

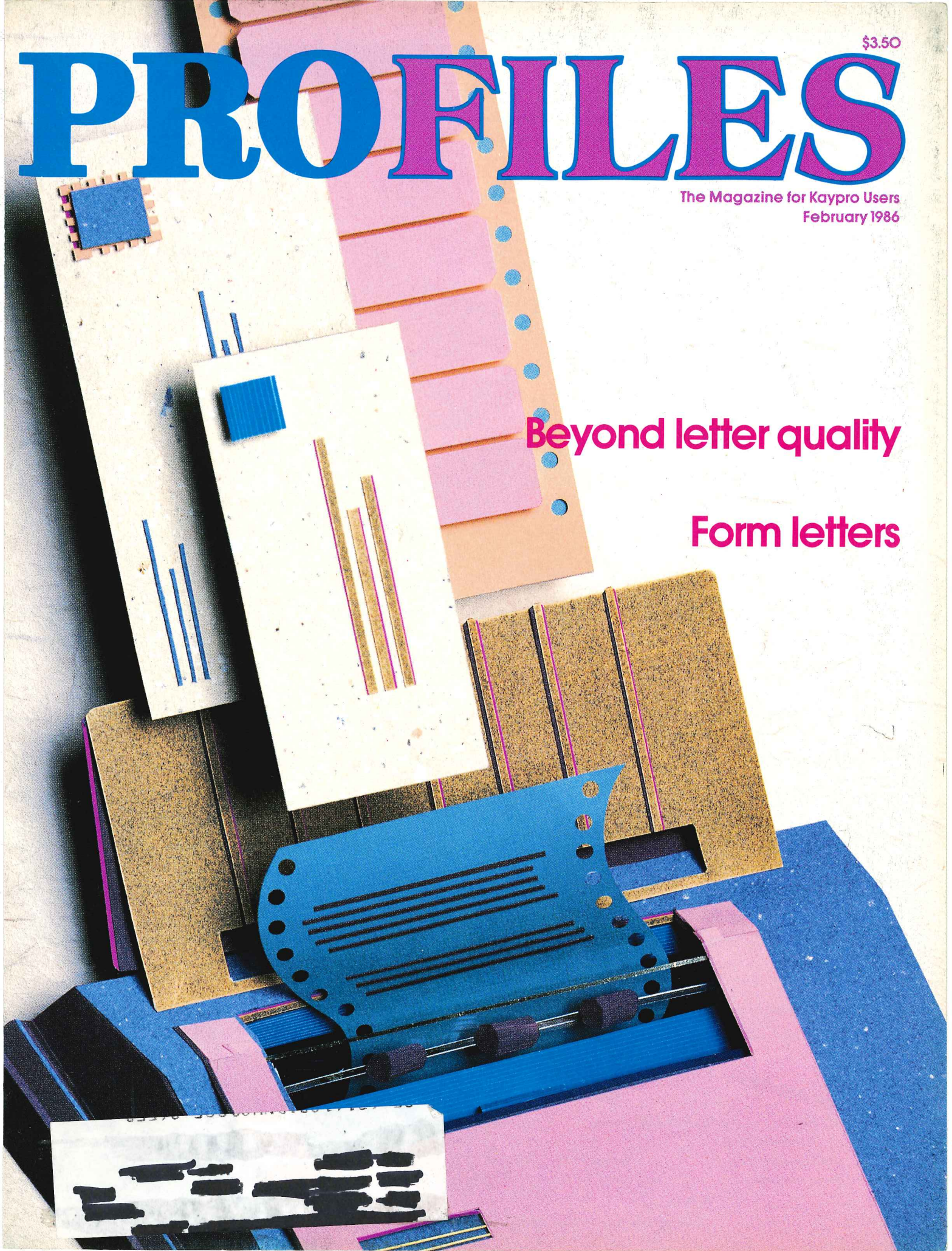
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PROFILES

The Magazine for Kaypro Users
February 1986

Beyond letter quality

Form letters



HANDYMAN

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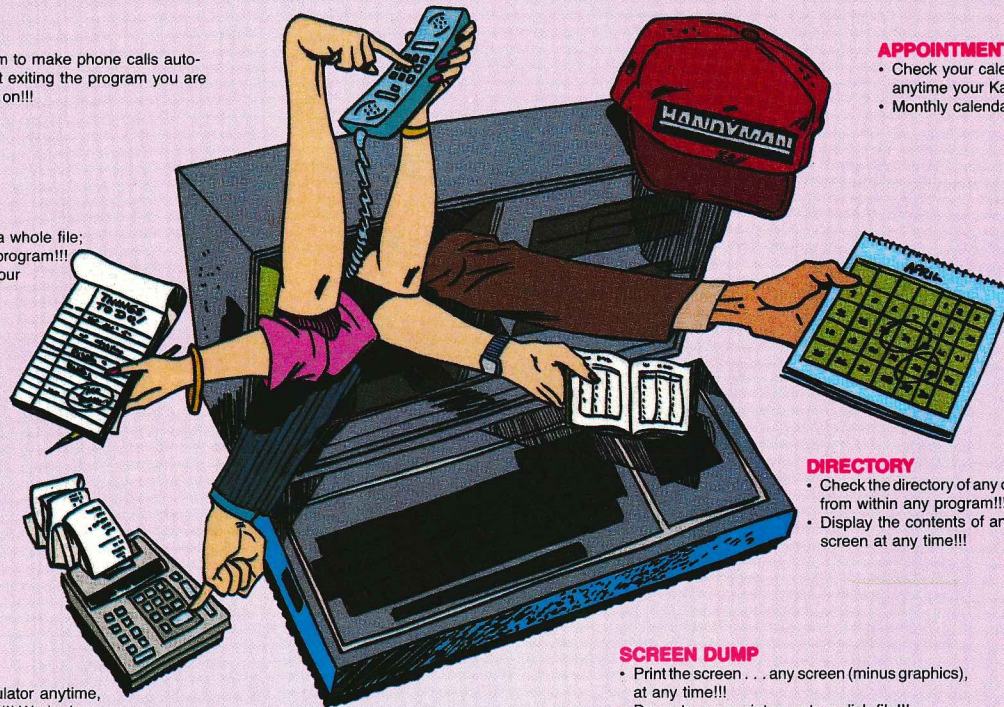
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- Write a note, paragraph, letter, a whole file; anytime, from within any other program!!!
- Edit another file without leaving your current file!!!

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- Monthly calendars 1752-2099 AD!!!



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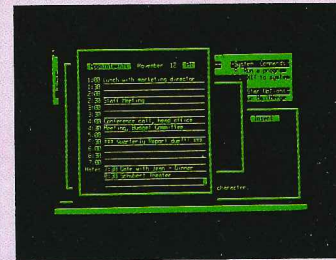
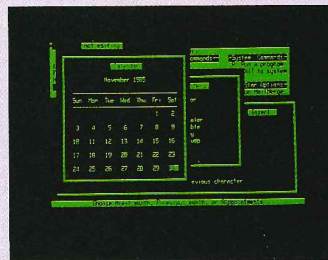
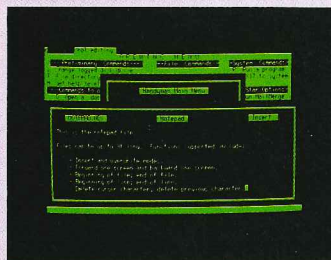
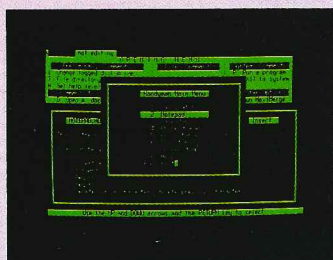
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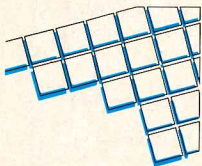
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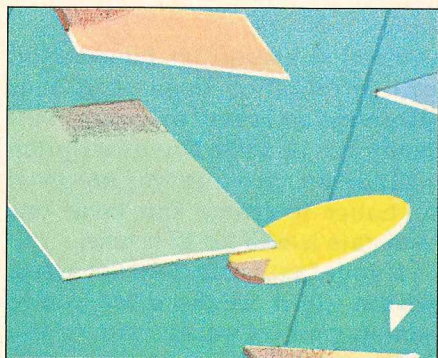
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Volume 3, Number 7

February 1986

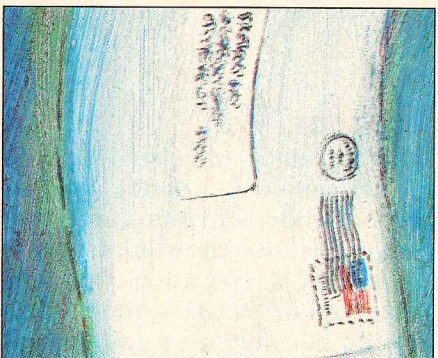
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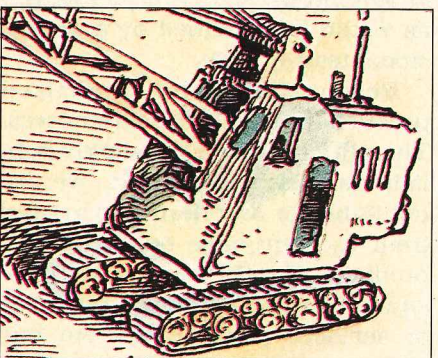
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Assembly 48

On the cover: Printing and mass mailings are two primary uses for micros. This issue looks at some tools and methods for generating text and correspondence. The paper sculpture is by Stephanie O'Shaughnessy.

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Note: The software bundle offered with the Kaypro 2000 is subject to change without notice. The bundle described in the January '86 feature article on the K2000 was correct at press time, but has been changed since then. Call the nearest Kaypro dealer for current information. — Eds.

The correct formula

Being a long-time user of the Perfect software, I was excited to see Jacob De Rooy's "Simple Business Forecasting" (December 1985) and rushed to enter it into our new Kaypro 10. I discovered an error in the formula for Step 11. The formula $f10 = b10 * (c30 + c31)$ does not produce the values shown in Table 1. If we remove the parentheses, the values are produced as shown.

D. Bruce Irving
Salem, Oregon

Though not able to pinpoint the error in the article prior to entering the spreadsheet in my machine, once it was entered and the formulas checked and re-checked for accuracy, the error in the formula for column "f" became readily apparent, as the numbers in that column, from f11 through f26, came not even close to matching what was pictured in the table that accompanied the article, although the entry in f10 did compute properly.

The correct formula is spelled out in the early part of the article, as "production = base + (rate * time)." The formula for column "f" was not bracketed properly in Step 11, as the equation was shown to be $=b10 * (c30 + c31)$, when in fact it should have read $= (b10 * c30) + c31$. (To be perfectly correct it would be $= c31 + (c30 * b10)$.)

Robert B. Wallace
Daly City, California

We checked with author Jacob De Rooy, and he said the formula in

Letters

*Step 11 should indeed have been = $b10 * c30 + c31$ (no parentheses), or, alternatively, = $(b10 * c30) + c31$. The error was made by PROFILES in preparing the manuscript for publication, not by the author. We regret the error.*

Beginner's thanks

Until I read the December issue of *PROFILES*, I had no intention of renewing my subscription. But when I saw the "Beginner's Luck" column I had a change of heart.

Being a beginner, I found myself paging through *PROFILES* with lightning speed, because most of its content is too far advanced for me. I was in a Kaypro Users' Group for a few months last year, and that also was no help.

To make a long story short, please keep your articles for beginners coming, as they will probably be the only reason I will buy the magazine.

Jeff Thorpe
Waukesha, Wisconsin

It may help you to know that we are now labeling articles with the readership level that they are aimed at: beginner, intermediate, advanced, or general. We hope that the many novices in our audience will be less frustrated if they realize they are not expected to be able to grasp all the material presented. For encouragement, see the following letter. Also see the article for beginners on using MailMerge, starting on page 42.

A job well done

This letter is primarily to congratulate your magazine for a job well done. I've just renewed my subscription to *PROFILES*. It's been responsible for much of what I've learned over the past year about my Kaypro 2X, and for my decision to buy almost \$300 worth of the software I've seen advertised in it. If you maintain your present quality,

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that figure will surely increase.

I'd advise you not to worry too much about those readers who find many of your articles too "technical." I found them that way myself when I started out, but now those same articles are my greatest source of information. Assure those readers that they, too, will come to treasure those articles when their time comes to get a modem, poke into a disk, or write a SUBMIT file. Your magazine, like good wine, seems to improve with age.

I'd also like to praise the articles on micros in the Third World. Those readers who didn't share your enthusiasm should realize that, with all due respect to word processing and spreadsheets, there are more important issues than the next financial forecast or poetry file.

Your timely article reminded us that what happens today in the Third World will influence the entire planet tomorrow, and in view of that realization, it seems unconscionable that no other magazine has explored those issues to the extent yours did.

John LaTorre
Salinas, California

More kudos to Ted

The articles by Ted Silveira are outstanding. Keep them coming. I especially look forward to more articles on the Z-System.

Andrew Scholberg
Rice, Minnesota

Mere gimcrackery?

In your feature article "Acing the SAT" (September 1985), the author reviews two computerized coaching courses for the SAT. He praises both, and calls the Krell package in particular "a terrific study program." Here is another view of Krell in David Owen's book *None of the Above* (Houghton Mifflin, 1985):

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Whom should we believe? Based on 13 years of experience advising psychology majors on, among other things, aptitude tests, I say that Owen is right on the mark. And I would also add the point (which Owen makes elsewhere in his book) that the SAT is a paper-and-pencil test; if one wants to simulate the test experience, why do it on a computer? Really now, do you think gimcrackery deserves feature article status in your magazine, especially when it deceives on so important a matter as college admission?

Stuart Katz
Athens, Georgia

The author of our review was a high school graduate and an advanced computer science student who had recently taken the SAT, which we felt made him a good candidate to assess the programs. He and friends who assisted him in evaluating these programs found them worthwhile, and we do not feel their evaluation was "deceiving."

Accounting—more responses

Many thanks for your November review of the CPI General Ledger System. We are quite pleased with the treatment the CPI General Ledger System received. We would, however, like to offer the following comments for publication.

(continued on page 80)

"Kaypro makes a nice computer—too bad it doesn't do graphics"

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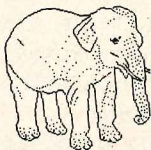
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by Tom Enright

We welcome and read all your letters. Some letters are of general interest and are printed in the Letters column; others are pleas for technical help. Questions 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 of mail we receive, we simply can't respond individually to requests for assistance. For questions requiring an immediate reply, you should contact your dealer. Please be aware that Kaypro Technical Support gives dealer calls priority over those from end-users. They can be contacted at (619) 481-3920, or write to them at P.O. Box N, Del Mar, CA, 92014. Please include a daytime phone number in letters.

Random numbers

In GW-BASIC and IBM BASICA you can prompt the user to seed the random number generator with the RANDOMIZE statement. Alternatively, RANDOMIZE VAL (RIGHT\$(TIME\$,2)) uses the "seconds" value from the system clock as a seed value. This avoids having to prompt the user for a number. Can I do the same thing from the real-time clock on my Kaypro 4'84?

Tom Neal
Las Vegas, Nevada

Yes. It's not as easy with MBASIC, but it can be done. Since MBASIC doesn't have a built-in function that returns the current system time, you have to use a short subroutine to accomplish the same purpose. The following three lines of BASIC code should do the job.

```
10 OUT 34,207
```

```
20 OUT 32,1
```

```
30 RANDOMIZE INP(36)
```

Line 10 initializes the PIO and selects the real-time clock. Line 20 tells the clock that we want to

read the current hundredth of a second register. Line 30 seeds the random number generator from the selected register.

The value that is read in line 30 is one BCD (Binary Coded Decimal) byte with a decoded value of between 0 and 99. BCD uses the lower four bits to hold the ones value and the higher four bits for the tens value of a number. In this instance there is no real advantage to BCD; it's just the way the real-time clock returns the values. By using the BCD value as if it were a straight binary number, we can get a wider range of values (0-153) than by decoding it to its correct value (0-99).

This trick will only work with '84 series Kaypros with real-time clocks.

MBASIC or OBASIC

I have a series of questions about my Kaypro 2X that seem to center on the subject of differences.

What is the difference between MBASIC and OBASIC? Both of them came with my Kaypro and they seem to be nearly interchangeable. Articles about BASIC in PROFILES all seem to refer to MBASIC and not OBASIC.

What is the difference between DataStar and dBASE II? I've come to think that DataStar is more of a file/list handling system than a database management system, but it works well for what I need. Still, I can't help but think that there must be something better than the DataStar/ReportStar combination.

Lastly, what is the difference between CP/M and MS-DOS? I understand that they address the computer differently, but I'd still like to know the advantages of one over the other. How are they different, which is better, and why do some readers whine about including MS-DOS in PROFILES?

Dana Anderson
Kennedy, Minnesota

Okay, first things first. OBASIC is merely an older version of MBASIC. The only reason OBASIC was included on your BASIC diskette is that most of the games on that diskette were written under OBASIC and hadn't been updated to run under MBASIC. OBASIC is really MBASIC version 4.51, while the current version of MBASIC is 5.21.

The differences between DataStar and dBASE II are mainly flexibility and ease of use. You've already learned that DataStar and ReportStar are not the easiest programs to learn and use. The advantages of dBASE II are that it is much easier to use than DataStar and it also qualifies as a programming language—DataStar is not. Unless you want to write your own programs in dBASE, or DataStar just won't do what you want to accomplish, stay with DataStar.

The difference between MS-DOS and CP/M-80 is that they run on entirely different computers. CP/M-80, a generic name for CP/M 2.2, runs on 8-bit computers, such as your Kaypro 2X. MS-DOS is for 16-bit computers like the Kaypro 16 or the IBM PC. They are entirely different animals, and MS-DOS will not run on your Kaypro 2X.

For a more thorough discussion of the similarities and differences between CP/M and MS-DOS, see the article "MS-DOS and CP/M" in the January 1986 PROFILES.

Many of our readers are afraid that PROFILES will do what other computer magazines have done, which is to start covering MS-DOS exclusively, as if CP/M didn't exist. We will publish articles on both operating systems and will not concentrate exclusively on either one.

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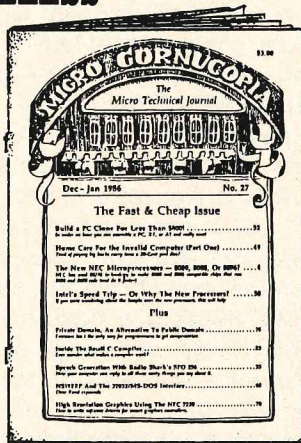
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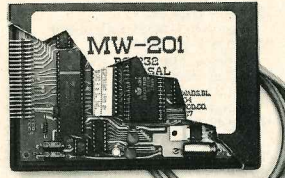
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Q & A

Kaypro 2'83 that could store all of my most frequently used programs. Then I could use floppy disks strictly for data files.

Can I run programs such as word processors, compilers, or MBASIC from a RAM disk? Which RAM disk offers the most in terms of speed and memory? Would it be better to buy a PC-DOS compatible board that doubles as a RAM disk?

Also, is there any harm in leaving my computer on indefinitely if the screen intensity is turned down during non-use periods?

Wayne Todd
Rome, New York

Any program that you can run on your computer can also function from a RAM disk. The only ones that could give you any trouble are copy-protected programs. Fortunately the CP/M world has little copy-protected software. You should note that if you're using WordStar you'll have to reinstall it to look for the overlay files on whatever drive the RAM disk is designated to be.

I will not recommend one RAM disk over another one. All RAM disks do not share the same features. Some are easier to install than others, or mount externally and can use an optional battery backup; others may offer easier expansion or cost less. We have an article comparing RAM disks in the works for an upcoming issue.

Leaving the computer on with the video intensity turned down is easier on the machine than turning it on and off. If the machine is always on, the internal temperature will be more constant and you won't get the current surges that on-and-off cycles cause in the power supply. Also, floppy-based systems use surprisingly little electrical power when the drives are not being read from or written to.

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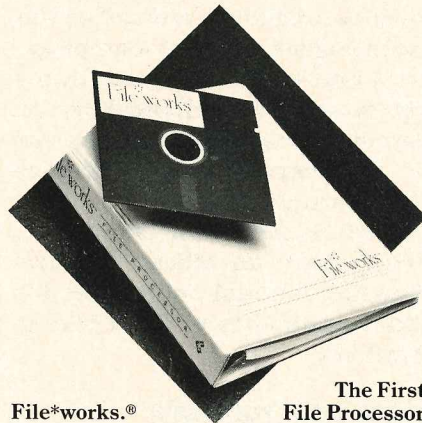
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- * Its tools are *smarter* to optimize performance.
- * It is much *friendlier*. File*works understands English-like commands. And it will detect if you are having trouble and offer help.
- * File*works is *more flexible*. It can do things in

For Complex File Operations

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- * Some *commands* can be used in a procedure to *prompt the operator* to take some action or *enter information on the keyboard*. Such information can be used in the procedure.
- * A *File List* lets you *refer to hundreds of files*, even files on different drives and user areas, *with a single name*.

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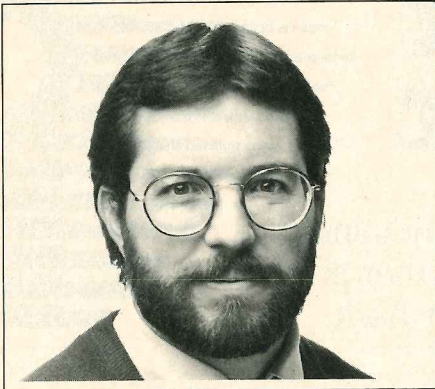
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Life at 300 Baud



by Brock N. Meeks

Correction to December's 300 Baud column: The Smithsonian Institution does not have search capabilities available, either computerized or otherwise. We apologize for the misinformation. — Eds.

Nobody can tell John Massone that micro-based telecommunication is an impersonal medium. For Massone, life online became all *too* personal.

Filled with the wonder and excitement that usually accompanies the discovery of micro-telecommunications, Massone began contributing to several bulletin board systems (BBSs) in his local area.

"I liked the freedom of 'telling it like it is' without having to confront a contrary opinion in a face-to-face meeting," said Massone. He also liked stating his opinions with a boldness he had only fantasized about. And he got to take his dogma for a walk when ever he wanted.

There was only one problem. Not everyone liked Massone's comments, his boldness, or his dogma. "The other BBS users let me know just how they felt," said Massone. "And in no uncertain terms."

Modem manners

Massone's experience is all too common. He forgot the single most important axiom of telecommunications: there are people behind the pixels.

A short course in modem etiquette

There are no instructions included with a modem that tell you how to conduct yourself online. Psychologists may say computers are "impersonal." Any member of a BBS, however, will tell you different. Telecommunication is an art—an art that carries certain responsibilities and liabilities.

Because the online community doesn't have an official "modem etiquette" manual, I offer these Ten Commandments of Telecommunications.

Know your software

Your communication software came with an instruction manual. *Read it.*

Learn the capabilities of your software. It sounds ridiculous to mention it, but I am amazed by the number of people who neglect to use the full power of their software. Most modem owners fall into the typical 80/20 pattern. That's where 80 percent of the people using a given program only learn 20 percent of its capabilities.

help files and printing them out. With these printed instructions you can often navigate a system in the "expert" mode, which usually means setting up your online account to provide you with brief versions of menus and options.

Referring to help files in hard copy will save you time online. Without them you have to depend on your memory. Enter a single wrong command and you will have to wait for the system to respond with an error message and then to your corrected command. And if you're driving a 300-baud engine, this can amount to much wasted time. When connected to a commercial system or calling long distance, errors are costly.

Remember context

There are bulletin boards for poets, priests, peacemakers, and plumbers—know the type of system you are using. Each BBS has a regular clientele—just like the local pub—and you could be sorely disappointed by posting a "kittens for

*Because microcommunications are one-way
it's easy to forget
people are out there.*

Commands you use regularly should be installed as part of your most valuable piece of software: your brain.

Download help files

Each system contains help files. Get into the habit of downloading

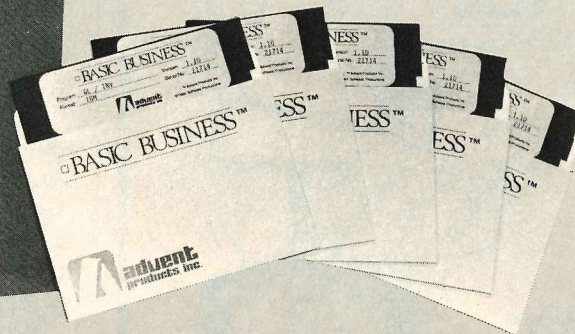
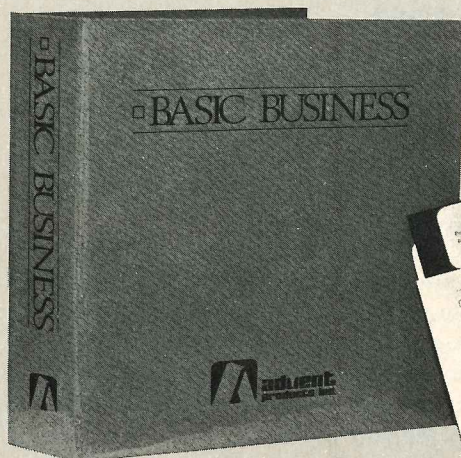
sale" message on a board that caters to assembly language programmers.

How do you determine the context of a particular system? Ask other users. Read articles on telecommunications, make notes of systems that interest you, and keep

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them available. You may find that the general interest boards in your area carry files that explain the warp and woof of several different systems.

Remember the community

Because microcommunications are asynchronous (one-way) in nature, it is easy to forget that there are human beings "out there" reading your comments.

