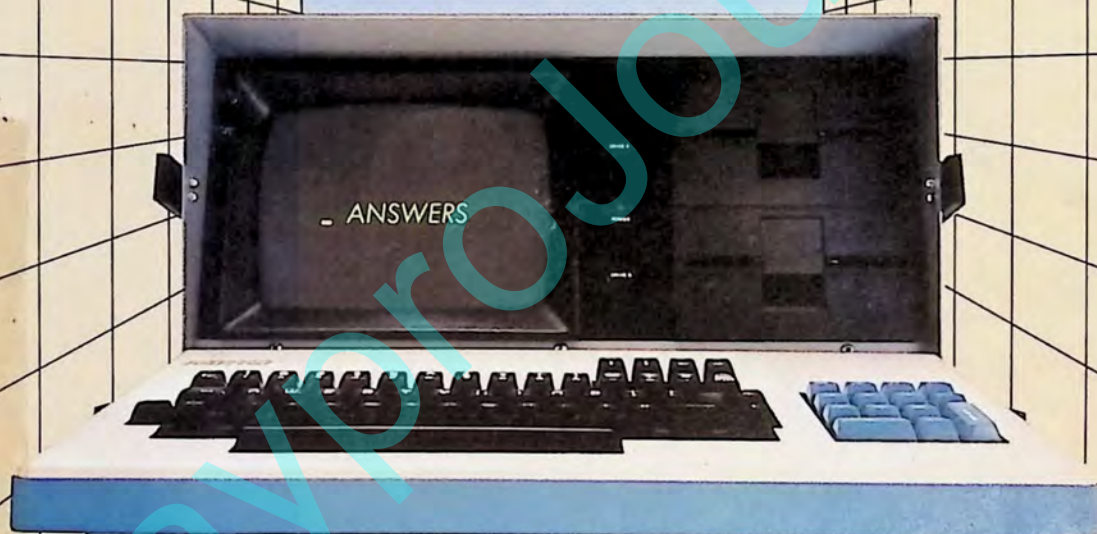


PROFILES

The Magazine for Kaypro Users
January/February 1984

Getting Started with Perfect Filer

Inside the Hacker



New Series: Understanding S-BASIC Data Files

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PROFILES

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January/February 1984

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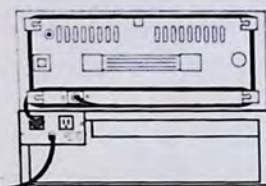
Porta-Micro Mate It's **KAYPRO** Compatible



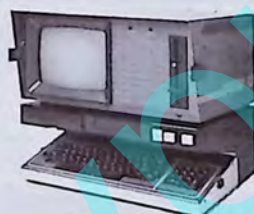
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A note from the editor

Things you should know about the magazine

Subscriptions: the fantasy

Subscribing to *PROFILES* is easy.

Judging from the phone calls we get every day, it should be a simple matter: The potential subscriber simply calls the editorial offices and one of our many trained and courteous operators takes the information over the phone, updates the master database for future issues, and dispatches a courier to deliver the previous issues missed. What could be simpler?

Subscriptions: the reality

Unfortunately, we don't have a master database on the premises, and we don't have a dozen operators answering the phone. What we do have is an outside data service and a greatly overworked Editorial Assistant who tries valiantly to remain pleasant in the face of a daily onslaught of pleas/demands for subscriptions and back issues. (Her life isn't made any easier by the irascible Editor who yells at her for spending too much time on the phone with subscribers.) Having forty thousand or so subscribers is gratifying, but far too much for our small staff to handle.

In an attempt to make your life and ours more productive, not to mention more enjoyable, *PROFILES* will soon be changing over to an outside subscription service. The major effects of this conversion will be that new subscriptions to *PROFILES* will be handled more efficiently, and the mail address for subscriptions will change. In the meantime...

Don't call us! Calling our offices so we can personally tell you we can't handle subscriptions on the phone

won't speed up the process, and it will distract Roxanna from processing the mail from the folks who did take the time to write.

How to subscribe.

Subscriptions to *PROFILES* are available to everyone in the United States and Canada who purchases a Kaypro computer, or already owns one. The cost of six issues is included in the price of your computer.

During the early months of the magazine, we counted heavily on the return of warranty cards to establish our mailing list. Developing the list has turned out to be trickier than we had anticipated—roughly a third of our users aren't getting the magazine because *something* went wrong. Perhaps the card was never sent in, or sent to the wrong place (some of them have shown up at Digital Research!), or they were lost in the mail, or we managed to lose them in the office or... who knows? If you've sent in your card, you should be receiving the magazine.

