?

The CD-ROM is a shimmering, iridescent 4-3/4-inch disc that can be read by a player about the size of a small printer. The only difference between a CD-ROM used for data storage and your newest audio CD is the

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CD-ROM discs shown in photo courtesy of KnowledgeSet Corporation.

PHOTO BY R.S. POWERS

type of reader used to retrieve the information. And the only difference between an audio CD player and a CD-ROM drive is one chip and the output ports.

The audio compact disc player uses its laser "eye" to convert information to audible tones. The CD-ROM drive converts information into digital signals that are fed to your computer.

The method of producing both audio compact discs and CD-ROM discs is the same. An optical disc is "mastered" (a laser beam burns the information into the disc in the form of tiny pits) and sent to a pressing plant. At the pressing plant, copies of the master disc are "stamped" out, just like traditional vinyl records. Since the pressing is done at a factory, such discs cannot be recorded on by a personal computer. (An offshoot of CD-ROMs are CD-Is—the "I" stands for "interactive"—just introduced this year. More on this below.)

### *The storage capacity of CD-ROMs is enough to make even PC "power users" drop their jaws.*

#### **Staggering stats**

The storage capacity of CD-ROMs is enough to make even personal computer "power users" drop their jaws in awe. Don Kado, former manager of technology research for Information Handling Services, suggests the following analogy: Consider the output of characters that could be generated by a professional word processor typing 90 words a minute, eight hours a day, every working day. By the end of eight years and three months, that typist would produce 550 megabytes, or about 200,000 pages of text, which could be stored on a single CD-ROM. Further, one CD-ROM equals 28 20-megabyte hard disks, or some 1,500 360K floppies.

Arlin Raedeke, vice president of Compact Disc Operations for Reference Technology, Inc. (RTI), points out some other differences between optical storage and magnetic media. "Optical technology has a storage capacity, per square inch, that is 26 times denser [than magnetic media], with 13 times the tracks per inch of an ordinary floppy disk."

Although the mega-storage capacity of a CD-ROM is impressive, access times are slower than with a Winchester hard disk. Most of today's hard disks have an average access time of 70 to 90 milliseconds (thousandths of seconds). The average access time of a CD-ROM is much slower.

"CD-ROM drives are designed for [access times of] about 750 milliseconds to a second or more," says Raedeke. "If you put the CD into an atmosphere where there used to be a Winchester, it's going to be slower. When talking comparative access times, however, it

depends on what you're accustomed to.

"If an emergency room nurse is accustomed to using microfiche, then a two-second access time will seem like lightning speed."

Julie Schwerin, president of Infotech, a consulting firm for the optical publishing industry, makes another comparison. "Because CD-ROMs will be used by people doing text-intensive work, CDs will seem faster. Right now, serious information retrieval takes place via online services such as Dialog. When you consider that accessing a huge data base on a remote mainframe at 1200 baud entails substantial delays, the CD-ROM is clearly a better choice. Realize that desktop searches are free of online charges and suddenly the slow access time of a CD-ROM doesn't present much of a problem."

#### **Bringing the data home**

Bringing optical storage to your desktop computer is a matter of assembling the correct parts: a computer, an interface card and cable, and a CD-ROM drive or player. Controller cards and drives are available today from Sony, Philips, Denon/Nippon, and Hitachi. Toshiba, Panasonic, and Pioneer have all demonstrated prototypes, with projected release dates of mid-1986.

Other companies, such as RTI, TMS, DEC, Micro-Trends, Tecmar, Xebec, and Online Computer Systems, manufacture controller cards for use with their own dedicated, integrated systems. (These are "in-house" packages that use drives from other companies such as Philips or Hitachi.)

The controller cards are installed in your computer like other add-on boards. Drive interfaces vary from a serial (RS-232) connection to the Small Computer Systems Interface (SCSI). Controllers are currently available for IBM and compatibles, NEC PC 9800, Hitachi B-16/EX, Apple II series and the Amiga. Owners of Kaypro's CP/M computers cannot use a CD-ROM drive—yet.

With the development of the SCSI drive interface, it is possible that a CP/M machine could use a CD-ROM. "If there is a vendor of an SCSI interface board that fits inside the Kaypro then, of course, the only missing element is the software to complete the attachment," says RTI's Raedeke.

Prices for controller cards range from \$100 to \$500. CD-ROM drives currently retail for anywhere from \$845 to \$2,395. Prices are likely to drop as more drive manufacturers enter the market. At last count, according to Infotech, 58 American, Japanese, and European firms have indicated a desire to enter the race to produce CD-ROM drives. And although it is too early to predict exactly how large this group of manufacturers will become, Mark Anderson, optical recording marketing manager for media-maker 3M, estimates that it could become well over 100 by 1987. Then he predicts a shakeout with only a handful of major producers left.

*(continued on page 26)*





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continued on next page —



### A new wrinkle

At the Microsoft CD-ROM conference held in Seattle, Washington, in March, a new development in the field was announced that will give you another way to take advantage of CD-ROM technology. Introduced as a joint effort by the Sony and Philips corporations, the Compact Disc-Interactive (CD-I) player is a laser disc storage unit that can be used independently from personal computers.

Haines Gaffner, president of Link Resources, an industry research firm, called the product "revolutionary." Industry pundit Jerry Pournelle called it a "bombshell." In an Associated Press article, Gaffner says that although the product is being described as a storage unit, it is in fact a "powerful home computer with video capabilities."

The CD-I player uses five-inch laser discs, which are due out next year. The CD-I standard (also known as the "green-book standard") supports high-fidelity sound and graphics, as well as data. This means you can use the CD-I player to listen to a re-creation of the "Charge of the Light Brigade" while viewing it on the screen.

Infotech's Schwerin and others see the CD-I as a "branch" of CD-ROM technology—not a replacement, as some reports called it—and one that will be used primarily in home entertainment and education.

### Third-wave publishing

Optical discs are poised to usher in a new era in the publishing world. Companies that make their data bases available only through online retrieval services can now offer those same data bases to personal computer users on CD-ROMs.

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## *Optical discs are poised to usher in a new era in the publishing world.*

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Reference works, encyclopedias, and technical compendia can also be made available for the desktop PC user. According to Robert Moes, director of marketing for North American Philips Corp., makers of CD-ROM players and the discs themselves, all major publishers have expressed an interest in CD-ROM publishing. "It's just going crazy," said Moes.

The first CD-ROM product to gain widespread interest is the \$199 *Grolier Academic American Encyclopedia*. Marketed by Grolier and CP/M inventor Gary Kildall's KnowledgeSet Corp. of Pacific Grove, California, the CD-ROM version contains the same information as the 21-volume, nine-million-word printed version and still takes up only a fraction of the available disc space on the CD-ROM. Grolier has plans for adding common reference works to its CD-ROM product line.

Dictionaries, almanacs and atlases are all being considered, and several combinations of these can fit on a single disc.

Publishers of medical and legal works are also lining up to produce CD-ROMs, according to Steve D'Annolfo, product marketing engineer for KnowledgeSet. "We've also seen an interest from research institutions and government agencies," he says.

"There are about 60 CD-ROM information products for sale or announced [for sale]," says Infotech's Schwerin, who added that current CD-ROM products fall into three general categories.

- *Library automation*: data bases to help manage library operation, such as a book ordering data base.
- *Library reference*: bibliographic data bases, full texts, and abstracts.
- *End user references*: products such as financial data bases, medical references, and encyclopedias.

More specific categories will emerge as the field grows, Schwerin said.

### Now that you have it

Access to large quantities of information is worthless if you can't manage it in some way. Enter the "software retrieval engine."

Retrieval or "access" software is at the core of CD-ROM competition and marketplace positioning. With retrieval software you can search through the text by keywords, phrases, or parts of words, or do a combined text search complete with boolean logic (AND, OR, NOT). You can, for example, enter the words "cream cheese," and all references to cream cheese in the entire data base will be presented on your screen (cross-referenced under "bagels," no doubt). The critical factor to consider is how much retrieval software will do for you after you have your information on the screen.

The Electronic Retrieval System from TMS, Inc., for example, lets you copy data from a text search into a separate buffer (remember, you can only read from a CD-ROM, nothing more) where you can manipulate it with a word processor. Other features of the software allow bookmarking, printing, an activity history log, and "sideways browsing." Sideways browsing allows you to "place the computer cursor under a cited document and, by pressing a button, access the newly requested document," said TMS vice president Ashok Mathur.

All CD-ROMs include some kind of retrieval software. Soon we could see comparative reviews on the merits of, for example, KnowledgeSet's Knowledge Retrieval Software and RTI's STA/F Text.

Some critics contend that the lack of an industry standard for retrieval software is a drawback, because it means users will have to learn a different retrieval system for every CD-ROM application that they use. Schwerin answers that because retrieval software is a key area of competition, a standard would be too limiting, even if end users want it. The solution?

Artificial intelligence, Schwerin says. AI will "inevitably" enter into retrieval software—CD-ROMs and AI will go hand-in-hand, she says, and end users won't have to bother with learning dozens of commands.

### Package deals

Many of the early major developers in the CD-ROM field are making it easy for you to jump into the new technology by offering "all-in-one" packages. These packages often include the CD-ROM, a CD-ROM drive, interface card, cables, and even the PC itself. KnowledgeSet offers the Romulus package, which includes the Romulus CD-ROM drive, the *Grolier Academic*

*Many early major developers are making it easy to jump into by offering "all-in-one" packages.*

*American Encyclopedia* on CD-ROM, a Romulus controller card, and cables for \$995. Online Computer Systems markets the Electronic Delivery System. This system includes the R.R. Bowker Company's *Books In Print* and *Ulrich's International Periodicals Directory* on CD-ROM, a CD-ROM drive, a 512K MS-DOS compatible computer, RS-232 interface, floppy disk drive, monitor, printer, and retrieval software for \$3,000.

Schwerin claims that many things will be available on a small scale, "but CD-ROM will take off in areas where people are willing to pay, such as reference libraries, internal policies-and-procedures publishing, and technical and scientific information."

The 1985 annual *Disk/Trend Report*, published by industry analyst James Porter, predicts that by 1990, five to ten percent of all personal computers will have CD-ROM drives. The report projects dramatic increases in sales, from 3,000 units in 1985 to 353,000 drives in 1988. But those figures may be overly optimistic.

### Hyping the technology

When major corporations begin to throw their weight behind a new technology in the computer world there is some cause for celebration—and caution. In 1985 Microsoft came out heavily in favor of CD-ROMs—a move that "tends to legitimize the field," as TMS vice president Mathur says. (Microsoft hosted a CD-ROM conference in March where they showed a CD-ROM that integrated audio and text. They also published a book as a CD-ROM disc, *CD-ROM: The New Papyrus*, a collection of articles about CD-ROM written for the conference.)

Schwerin, however, maintains a cautious attitude. "CD-ROMs have been around a long time. So all of a

## The Compatibility Question

With several different disc publishers ramping up to provide CD-ROMs, you might begin to wonder about compatibility. Wonder no more—the industry itself is hard at work taking care of compatibility problems.

All CD-ROMs are manufactured using the Sony/Philips standard for encoding optical discs (a spiral format). This means you can use any CD-ROM in any CD-ROM player.

The standards start to fall apart on the issue of data structure at the logical files level—that is, the layout of directory and bootstrap blocks that enable a computer's operating system to interact with a CD-ROM.

The CD-ROM industry as a whole recognizes the need for an industry-wide standard for data structure. Two groups working closely on this standard are the Information Industry Association (IIA) standards committee and the High Sierra Group, an ad hoc committee of software and hardware developers.

"The consensus of the IIA standards committee is that the early development of a working standard which allows the functional interchangeability of the media and drives, without limiting subsequent applications development, will allow CD-ROMs to have the optimal launch in the market place," states a December 1, 1985, article in *Videodisc and Optical Disc Update*.

The High Sierra group was set to publish its standard on March 31 of this year when it hit a glitch during the Microsoft CD-ROM conference. That glitch was a new standard jointly introduced by Sony/Philips. When Sony/Philips introduced the Compact Disc-Interactive (CD-I) standard to the High Sierra group, a few compatibility problems arose.

The CD-I standard supports sound and graphics as well as text. The High Sierra group standard supports only text. The High Sierra group will revise its current standard to coordinate its format with the graphics and sound specifications of CD-I, said John Einberger, director of software development for RTI, and chairman of the High Sierra group. The group now plans a revised release of its standard during the second quarter of 1986.

"The [industry-wide] data format standardization ensures that the CD-ROM will not suffer from incompatibility 'wars' like video went through with the Beta and VHS formats," said RTI vice president Arlin Raedeke.

The High Sierra standard, as it stood, would have been a closed-end, limited standard, according to Ann A. Armstrong, managing editor of *CD Data Report*. The incorporation of the CD-I specifications will help establish a file format that can be used by the industry for long-range marketing goals because it will allow the technology to "grow into" the standard.


sudden Microsoft 'discovers' them and they become a hot item? That worries me a bit. I'm afraid that if the optical disc isn't handled right, the industry hype could cause a backlash." Such a backlash occurred in the videotex industry, says Schwerin. The consumer was pumped up to expect great and wonderful things. When videotex didn't deliver as promised, consumers cooled and the market died down to a smolder.

"Applications are the key," says Schwerin. "No one buys tools or toys in big enough numbers unless there is a lot you can do with them. Video discs were not a lot better for movies than VCRs because they were unrecordable. CD audio is so much better than vinyl records and tapes for music, nobody even cares yet about recording.

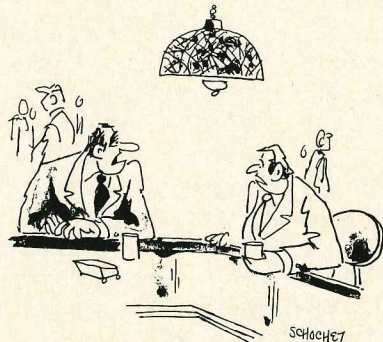
"CD-ROMs and CD-I must make a lot of jobs and leisure time a lot more productive, cheaper or more fun. It is much easier to identify 'hit' music and movies than blockbuster data bases or box office-busting productivity tools, games, or educational programs."

Some observers of the optical disc industry think a "chicken-and-egg" scenario could be played out that will hamper the acceptance of CD-ROMs. Consumers will want to have a broad range of reference works and application programs available before committing to a CD-ROM set up, particularly since the technology is so new. On the other hand, information publishers might wait until a large CD-ROM user base is installed before they dedicate themselves to mass-market publishing.

However, said Schwerin, "innovative leaders in the computer industry may well take more risk with CD-ROMs in order to get their industry back on a fast track and move into publishing roles in the process."

The CD-ROM, however, seems to be oblivious to the analysts and even to the general consumer. It is already making tremendous inroads into highly specialized markets, making itself as indispensable as a word processor is to a writer, as a spreadsheet is to a CPA, as a data base is to a corporate buyer. CD-ROMs are doing real work, in the real work-a-day world. Just ask Tommy Bostwick's mom—she can tell you all about it. 

*Brock Meeks is a San Diego-based freelance writer. His specialty is telecommunications and he's a contributing editor for PROFILES.*



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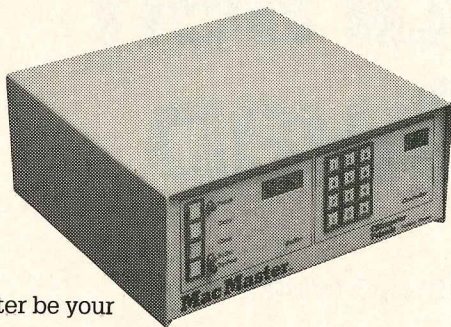
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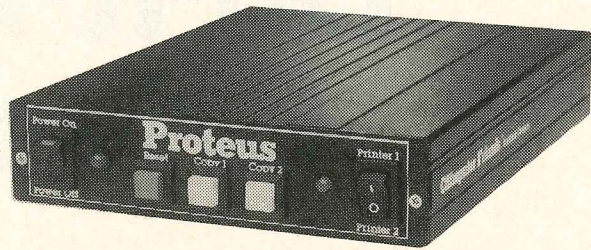
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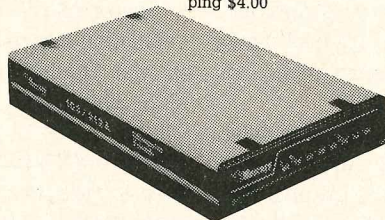
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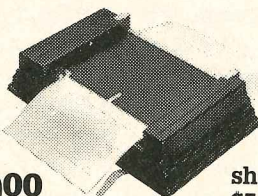


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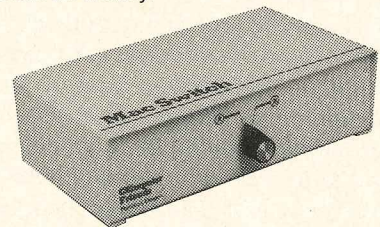


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# Do-It-Yourself Drive Swap

*If you can handle a screwdriver, the job isn't hard*

by Ted Silveira

**F**olklore says a computer will run almost forever if it makes it through the first 30 days. And that's largely true, because a computer has so few moving parts to wear out. But it's not true of floppy disk drives, which are full of delicate moving parts.

So what do you do when a drive suddenly gives up the ghost? You can pay a technician \$60 an hour (plus parts) to resuscitate the drive. But if you can handle a screwdriver, you have another option—buy a new drive for \$85 to \$100 and install it yourself. The price is right, and the job isn't hard.

In fact, the job is easy enough that you may want to install new drives even if your old ones are still working fine. Why? Because by installing new drives, you can upgrade from single-sided drives (191K) to double-sided drives (390K) or from either of those to double-sided quad-density drives (784K!). (To do so, you'll also need a new ROM chip, but these are cheap and easy to install. See "New ROMs for Old" on page 34.)