Your messages are a *direct* extension of yourself. This may be hard to remember during "all-nighter" stints at the keyboard, but keep in mind that most people will know you only through the messages you write.

Be courteous. Like yawning, it's contagious. You wouldn't insult your host at a party; the same applies to your electronic host.

And give back to the board some of what you take. After you have spent some time on a particular system you will probably have an idea or two for a new service the board could offer. For example, you might like to see an index of all the *PROFILES* technical articles.

Instead of just suggesting the index, start to compile it yourself. After you start it, invite others to contribute.

Think before you type

Situations will arise when your "button is pushed," causing you to be angry at someone else's comments. It may be easy to launch into a tirade from the comfort of your computer room, but a little discretion is advised.

Download the offending message and come back to it later. A cooling-off period works wonders for your common sense.

Be brief

Brevity is a virtue. Covering several systems can take a tremendous amount of time, so spare others your ramblings. When adding a comment, never say in ten words what you can say in five. Be succinct with your comments and your messages will be read instead

of just scanned.

Being brief also teaches you to pack the greatest punch into the smallest number of words. This keeps discussions lively and encourages others to participate, knowing that they don't have to write a feature article just to contribute to the discussion.

Prepare for fire

There is a responsibility that comes with contributing to a BBS. The biggest responsibility is taking credit or blame for the message traffic you generate.

Too often people leave messages saying things they would never say in a face-to-face conversation. Messages entered into a system with little or no thought often draw hostile fire from the other members of the board.

To save yourself much explaining later, spend a little time formulating messages or responses before you leave them.

The time spent here will reap rewards such as lively discussions and stimulating feedback from other users.

Compile references

Having reference material in hand will help you out of the jam I just warned you about.

Casual, in-person comments tend to be forgotten soon after they are spoken. On a BBS, however, your words hang around for a long time.

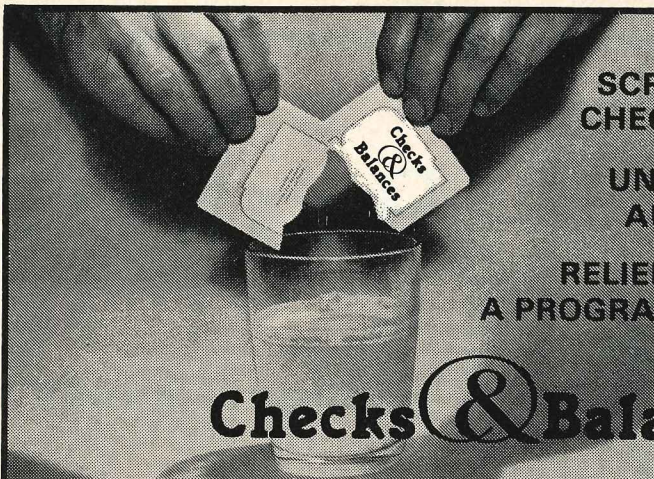
When you state a point of view cite a fact, offer a reference or quote a source. This keeps you from being the object of target practice, and it lends credence to your point of view.

Don't assume understanding

The lack of voice inflection and non-verbal clues (such as a smile) in online communications are a definite problem.

A few sarcastic lines thrown across a plate of nachos and a dark beer can be entertaining. Take those same sarcastic remarks,

(continued on page 74)



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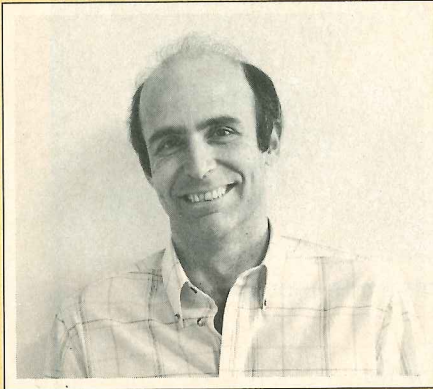
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Flea Market



by Ted Silveira

Like most people, I always keep a few basic tools stored away in a closet or kitchen drawer because I keep running into little jobs that need to be done—pictures to hang, chairs to reglue, hinges to fix. Houses don't just sit there; they're in a constant state of decay. They need maintenance.

Computer disks and files need maintenance too, so it makes sense to have a software toolkit stored on a single disk (mine is labeled "Utilities"), ready for those maintenance jobs and emergency repairs that are as much a part of computer life as of a homeowner's life.

Which programs do you need in your toolkit? If you're a novice, it's tempting just to copy everything from your master CP/M disk and call it quits. Unfortunately, that approach clutters up your disk with programs you don't need and leaves out other programs you do need. So here's a list of the basic tools I keep on my own utility disk:

Programs that came with your Kaypro

COPY.COM. This program is also called **DUTIL.COM** on some Kaypros. It lets you format and verify blank disks, write the CP/M operating system on the formatted disk, and copy an entire disk quickly. It also lets you do all three jobs at the same time, a convenience when you're making working copies of master disks.

Building a CP/M toolkit

CONFIG.COM. **CONFIG** lets you reconfigure your keypad and arrow keys so that they will send whatever characters you choose when pressed. You can, for example, set your arrow keys to deliver either WordStar motion commands (^S, ^D, ^E, ^X) or the more usual ^H, ^L, ^K, and ^J commands.

D.COM. **D** is a directory program. Unlike CP/M's built-in **DIR** command, which lists files in no particular order, **D** shows you what files are on a disk by listing them in alphabetical order. It also shows how large each file is, how much space you've used on the disk, and how much free space is left.

PIP.COM. **PIP** is a file copying program. Unlike **COPY** and **DUTIL**, **PIP** lets you copy one file at a time, which is usually what you want to do when backing up your files or moving them to a new disk. **PIP** also accepts wildcard file designations, as in **PIP B:=A:*.TXT**, which will copy all files on drive A that have the filetype (last name) **TXT** over to drive B.

PIP can also perform some other tasks such as sending a file to your printer, but it's so clumsy that you're usually better off using your word processor or some other program.

STAT.COM. **STAT** gives you statistics on files and disks. Its most common function is to tell you how large a file is and how much space you have left on a disk. However, **D.COM** is so much faster, smaller, and easier for these jobs that I always use it instead. Still, **STAT** can do other things, such as set a file to Read Only status (allowing

the file to be read or copied but not to be altered or erased).

UNIFORM.COM, **MFDISK.COM**, **COMPAT.COM.** These are disk conversion programs, which allow you to read, write, and even format disks for other computers. Such a program is highly useful if you have friends or co-workers who use computers other than Kaypros. For writers and other people who are called upon to send disks to publishers, typesetters, and other organizations, these programs are essential.

UNIFORM was the first such program shipped with the Kaypro ('83 series); **MFDISK** came with later models, but recent Kaypros have been bundled with **COMPAT**, a program from Mycroft Labs (makers of **MITE**). If you missed the chance to upgrade to **COMPAT** for \$29.95 some months back, you can be excused for gnashing your teeth some. **COMPAT** is much better than **MFDISK**—faster, more versatile, and less buggy.

SUBMIT.COM, **XSUB.COM.** **SUBMIT** and **XSUB** are "batch file processors." They can read a text file containing commands and execute them automatically, without your attendance. I seldom use **SUBMIT**, but I keep it around because I occasionally find new programs that have an installation routine requiring it.

Programs from public domain sources

The following programs did not come bundled with your Kaypro, but they are widely available from various sources of public domain

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The Kaypro manual states, "Line filtering will protect your Kaypro...from power surges or other undesirable occurrences from the power source." Surge protection will help your Kaypro provide years of trouble-free service. Also, if you plan to use your Kaypro to access information by modem, you must have a reliable high frequency noise (EMI/RFI) suppressor to insure against data loss and scrambling.

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All Panamax units are factory guaranteed for 60 months.

"Spikes and surges can be the greatest threat to your computer outside a 4 year old child with a jelly sandwich aimed for the disk drive slot."

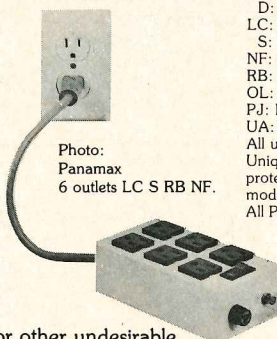


Photo:
Panamax
6 outlets LC S RB NF.

"Power line-associated problems are estimated to cause nearly 70 to 90 percent of the malfunctions in the IBM PC."

"Overvoltage can be fatal to both data and hardware alike."
P.C. Magazine, March 1983

Lockable Diskette Defender

Handsome, sturdy, smoke-tinted acrylic tray holds 70 Kaypro-size diskettes. Flip-up lid keeps out dust, debris, and moisture, and locks securely to guard your important work. Comes with 7 dividers that make for easy filing and keep floppies upright to prevent bending, warping, and scratching. Tough metal lock never comes in contact with diskettes because it is enclosed in a plastic housing. Super value at \$23 for one, or \$21 each if you buy 2 or more. Keep prying eyes and sticky fingers away from your important data. Order today.

Cables

Top quality, individually tested 36 pin Centronics-type standard parallel cables for all model Kaypros. These are made to work hard and long. Guaranteed.

5 ft cables ... \$19.95 each
10 ft cables ... \$25.95 each

Top quality, individually tested ribbon modem RS 232C cables designed with reinforced clamps for a sure continuous connection and made especially for your Kaypro. These work every time.

2 ft cables ... \$14.95 each
5 ft cables ... \$16.95 each

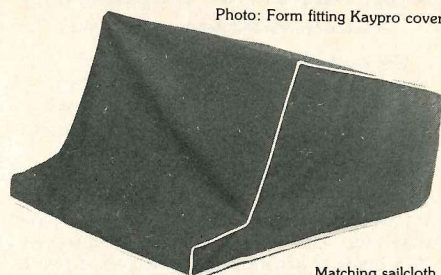


Photo: Form fitting Kaypro cover.

Matching sailcloth printer covers are \$14.95 each. Complete list sent with order.

New. Special two-piece Kaypro sailcloth cover. Set covers CPU and keyboard. \$19.95 per set.

- Quality tailoring
- Easy care fabrics
- Attractive colors
- Professional appeal

FACTORY DIRECT

The All New SmartKey

— now comes with **Windows** and much more!

Get ready for real computing power! SmartKey Version 4.2 now comes with windows. Lets you redefine every key on your keyboard from inside any program. Just push a key, a window opens up on your screen, redefine the key. Move the cursor anywhere in the window. Make corrections in the window. Simple. Redefining keys is easier than ever. Lots of new features. Will save you thousands of keystrokes. Really fun. Touch a key and spell out your entire name and address. Or anything else you want. Unlike similar programs, SmartKey does not interfere with the regular function of your keyboard. Once you've tried it, computing will never be the same. Lets you save numerous complex command codes, boilerplate paragraphs, inventory numbers, or whatever, and inject any of them into your work with a single key.

Central's super priced SmartKey combo pak includes a free copy of Paul Golding's \$15.95 book, *Screen Smarts, The Computer Tamer's Guide*. This book tells how you can use SmartKey to turn your computer into a supercharged mean machine. Saves money. Look at these prices. Order today.

Description ‡	List	Central
SmartKey 4.2 CP/M	\$49.95	\$45.00
SmartKey 5 MSDOS	\$59.95	\$54.00
SmartKey & SmartPrint	\$69.00	\$57.00

‡ Includes \$15.95 *Screen Smarts* book free

Attention: When comparing SmartKey 4.2 to similar programs, please ask if they have a real delete key, windows, and other features that make SmartKey clearly superior.

Text Filing Machine

Turn your Kaypro in to a powerful text filing machine. **SuperFile** is a textual matter database manager unlike any other. It puts you in control of your information. It allows you to easily store and retrieve notes, letters, random thoughts, contracts, depositions, invoices, new product information, sales reports, reference articles, scripts, abstracts, bibliographies, customer profiles, and much more. **SuperFile** accepts as many as 65,000 entries per database; allows 512,000 keystrokes per record, each of which can have up to 250 keywords; and indexes information you've stored on as many as 255 diskettes per database. Powerful.

Input for a **SuperFile** database comes from your word processor, so you can easily include information you already have into a database without having to re-key it. No fancy fields to define. This is a completely free-form database system. No programming language to learn. There's nothing difficult here. You can be up and running within minutes. **SuperFile** uses logical searching procedures to find your information fast. **SuperFile** searches from 60 to 400 entries per second. Save yourself the time and effort of filing and cross-filing information by hand or in overly structured data fields. **SuperFile** lists at \$195. Central's price is \$145. Order today to get **SuperFile** fast.

Print Bright Pages

Wow! You'll be amazed at the compliments you'll get from using this program. No wonder. **FontStar** makes you look good. All you do is put a few **FontStar** commands in your letter, bulletin, invitation, or manuscript, and print. It's easy.

Don't let **FontStar**'s low price fool you. It's a powerful program. Although it's not as versatile as **Fancy Font**, it really brightens up plain jane dot matrix printing and for much less too. Works with Epson FX, RX, MX, and LQ1500 printers. Also works with Epson compatibles like Gemini printers too. Gives same results. Impressive. Good looking reports, letters, invitations, announcements, etc.

FontStar comes with 16 preprogrammed fonts, but it also lets you design your own fonts or character sets. **FontStar** doesn't require complex commands, or any tricks to operate. It makes typeset quality justification a snap, so everything you print looks super professional. Use as many fonts as you like in your documents. By the way, each font also comes with a complete set of foreign language characters, so printing in Spanish, French, or other European languages is a snap. Make your own Greek or Hebrew font sets too. Design special characters too. No matter what you print out, **FontStar** will make it look better. **FontStar** is only \$49. Order **FontStar** today. Get more from your dot matrix Epson or compatible than you every thought possible. Order today.

Attention: Imagine dot matrix printing with a flair. That's what **FontStar** does. Makes a page look bright. **FontStar** works with any word processor that produces plain ASCII files including WordStar and NewWord. Order today to get **FontStar**-type printing fast.

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Central Computer will meet or beat any price listed in this magazine on products also advertised in our ads. If you see a lower price, please tell us. We'll beat that price and pay shipping too. Try our lightning fast service today. Thank you.

Full Power Computing

T/Maker Integrated is a highly acclaimed powerhouse program that can turn your CP/M Kaypro into a computing workhorse. At last, you can enjoy productive computing like never before. Imagine doing full-featured word processing, relational database management, spreadsheet analysis, horizontal bar chart graphics, and checking your spelling all within the same program. No more switching back and forth between barely compatible programs to accomplish these simple tasks. **T/Maker Integrated** is universally acknowledged as a unique integrated software system that is just plain easy to learn. There is an alternative to doing things the hard way. **T/Maker** can put the hidden and largely untapped power of your Kaypro at your command. **T/Maker Integrated** is regularly \$450. Central is proud to offer this outstanding multi-function package for the low, low introductory price of \$179. Yes, this includes the entire feature-packed **T/Maker** package, so please treat yourself to this excellent super productive software today. Experience the power of true software integration on your Kaypro. Order **T/Maker** today. Get it fast.

Bodoni
Bodoni Italic
Micrograma Extended
Flash Bold
Broadway
Sans Serif Shaded
OCR B-Font
Commercial Script
Old English

Sample of some of **FontStar**'s 16 Fonts.
Make Up Your Own Alphabet or Characters too.

Toll Free Order Desk

800-533-8049 USA
800-624-5628 CA

Product Description List Central

Kaypro CP/M and MSDOS Software

ATI TRAINING SOFTWARE			
CP/M	Training software.	\$ 39.95	\$ 33.00
MBasic	Speeds learning.	\$ 39.95	\$ 33.00
Multiplan	Gives fast results.	\$ 75.00	\$ 57.00
Wordstar		\$ 75.00	\$ 57.00

BORLAND INTERNATIONAL			
Turbo Pascal 3.0		\$ 69.95	\$ 58.00
Turbo Database Toolbox		\$ 49.95	\$ 44.00
Turbo Tutor, Step by Step		\$ 34.00	\$ 29.00
Turbo Holiday Pak		\$125.00	\$99.00
— Pak includes all the above. Call for MSDOS prices.			

CDE SOFTWARE			
Checks & Balances		\$ 74.95	\$ 64.00

CHUCK ATKINSON PROGRAMS			
Quick Check + AR		\$195.00	\$149.00
Quick Check Money Manager		\$ 95.00	\$ 69.00
— Recommended for comprehensive ease of use			

COMPUTER EDITYPE SYSTEMS			
Magic Print ★		\$195.00	\$155.00
Magic Bind ★		\$250.00	\$199.00
Magic Index — includes ★		\$295.00	\$245.00
— All superior WordStar enhancers			

COMPUTRONICS			
VersaBusiness Series			
VersaLedger II		\$149.95	\$115.00
Any other modules		\$ 99.95	\$ 79.50

CONSULTANT SYSTEMS			
The Real Estate Consultant		\$399.00	\$349.00
with The Creative Loan Consultant			
— Don't buy or sell property without this software			

CUSTOM PROGRAM HOUSE			
Banner Plus		\$ 37.95	\$ 18.95
— Print you own huge banners & messages			

EXECUTIVE SOFTWARE			
Decision Analyst		\$139.00	\$124.00
— Use logic process for decision making			

E-SOFT			
Fastback, K-10 Backup Utility		\$ 99.00	\$ 74.00

DIGITAL MARKETING/PRO TEM			
Bibliography		\$ 99.00	\$ 79.00
Footnote and Pair ★		\$ 99.00	\$ 79.00
Grammatik ★		\$ 75.00	\$ 69.00
Hyper Typer, Typing Tutor		\$ 39.95	\$ 32.00
Index ★		\$ 99.00	\$ 79.00
Milestone, Project Planner		\$ 99.00	\$ 89.00
Bibliography and Footnote		\$150.00	\$128.00
Notebook		\$150.00	\$ 99.00
Writer's Pak — includes		\$250.00	\$189.00
all ★ products and Random House Checker			
— Call for prices on other DM or PT products			

EWDP SOFTWARE			
Filebase with UTL		\$150.00	\$ 99.00
— Mailmerge enhancer and database manager			

FRESHWARE			
DateMate		\$ 29.95	\$ 27.00
— Design & print personalized calendars anytime			

FYI, INC.			
FYI 3000		\$395.00	\$299.00
SuperFile with Sort & Merge		\$195.00	\$145.00
— Free form textual matter database managers			
— Index material spread over 255 diskettes			

INFOCOM			
Enchanter		\$ 39.95	\$ 37.00
Deadline		\$ 49.95	\$ 43.00
SeaStaker		\$ 39.95	\$ 34.00
Infidel		\$ 44.95	\$ 39.00
Witness		\$ 39.95	\$ 37.00
Zork I		\$ 39.95	\$ 34.00
Zork II & III each		\$ 44.95	\$ 39.00
— Call for prices on other Infocom products			

MENDOCINO SOFTWARE			
Eureka, Disk Cataloger		\$ 50.00	\$ 48.00
— Helps you find the right file instantly			

MICROSOFT			
MBasic Compiler		\$395.00	\$299.00
MultiPlan		\$195.00	\$149.00

MICROSOLUTIONS			
Uniform Kaypro II/2		\$ 69.95	\$ 49.95
Reads 32+ machine formats			
Uniform Kaypro 2X/IV or 10		\$ 69.95	\$ 49.95
Reads 90+ machine formats			
Uniform for all other machines		\$ 69.95	\$ 49.95

continued on next page —

Do You Wish Writing Was Easier?

Product Description List Central

Kaypro CP/M and MSDOS Software

NORTHWESTERN ANALYTICAL		
StatPak	\$495.00	\$399.00
PEARLSOFT		
Personal Pearl	\$295.00	\$165.00
— Easy to use, top flight database manager		
PLU PERFECT SYSTEMS		
Plu Perfect Writer CP/M 2.2E	\$ 39.95	\$ 34.00
Backgrounder	\$ 45.00	\$ 39.00
CP/M 2.2E only	\$ 32.00	\$ 29.00
Date Stamper	\$ 39.00	\$ 34.00
Date Stamper, General CP/M	\$ 49.00	\$ 42.00
— CP/M only. Will not work with CP/M 2.2U		

SAN FRANCISCO COMP		
Power!	\$149.00	\$ 99.00
DocuPower!	\$149.00	\$ 99.00

SECOND CITY SOFTWARE		
SCS-Draw	\$ 59.95	\$ 54.00
— Unique CP/M FREE HAND drawing on screen.		

SOFTAIDS		
MTBasic Compiler	\$ 49.95	\$ 46.00
— Build windows into your programs		

SOFTCRAFT		
Fancy Font	\$180.00	\$149.00

SOFTWARE COUNTRY		
Book of Change, I CHING	\$ 39.95	\$ 36.00
— Consult the Oracle. Self-reflection aid		

SOFTWARE RESEARCH TECH		
dFastest, dBase Fast Sort	\$ 89.00	\$ 69.00
Touch n'Go, Typing Tutor	\$ 29.00	\$ 24.00
SmartBrain, Idea Processor	\$ 99.00	\$ 69.00

SOFTWARE TOOLWORKS		
Eliza	\$ 24.94	\$ 22.00
MyChess	\$ 34.95	\$ 29.95
Word Wiggle	\$ 29.95	\$ 27.00
C/80	\$ 49.95	\$ 45.00
Reading Professor, Speed Read	\$ 59.95	\$ 54.00
— Call for prices on other Toolworks products		

SORCIM		
SuperCalc 2	\$295.00	\$235.00

SPECTRE TECHNOLOGIES		
Rembrandt 3.0	\$ 79.95	\$ 59.00
Rembrandt II/IV with chip	\$ 89.98	\$ 69.00
Presto	\$ 39.95	\$ 37.00

TELION SOFTWARE		
Free Filer	\$ 49.95	\$47.00
Language Tutor	\$ 49.95	\$45.00

SUPERSOFT		
Disk Doctor	\$100.00	\$ 75.00

UNISON WORLD		
PrintMaster Graphics	111 pics	\$ 49.95
Art Gallery I Graphics	140 pics	\$ 49.95
Creative PrintMaster book	\$ 13.95	\$ 12.00
— Get Creative book free with purchase of both		

WALONICK ASSOCIATES		
StatPak, Statistical Analysis	\$495.00	\$389.00
Forecast Plus, Time Series	\$595.00	\$479.00

Hardware

CAROLINA ENGINEERING		
Stylewriter	\$229.00	\$199.00
— Printer buffer and variable printer font styles on line		
— For information on this 128k buffer plus, call today.		

PANAMAX		
PowerMax 250 Watt—	\$559.00	\$399.95
— Battery Back-up. Blackout/brownout etc. protection.		

SWP MICROCOMPUTER PROD		
256k CoPower-88 Plus	\$495.00	\$399.00
— Plus boards are expandable up 1 megabyte		
— RAM disk. Add PC DOS = MSDOS computer		

Diskettes

3M SSDD Kaypro II diskettes	10/box	\$ 17.00
3M DSDD for all other Kaypros	10/box	\$ 21.00
3M Head Cleaning Kit	\$ 32.00	\$ 21.95

Bookware

Compleat Kaypro II, IV & 10	\$ 16.95	\$ 15.00
CP/M for the Kaypro	\$ 16.95	\$ 15.00
with an Introduction to dBase II		
Kaypro WP Plain & Simple	\$ 13.95	\$ 12.50
Using CP/M on Kaypro 10	\$ 19.50	\$ 18.00
Screen Smarts, Tamer's Guide	\$ 15.95	\$ 12.95

Free yellow Hi-Liter pen sent with every book order.
Prices, specifications, and offers subject to change without notice.

If you need to write, or want to write clearly, your Kaypro and the software program **Punctuation and Style** can help you get there faster. It improves, clarifies, and enriches your writing by identifying sentences with misused, redundant, faulty, cliched, or erroneous phrases, and shows you how to improve them. It helps you rewrite and check your work by quickly marking and annotating your files for easy correction. In addition to computer-fast identification of awkward, muddy, pompous, and wordy sentence structure, it also finds missing or improper punctuation, unbalanced quotes, wrong abbreviations, faulty capitalizations, and much more. **Punctuation and Style** actually improves your writing by mercilessly pointing out grammatical errors. After a few weeks with Oasis System's **Punctuation and Style** your writing is bound to become more dynamic, expressive, and honest. In time, you'll stop worrying about grammar and work on projecting ideas instead. After all, that's what writing is about.

Punctuation and Style makes writing and rewriting much easier. The list price of **Punctuation and Style** is \$125. Central's price is \$95. Experience the power of this valuable "Punctuation Checking and Writing Improvement Software" yourself. Order today to get this program fast.

Punctuation and Style works on files created with Wordstar or Perfect Writer. It comes with an easy to use, clearly written manual and is packaged in an attractive binder. Join thousands who now write with more confidence, faster, and better.

90,000 Word Thesaurus at Your Fingertips

Word Finder by Writing Consultants is a 90,000 word thesaurus that is guaranteed to make you and your Wordstar a precise and powerful online writing machine. **Word Finder** is so easy to use that after one or two searches there's no turning back. Your speaking and writing vocabulary will improve dramatically as you use this program to display and study a rich variety of words at the push of a key. Find exciting words instantly.

Word Finder was compiled by a team of lexicographers. It is extremely fast and works within Wordstar, so you never have to leave your file to use it. Just put your cursor on a word in your text, press the escape key twice, and a list of synonyms appears. Then press a key if you want to select and automatically place an alternate word in your onscreen text. **Word Finder** will help you find the exact word you need to properly express your thought. **Word Finder** retails at \$124. Central's current low introductory price is \$69. This offer may not be repeated. Please order today.

Attention: **Word Finder** works with all Kaypros. Gives Wordstar text files new vim, vigor, and punch.