If you've sent in your card and aren't receiving the magazine, please write to our Editorial Offices. Enclose your name, address and the serial number of your machine, which is located on the back of your Kaypro. Better yet, use a copy of the ad on page 29 of this issue.

Please do not call our Editorial Offices with subscription requests. We need to see the information in writing.

Change of address information should also be sent to the Editorial Offices. Please include your serial number here too.

Other issues

The requests for back issues have been overwhelming. Indeed, just two months after announcing their availability, we are already SOLD OUT of issue number one.

We are working on an arrangement so that Kaypro users in foreign countries will be able to receive the magazine. However, we are not yet able to offer international subscriptions.

Disclaimer

Reviews, editorial references, and advertisements should not be taken as an endorsement of any products not specifically manufactured by Kaypro Corporation. We are not liable for any damages arising out of purchase or use of any of these products.

In the case of reviews, opinions expressed are those of individual members of our staff, and do not represent any form of corporate certification. They also do not necessarily reflect intensive technical analysis as would be provided by a laboratory or professional testing firm. Other editorial copy is provided for the interest of our readership only, and may derive from telephone interviews, press materials, or casual exposure.

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Letters

The usual flattery and remonstrations,
and some kudos for Shapiro.

While Kaypro Corporation finances this magazine, it does not necessarily endorse or even agree with the editorial content. Unless there is a specific note to the contrary, all opinions in this magazine are the opinions of the staff and/or individual writers involved. In the case of the Letters column, the guilty party is usually Tyler Sperry.

They still like us

I want to tell someone how pleased I am! First with my Kaypro 4. I've had it almost a month now and it's functioning nearly perfectly. And secondly with *PROFILES*. It is a first class magazine that meets many of my needs precisely.

I was impressed in the first issue with the material on re-configuring the keyboard, though I am not quite ready for that yet. The second issue brought great information about PIP's power and some of its many uses. And the third issue spoke directly to me offering much needed information about modems and their use, bulletin boards, and a great piece by Ezra Shapiro concerning public domain software. I've read literally thousands of pages of books and magazines in the past 6 months. Those are the first words on the nature of public domain software I've seen. Thanks much, Mr. Shapiro.

And thanks to all of you at *PROFILES*. Please keep up the great work.

You are helping a lot of us ... out here.

Elmer F. Littler, Jr.
Florissant, Missouri

Ezra has moved to *BYTE* magazine and we miss him.

I have read the last two issues of *PROFILES* and I am very pleased and surprised. I am used to such in-house publications as *Pentax Way*, *Leica Way*, and *Ford Times* which are so self-serving as to be near fraud. I find the candor of *PROFILES* refreshing.

Having been forced into computer literacy by a relative who was kind and rich enough to give one to me, I spent months and read thousands of pages on the beast. Now I am certain that I am an expert. After all, I did select the Kaypro above other models.

Keep up the good work. I cannot believe that I, a technophobic neanderthal ... learned to use such an incredible machine.

W.R. Jordan
Beeville, Texas

Moreta's author

I have read in *BYTE* magazine that you have a magazine which explains more about your engaging *KAYPRO II*, which I purchased here in Dublin ... I gather that I am eligible then for the *PROFILES* magazine as a new owner.

Except for the fact that I have the 1.03 (version of Perfect Writer) which loses me sentences and whole pages of deathless prose on the ESC K function, I am extremely pleased with it, more so than I had anticipated after my struggles with Apple and Atari systems.

Anne McCaffrey
Dragonhold, Wicklow
Ireland

During her recent visit to the U.S. I was able to chat briefly with Mrs. McCaffrey. We were able to settle her Perfect upgrade problem as a consolation prize, but, alas, international distribution of *PROFILES* has yet to be debugged. The special solution reached for Mrs. McCaffrey—using a stateside mail drop—is unlikely to be helpful for most of our foreign users. All I can say is that we're working on it. —Ed.

Prelude to disappointment

There is a small problem you may be able to resolve. It is apparent Kaypro consigned Peter A. McWilliams to write a book, *Word Processing on the Kaypro*. Before I bought my computer, I bought the book. On page 164, McWilliams listed Suprterm as one of the software items that comes with the Kaypro 4. He also listed CBASIC. I am now getting the CBASIC. But what about the Suprterm? The
(Continued)

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LETTERS

(Continued)

modem program is one big reason for buying the package. But even so, it doesn't appear I've gotten all that was advertised.