Here's a step-by-step guide to changing the disk drive on a Kaypro 2 or 4. The mechanical mounting of disk drives in Kaypro 10s is quite different and will not be covered in this article. Information on choosing and configuring drives applies to any CP/M Kaypro, but you should obtain a copy of the *Kaypro Technical Manual* if you are going to change drives on a Kaypro 10.

## Get your supplies

You can get a new disk drive from a local discount computer store or one of the mail-order supply houses that advertise in *Byte*, *InfoWorld*, *PC*, and *Computer Shopper*. The main disadvantage to buying from a reputable mail-order house is that if your new drive doesn't work properly, it will take longer to exchange.

Almost all the drives advertised now are double-sided, double-density, and half-height—the same kind used in the Kaypro 2X and 4'84. If you currently have single-sided drives, I still suggest installing a double-

sided drive—it will act like a single-sided drive if you don't change the ROM. If you decide later that you want double-sided operation, just change the ROM and you're ready.

If you have an older Kaypro with full-height drives, you can fit two half-height drives in the space now occupied by one drive, so you can (with the proper modifications) have four drives instead of two.

**Which Drives to Get.** To replace (or upgrade to) a standard Kaypro double-sided 390K drive, get a double-sided, double-density drive, usually advertised as double-sided, 40 tracks per side, or as double-sided, 48 tpi (tracks per inch). To upgrade to high-capacity 784K drives, get a double-sided, quad-density drive, usually advertised as double-sided, 80 tracks per side, or as double-sided, 96 tpi.

Shugart, Panasonic, TEAC, and Mitsubishi are all reliable brands. For double-sided, double-density drives, the Shugart SA-455 and the identical Panasonic J55 are quiet and cheap—as low as \$85 each. The TEAC 55B is usually a bit noisier and also fairly cheap—\$95 to \$100. The Mitsubishi 4851 is very quiet but sometimes sells for more—about \$120. You'll also find Toshiba, Tandon, Epson, and Qume drives, but I've had no experience with them.

For quad-density drives, get the Shugart SA-465, TEAC 55F, or Mitsubishi 4853, which are all similar in quality and cost to their double-density siblings.

Whichever drive you buy, try to get the necessary mounting screws with it; your old ones may not fit.

**Tools.** You'll need the following tools and supplies:

- Pencil and paper
- Tape and/or gummed labels for marking cables you disconnect
- Small jars or a tray to hold screws
- A Phillips-head screwdriver, normal size
- A 2.5 mm or 7/64-inch allen wrench, depending on which size screws are used to attach your drives
- A small adjustable wrench or nut driver set.

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**Work Space.** You need a roomy table, good light, an electrical outlet, and freedom from water, dust, static electricity, children, and other intruders. Work in a room you can close the door to, so you can leave your computer disassembled without it being disturbed.

### Get ready to work

Plan to do the job in one sitting, if possible. If you've never opened up your computer before, set aside a couple of hours, and double that if you're adding extra drives to an old Kaypro (which requires drilling new mounting holes) or doing some other extra upgrade. (These times are very generous.)

*Work in a room that is free of water, dust, static electricity, kids, and other intruders.*

**Avoid Static.** The integrated circuit chips inside your Kaypro are sensitive to static electricity. Some chips are more sensitive than others, but you can fry any chip with a large enough jolt of static electricity. Even if the chip doesn't keel over immediately, it can be weakened enough to fail later, or act up under high heat situations. To avoid damaging chips with static, touch them as little as possible. You shouldn't need to touch any chips at all while changing a drive, unless you're installing a new ROM chip at the same time.

More important, avoid building up a static charge yourself. Try to avoid nylon carpets, as well as clothes and shoes that produce static. When in doubt, work barefoot. Before you approach the computer, discharge any static you've built up by touching something metal like a water faucet or table leg. Then touch some bare metal part of the Kaypro chassis before you go sticking your hands inside. If you leave your work table, repeat this routine when you return.

**Unplug Everything.** Make sure you unplug your Kaypro before taking a screwdriver to its case. If you unplug the power cord from the computer itself, you'll know at a glance whether it's plugged in or not.

### Open up your Kaypro

Everything unplugged? If not, do it *now*. Remove the top of the Kaypro's case. This piece is held on by 10 screws—four on each side and two on the top. Remove these screws, and put them safely away. Grab the cover at the bottom of each side, flex the sides out *slightly* to free it, lift it straight up, and set it out of the way.

Before you go any further, make sure you've discharged any static you may have built up.

For your own sake, be careful when you reach inside the computer. The video monitor and power supply sections both contain large capacitors that hold a dangerous jolt for some time after you've turned the

computer off.

**Survey Your Kaypro's Insides.** As you face the front of the computer (where the screen is) and look down from the top, you'll see something like Figure 1, below.

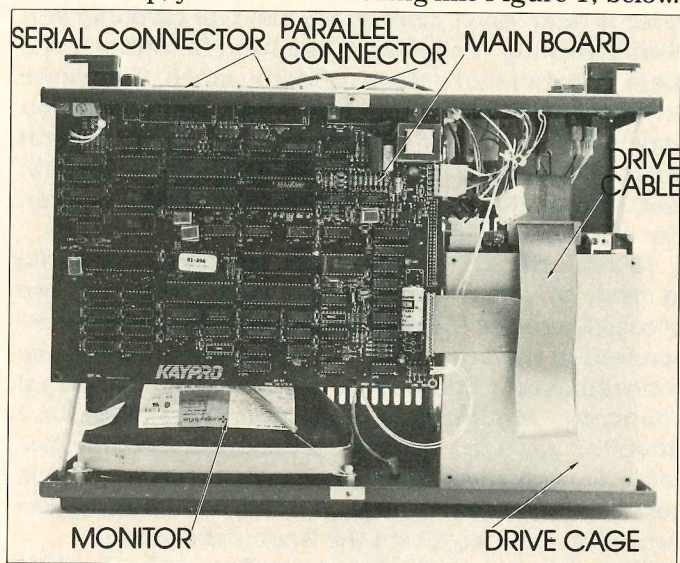


FIGURE 1: Top View of Kaypro With Cover Off

The large green board covering the left half of your computer is the main circuit board, and the black rectangular things with silver legs (like futuristic insects) are the integrated circuit chips that do the computing. You may see some empty chip sockets—black rectangular things with holes for the chip legs to fit in—for chips that weren't needed on your model.

Coming off the right side of the main board, near the front, is the broad, flat drive cable, which connects the circuit board to the floppy disk drives. Next to the drive cable is a small four-wire plug that connects to the reset button. Toward the back on the right side of the board is a larger plug whose wires go to the power supply, which is mounted on the back of the case, under the main board. Along the back of the main board are the serial and parallel port connectors, and in the back lefthand corner is a small plug that connects to the brightness control.

Near the left front of the computer is the monitor—the screen showing in front and the rest disappearing under the main board.

Finally, at the front on the right side, you'll see what looks like an aluminum box—the mounting cage for the disk drives. At its back, you'll see the back end of the disk drives with the drive cable plugged in.

### Out with the old

On the right side of the drive cage, you'll see four allen screws holding the drives in place. If you peer down the left side of the cage, you'll see four more that aren't as easily accessible. To get at them, you should disconnect and remove the main circuit board.

**Disconnect the Main Board.** Sketch a map of the circuit board, showing the location of each cable plug-

ged into the board, then number each location on the map, and attach a label with the corresponding number to each cable.

Once you've labeled the cables, unplug them. If a cable is tight, don't yank on it—just pull carefully and evenly, rocking it slightly if you have to. Support the main board so that it doesn't flex too much. If you have an '83 model Kaypro with a speed-up modification, you may have some extra wires running to your main board. If these are permanently attached (soldered), don't detach them. They'll cause some bother, but you can work around them.

**Remove the Main Board.** The main board is secured in front by two screws and in back by one or two brackets and the I/O port connectors, all of which are screwed to the case. Take out the screws holding the connectors and brackets to the case first. The serial connector mounting screws are brass and have threaded holes in the ends for securing the interface cable. Remove them with a 3/16-inch nut driver. Let the connectors rest loosely in their holes. Next, take out the two screws holding down the front of the board.

The main board should now be free, with no cables and no screws attached to it. Holding it by the left and right edges, pull it slightly forward until the port connectors clear the back of the case, and then lift it straight up. Set it out of the way, preferably on a wooden surface.

If there are wires connected to the main board that you can't remove, there should be enough slack to let you free the board from the case, turn it 90 degrees, and rest it on the top edges of the case, somewhat out of the way. (As you work, though, be careful not to knock the main board off its perch.) If there isn't enough slack in the wires, get a technically adept person to disconnect and then reconnect the wires for you.

### *Set the main board out of the way, preferably on a wooden surface.*

**Disconnect the Old Drive.** Each drive has three connections: the drive cable, which is a broad, flat cable that goes to the main board; the power cable, a white plug with three wires; and the ground wire, a single green wire. On the drive you're going to remove, label each one, noting what it is and which drive it goes to. Also note how the connector on the drive cable is oriented so that you can reconnect it the same way (the other plugs can only be connected one way). Unplug all three cables from the drive.

**Remove the Old Drive.** Each drive is held in place by four allen screws. To remove them you will need either a 7/64-inch or 2.5 mm allen wrench. The 7/64-inch size is by far the most common, but a 2.5 mm allen wrench will be needed for some drives. This is one area where

Kaypro is a little erratic, so there is no way to tell which one you will need. It would probably be safest to have one of each size.

First, remove the two front screws from the drive you want to replace. You don't have much room to get at the front screw on the left side, but you can manage it with the short arm of your allen wrench. Next, remove the two rear screws, using one hand to support the rear of the drive. Once all four screws are out, slide the drive carefully out through the front of the case. Set it in a safe place. If you're replacing both drives, label each one—you may need to put one back if one of your new drives doesn't work.

### **In with the new**

Before being installed, a disk drive must be configured according to whether it will be drive A or B and at the beginning or end of the cable. If you buy your drive from a local store, they may configure it for you. If not, you can do it yourself.

**Configure the Drive.** Each drive needs two options set—the *terminating resistor*, which tells the computer whether a drive is the last one on the cable, and the *drive select jumper*, which tells which drive it is (A, B, C, etc.). These two options are usually found on the top of the drive, at the back, near the drive cable connector, though their exact location varies with different brands. Figure 2, below, shows their location on a Shugart drive. (*Editors' note: The preferred method to obtain drive configuration information is to purchase the manual, usually the OEM manual, for any drive that you will be working with.*)

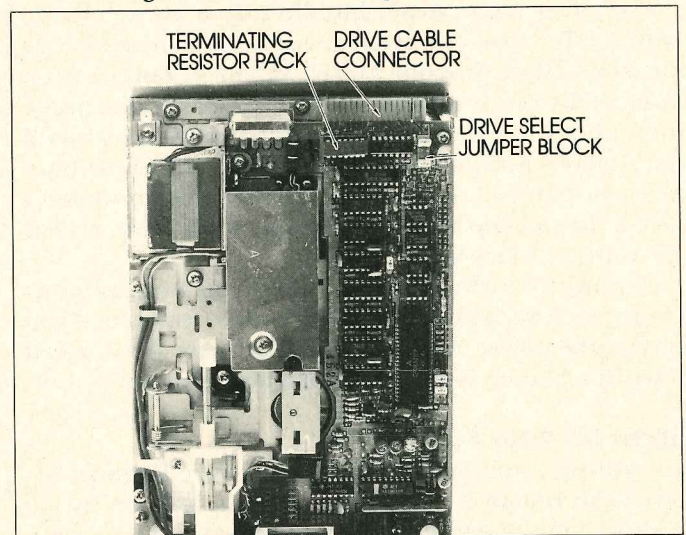


FIGURE 2: Top of Shugart SA455 Floppy Disk Drive

**Set the Terminating Resistor.** The terminating resistor is usually a shiny black or blue piece with legs plugged into a socket. Often the circuit board of the drive will have a silkscreened number, something like RP1 or RA1, near this resistor.

Leave this resistor in place if the new drive is going to be the last one on the drive cable—that is, the drive on

the end of the cable farthest away from the main board. It doesn't matter which drive this is (A, B, etc.) or how physically close it is to the main board, just that it is the last drive on the cable. If the drive is not the last one on the cable, remove the resistor. The resistors should be removed from all drives except the last one on the cable. If you can't find the terminating resistor, and you didn't get any documentation with your drive, call the place you bought it from, and ask them where it is. (Mitsubishi drives, for example, don't have a removable resistor, just a series of jumper blocks that you remove to defeat the resistor.)

*Set the Drive Select.* At the back of the drive, near the drive cable connector, look for some pins sticking up from the drive's circuit board. There will be eight or more of these pins, arranged in two parallel rows, as shown in Figure 3.

Next to the pins, you'll see numbers, either 0 through 3 or 1 through 4, possibly preceded by DS (for "drive select"). You'll also see a small jumper block—either metal or metal-lined plastic—covering one pair of pins, probably the first or second. This block determines whether the drive will act as drive A, B, C, or D. If the pins are numbered 1-4, then putting the block on pair 1 sets the drive as A, putting it on pair 2 sets the drive as B, and so on. If the pins are numbered 0 through 3, then 0 sets the drive for A, and 1 for B, etc. This procedure is

known as "jumpering."

If the jumper block is not in the right position for the new drive you're installing, pull it off and push it firmly down over the proper set of pins.

Some brands of drives also have additional jumper options. If you have pins labeled HM and HS, jumper

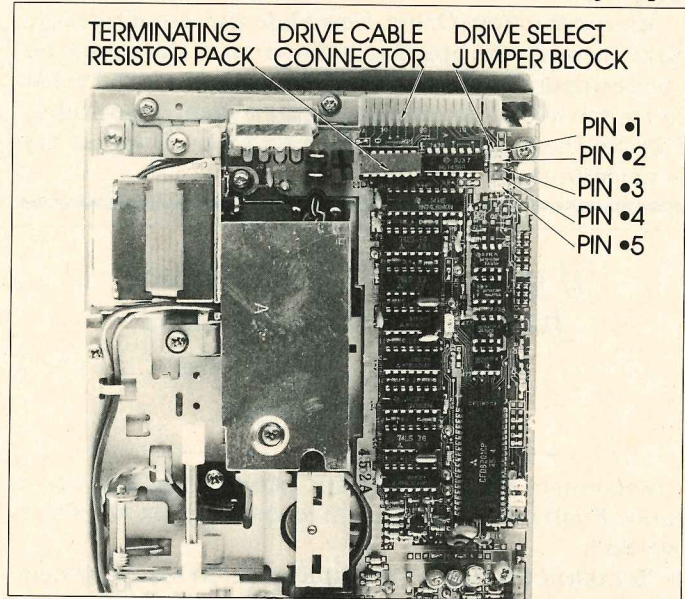


FIGURE 3: Blow-up of Top Back of Shugart SA455 Drive

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HM. If you have a Toshiba drive, jumper both HM and LD. If you have a Shugart or Panasonic drive, you'll find three pins labeled MX—jumper the left and center pins. If you find unexplained jumper pins, call the people who sold the drive and ask how to set the extra jumpers.

*Mount the New Drive.* Now slide the new drive into place through the opening in the front of the computer case. Support the back of the drive with one hand while you put in all four screws and tighten them finger-tight. Tighten them up with the allen wrench—firm but not Superman-tight.

---

### *If you find unexplained jumper pins, call and ask how to set the extra jumpers.*

---

Reconnect the ground wire, power plug, and drive cable. Push each one on until it seats firmly, but don't overdo it.

*Reinstall the Main Circuit Board.* To test your new drives, hook up the main circuit board again. Pick up the board by its edges, slide the port connectors through their holes in the back of the computer case, set the board in position, and put in the two front screws. You can leave off the other screws until you've tested the new drive; just don't jostle the computer.

Plug in the cables, including the drive cable. Seat them firmly, supporting the board when you push them on so that it doesn't flex too much.

*Special Note on TEAC Drives.* For some reason known only to its designers, the TEAC drive cable connector is backward from the cable connector of other disk drives. On a typical drive, pin 1 is the bottom righthand pin on the drive connector, but on a TEAC, pin 1 is the top lefthand hand pin.

So, if you've substituted one or more TEAC drives for your previous non-TEAC drives, you must twist your cable around to get the connection right. Fortunately, the edge of the ribbon cable that goes to pin 1 is colored (usually red), while the rest of the cable is gray, and the connector on the cable itself has a mark (usually an arrow or wedge-shaped mark) on one edge that indicates pin 1. Guided by these two clues, you can twist and flop the cable to get it positioned correctly for each drive.

#### **Test the new drive**

Now the big step. You're going to briefly hook up the power to your computer to test the drive. *While the power cord is plugged into the computer and the cover is off, don't stick your hands anywhere inside the computer.* Play it safe, even if you know what you're doing.

Plug the power cord back into your computer, turn the computer on, and stick a disk in the new drive (and also in drive A, if it's not the new one). Does the computer recognize the disk and start up properly? Can you get a directory of the new drive? Can you run a simple program from it? Does everything seem normal (no smoke, sparks, or weird noises)? If the answer to all these questions is yes, you're in business.

If anything out of the ordinary happens—especially if you see sparks or smell smoke—unplug the computer immediately. Double-check all connections, and call an expert. If sparks or smoke appear during this test, you will probably need to have repairs made before having a technician finish the modification.

*A Few Words About Drive Noise.* All drives have a certain maximum rate, called the step-rate, at which they can move the drive head from one track to another. Oddly enough, a drive moving at its maximum rate is usually quiet, while a drive forced to move more slowly

*(continued on page 68)*

## New ROMs for Old

Inside the Kaypro are two special ROM (read-only memory) chips that give your computer much of its personality. One of these ROMs contains part of the Kaypro's operating system and has a lot to do with how the disk drives operate.

Several companies sell custom ROMs that replace this standard Kaypro ROM and offer many improvements. Among other advantages, they make the disk drives read and write more quickly, let you use double-sided double-density or double-sided quad-density drives (or both together), and make it possible to run up to four drives on your system.