Cordura Travel Case

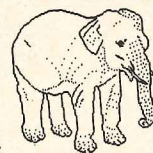
This full featured, padded carrying case is made from a super-material called "cordura." This material is rip, shred, and water resistant. The Coverman Kaypro case comes fully padded and lined, so your Kaypro is protected from unexpected bumps and jolts. Since your Kaypro is completely enclosed in this case, it keeps rain, sand, and other debris out of your machine. The Coverman case comes with external carrying handles and a detachable strap with a non-slip shoulder pad that comes in handy when you have to carry your Kaypro over a long distance. There is also a large interior pocket perfect for transporting manuals and diskettes. The Coverman Kaypro carrying case is regularly \$79.95. Central is proud to offer this expertly constructed case at \$59.95. Please indicate your choice of color: silver-gray, dark blue, or brown. All straps and carrying handles are black. You must be completely satisfied with your purchase of this handsome travel case or receive a refund immediately. Order today.



Free Hand Drawing

Amazing. Look at this.

Now you can easily free hand draw on your CP/M Kaypro. Really free hand.



Just push the cursor around. Draw anything. See it as you draw it. See this elephant? **SCS-Draw** lets you draw this or anything else right on the screen. To draw just move the cursor around. Or use your numeric keypad as super "cursor" keys that let you draw and move around the screen in any direction. Circles, rectangles, and diagonal lines are all a snap. Total control. There's nothing like it for CP/M Kaypros. That's what makes **SCS-Draw** a real drawing program. It's true, you see it on-the-screen as you draw it. Comes with drawing tools, windowing capabilities that let you draw pieces larger than one screen, and much more. Save to disk or print your work at any time. Simple. **SCS-Draw** is a super value at \$59.95. Central's price is only \$54. Try it for 15 days. If not completely satisfied, send it back for a full refund. There's nothing like it. It turns your Kaypro 1, 2X, New 2, 2'84, 4'84, and 10 into a real Macintosh-like drawing machine. Hours and hours of artistic and creative fun. Only \$54. Order today to get **SCS-Draw** fast.

CENTRAL COMPUTER PRODUCTS

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Dear Central,

Please send me the items listed below. I want fast, friendly service. Remember to include my free 12 foot extension cord. I understand there is no charge for this cord if I purchase 2 or more items from these 3 pages. My check, money order, or card no. is enclosed. Thanks.

Description	Price
Kaypro Model _____	Sub Total _____
FIRM MONEY BACK GUARANTEE	CA Resident 6% Tax _____
ORDER WITH CONFIDENCE	Postage & Handling \$ 3.00
	Total \$ _____
<input type="checkbox"/> Navy blue	<input type="checkbox"/> Royal blue
<input type="checkbox"/> Send free catalog	<input type="checkbox"/> Send free 12 foot cord
<input type="checkbox"/> Check enclosed	<input type="checkbox"/> Money Order enclosed
<input type="checkbox"/> Visa/Mastercard # _____	
<input type="checkbox"/> Amer Exp Card # _____	
Exp. Date _____	Sig. _____
Name _____	
Address _____	
City _____	State _____ Zip _____
Credit Card phone orders accepted. Call toll free.	
To order by mail use coupon, letter, or photo copy. Thank you.	

software such as users' groups (some do mail order) and CP/M bulletin boards.

UNERASE.COM. This program (current version, UNERASE30) is a must for everyone. In many cases, UNERASE can recover an erased file from a disk, restoring it to life as if nothing had happened. If, how-

ever, you've written any files to that disk in the meantime, there's a good chance that your erased file will be at least partly overwritten, so you must act quickly (that's why you want UNERASE handy).

**UNERASE can recover
an erased file, re-
storing it to life as
if nothing happened.**

copy, delete, and rename files, singly or in groups, and once loaded, lets you swap disks as often as you want without exiting to hit ^C. It also lets you view text files, squeeze and unsqueeze files, send files to the printer, and set file status (Read/Write, Read Only, System, Directory). It's a wonderful pro-

gram. With it and D.COM, you don't really need PIP and STAT at all (though I keep them around "just in case").

FINDBAD.COM. This program (current version, FBAD60) checks an already formatted disk for bad sectors. If it finds any, it tells you where they are and puts them in a

special file named [UNUSED].BAD so that your regular programs won't try to use them. The Kaypro disk formatting programs do check for bad sectors when they format a disk, but occasionally I've had FINDBAD locate one that slipped by, saving me much potential grief.

DIFCOM.COM. DIFCOM compares two programs (only files with the filetype COM) to see if they're the same. If they're not, it lists all the differences between the two, either on the screen or in a disk file. It's a very useful program for verifying whether two programs with the same name are actually identical. It can tell you, for example, if two copies of WS.COM (WordStar) are the same or if one has been patched to different default settings (a question I've had more than once, since I have several different versions of WordStar).

BISHOW.COM. This program (current version, BISHOW31) lets you view text files on the screen. Unlike CP/M's TYPE command, BISHOW can scan forward or backward through a file, either a line or a screen at a time. This makes it excellent for reading on-disk documentation files and for browsing through your own files looking for a particular reference.

BISHOW also lets you view squeezed text files and text files inside library files (files with the filetype LBR that actually contain several smaller files).

RESQ.COM, MAGE31.COM. These two programs will help you recover text from your computer's RAM (random access memory) after an accidental reset, hung-up program, or other disaster (short of a complete power failure). RESQ should work with any program, providing you can give it a string of characters you know can be found in memory. MAGE31 works only with WordStar, but it's smaller, easier to use, and a bit more reliable than RESQ.

Other programs you may want to include

The above programs make up the



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PRO-Mail

PRO-Mail is the Best-Bar none • Check these **Features**

- Lists • Labels up to 4 Across • Unlimited Sorts • Change Sorts After Input • Duplicate Removal • Change Disks inside Program • Built in Backup • Up to 2 Comment Fields • Search any Field • Mailmerge Compatible.

Home Inventory (+) **\$39.95**

Home Inventory(+) is a complete personal inventory storage & retrieval system. All math is done within the program. Printouts are clear & complete & give you designated sub-totals & totals. Allows for unlimited data files. Change data disks while the program is running. Multiple searches. Perfect for insurance needs, home or office.

Trivia Supreme **24.95**

A computer trivia game with 2200 questions, and four categories: Sports, Comics & Cartoons, T.V. & Screen and Pot Luck. Keeps score, fun for all.

ALSO

• Recipe Index	\$29.95	• Checks Index	\$29.95
• Super "C"	\$19.95	• PRO Football	\$19.95

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core of my software toolkit, and they all fit on a single-sided Kaypro 2 disk, taking up 132-151K (depending on whether you use UNIFORM, MFDISK or COMPAT and MAGE31 or RESQ). Since you still have space left, especially if you have double-sided drives, you may want to include some of the following:

- A cataloging program, to keep track of what files you have and which disks they're on. MCAT and YANC are two public domain programs (there are also commercial ones) that will do the job.
- A *little* word processor, for writing short notes and messages. Perfect Writer and WordStar won't fit on a single-sided disk, but a more limited text editor, like the public domain VDO25, will. (See "Flea Market," September 1985, for a quick review of VDO25.)
- A text file filter, to remove all the control characters and other odd things that programs like WordStar insert (very useful if you're sending text files to bulletin boards or to people with different word processors). FILT7.COM and HRD-SFT.COM are two good public domain filters.

You may also want to include DDT (the standard debugging tool found on your CP/M master disk), DU or a similar disk editor (see "DU to the Rescue" in *PROFILES*, September and October, 1985) for patching and debugging, and ASM and LOAD (also on the CP/M master disk) for turning assembly language files into programs. However, I keep these on a separate "advanced utilities" disk, along with a few other high-powered tools.

A final word

A number of the programs I've mentioned you already have; they came on your CP/M master disk. If you don't have a ready source for the public domain programs, you can get them by mail order from groups like The National KUG (P.O. Box 100, Malverne, NY 11565) and Tampa Bay KUG (2643 Cedarview Court, Clearwater, FL 33519). 

MacInker Mercury

Re-Ink Any Fabric Ribbon Automatically for Less Than 5¢

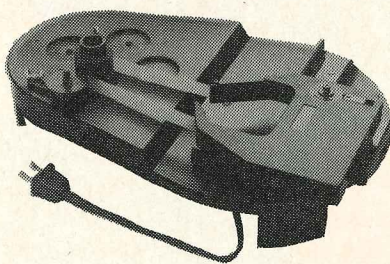
Now one **Universal Cartridge MacInker (UC)** re-inks all fabric cartridges and one **Universal Spool MacInker (US)** re-inks all spools. We support over 1000 printer brands.

Most dedicated **Mac Inker(s)** cost less than \$60 and start at **\$54.95**. The **Universal Cartridge MacInker** is **\$68.50**. The **Universal Spool MacInker** is **\$66.95**.

Use your **Mac Inker** to re-ink your dry cartridges (for less than 5 cents in ink) and watch the improvement in print-out quality. Our residueless, lubricated, dot matrix ink yields a darker print than most new ribbons. Or get any of our six basic ink colors: **Brown, Blue, Red, Green, Yellow, Purple** and use **Mac Inker** to create or re-ink your own colored cartridges. We have uninked or pre-colored cartridges.

Most cartridges can be used almost indefinitely, if ribbon is regularly re-inked, kept moist and lubricated, so that the fabric does not fray. Some customers have reported 80 re-inkings of the same cartridge and still getting excellent print.

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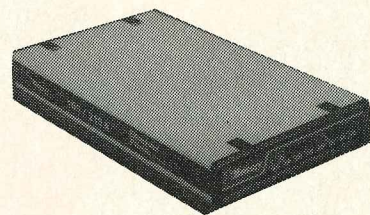
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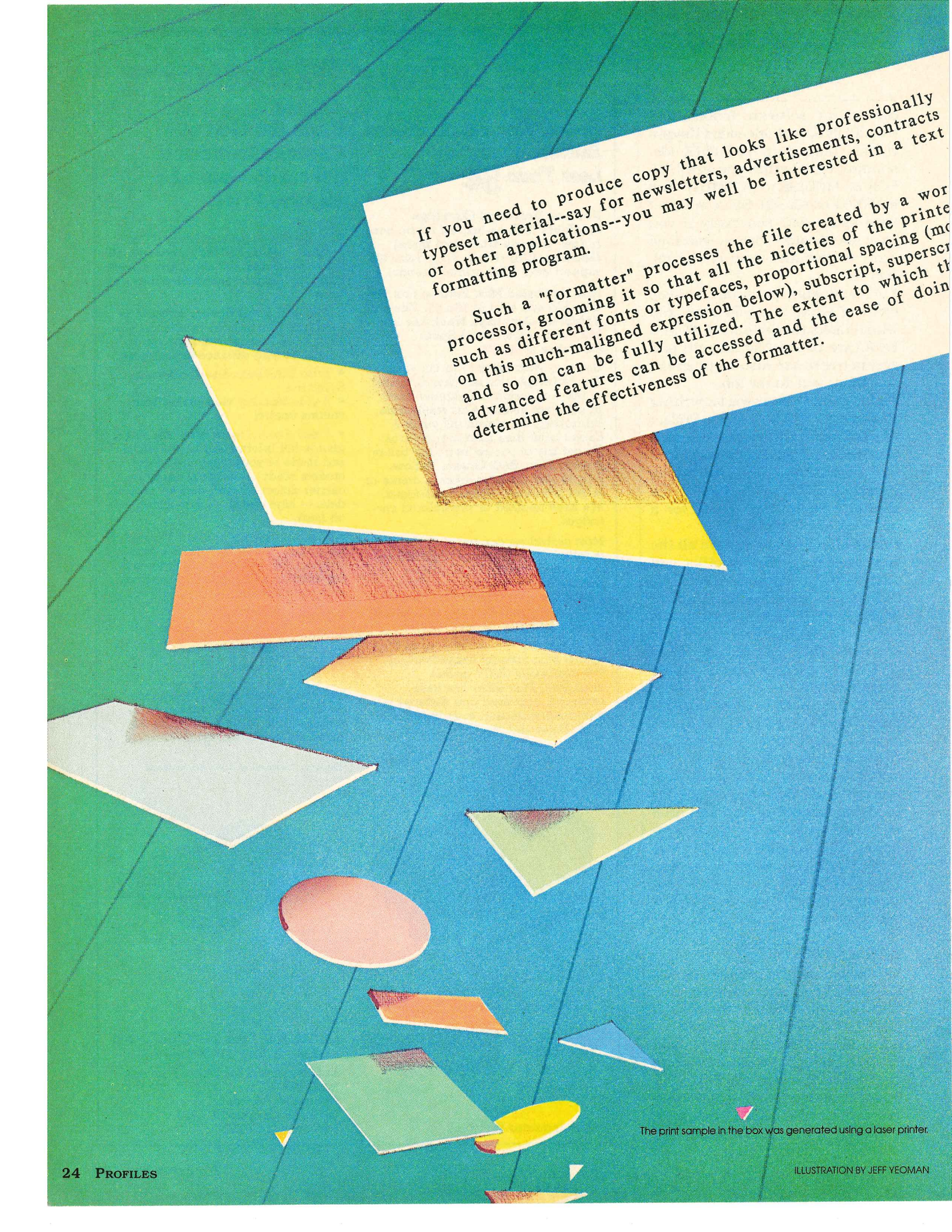


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If you need to produce copy that looks like professionally typeset material--say for newsletters, advertisements, contracts or other applications--you may well be interested in a text formatting program.

Such a "formatter" processes the file created by a word processor, grooming it so that all the niceties of the printer, such as different fonts or typefaces, proportional spacing (more on this much-maligned expression below), subscript, superscript, and so on can be fully utilized. The extent to which these advanced features can be accessed and the ease of doing so determine the effectiveness of the formatter.

The print sample in the box was generated using a laser printer.

Text Formatting: Beyond Letter Quality

From do-it-yourself-methods to laser technology

by James Hardin

Intermediate/8/16

Because there is unavoidably at least a three-month delay between the time an article is written and its publication in PROFILES, and because software developers frequently revise their products, the versions of the programs reviewed below are not necessarily the latest. Before you purchase any program, we recommend that you call the manufacturer for details on their latest version, including the version number, date of last revision, and specifics about what makes the latest version different from previous ones.—Ed.

If you need to produce copy that looks like professionally typeset material—say for newsletters, advertisements, contracts or other applications—you may well be interested in a text formatting program.

Such a “formatter” processes the file created by a word processor, grooming it so that all the niceties of the printer, such as different fonts or typefaces, proportional spacing (more on this much-maligned expression below), subscript, superscript and so on can be fully utilized. The extent to which these advanced features can be accessed and the ease of doing so determine the effectiveness of the formatter.

In particular, the effectiveness of the proportional spacing feature, which not only emulates the effect of professional typesetting but also gets more characters on the page, is perhaps the key criterion in the formatting program and printer interface.

In this article, I'll discuss text formatting options, from do-it-yourself patches to WordStar to commercial formatters for laser printers.

The question of “proportional spacing”

One of the first to draw attention to the possibility of proportional spacing in WordStar was M. David Stone in his *Getting the Most from WordStar and MailMerge*. He pointed out the existence of an “unsupported proportional space print feature” in WordStar that could be activated by placing a ^P (typed ^P^P) and ^A (for alternate pitch) at the beginning of the file. Although the book itself is a sophisticated treatment of MailMerge, Stone's method for achieving proportional

spacing is flawed, which is probably why MicroPro left it undocumented.

A much more workable approach to proportional spacing with WordStar was outlined in *Proportional Spacing on WordStar* (now in its third edition), by Mike Weiner of Writing Consultants. This book, developed with the assistance of MicroPro, provides detailed printer patching tables and directions for producing enhanced print using the C. Itoh, Diablo 620 and 630, Qume Sprint, NEC Spinwriter and similar printers. On the heels of the book came its menu-driven software implementation, *ProportionalStar*, which spares the user the tedious job of patching WordStar.

The appearance of the type produced by this program is a distinct improvement over WordStar alone, and it also provides a method, albeit a somewhat cumbersome one, for producing proportionally spaced printing in columns. It is available both for CP/M and MS-DOS versions of WordStar.

A similar program in some regards is *PropStar*, by Civil Computing. However, this formatter is printer specific, and there are several pre-installed versions of the program. Although it supports proportional spacing and other printing features such as boldprint, superscript, subscript and “soft” hyphens, it does not support most WordStar dot commands, nor does it have its own line counter. This means that page breaks (e.g., a WordStar .pa command) must be inserted manually, a fact that leads one to suspect that the program was marketed prematurely. However, Civil Computing tells me that these problems are currently being fixed and that enhancements are on the way.

A touch of magic

A formatting program several steps higher in power, ease of use, and price is *MagicBind*. And the formatting features of *MagicBind* are only part of the picture. It provides a program that is more effective and “user friendly” than MicroPro's *MailMerge*, a sophisticated indexing program, and a footnoting program. The sheer variety of programs that comprise *MagicBind* make it appealing to a broad group of computer users. From my standpoint as a teacher and writer, the primary benefit of *MagicBind* is its ability to format text

generated by Wordstar. (MagicBind will also work with other word processing programs that generate standard ASCII files, such as Perfect Writer, Select, NewWord, etc.)

My typed documents must be of near typeset quality for some applications, such as preparation of camera-ready copy for publication, and I found that MagicBind produced excellent printouts. Not only does its true proportional spacing enhance the visual appeal of the copy, it results in a saving of around 20 percent in space when printing at 12 pitch. It can produce true centering (which allows you, for instance, to center a word with 13 letters over a word with 12) and multiple line headers and/or footers. And the indexing feature is a distinct plus as well.

Formatting at print time

There are advantages (as well as the obvious disadvantage that what you see is not what you get) in using a text formatter such as MagicBind rather than the printer driver that came with your word processor. One of the primary benefits is that you can print out the same file in different pitches and line lengths by entering a limited number of commands at print time. Still, the most significant thing about the printing process in MagicBind is that the copy can boast of true proportional spacing and, if desired, simultaneous right justification.

Contrary to the claims of numerous software companies, "true" proportional spacing with right justification is a rare combination in word processing. To explain why, I will have to digress. The concept of true proportional spacing, while surrounded by much misunderstanding, is simple: each printed character is assigned an amount of lateral space corresponding to its relative printed width by the word processor.

This means that thin letters such as "i" and "t" will be assigned less space than those of greater girth, such as "W," and that daisywheel printers that support microspacing will space forward on the line in accordance with the number of increments (usually 120ths of an inch) assigned by the word processing program.

From a programming standpoint this is not a great problem; the problem arises when the word processor must also justify the right margin. To provide a uniform right margin, the word processor is called on to total the individual widths of all the characters that will appear on a given line so that it can make what is called an end-of-line decision. This is the point at which the next line begins. And this is just what MagicBind does.

MagicBind assigns a width to each character. This will vary slightly from one daisywheel to the next; the default is the Diablo PS Bold printwheel, but the widths can be adjusted individually. It then totals the width increments and makes the end-of-line decision, either bringing up characters from the following line if the line as it appears on screen is too short, or cutting off

one or more words if it is too long.

This is why the patches to WordStar and NewWord do not—cannot—generate text as attractively as can MagicBind. Wordstar lines contain a fixed number of characters, regardless of aggregate character width. In a printout using a proportional daisywheel, the lines will look spread out if there are too many lean characters, such as "i," and compressed if there are too many wide characters. For the same reason, a large number of uppercase letters on the same line cannot be properly handled by patches without user intervention.

Patches to WordStar cannot generate text as attractively as can MagicBind.

WordStar and NewWord both provide microjustification as well as macrojustification, inasmuch as both programs adjust space between letters as well as between words in order to achieve right justification; in this regard they are superior to most word processors. MagicBind likewise adjusts the spaces between letters, and it is this capability, plus its attention to the individual widths of all characters on a line, that makes it the sophisticated, unique program that it is.

What you see in the original WordStar or NewWord file is not what you are going to get when printing in MagicBind, but that is in the nature of a text formatter, and it has the advantages I noted. By way of compensation, you can review the page format and breaks by means of a print-to-screen feature. Widows (visually unappealing single lines at the tops of pages) and orphans (short single lines at the bottoms of pages), both anathema to typesetters, are automatically avoided.

Embedded formatting commands

Most formatting commands are embedded in the file in the manner of WordStar/NewWord dot commands, except that MagicBind uses *two* dots to signal a command so that they will be ignored by WordStar and NewWord. WordStar/NewWord commands for boldface, underscoring, and superscript/subscript are recognized by MagicBind. In the dot command formatting, too, there are improvements and refinements, among them true centering, greater control and flexibility in headers and footers, and printing in columns. Foreign language characters can be accessed on the NEC printer by means of the ^N, ^O (^Q^W option in WordStar/NewWord), and the ^H (backspace) is supported.

MagicBind also provides automatic footnoting, but the footnotes must be placed at the bottom of the page and cannot be "accumulated" to be placed at the end of

the chapter. There is no limitation as to footnote length, and the limit of 15 per page hardly seems to be a serious drawback. Sections can be numbered automatically, and a table of contents can be generated. The index is produced by embedding control characters around the entry, and a choice of several index levels and formats is possible. A subprogram called ASSORT is used to sort the index entries, and multiple entries of the same word are not only sorted but also collated under one unique entry with all the page references. This feature alone can save many hours of formatting time.

Is MailMerge superseded?

Finally, MagicBind provides a user-friendly program that includes most features of MicroPro's MailMerge program and in some ways is a distinct improvement on it. The embedded commands in form letters are more logical than those in MailMerge, and the entire process of setting up the files to be merged and "boilerplate" inserts is simplified.

Both programs require datafile fields to be separated by commas. As anyone knows who has run a MailMerge program, it is extremely easy to make mistakes in the number of fields entered in each record. It is characteristic of the ingeniousness and thoroughness of MagicBind that, once more, it provides an extremely useful subprogram, VERIFY, which, when run on your datafile, rapidly checks fields to insure that the correct number is present (the most likely error) and that the length of the field is correct (as in the zip code field).

In sum, the index and footnoting programs will appeal to academics, while the mailing and label programs should be of interest to those involved in word processing in the business world. The program is not cheap, but when you weigh its price against the programs it can supplant, such as MailMerge, Footnote, and others, and when you consider the advantages of such subprograms as VERIFY and ASSORT, it stacks up as a bargain. Future enhancements now in the works include a driver for the Hewlett-Packard LaserJet printer and drivers for leading dot-matrix printers.

WordStar meets the laser printer

There is no question that the laser printer has had a huge impact on just that aspect of the computer world discussed in this article: the production of printouts that closely resemble typeset copy. Although there are at least seven laser printers now on the market that can be driven by one microcomputer or another, Hewlett-Packard's LaserJet printer, because of its simplicity and relatively low cost (it runs about \$3,500), is currently the chief contender.

The LaserJet has three noteworthy features: speed (around 300 characters per second), quiet operation (approximately the decibel level of a copier), and the

ability to produce sharp copy (definition of 300 dots per inch) of near typeset quality. But there is a hitch: finding a word processor that can drive the various printer font cartridges properly.

MagicBind provides a user-friendly program that includes most features of MailMerge.

The escape sequences required by the Hewlett-Packard to handle fonts and printing features are too long to be installed in the standard version of WordStar, and not all available fonts can be accessed. NewWord, on the other hand, handles a laser printer with considerable flexibility, accessing the various fonts by means of standard dot commands (for example, a .cw8 accesses eight-point Times Roman, .cw14 provides 14-point Helvetica).

But the fact remains that neither program will provide a justified right margin with the laser printer. And there are other problems, such as the fact that many dot commands cannot be directly implemented with the laser printer, nor is it currently possible to access the foreign language characters of the printer using WordStar or NewWord.

And that again is where text formatters come in. I am aware of three such programs for the LaserJet: Laser Print, StarJet and Polaris PrintMerge. Blaha Software's Laser Print is a flexible driver that will access all available LaserJet fonts and will work with any word processor that produces standard ASCII files. The latter feature is useful, since the other drivers discussed work only with WordStar and its clones. But Laser Print cannot yet provide right justified copy. Since this is a prerequisite for emulating typeset material, I will discuss only the formatters that can provide proportional spacing and right justification in the remainder of the article. Both StarJet and Polaris PrintMerge have that capability, but work only with WordStar/NewWord files. Even so, they provide an excellent solution to the problem of linking one of the most popular and flexible word processors with the LaserJet printer. They also make additional printing features available, such as being able to print boxes and horizontal or vertical lines of varying widths.

Ease of use

No one familiar with the WordStar/NewWord programs should have any difficulty using StarJet or Polaris PrintMerge; in fact, you can print out an unchanged WordStar/NewWord file without any advance preparation at all. But to obtain the *advanced* features of the laser printer it will be necessary to make use of a new,

but not extensive, set of dot commands or of embedded control characters. The programs are friendly and powerful—the ideal combination.

But what is perhaps most significant is that they will work with the Times Roman proportional fonts of the laser printer (in cartridges B and F: “F” contains the extended, foreign language character set) producing—if desired—justified right margins and boldface and italic print. Both cartridges also contain a 14-point Helvetica and an eight-point “line printer” font. The former is handy for titles, the latter for footnotes or for printing out large spreadsheets. Standard Courier fonts, including bold and italic, are built into the ROM of the printer.


The two programs compared

Of the two programs, Polaris has the edge, in my view, since it operates similarly to MagicBind in that it makes end-of-line decisions on the basis of actual total character widths of the line, not on the basis of the number of characters. It also supports all 15 font cartridges currently available for the LaserJet and provides up to ten keyboard translation tables that facilitate the use of foreign characters.

StarJet, on the other hand, is simpler to use and better for those who want to see what they are going to get, as it does not change the WordStar line. And a quite

important point is that a CP/M version of StarJet allows the use of the Kaypro 2, 4 and 10, as well as the 16-bit models. In my own experience, both programs worked extremely well, but I would have to give Polaris the higher grade with regard to the appearance of the printed copy.