Frank Ruiz
Sebring, Florida

P.S. Thank you for the excellent magazine, the choice of articles. Despite my problems, thanks also to Kaypro for a very good machine and software at a reasonable price.

To the best of our knowledge, the extent of the dealings between Peter McWilliams and Kaypro Corporation consists of packaging already-written books with Kaypro computers. Any promises or inaccuracies contained in those books are the responsibility of Mr. McWilliams, not Kaypro.

While it is certainly true that Mr. McWilliams has written glowingly about the Kaypro machines (cheers from the Kaypro bleachers) that doesn't constitute advertising since he sells his books in bookstores like everyone else. Please note that Mr. McWilliams has also written a book about Word Processing and the IBM Personal Computer (conspicuous silence from the Kaypro bleachers), yet no one has accused him of being on the IBM payroll.

Concerning your real problem, modem communications, we have a couple of suggestions. First, you could buy Suprterm or one of the other programs available for the Kaypro. Some of these other programs are even (hint! hint!) advertised in PROFILES. If this doesn't appeal to you, you could try one of the many public domain programs offered on bulletin boards or on disk from people like Micro Cornucopia or Workman & Associates.

About our leadership

The November-December issue, just received, looks like a full bag of articles I want and need to read. Thank you for the Christmas present! I did not get past page 11 before finding something that prompts me to protest and argue. In the editorial comment on Betsy Feist's well-composed letter, the following clause appears: "... there isn't much we can do to influence customer service or dealer operations."

The writer fails to grasp the problems facing users or to see the great power of the press. This journal will be read by dealers and vendors, and one hopes they can read and understand letters which reflect attitudes which will influence their business. More important, however, is the leadership your journal can provide in helping readers/users understand what they have a right to demand and to protest about. If a user says that the CP/M manual is a literary abomination, his attitude will be brushed off as that of a poltroon and novice. But if the editors of PROFILES give intelligent direction to complaints, more respect will be earned.

Once we have invested in hardware and software, are the vendors through with us? Yes, if we speak only as individuals. I have been angry enough at incomprehensible documentation to consider bringing suit. Must it come to that? I have been using computers and writing programs since 1951, and I find some of the manuals which came with my marvelous Kaypro some of the worst I have ever tried to use. Even IBM's manuals look like Great Books in comparison.

I hope the editors of PROFILES will use their strong voice and their

opportunity for leadership and give compassionate guidance to the mass of Kaypro owners who are not sure what they should be able to understand. Many of them conclude that THEY must be stupid, when the fault lies elsewhere.

Keep up the outstanding work. But don't forget *noblesse oblige*. Don't try to weasel out of the leadership role.

John Caffrey, Ph.D.
Scottsdale, Arizona

Since our readers are people who have already purchased a Kaypro computer, we are relatively immune to the pressures from Marketing that other company-sponsored magazines suffer from. Still, while we try to maintain an objective attitude regarding Kaypro policies and products, there are times when our most effective statement will be a conspicuous silence.

In the case of documentation, aside from printing the more interesting letters, we will let our choice of articles do our talking for us. For example, in this issue we take on the two worst manuals in the Kaypro ensemble: Perfect Filer and S-BASIC.

I received the second issue of your magazine. It is a good start for a user's magazine. After reading through it, I have a few comments which I would like to share.

In (Ezra Shapiro's) article, "Unhealthy Attitudes," you repeat all the complaints that personal computer buyers have. These complaints are not restricted to Kaypro owners—I would suspect that the vast majority of personal computer buyers have some dissatisfaction with their purchase. You make the comment that perhaps

(Continued on page 15)

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Micro Cornucopia is not just a magazine covering single-board based systems, it's really a 2-year-old users group for folks who just can't leave their single board systems alone. The systems we cover include the KayPro®, the Big Board, the Xerox 820, and some new 16-bit boards like the Slicer.

We get inside single board systems to see what makes them tick (or not tick). When we get done we usually know how to make them tick faster and better.

Regular Features Include:

- The KayPro Column
- On Your Own Column
- C, PASCAL and FORTH Columns
- Technical Tips

Edited and Published by David Thompson

KayPro Schematic

This is a complete schematic of the KayPro, logically laid out on a single 24" x 36" sheet — no more searching to see where a signal goes or comes from. Even the unused gates are shown.

It's drawn in positive logic, lines are labeled, and we've tossed in hours and hours of careful checking for accuracy. Then we added a Theory of Operation that's keyed to the schematic.

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KAYPRO II USERS DISKS

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KayPro Disk K1 - Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.

MODEMPAT.COM: Menu selection of baud rate, bits/character, stop bits, & parity for serial port.