Installing one of these custom ROMs is quite simple. For most Kaypros, you just remove the cover, pull the old ROM out of its socket, and stick the new ROM in. For an old Kaypro II, you need one extra modification, which these companies also sell.

Prices for these ROMs range from \$25 to \$80. For more information, contact:

Pro-Monitor ROM  
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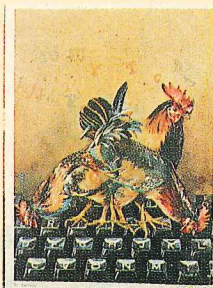
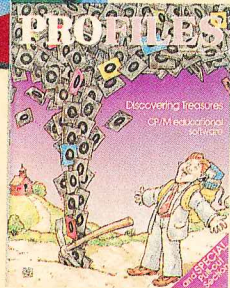
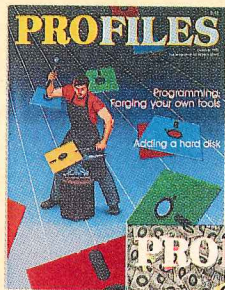
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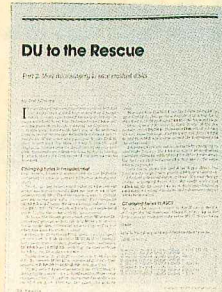
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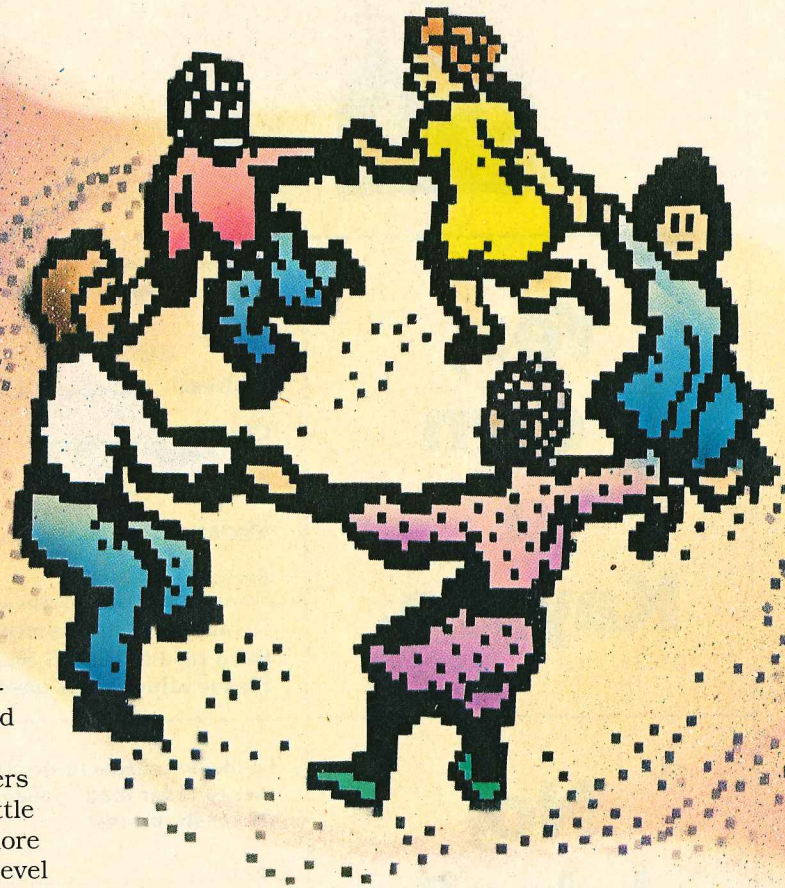
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# Reinventing The Daisywheel

It can do a lot more than most people think

by J. Russell Lemon



In today's business world you're often judged primarily by the printed page you produce. Business plans, resumes, or reports are the first, and sometimes only, chance you get to impress your audience. Dot-matrix output is simply not acceptable in this environment and few of us can cost-justify a laser printer.

That leaves us with the same letter-quality printers that businesses have relied on for years. With a little bit of creativity these printers can provide a lot more than most people think, including graphics and a level of control over character or line spacing that most didn't think was possible outside of a typesetting shop.

Modern printers are actually small, dedicated computers that do nothing more than print symbols on paper. The data and commands that you send to a printer control what is printed and how it looks. The commands to which a printer responds are called its "command set." While many command sets are possible, the printer industry often uses an existing command set when designing a new printer. Emulating

(imitating) a popular command set allows new printers to operate with existing software and appeal to a wider market.

## *Diablo compatibility*

Just as Epson emulation is popular for dot-matrix printers, Diablo control codes are used by more letter-quality printers than any other command set. The original letter-quality printer sold by Kaypro (a Juki

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6100) emulated the Diablo command set. The Juki has now been replaced by the NEC ELF, which also responds to the Diablo command set as well as NEC's own command set. Which set the NEC responds to is determined by the settings of a bank of dip switches on the back panel of the printer. The default setting, as delivered to end users, is for Diablo emulation.

Part of Diablo emulation is the ability to exercise precise control over both paper and carriage movement. The carriage moves horizontally in 1/120th-inch steps, and the paper moves in 1/48th-inch increments. This degree of control allows you to print with a variety of character spacings, regardless of what print element you've installed. Using different elements—named by the style (font) and size (pitch) of their type (e.g., Courier 10)—gives you the final measure of control over the output of your printer.

### The WordStar connection

WordStar is one of the most popular word processing programs in the microcomputer industry. It can control almost anything your printer is capable of doing—if you let it know what printer you're using. The version of WordStar distributed by Kaypro comes in a semi-uninstalled form. It already knows Kaypro's video protocol, but it comes with a "standard" (generic) printer selected as the default output device. This "standard" printer does not support variable character widths or line heights, subscripts, superscripts, or micro-justification.

If you have a Diablo printer or a compatible (such as Kaypro's letter-quality printer, or one from Gume, Morrow, Silver Reed, or Comrex) you can install the correct printer driver by running WINSTALL and selecting "DIABLO 630" as your printer. At that point WordStar will support all the features (except graphics, which is covered later in this article) that your printer is capable of supporting.

### Matching pitch to font size

To get the optimum from your printer's output, character spacing (the distance between characters) should match the character width (pitch) of the type element used. WordStar was designed to control character spacing in the same increments (1/120th of an inch) as your letter-quality printer, assuming your printer emulates the Diablo 630 command set. WordStar's default character spacing is 10 characters per inch (cpi). You can override the default setting with a character width dot command (.CW). The command for 10 cpi is **.CW 12** (12/120ths of an inch); for 12 cpi, it's **.CW 10** (10/120ths), and for 15 cpi it's **.CW 8**.

You can also alter line spacing (the default is six lines per inch) with another dot command. WordStar can change line spacing (which it calls line height) in the same 1/48th-inch increments that your printer uses. The dot command for six lines per inch is **.LH 8** (8/48-inch); for eight lines per inch it's **.LH 6**. When using a 15 cpi type element, you may want to reduce line height to eight lines per inch (.LH 6) to match the smaller character size you get using that type element.

You can stretch these rules a bit and "scrunch" a page by reducing the character width and/or line height by one increment. In Figure 1, below, a 10 cpi type element is shown with character spacings of from 10 to 14/120ths of an inch. At 10 cpi, 12/120ths is optimum, but 11 is all right if you need the room. Less than 11/120ths is unacceptable because the characters start overlapping or printing too closely together to be read easily.

This Courier 10 is expanded. (.cw 14)  
The quick brown fox jumps over the lazy dog.

This Courier 10 is slightly expanded. (.cw 13)  
The quick brown fox jumps over the lazy dog.

This Courier 10 is at design (ideal) pitch. (.cw 12)  
The quick brown fox jumps over the lazy dog.

This Courier 10 is slightly compressed but OK. (.cw 11)  
The quick brown fox jumps over the lazy dog.

This Courier 10 is compressed too much to be acceptable. (.cw 10)  
The quick brown fox jumps over the lazy dog.

In Figure 2, below, a 12 cpi script type element was used. For this style of type, 10/120ths is best. Script is much less tolerant of character width variations because the characters are connected.

This Script 12 is slightly expanded. (.cw 11)  
The quick brown fox jumps over the lazy dog.

This Script 12 is at design (ideal) pitch. (.cw 10)  
The quick brown fox jumps over the lazy dog.

This Script 12 is slightly compressed and a bit close. (.cw 9)  
The quick brown fox jumps over the lazy dog.

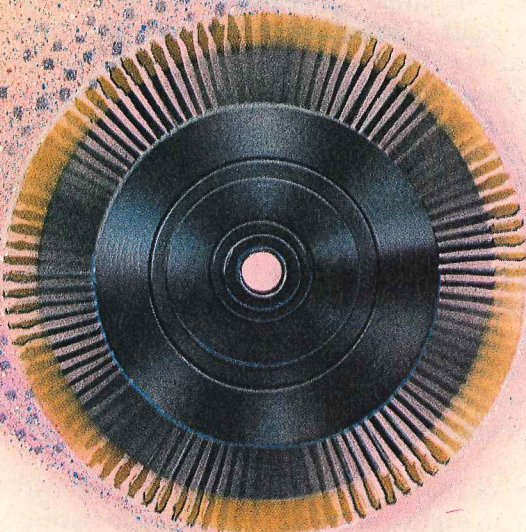


Figure 3, the final example, below, shows a 15 cpi type element. Great for lawyers.

#### FIGURE 3

This Gothic Mini 15 is slightly expanded. (.cw 9)  
The quick brown fox jumps over the lazy dog.

This Gothic Mini 15 is at design (ideal) pitch. (.cw 8)  
The quick brown fox jumps over the lazy dog.

This Gothic Mini 15 is slightly compressed and a bit close. (.cw 7)  
The quick brown fox jumps over the lazy dog.

Most Diablo-compatible printers have an optional proportional spacing mode. Proportional spacing means that each character is printed using only the space it needs (in proportion to its width). The pitch of a proportional type element is often labeled PS, since a proportional font actually has several different pitches. Proportional spacing usually looks better than the fixed spacing of other type elements, but special software is needed to get the best results. (*Editors' note: Several of these software packages were covered in "Beyond Letter Quality," PROFILES, February 1986.*)

A wide selection of fonts (type elements) is available for most daisywheel printers. What you buy will depend on your needs and personality. Many users buy several type elements, using 10 or 12 cpi for letters and 15 cpi for wide program listings. Special fonts for

printing Italics or Greek characters, or for Optical Character Recognition (OCR), are available for many printers. Fonts are even available for foreign languages; these include special characters and the necessary diacritical marks.

#### Graphics with a daisywheel? Yes, but . . .

WordStar is not the only way to take advantage of your printer's capabilities. For the sake of completeness, it should be noted that some commercial graphics programs, such as Rembrandt and SCS-Draw, support Diablo-compatible daisywheel printers as well as popular dot-matrix command sets. However, this sort of use is hard on daisywheel printers, and the programs are

*Many users buy several  
type elements . . . special  
fonts for foreign lan-  
guages are available.*

generally intended for use with dot-matrix printers. Printing graphics with a daisywheel printer is a slow operation, so printing full, bit-image pictures is not recommended.

#### Plotting possibilities

Your printer can become a plotter by using advanced programs written in MBASIC or Turbo Pascal—assuming it supports the Diablo "graphics mode," as do the Juki and NEC. (Not all Diablo-compatible printers support its graphics mode.) Scatter or bar charts can certainly spruce up an otherwise dry report, and simple graphics such as these do look better when produced by a daisywheel printer.

Diablo graphics mode has instructions to print a character, move the paper up or down, and move the carriage left or right. Vertical lines can be drawn with the vertical bar key "I"; horizontal lines can be done with the hyphen or underline characters; curved lines can be drawn with a series of dots.

Enter the Diablo graphics mode by sending the command **ESCape 3** to the printer. Then a **Line Feed** will move the paper up 1/48th of an inch, and **ESCape Line Feed** will move the paper down 1/48th of an inch. **Space** will move the carriage right 1/60th of an inch and **Backspace** will move the carriage to the left 1/60th of an inch. In graphics mode, characters are printed without carriage or paper movement, so you have to explicitly move the carriage after printing each character. Exit graphics mode with **ESCape 4** or a **RETURN**.

An example of Diablo graphics using polar coordinates is shown in Figure 4, below. The program listing which follows it (Listing 1) is the Turbo Pascal source code used to produce the figure.

## Write-Hand Man

*"Almost a Sidekick for CP/M"*

Ted Silveira—Computer Currents, Aug. 27, 1985

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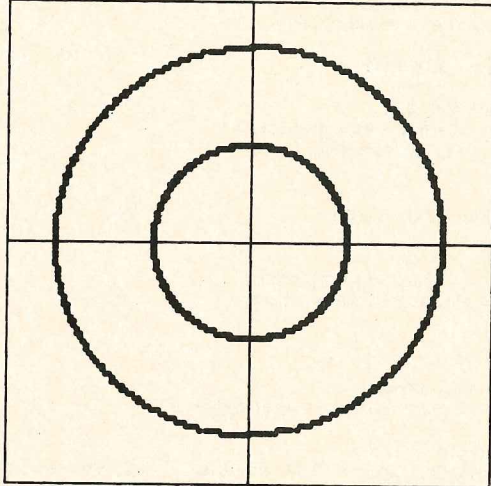
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FIGURE 4



LISTING 1: Turbo Pascal code for graphics

```
{ This is a program to output lines & circles }
{ to a Diablo 630 Compatible daisywheel printer }
program PlotPkg;
var
  I,H,V,XY: Integer;
  LocV,LocH,LocEnd,
  Radius,Ang,II,XX,YY,ZZ: Real;
```

```
Procedure Init; { enter graphics mode }
begin
  Write(LST,' ');
  Write(LST,Chr(27),'3');
  V:=0; H:=0;
end;
Procedure Move; { move printer position }
begin
  X:=Round(XX);
  Y:=Round(YY);
  while X>H do begin
    H:=H+1; Write(LST,Char(32)); end;
  while X<H do begin
    H:=H-1; Write(LST,Char(8)); end;
  while Y>V do begin
    V:=V+1; Write(LST,Char(10)); end;
  while Y<V do begin
    V:=V-1; Write(LST,Char(27),Char(10)); end;
end;
Procedure Horz; { make a horizontal line, right to left }
begin
  XX:=LocH+4.25; YY:=LocV+5.5; ZZ:=LocEnd+4.25;
  XX:=XX*60.0+3.0; YY:=YY*48.0; ZZ:=ZZ*60.0-3.0;
  Repeat move; XX:=XX+6.0; Write(LST,'_'); Until XX > ZZ;
  XX:=ZZ; move; Write(LST,'_');
end;
Procedure Vert; { make a vertical line, top to bottom }
begin
  XX:=LocH+4.25; YY:=LocV+5.5; ZZ:=LocEnd+5.5;
  XX:=XX*60.0; YY:=YY*48.0+8.0; ZZ:=ZZ*48.0;
  Repeat move; YY:=YY+8.0; Write(LST,'|'); Until YY > ZZ;
  YY:=ZZ; move; Write(LST,'|');
end;
Procedure Dot; { printer graphics routine }
begin
  XX:=XX+4.25; YY:=YY+5.5;
  XX:=XX*60.0; YY:=YY*48.0+2;
```

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## DAISYWHEEL

```

move;
Write(LST,');
end;
Procedure Circle; { make circle }
begin
  For I:=0 to 180 do begin
    II:=I;
    Ang:=Pi*II/180;
    XX:= Radius*Sin(Ang)+LocH;
    YY:= -Radius*Cos(Ang)+LocV;
    Dot;
  End;
  For I:=0 to 180 do begin
    II:=I;
    Ang:=Pi*II/180;
    XX:= -Radius*Sin(Ang)+LocH;
    YY:= -Radius*Cos(Ang)+LocV;
    Dot;
  End;
end;
{ this is the main program }
{ all locations in inches from paper center }
begin
  Init;
  LocH:= 0.00; LocV:= 0.00; Radius:= 1.00; Circle;
  LocH:= 0.00; LocV:= 0.00; Radius:= 0.50; Circle;
  LocH:= -1.25; LocV:= -1.25; LocEnd:= 1.25; Horz;
  LocH:= -1.25; LocV:= 0.00; LocEnd:= 1.25; Horz;
  LocH:= -1.25; LocV:= 1.25; LocEnd:= 1.25; Horz;
  LocH:= -1.25; LocV:= -1.25; LocEnd:= 1.25; Vert;
  LocH:= 0.00; LocV:= -1.25; LocEnd:= 1.25; Vert;
  LocH:= 1.25; LocV:= -1.25; LocEnd:= 1.25; Vert;
End.

```

## Final words

Letter-quality printers were designed to produce documents with the professional appearance required by the business community—hence the name “letter-quality.” Letters, however, are not the only documents that can be enhanced by using a daisywheel printer, as this article demonstrates. With the right combination of commands and type elements, your daisywheel can plot, graph, create charts, and more. Use it to make that first impression a positive one. 

Russ Lemon is a senior engineer at Kaypro Corporation.



“He’s weak in computer skills, but otherwise he’s a great father.”