Conclusion

As we have seen, text formatters on the market today range from the do-it-yourself book with its patch tables to expensive and powerful programs intended primarily for the user whose copy must emulate typeset print. There is no doubt that a revolution in small business typesetting is underway, brought about in large part by the high costs of conventional typesetting and the convenience of in-house typesetting “emulation.” Until recently, the requisite formatting software was not available, but now one can almost speak of an embarrassment of riches in flexible and powerful text formatters. 

James Hardin is a professor of German literature at the University of South Carolina. As editor and author of scholarly articles and books, he makes extensive use of word processing programs.

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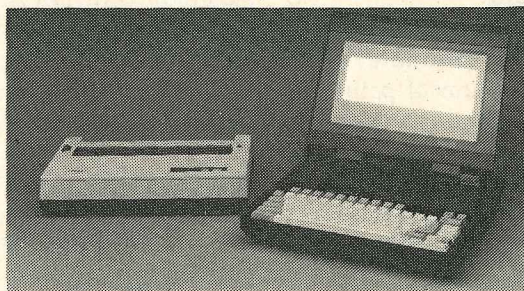
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Quick Reference Summary

Product:

MagicBind + MagicIndex ver. 2.11

Uses:

Formatting, file merging, and indexing program with true proportional spacing.

Audience:

Anyone interested in high-quality printed copy, or who makes use of MailMerge-like programs, and academics who work with large documents requiring footnotes and an index.

Noteworthy features:

True proportional spacing with right justification and a rich variety of formatting capabilities; a smooth and quick label printing program, and a program that verifies the accuracy of mail list datafiles.

Manufacturer:

Computer EdiType Systems
509 Cathedral Parkway
New York, NY 10025
(212) 222-8148

Hardware needed:

Kaypro 2, 4, 10 or IBM PC and compatibles, a NEC Spinwriter or Diablo-compatible daisywheel printer.

Software needed:

WordStar or word processor generating ASCII files.

Price:

\$295 for the entire set; \$250 for MagicBind (includes MagicPrint); MagicPrint alone for \$195.

Product:

ProportionalStar

Uses:

Producing proportionally spaced copy.

Audience:

As for MagicBind.

Manufacturer:

Writing Consultants
11 Creek Bend Dr.
Fairport, NY 14450
(716) 377-0130

Hardware and software needed:

As for MagicBind

Price:

\$75, includes copy of *Proportional Spacing on WordStar*.

Product:

PropStar ver. 1.9

Uses, audience, hardware and software needed:

As for ProportionalStar.

Manufacturer:

Civil Computing Corporation
2111 Research Drive, Suite 1
Livermore, CA 94550
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P.O. Box 1221
Bend, Oregon 97709
503-388-1194



Product:

StarJet

Uses:

Formatting WordStar files for HP LaserJet.

Audience:

Small businesses, academics, civic organizations.

Noteworthy features:

Near typeset quality printouts.

Manufacturer:

Control-C Software Inc.

6441 SW Canyon Ct.

Portland, OR 97221

(503) 292-8842

Price:

\$150.

Operating systems:

CP/M-80, CP/M-86, MP/M-86, MS-DOS, PC-DOS.

Software needed:

WordStar/NewWord ver. 3.0, 3.3.

Hardware needed:

LaserJet printer.

Product:

Polaris PrintMerge, ver. 1.21

Uses, audience, and noteworthy features:

As with StarJet.

Manufacturer:

Polaris Software

Box 28789

San Diego, CA 92128

(619) 489-8243

Price:

\$99

Product:

Laser Print, ver. 1.0 and ver. 2.0 (with extended graphics features)

Uses, audience, and noteworthy features:

As for StarJet, but without righthand justification. Works with word processors producing ASCII files.

Manufacturer:

Blaha Software, Inc.

50 Commonwealth Ave., Suite 701

Boston, MA 02116

(617) 236-1892

Price:

\$99 (ver. 1.0), \$199 (ver. 2.0)

Operating systems:

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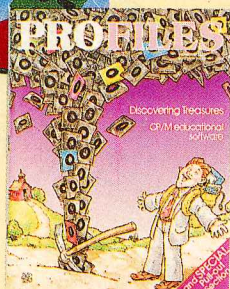
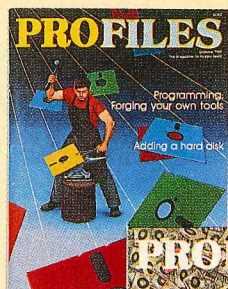
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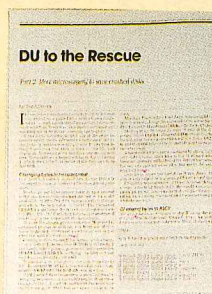
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It's not such a bear after all

by Marvin Coates

A few days ago a friend was telling me about the difficulties he was having with some computer software. He had wanted to do a calculation involving interest rates (or something like that) and had ended up using a pocket calculator because it was quicker and easier to solve the problem that way than it was to go to the trouble of refamiliarizing himself with a software package.

"That problem seems straightforward," I said. "Why didn't you just write a little program to handle it?"

He looked at me as if I needed a fitting for a straight-jacket. "If I don't have the time to bother with the relearning of software, I certainly can't get involved in a whole programming language," he began.

"There's nothing to it," I said. "A programming language is no more difficult than any other foreign language, like Serbian or Chinese. It's all in the approach."

He got a funny look on his face and started to back nervously toward the door. "How long has it been since you had a vacation?" he asked. "Why don't you go someplace relaxing. You know—someplace where you can get your thoughts together and get back in touch with reality."

I would have explained that he was obviously a victim of misconceptions about the magnitude of the task of learning a foreign language, and that learning computer languages is easy if you know how to organize the attack properly, but it's difficult to carry on

a conversation with someone who's running away.

In spite of my friend's concern for my mental balance, the comparison was accurate—computer languages and human languages share the characteristics that make learning easy. They also share something else: To the uninitiated they look forbidding, mysterious, and complicated.

Reference manuals vs. textbooks

When I took the wrapper off the the manuals that came with my Kaypro, I knew at once where some of the "mystique" that surrounds computer languages comes from. Most people probably wouldn't try to learn Arabic or Japanese by reading a dictionary, but using a reference manual to learn a computer language amounts to the same thing.

Reference manuals are not textbooks—they're designed for people already familiar with the language. Of course, an expert in machine-related communications *can* learn a computer language from a manual, just as someone who knows Bulgarian might be able to learn enough Croatian from a dictionary to converse in it, but most of us probably would not approach the problem that way.





Most learners, especially beginners, need an organized, step-by-step presentation of the structure of a language, and reference manuals don't provide it. The logical approaches that make the learner comfortable with the process are to be found only in language textbooks, and even at that, only in the better ones. The choice of text requires careful consideration.

Experienced foreign language instructors know that a good textbook, one that will provide a maximum of learning for the students with a minimum of frustration, can be identified by certain features, and those same features are present in many of the texts available for computer language learning. Consider, for example, texts for the BASIC language—a reasonable starting point, since BASIC is available to most users of personal computers.

A matter of style

A primary consideration is style. The text should be conversational, introducing and explaining unfamiliar terms as it goes along. Nothing is more frustrating to language learners than to open a chapter that begins, "The predicate nominalization always appears in subjective case, except when prepositions calling for

vocative govern its occurrence." That's wonderful if you're a linguist, but not so wonderful otherwise.

The beginner does not want the task of learning a language structure to be compounded with the task of learning grammatical terminology and technical jargon, and the learner of computer languages is no less entitled to as clear a pathway as possible.

Read a few passages of *each chapter* of any text you are considering to see how they sound. If reading the book is like listening to a friend explain how to use the language, then you're on the right track. If you follow the explanation without having to read it more than once, then you and the book are operating on the same frequency, and it's one to consider buying. If you find yourself making deductions about how things should work *before* the book explains them (assuming, of course, that it is properly aimed at your level of skill and expertise), then it is approaching an ideal style for you.

Terms should be introduced only as needed, and should be defined and explained at the point of introduction. If the text says, "The GOTO command is used to branch to one of several specified line numbers, depending on the value returned when the expression is evaluated," instead of, "The GOTO command is

followed by a line number so that the computer knows where in your program you want it to go," a beginner would be better off leaving it on the bookstore shelf.

How good are the sample programs?

A second consideration is the usefulness of the sample programs the text contains. I often hear people say they studied French or Spanish in school, but can now remember only a sentence like, "My Aunt Agatha never puts milk in her tea," because it was in a memorized dialogue in a textbook somewhere. It's great to know about Aunt Agatha, but the sentence will not be of much use if you're asking for directions because you're lost in the subway system in Mexico City or Paris. Sometimes the dialogues in foreign language textbooks concentrate more on proving some grammatical point than on teaching useful communication, and that can happen in computer language texts too.

Look at the sample programs to make sure the text explains adequately what the results of running the program should be, then determine if any of them look like programs you might want to use for some practical purpose. Of course, the programs at the beginning of the book will be simple, because they must be limited to the scope of the learner's ability at that point, and therefore they may not look like anything you'll want to use in the long run, but the general pattern should be one of practicality.

Quizzes—the great motivators

A third thing to look for in a text, especially one that you're going to use at home by yourself, is quizzes at the end of chapters, complete with answer keys. Knowing that there is a quiz is a strong motivation to read and understand the text material with care. It seems to be a part of human nature to learn things we know we'll be asked about later, and not to bother so much with things we know we won't be.

Another thing to look for is quizzes at the end of chapters—with answer keys.

The answer key, of course, gives the reader an idea of how things are going. If you grade yourself honestly, always justifying any discrepancies between your answers and those of the answer key so you know exactly why you answered as you did, your control over the material will develop quickly and easily. Naturally, if you answer quiz questions incorrectly and cannot explain the error, you need to review the material covered by those questions before going on. Experienced foreign language teachers quiz and review frequently in this same way.

Is there an index?

The fourth quality of a language text to consider is its index. Someday you will be a budding expert in the language, whether it's BASIC or Burmese, and you won't need the detailed explanations anymore, but you *will* occasionally need to find something about a structure or phrasing that is vaguely stored in the back of your memory.

Whether you're learning BASIC or Burmese, you will occasionally need to use an index.

While considering the purchase of a text, look up a few things that you know the answers to. Does the index lead you on a journey through Oz and back before you find the right passage? And while you're thinking about it, consider the amount of reading you have to do when you finally find the right place. When you're working with language data and you need help, you usually want a direct, simple answer to a direct, simple question. In a good foreign language text, you could begin with questions like, "How do I make this word plural?", "Do the nouns go after the verbs, or in front of them?", and, "Which question word should I use with this sentence?" Knowing what to look for in the index should lead you directly to the answers. The same is true for a text dealing with a programming language. If you're trying to find out why your machine keeps rudely saying "SYNTAX ERROR" when you told it: 20 IF X = 34 GOTO 200, you don't want to spend an hour reading about IF statements, when all you really need to know is that the word THEN has been left out.

Is there a glossary?

Finally, every good foreign language textbook for beginners has a complete glossary at the back, detailing the use and irregular forms for all the words used in the body of the text. The glossary bridges the gap between the text and a dictionary, since dictionaries assume the reader has a detailed understanding of the rules and therefore don't go into too much explanation.

A programming language text likewise needs a complete listing of possible error messages *with a beginner's level explanation of what might have gone wrong to produce the error*. Error message explanations in user's manuals are often as cryptic, obtuse, and unhelpful as the error message they are supposed to be trying to explain—so prepare in advance by making sure that the explanations sound clear.

One of the secrets of being a language teacher is knowing that no instructor is ever totally happy with a textbook he or she didn't write, but there are several fine BASIC texts that do an admirable job of approach-

ing the language from a true "language learning" point of view. One is *Armchair BASIC* by Annie and David Fox (published by McGraw-Hill), particularly aimed at the beginning beginner who isn't exactly sure how to turn the computer on. For the advanced beginner, there's *BASIC Programming: A Structured Approach* by Clark and Drum (published by Southwestern). And there are others, of course (a list is included at the end of this article).

You have a book—what next?

Selection and study of the text are step one in the process of teaching yourself a computer language. Step two is equally simple: practice. In order to learn to speak Swahili, you must practice speaking Swahili. The more Swahili you speak, the better you get. The more programs you write, the more adept at programming you become. Language is learned by exposure to it, and that's just as true for BASIC as for Portuguese. Of course, practice can be efficient or wasteful, which is again where language teaching techniques come in.

If you observe the scheduling of foreign language classes in school, you notice that they tend to meet for short periods throughout the week, rather than for four hours at a time on one day, because language learning, like exercise, works best when spread out over time. A

runner who runs one mile a day for five days each week gets much better exercise than a runner who does all his miles in one day and then does nothing for the rest of the week. Set aside a little time to practice writing short programs each day, rather than trying to write long, complicated ones in one sitting.

In language classes, a good instructor will insist that even the shiest students participate in using the foreign language. No matter how good the text is, students don't learn from it if they don't physically produce the language forms discussed. You can't learn to ride a bicycle by sitting in a chair and moving your feet in a circular pattern, no matter how much that activity may imitate the real thing.

Applying what you learn

Neither can you learn to program by reading the text and assuming that you followed what was going on. It's a good idea to sit at the computer and reproduce the results of the sample programs and examples in the text so that you have a "working" understanding of what was explained, not just a vague "reading knowledge."

Whenever people study a foreign language, they practice structures many times over, frequently reviewing old material along with the new. Your prac-

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LEARNING LANGUAGES

tice programs will, by their nature, be much alike, but it's a worthwhile habit to consciously involve programming techniques repeated from earlier lessons.


Finally, language teachers agree that a successful student is one who has begun to "think in the new language." That means not just the ability to function without having to make reference to English or to use translations, but also having a keen awareness of the language being studied and using every possible

*Selection and study
of a text are step
one; step two is just
as simple: practice.*

opportunity to get additional exposure.

Good language learners read foreign publications, enjoy foreign language television and radio programs, attend foreign language films, and cultivate friendships with native speakers of the language they're trying to learn. A good computer language learner can do likewise by being consciously aware of programs in operation all around, in such forms as automated bank tellers or computer generated reports used on the job. Consider what the program is doing and how it's doing it. How much of its function could you write? Briefly review the commands in your computer language that are involved. Even though you probably won't be interested in actually writing the program, the mental review is valuable.

The misconceptions about foreign language learning—that it's difficult, that you can't do it by yourself, that it takes a special talent that average people don't have, and many others—are starting to make their way into the realm of programming languages, a realm in which they are equally untrue.

There is no doubt some logical connection between the fact that on one hand a child too young to be able to learn to tie a shoelace can develop native fluency in two human languages, and, on the other hand, that school-children who still have problems with basic skills can be successfully taught to program computers. Perhaps the secret lies in that, not having been exposed to the imaginary size, complexity, and arduousness of the task as viewed through their elders' eyes, they have not developed a fear of it that prevents them from trying. 

Marvin Coates is chairman of the Liberal Arts Department of Watterson College in Louisville, Kentucky. He taught English to non-English speakers at Michigan State University and the University of Southern California, and he wrote his dissertation on computer-assisted language instruction. He has learned four human languages and five computer languages.

(continued on page 38)

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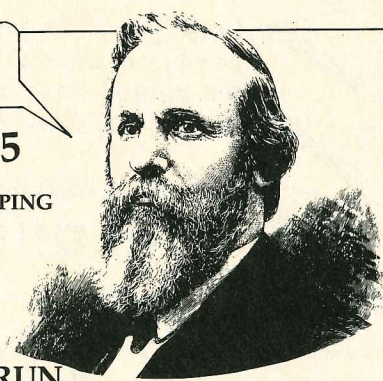


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General/8/16

Generating Form Letters

Teaming up MailMerge with DataStar or dBASE II

by Joseph Comanda

Form letters—you know the ones. They come in all shapes and styles, with varying amounts of originality. Sometimes it's difficult to discern that they are form letters; sometimes it's annoyingly obvious. Many of you probably bought your Kaypros to churn out precisely this kind of correspondence, and some of you, no doubt, have discovered that while the theory is easy, the actual practice is not so simple.

This article will give you some step-by-step procedures for producing form letters using WordStar/MailMerge and either DataStar or dBASE II. This should get you off the ground floor with MailMerge and help get those mailings out the door.

To do a proper form letter run, you need a mailing list stored in a datafile. That's where DataStar and dBASE II come in. You *could* create a datafile with WordStar, but DataStar and dBASE II are tools more suited for working with datafiles, and they do a far better job of it.

The trick is to get them working together with MailMerge. Let's start with a quick overview of how it can be done. The process has three basic steps.

Step 1: Creating a MailMerge instruction file. MailMerge needs specific instructions on how to print the form letter. An instruction file contains the basic text of the form letter and instructions on where to get personalized information and where to insert it into the letter. You create it with the D Option (open a Document file) on WordStar's Opening Menu.

ILLUSTRATION BY PETE EVARISTO

Step 2: Creating a name-and-address datafile. You need a datafile of names and addresses of the people on your mailing list. You can either use WordStar's N option (for editing a Non-document file), or you can use DataStar or dBASE II.

Step 3: Printing the form letters. To print form letters use the M option on WordStar's Opening Menu, for running MailMerge. MailMerge will follow the instructions in the file you created in step 1 to combine the form letter's text with the personal information stored in the datafile you created in step 2 and produce the finished form letters.

Creating a MailMerge instruction file

Figure 1 (see below) shows an instruction file created with WordStar. These particular instructions are fairly simple. They tell MailMerge to print out a form letter for each person on the mailing list. Each time it will repeat the basic text of the letter and insert a different name, address, and salutation.

```
.OP
.DF B:ZIPSORT.DTA
.RV FIRSTNAME, LASTNAME, ORGANIZATION, STREET, CITY, STATE, ZIP,
SALUTATION

                                June 25, 1985

&FIRSTNAME& &LASTNAME&
&ORGANIZATION/O&
&STREET&
&CITY&, &STATE& &ZIP&

Dear &SALUTATION&:

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enjoy life.

WHEN OK IS NOT GOOD ENOUGH — Gary Carter
A presidential contender offers his vision for an America that's not
just OK. "We can do better," he says. "Why not the best?"

Stop in soon to pick it up.

                                Sincerely,

                                Bertha Bookholz
                                Bookseller

.PA
```

FIGURE 1: A SIMPLE MAILMERGE INSTRUCTOR FILE

More sophisticated MailMerge applications use more complicated instructions, but no matter how complex these instructions get, there are really only three basic things MailMerge needs to know: what information to get, where to get it, and where to put it. In our example, it needs to know where to look for the mailing list datafile, what information to get from it, and where that information should go in the form letter.

Two things distinguish the instruction file from a regular WordStar document: special dot commands (two-letter commands preceded by a period) and the use of variables (the words surrounded by ampersands). Here's a simple rule of thumb: dot commands usually tell MailMerge where to get information and variables tell it where to put information.

Dot commands

Dot commands aren't unique to MailMerge. WordStar uses them too. In both cases, dot commands are instructions that are carried out only during printing; though these commands appear on your screen, they themselves do not print. WordStar dot commands govern aspects of layout such as page length, top and bottom margins, headings and footings, and page numbering. MailMerge uses both the WordStar dot commands and some special ones of its own.

This instruction file has two WordStar dot commands: .OP (omit page numbering) and .PA (page break). The first tells WordStar not to print a page number at the bottom of each letter. The second tells it to start each subsequent form letter on a new page.

There are also two MailMerge dot commands: .DF (Define File) and .RV (Read Variables). The first one tells MailMerge which datafile to use for the names and addresses. It is followed by the name of a specific datafile (in this case ZIPSORT.DTA located on the B drive).

The next line contains the .RV command followed by a series of words like FIRSTNAME, STREET, etc. It tells MailMerge which pieces of information to get out of the datafile.

Variables

If you look just above the body of the form letter, you'll see several lines containing words surrounded by ampersands (&). These words correspond to the words in the .RV command line. They are variables, meaning that they change from one printing to another. The .RV command line tells MailMerge which pieces of information to get from the datafile, and the variables surrounded by ampersands tell MailMerge where to stick that information in the form letter.

The organization variable has a slash mark followed by an O (not a zero) inside the closing ampersand. It tells MailMerge not to print the line if there's no organization information for that person. Without the "slash O" you'd get a blank line below the name information.

The makings of a MailMerge datafile

Once you have constructed an instruction file like the one in Figure 1, you still need a datafile with some names and addresses in it to be able to print any form letters. But first, here's some background on datafiles in general.

Let's say that you now store customer records on index cards in a filebox and that each card contains the

same basic information on each person: first name, last name, organization, street, city, state, zip, etc.

A datafile is just a computerized version of that filebox. In a name-and-address datafile, for example, each name and address constitute a separate record, just as each index card in the filebox is a separate record. Each record is further divided into "fields" (units of information such as first name, last name, organization, or street).

Figure 2 (also below) shows ZIPSORT.DTA, a sample MailMerge datafile. Each name-and-address record occupies a separate line, and each field is separated from the next by a comma. When a field contains information with a comma in it (as the organization field does in the first record), the whole field needs to be set off by double quotes. Otherwise MailMerge will think that the comma is a field separator, and the information will be printed out in the wrong places.

Bill,Barne,"Barne Associates, Inc.,"23 Palm Drive,Warren,PA,19015,Bill
Sarah,Stone,3456 Suburban Lane,Hillview,PA,19023,Sarah
Michael,Manley,6543 Main Drag,Ardmore,PA,19003,Mr. Manley
Laura,Lane,Lane's Travel,9876 Westwood Drive,Greenville,PA,19008,
Ms. Lane

FIGURE 2: A MAILMERGE DATAFILE

Notice that the order of the fields in the datafile is the same as the order of the variable names in the form letter's .RV command line. MailMerge uses that command line as a map to the datafile's field order to find the right information.

Now the connections ought to be clear. The form letter's .RV instructions tell MailMerge to go through each record in the datafile, get the appropriate information out of the various fields, and plunk it into the right spots in the form letter, creating a separate, personalized form letter for each record.

Using WordStar to create a datafile

You can either create the datafile by hand with WordStar or you can use DataStar or dBASE II. Unless your list is quite small, you're better off *not* doing it with WordStar. It's not really hard, but it is quite tedious, and you're more likely to make simple typing errors with commas that will throw things off for MailMerge. Still, it can be done, and you may as well know how.

To do it with WordStar, use the N option (open a Non-document file) at the Opening Menu. It's similar to the D option, for our purposes, except that it doesn't have word-wrap. Now all you have to do is enter the names and addresses one record at a time, making sure to separate fields with commas and hitting the carriage return at the end of each record. Put each record on a single line and don't worry if it goes beyond your screen's width. Don't forget to use the same field order for each record and to bracket fields that have commas in them with double quotes. Leave commas for blank fields (fields with no information in them) as illustrated by the third field of the second record in Figure 2.

Now you have a datafile for MailMerge to work with and you're ready to print. This really isn't the best way to go about making datafiles; DataStar, cousin to WordStar, is much better.

Using DataStar to create a datafile

DataStar is designed to work with MailMerge, making the record entry process relatively simple. The hardest part is setting up your record entry form. Once you've set up a form (see Figure 3 below), each time you want to add a new record, all you have to do is fill in the blanks. DataStar does all the worrying about commas and double quotes and makes sure all the fields and records are put into the proper order and form for MailMerge. A DataStar datafile can be used directly by MailMerge without any modifications.

*A DataStar datafile
can be used directly
with MailMerge without
any modifications.*

DataStar is actually two separate programs: DataStar and FormGen. You will use DataStar to enter the records and to look them up. But first you must design a record entry form, and that takes FormGen (Form Generator).

The form designing process creates three separate files to be used later. First FormGen creates a *definition* file, with a .DEF extension, for your record form. Next, as you enter information into those records, Datastar creates a *datafile* with a .DTA extension and an *index* file with an .NDX extension. So if you call your datafile CLIENT, you'll actually end up with CLIENT.DEF, CLIENT.DTA, and CLIENT.NDX.

Designing the record entry form

FormGen feels a lot like WordStar. It uses many of the same editing commands, has similar help menus, and lets you roam around the screen laying out the form. It also has some sophisticated design features that enable you to link datafiles, do calculations, and provide error checking at data-entry time. But you don't have to use any of them to set up a simple name-and-address datafile. All you need to do is lay out the form

NAME-AND-ADDRESS RECORD FORM

FIRST NAME: _____ LAST NAME: _____

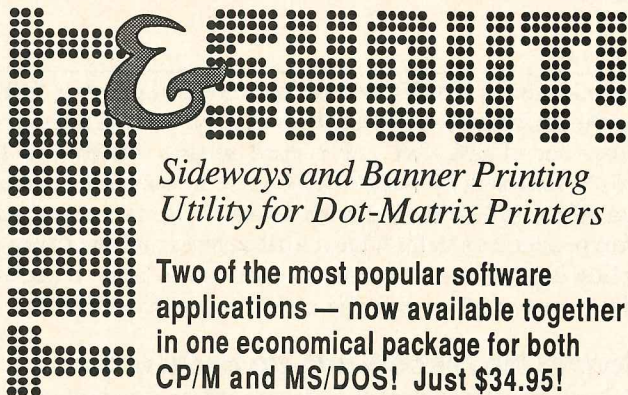
ORGANIZATION: _____

STREET: _____

CITY: _____ STATE: _____ ZIP: _____

SALUTATION: _____

FIGURE 3: A DATASTAR RECORD-ENTRY FORM CREATED WITH FORMGEN



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the way you want it to appear on the screen, with each field clearly labeled.

Type **Formgen**, a space, and then our sample datafile's name, **CLIENT**. There'll be a screen explaining the help menus; press **^J** to get past that to a blank screen.

As far as FormGen is concerned, what you type onto the screen is either a field or background text. Fields, which are created by typing in underline characters (____), are what DataStar cares about. Out of all the information you enter, that's what it will store. Everything else is background text—optional, but helpful. Your form will be easier to use if you include titles, field labels, liberal use of blank lines and even data-entry instructions. One popular convention is to use all uppercase letters for entry labels.