MODEM7.COM: Very popular MODEM 7 configured for KayPro.

MODEM7+.COM: This is MODEM7 & MODEMPAT combined - you can communicate with anything!

KMDM795.COM: Super-version of MODEM7 set up for KayPro.

TERM.MAC: Commented disassembly of the TERM program you get with your KayPro so you can configure it for any interface.

SQ/USQ.COM: Programs to squeeze and unsqueeze files for faster transfer.

KayPro Disk K2 - Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your KayPro.

ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into .MAC files.

UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.

FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.

CAT2: This a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.

UNSPPOOL.COM: Use your KayPro II and print files at the same time. Doesn't slow down system response!

DUMPIX, DU-77, COMPARE, SUPERSUB, FORMFEED, DIR-DUMP, . . . and all have documentation on disk.

KayPro Disk K3 - Games

PACMAN.COM: Despite the KayPro's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.

ZCHESS.COM: Chess with a 1-6 level look ahead.

OTHELLO.COM: You learn it in minutes, master it in years.

BIO.COM: Generates custom graphic biorhythm charts.

MM.COM: Master Mind.

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KayPro II Users Disks

\$12.00 each ppd.

KayPro Disk K4 - Adventure

ADV.COM: This is the latest, greatest, most cussed adventure ever devised by half-mortals. This is the 550-point version so the cave is greatly expanded and the creatures are much smarter.

KayPro Disk K5 - MX-80 Graphics

A complete MX-80 graphics package including example files.

KayPro Disk K6

Word Processing Utilities

A powerful line oriented text editor that looks like Unix's EX, plus a scad of text utilities written in C which handles pretty printing, shortening a file, multiple space output, add tabs, remove trailing whitespaces, and more.

KayPro Disk K7

Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's Small C compiler. Version 2 has more expressions and larger library, true subset of Unix C. Disk contains compiler, documentation, and library—everything you need.

KayPro Disk K8

Small C Version 2 Source

This disk contains the source (written in Small C) of the Small C version 2 compiler. Get K8 if you want to try extending the compiler. (You must have K7.)

KayPro Disk K9 - ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.

PASWORD: Lets you encrypt and decrypt your precious files. Includes source.

EX14: a super replacement for SUBMIT and XSUB.

Plus many more: TREK, FIX, FIND, SNOOPY ALIENS and DIF2.

KayPro Disk K10 - Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the KayPro (and every other Z80 machine).

CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.

LASM: This is a more powerful version of the ASM assembler you received with the KayPro. This will link multiple programs together at assembly time.

PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

KayPro Disk K11

Library & Checkbook Programs

CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.

LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.

DISPLAY, VLIST, PGLST: Additional screen and print utilities.

KayPro Disk K12 - FORTH

Yep, this is FORTH, one of the most unique, most extendable languages known, and for a paltry \$12.00. This disk contains not just one FORTH, but two, along with an editor, decompiler and 8080 assembler! The editor even uses the cursor control keys.

FORTH: This is true fig-FORTH.

KFORTH: A very nicely extended version of fig-FORTH.

PLUS, all the rest of the FORTH goodies. (Forth Heaven!)

KayPro Disk K13

Source of fig-FORTH

All this disk contains is the 40K ASM source of fig-FORTH with the hooks in place for the KayPro. This disk is for FORTH hackers who just can't leave anything alone. (Look, you probably have faults, too.) The source of FORTH is here because there isn't room on K12. This is the only disk that isn't stuffed.

KayPro Disk K14 - Smartmodem Programs

This is the disk for you if you have a Smartmodem compatible modem. Handles goodies like auto dial along with multiple directories.

SMODEMK: Smartmodem program set up for the KayPro (and source).

XMODEM: Lets you remotely control your KayPro from a distant computer.

KAYTERM: This is the information you need to run or write modem software on the KayPro.