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1. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
2. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
3. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
4. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
5. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
6. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
7. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
8. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
9. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
10. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
11. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
12. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
13. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
14. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
15. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
16. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
17. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
18. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
19. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
20. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
21. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
22. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
23. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
24. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
25. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
26. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
27. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
28. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
29. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
30. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
31. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
32. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
33. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
34. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
35. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
36. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
37. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
38. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
39. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
40. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
41. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
42. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
43. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
44. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
45. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
46. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
47. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
48. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
49. Menswear	238.0	13.0	225.0	12.0	228.0	12.4	211.0	11.5	205.0	11.2	198.0	10.8	192.0	10.5	185.0	10.2	178.0
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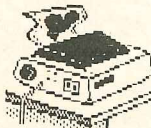
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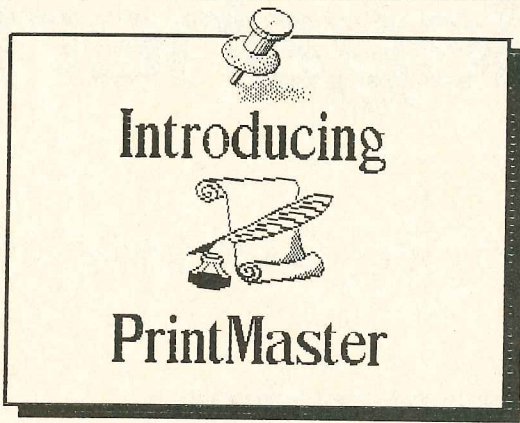
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# Megahertz Madness

*Electrify your Kaypro II with more speed and storage*

by Fred L. Ray

If you have an older Kaypro II ('83 series), you may have started to outgrow it. After all, it only stores 191K per drive and runs at a snail-like 2.5 megahertz. Maybe you've looked at a Kaypro 10 or 16 but just can't justify the price. Take heart; kits are available that allow you to convert your old II (or IV) into a machine that runs faster than the newer CP/M machines. Other upgrade kits let your improved machine store up to 784K per drive—more than any of Kaypro's current machines, except those with hard disks. Nor are you limited to two drives; you can run up to four floppy drives for even more storage.

So how much trouble and expense is all this, and how will it affect the day-to-day operation of your computer? If you have a Kaypro II, the cost to double your computer's speed and add two quad-density drives will probably be about \$300 to \$500. Most of the bundled software will still be usable (the only exceptions are the copy and format programs), and the machine will really fly on spreadsheets and spelling checkers. It's great to be able to have drive A contain NewWord (or WordStar) *plus* a spelling checker and a heap of utilities.

This article covers two kinds of kits—speed-up kits that increase the computing speed to four or five megahertz, and drive upgrade kits that allow you to install double-sided drives, either double- or quad-density. Obviously you get the most benefit by installing both kits together, although either type of kit can be used independently of the other.

Most of these kits can be installed by people with minimal skills. You need to know how to follow directions and, in some cases, how to solder, but you don't need to know anything about how the computer works. As you'd expect, some kits are easier to install than others, and there is a wide range of prices.

On which Kaypro models can you use these kits? Generally, the older the Kaypro II you have, the better off you are, since earlier models had all the IC chips socketed rather than soldered into the main board, making them considerably easier to modify. (If you

need help with some of the terms used here, refer to "Beginner's Luck" in the November 1985 *PROFILES*.) In 1984 Kaypro changed the main board to one based on the Kaypro 10 and increased the operating speed to 4 MHz. These later machines are usually referred to as 4'84s (or '84 series) and can be identified by the two serial ports on the rear. This article will cover '83 series Kaypros only, although drive upgrade kits are available from the same vendors for newer Kaypros.

In order to assess the difficulty of installing these kits, you first need to find out what kind of main board is in your Kaypro. To do this, just remove the cover and look (*be sure the power is off first*). Merely looking at the machine's serial numbers won't tell you much, because if it has ever had warranty service, the main board may have been swapped. Are all the chips, including the smaller ones, installed in sockets? If so, you have an early board that will take the "plug-in" kits. If the smaller ICs are soldered in, you have a later board, and it will take some cutting and soldering to install most of the kits.

Now plug the computer back in, turn it on, and look at the message on the screen (*don't touch anything inside*). If it says "Kaypro II" you have a "II" board, and if it says "Kaypro" you probably have a "IV" board. Another, less easy check is to take the board out and look at the number silkscreened on the front left corner. If it says "PC81-240," it's a IV board.

## **Speed-up kits: a selection**

Since the Kaypro already has the circuitry built in to run at twice its normal speed (5 MHz vs. 2.5 MHz), this modification is relatively simple. At 5 MHz the computer will process information *in the computer's RAM* twice as fast as at 2.5 MHz. Thus operations that require a lot of math, or other memory-intensive operations, will be done in half the time. Operations that require a lot of disk accesses, such as the normal operation of WordStar, will run faster, but not twice as fast, since the time required for the disk drive to search for and transfer information is not affected by install-

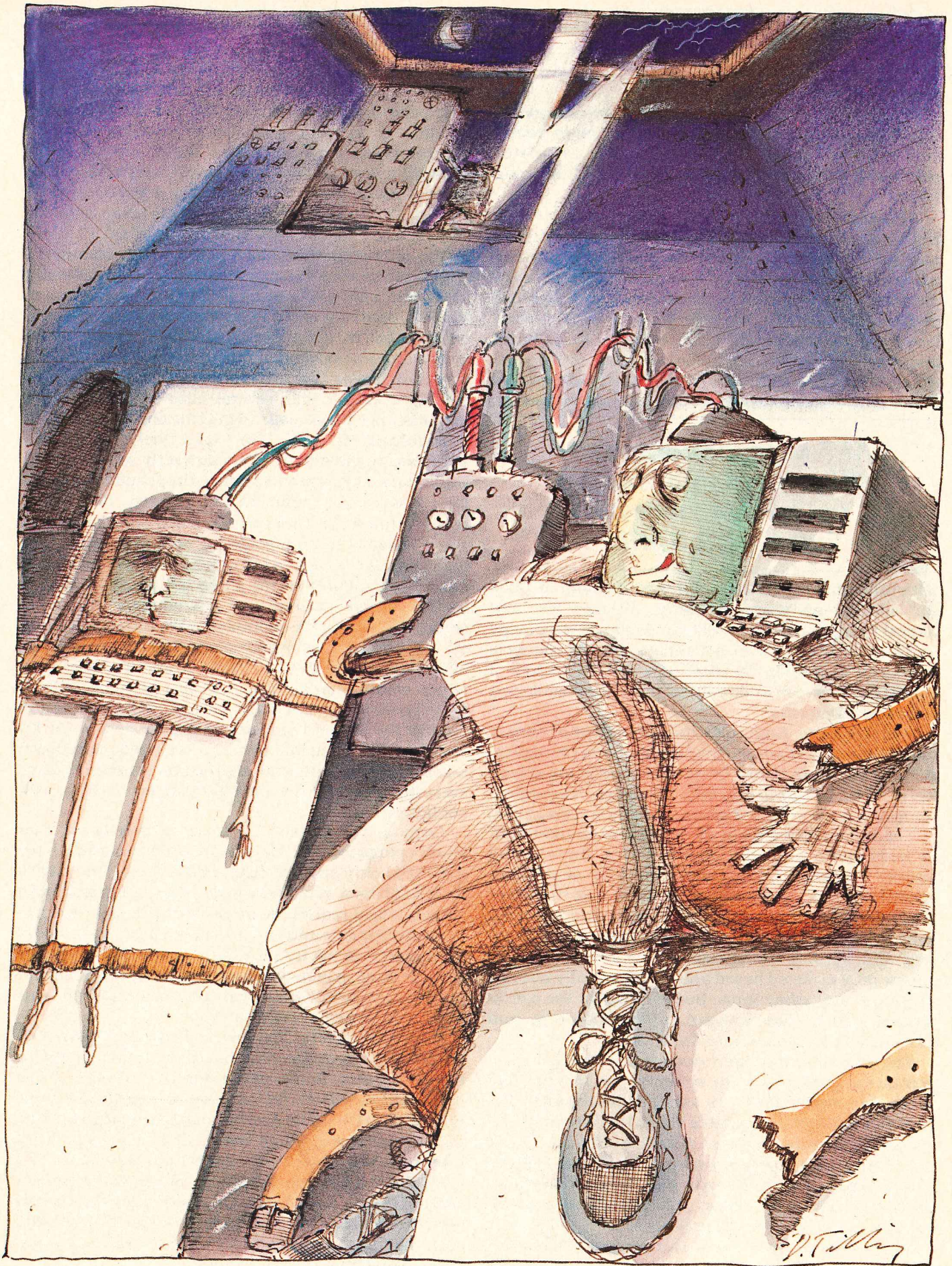


ILLUSTRATION BY DEBBIE TILLEY

ing a speed-up kit.

Speed-up kits can be divided into two categories: those that directly modify your existing main board, and kits that replace the CPU and some associated chips with a small board installed on top of the main board.

Although the circuitry on the main board is easily changed to increase operating speed, some of the chips may not be able to handle the faster speed, especially when they get warm. If so, you may have to replace the memory chips and some of the communications chips (mainly the Z-80 SIO that talks to the keyboard) with faster ones. Replacing the chips is simple to do, but it does add about \$20 or \$30 to the cost of the conversion. About 80 percent of Kaypros will run at the faster speed

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*At 5 MHz the computer  
will process information  
in its RAM twice as  
fast as at 2.5 MHz.*

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with no problems. Mine did not, and it began to "lock up" when it got warm. Installing the new SIO and memory chips cured the problem. Some software (copy and format programs are sensitive to timing changes) won't run at 5 MHz, so these kits usually include a small toggle switch to slow down the system while you run these programs.

*(Editors' note: Kaypro Corporation cannot recommend, nor does it support, any permanent modifications to the main board to increase operating speed. Neither can it supply any help should such modifications result in impaired operation of your computer.)*

The add-on board is a more convenient method, both in installation and use, than altering the existing circuitry. Add-on boards automatically slow down enough to "talk" to the slower chips such as the SIO or memory. They eliminate software compatibility problems by providing their own programs for disk formatting and system configuration. Installation is very simple on a socketed board and there's usually no need to change any other chips. But you pay for the convenience; most of these kits are in the \$100 range and introduce "wait states" into the system.

The wait states (actually pauses inserted at critical points) are used to slow the system down so it can talk to slower components (such as the keyboard SIO). The presence of these wait states slows the overall "real" speed of operation to about 4 MHz or slightly less. A potential disadvantage of add-on boards is that if you plan to add any other boards, such as a video board, hard disk, or co-processor, you may have physical interference or interfacing problems.

*Micro Cornucopia.* Micro Cornucopia ("Micro-C") doesn't offer a kit per se, but a set of instructions

expanded from an article in the June 1983 issue of *Micro Cornucopia* magazine. You buy the parts yourself and go to work. Installation involves replacing several chips with later and faster ones, cutting through a trace on the main board, and soldering in some jumper wires and installing a speed selector switch. The attractive thing about this route is the low cost (\$35 to \$50 for chips, switches, and all).

The only stumbling block is the documentation: It appears to be aimed at experienced, hardware oriented users and is not adequate for the novice—something all Micro-C products seem to have in common. If you're comfortable with electronic kits and already know something about Kaypros, you can save money this way. Otherwise, I'd advise trying one of the pre-packaged kits. It took several false starts and some long-distance phone calls to get this one operating.

*Highland Microkit.* Dan Carl's finely crafted kits were easy to install and worked exactly as advertised. Highland is a garage operation in the grand tradition of microcomputing (some of the biggies, like Apple, started that way). Carl's kits are designed to plug in when possible to keep soldering to a minimum. The instructions are easy to follow, and Carl will be glad to talk to you about it on the phone, although he doesn't have a toll-free number and he's sometimes hard to catch. Highland's kit—complete with chips, switches, etc.—is \$59.95. Carl recommends that you use a faster ROM with his speed-up kit (he recommends Micro-C's), which would increase the total cost by about \$35 to \$40. Thus, if you added the Micro-C ROM and had to change the SIO and memory chips, the cost of the kit would top \$100. Installation on a socketed main board takes about an hour and requires no soldering. Since everything plugs in, it's simple to convert back to stock configuration.

*Legacy.* The Legacy kit is an add-on board that simply plugs into the main board after you remove the Z-80 CPU chip and one other chip. If you don't have a socketed board, you'll have to desolder a chip and add a socket, which requires some soldering. Legacy's directions are first rate and easy to follow, and this was one of the simplest of the tested kits to install. At \$118 it was also the most expensive. But if ease of installation and plug-in compatibility are your primary concerns, this kit merits serious consideration.

*Advent Products.* The Advent TurboBoard (\$74.95) is another plug-in speed-up board that is popular with Kaypro owners. To install the Advent TurboBoard you must shift your Z-80 CPU to Advent's board and disable pin 8 of chip U67. The Advent board then plugs into the CPU socket of your main board. If your main board is fully socketed, it's a simple matter to remove U67 and bend pin 8 up so that it will no longer make contact when the chip is replaced. On a soldered main board Advent's manual recommends desoldering the chip and installing a socket. Most users simply cut pin 8 with a small pair of wire cutters.



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Installation instructions for the Advent board include photographs to help you identify components on your main board and on Advent's board. Ease of installation and product quality is equivalent to the Legacy kit. A more complete review of this board appeared in "Reviewing the Advent TurboBoard" by David Schall in the December '84/January '85 issue of *PROFILES*.

### **Install new drives for more storage**

Kaypro II disk drives write to only one side of the disk and limit your storage to 191K per disk. A quick way to double drive capacity to 392K is to install double-sided drives like the ones used on a Kaypro IV. You can double disk capacity again by going from standard 48 tpi (tracks per inch) drives to quad-density (96 tpi) drives, which increase storage to almost 800K. (For a more detailed discussion of tracks, sectors, etc., see Ted Silveira's "DU to the Rescue," September 1985, *PROFILES*).

If quad-density is better, why doesn't everybody use it? One reason is that since the tracks are only half as wide as on a double-density disk, the drive alignment and the quality of the diskettes are much more critical. A second, more practical reason is that a machine with double-density drives cannot read quad-density disks, which limits information interchange and complicates software distribution.

One solution to the second problem is to use a quad-density drive as drive A to hold the word processor, spelling checker and utilities, and then use a double-density drive in B to hold data. My own solution was to use three drives—a quad-density as A, a double-density as B, and another quad-density as C. This way I can read or write to any format. If you have an early II with full height-drives and convert it to half-heights (recommended), you have room for four drives.

Kaypro's power supply will run either two full-height

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### ***If quad-density is better, why doesn't everyone use it?***

"full-power" or four half-height "half-power" drives. I used two half-height half-power Mitsubishi 4853 quad-density drives and a 2/3 height "full-power" Canon double-density drive. I bought the Canon as surplus for less than \$50 and was able to get the quad-density drives for less than \$100 each. If you shop around you may still be able to find new quad-density drives for about \$100 each.

You should have already figured out which main board your Kaypro has; now you need to know what's needed to upgrade to larger capacity drives. If you have a Kaypro II board, you must add a "side-select" circuit

and change the ROM (the Kaypro II ROM doesn't know about double-sided drives) before you can install the new drives. If your machine has a Kaypro IV board, the side-select circuit is already there and only the ROM and the drives need to be changed. The ROM chip contains the information on what kind of drives the computer will expect (i.e., double- or single-sided, and double or quad-density), so you must select a ROM that will handle the drives you plan to use.

*Micro Cornucopia.* The Micro-C kit is a frustrating blend of product excellence and instructional brevity, although it is very reasonably priced at \$49.95. Their ROM is one of the best I tested. It runs flawlessly at 5 MHz, handles double- or quad-density drives in any combination, and has a screen dump, a choice of cursor shapes, and the ability to set the drives' step rates. It comes with a disk full of formatters and utilities and runs ZCPR1 (in ROM) and CPM 2.2E with no problems. Add Micro-C's plug-in decoder board (\$39.95) and you can run up to four double- or quad-density drives. It will also read and format disks for single- or double-sided drives, either double- or quad-density (assuming you've installed quad-density drives) and determine the disk format automatically. It also allows you to have up to 96 directory entries instead of 64.

Installing the kit requires soldering some jumper wires for the side-select circuit (on the Kaypro II main board), plus replacing the ROM and one other chip. Instructions are marginal for novice computer users. You get a ten-page "manual" that assumes a good deal of knowledge on the part of the person installing the kit. The folks at Micro-C are very helpful on the phone but they're only available four hours a day and they don't have an 800 (toll-free) number.

*Highland Microkit.* Highland offers a plug-in side-select board for the Kaypro II owner with the socketed main board. Kits for later (non-socketed) boards require some cutting and soldering but remain within the capabilities of users who know how to solder electronic components. Instructions are adequate and it's pretty hard to get things wrong. Dan Carl does not include a ROM and recommends the Micro-C unit. A Kaypro IV ROM can be used to keep the cost down if you'll be using double-density drives. This kit rates very high in quality of construction (it has gold-plated contacts) and ease of installation. At \$29.95 it is an excellent value, although the cost of a ROM chip must be added to the total cost of the kit.

*Legacy.* Legacy's approach to drive upgrades is quite different from its approach to speed-up boards. Its kit consists of a ROM chip, a spool of fine wire, and instructions. Installation requires cutting several traces on the circuit board and soldering some jumper wires. The instructions are unusually well written and clear, and Legacy has an excellent technical staff available to answer questions. They'll bail you out if you mess it up, or they'll install the kit for you if you prefer. This kind of technical backup must be kept in mind

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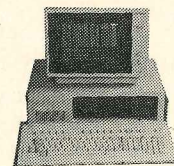
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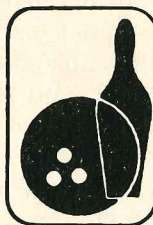
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### MHZ MADNESS

when evaluating the kit's \$118 price.

There are a few disadvantages, though. Legacy has chosen a non-standard disk format, which means that probably no one else will be able to read your disks, and although the Legacy ROM will read standard Kaypro format disks, it won't read anyone else's format (like Micro-C's). Legacy's format does allow up to 128 directory entries, which is handy if you have a lot of small files.

Legacy supplies its own operating system, which is not as flexible as some of the others, although it's certainly adequate. Plu\*Perfect Systems' CPM 2.2E can be patched to work with the Legacy ROM, although it increases the expense by \$40 or so.

**Advent TurboROM.** The Advent TurboROM will automatically recognize, read and write to Micro-C format disks and several others, including Kaypro single- and double-sided formats. The TurboROM is designed to run either with a modified version of CP/M 2.2E (the software is included to modify 2.2E if you already have it) or with ZCPRI, which, along with a couple of very useful utilities, comes with it. Advent's disk format permits an astonishing 256 directory entries.