To put in a first name field, for example, you type in an optional label such as "FIRST NAME:", leave a couple of spaces, and then enter 20 consecutive underline characters to create a 20-character first name field.

A couple of tips: Make your fields long enough for your needs, but not too long. Particularly if you intend to print labels, you will have to limit field lengths. Twenty characters is plenty for the last name, and you're better off limiting the first name to 15. Also, postal regulations require that a U.S. city name be no longer than 17 letters, so that's all you need for the city field.

Also, you might want an extra address line to handle unusual or lengthy addresses. I replace the street field with two fields called ADDRESSLINE1 and ADDRESSLINE2. This works quite handily.

When you've finished laying out the form, there's one last step before saving it. You must designate a "key field." Just as reference books index subjects by key words, DataStar uses the key field to create an index to the datafile for locating records quickly. Let's make the last name the key field. Move the cursor to that field and hit **^K** (for Key). FormGen will fill the field with asterisks.

FormGen is used to create your form for data entry.

Entering records with DataStar

Once you've created the entry form with FormGen, you can begin entering records with DataStar. With your blank form still on the screen, type **^CD**. This saves your form (**^C**) and automatically puts you into DataStar (**D**). The first time, DataStar will prompt you as to which disk drive you want the datafile and its index stored on. Then you will be presented with a blank record ready to be filled in. Just move from field

to field using WordStar's cursor movement keys, filling in the name-and-address information for one person on your list. Then save the record with a **^B** to end the entry, followed by a **RETURN**, which stores the record. DataStar presents you with another blank record, and you proceed as before. Quit and save the whole thing by following the same steps as you did to save a record, then press **^EE** to exit the current mode and form.

Sorting the records into zip code order

When you've finished entering records, you can use the datafile (the one with the .DTA extension) as is to run off your form letters. All you need do is make sure the .DF command line in MailMerge's form letter file calls the name of your datafile.

However, part of the attraction of computers is their power over the mundane, so why not sort the datafile into zip code order first? DataStar lacks true sort capabilities, but many of you also have SuperSort or ReportStar (which has its own sorter, FormSort). Either program will work.

Sorting with SuperSort

SuperSort is a fast and versatile sorter, perhaps the best on the market, but it could also be the least friendly program you own. This article cannot begin to explain its inner workings, but it will show you how to get your datafile sorted into zip code order.

The first step is to use WordStar to create a special file of commands that SuperSort will need to do the job. This command file can be used every time you do a zip code sort on this datafile. In WordStar, open a Non-document file called ZIPSORT.CMD and put these lines into it, hitting **RETURN** at the end of each line:

```
INPUT = 160, CR-DEL
SORT = B:CLIENT.DTA
OUTPUT = B:ZIPSORT.DTA
KEY = #07,5
EXC = FIELD 1,1 = 0FFH
GO
```

The first line tells SuperSort the structure of the datafile it will sort. It says the maximum record length is 160 characters and records are delimited (separated by) by carriage returns. You can calculate the character length per record by adding up the maximum lengths of all the fields in a record (plus a comma for every field), or you can just pick a number large enough to be safe. Don't make it too large, though, because that slows down the sort speed.

The second line names the datafile to be sorted, and the third line tells SuperSort to create a new sorted file called ZIPSORT.DTA and put it on the B disk. The fourth line tells SuperSort which field to sort by—in this case the zip code field. You designate this by the appropriate field number, a comma, and then the field length.

The fifth line tells SuperSort to exclude any records in which the first character of field #1 is a hexadecimal FF. When you delete a record in DataStar, it isn't deleted immediately. Instead it's marked at its beginning with a hexadecimal FF. The fifth line excludes such records from the sorted datafile. (It's not necessary for you to understand hexadecimal numbers at this point, but if you want further information, see "Bits, Bytes, and Hexadecimal Numbers" on page 35 in the July/August 1985 issue of *PROFILES*.)

The last line tells SuperSort to go and execute the commands.

Remember, only one key field per record.

Once you've saved ZIPSORT.COMD, you're ready to sort the datafile. Type **SORT CFILE = B:ZIPSORT.COMD <CR>** (<CR> indicates a carriage return) at the A prompt. SuperSort will then execute the command lines in ZIPSORT.COMD one at a time. When it's done, you're ready to run off your sorted form letter mailing.

Sorting with FormSort

FormSort is a simplified version of SuperSort, specifically designed for use with DataStar files. It sorts a datafile by its key field. Since you probably made the last name the key field, you must make a different version of the definition file in which the zip code is the key field before you can do your sort.

This involves two one-time setup steps. First, use PIP to make a copy of the definition file and call the new copy ZIPSORT.DEF (**PIP ZIPSORT.DEF=CLIENT.DEF**). Then use FormGen to change the key field in your new file, ZIPSORT.DEF, from the last name field to the zip code field. To do this, move the cursor to the last name field and hit ^K to remove its key field status, then move the cursor to the zip code field and hit ^K again to impart key field status. Remember, there's only one key field per record.

Now you're ready to do the sort. Use PIP again to copy the datafile and call this copy ZIPSORT.DTA. Then use FormSort to sort ZIPSORT.DTA into zip code order with the following command: **FORMSORT B:ZIPSORT/D <CR>**. When it's done you're ready to run off your form letters ordered by ascending zip codes.

Creating a datafile with dBASE II

dBASE II is a popular database workhorse, and its datafiles can work with MailMerge. Here's how to set up such a file. At startup dBASE prompts you for the date, then leaves you with a period (its prompt) and a blank screen. To define the structure of your name-and-address datafile, you must type **CREATE B:CLIENT <CR>** where CLIENT is the name of the datafile. Later dBASE will save both the structure and the records in a

file called CLIENT.DBF on the B drive. Now it will prompt you to begin defining the fields you will use.

```
. CREATE B:CLIENT
Enter record structure as follows:
Field      Name, Type, Width, Decimal places
001        FirstName,C,20
002        LastName,C,15
003        Organiz,C,30
004        Street,C,30
005        City,C,17
006        State,C,2
007        ZipCode,C,5
008        Salutation,C,25
009
```

FIGURE 4: A dBASE II DATAFILE STRUCTURE

Figure 4 (above) illustrates the required format for field definition. First you enter the field name (one word with a maximum length of 11 characters), then the type (in our sample all the fields are Character (C) types), then the field width (or length). Since we're not using numeric fields with decimal points, that's all you have to do. Be sure to separate pieces of information with commas, and then move on to the next field by hitting the RETURN key. When you've defined all the fields (the maximum number is 32), hit the RETURN key twice. Unlike DataStar, dBASE II does not require you to have a key field or use an index file.

Entering records with dBASE II

At this point you can either begin entering records right away by typing Y in response to the question "Input data now?" or you can come back to it later by using these two commands in sequence: **USE B:CLIENT <CR>** and then **APPEND <CR>**. The record entry form on the screen will be a single-column list of all the fields in the record. Just type in the name and address information. When the last field is filled in, dBASE saves the record automatically. Quit by hitting the RETURN key when a new record blank appears on the screen.

Sorting and converting with dBASE II

Before you can use this datafile for form letters, you must convert it into the form MailMerge requires. And you may as well sort it into zip code order at the same time. The following four commands do this:

```
USE B:CLIENT
SORT ON ZIPCODE TO B:ZIPSORT
USE B:ZIPSORT
COPY TO B:ZIPSORT.DTA DELIMITED WITH "
```

The first command establishes what datafile you're working with. The second command puts a zip code-sorted version of the datafile into a file named ZIPSORT.DBF. The fourth command line creates yet a third file, ZIPSORT.DTA. That's the one you'll use to run off your form letters. By specifying that the fields be delimited with double quotes, you make sure that any

(continued on page 60)

Getting Started with Assembly Language

A tutorial and a simple program

by David Weinberger

If you saw the words "assembly language" in the title of this article and nonetheless have ventured this far, congratulations: You have the foolhardy courage of a true hacker.

In this article I hope to get you started in assembly language programming (or assembler for short) by walking you through a brief, useful program. This will require, however, reviewing some of the basics of how computers operate, and I am assuming that you have some previous programming experience in a high-level language such as MBASIC or Turbo Pascal.

The program is SAVESTAR, which will very likely save your file if WordStar or Turbo Pascal ever crash because the disk was full or you did something too clever in Pascal. It is a simple program, but in a sense all assembler programs are simple, for they require you to instruct the computer in every small, simple step it takes. Assembler's simplicity is what makes it hard.

Why assembler

In a high-level language like MBASIC, all you need do is type **PRINT "X"** and an X appears on your screen. This magic is accomplished by an invisible program, positioned between the program you are writing and the machine, which translates the semi-English phrases used in MBASIC into a set of step-by-step instructions the computer can understand. For this convenience, however, you lose power over the computer's operations. You also lose efficiency, for the translator does things in safe ways, not in ways best suited to the particulars of the task at hand.

Assembler, on the other hand, is a low-level language because the intermediary translator (ASM.COM on your CP/M master disk) does relatively little, leaving the rest for us to do ourselves. It is inconvenient but powerful. For example, I first wrote SAVESTAR in S-BASIC, but I found that S-BASIC wrote itself right over the section of memory I wanted to preserve. Assembler gives complete control over "details" like that.

How assembler works

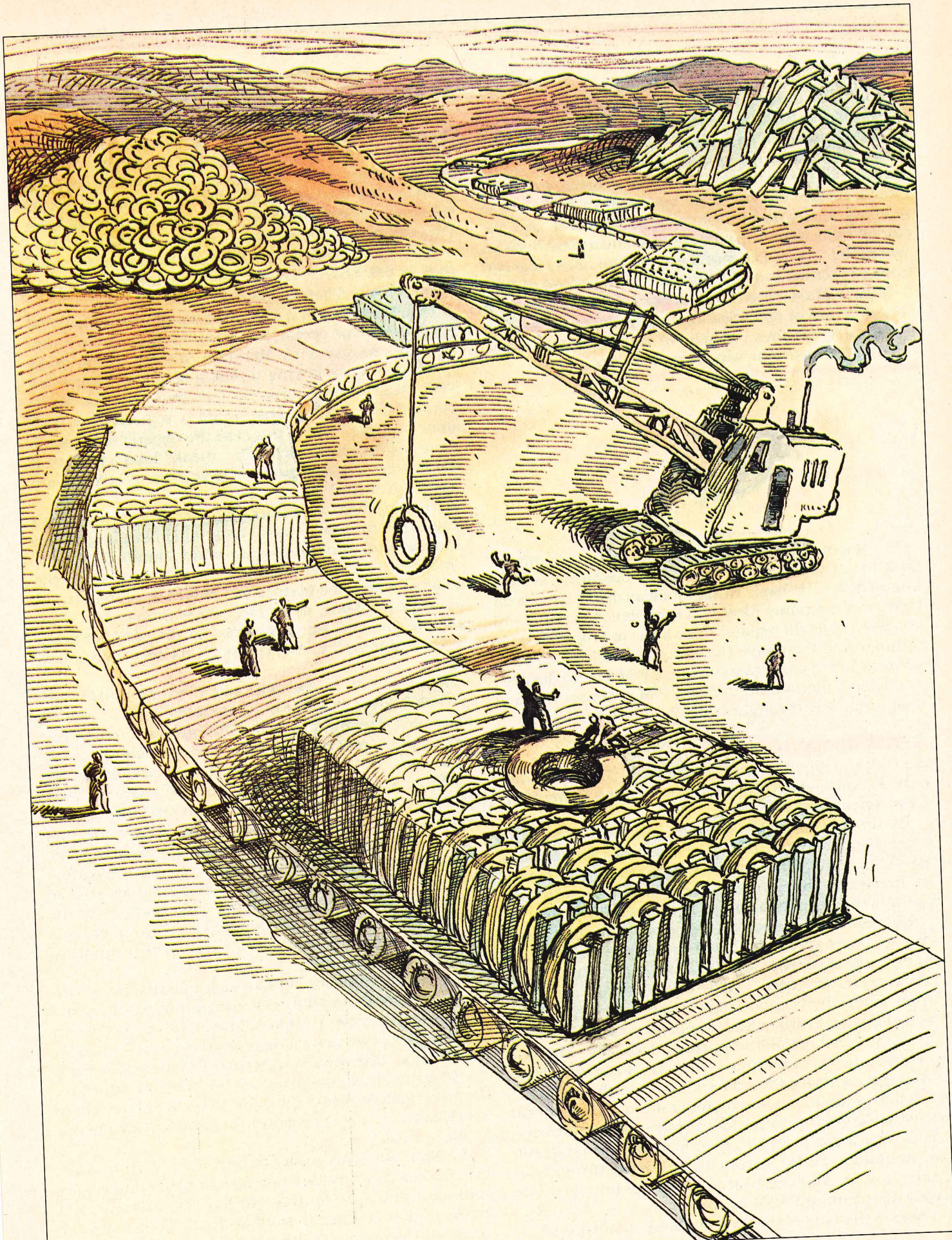
The heart of every computer is a central processing unit (CPU), which in the case of the Kaypro 1 through 10 is a Z80 chip. Built into the CPU is the ability to perform certain operations when fed a code number (called an "op code").

The CPU is not part of the computer's main memory, i.e., the 64K we all know and love. But it does have a few memory locations in it, called "registers." They are lettered A, BC, DE, and HL, and they come paired as noted. Each single register can hold a number from 0 to 255, but if we consider two of them as a pair, they can hold a number from 0 to 65535 (=64K). This is because each register holds a byte (=8 bits) and the highest 8-bit number is 255, whereas the highest 16-bit number is 65535, and that's all I'm going to say about bytes and bits!

The registers do the work. Let's say you want to take whatever is in main memory (henceforth simply called memory) at address 5000, increase it by one, and store it in address 5001. You won't accomplish this by talking to the computer in a precise tone of voice. Instead, you might use the op codes that would let you:

- Put the number 5000 into the register pair HL
- Have the CPU fill register A with the contents of whatever address is contained in HL
- Increase by one whatever number is in register A
- Increase by one whatever number is in HL
- Store whatever is in A into the address contained in HL

Now, we could get the computer to do this by feeding the CPU the op codes, which is in fact what computerists did in the old days. But instead of using only numbers (hard to remember, hard to read), we can use *mnemonics*, which are short, descriptive labels. We write our program, using WordStar (Non-document mode) or Perfect Writer, and then run it through ASM.COM, which translates the mnemonics into the op codes the CPU understands. (ASM understands the



mnemonics associated with the 8080 chip, so we will be writing in 8080 assembler. The Kaypro's Z80 CPU understands 8080 op codes.)

You can find a list of the mnemonics in the CP/M manual, in the section called *CP/M Assembler (ASM) User's Guide*, but you'd be better off in every sense reading James Joyce's *Ulysses*: it is clearer and the pay-off more important. I'd recommend a good book on assembler, but all I've found are the bad ones I learned from. (At the *intermediate* level, I am very fond of Alan R. Miller's *Mastering CP/M*, Sybex, 1983. It contains a complete list of op codes and mnemonics, as well as some nifty routines.) When we walk through SAVESTAR, I'll explain the mnemonics it uses.

You can find the mnemonics in the CP/M manual, but James Joyce's Ulysses is clearer.

CP/M simplifies things further for us by providing a built-in set of functions. The CP/M operating system knows how to do basic things such as delete files, print characters, rename files, and even exit gracefully. All you need do is fill register C with the appropriate code number and then have the computer look at memory address 5 for its next instruction; CP/M will do the rest. The list of functions offered by CP/M is in your manual about half way through: *CP/M 2.2 Interface Guide*.

A walk through SAVESTAR

Let's look at the listing of SAVESTAR. (The line numbers are *not* part of the program. I added them afterward for easy reference.)

In the box of asterisks are comments that the assembler ignores entirely. The assembler also ignores anything to the right of a semicolon. This makes it easy to document your program, which is a superb idea given how easy it is to go wrong in assembler.

Now come the "equates." These tell ASM that whenever it comes across the word to the left of the *equ* it should substitute the value to the right of it. By writing, for example, **cr equ 13** we can write "cr" (upper or lower case) wherever we want to use the code number for a carriage return, which happens to be 13. (At Line 23, L23, you'll notice the number 1Ah. Yes, 1Ah is a number, in hexadecimal—that is, Base 16. Hexadecimal numbers should be followed by the suffix h.)

Equates make it easier to understand your program because words are more descriptive than numbers. Also, they make it very easy to modify your program, for to change all the instances of a term throughout your program you need only change the initial equate and run it through ASM again.

Notice that there are six different equates for BEG-

TEXT in SAVESTAR. All but one must be prefaced by a semicolon. BEGTEXT stands for where in memory the different versions of WordStar and Turbo Pascal store the text you've been working on. By choosing the right equate, you can set up SAVESTAR to rescue text for whatever versions of these programs you normally use. (You can also make different versions of SAVESTAR.)

L40. **ORG 100h** tells ASM that the list of op codes that is SAVESTAR should begin at memory address 100h. This is where CP/M expects them to be.

L41. **lxi sp,stack** is a bit more complicated. As CP/M does its various operations, it needs some spare memory spots to play with. You have to tell it where those spots are or risk having it pick a spot you want filled with stuff of your own. So you must set the stack pointer (SP). **LXI** means "Load a register-pair with some number," and in this case the register is the stack pointer. (Mnemonics with an L mean "load"; with an X they mean "register-pair"; and with an I they mean "with a number".)

But *stack* isn't a number, you say? To ASM it is. L142 tells ASM to treat "stack" as a label standing for an address, and an address is a number. Similarly, at L65, "mspot:" is a label standing for the number of the address where the instruction **push h** is stored. If you write **jmp mspot**, as at L97, ASM figures out what address "mspot" stands for and has the program jump to that address (i.e., has it look for its next instruction there).

So, L142 fills the variable "stack" with the address of a place following 64 free bytes (created by L141: define space 64). The stack used by CP/M grows *down*, so you need a place preceded by some empty room.

L44-46. We load the DE register pair with "sinon." At L133 we see that *sinon* is actually the address where the letters that comprise the sign-on message are stored. ASM figures out where the letters are and converts "sinon" into the right address. Notice that the message ends with a "\$". At L45 we *move* immediately into the single register C the number 9 (*equated* to "prnt"), which happens to be the code number for the CP/M function that prints whatever string of characters starts at the address in DE. Function #9 prints until it reaches a dollar sign.

At L46 we **call bdos**, and we have *equated* **bdos** with 5. When we call an address we are actually telling the computer to look at that address in memory and execute whatever instructions are there, until it hits an instruction that tells it to return to where it left off. CP/M keeps track (via the stack) of where to return to. Memory address 0005 happens to be the place where CP/M takes over and executes the function number in C, all by itself.

L50-52. We have to delete any old copies of SALVAGED before we make a new one, or we'll end up with multiple copies. To do this, we have to write out the name of the file to be deleted and tell CP/M where in memory that name is. We also have to provide some

workspace after the file's name. The name and workspace together are called a "file control block" (FCB). CP/M wants the address of the FCB put into DE before we use function #19 to delete it. At L139 we have entered the name, and appropriate blank spots, into memory and have labeled the address where it begins "tfcb." (Of course we can make up any labels we want, up to seven letters long.) This **db** extends for two lines; ASM doesn't care, and it makes it easier for us to print out.

At L52 we put the appropriate code number into C and call address 0005 again. This routine for using the built-in functions of CP/M should soon become second nature: DE gets any relevant address, C gets the function number, then calls 0005.

At L55-60 we begin a new file SALVAGED using function #22. If CP/M cannot make a new file because the disk directory is full, it will note its failure by leaving the number 255 in A. At L59 we compare (immediately) what is in A with 255 (=00FF in hexadecimal). If it matches, then a bit in the CPU called the zero flag will be set to one. So if the zero flag is one, we will jump (jump on zero) to a different section of the program, called "fuldir" (L124), which will print an appropriate message and quit.

Now we come to the main loop. We are going to start looking at memory at the appropriate spot (determined by equating "begtext" with the right address), and write whatever is there until we either hit characters (equated as "ctrlZ", "endfill", and "FFfill") indicating the end of the file (EOF) or until we reach the top of where text could be written (equated as "memtop"). But CP/M will not write a single byte at a time; rather, you tell it where to start and it will write 128 bytes (=one record).

L64. Load HL with where to begin.

L65. **Push h** means copy the number in HL to the top of the stack. You do this because when CP/M

*We have to tell CP/M
where in memory are the
128 bytes we want writ-
ten into a disk file.*

executes one of its built-in functions, it uses HL itself, wiping out what was in there. So, you have to save the value. Later on, at L79, we will **pop h**, filling it up with what used to be in it. (Popping restores whatever value was last pushed there, so the following sequence: **Push H Push D Pop H Pop D** would result in HL and DE switching values. This is one of the easiest ways to go wrong.)

L68. We have to tell CP/M where in memory are the 128 bytes we want written into a disk file. We do this with a CP/M function called "Set DMA" (Direct Memory

Address). CP/M wants the address of the beginning of the 128 bytes put into DE, but we have the address in HL, so we simply exchange the contents of HL and DE. Then we execute the Set-DMA function call.

L72-77. Put into DE the address of the name of the file into which we want the text written, and execute the CP/M write-a-record function.

Now we want to make sure everything went well. If the disk wasn't full, CP/M will put a zero into A. So we compare (**cpi**) the contents of A to zero. If they match, the zero flag is set to one. If the contents are anything but zero, the zero flag is not set and we jump (jump on non-zero) to the subroutine called "filled" (L117), which prints an error message.

We also want to make sure we haven't written past where the lost text could be. We restore to HL the value it had at L65 (**pop h**), which is where in memory we began writing from. At L80 we move into A the value we have equated as "memax."

Looking at the memory map in my Kaypro manual, I see that BDOS starts at EC00h; The text could not conceivably extend that high. If we are writing that high in memory, then HL (which points to where we are writing in memory) would be EC00 or higher. This would be stored in H as ECh and in L as 00. So, we want to check that H is not ECh. If it is, it's time to stop writing. So, we put ECh into A and at L81 compare the contents of A with the contents of H. (**CPI** compares A to some number you loaded it with; **CMP** compares the contents of A with the contents of some other register.) At L82, if A=H we jump to the routine that finishes up our business.

We also have to check if we have just written the last record of our text. After the text ends, we will find either some characters indicating it is the end of the file (control-Z), or some characters filling unused memory (00 and 00FFh). So, we look at the end of the sector by putting the number 127 into DE (L84), and by adding the contents of DE to the contents of HL, leaving the sum in HL (**dad d**). Now HL contains the last byte of the record.

At L86 we move into A the contents of M. M is a peculiar register, not really in the CPU. It is really the spot in main memory that is pointed at by the contents of HL. So, by moving M into A, we are loading A with the last byte of the record just written.

At L89-94 we are going to compare this last byte to the three possible marks of the end of the text and jump to the finish routine if any one of the three matches.

If none matches, then at L96 we are going to increase HL by one so it will point at the beginning of the next sector to write. Then we are going to jump back to do the whole loop again.