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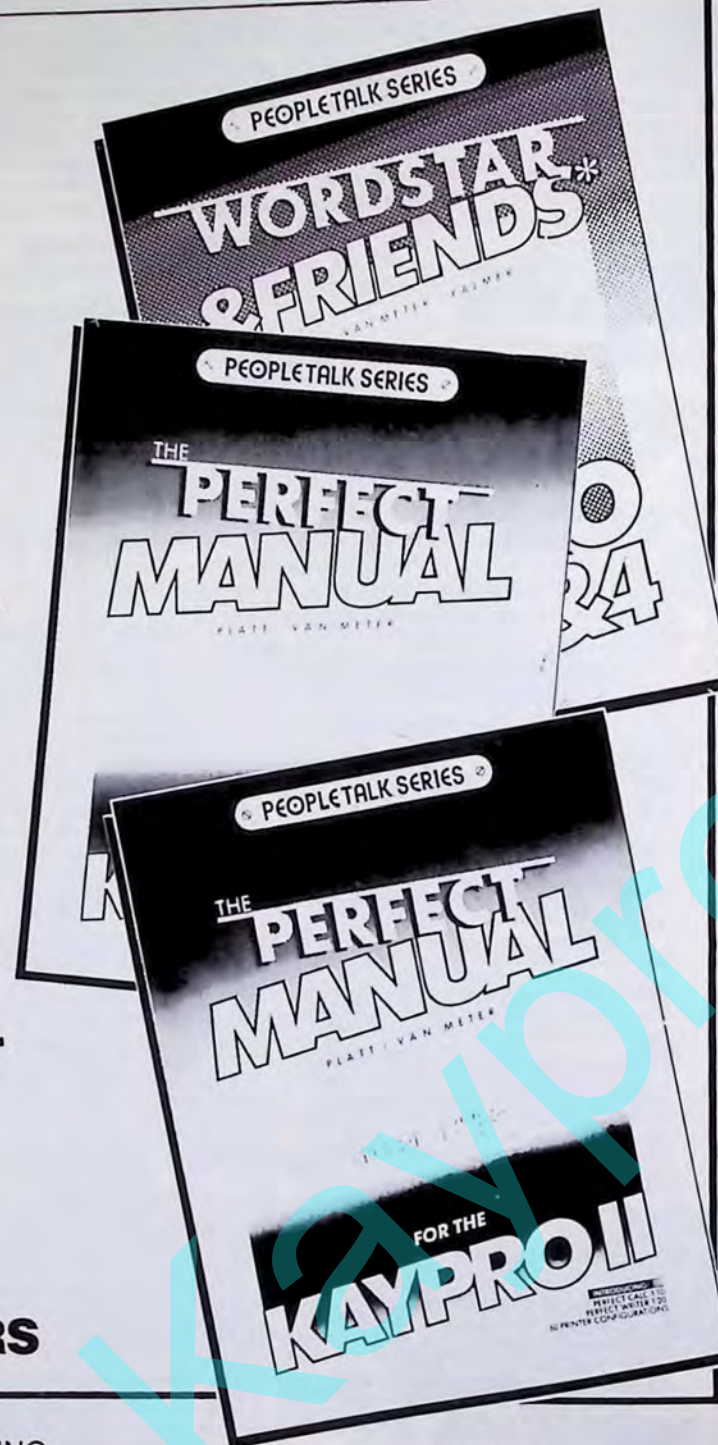
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MC/VISA

LETTERS

(Continued from page 11)

buyers have unrealistic expectations, and you try to draw an analogy to automobiles. I don't believe that this analogy is right.

Automobiles are a very simple device to use. Virtually everyone who purchases a car knows how to drive it, and also knows about how much (or how little) to expect from the car they bought. Computers, on the other hand, are still a very new item to many of the purchasers. The public is being sold on the idea that computers are fun, they are useful, and they are easy to learn how to use, but these features cannot be delivered. Dealers don't seem to understand that they have to offer the equivalent of driving lessons to their customers if they want them to be happy. Until more of the public understands what they want computers to do for them, dealers and manufacturers are going to have to cater to naive users.

I have some further comments on the languages available with the Kaypro. I don't think you should endorse products whose producer seems more interested in collecting money and less interested in delivering products. I have been waiting almost a year for my copy of JRT Pascal, and I cannot even get them to offer an explanation for the poor service. I begin to wonder if JRT Pascal really exists.

I also would like to see a better manual for SBASIC. I would ordinarily have used assembler language. I have discovered that it generates very s-l-o-w code.

Finally, why is it that those of us who bought the early version of the Kaypro cannot get updated software at reasonable cost? I bought before the Perfect software and MBASIC were provided, and my dealer indicated that the upgrade package, including new manuals, was \$500. I should think that those of us who had some faith in your product early might get some sort of break on the enhancements.

All in all, though, after owning my Kaypro for a year, I have yet to find a

machine that meets my needs better. Keep up the good work, and keep getting better.