The instructions are slanted towards experienced users, but less so than Micro-C instructions, and Advent's technical support is first rate. Installation

requires some simple soldering (unless you use Advent's decoder board) and chip changes. The TurboROM costs \$79.95, and Advent's decoder board (\$39.95) is required if you want to run quad-density drives and recommended for double-sided drives on the Kaypro II main board. (Advent's decoder board provides its own side-select circuitry, so no jumpers need to be soldered to your board.) With the decoder board the Advent TurboROM supports up to four drives in any combination.

The TurboROM forms an excellent base for future expansion, since it will support Advent's real-time clock, their hard-disk upgrades, and Advent's RAM disk. The TurboROM quickly became my personal favorite, and in my opinion it's the best value for the money.

The choice of kits is up to you. The scariest part is taking off the cover for the first time. But if you're looking for a quick way to make your old Kaypro II bigger, faster, and better, this is the way. (See related material on next page.)

*Freelance author and photographer Fred "Slim" Ray lives in the mountains of western North Carolina, where he runs a photo service. He is a frequent contributor to outdoor magazines, a contributing editor for Canoe magazine, and co-author of the book River Rescue.*

## Getting Help

One thing I've deliberately skipped over in this article is saying *who* can install a kit. There isn't any definite answer. I started this evaluation with little knowledge other than how to solder. Getting some of these kits operational was frustrating and required a lot of time on the phone. Each kit, and much of the hardware, has its own idiosyncrasies, and none of the kit suppliers can tell you exactly what will work with what, although each kit has its strong points.

For instance, when using the Mitsubishi quad drives with the Micro-C ROM, the "cookie" in the floppy disk housing must be carefully centered or it won't boot or read. With the Advent TurboROM you must put the disk in after turning on the computer but before the drives come on . . . and so on.

There are several ways to get around this. One is *the friend who knows what he's doing*. Approach this one with caution unless you've seen some of his work and are qualified to judge.

Another is *the friendly dealer*. Be aware, however, that many dealers would rather sell you a new machine, and a lot of them won't know much more about upgrades than you do. Kaypro gives most dealers a simple set of diagnostics and tells them to change a

board if it fails. It's up to each dealer to determine how knowledgeable his employees are and how much technical support he is willing to deliver.

The major exceptions are the vendors who make the kits. Most of them will make every reasonable effort to bail you out if you run into trouble. Most are a bit optimistic in their claims about how long installation will take, so don't get into upgrading your Kaypro the week before an important deadline.

Probably the best source of help is *the users' group*, provided you can find one that is hardware oriented. A strong KUG can provide the kind of technical assistance that makes learning to modify your Kaypro a rewarding experience.

Space does not permit a complete discussion of where to get parts. Many of the kits come without the drives and other important parts, like cables. My recommendation for finding the best prices is to subscribe to *Computer Shopper*, (\$15/year, P.O. Box F, Titusville, FL 32781). Quad-density drives, for example, are frequently advertised in it for under \$100. I bought an excellent surplus DSDD Canon drive for under \$50. As the computer market goes increasingly to MS-DOS, older equipment is being dumped on the market at very

*(continued on next page)*

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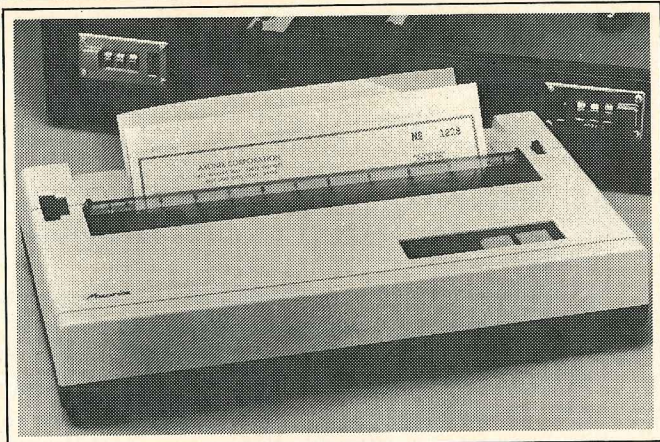
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Dallas, TX 75243  
(Electronics odds and ends, including surplus Kaypro parts such as keyboards, CRTs and main boards)

**Wolff Computer**  
901 E. Plano Parkway, #117  
Plano, TX 75074  
(Good source for new or used drives and other hardware)

### **Quick Reference Summary**

**Manufacturer:** Micro Cornucopia  
P.O. Box 223  
Bend, OR 97709

**Phone:** (503) 382-5060  
**Prices:** Pro 8 Package \$49.95; decoder board \$39.95

**Manufacturer:** Highland Microkit  
P.O. Box 21B  
Highland, MD 20777  
**Phone:** (301) 854-0115  
**Prices:** Super Speed Up \$59.95; disk drive upgrade \$29.95

**Manufacturer:** Legacy Computer Systems  
P.O. Box 2599  
Monterey, CA 93942-2599  
**Phone:** (408) 373-6191  
**Prices:** CPU Hop Up kit \$118; disk drive upgrade \$118

**Manufacturer:** Advent Products  
3154-F E. La Palma Ave.  
Anaheim, CA 92806  
**Phone:** (800) 821-8778, in CA (800) 521-7182  
**Prices:** TurboROM \$79.95; decoder board \$39.95;  
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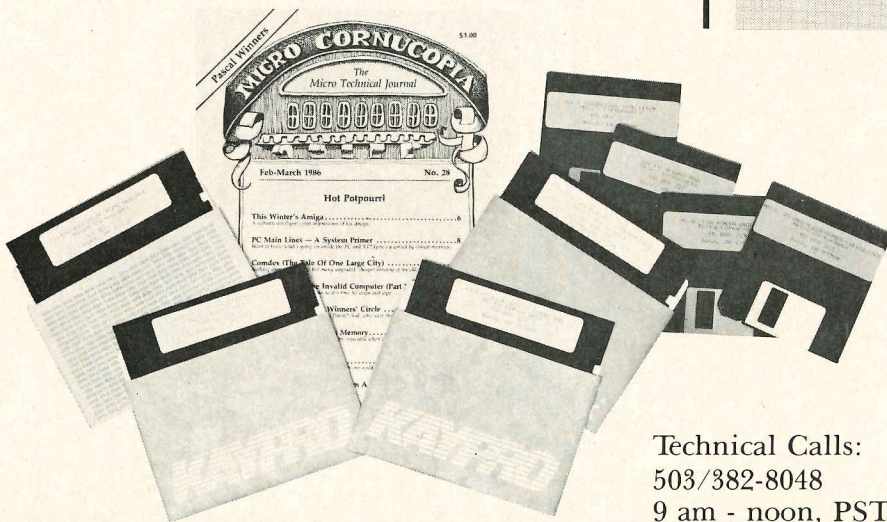
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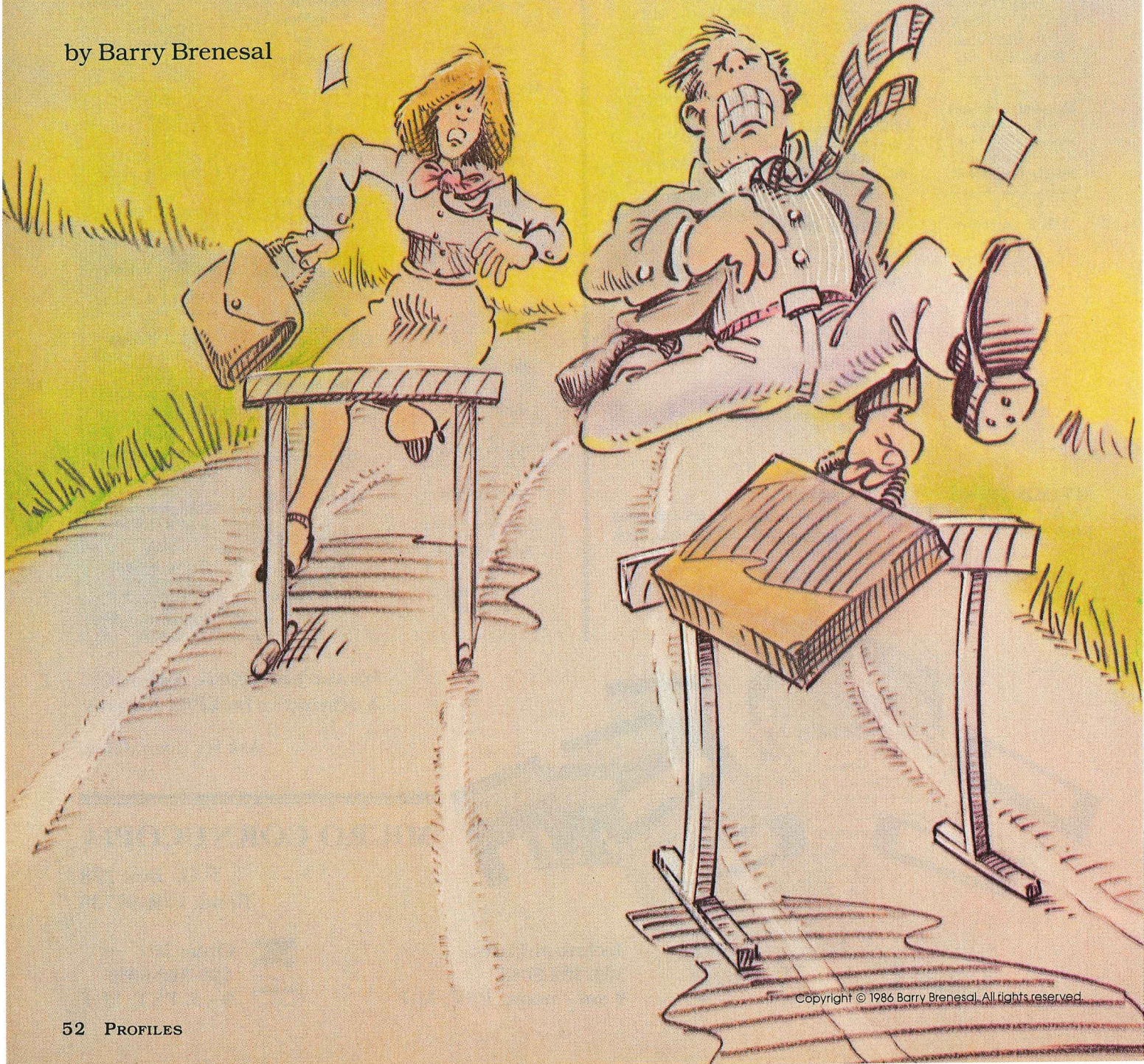


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# Business Games

*Gain that competitive edge using simulation software*

by Barry Brenesal



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“Computer games? I don’t play games on my computer.” The voice belonged to an engineering professor, a friend of mine in his mid-40s, although at that moment I could have sworn I was speaking with a gilded 18th-century French aristocrat.

“But these are not just your ordinary games,” I protested. “One of them puts you in the role of a bank president, making 40 decisions and reviewing more than 70 graphs in three-month increments.”

“Oh, well, that’s not a game. It’s a business simulation. Bring it over and I’ll try it out.”

The upshot was that this hardboiled elitist (who installed a lock on the family computer to prevent his children from buying and playing Asteroids) became so involved in the intricacies of Lewis Lee’s “Bank President” that I had to sneak my copy back out of his house by way of his wife.

### *New markets for new times*

The business simulations market is relatively young, even by computer industry standards. The sale of computers as either super arcade games or expert file managers tended at first to obscure its immense potential as a teaching device.

These tools do exist now, in this instance taking the form of several superb software packages that provide a basic education on investments and corporate planning, using every-

thing from simple supply-and-demand examples to complex strategies for achieving early, wealthy retirement. Because researchers have finally determined what we instinctively knew all along—that the ability to learn is dramatically increased when our imaginations are engaged—it is natural that these new tutorials took the form of games.

Computer-designed models allow students, trainees, and ordinary folks with a spark of curiosity to learn many of the principles governing the stock market, commodities trading, real estate investments and banking. Call them games or simulations, they make learning about business fun.

### *Capitalism for kids*

Starting simply, we have Scarborough’s “Run For The Money,” available for DOS machines. It was created by Tom Snyder Productions, well known in the arcade software field for conceptual originality and clever design. In “Run For The Money,” a delightfully outlandish scenario is combined with some very pragmatic economic values.

You start as a Bizling (young business person) whose spaceship has crashed on the planet Simian. You need to repaint the shield of your craft, but the paint is only available from the Paint Van, and it costs money.

What little cash you have can be used to purchase raw materials at three levels of quality. The raw materials are called “rufs,” and they are used to produce “zingers” (which look startlingly like bananas). The Simian natives will buy your zingers, paying you in local currency.

However, several factors will influence your potential for success, especially if you are competing with another Bizling (this is a two-person game, for what is society without competition?). You and your opponent can advertise on a local

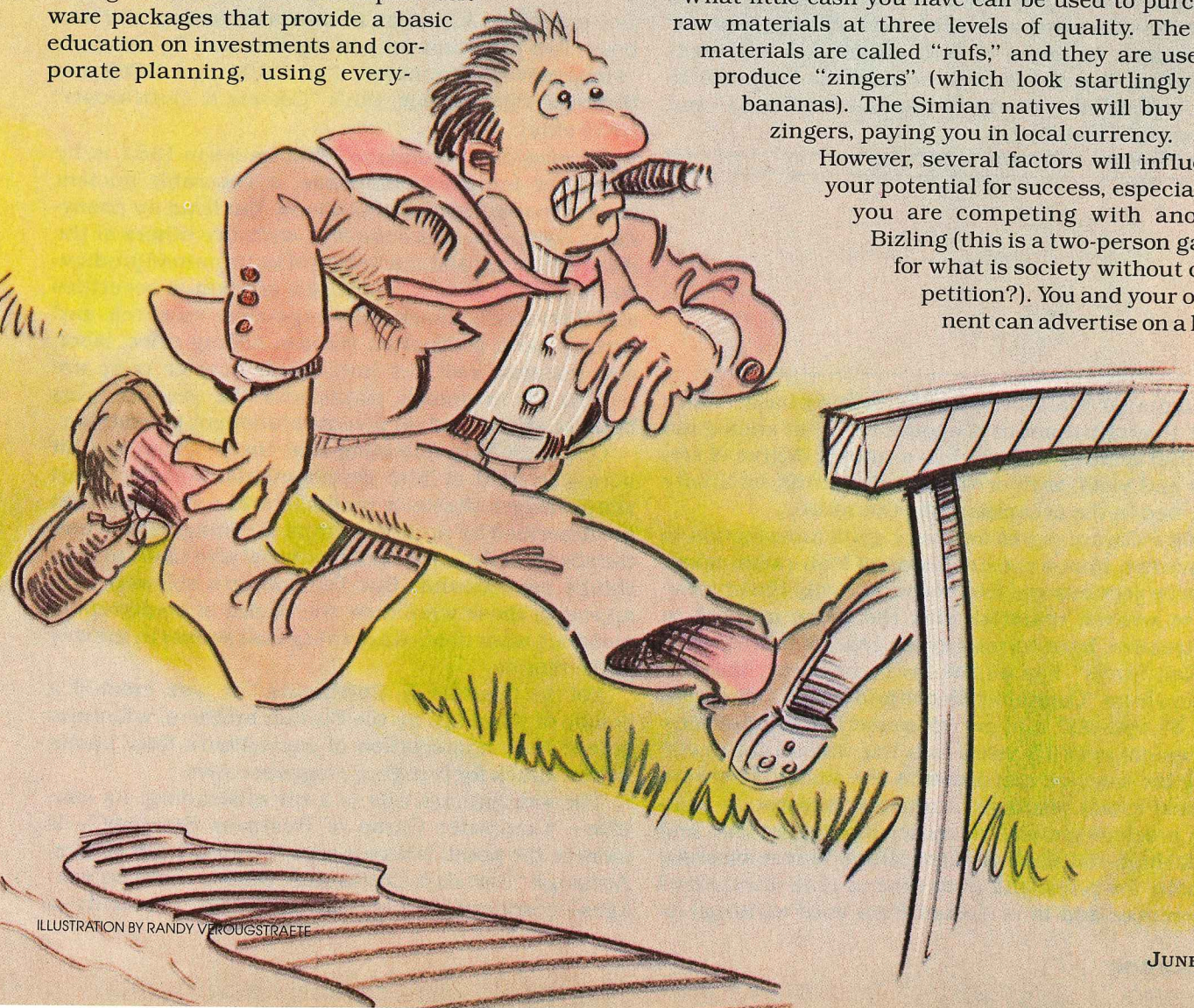


ILLUSTRATION BY RANDY VEROUSTRAETE

billboard—which will cost, but may bring results. Raw material producers can be negotiated with; and although lower quality rufs cost less, they also lower your product's esteem on the Simian market.

Simple-to-read profit graphs and a weekly economic report help awaken the Bizling's financial planning skills. The highly entertaining and clearly worded accompanying booklet also contains a sample of useful "strategies" (such as the Fly-Away Strategy, in which airlines underprice one another to increase their share of the market).

I was very impressed with this program, particularly for its whimsical setting. The same lessons of pre-planning and market approach could have been taught using the examples of two car manufacturers or aluminum siding dealers, but isn't it more fun to argue purchase costs of a ruf? Or manufacture a zinger?

A bibliography is also included, which lists a variety of fiction and non-fiction literature to develop a child's understanding of economics.

### *The stock market*

The stock market is a purely American symbol of fortune's wheel, precarious wealth, and financial defeat. It is the most accessible sort of investment for most people, in terms of both availability and comprehension. Two simulations exist for the Kaypro DOS user: Avalon Hill's "Computer Stocks and Bonds," and Timeworks' "Wall Street."