We get to L101 by having successfully written the whole file. So we print a sign-off message using Function #9, and then we close the file (L107-109) by having Function #16 enter into the disk directory the right information about the file. Finally, at L110 we have


```

ASSEMBLY 1 *****
2 *
3 *          SAVESTAR
4 *          Mini Version
5 *          (c) 1985, D. Weinberger
6 *          May be freely copied, modified, and given
7 *          away, but not commercially or for profit.
8 *          In short, no one is allowed to make money
9 *          on or from this.
10 *
11 * Writes lost WordStar/Turbo files on to disk from
12 * memory in case of a crash.
13 *****
14 ;
15 ; ----- EQUATES -----
16 boot equ 0000h ; system reboot
17 bdos equ 0005h ; BDOS jump spot
18 deletef equ 19 ; delete file function
19 makef equ 22 ; make file function
20 writef equ 21 ; sequential write
21 closef equ 16 ; close file function
22 ctrlZ equ 1AH ; EOF character
23 endfill equ 0000H ; Another filler character
24 FFfill equ 00FFH ; Yet another filler.
25 prnt equ 9 ; print to console function
26 cr equ 13 ; carriage return
27 lf equ 10 ; line feed
28 memax equ 00ECh ; hi-bite of where BDOS begins
29 ;-- Where text is stored in various programs: Choose ONE
30 ; BEGTEXT equ 7848H ; WordStar v. 3.0
31 BEGTEXT equ 846Dh ; WordStar v. 3.3
32 ; BEGTEXT equ 802Ch ; Turbo v. 2 with error messages
33 ; BEGTEXT equ 7A74h ; Turbo v. 2 without error messages
34 ; BEGTEXT equ 8118h ; Turbo v. 3 with error messages
35 ; BEGTEXT equ 7BF3h ; Turbo c. 3 without error messages
36 ;
37 ;===== PROGRAM STARTS HERE =====
38 ;
39 ; SET UP PROGRAM AND ASSIGN THE STACK
40 org 100h ; program begins at 0100h
41 lxi sp,stack ; set up stack
42 ;
43 ; PRINT SIGN ON
44 lxi d,sinon ; DE=Address of sign on message
45 mvi c,prnt ; C calls CP/M print-string function
46 call bdos ; Execute the call
47 ;
48 ;-- DELETE ANY OLD COPY OF THE FILE "SALVAGED"
49 ; Otherwise you'll end up with two with the same name.
50 lxi d,tfcf ; DE=Address of the FCB for SALVAGED
51 mvi c,deletef ; C calls delete function
52 call bdos ; Execute the call.
53 ;
54 ; MAKE A NEW FILE CALLED "SALVAGED"
55 lxi d,tfcf ; DE=Address of SALVAGED's fcb
56 mvi c,makef ; C calls create-a-file function
57 call bdos ; Execute the call.
58 ;-- Could the file be made? Enough room in the directory?
59 cpi OFFh ; If not enough room, A=00FFh (=255)
60 jz fuldir ; If A=255, then jump to sub-routine
61 ;
62 ;
63 ;===== MAIN LOOP: WRITE MEMORY TO DISK =====
64 lxi h,begtext ; Load HL with where lost text begins
65 mspot: push h ; Save this pointer into the text
66 ;
67 ;--Set DMA to read next 128 of memory
68 xchg ; DE now points into text
69 mvi c,1Ah ; C calls set-dma function
70 call bdos
71 ;--write a record (= 128 bytes)
72 lxi d,tfcf ; DE=fcb of file to write into (SALVAGED)
73 mvi c,writef ; C calls write-file function

```



```

74      call    bdos
75      ;-- Was the write successful?
76      cpi     0          ; A=0 if write ok
77      jnz     filled     ; If disk full, jump to sub-routine
78      ;-- Have we written from memory past where the text could be?
79      pop     h          ; Restore H as pointer into text
80      mvi     a,memax     ; load A with hi-byte of max mem.
81      cmp     h          ; compare it to where we are
82      jz      finis      ; if the same, jump to end
83      ;--Check for End of File
84      lxi     d,127       ; Load DE with 127
85      dad     d          ; Add what's in DE to the address in HL
86      mov     a,m         ; Load A with contents of what's in the
87                      ; address contained in HL. In this case,
88                      ; it's the last byte of the record.
89      cpi     ctrlz       ; Is it the EOF marker?
90      jz      finis      ; If so, we're done. Jump to subroutine
91      cpi     endfill     ; Is it a 00?
92      jz      finis      ; If so, we're done.
93      cpi     FFfill      ; Is it a 00FFh?
94      jz      finis      ; If so, we're done.
95      ;-- We're not done.
96      inc     h          ; HL=HL+1 so it points to new record
97      jmp     mspot       ; Loop back and do it all over.
98      ;
99      ;
100     ; FINISHED READING AND WRITING SUCCESSFULLY
101     FINIS: lxi     d,donemsg ; DE=address of sign-off message
102           mvi     c,prnt    ; C calls print-string function
103           call    bdos
104           ;-- Continue to CLSF to close the file "SALVAGED"
105           ;
106           ; CLOSE THE NEW FILE (entering it into the disk directory)
107     clsf: lxi     d,tfcf     ; DE=address of fcb
108           mvi     c,closef   ; C calls close-file function
109           call    bdos
110           mvi     c,boot     ; re-boot to system
111           call    bdos
112           ;
113           ;
114           ;----- ERROR ROUTINES -----
115           ;
117           ; WRITE FAILED BECAUSE DISK IS FULL
118     filled: lxi     d,fulldsk ; DE=address of full-disk message
119           mvi     c,prnt
120           call    bdos
121           ;
122           jmp     clsf       ; jump to close-file routine
123           ;
124           ; MAKE-FILE FAILED BECAUSE DIRECTORY IS FULL
125     fulldr: lxi     d,fuldr   ; DE=address of full-directory message
126           mvi     c,prnt
127           call    bdos
128           ;
129           mvi     c,boot     ; reboot to system
130           call    bdos
131           ;
132           ;----- MESSAGES -----
133     sinon  db      'SAVESTAR mini-version (c) 1985, D. Weinberger$'
134     donemsg db      cr,lf,'==> Saved text written to B:SALVAGED$'
135     fulldsk db      7,'++ Disk full. Erase a file or use new disk.'
136           db      ' Try again ++',cr,lf,'$'
137     fulldr db      7,'++ Directory full. Erase a file or use new disk.'
138           db      ' Try again ++',cr,lf,'$'
139     tfcb   db      2,'SALVAGED ',0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
140           db      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
141           ds      64
142     stack  db      0
143           ;
144           end
145

```



Function #0 cause the system to do a warm boot, ending the program.

Next come some error routines that aren't used unless something went wrong. These print out error messages and either close the file or warm boot.

The final section is "messages," a section of memory that contains not program instructions but letters to be printed out when requested, and some workspace for CP/M. The "cr,lf" are the codes for carriage return and line feed, putting what they preface onto a new line. The "7" before the error messages beeps the beeper. The "2" in the "tfcB" causes SALVAGED to be put on drive B. If you want it on drive A, change it to a 1. To put it on whatever drive you are logged on to, change it to a 0.

Conclusion

You are now on the road to mastering assembler. Advance yourself by experimenting with SAVESTAR. For example, my fuller version lets you view on screen what is being saved by hitting any key. It asks permission before erasing any old copy of SALVAGED. It figures out which version of WordStar or Turbo you are using. Consider making it possible to save a file under a name of your choice. Consider presenting a menu of types of files to save (version 3.0, 3.3., Turbo v. 2 with error messages, etc.). None of this is too hard.

Besides, if you were looking for easy, you'd stick with MBASIC. 

David Weinberger is a professor of philosophy at Stockton State College in New Jersey. He was formerly a gag writer for Woody Allen, and he has contributed to numerous publications both in and out of the computer field.

How to Assemble SAVESTAR

How to go from paper listing to a working computer program? Easy. Type in the listing (WordStar users, remember to use Non-document mode), ignoring the line numbers and anything to the right of a semicolon. Also you can skip the box of asterisks. You don't even have to follow my indentation, although it helps make it more legible. Name the file **SAVESTAR.ASM**.

With SAVESTAR.ASM in B, put ASM.COM in A. Type **ASM SAVESTAR.BBZ**. This mysterious command causes ASM to look on B for SAVESTAR.ASM, to leave the results of its work on B, and not to generate a listing of the program. (For short programs such as this one, a listing can be helpful, although it takes time to do. Sometime try typing "ASM SAVESTAR.BBB".) You should see the message:

CP/M ASSEMBLER - VER 2.0

```
02C0
001H USE FACTOR
END OF ASSEMBLY
```

If there are errors, go back and check the little details such as commas and colons.

If no errors are reported, put LOAD.COM into A and type **LOAD B:SAVESTAR**.

When LOAD is done you should see:

```
FIRST ADDRESS  0100
LAST ADDRESS   02BF
BYTES READ     0180
RECORDS WRITTEN 04
```

You should now have SAVESTAR.COM on your B drive.

To test it out, run WordStar (or Turbo, depending on what you equated BEGTEXT to), load a document, check the end of it, and then hit the reset button. Type SAVESTAR. Within a few seconds it should be done. Now read through SALVAGED to see if SAVESTAR worked.

Using SAVESTAR

If you get a "Disk full" message and can't escape, or if you have managed to get your Pascal program to confuse your Kaypro beyond all hope (it is easy to do this with all the power Turbo gives you), just hit the reset button and type SAVESTAR. The disks will whirl and you should end up with a file called SALVAGED on your B drive. This file should contain whatever you had been working on. This is possible because WordStar and Turbo Pascal save your text in coherent form in main memory, and that section of main memory is not affected by hitting the reset switch. (Turning off the power, on the other hand, will wipe out all of memory. So get your hand away from that on-off switch!)

If the file you were working on is so large that it couldn't all fit into memory at once, SAVESTAR will save only that portion of it that is in memory. But look on your disk for .BAK files and .\$\$\$ files that WordStar may have created for you.

Be sure to read through SALVAGED carefully. SAVESTAR is designed to err on the side of generosity, so it may save the contents of memory beyond the end of your text. If there is any gibberish there, simply erase it from your file the way you erase any unwanted material.

If SAVESTAR saves your text once, it will save it again as often as you want, on as many different disks as you want, until you turn off the power or run a different program.

If SAVESTAR gives you an error message ("Disk Full" or "Directory Full"), either put in an emptier disk or erase some files using the ERA command; this will not affect the text you want to save. But do *not* run any other programs and do *not* turn off the power.

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Tracing Your Family Tree

Genealogy software puts everyone in their places

by Carol McGinnis

Because there is unavoidably at least a three-month delay between the time an article is written and its publication in PROFILES, and because software developers frequently revise their products, the versions of the programs reviewed below are not necessarily the latest. Before you purchase any program, we recommend that you call the manufacturer for details on the latest version, including version number, date of last revision, and specifics about what makes the latest version different from previous ones.—Ed.

In 1682 Francis Fincher purchased 1,250 acres of land from William Penn in the province of Pennsylvania. Fincher, a Quaker from Worcester, England, had arrived in America just the year before. He had left his native land because of religious persecution.

Meanwhile, several hundred miles to the north, Isaac Bedard was earning his living in Quebec as a farmer and carpenter. Bedard, a Huguenot, had emigrated from France around 1660 with his oldest son, Jacques. Three years later his wife and other son joined them.

In 1956—274 years later—I was born, a descendant of both these men. Through genealogy research I've identified 400 of my ancestors with 186 surnames.

What does all this have to do with computers—specifically the Kaypro? Well, a computer will not do your genealogy research for you, but it will help to organize it. And believe me, organizing information on 400 ancestors is much faster and easier using a computer than it is using a typewriter or filling in charts by hand. The time saved can be used for other tasks.

How the Kaypro can help

Your computer can help you fill out and easily update pedigree charts and family group sheets, the standard

forms used by genealogists. It can help search through your database for a specific person or group of people. It can keep track of footnotes, historical notes, mailing lists, and much more.

Purchasing software for genealogy is no different than purchasing software for any other purpose. You have to determine your own needs.

Some of the questions to keep in mind include how you want to organize your information, and for what purpose. Will you be exchanging information with others? Are you planning to write a book? Will you just be working with data collected by other family members, or with data you've collected from primary sources, or both? Will you want to use footnotes or text notes? Will you want a search capability? How much information will you need to store?

Before you go shopping for a program, make a list of the features you'd like to have and then rank those in their order of importance to you. Also, determine how much you want to invest in a program. If you're new to genealogy, or if you will only be spending a few hours a month with your hobby, perhaps you should consider purchasing an inexpensive program, or even using Kaypro's bundled software. Pedigree charts and family group sheets, for example, can be designed with WordStar or Perfect Writer.

In fact, the Komputer (formerly Kaypro) Users' Genealogy Interest Group—a national user group with more than 200 members—has several disks in its library jam-packed with genealogy applications for both Perfect and MicroPro software, as well as public domain programs, reviews, and other hints. KUGIG is dedicated to making the Kaypro the standard for genealogy computing, helping owners get their machines up and running for genealogy and informing members of the latest in genealogical computing. It's well worth the \$35 per year membership fee (\$40 for double-sided disks). For details, check with Coordinator Alice Wright Petersen, P.O. Box 1790, Ames, Iowa 50010.

Commercial programs

If you're serious about your genealogy, you might want to consider a more expensive genealogy program, a database program, or even writing your own program. The software that's best for you depends on what you want to do with your information, as well as how much time and money you want to invest.

Four of the best genealogy programs available at this writing for CP/M Kaypros are Family Roots, Roots/M, My Family Record (MFR), and Family Ties. There are similarities. All of them, for example, allow you to print pedigree charts and family group sheets. But there are differences among them. Roots/M, for example, will display lists of descendants from a particular ancestor, while Family Roots allows you to actually print descendant charts.

Petersen, who has spent extensive time reviewing genealogy programs, ranks My Family Record as the easiest of the four programs to learn and use. Roots/M is a little more sophisticated, she says, followed by Family Ties and then Family Roots.

My Family Record

After looking over all four programs, I tend to agree with Petersen's assessment. I found My Family Record very easy to use. It's menu-driven, so all you have to do is read the screen and make your selections. It's so easy to use that I didn't mind its sparse documentation. There are ten pages of instructions on one of the disks; they are not, however, a tutorial.

My Family Record is the Kaypro version of the Personal Ancestral File program originally written in PC-DOS by a computer committee in the Church of Jesus Christ of Latter Day Saints (Mormons). Utah programmer Ronald P. Duncan converted the program to MBASIC. On the Kaypro the ESCape key plus a number key is used in place of the IBM function keys. The PC-DOS version comes with a data sort utility, which could not be converted to the CP/M Kaypro because of RAM limitations. (Duncan suggests that anyone who has enough research notes to need a data sort might be better off using dBASE II or Perfect Filer.)

Under the "Data Entry" routine, the user has the option of adding an individual or adding a family. The data entry screen for adding an individual allows the user to input information on the birth, christening, death and burial. Information on marriages is entered during the "Add Family" option. First the husband is selected from or added to the database; then the wife and children are selected or added.

The first time a name or place is typed, the program asks you to retype the name to verify its spelling. If the second spelling is the same as the first, the name is entered into a special list file unique to the data disk being used. The next time the name is entered, it is checked against this list, provided you're using the same disk. If the name is found, it will not have to be

verified. This is a check against misspellings and is probably a good idea. However, I found it slowed down data entry. I'm a fairly accurate typist and could check for misspellings by sight faster.

Sequential numbers are assigned to individuals. The first person entered becomes number one, the second is number two, etc. I have my own numbering system and didn't care for the numbers imposed on me by the program. However, this might not be a problem for newcomers to genealogy.

An unlimited number of historical notes (60 characters each) can be added on each individual at the time of data entry or by selecting "History Note File" from the main menu. These are automatically numbered and also can be coded by the user. Notes can be printed on the appropriate family group sheet.

My Family Record prints standard four-generation pedigree charts and family group sheets, as well as the individual and marriage entry forms for entering ancestors into the Ancestral File of the Genealogy Society at Salt Lake City. For the Kaypro 2, MFR comes on five disks. For the Kaypro 4, it's on three disks. This means there's quite a bit of disk switching, and at times, that can be irritating.

There is no fixed number of names that can be stored on a disk. That's determined by the amount of information and number of historical notes stored with each person. When a disk is full, it is replaced with another. Therefore, there is no limit to the amount of data that can be handled.

MFR costs a very reasonable \$37 (\$35, plus \$2 shipping) and is available from Duncan at 1446 Bluegrass Circle, Salt Lake City, UT 84121.

*Roots/M has routines
that allow you to trace
descendants of a
particular person.*

Roots/M

In some ways Roots/M offers more than MFR, but in other ways it offers less. Roots/M, for example, has routines that allow the user to trace the descendants of a particular person, or to determine the relationship between any two people in the database, as long as they are related within eight generations. It does not, however, allow the user to input text notes, and there is a definite limit on the number of people that can be placed in each database.

Roots/M is just as easy to use as MFR—perhaps easier. Its 98-page manual—almost half of which is devoted to a discussion of genealogy, the rest to the program itself—is clearly written. A "designation line" at the bottom of the screen at all times tells the user

which keys to use to control the program. In addition, each routine displays instructions for its use.

The heart and soul of Roots/M are the list and edit routines. The edit routine, of course, allows the user to input information on individuals, including birth, marriage and death dates and places. This creates the basefile or database. The list routine allows the user to search the basefile for a particular name—a surname, first name or middle name—and then displays the names in the order in which they were placed in the basefile. It will not list names alphabetically or search for combinations of surnames and first names.

When Roots/M is loaded, the basefile is transferred from disk to the computer's RAM. At the end of an editing session, the basefile with its changes and additions is written back to disk. The old basefile becomes a .BAK file. This makes Roots/M faster to use than the other programs covered. However, it does place definite limitations on the size of a basefile. A 64K system can store up to 1,600 records per file. You may create as many basefiles as you want, but Roots/M can only use one basefile at a time, and there is no way to transfer information from one basefile to another. This means that a person with large amounts of genealogical data will probably have to create more than one file and will have to figure a logical way to split the information, such as placing all paternal ancestors in one file and all maternal ancestors in another.

The program does not assign numbers to individuals itself or allow you to. Pedigree charts are automatically numbered when printed, while no numbers are used on family group sheets.

Although the program will display lists of descendants, it will not print descendant charts. There is no way to add text on an individual, or to record such items as baptisms, burials, occupations, church affiliations or military service. The program's biggest shortcoming is its inability to keep track of footnotes.

Roots/M retails for \$49.95 and is from Commsoft, Inc., 2452 Embarcadero Way, Palo Alto, CA 94303.

Family Ties

Family Ties is a little harder to learn than MFR or Roots/M, not so much because the program is so difficult but because the documentation is so poor. A demo disk, which is a tutorial, is available for \$15. (When the program is purchased, this is applied to the purchase price, if the demo master is returned.)

There is also a 20-page reference manual, but it leaves a lot to be desired. Someone with some computer and/or genealogy experience probably will be able to conquer Family Ties in one session. It's the person new to computers or genealogy who might have some problems with it, at least initially.

During the family group sheet routine—similar to data entry in MFR and edit in Roots/M—information can be entered on a husband, his wife and their chil-

dren. By following the commands listed on the command line at the bottom of the screen, you may move forward or backward in time, adding information on the husband's children, his parents, etc.

When the name of a person or location is entered for the first time, the program will ask you to verify by sight whether the spelling is correct. Each new name is given a reference code, which is displayed on the right side of the screen. Subsequent entries of the same name can be made by using the reference code or by typing in the name. If the name is typed, the program will not ask for verification of spelling. Names are stored only once in the database to conserve disk space.

*Family Ties displays
the pedigree chart so
you can see what you're
getting—well, almost.*

Record numbers or identification numbers are assigned sequentially as individuals are entered.

Once a record is added to a database, it cannot be deleted. This is also true for fields within a record. If you enter a name as BROWNE, for example, and later change the spelling to BROWN, the incorrect name will still be in the database taking up space. The correct spelling, of course, will appear on the family group sheets and pedigree charts.

An unlimited number of free-form notes (80 characters each) can be associated with any individual. For long passages, however, the programmer suggests using a word processor, because notes take up space that could be used for entering more records. You can print the notes with the family group sheet.

The program displays the family group sheet or pedigree chart onscreen before printing it, so you actually see what you're getting. Well, almost. Only four generations of a pedigree chart are shown, while five generations are printed. The program prints both LDS-approved and regular family group sheets.

Information on up to 1,600 people can be stored per 100K of disk space.

Family Ties is available for \$77 (\$75, plus \$2 shipping and handling) from Computer Services, 1050 East 800 South, Provo, UT 84601.

Family Roots

Family Roots is the most sophisticated and flexible of the four programs. I was excited about it by the time I was halfway through its CONFIGUR program, a routine that allows the user to set the hardware configurations and other variables. In all, there are more than 100 selections to be made in CONFIGUR, which explains why the manual suggests you practice for

awhile before entering data for keeps. Some of the values cannot be changed once information has been entered without destroying the data.

Unlike MFR, Roots/M and Family Ties, this is not a program that you will be likely to conquer in one sitting. That's not to say you won't be able to start entering data right away, but it will probably take some time to learn the program's full potential.

The program prints three types of pedigree charts—standard, free-form and compressed—as well as family group sheets and descendant and individual charts. The list routine allows you to print numeric or alphabetical lists of individuals.

Information on individuals is entered during the edit routine. The program asks for basic information on births, deaths, and marriages. In addition, there are nine user-defined fields. With those, you can keep track of such things as burials, occupations, or military service. You may define as many of the nine fields as you want during the CONFIGUR routine. Information that is the same for another person—a marriage date, for example—is stored automatically.

Identification numbers (whole numbers only) are assigned sequentially, or at your discretion. This means that you can control the numbering system or you can have the computer do it automatically.


Other features include a text program for storing footnotes or other information on individuals, which can be printed on the individual sheets. There's a search routine that looks through the database for whatever you request—all the people born between 1800 and 1810, for example.

There are utilities that keep track of mailing lists, print blank charts, reassign identification numbers and prepare a formatted disk for data storage.

Each single-sided disk can store 500 records; the size of the entire database is unlimited.

The 200-page manual is clear and comprehensive.

In all, Family Roots is a very comprehensive program, offering most of the things a serious genealogist would look for. About the only thing I didn't like is that it is slow, probably because it runs under MBASIC. But everything else it has to offer more than offsets this.

Family Roots is available for \$188.50 (\$185, plus \$3.50 for shipping and handling) from Quinsept, Inc., P.O. Box 216, Lexington, MA 02173. 

Carol McGinnis is a full-time freelance writer who resides in Mount Pleasant, Michigan. She edits KAYPROSE, the newsletter for the Central Michigan Kaypro Users' Group. In her spare time, she climbs her family tree.

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commas within fields will not be mistaken for field separators.

Printing the form letters

If you've followed the steps so far, you should now have a MailMerge instruction file and a datafile MailMerge can use. All that's left is to run off the letters. Select option **M** (run MailMerge) from WordStar's Opening Menu. You will be prompted for the name of the MailMerge instruction file. If you are using continuous feed paper (strongly advised) you can just type in the file's name and hit the ESCAPE key, and out will come your letters one after the other.

Complications and what to do


We all know that nothing ever works perfectly the first time, so here are some tips for what to do when things go wrong. (For more on common MailMerge errors, see article to the right.)

First, you can always interrupt the printing job if the first couple of letters indicate something isn't quite right—just hit the P key. WordStar stops sending to the printer and presents you with a choice ("Y to abandon print, N to resume, ^U to hold"). Hit Y to quit. You may also have to turn your printer off to stop it from printing out whatever is left in its buffer.

Second, you can choose to save paper initially by sending a test mailing to a file on disk instead of to the printer and then examining it with WordStar. To do that, hit the RETURN key instead of ESCAPE after you specify the MailMerge instruction file. This presents a series of print-related questions. In response to the first question ("Disk file output Y/N:") answer Y. You will then be asked for the name of the file. I generally call it TRY. You can skip the rest of the questions by hitting ESCAPE. Now your output will go to a disk file for review.

In conclusion

After you've successfully run off form letters, you'll probably be ready for more. The manuals can help you delve further. The MailMerge manual is particularly good, and there are MailMerge lessons in the *WordStar Training Manual*. For example, you'll probably want to print labels to go along with the form letters, using the same datafile. The training manual shows you how. For an advanced treatment of MailMerge's possibilities, try *Getting the Most From WordStar and MailMerge* by David Stone (Prentice-Hall).

As you can see, personalized form letters are just the start. MailMerge is a useful tool, made even better with its partners DataStar or dBASE, and the sorting programs. With this software bundle, the possibilities are endless. 

Joseph Comanda, a freelance writer, teaches classes in MailMerge and DataStar at a computer store in the Philadelphia area and does database consulting using InfoStar.

Common MailMerge Mistakes

1. Inconsistencies between the datafile and the .RV command line's field order. If city information is showing up where the street ought to be, or vice versa, this is usually your problem. The order of variable names in the .RV command line must match exactly the order of fields in the datafile, and every field in the datafile must appear in the .RV command line even if you don't plan to use it in the text of the letter.

2. Spelling inconsistencies between variable names in the .RV command line and variables in the text. If you're getting addresses like "Philadelphia, PA & ZIP-CODE&," this is usually your problem. MailMerge lets you be casual about upper and lower case in variable names, but if you try to call a variable ZIP in one place and ZIPCODE in another, it doesn't know they mean the same thing. Remember too that a variable name must be a single word with no spaces. Finally, variable names must be surrounded by ampersands in the text where you want information to appear, but *not* in the .RV command line.

3. Failure to use .PA at the end of the page, or extra carriage returns. If each letter is not starting properly at the beginning of each page, you may have one of these problems. Make sure you indicate where you want the page break to occur with a .PA command.

Another common mistake is to let invisible carriage returns accumulate at the bottom of the file below the page break line. MailMerge interprets these as a desire on your part for blank pages between letters.

4. Dot commands don't start in first column. The period or dot that begins all dot commands *must* be in column one of a line. If for some reason it's not, the command will not take effect. When you've properly inserted a MailMerge dot command, an M appears in the Flag column at the right side of the screen.

Common WordStar-related problems

Those who create their datafiles with WordStar may encounter the following problems:

- **1. Too many or too few commas.** Like improper field order, too many or too few commas will throw things off. And leave a comma for empty fields.
- **2. No quotation marks around fields that have commas as part of the field content.** If you don't bracket such fields with quotation marks, MailMerge will interpret the comma as a field separator and will break the field at that point, throwing off the placement of subsequent field contents in the form letter.
- **3. Spaces at beginning of fields.** As inveterate writers of common English, we naturally want to put spaces after commas. Resist the urge in your datafile. If MailMerge sees a space at the beginning of a field, it assumes you want it there. When that happens you end up with an address looking like this:

Henry Higgins
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Our software saves you money before it's installed

Computer Professionals, Inc. has been developing computer applications for business and industry for NINETEEN years, often working behind the scenes for some of the biggest names in the industry. We have learned how to pack a lot of power into each computer program but we know that raw power and ability is worth little unless coupled with ease of use, good documentation and responsive support. CPI's Business Systems are all these things and more. They run faster, support larger capacities and cost less than any similar systems marketed today. They have been installed by thousands of users (since 1978) and are available from us directly or from your KAYPRO dealer. We specialize in KAYPRO systems.

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.** Our manuals are prepared and printed on computer systems.

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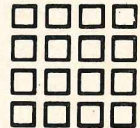
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CP/M MS-DOS
Comprehensive system with the most wanted features. Provides accurate and well organized financial information for your business. Check the partial feature list below. Accepts data automatically from all other CPI Business Systems for completely integrated accounting. The entire program library fits on one 191K disk. Menu driven for ease of use but the menus won't get in your way.

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CAPACITIES: CP/M - 600 Accounts; MS-DOS - 2000 Accounts, 3-5 Digits for Account Numbers - Up to 99 departments using 3-digit account number and 2-digit department number. Each K of disk can hold 8 records (i.e. 300+ accounts and 1200+ transactions on a 191K disk.)

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CAPACITIES of 600 Vendors, (CP/M), 2000 Vendors (MS-DOS) - no limit on transactions

\$80.00 ACCOUNTS RECEIVABLE \$100.00
CP/M MS-DOS
Super system with Invoices, Service Invoices, Statements, etc. A full range of reporting abilities include Customer Reports, Ageing Reports, Transactions Reports, G/L Transaction List, etc. Auto billing feature eliminates mistakes. Sales can be distributed to 100 accounts. Build up statement option combines the virtues of ledger card history detail and the speeds of today's computers. Use preprinted forms and/or plain paper for invoices and statements.
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CAPACITIES - 600/2000 emp. (CP/M/MS-DOS), 98 Tax File Rcds.