David F. Athersych, P.Eng.
Kingston, Ontario
Canada

In the order you brought them up:

1) *The auto analogy stands. How long did it take before cars were simplified to the point where almost anyone could drive one? Remember manual transmissions? Remember crank starting?*

Sure, it would be nice if every dealer had the time, knowledge and inclination to tutor the customer. It would be even nicer if the programs and documentation made such tutoring unnecessary, but don't hold your breath on any of these wishes. Once you've written your letter of complaint and run up your phone bill calling Kaypro's technical support number (619-481-3920), your best bet is to buckle down, study, and share your knowledge with others.

2) *Accepting advertising is different from endorsing. We don't endorse; we review or ignore products, and we accept advertising.*

Unfortunately, by the time the JRT complaint file started to swell, Chapter II was already under way. For more on the JRT situation, see David Thompson's column in this issue.

3) *I agree.*

—Ed.

The last word

Dear Editor:
The only thing I want to say to you is:
HOOKA! HOOKA! HOOKA!

Vito F. Simplicio
Sandpoint, Idaho

About back issues

Effective December 1, 1983, Pro Files will be sending out back issues while supplies last at the cost of \$3.00 each, which includes postage and handling.

Send your name and address to our Editorial Offices, 533 Stevens Ave., Solana Beach, CA 92075, Attn: Back Issues. Enclose a check or money order (no cash) made payable to Kaypro Corporation. As with our subscriptions, we cannot accept telephone requests. Also, you need not be a Kaypro owner to request back issues.

Here's some of the content of the last few issues:

July/August (Premiere Issue)

Self-help books—are they worth it?
Reconfiguring your keypad
How to hire a software consultant
Choosing a programming language

September/October

Bringing a computer into a small office
A tutorial on PIP
Wordstar vs. Perfect Writer
Women and computers
Disks, drives and dirt
Structured programming languages

November/December

Introduction to telecommunications
Public domain software
Bulletin board systems
Synchronous communications
Designing your workspace
Interview with the author of S-Basic

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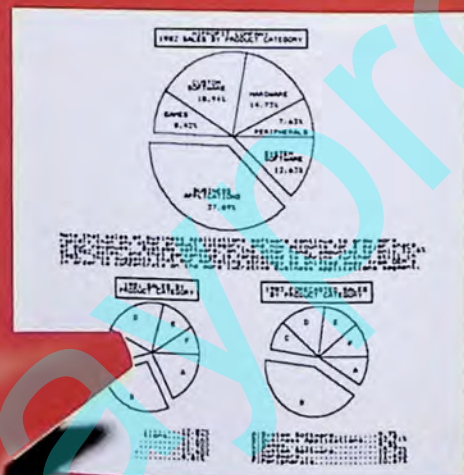
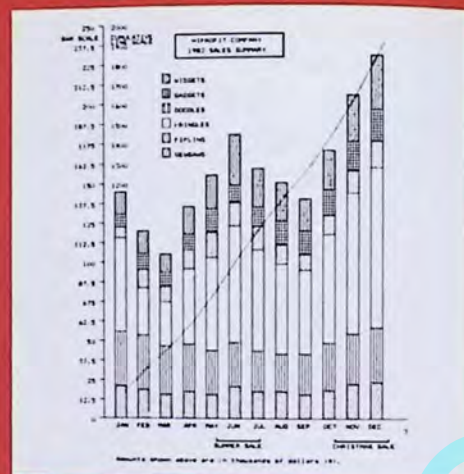
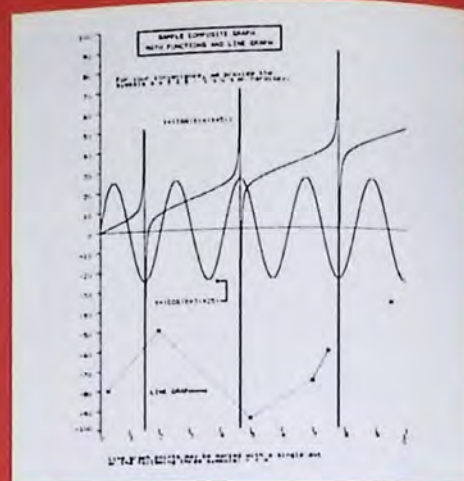
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Yes! I want to see the whole picture!

Please send me the complete GRAFIKS 2.0 package. I have enclosed a check or money order for \$125 (CA residents add 6.5% tax). Foreign orders add \$10.

Osborne 1: ☐ Single density ☐ Osborne Executive ☐ Morrow
☐ Double density ☐ Kaypro

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GRAFIKS 2.0

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Robonics

If you haven't heard about LEGACY's upgrade kits, maybe you need to listen a bit closer

KAYPRO 400 KB Upgrade Kits*

KAYPRO 4 upgrade kit consists of a simple EPROM change and about 15 minutes to complete the installation. This will upgrade your standard KAYPRO II (which is 200 KB capacity per drive) to 400 KB capacity per drive.