*The stock market is the American symbol of precarious wealth and financial defeat.*

"Computer Stocks and Bonds" is fairly basic. You're given a certain amount of capital to invest among ten potential securities. Each has a unique degree of stability and yield, with or without dividends, as briefly described in the accompanying literature.

This software works as a very good introduction to the market, minus the confusion of loan rates, taxes, graph projections and IRA accounts. Only the uninformative written material with the game (printed in unattractive, hard-to-read green type) is a drawback.

"Wall Street" has all the loan rates, etc., that are missing from "Computer Stocks and Bonds." You begin with \$1,000,000 and try to convert it by quarterly increments over 15 years into ten times that much. Along the way, you can invest in five stocks. There are two real estate offerings, a mineral exploration company, precious metals, the money market, an IRA, and special high-risk deals to choose from. You are assessed annually for taxes, and from time to time unexpected occurrences add to or deduct from your earnings-to-

date.

The Big Board at the beginning of each turn provides a three-letter investment identification, type of investment (color-coded), current price per share, net percentage of change since the last quarter, and the estimated annual percentage of change, if that were to become a constant for the year. There are bar charts that offer historical price information for the past 32 quarters. For those who seek extra advice, a financial advisor is available. Although the advisor does not come cheap, he is honest, well-intentioned, and a useful corrective when you stumble into trouble.

"Wall Street" is neither very hard, nor, in certain respects, very realistic. For instance, price fluctuations are largely cyclical and not determined by product breakthroughs, declared dividends, real assets, or labor disputes. But it is a sophisticated stock market construction that's both highly enjoyable and different every time it is played. I don't mean to make it sound like it's all fun; there's enough required arithmetic, logic, and long-term planning to keep the inquiring mind well exercised.

### *Own your own company!*

One part of the American Dream is becoming your own boss. Two programs let you try this out: Dynacomp's "Management Simulator" (for CP/M and DOS) and Strategic Simulations, Inc.'s "Cartels & Cutthroats" (DOS only).

"Management Simulator," first issued in 1981, is, by computer industry standards, a venerable ancient among management simulations. You head an anonymous company that competes with two others in the manufacturing and marketing of an unnamed product. You input the number of plants, amount of securities and dividends, marketing expenses, research and development, production volume, selling price, labor, and material cost per unit. Each quarter there are reports on inventory, plants and the product, plus balance sheets and an income statement to examine.

One can't help reflecting that the program is a bit boring in light of later developments. Nothing about simple ledger sheets or products and companies that are described by numbers grabs the imagination, and the absence of instructional material also tends to keep things earthbound. But Dynacomp's software will appeal to those who know the basics of bookkeeping and don't want or need anything that stands in the way of the figures.

Not so "Cartels & Cutthroats." It was created a couple of years ago by the Bunten brothers, who combine a keen appreciation of capitalism's finer points with a knack for bringing programs alive.

The simulation's title is a bit misleading; its subtitle—"Computer Game of Business Strategy"—is more to the point. Notice it says "strategy," not tactics. Although "Cartels & Cutthroats" allows—even encourages—competitive playing, it is not primarily a



---

program of power grabs and unfriendly corporate buyouts. In fact, it's really an update of the concept behind "Management Simulator."

Once again you preside over a company—this time producing either a necessity or a luxury item, or something that's a little of both. You're up against at least two other businesses (either computer- or human-controlled). Again you are planning expenditures for raw materials, production, advertising and marketing, factory building, and research and development. You can

---

*Part of the American Dream is being your own boss. Two programs let you try this out.*

---

take out loans (at fluctuating rates, based upon your company's earnings/interest ratio and the GNP) and approve special expenditures. Your personnel director tells you the labor union wants a 24 percent raise, but will accept half that, and that there's a 27 percent chance they'll strike if not dealt with—what will you do? And if you've spent enough on R&D, you might be able to automate a percentage of your operation—for an additional fee, of course. Can you afford it? Can you afford not to?

Growth in the CPI (Consumer Price Index) can drastically alter the amount of profit you derive in any particular quarter. And sometimes overseas conditions will affect access to raw materials, plunging all simulated companies into desperation, with orders unfilled, inventories exhausted, workers laid off, factories closed, and bankruptcy lurking like an IRS agent. This is clearly not a game for the squeamish and soft-hearted.

But for the rest of us, "Cartels & Cutthroats" has much of the smell of the real world. Enhancing the pleasure is a booklet that is a model of thoroughness and clarity. Also, several gaming modes have been added, including a special beginner's version (offering a financial counselor, who advises you on your problems and progress), an advanced version, and an interactive one that allows you to define several of the economic parameters in the world you're about to enter.

***From the monied class to upper class***

Manufacturing tycoons were the *nouveau riche* of the early 20th century—the new money in the land, uncultured, unsubtle, and not to be counted upon to know their place in the grand structure of things (so the landed American gentry of the late 19th century would have complained). The Old Guard had based its wealth on the stock market, commodities trading, and absentee landlordism (what we would call real estate today). They touched only paper certificates while building

empires—not money, and certainly not greasy machines or unpurified ore.

Now, thanks to Blue Chip Software, you, too, have a chance to make your fortune the good, old patrician way. In four separate, handsomely bound packets ("Millionaire," "Tycoon," "Baron," and "Squire"—for DOS machines only) you can attempt to climb the gilded stairway to financial security. The dangers of a fall are just as real as those encountered in the dockyards, but you are expected to behave in a becoming manner among the blue-bloods, even if ruined.

"Millionaire" was the first of Blue Chip's incredibly successful string of business simulations. Its formula and format have since become the standard in this software series. You begin as a Novice with \$10,000 and a choice of 15 stocks in five industry categories. As your earnings grow, you become, successively, an Investor, Speculator, Professional, and, finally, Broker. Each advancement in status gains you a practical advantage, as well—the prerogative to take out loans, buy on margin, use call options, and, finally, put options. (This increase in options reflects the greater options available to wealth in reality. Wealth breeds confidence in the one who acquires it.)

Through 77 weekly increments, you study the financial headlines and review corporate histories and price trends. Line graphs give you the pertinent statistics on each stock and industry category and the overall market itself. Your goal is to turn that initial investment of \$10,000 into \$1,000,000 by the end of the game.

"Tycoon," a commodities simulation, is very similar. Increasing status is reflected in lower margin fees, additional items to trade, and the ability to take short positions. "Baron," a real estate simulation, has less status recognition (you start with \$35,000), but a far greater selection of properties to choose from. "Squire" is, in some ways, a summation of the previous three products. Your goal (in the default mode) is to retire in 20 years with \$1,000,000. To do so, you have to invest \$70,500 in a variety of stocks, bonds, an IRA, a money market account, collectibles, commodities, personal property, loss multipliers, and annuities. The "reality" mode, on the other hand, lets you set your own timetable, defining as well your regular costs for rent or house payments, property taxes, food, insurance, medical expenses, utilities, recreation, and transportation. (This program, by the way, is very popular in many business schools.)

The most significant factor in Blue Chip's success has been its built-in program generator, a sophisticated and powerful tool that creates an endless stream of extraordinarily detailed, accurate financial scenarios. The simulations' excellent accompanying texts are a major selling factor. Each is clearly written, with appendices that include sources of free information, a list of useful books, an index, helpful hints, and a glossary of terms. The simulations themselves take several minutes to generate a logical, continuous finan-

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\*Okidata 92, 93, 192, 193, Star Micronics SD, SG, SR, Gemini 10X, 15X, Epson FX, LQ, (R), IBM Proprinter, Panasonic 1092 (R)

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## BUSINESS GAMES

cial universe, after which they feature superb playability based on a series of simple, elegant commands.

### **Banks as a way of life**

The most complex management simulation I've come across is Lewis Lee's "Bank President" (DOS only). The set-up allows you to choose from four different types of banking institutions (full service, consumer, business, or "turnaround"—the last being in bad financial shape and only recommended for expert players). Up to ten banks may compete at one time, with or without an outside "Instructor" to determine the economic data and regulatory environment.

As the bank president, you must set all deposit and loan interest rates; sell and buy U.S. Government securities that mature at varying times; issue or redeem different capital notes; issue or repurchase common stock; determine employee salaries, advertising expenses and building expansion costs; and put policy limits on real estate, commercial and consumer loans, time deposits and certificates of deposit, and borrowing on federal funds. In your spare time, you get to analyze the results of last quarter's decisions by reviewing 70 charts or graphs (your format choice). The winner is usually determined by reviewing the common stock market price chart, which compares stock prices for all banks in the game.

In some ways this was the easiest simulation to play. The graphs are displayed in bright colors, with the pertinent information in clear, bold print. The ten decisions/input forms are simple enough to follow, and you are not penalized for excessive delay when considering data, as you are in "Cartels & Cutthroats."

However, this is by far the hardest simulation to win. The graphs define fiscal relationships in an area with which few of us have any great familiarity. Although the *User's Manual* is a great assist, it's still not easy reading. Even at the beginner level, the banks operated by the computer will give you a run for your money; at the advanced level, you may consider closing your bank's doors and jumping off a tall building.

### **A final word**

If you wish to educate your children in the free enterprise system, search for some additional financial skills, try to gain some new investment insights, or are simply curious about what a bank does with money, this new series of computer games—simulations, excuse me—might just be the answer.

*Barry Brenesal is General Manager of public radio station KOPN in Columbia, Missouri. He's been using computers for business, word processing, and entertainment since 1982.*

(continued on next page)

## Quick Reference Summary

**Product:** Run For The Money  
**Manufacturer:** Scarborough System Inc.  
55 S. Broadway  
Tarrytown, NY 10591  
**Phone:** (914) 332-4545  
**Price:** \$19.95 (DOS only)

**Product:** Computer Stocks and Bonds  
**Manufacturer:** The Avalon Hill Game Company  
4517 Harford Road  
Baltimore, MD 21214  
**Phone:** (301) 254-9200  
**Price:** \$21 (DOS only)

**Product:** Wall Street  
**Manufacturer:** Timeworks Inc.  
444 Lake Cook Road  
Deerfield, IL 60015  
**Phone:** (312) 948-9200  
**Price:** \$39.95 (DOS only)

**Product:** Management Simulator  
**Manufacturer:** Dynacomp

1064 Gravel Road  
Webster, NY 14580  
**Phone:** (800) 828-6772  
**Price:** \$32.95 (CP/M), \$29.95 (DOS)

**Product:** Cartels & Cutthroats  
**Manufacturer:** Strategic Simulations Inc.  
1046 N. Rengstorff Avenue  
Mountain View, CA 94043  
**Phone:** (415) 964-1353  
**Price:** \$39.95 (DOS only)

**Products:** Millionaire, Tycoon, Baron, Squire  
**Manufacturer:** Blue Chip Software  
6744 Eton Avenue  
Canoga Park, CA 91303  
**Phone:** (818) 346-0730  
**Price:** \$59.95 (all four games DOS only)

**Product:** Bank President  
**Manufacturer:** Lewis Lee  
P.O. Box 50831  
Palo Alto, CA 94303  
**Phone:** (415) 853-1220  
**Price:** \$74.95 (DOS only)



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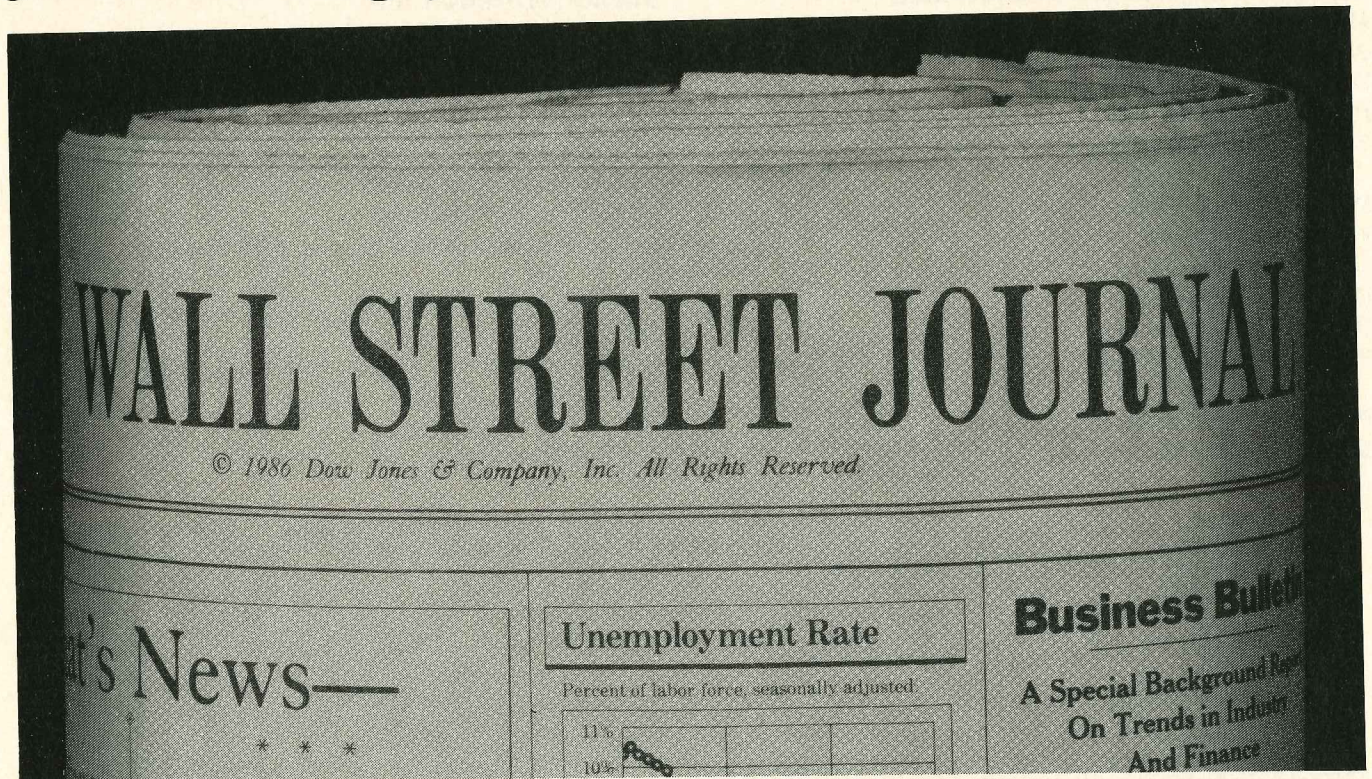
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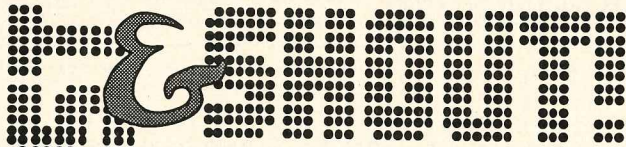
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## It's not too late

For the past 18 months I've been getting great tips from *PROFILES* and have contributed nothing in return. My only defense is that I've been busy writing books, exploring the Colossal Cave, and killing Klingons. So here is my contribution, useful if not original. To recover from accidentally exiting from a program before saving your work, use an empty program. It takes no memory, but works wonders. Here's how it works. At CP/M's prompt A> type: **SAVE 00 GO.COM**. When you learn that you've left MBASIC, WordStar, etc. before saving your work, just type **GO** at the A> prompt. You'll magically return to where you were just before you exited, provided that you use **GO** immediately after exiting the program.

James A. Simpson  
Monterey, California

## A quick alternative

Having read Loren Marshall's article in the March 1986 issue and his instructions on re-locating the reset button to the front of his II, I would suggest an easier alternative. Try using a CP/M public domain program: **COLDBOOT.COM (2K)**. You type a coldboot from the keyboard, and it works just fine!

J.C. Simon  
Los Angeles, California

## MailMerge made easy

I found Joseph Comanda's article in your February 1986 issue to be interesting and informative, especially the parts about using **FORMGEN** and **DataStar** for MailMerge data files. My business is primarily writing resumes, so I use MailMerge for creating individually addressed cover letters. Since I have always used WordStar's non-document mode for data files, I have discovered a few tricks that

make it a little more practical for short lists.

First, change the data field separator from a comma to a backslash (\) using **WINSTALL**'s "Menu of WordStar Features," or patch it with **DDT** as explained in the July/August 1985 issue. This has two distinct advantages over the default setting of the comma. For fields such as "Acme, Inc." or "John Doe, Personnel Director," you can skip having to use quote marks to keep MailMerge from reading the comma as the field separator. Also, since the backslash key is located next to the <RETURN> key and you hit it with your little finger, you're less tempted to insert a <SPACE> after the field separator—although you still must use a comma in the .rv line.

Next, after you create the skeleton letter, mark your .rv line as a block and write it into your new data file with a ^KW. Use it as an onscreen reference to keep the order of your fields straight. (You may have to insert some spaces between the fields to spread it out across the screen.) Start with a ^N and just push it down the screen ahead of the cursor.

To make these look like individually typewritten letters, I insert variables like the company's name and city into the text and format the letter with justification turned off. Then I insert soft hyphens in all large words from the variable to the end of the paragraph.

Jim Lucas  
Republic, Missouri

## Converting dBASE II files

Joseph Comanda's "Generating Form Letters" was a well-written article that contains good information for the person starting out in mailing lists. However, in his discussion of the conversion of dBASE II files to the MailMerge format, there is one step left out that could cause confusion to the new user.

The command that converts

dBASE II files to the comma-and-quote delimited format of MailMerge is correct as he gives it: **COPY TO B:ZIPSORT.DTA DELIMITED WITH**". However, when the above command is used, any blank field in the dBASE II database is converted to the MailMerge data file as " " (quote-space-quote). When the file is MailMerged, the blank spaces turn up as blank lines in the the output, which is annoying if the blank line is in the middle of an address.