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:

THE C.P.I. GENERAL LEDGER SYSTEM WAS REVIEWED IN THE NOVEMBER 1985 ISSUE OF PROFILES (STARTS ON PAGE 49). HERE ARE SOME OF THE BETTER QUOTES FROM PAGE 50, BUT BE SURE TO READ THE WHOLE REVIEW. "THIS TOP LEVEL PACKAGE RATES AS ONE OF THE BEST PROGRAMS WE REVIEWED. . . COMPARES FAVORABLY TO PACKAGES COSTING HUNDREDS OF DOLLARS MORE. . . FEATURES OFFERED BY THE C.P.I. SYSTEM MAKE IT EXTREMELY POWERFUL AND FLEXIBLE. . . THE DOCUMENTATION IS EXCELLENT. . . USER SUPPORT PROGRAM INDICATES A HIGHER THAN AVERAGE INTEREST IN USER SATISFACTION."

Bad sector messages

In regard to the letter on page 75 in the September issue, whose author, John Taylor, was having problems with BDOS ERROR: BAD SECTOR messages: When I was first using my Kaypro II, I was unable to format any diskettes, even brand spanking new ones, without getting such messages.

When I would take the machine in to my dealer, however, it worked fine. The dealer and I spent many weeks trying to track down the problem, until one day I was staring at the wall in utter frustration and noticed the ground wire (from the adapter I used to get my three-prong plug into my two-hole socket) dangling loose. Could *that* be it?

I ran a piece of speaker wire from the adapter to a nearby pipe, and voila! my problems were over. While that may not be Mr. Taylor's problem, I'm sure that there must be a number of other readers who are not in the habit of securing the ground wire when they use an adapter. It might be worth calling to their attention.

Bruce Schauble
Randolph, Massachusetts

Two solutions

I use my Kaypro 2'84 for programming in Turbo Pascal and MBASIC. I have found solutions to many of my questions in your magazine. I have also found, quite by chance, the solution to two problems that surfaced in the Q & A section of the March 1985 issue of *PROFILES*.

I own a Juki 6100 printer and have also had the same problems with the ribbon jamming when using IBM brand ribbon cartridges. My solution is to use a brand called ROTYPE. This ribbon has an extra roller bearing to help guide the ribbon within the cartridge housing. This brand runs a few cents less than the IBM brand and I have not had one jam yet. I guess even the "big boys" can be outdone.

I also have a better solution to the problem that arises when programming graphics using MBASIC. Normally the interpreter can be prevented from inserting a carriage return by placing a semicolon at the end of a print statement. If your program tries to print more characters than the default of 72 on one line, the interpreter will issue a return anyway.

Rather than issuing a "home cursor" command all the time in the program, just set the new line width to 255. If you do this, the interpreter will never insert a carriage return. This method is much less cumbersome than the method suggested in the March issue.

Michael J. Ryan
Alma, Michigan

The importance of paper

Regarding Juki tractors, I was really annoyed because

my paper kept creeping down when I used the tractor feed. I measured it: The paper crept down exactly .1 millimeter per page, slipping 1 mm every ten pages, so that I had to stop my printer and readjust the top paper margin. A real pain.

Finally it occurred to me to look at the paper. Sure enough, the bloody paper was an irregular size. I tried some new paper and my tractor creep problems were over. Trouble was that I had about 6,000 sheets of paper I'd bought at an absurdly low price (and now I knew *why* the low price).

Every problem I've encountered with the tractor has been, on analysis, a paper problem. I kiss the hem of the tractor's garment.

Mark Worden
Roseburg, Oregon

Square wave inverter

I live several miles beyond the nearest power lines. When I asked advice about using my Kaypro 2 with a 12-volt power supply, some people assured me I could use a square-wave inverter with success.

Not wanting to ruin my Kaypro 2'83 (yes, that what it is; an '83 model manufactured in the spring of 1984), nor my disks, I wrote directly to Kaypro Corporation. I explained that I wanted to use a Honda 500 generator to charge a 12-volt auto battery, then run the power through a TrippLite PV500B square-wave inverter. The answer I received was this: "Your power should work quite well with the Kaypro 2."

I began using the combination in November 1984 and have been using it without problems ever since. I also run a printer on the same system. I run the generator whenever I am using the computer (it runs four and a half hours on half a gallon of gas), and if, as once happened, the generator runs out of gas, the Kaypro continues to run off the reserve power in the battery. Essentially, this is the same set-up used in many back-up systems.

I use a 500-watt inverter because I purchased it many years ago for other purposes, but a 200-watt inverter ought to work equally well.

David A. Comstock
Grass Valley, California

Sloppy accents

With reference to Bryan Prud'Homme's letter in the November 1985 issue, the problem with the "sloppy accent" referred to is not the fault of the printer.

Instead, this situation appears to come from the way WordStar microjustifies spaces between characters and words. Apparently the overprinting of an alphabetic character with the apostrophe, particularly after the text is reformed, will cause WordStar to apportion

space in a way that will crowd such characters. The exact effect depends on both the preceding and following characters and other peculiarities of the text.

A very simple way to overcome this is to turn microjustification off (.uj off). The problem will disappear completely, but of course the benefits of microjustification are lost.

A more elegant solution is to use NewWord. Apparently, that program is not baffled, as WordStar is, by a character overprinted with the apostrophe, and it will microjustify correctly without crowding any of the characters.

Lionel R. Blattner
Stamford, Connecticut

CalcStar makes it easier

I enjoyed the article by Jacob De Rooy ("Simple Business Forecasting") in the December issue. His use of a spreadsheet was informative and interesting. However, CalcStar, with its built-in functions to handle regressions, would have made his calculations much easier.

For instance, if the year number were entered in columns A1 to A17 and the known crop yield in columns B1 to B13, to obtain the mean bushels one would simply have to enter REGR (A1>A13, B1). To get the base, just enter PROJ(0); and to get the rate, just enter SLOPE(.). Forecasts can be computed using this information, and it is much more flexible to use.

M.J. Lantis
Manchester, Michigan

Saving paper

Perfect Calc users may appreciate knowing of a way to save an occasional page or two of paper when printing Calc files. Several of the programs that came with the "lessons" disk are "wide" enough that the 80-column width set up for the printer means, at least in some cases, printing one column on a page by itself.

This is true, for example, with Perfect's RENTAL.PC, which prints the "Yearly Totals" figures on the third page of the printout, where it clearly has more than enough room to spread.

This abusive waste of paper can be remedied with a change to PCCONFIG, which will change the pre-defined printer width for that program. When I recently changed printwheels on my printer, I reset the line width to the 12-pitch mode from the original 10-pitch. This shortened the line length on all printed pages.

Since the line length now has more room available for printing, I changed the PCCONFIG printer width definition to show 90 characters per line, which added one more column to each page. This saves one page per printout, at least for the program mentioned, putting the last column of seven or eight lines at the end of page

two, rather than all alone by itself on page three.

Ben Franklin is credited with the old saw about saving pennies. By changing the pennies to pages of paper, one might well make the same statement today, after changing a few defaults.

Robert B. Wallace
Daly City, California

Less disk switching with C & B

I'm a Kaypro II user of Checks & Balances (version 3.4b). I bought the program only to keep budget and income tax records. If any readers have similar needs and are using single-sided drives, they know the frustration of constantly changing drive A's disk depending on which command is being run.

The solution that avoids this is to copy the following C & B files on one disk: CBBGTO.OVL, CBSHOW.OVL, CBENTR.OVL, CBSORT.OVL, CBHELP.OVL, CBSUM.OVL, CBINIT.OVL, CBTOTL.OVL, CBMAIN.OVL, CHECK.COM, and CBPRNT.OVL.

These 11 files occupy 179K of the 191K available.

Charles M. Thompson
Indianapolis, Indiana



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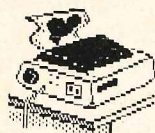
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Beginner's Luck

by Christopher Meeks

The camera closes in on a diapered baby roosting on a living room floor. If you know anything about babies, you know they don't roost for long.

In moments, the baby zips off on all fours, exploring everything with gusto, from bookshelves to the family dog.

"This is a film about you," says the narrator. "For you as a baby, and later as a child, had the most marvelous characteristics. Everything in your world was enormously interesting. Everything was worth exploring."

The baby tries to stand, and takes a few steps toward a book. "If you wanted something, it was worth going after . . ." The baby falls down, is about to cry, then tries again. "Oh sure, you fell down occasionally. But you got up. You persevered."

You, a five-minute movie distributed by the Cally Curtis Company in Los Angeles, could well apply to learning software. In setting off with a new program, you will do wrong things, you will fall, but you also will learn and feel wonderful about it.

ing takes place. The basics come down to memory.

Modern psychology divides memory into three types, each with its own peculiarities and powers. Sensory memory affects such things as the remembered scent of strawberries, the silken feel of a fabric, or the sight of a face. All software looks (and smells) much the same in its square, stiff disk jackets, so sensory memory plays little part in learning software.

Motor-skill memory is the remembered feel of doing something physical, such as riding a bicycle or typing. This sort of memory is only an adjunct to learning software. The more you know how to type, the better.

Verbal memory directly concerns software. Verbal memory includes everything a person has thought, heard or read: concepts, ideas, words.

Verbal memory itself can be divided into two types: short-term and long-term. Short-term memory is the type used in remembering a phone number for as long as it takes to dial it. After that, the phone number is thrown out like a

and on because "the computer did it." We've secretly known all along there's a computer out there, not as friendly as Santa Claus, who knows not only when we're bad or good, but also when we move, get new phone numbers, and make dental appointments.

Personal computers, however, are different. You control them. I remember the exact moment I "manipulated my first text" (as I once overheard someone say). When I bought my Kaypro, I naively believed I'd plug it in and type away as on a typewriter.

I was wrong. I had to learn "commands." After learning a few basic commands, I typed several test sentences; soon I was afraid I'd erase something, or hit the wrong button and see a cloud of smoke shoot up from the back.

I pushed ahead. After I typed a few paragraphs, the text left the screen and I wasn't sure I'd get it back. But I "scrolled" some pages back and forth, and—eureka!—everything was there.

Remember: you needn't fear what you can control.

Tricks for learning

There are some tricks to learning and remembering for the long term. Here are a few you might employ:

Use mnemonic tricks. Even the great memory experts who perform onstage say they remember trivial and nonsense lists by associating unrelated items to stirring and related images. Ever wonder how a waitress can remember all those drinks? (You order a strawberry daiquiri—the waitress sees you're wearing red like a strawberry. Your friend orders a gin gimlet. Your friend is wearing a cotton shirt, and the waitress thinks of cotton gins.)

To illustrate with software, Perfect Writer uses the command Control-X-S (meaning you hit the keys "X" and "S" while holding down the control key) to record on the disk all that you have written. You

How you think of the computer is a major factor in learning software.

Over the years, I've learned dozens of programs and looked at many, many more, as a computer book editor. I've become curious; how does one "learn" a program? Are there shortcuts? Why do some people absorb a program quickly and others struggle on as if programs were boulders for Sisyphus? And—a question I'll answer here—how do you efficiently and logically learn to use new software?

How learning takes place

First, let's take a look at how learn-

ing takes place. To use software, you'll want to have the information in long-term memory.

Who's in charge here?

The first step to efficient learning is to overcome your fear of learning, and your fear of what you're learning about.

How you think of the computer is a major factor in learning software. Many people fear the machines. And for good reason. For years computers have brought us bills with mistakes. The mistakes went on

could think of that as taking the "excess" (X-S) from the screen and putting it on disk. Another, perhaps simpler, way is to think of the command as "Control-X-Save."

Control-V scrolls one page forward. In screen geography, "forward" is down. The letter V points down. Get the idea?

Don't bring in static. An impediment to memorization comes from mental interference or "static." That is, if you're trying to learn a tax program at the same time you are learning a spreadsheet program, one set of commands tends to get mixed up with the other. It's best to learn similar programs one at a time. Also, if you're pressured to learn the tax program two days before taxes are due, the thoughts of the deadline may block your ability to remember.

Learn in chunks, and take time between chunks. People learn things better in small units—chunks. Too much at once clouds all that came before. Start off with what you can grasp and then stop—even if just for coffee—before proceeding. A period of rest and relaxation between chunks can be quite effective.

If you doubt me, ask some bugs. A test with cockroaches proved this. Roaches were placed in an electrified laboratory tray and conditioned with electric shocks not to wander into one corner. Then half the roaches were placed in roach heaven (a dark, damp, cool place) and the others were placed in roach hell (a bright, dry, hot area). After a day, both groups were put back in the tray. Those who had been to heaven stayed away from the corner. They had retained their lesson. The other group was so confused they all forgot their previous learning and skittered about aimlessly receiving shocks.

Use recitation and quick review. This means after you learn a chunk, test yourself. If you can't answer one of your questions, go back and find the answer. When

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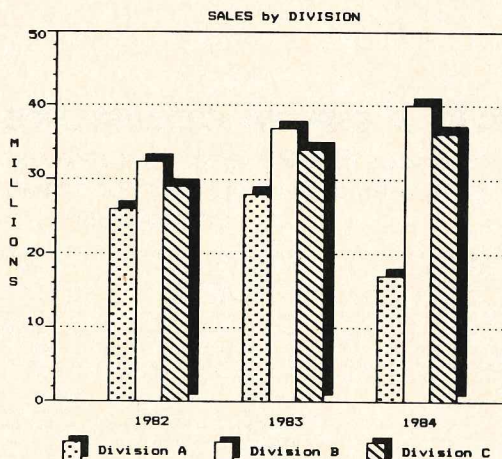
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starting a new section, briefly review what you've just learned.

Scan the whole before learning the specifics. I've found that if I see the software in action, even if I don't know what's going on, when it comes time to learn it, there are echoes of familiarity.

Another good way to become familiar with software is to simply play with it.

Where to find help

The preceding suggestions are for learning on your own. No rule, however, says that you must learn in a locked room all by yourself. Often the manuals are so poorly written that you must get outside help. Here are a few suggestions:

1) Some software companies offer help lines. These are often toll-free numbers.

2) Perhaps you have a friend who knows the software. Friends like to help out others who have made a similar decision—it's like going to the same church or owning the same car.

3) Call the store where you bought the software. Chances are the salespeople don't know it any better than you (they're too busy selling the stuff to know how it works), but occasionally you get a salesperson whose specialty happens to be your piece of software.

4) Computer user groups, consultants, and classes in colleges and computer stores all offer a great wealth of knowledge.

5) A new breed of tutorial software now exists. American Training International (12638 Beatrice Street, Los Angeles, CA 90066, tel. 213/823-1129) has a long list of "Teach Yourself" software. You can teach yourself WordStar, Perfect Writer, dBASE II, and many more.

6) Other companies offer audio cassettes with friendly voices. The voices lead and instruct.

7) And, of course, there are books. Many books. If you own a popular program, odds are there's a book that covers it. Most such books are much better than the manuals they replace.

Take notes and take time

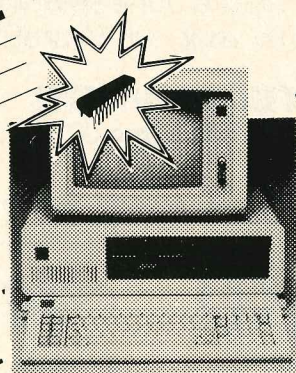
Whatever approach you take to learning, make notes. Notes are great for reinforcing a concept and allow you to translate the idea into terms that you clearly understand.

And take your time. The machine's best virtue is its patience. Unlike your fifth grade teacher, it doesn't care how long you take or how many mistakes you make in learning a program.

We were all once babies, *tabula rasas*, thirsty for the world. You still have a tremendously abundant capacity to learn. Enjoy.

Christopher Meeks is a playwright and senior editor at Prelude Press. He is not related to Brock Meeks.

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Maximum number of characters per definition or all definitions combined.	NO LIMIT	3,838
Bytes of memory required per 500 bytes of definition data.	500	1,000
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Definitions can "chain to" or activate other definitions.	YES	NO
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Books in Brief

by Dick Lutz

*The Universal Machine:
Confessions of a Technological
Optimist*

by Pamela McCorduck

285 pages; bibliography and index
\$16.95, McGraw-Hill, 1985

We personal computerists spend a good deal of time educating ourselves on how to get our machines to do thus-and-such. But there is another world out there—another, very important level at which to think about computing. In *The Universal Machine*, Pamela McCorduck proposes that the computer is more than a tool, that it is actually a bridge between two very different ways of thinking, and McCorduck, like no other popular writer, stands on the bridge waving us across into new territory.

This idea of a bridge is derived from McCorduck's familiarity with C.P. Snow's theory of "Two Cultures." Briefly, this says that the world can be seen as having two distinct cultures: the sciences and the humanities. Further, the two are divided and uncommunicative except through oblique symbols.

McCorduck could be Snow's spiritual daughter. She's trained in the humanities, but sets her imagination to work in understanding science and our scientific future, looking for a bridge between the two cultures. And the computer, she asserts, is that bridge.

McCorduck writes of computers, computerists and computing as no one else has. She sees the whole picture and attempts to describe her vision. Her style is intellectually demanding yet rewarding. By using the techniques of the novelist (which she is), she engages you on an entirely different level than writers of most other computer-related books, taking you beyond preconceived notions.

Journey into history

Basically, she argues that the computer is the "the ultimate human

creation"—a machine that can process symbols, and one day will be able to think about those symbols. McCorduck draws on history to prove her point.

By taking us back to the 15th Century and weighing the importance of writing and the the printing press, she constructs a parallel path with symbolic thinking and the computer. This helps us see the computer as the universal tool it is: *Spoken language* gave humanity the ability to deal with the physical world in a system of symbols. *Written language* meant that important and even complex subjects could be communicated in symbolic form, so that the next generation need not start from scratch. *Printing* brought written language to ordinary folks, so that the ability to learn at a symbolic level was available to all. And computing, according to McCorduck, is the ultimate symbol manipulation system, one that actually amplifies our ability to think.

comparison between the computer and the printing press. Part 2, "The Machine of The Century," deals with computers and the here-and-now. In this section you are introduced to the raw power of the machine: artificial intelligence, computer-generated art, and so on.

In part 3, "The Vernacular Computer," McCorduck focuses on the computer as an ally. She discusses its possible roles in medicine and mediation, war and work, education, the Third World, the Soviet Union, and more. The last part, "The New Humanities," is devoted to the future. Borrowing from Allen Newell's "Fairytale" lectures, this section looks at the computer as "the technology of enchantment . . . with it we could build an enchanted land." Major ideas in computer science are detailed and explored and with them comes the conclusion that there is hope for humanity.

McCorduck doesn't do this alone. She draws heavily from a library of

***Computing is "the
ultimate symbol ma-
nipulation system."***

McCorduck shows us that we are all involved in something far more special than just a faster way to process words, data or numbers. We are being taught a new way of thinking. In effect, we are being trained to see problems and goals as processes. This allows us to contextualize them for the computer, which then increases our problem processing power so greatly that we are set free for grander thoughts and tougher problems.

In a nutshell

The book is divided into four sections. Part 1 is titled "Transition;" here McCorduck examines the history of symbols and makes the

the great thoughts on computers, pulling in the ideas of the Nobel prizewinner Herbert Simon, his cohort Allen Newell, the artificial intelligence guru John McCarthy, Dartmouth's John Kemeny, Xerox/Atari/Apple's Alan Kay, and many others.

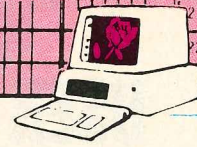
Humor, heroes, and hope

But there is far more. My imagination stoked by McCorduck's examples, I see myself saying to the computer of 1995, "Tell me a joke." Jokes, you see, are terribly human things. They play upon our psychology, upon the thinnest subtleties of language, upon surprise.

(continued on page 74)



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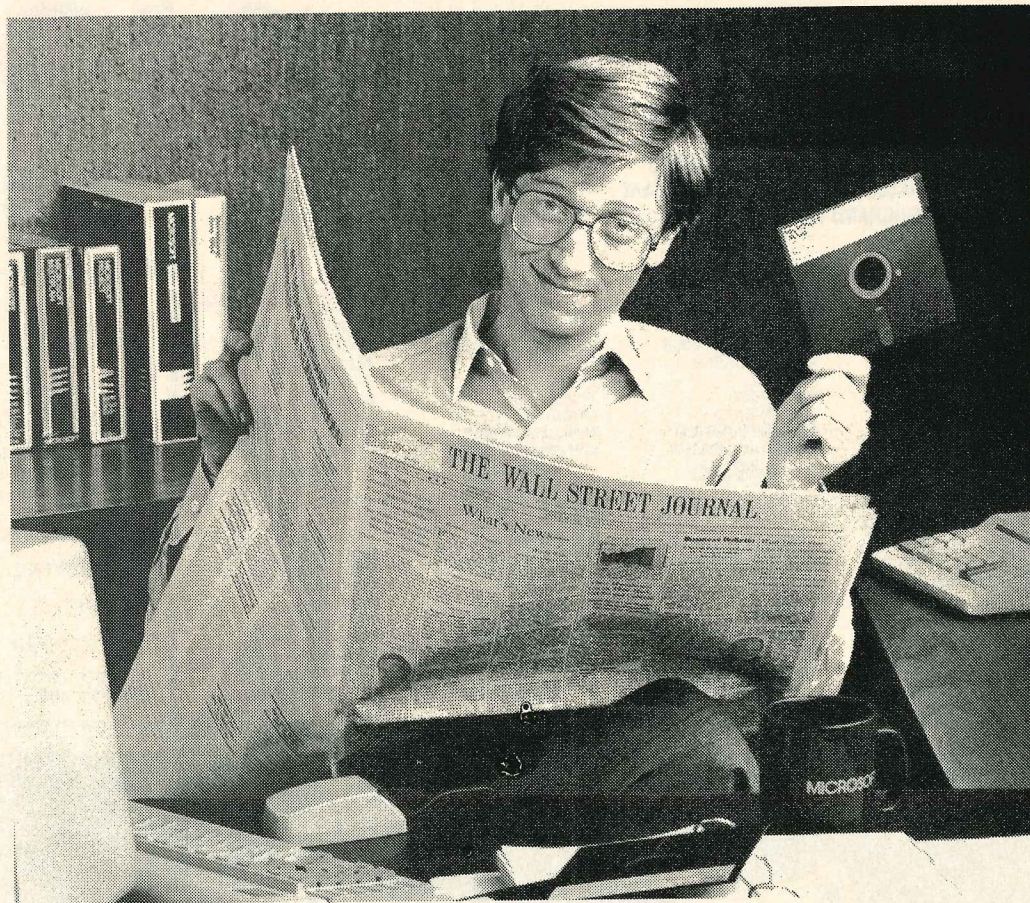
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by Tom Enright

How do you go about choosing a printer—one you'll still be satisfied with six months from now? What differences are you likely to see between advertised performance and the way a printer performs when you get it home and start using it?

We'll limit our discussion to impact printers (dot-matrix and letter-quality). Other types of printers are available, but there is little reason to discuss thermal printers or the new laser printers. Thermal printers are holdovers from the infancy of microcomputers. They are slow and require you to buy special, chemically treated paper. Laser printers are fast and produce excellent output. But how many of us can afford them?

Even though we won't be talking about ink jet printers, most of the rules for dot-matrix printers apply to ink jets as well. The main difference is that ink jets are quiet, don't need ribbons, and usually require special "short fiber" paper. If you use regular paper in an ink jet printer, letters can get fuzzy the way fresh ink does on a blotter.

Dot-matrix or letter-quality

After you've decided you need an impact printer, you need to make up your mind between dot-matrix and daisywheel. The ideal situation would be to eventually own one of each, but few can purchase them both at the same time. At least temporarily, you'll probably have to make a choice between the two. Dot-matrix printers have the advantage of speed (80 characters per second or faster) and the ability to change character sizes quickly, and they usually have a correspondence mode to produce more readable output. In correspondence mode the dots are printed closer together or even overlapping. This produces higher quality output at the expense of a lower printing speed (about half the regular

speed). Many dot-matrix printers also have at least one graphics mode.

Letter-quality printers have the advantage of high-quality output. The printed characters are fully formed, as they are on a typewriter, not made up of a pattern of dots as in dot-matrix print. To change character size, you have to switch printwheels. The printing speed of a daisywheel printer is slow (from 12 to 40 characters per second) compared to dot-matrix.

Which one do you need? That depends on what kind of material you print. If you are producing business correspondence or reports, or write for a living, then a daisywheel printer may be justified. Otherwise a dot-matrix printer will be more useful.

Common points

When comparing printers, there is no substitute for testing. You really should watch the printer while it works on the kind of material that you most often print. The things to watch for are the same whether you are testing dot-matrix or daisywheel printers.

style? Designing a printer case for quiet operation and including sound insulation or noise baffles inside the case costs money. That kind of care is not lavished on less expensive printers.

Are ribbons for a particular printer easy to get and reasonably priced? I've used a printer whose ribbons could only be obtained from the printer's manufacturer—at his price! That printer is now in someone else's office serving as an excellent paperweight.

Dot-matrix specifics

The more pins a dot-matrix printer has in its printhead, the more readable the characters will be. Of course, printheads with more pins cost more to make, so the printer will be more expensive. Conversely, if the printhead has too few pins, the normal draft-mode output can leave some characters virtually unreadable.

It's a good idea to take manufacturer's claims with a grain of salt. Manufacturers use several tricks to make their specifications look better than the competition's. Even the makers of good-quality printers

When comparing printers there really is no substitute for testing.

Does the printhead move faster across a string of horizontal spaces, as in a multi-column chart, than it prints standard text? Efficient handling of horizontal white space is one hallmark of a good printer, although it's an expensive feature.