Price \$118.00

*TEAC 55B diskette drives
2 each required for above kit \$340.00 ea.

KAYPRO 800 KB Upgrade Kits*

This kit allows the user to upgrade the standard KAYPRO II (200 KB capacity per drive) to 800 KB capacity per drive. Installation requirements are identical to the KAYPRO 4 upgrade kit.

Price \$118.00

*TEAC 55F diskette drives
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Multi-Fonts Video Graphics

This field installable hardware peripheral allows for high resolution (512 by 256) bit mapped graphics on the KAYPRO II/4. Firmware for drawing line vectors, circles, rectangles and point markers as well as down line loadable character sets are standard features. Application programs may draw patterned lines, filling rectangles with a pattern, blanking the display either dark or light and complementing all or portions of the display.

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CPU Hop Up Kit

The Hop Up Kit will increase your KAYPRO's calculation speed up to 60%. In electronic language this translates into an increase from the standard 2.5 MHz to a 5 MHz.

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External Video Monitor Adapter

Our video monitor adapter allows the attachment of an external monitor to the KAYPRO II computer system. Extremely useful during presentations and training sessions.

Price \$118.00

EPROM Upgrade \$41.00
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Built-In 300/1200 Modem

This kit mounts inside the KAYPRO and is Hayes Smartmodem compatible (Bell 103/212A). Auto-dial, auto-answer with automatic line speed detection (0-300, 1200 baud) are all standard features. Kit comes with software.

Price \$499.00

EPROM Programmer

Reads and programs 2716, 2732, 2764, 27128 EPROMS. Direct connect to any RS232C terminal or computer. Programs, verifies, and dumps in both ASCII and hex. Completely menu driven for ease of operation. All software on disk including well commented source code.

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External Drives C & D

Simple to install. This module allows for the attachment of two additional diskette drives (C & D) to the KAYPRO. The extra drives may be external or 4 half height drives may be mounted internally.

Price \$118.00

Real Time Clock

This circuit board plugs into the KAYPRO motherboard and has nicad batteries for power backup (to insure failsafe operation). Included are software routines for clock accessing.

Price \$118.00

Fancy Font Typesetting System

This product is unique in that it enables the KAYPRO computer when attached to an EPSON printer to print multiple fonts (different type styles) of varying sizes. It includes a font editor that will allow the creation of virtually any font or log.

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8088 Co-Processor

Co-processor uses MSDOS or CP/M86. IBM compatibility coupled with the power of a 16 bit processor.

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The cottage computerist

Big dreams, big nightmares

by David Thompson

We all have dreams of coming up with something that goes big—I mean really big. Not one of those little five orders-per-week sorts of things that buys an occasional lunch at McDonald's—I mean one where your neighborhood mail carrier shows up at your door one day, in a semi.

You take an idea—Apple, Visi-Cal, WordStar, Hayes Smartmodem or JRT Pascal to name a few. Then you create a product, announce it, and—presto!—you have money in unexpected quantities rolling in from places you didn't know existed.

JRT Pascal

Jim Russell Tyson's idea behind JRT Pascal was very simple. He figured that if he dropped the price of his Pascal package from \$295.00 to \$29.95 per copy and gave people the right to copy it for their friends, they would line up to purchase it.

He had already written the software, and he had a pretty good idea what it would cost to produce, package, and ship, so he figured he couldn't lose. All he had to do was convince people that \$29.95 got them a real Pascal Compiler.

Marketing

He was pretty convincing. At \$295.00

he was selling a couple of copies a year, at \$29.95 he sold as many as 1192 copies a week. Even at just \$29.95 per order, that's my idea of unexpected quantities of money from unexpected places.

He announced the product by sending small flyers to the major computer magazines. The publications mentioned the product in their new product columns and JRT Pascal was on its way.

As orders started rolling in from the announcements, Jim used some of the cash to start an advertising campaign. Orders snowballed.

Big Time

It was obvious that something big was happening. The first time I called, Jim answered the phone himself. He was working alone out of a house in the San Francisco area. It wasn't very long before I couldn't reach him at all.

I was interested in getting the latest bug fix information and in finding out the progress of version 3, after all, many Micro Cornucopia readers were already using JRT Pascal. So I felt it was my duty to get them the latest information. However, Jim had become one of the unreachable.