In order to alleviate this problem, it is necessary to call up the newly formed MailMerge data file and use WordStar's search-and-replace routine to get rid of the unwanted blank fields. This is done by pressing ^QA, responding with " " (quote-space-quote) to the first inquiry, and simply pressing RETURN in response to the second. Then respond with NG to the "OPTIONS?" query. The unwanted fields will begin to disappear, and if the file is a long one, pressing ESCAPE after hitting RETURN will greatly speed up the process.

Note that the commas that delimit the blank fields are left in place, as MailMerge requires these to keep the fields straight.

Bruce H. Burton  
South Pasadena, California

## Disk management

The disk management tip submitted by Jerry Johnson and printed in the March 1986 issue is one I'm sure many of us have found useful.

An enhancement of this idea I have found even more useful is to print the disk file directory using **D.COM** from the public domain and ^P with the printer set to Elite-Compressed pitch. This produces a printout exactly the correct size to fit on the disk jacket (attached with Scotch tape), giving instant recognition of what files are contained on that particular disk.

Ray Arthur  
San Jose, California

(continued on page 68)

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# Beginner's Luck

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by Don and Sharyn Conkey

More WordStar tips and tricks

In May's issue we covered WordStar fundamentals—the seven menus and how to move from one to another, and general tips on using the program—plus a couple of specific tricks for using commands in the block (^K) menu. This month we'll probe WordStar's flexibility, speed, and power by looking at some of the commands in other menus.

These tips will become much clearer if you create your own test file and follow along, practicing the various commands.

## Find it fast

Two very useful commands on the ^Q (quick) menu are "find" (^QF) and "find and replace" (^QA). With the first, you can instantly find the proverbial needle in a haystack, and with the second, laborious searches to change misspellings and so on are eliminated.

If you type either command, WordStar will respond with the query "Find?" Type in the word or words you want to find (this is called a "character string") and hit **RETURN**.

With the ^QF command, WordStar will then ask "Options? (? for info)." You can type ? to get a list of options (more on this below), but normally you will just hit **RETURN** again, and WordStar will whisk you to the character string you want to find. You can make the command even quicker by ending your character string with the ESCape (versus RETURN) key to make the search begin immediately.

With the ^QA command, after you type the character string to be found, WordStar will ask you "Replace with?" You will type the replacement character string—the corrected spelling of a name, for example—and hit **RETURN**. Then, as with the ^QF command, WordStar will ask, "Options? (? for info)." With the ^QA command, sometimes you need to specify options. When using the ^QA command to correct a misspelling or change a

word throughout a file, for example, you would want to change the word every place it appears in the file. By default, WordStar searches the file only until it finds the first match; if you want to search the *entire* file, you must use the "G," for global, option.

However, using just the global option will get you the prompt "REPLACE (Y/N)" each time WordStar finds the character string. You can avoid this prompt with the "N" option, which tells WordStar to replace without asking. This is much handier, except notice what can happen: If you ask WordStar to replace "can" with "will," the phrase "you can ripen the cantaloupe" becomes "you will ripen the willtaloupe."

## One more time

Another helpful repeater is ^R. When you're editing, ^R moves the cursor one screen back towards the top of the file; but used in conjunction with certain other commands (any one that requires you to give a file name), ^R repeats the name of the last file you worked on *using that command*. Such commands include ^KP (print from within a file), P (print from opening menu), O (copy a file), D (edit or create a file, document mode), and N (edit or create a file, non-document mode).

For the situations we've been discussing, WordStar stores one file name for each command; for the write block (^KW), read file (^KR), and delete file (^KJ) commands, one file name is stored for all three

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To avoid turning "cantaloupe" into "willtaloupe," use the W option to search for whole words.

---

To avoid this, use the "W" option to indicate a *whole word* search. WordStar will then search for the word "can" rather than any occurrence of the character string "can." To summarize: To search an entire file, automatically replacing one word with another, type **GNW** in response to "Options?"

## Let's do it again

Do you frequently repeat a ^QF or ^QA command with the same responses to WordStar's prompts? You might issue a ^QF for the "ABC Corp.," for example, and find that the first occurrence of that character string is not the one you want. You must go farther into the file. Just type ^L, which will repeat the last find or find-and-replace command, complete with the same responses to the questions. Use it, even after intervening editing commands, to save time and typing.

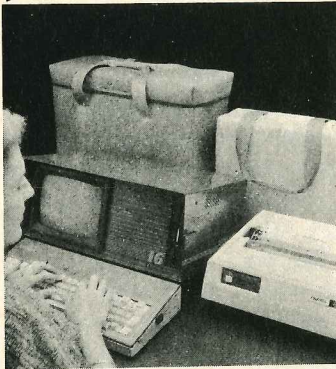
commands, and if you change the file name, it automatically changes for all three commands. This makes things easier if you are doing a lot of cutting and pasting—writing text to a file, then reading it back in to a different location—because you can use ^R to specify the file name for you. Figure 1, on next page, shows how to minimize keystrokes when copying a block of text from one spot in a file to another.

## Faster! Faster!

The epitome of speed and repetition is the ^QQ command, which causes the next command to be executed repeatedly. You control the speed: After you type in the command to be repeated, type a number from 1 to 9. Fastest is 1; slowest is 9. WordStar's default is 3. When you type any key other than a digit, the repetition stops. ^QQ is a lifesaver for reformatting large

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## Beginner's Luck

FIGURE 1: Copying text using ^R

Use ^KB and ^KK (or F7 and F8) to mark the block of text you want to move.

Issue a ^KW command, specifying a file name. WordStar writes the marked block to the file name you specified.

Move the cursor to the spot in the file where you want the text to appear.

Issue a ^KR command; type ^R <RETURN> for the file name. WordStar copies the file named in the ^KW command at the cursor's position.

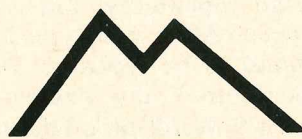
For good housekeeping, issue a ^KJ command; type ^R <RETURN> for the file name. WordStar deletes the file named in ^KW's command.

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blocks of text. Just type ^99, then ^B. Type a 1 and let 'er rip. (Note: hyphen help—^OH—must be turned off in order for this to work. If it's not, the formatting will stop at word breaks. Hyphen help is a "toggle" command; that is, you issue it once to turn hyphen help on and issue it again to turn hyphen help off. WordStar's default has it on.)

### Take your place

If you frequently move around your files when you edit—cutting and pasting, for example, or checking to see what you've put into different parts of a file—you'll want to know about place markers. They help you move quickly through the file. You can mark up to ten places in a file: Position the cursor at the point you want to mark, enter a ^Kn, where "n" is a number from 0 to 9. You'll see the marker—an "<n>" (n=0 to 9) that's highlighted in some versions of WordStar—on your screen. (If you find the display distracting, toggle it off by reissuing the ^Kn command. The marker remains set; you just won't see it.)



A place marker is not actually a part of the file—the cursor skips over it when you edit and it is not stored with the file on disk.

To get to a place marked in your file, issue a **^G** followed by the number of the marker you want.

Just as **^Gn** takes you instantly to a marker, other **G** menu commands speed cursor movement in other ways: **^GB** moves the cursor to the beginning of a marked block of text; **^GK** moves the cursor to the end of the block; **^GV** is used after find, replace, and block operations to return the cursor to its previous position. One of the most useful positioning commands is **^GP**, which we mentioned last month. This command quickly moves the cursor to its *p*osition before the previous command. This is a time-saver after doing a save and re-edit (**^KS**) or reformat (**^B**).

### Line 'em up

If you type outlines or documents with blocks of indented text, the paragraph tab command (**^OG**) is a lifesaver; if you want to improve layout and readability, it's a worthwhile experiment.

The **^OG** command (also activated by the F2 function key on MS-DOS Kaypros), temporarily resets the left margin to the next tab stop, so that text will line up like this.

Or like this. Each time you enter **^OG**, the left margin shifts to the next tab stop. The temporary margins stay in effect until you type a carriage return, move the cursor out of the paragraph, or move the cursor to a posi-

tion in the paragraph before you typed **^OG**.

### Label that table

Have you ever tried to type table headings, lining them up with the data in the columns as you input? Have you ever tried to underscore

those headings as you went along? The underscore command (**^PS** or **F5**) pushes everything two characters to the right. Everything will print correctly, but it's hard to see what's where on your screen. The solution: Don't fight it. Do all your inputting and editing with the insert function off; *then* turn it on (**^V**) and insert the underscores.

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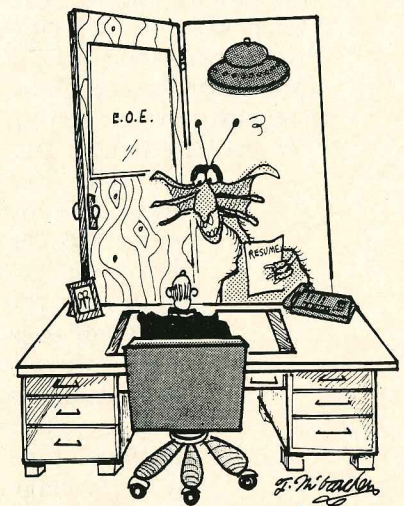
*Beginner's Luck*

We talked about WordStar's powerful block operations in May's issue; table-makers will be happy to know that the power extends to columns. You can mark, move, copy or delete columns of text with the same commands you use to operate on lines or blocks of text. Tell WordStar you're working on a column by issuing the ^KN toggle; your block operations will take place vertically, on the columns you mark.

**Final comments**

If you use WordStar, you're keeping company with thousands of competent, efficient word processing users. Experiment with some of WordStar's more advanced commands and options, take advantage of its speed and flexibility, and you'll join the ranks of WordStar power users. 

*With more than 125 published articles, booklets, and training packages, Don and Sharyn Conkey credit WordStar with helping them "write faster and better." Their favorite command: ^KS.*



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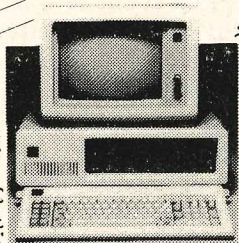
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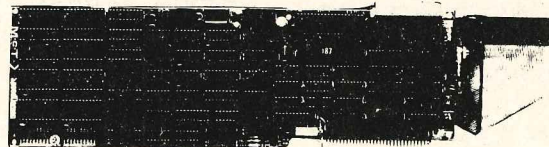
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# Technical Forum

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by Tom Enright

In the December 1985 "Technical Forum" I discussed why some software, primarily from MicroPro, doesn't run on all Kaypro versions of CP/M. A copy of WordStar that came on a Kaypro with CP/M 2.2u1 won't run under 2.2G or earlier versions of CP/M. A number of users were puzzled and just a little irritated by that fact. After all, CP/M software should be portable from one machine to another. Portability is the whole idea behind CP/M—it's supposed to be a standardized 8-bit operating system allowing software portability.

The bottom line is that Kaypro has *always* patched WordStar to enable the cursor (arrow) keys—WordStar uses ^E, ^X, ^S, and ^D to move the cursor up, down, left, and right. Unfortunately, Kaypro's cursor keys normally generate ^H, ^L, ^J, and ^K. Since WordStar already uses those codes for other purposes, some changes are needed before Kaypro's cursor keys will work with WordStar. Kaypro chose to conform to WordStar's expectations rather than force WordStar to recognize Kaypro's choice of cursor key values.

## WordStar's MORPAT area

WordStar has a reserved area (MORPAT) for adding assembly language subroutines. Kaypro has used that area for a subroutine (patch) that alters a part of the BIOS called a translation table. That translation table is what determines which characters are generated when you press a cursor key or one of the keys on the numeric pad.

Kaypro's patch to WordStar replaces the original values with ^E, ^X, ^S, and ^D (the cursor movement codes that WordStar wants to see). Another part of the patch restores the cursor keys to their original values when the program ends.

The problem is that the precise address of the translation table varies among some Kaypro models and among different CP/M ver-

sions. If you move WordStar from one Kaypro model to another, it *may* not be able to find the correct address for the translation table. Therefore, unaware of its mistake, WordStar alters what it thinks are the cursor key values but may well be some other part of the BIOS. What happens when you run WordStar under these conditions is unpredictable. Sometimes the screen may appear to go crazy, and other times you will simply be dumped back to the A0> prompt. The bottom line is that without corrective patching you won't be able to use WordStar.

copy. After testing the patched copy, PIP it to your working disk. (Never patch your working or master diskette directly.)

## CONFIG or a KDP

If you disable INISUB and UNISUB, your cursor keys will no longer work correctly with WordStar. The normal ^E, ^X, ^S, and ^D commands still work and may be sufficient for your uses. (Many touch-typists dislike moving their fingers from the home row position and don't use the cursor keys in the first place.)

To regain their use with Word-

---

*Without corrective patching, you won't be able to use certain software from MicroPro.*

---

## WordStar key patch

CP/M WordStar owners can disable Kaypro's patch by inserting three 00h bytes into each of two WordStar locations. The target addresses are the WordStar labels INISUB and UNISUB. In WordStar 3.3 INISUB is located at 0287h (02A4h in 3.0), and UNISUB is located at 028Ah (02A7h in 3.0). Those locations are jumps to user (Kaypro) supplied initialization and uninitialization routines. The first label points to the routine that changes your cursor key values to WordStar's preferences. The second label initiates restoration to the original (Kaypro) values.

When patching these labels, remember that you have to insert three 00h values beginning at each of the two locations. Fortunately, INISUB and UNISUB are located one after the other in memory, so you can start at INISUB and insert six consecutive 00h values.

Please follow standard patching procedures when attempting this modification. That is, make a copy of your working disk and patch the

Star, you'll need to redefine your cursor keys with CONFIG or use a KDP (keyboard definition program) such as XtraKey or SmartKey.

Of these two choices, the KDP offers the most flexibility. Altering the cursor key values permanently with CONFIG can create conflicts with other software that expects the cursor keys to send standard Kaypro codes.

Most KDPs load a definition file to reassign keystrokes. This allows you to have several definition files, each one for use with a different program. A SUBMIT file can invoke the KDP with WordStar definitions before a work session.

## Hacker alert

Some of you may want to try writing routines of your own to alter cursor key or keypad values. Obviously, this project is not for the neophyte. Changing and restoring values in the BIOS is not an introductory programming project.

Your first problem is to locate the starting address of the translation table. Unfortunately, its absolute

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address varies from model to model and in different Kaypro CP/M versions. Therefore, you need a stable reference point that you can anchor yourself to—one that also has a fixed relationship to the translation table. In all CP/M 2.2 systems, address 0000h is always a jump to the Warm Boot vector at the start of your BIOS. The Warm Boot vector is your reference point for the rest of the BIOS.

The jump instruction at 0000h is a three-byte instruction. Byte #1 is the jump, and bytes #2 and #3 are the 16-bit address you are jumping to. In typical CP/M form, the two bytes of the address are stored in reverse order. The LSB (least significant byte) of the address is at 0001h, and the MSB (most significant byte) is at 0002h. Once you have reassembled those two bytes, you have the address of the reference point.

The FWA (first word address) of the translation table is always a fixed distance, called an offset, from the Warm Boot vector. In all Kaypros manufactured prior to inclusion of the universal ROM (CP/M 2.2u1), this offset is 32h. If your Kaypro uses the universal ROM (CP/M 2.2u1 or u2), then the offset is 340h. As you can see, the difference between the universal ROM and all prior ROMs is hardly trivial. This may seem a somewhat round-about way to find the translation table, but it works on *any* CP/M Kaypro.

Once you've located the FWA of the translation table, it's a fairly simple matter to save the old values and insert new ones. The first four bytes of the table are for the up,

down, left, and right arrow keys. When you exit any program that alters translation table values, you should restore the table to its original state.

The translation table controls values generated by all keys on the numeric pad in addition to the cursor keys. Altering the numeric pad

translation is more complex because you can assign more than one character to each key. There is also more involved in the way translation is handled than a simple difference in a starting address. For those reasons I'll defer discussing the numeric keypad until another time. †

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*(continued from page 60)***Two tips on ROM and static control**

I have a Kaypro 2X that I use with WordStar for word processing. Recently, my wife, who is an electro-optical engineer, needed to write some papers containing Greek and mathematical symbols. After reading a review of several software packages in *PROFILES*, we decided to purchase Chartech from Techware, complete with the replacement character generation ROM.

After using WordStar with Chartech for a while, I was very pleased. In addition to giving me the additional characters I needed, it allows me to send both ESC and ASCII sequences within a WordStar file.

The problem turned up the next time I tried to use Rembrandt from Spectre Technologies, Inc. I no longer had the graphics characters in ROM. For a while, I changed ROMs whenever I needed the Chartech set. Eventually I solved the problem. Both character generation ROMs were 24-pin packages. I copied both character sets into a HN482764 EPROM and installed a two-position toggle switch to select between high and low memory. Now I can access either character set and even change in the middle of a program.

My second tip has to do with a severe problem with static this winter that ultimately caused the crashing of three diskettes. After looking at some static control aids, I realized that they were only exposed conductors that needed to be wired to the natural ground of the electrical system and then touched before touching the computer. Since my work desk is a surplus metal government model, I have attached a wire from it to the natural ground prong of a three prong adapter and plugged it in. Now, I just touch the desk and I am grounded to the same potential as the computer.

Glenn R. Vandergriff  
Huntsville, Alabama

**WordStar patching**

I really appreciated the patches for WordStar in "Technical Forum" a few months ago. Mark Frank's patch around all the intro trash has made life so very much nicer! But my wife's Archives II came with WordStar 3.0, and I wanted to make the same improvements I have been enjoying on my Kaypro 4'84. I noticed the addresses for all the patch areas were slightly different, so after a little snooping around I have found the addresses to patch WordStar 3.0 to avoid the opening version info.

Starting at the address 3CF1h change 21 53 01 (LXI H,1053) to C3 12 3D (JMP 3D12). This eliminates the initial screen and takes you directly to the "NO FILE MENU."