How fast does the printer respond to line feeds or form feeds? Some low-priced printers respond to a form feed with a series of line feeds. That indicates drastic cost-reduction on the part of a manufacturer.

How loud is the printer in relation to other printers of the same

have had to resort to these tricks to survive the "advertising wars."

Print speed is a prime area for "creative disclosure." One trick is to subtract the time it takes the printhead to accelerate at the start of a line and slow down at the end from the overall print speed. Another is to test the printer at the character width it runs fastest. A third is to combine the first two and translate that figure into words-per-minute. To an unsuspecting buyer the resulting figures sound impressive.

(continued on page 75)

This computer of the future has learned some rules about humor and about what entertains me as an individual. I like humor springing from current events, and it knows what I have read recently through my videotex news service. Using rules that I have taught it and that it has refined through practice and my ratings of its funniness, it constructs a little story that compares world leaders at a peace conference to the PTA. I am amused.

Far-fetched, you say? Not really. As we contemplate the inevitability of machine intelligence, we must then ask whether there are limits. Do we hope there are? This book goes a long way toward persuading us this is a mistaken hope; we should instead know computers will be made more and more intelligent and thus more capable of understanding our goals and guiding us toward them in ways we cannot ourselves see without such help. As McCorduck puts it, we "may have fashioned our next and best hope, an instrument with the potential for protecting us from our own natural but regrettable near-sightedness. We are free to be heroes . . . we have a useful ally."

Pamela McCorduck is our ally as we learn from her how to think about computing and the ways it, like the printing press, will shape the future.

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"THIS GENTLEMAN CLAIMS HE'S BEEN HAVING SOME TROUBLE WITH OUR SOFTWARE!"

300 BAUD

(continued from page 17)

move them over a phone line at 1200 baud, and they can do more damage than a chainsaw in a cheese factory. Without voice inflections, a "funny" remark is easily misunderstood. Subtle humor gets lost in the phosphor.

You can take steps to assure that people realize you are "just joking." This accomplished by using ASCII icons. There are a couple of popular icons you can use.

For example, the "smiley face" looks like this:-).

There is another symbol gaining popularity. It looks like this: < * >.

If that sounds stupid, tough. Jump off a cliff. < * >

See how it works?

Have fun

Above all, enjoy. Don't take your online peers too seriously. The whole environment should be one of cooperation, not competition.

Serious debates, with heated messages flying back and forth, are great fun and mentally stimulating, but it's not like you're debating in front of the U.N.

If someone "attacks" your point of view, don't take it personally. Remember, people are reacting to your ideas, not to you personally. If more people heeded that bit of advice there would be a lot fewer modems doubling as paperweights.

Coming attractions

There's something unnerving about a phone bill that looks suspiciously like a car payment. Have you ever wished there was a way to bypass the telephone system when using your modem? I have some good news for you.

Next month we'll look at a "BBS in the sky" and a technology called "packet radio."

Packet radio combines amateur radio transmissions and computers in a way that allows you to participate on a BBS sans the Bell system.

Kaypro Users' Groups

Learning to operate a computer isn't easy—everyone needs help at one time or another. This precisely the reason users' groups were born.

Basically, a users' group is a collection of computer owners and users who learn from each other. These are non-profit membership organizations devoted to making life with a computer easier.

Kaypro Users' Groups (KUGs) exist in every state, in Canada, and in countries all over the world. There are two groups in France, one in Belgium, one in Germany, plus others in Finland, Switzerland, Saudi Arabia, and Australia.

All officially recognized KUGs are recorded in a database. These groups receive periodic informational mailings and have access to KUG support programs offered by the corporation.

Official KUGs will also receive ONKUG The Official Newsdiskette of Kaypro Users' Groups, compiled by Kaypro Corporation.

Finding your KUG

To find the KUG closest to you, write to the KUG Manager at Kaypro Corporation and include your home address, state, and zip code. He will send you a list of KUGs in your immediate area.

To register a KUG with Kaypro Corporation (and be entitled to corporate support offers), you again should notify the KUG Manager. Write to:

Jim Durkin, KUG Manager
Kaypro Corporation
533 Stevens Avenue
Solana Beach, CA 92075.

Or call his BBS at (619) 2594437, 300/1200 baud. Logon as a "new-user," or leave message for sysop, to apply for a password.

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Does the printer come with a built-in tractor, or at least pins to engage standard 9 1/2 by 11 inch paper? (After the perforated edges are removed, 9 1/2 by 11 paper is 8 1/2 by 11 inches.) Some dot-matrix printers come with pin-feed and charge extra for the tractor feed mechanism. If you want to print mailing labels or a special size form, you'll need to buy the adjustable tractor.

Letter-quality printers

Many low-cost daisywheel printers are based on typewriter mechanisms. Mechanical components designed for a typewriter don't last as long as components designed for use in a printer. Because printers are driven faster than anyone can type and for longer periods of time, mechanical parts have to withstand much more stress and wear.

Typewriter printwheels rarely have all 96 ASCII characters. They substitute other characters for some of the special symbols found in the ASCII table. Also, a typewriter printwheel is usually not as sturdy as those designed for use in printers. They break more easily and wear out sooner. Also, be sure to find out how easily you can get new or different printwheels.

Ribbons and ribbon feed mechanisms are another potential source of headaches in low-cost printers. How sensitive is the printer to off-brand ribbons? If the printer will only accept certain brands of ribbons, how easy are they to find? Survey several stores to see which types and brands of ribbons they carry. You don't want to have only one source of supply for printer ribbons.

Letter-quality printers rarely include a tractor in the purchase price. If you're only going to be printing single sheets of paper, you can get along without a tractor. But you might want to consider buying a bin-feeder later on. A bin-feeder feeds single sheets of paper to the

printer so you don't have to insert each sheet by hand. If you want to use standard fan-fold paper in a letter-quality printer, a tractor is necessary. Otherwise the paper will slowly migrate to the right and destroy your margin settings.

Command set emulation

Many inexpensive printers emulate

the command set of more popular printers. There is nothing wrong with this—it usually makes using the special features of the printer easier for you. If the emulated command set is a popular one, available software will already use those special features. Problems occur when emulation is only partial or commands are not quite the same.

(continued on page 77)

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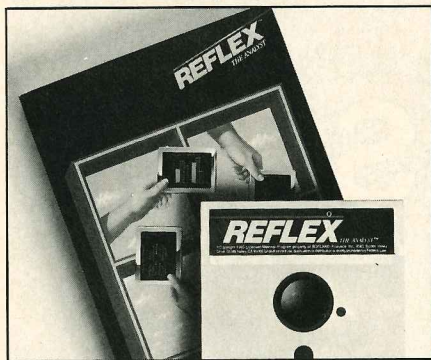
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Product Spotlight

by Tom Enright

Borland International has a reputation for putting out first-class software at bargain-basement prices. Reflex, \$99, is the first product from Borland aimed directly at the business market.

It's a sophisticated data analysis and report generation tool for IBM PCs and compatibles. It is intended for the hands-on manager who wants to be on top of his business.



The Reflex system consists of two programs: REFLEX.EXE for data analysis and REFLEX2.EXE for report generation. All Reflex operations are selected from a single-line menu at the top of your screen.

Data entry and analysis

REFLEX.EXE is the data entry and analysis module of the Reflex system. Using this program you can define data entry forms, sort files, establish record selection rules, set up graphs, and view data in one or more screen windows.

Data entry screens are defined in much the same way as entry screens for DataStar. You simply move your cursor to the desired location and type the prompt that you want to see when entering data.

Reflex allows you to sort a datafile with up to five levels of sorting. Record selection, called "filtering" by Reflex, lets you include or exclude records by setting up search conditions that are as complex, or simple, as you wish. No programming skills are needed;

simply fill in a table with values for each field you want tested.

While in the analysis program you can set up graphs of your data in several forms. Reflex will generate scatter graphs, line graphs, bar graphs, stacked bar graphs, and pie charts. Once the graph has been defined and previewed on the screen, you can save the graph on disk to be printed out later.

You can view data in what Reflex calls a "form view," "list view" or as a graph. In the form view records are shown one at a time on the data entry screen. With the list view each record is displayed on a separate line. Your screen is a window that can be scrolled left, right, up, or down to see the records of your choice. We've already described the graphing feature, which is one of the possible ways to view a file. You can also split the screen in up to three windows, each one holding a different view of the file.

Report generator

REFLEX2.EXE is the report generation module for the Reflex system. This has to be the easiest report generator there is for a non-programmer to use.

Reports are defined in a manner similar to defining the data entry screen. You move the cursor to a spot on the screen and type in the field name you want to appear in that location. If you can't remember the names of all the fields in your datafile, just press the F10 function key. When you do this, Reflex opens a small window on the screen from which you can select valid entries.

Each line of a report can be tagged as an INTRO, HEADER, or BODY line. INTRO lines are only printed on the first page of a report. HEADER lines are printed whenever a new page is generated. And BODY lines make up the main body of the report. Each field in the body can also be tagged to print only when information in that field

changes. In programming parlance these are called "control breaks." You can also specify summary or running-total entries for numeric fields and when they are to be printed.

At any time you can stop and print the report out to the screen to see how things are shaping up. You can also define a printer initialization string for a report to set up your printer's character size or whatever else you desire. When the report is finished you can save the definition on disk to use again in the future.

Instead of entering data by hand you can tell Reflex to translate datafiles from several other programs. Reflex will directly translate datafiles from dBASE II or III, Lotus 1-2-3, Symphony, VisiCalc, the PFS series, and any other program that can write an ASCII file.

The graph printing section of the report generator is for printing graphs that were defined in the analysis program. Reflex supports graphics on Epson, IBM, C. Itoh, and Okidata printers as well as the Six Shooter or Hewlett Packard 7470 and 7475 plotters. This includes other plotters compatible with Hewlett Packard's plotter command language.

Limitations

Reflex has only two limitations. First, it is totally RAM bound and will not run on a 256K machine; it needs at least 512K. Second, Reflex always runs in graphics mode, so your computer must have an IBM-compatible graphics card or a Hercules monochrome graphics card.

With a 512K machine and no other RAM-resident programs, you have 210K left for your datafile and any report definitions. You can save altered datafiles, report formats, and graph definitions on disk. But you cannot work on any data or definitions that aren't loaded into RAM. A 640K machine would be even better, as you'd have more workspace.

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The only way you can find out about printer performance is to ask someone who owns that printer or test it before buying. Don't be afraid to ask for a demonstration of a printer. And when you do, have the test include files or programs that you supply.

If graphics are important to you, make sure the demo includes them. A demo should include examples of everything a printer is capable of, including at least one example of printing a multi-page document. That document file should have examples of text, tables with horizontal white space, and at least one short page in the middle of the file. Watch the printer while it prints. If it pauses between pages or doesn't line up the columns of a table, don't be afraid to ask why.

The February 1984 issue of *Byte* magazine has an excellent article on testing printers. "The Art of Benchmarking Printers," by Sergio Mello-Grand, gives detailed instructions and theory on setting up your own benchmark tests for dot-matrix and letter-quality printers.

The article gives an excellent tutorial on how dot-matrix printers put your words on paper. Once that has been accomplished, the author walks you through a series of benchmarks and shows you how they test specific areas of dot-matrix printer performance.

Testing the performance of letter-quality printers is a little more complex. Again the author takes the trouble to explain how the printer works before delving into how to design a benchmark. He explains how the industry standard "Shannon test" was developed and just where it falls short of being an ideal test. He then walks you through the development of a more universally applicable test for letter-quality printers.

This article should be considered required reading for anyone buying a printer.

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[†] "TurboBoard" and "Pro-Monitor 8" are trademarks of Advent Products, Inc., and Micro Comucopia, Inc., respectively.

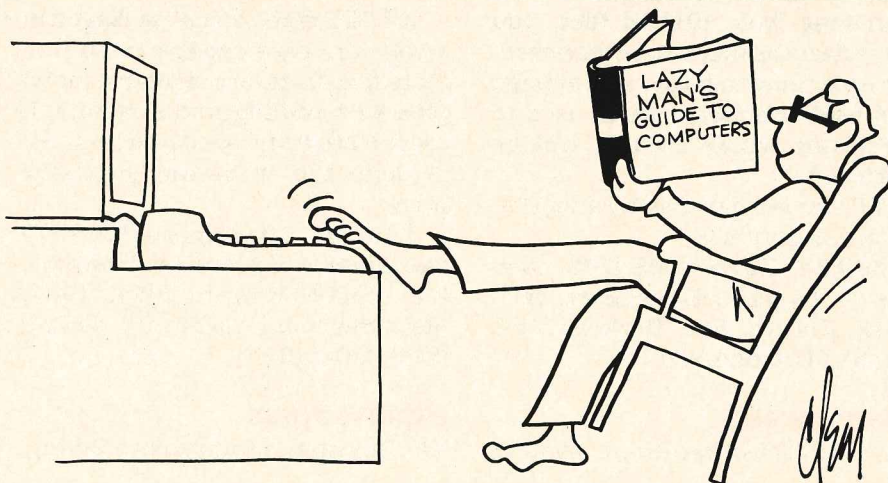
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\$39.95. All Kaypro CP/M computers. Spectre Technologies, 22458 Ventura Blvd., Suite E, Woodland Hills, CA 90401; (818) 716-1655.

Cheap sheet

The VP-Planner is an integrated spreadsheet and database program that uses the Lotus 1-2-3 command set and is compatible with Lotus 1-2-3 worksheets, templates, and macros. Database programs are accessible through the spreadsheet program.

With VP-Planner it only takes a few keystrokes to convert a worksheet table into a dBASE II or dBASE III file. Column headings become dBASE field names. When retrieving from dBASE files, you can select the fields to be retrieved, the order in which they will appear, and field selection criteria used to determine which records will be retrieved.

VP-Planner can display and print business graphics.

\$99.95. Kaypro MS-DOS computers. Paperback Software, Inc., 2612 Eighth St., Berkeley, CA 94710; (415) 644-2116.

Clean sweep

The CRT/Workstation system

contains four separate agents for cleaning monitor screens and other computer surfaces. Included in each kit are one aerosol can of "Foamclene," an anti-static, non-smearing cleaner for use on external surfaces; 20 pre-saturated, anti-static screen wipes; 20 lint-free cotton wipes for use on moving parts; and 20 wipes made from natural and polyester fibers for general cleaning jobs.

A kit for printers and keyboards is also available. This kit contains one aerosol can of "Safeclene" solvent for cleaning platens, as well as plastics, metals, fabrics, and surface coatings; 25 "Safebuds" for cleaning in small, hard-to-reach areas such as between keys or on delicate circuit boards; 20 durable, non-abrasive cleaning cloths; and four pre-saturated wipes.

\$24.95 for each kit. Microclene, P.O. Box 06346, Columbus, OH 43206; (614) 221-4201.

XTREE directory help

XTREE facilitates file and directory maintenance by providing commands to access, delete, rename, view, move, list, or show any and all files on a floppy or hard disk.

The program is structured so users can see a complete disk directory in a single display. All program options are shown on screen. Statistical data is also displayed at all times and updated as organizational tasks are performed.

XTREE demo disks, packaged in a software case capable of storing up to five disks, are available for \$5 plus \$2 handling and shipping. If the full program is ordered this cost is deducted from the purchase price.

\$49.95. All Kaypro MS-DOS computers. Executive Systems, Inc., 15300 Ventura Blvd., Suite 305, Sherman Oaks, CA 91403; (818) 990-3457.

Legal ledgers

The Tussman program is a billing/

accounting program written specifically for small and medium-size law offices. The program was written by a practicing lawyer, with lawyers' needs in mind.

Tussman offers a calendar, trust accounting, general ledger, and reporting capabilities.

Users can adapt the program to their particular areas of specialization, from family law to personal injury.

Customer support is handled via an 800 number answered by an attorney who knows both the program and the types of problems a legal office would have setting the system up.

\$695. All Kaypro CP/M and MS-DOS computers. Tussman Programs, Inc., 2275 Shattuck Ave., Berkeley CA 94704; (415) 845-1548.

Modem watchdog

The Signalman Secure 12 is an intelligent 1200-baud modem with a built-in watchdog: a security callback system.

For applications that require secure access from a remote location, a callback scheme is recognized as one of the best ways to deter computer break-ins.

The Secure 12 is compatible with industry hardware/software



standards. The Hayes-compatible standard allows for either unattended or manual data transmission from any external computer or terminal.

User-configurable security levels are provided for password, password plus callback and secondary password procedures. The security callback system stores an average of 64 password and callback combinations, based on a seven-digit telephone number and eight-character password.

\$499. Anchor Automation, Inc., 6913 Valjean Ave., Van Nuys, CA 91406; (818) 997-7758.

Laugh Trax

Since December 1984, Comedy by Wire has been entertaining computer users on The Source and Delphi commercial information services with a lighthearted look at the computer industry.

Comedy By Wire is now available in a paper edition. For more information contact Billiam Coronel on The Source: BBJ906; CompuServe: 74216, 3613; Delphi: BIL- LIAM; or phone (212) 541-4088.

A one-year subscription is \$9. Comedy By Wire, 431 W. 45th St., New York, NY 10036.

Networked printers

PrintNet is a networking printer spooler. The PrintNet spooler allows the formation of a printer-sharing network with up to 15 computers and 15 printers. This enables any computer to access any printer.

Using PrintNet you can use a daisywheel printer for letter-quality correspondence and a dot-matrix printer for other work. PrintNet lets you include a plotter in the network as well.

\$495. All Kaypro computers. MISCO Inc., One Misco Plaza, Holmdel, NJ 07733; (800) 631-2227.

Confusion solution

Which long-distance carrier is right for you? Each long-distance carrier now has discounted rates and special package deals. But, like the airlines, there are a lot of "ifs" and "no frills" clauses.

Call Pricer will help you cut through the hype and get to the bottom line of alternative long-distance carrier rates. This program determines the most cost-effective long-distance phone company for small to mid-sized businesses, based on routine calling patterns.

By inputting data from past phone bills, including area codes and exchanges dialed, plus time of day and lengths of calls, the program computes the monthly long-distance charges from each of the common carriers based on the input data.

Call Pricer includes the most up-to-date rates for all dialable points within the United States for AT&T, MCI, ITT, Western Union, GTE-Sprint, SBS and Allnet. A special feature allows price comparisons with smaller regional long-dis-

tance carriers by inputting the rate data supplied by the regional company. The documentation also indicates when a WATS line may be the best choice.

Updated disks are provided on a quarterly basis.

\$295. All Kaypro computers. CCMI/McGraw-Hill, 50 South Franklin Turnpike, Ramsey, NJ 07446; (800) 526-5307.

Homegrown editor

Turbo Editor Toolbox includes source codes and enables Turbo Pascal users to build or customize their own editors and word processing programs.

You can use the Turbo Editor Toolbox to incorporate the provided sample editors into your own custom-designed editor. By using the special features and menus you

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can create a word processor designed to your particular specifications.

The package contains an adaptation of WordStar called MicroStar. The Editor Toolbox contains 16 software modules and a layered design that allows you access to streams of text at the character, word, line or window level. Any editor designed with the Toolbox is fully compatible with Borland's SuperKey and SideKick.

\$69.95. All Kaypro MS-DOS computers. Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066; (408) 438-8400.

Multilingual WP

The WORD Processor is now available in Latin-based languages, making it accessible to an international market.

The standard version allows English, French, German, Italian, Spanish, Swedish, Danish, Norwegian, Dutch and Portuguese to be mixed in the same text. Alternate monitors and display adapter cards extend its capability to more than 30 other languages, including Arabic, Russian and Greek.

\$495. All Kaypro MS-DOS computers. Palantir Software, 414 Hungerford Dr., Suite 216, Rockhaven, MD 20850; (301) 294-2660.

Data organization

The Computer Companion is the first personal computer management system. It's intended to help cut down on those hours wasted searching for forgotten files, mislaid notes, etc.

The system comes as a three-ring binder that holds the "essentials" of computing. More than 20 special forms, labels, tabs and pockets give you instant access to "help" cues and commands and keep track of all the vital statistics of your hardware and software.

\$39.95. Alfred Publishing Company, Inc., 15335 Morrison St., P.O. Box 5964, Sherman Oaks, CA 91413; (818) 995-8811.

(continued from page 9)

The CP/M version was reviewed. An MS-DOS/PC-DOS version is also available (for \$100). The major difference between the two is chart capacity. The CP/M version accommodates 600 accounts, while the MS-DOS version accommodates 2,000.

The reviewer comments that the speed of the system leaves something to be desired. We, and many of our users, have benchmarked the CPI General Ledger against most, if not all, of the top G/L systems and we have yet to find one that outperforms it on similar tasks.

Conversation with the reviewer revealed that program load times appeared to be excessive, not the execution time(s). This is a direct effect of packing lots of additional features into the system—the code has to go somewhere! CPI also groups many similar and related functions together in a single program so that, for example, you don't need to run four programs to prepare a balance sheet, consolidated

P&L and two departmental P&Ls.

The review indicates that the CPI General Ledger System lets users make one-sided entries and exit the program without a zero-balance condition. We could easily have implemented this feature but did not. Here's why:

Systems that force users to be in balance prior to ending a journal entry process do just that—they force users to make deliberate false entries so they can get out of the program and research the out-of-balance condition (and then enter the correct amount and delete or reverse out the "plugged" values).

CPI's users always know if they are out of balance and can correct the condition without introducing artificial transactions into their audit trails.

One more thing: CPI is located at 15 Regency Hills Drive, not 115.

Estabrook Grove, President
Computer Professionals, Inc.
Greenville, South Carolina

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How to get from CP/M to DOS
without skipping a byte

MSDOS ↔ CP/M
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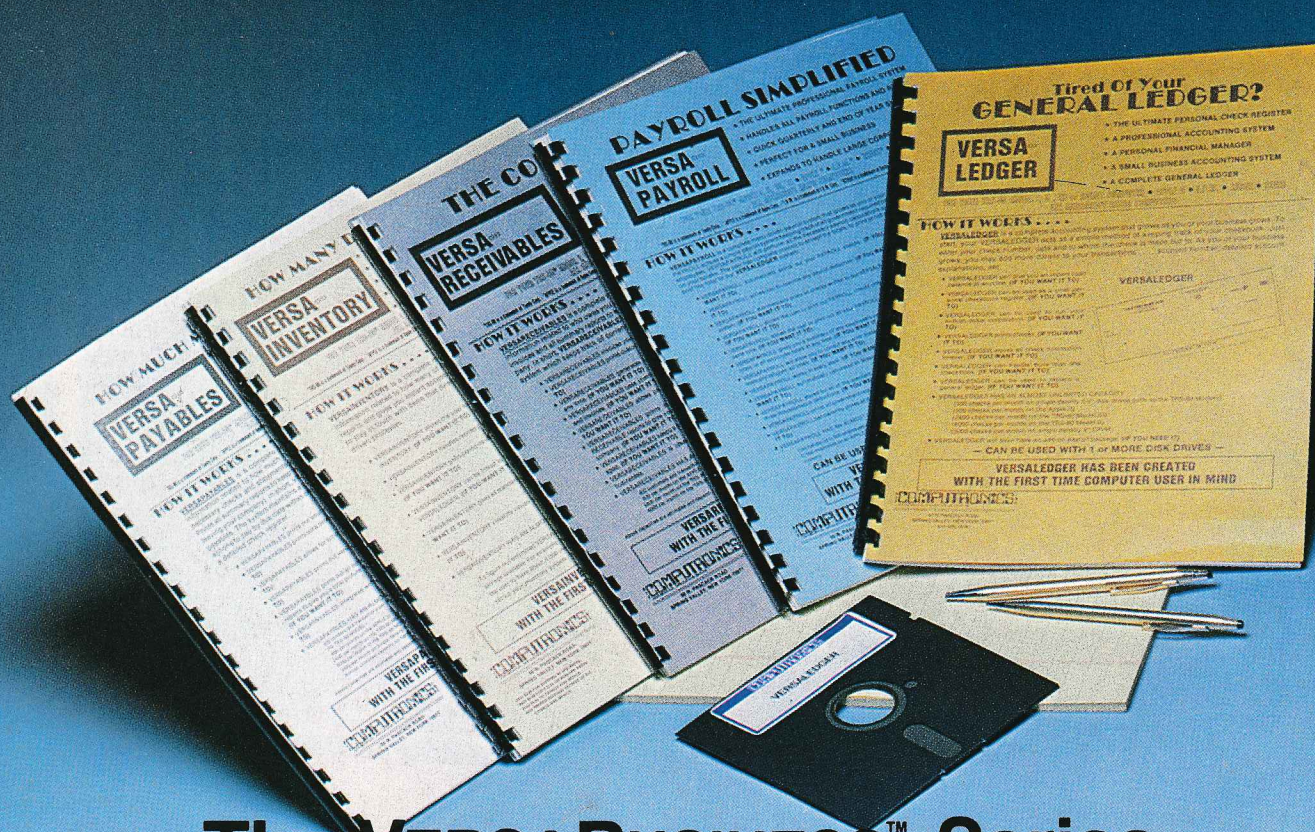
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VERSAPAYABLES™ is designed to keep track of current and aged payables, keeping you in touch with all information regarding how much money your company owes, and to whom. VERSAPAYABLES™ maintains a complete record on each vendor, prints checks, check registers, vouchers, transaction reports, aged payables reports, vendor reports, and more. With VERSAPAYABLES™, you can even let your computer automatically select which vouchers are to be paid.

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\$99.95

VERSAPAYROLL™ is a powerful and sophisticated, but easy to use payroll system that keeps track of all government-required payroll information. Complete employee records are maintained, and all necessary payroll calculations are performed automatically, with totals displayed on screen for operator approval. A payroll can be run totally, automatically, or the operator can intervene to prevent a check from being printed, or to alter information on it. If desired, totals may be posted to the VERSALEDGER II™ system.

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