Terry Clark  
Greenville, North Carolina

**Unerasing files**

The answer given to John Sanger's question about unerasing files when you don't remember the file names was incomplete. You can recover multiple files with version 1.9 of UNERA.COM, which accepts wildcards. Another public domain program, RECOVER version 2.1 (RECOVER21.COM), is menu-driven and will list the erased files on a disk, as well as enable you to recover them by specific name or with wildcards.

CP/M users are well advised to find a local users' group that has a public domain library and can provide answers to such questions. Otherwise, the user should invest in a modem and get online with an RCPM in a nearby city. Chicago's First Osborne Group serves the entire CP/M community with its public domain library, two 35MB RCPMs (312/344-2505 and 312-235-7902), and a newsletter.

Benjamin H. Cohen  
Chicago Illinois

**DRIVE SWAP***(continued from page 34)*

will often make a ratcheting noise. This noise can be quite loud, although it poses no danger to the drive.

Most new double-sided, double-density (48 tpi) drives can step at 6 ms (milliseconds) track-to-track, while quad-density (96 tpi) drives can often step at 3 ms. But all stock Kaypros I've encountered use a 12 ms step-rate, so your new drive may be noisier than you expect. If so, you can install one of the custom ROMs mentioned earlier, which will allow you to set a faster step-rate.

**Put things back together**

Before you do anything else, unplug your computer again. Finish remounting the main circuit board by putting in the screws and bolts that hold the port connectors and rear mounting brackets to the rear of the case.

Next, check all your main board and drive connections once again to make sure they're all secure and nothing is flopping around loose.

Fourth, slip the cover back in place from the top, flexing the sides out slightly if you need to. Put all 10 screws back in and screw them down firmly, but don't overtighten.

That does it. Check around your work area to make sure you haven't left out any parts (it does happen). Then, as a final test, plug your Kaypro back in and run through some of your major programs. ■

*Ted Silveira is a freelance writer and editor, has taught writing at San Francisco State University, and is a contributing editor for PROFILES. He's also a consultant for novice CP/M users. Silveira can be reached on CompuServe (72135,1477) or through the bulletin board at KAY\*FOG—(415) 285-2687.*

by Tom Enright

CAD program

Computer-aided design systems (CAD) used to cost more than a new Mercedes and were the province of successful architects, Defense Department contractors, and General Motors. But now American Small Business Computers of Pryor, Oklahoma, has brought inexpensive (\$299) CAD software to DOS users.

ProDesign II is a full-featured CAD package for IBM PCs and compatibles. Minimum system requirements are 512K of memory, a color/graphics or monochrome graphics card, and a printer with graphics capability. Contractors, machine shops, cabinet shops, and technical illustrators can now afford to take advantage of the power of computer-aided design.

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ProDesign II, version 2.0, is a command-driven, rather than menu oriented, system. Most commands are entered with a single keystroke. A status line at the top of the screen prompts you when options to any command are needed. ProDesign II includes the following standard features and capabilities:

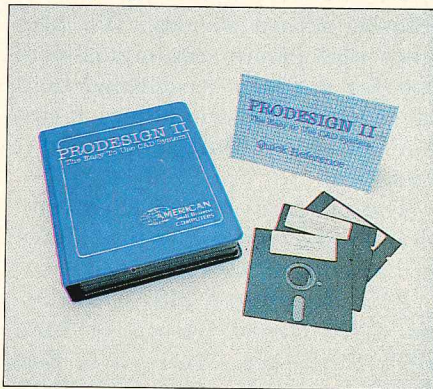
- onscreen zoom to enlarge any part of the drawing without enlarging pixels and without loss of detail;
- full onscreen rotation of all or part of a drawing;
- full editing capability on all parts of the drawing;
- simple commands for drawing circles, curves, ovals, and arcs;
- display of text in any size and many styles;
- creation, storage, and retrieval of figures and symbols at any size, location, and angle;
- fillets, chamfers, and automatic dimensioning;
- support of both overlaid and layered drawings;
- ability to input and display files created by other software;
- support for the 8087 math coprocessor;
- support for a wide variety of input,

display, and output devices.

## First impressions

When you open the ProDesign II package, you'll find the manual, a quick reference card, and three diskettes. Disk #1 is the standard ProDesign II software, #2 is sample drawings and #3 is ProDesign II for systems with the 8087 chip. ProDesign II will work on a floppy-drive system, but the speed of a hard disk is more efficient.

Once you've made working copies you're ready to run the installation program (PDSETUPEXE). It



asks what printer, plotter, mouse or digitizing pad and video card your system uses. No copy protection is used, so you can reinstall the program any time your system configuration changes.

ProDesign II supports 74 different printers, including the Hewlett-Packard LaserJet, 47 plotters, 25 digitizers or mice, and 15 video boards. It would be difficult to find a system configuration that ProDesign II doesn't support.

Especially notable is the number of dot-matrix printers supported. Plans printed by a dot-matrix printer might suffer in aesthetic appeal, but that has no bearing on their utility. This package was created to get the job done with your hardware—no need to spend \$10,000 adapting your computer to the software.

## Using the software

The ProDesign manual has a full set of tutorials to walk you through

nearly every drawing command. Since this program is command-driven, it does take some time before you become comfortable using it. This learning curve is common to all command-driven systems. Once you are comfortable with the commands, you can produce output much faster than with menu-driven software.

With most drawing or CAD programs, a mouse is considered to be the minimum input device. As an experiment in usability, I removed the mouse and entered all pointing and drawing commands from the keyboard. While the keyboard was slower than the mouse for some operations, it was still entirely satisfactory. In some cases I was actually able to move the pointer more precisely from the keyboard than with a mouse.

## Conclusions

My overall impression of ProDesign II was highly favorable. While I'm far from an expert with CAD software, I have used AutoCad, which is usually considered the industry standard. AutoCad has more capabilities than ProDesign II, but it takes an expert to understand both the AutoCad program and its manual. ProDesign II is a much easier program to learn and to use.

The ProDesign II manual deserves some special comments. The tutorials are well done, and the manual also has a decent index. In the back of the manual are sections on how ProDesign data files are configured. Information is also included to allow advanced users to design custom characters sets to use with the program. American Small Business Computers has gone to a lot of trouble to produce an excellent package and to include information to allow advanced users to expand its capabilities.

For more information, contact American Small Business Computers, 118 South Mill Street, Pryor, Oklahoma 74361, (918) 825-4844.



# New Products

The following new product listings are not reviews and should not be considered endorsements. To be considered for publication in *New Products*, send press releases to *New Products Editor*, *PROFILES Magazine*, 533 Stevens Ave., Solana Beach, CA 92075. Releases must state prices and on which Kaypro models the products run. Include black and white photos if available.

## CP/M spelling bee

SPELLBOUND is a spelling tutorial for use at home or in the classroom that allows a supervisor to set the "challenge level" for each student. At the lowest level the student copies the whole word on the screen. At the highest level, the word disappears as soon as the first letter is typed, and the student spells the word entirely from memory.

The supervisor creates the spelling list and saves it on diskette. Student performance is reported at the end of a session, and there is a reinforcement "game" in which scrambled words are unscrambled.

\$14.95. Kaypro CP/M computers. Requires MicroSoft BASIC to run. Roberts Information Systems, Inc., 152 W. 4th, Box 666, Prineville, OR 97754; (503) 447-6275.

## Tracking sales

The TRAX system is for salespeople involved in long-term, big-ticket sales. The program keeps track of objectives, as well as the activities and timing required to meet those objectives. It records account and project histories, which are printable in report form for briefings or post-sales reviews.

Outputs from the system include call reports, forecasts, and won/lost reports. Prospect file management with sophisticated search capabilities and extensive mailing capabilities are also included.

\$395. All Kaypro MS-DOS models. Software Design, 1731 West Division, Suite 2, Arlington, TX 76012; (817) 261-8826.

## You name it

dNAMES III is the latest in a line of mailing list management systems. Earlier versions of the program required dBASE II; this version is compiled so it doesn't need dBASE to operate.

The menu-driven program includes a user-definable classification system, dollar fields, and comment fields. Each of these can be searched by key words, numbers and more. Search queries can be saved for re-use.

dNAMES can print labels in nearly any format with a user-defined set-up screen. The program also prints continuous-form Rolodex cards, user-defined field list reports, and form letters. It can also produce MailMerge-format data files.

The program comes with complete source code and is modifiable for use with dBASE III.

\$49. All Kaypro MS-DOS models. Data Based Solutions, Inc., 1975 Fifth Ave., Suite 105, San Diego, CA 92101; (800) 336-6060, in CA (800) 833-2700.

## Circuit analysis

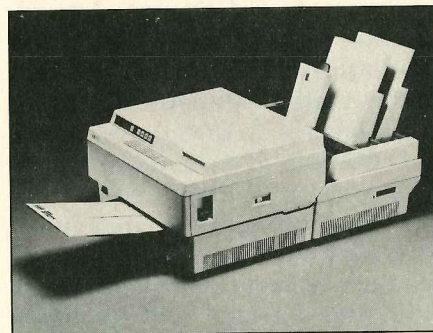
DC Circuit Analysis solves analysis problems for circuits with up to 25 branches and 12 nodes (not including ground node). Branch elements may be resistors, current sources, voltage sources, or controlled voltage sources. Users can change individual parameters of the circuit and have the program recalculate the results. The program displays four computations: node voltages, branch voltages, branch current, and branch power.

\$49.50. All Kaypro MS-DOS models. SourceView Software International, 835 Castro St., Martinez, CA 94553; (800) 443-0100, ext. 440.

## Feed that laser

Triple-bin LaserFeeders and six-bin MultiFeeders are now available from BDT Products. The devices can be used by more than one oper-

ator at a time and are compatible with most application packages, including WordStar, Samma, Display Writer 3, MultiMate, WordPerfect, and Microsoft Word.



The multiple bin feeders allow an office to use several different kinds of stationery or letterhead without reloading the laser printer.

The LaserFeeder adds two paper bins and one envelope bin to a printer's internal single-bin sheet feeder. The MultiFeeder adds six bins. Both sheet feeders can handle a variety of paper sizes. Each sheet feeder is designed for table-top operation and is compatible with most laser printers that use a Canon engine.

\$1,695 for LaserFeeder. \$4,495 for MultiFeeder. BDT Products Inc., 17142 Armstrong Ave., Irvine, CA 92714; (714) 660-1386.

## Slinky linker

ZLKO is used to link relocatable object files created by any assembler using the Microsoft REL format. ZLKO may be used with compilers for FORTRAN, BASIC, COBOL, C, and more to create executable programs.

ZLKO links the program on disk rather than in memory and can link a program that will fill the entire available memory space. The program produces a symbol table for debugging and can be used to segment a program that will not fit into memory into a tree structure of overlays.

ZLKO uses three input modes: command line, direct input and command file input. Among the 20 commands there are commands



that will display common block structure, overlay structure, undefined symbols, and help for each command.

In addition to the ZLKO linker there is an 8080 to Z80 assembly language translator program and an assembler that produces Microsoft REL-type object files. On-disk example files, with source code, show how to create an overlay tree structure.

\$49.95. All Kaypro CP/M models. Elliam Associates, 24000 Bessemer St., Woodland Hills, CA 91367; (818) 348-4278.

### Stock market simulation

SPECIALIST is stock market simulation software intended to provide stock market investors with an understanding of what a specialist is and how he influences the market price of a stock.

A specialist is a market maker in a specific stock or stocks, and his main purpose is to maintain a fair and orderly market. In order to fulfill this goal, the specialist can buy and sell for his own account. He has exclusive knowledge of all outstanding orders, and he often determines what price a stock will trade at next.

\$89.95. Available in 5-1/4 inch IBM format for all Kaypro MS-DOS models. V Ware, P.O. Box 3648, Altamonte Springs, FL 32701; (305) 260-0635.

### Keyboard decals

Name Its are keyboard decals that put the 60 most frequently used commands of your favorite program literally at your fingertips. The opaque decals have black lettering printed subsurface on Lexan material, which gives the same tactile feel as regular key tops. Name Its have an adhesive backing, but can be removed without damaging your keys.

\$14.85 per sheet. Any keyboard. Aspen Graphics/Overlay Division, 1032 W. 23rd St., Tempe, AZ 85282; (602) 829-8443.

### Home accountant

The Home Money Manager is a home budgeting and checkbook program designed to simplify a household's financial record-keeping.

HMM allows the use of up to 12 checkbook registers per disk with a total of more than 1,400 entries, and 12 credit account registers handling an additional 1,400 entries. You can compare income vs. expenses or budgeted vs. actual expenses for any budget period and summarize them for year-to-date.

Other features include automatic entry of frequently used check payee names, 65 user-defined budget categories, and several automatically generated reports.

The program is entirely menu-driven and has help screens.

The program is not copy-protected and customer support is given by the program's author.

\$59.95. All Kaypro CP/M models. Nickelodeon Software, P.O. Box 974, Tualatin, OR 97062; (503) 692-3732.

### Turbo AI

Turbo Prolog improves the world of artificial intelligence. It works as a high-speed electronic detective. First you feed it information and teach it rules, then Turbo Prolog thinks the problem through and comes up with all the reasonable answers.

It includes a 200-page reference manual with a step-by-step tutorial along with its own lightning-fast incremental compiler and interactive editor. If the compiler detects an error, the editor automatically positions the cursor appropriately in the source code.

GeoBase, a complete data base designed and developed around U.S. geography, is also included. GeoBase comes complete with information on cities, mountains, rivers, highways, and a natural query language.

\$99.95. Kaypro PC and 286i.

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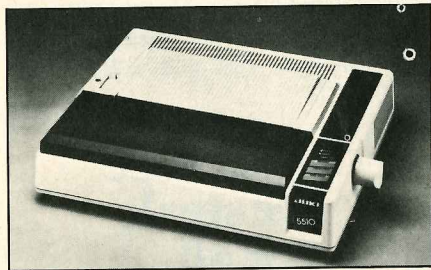
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Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066; (800) 255-8008, or in CA (800) 742-1133.

**Color printer**

The Juki 5510-Color is a 180 cps dot-matrix color printer. With the color option already installed, it gives the printer the capability of producing seven colors from a four color ribbon.

The bi-directional printer provides 96 ASCII characters, 96 italic characters, and 11 international character sets. Its matrix is user definable, and it features several printing modes, including near-letter-quality (NLQ) and double emphasized.



It has a built-in tractor for a smooth friction feed, and a 3K buffer memory that is expandable to 15K. The 5510-Color comes standard with a Centronics parallel interface or an optional RS-232C serial interface and can be purchased with either IBM or Epson software compatibility.

Suggested retail \$650 for parallel interface and \$733 for serial interface. Juki Office Machine Corp., Printer Division, 20437 S. Western Ave., Torrance, CA 90501; East Coast (800) 932-0590, West Coast (800) 325-6134, in CA (800) 435-6315.

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**Anniversary Issue - July 1986**

It's *PROFILES'* third anniversary! That's right - the July 1986 issue marks our third year of bringing Kaypro owners the information they need to make the most of their computers. We're commemorating this event with a special issue. It'll be packaged in a special way and will include a special resource guide.

*PROFILES* gets many calls and letters from users who are trying to find software and hardware to meet a certain need, but don't know where to begin - the phone book's yellow pages don't list that kind of information. *PROFILES* is ready to help.

Our special guide, **How to Find It**, will offer tips from a reference librarian on how to conduct such a search. We'll tell you about the research tools commonly available and give you the titles of reference books, and as a special bonus, we'll include a catalog of vendors, their products, and information about how to contact them. How's that for helping "your fingers do the walking?"

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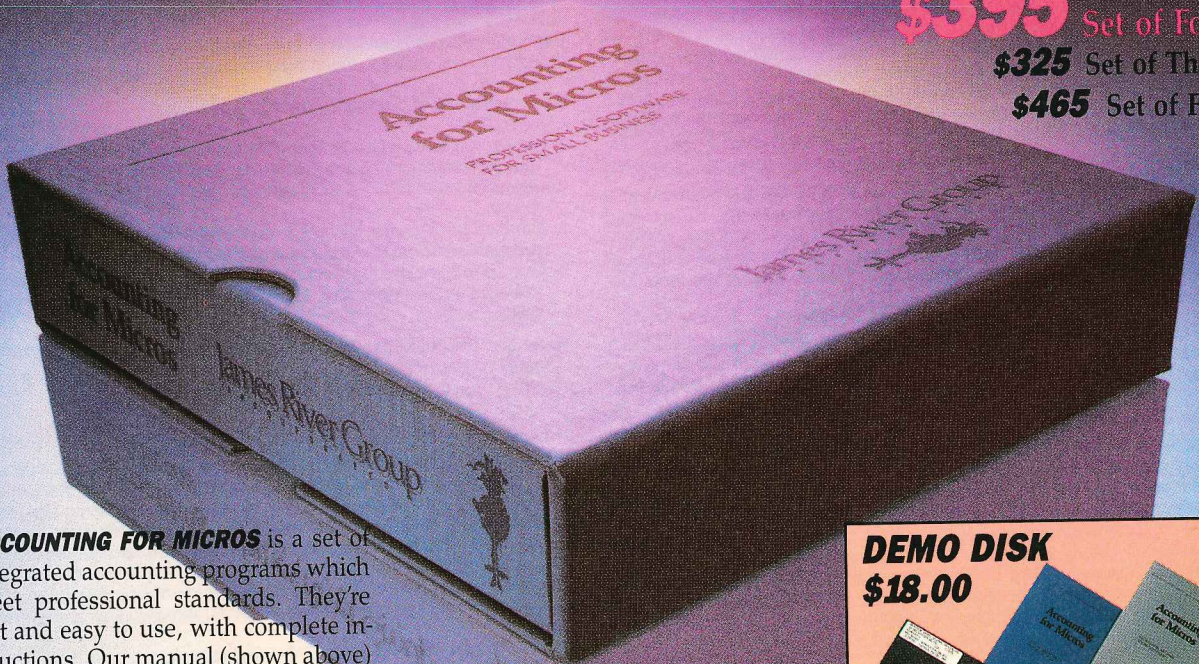
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