JRT ran ads in Micro C, Info World, and Byte. In fact, it wasn't long before there were few magazines that didn't have ads for the world's cheapest Pascal. Some reviewers complained about Jim's implementation and his choice of extensions but there

were few complaints about the price. I even mentioned JRT Pascal in my first *PROFILES* column. Pascal is an excellent language to learn on because it forces you into some very good programming habits. Then you can use S-BASIC and continue your good habits.

Warning Signals

However, it wasn't long before Sandy (number-one spouse and accountant) mentioned that we hadn't received payment for JRT Pascal's ads, so we quit running the ads. Meanwhile Version 3 came out. It was announced in January 1983 but it wasn't ready until March. Of course, they had been taking orders (and payment) for it since January.

Then, I started getting calls and letters from disgruntled readers who had placed orders (after being promised 4 to 6 week delivery) and who hadn't received a thing in 6 months.

Finally

On November 27, 1983, I received a letter from JRT's attorney saying they had filed chapter 11 bankruptcy.

I called the attorney's office and wound up talking to a legal assistant named Ms. Hardin. She noted that JRT (and Osborne) are just the tip of the iceberg. A lot more small and not so small companies will be calling it quits in the near future. (She wouldn't say which ones, of course.)

"There are so many software companies out there that aren't savvy about profit and loss, the person who starts them is a technical guru, not a business type," she said, "There are too many elements that aren't within their control." She added, "We especially see problems in the software area because it is so easy for individuals without proper knowledge and funding to jump in."

Avoiding Ruin

Let's take a look at some of the prob-

lems that can lead to catastrophe and see if maybe some of them can be avoided.

Really Figuring the Costs

The most obvious costs are the variable costs (variable costs are costs that go up as volume goes up and go down as volume drops) but people often forget about many of these costs.

These less obvious variable costs include—the shipping container or packaging materials, the postage, the COD fees, the bankcard fees, and the costs of returned packages. As the vol-

ume goes up these costs go up too.

Then we have to remember the costs that go on day after day independently of the day's orders (called fixed costs). You see, advertising, employee, building, heat, transportation, tax, and insurance expenses don't start or stop at the drop of a postcard.

It's pretty heady stuff. Pretty heady indeed, until you step into a hole.

You will add new employees as volume gets greater (a variable cost) but as things slow down you won't start dropping people immediately (so they become a fixed cost).

The Money Trap

When you move from being an employee to being a business owner, you learn many things. The biggest thing you learn is that most of the money in the bank isn't yours.

"But it's in the bank and there's more and more coming in every day. If I take some out today, there'll be even more to take its place tomorrow," you say.

That's true, but before you touch a nickel of it, get a good accountant and figure out what is really yours. You may already be in the hole (a hole lined with cash perhaps, but very much a hole).

Figuring Profits

Most folks calculate their profits for a software product by figuring out the costs of purchasing (and copying) a disk and for printing the manual. Then they subtract those costs from the sales price, and the difference is

Murphy's Overhead

You also need some margin for screw-ups. What happens when you find major errors in the manual and you just had 20,000 printed? That manual cost

you \$60,000 for the printing and thousands more for writing, typesetting, paste-up, and supervision. It's going to be expensive to get the errors cleaned up so you can retypeset and reprint the manual. Meanwhile, your shipping department is sitting on its hands waiting for manuals so they can start shipping product. And that's certainly not the only way Murphy can nail you. What happens when you ship hundreds of disks before you discover that the disk copying service screwed up? (It happened to JRT.) Now you have to put shipping on hold while you scramble for new disks to ship to the old (and not too happy) customers. Meanwhile you've got new (and not too happy) customers who are waiting. The dollar costs of reshipping all those orders obviously aren't the only costs.

So orders go out later and later. You use the money you've received for unshipped products to meet payroll and other expenses. It should have been used to purchase disks and manuals for the new customers.

Let's pursue our hypothetical (but realistic) situation a bit further.

Orders Drop

Orders slack off a bit because you get a reputation for slow shipment and people who've been waiting for months stop their incessant calling about their orders and start cancelling. You refund their money.

It turns out, however, that you are not refunding their original money, you spent that paying employees to answer the irate phone calls. You pay refunds out of money generated by new orders.

You figure that the way to improve cash flow is to start selling a new product. So you add additional employees to help get product (Modula II) out the door faster. It isn't ready yet but you start advertising it anyway.

You still look pretty good. You have
(continued on page 86)

Ms. Perceptions

Observations on women and programming

by Terian Tyre

Do women make better programmers than men? It's a provocative question that won't be completely answered for years to come. I have evidence, however, pointing to an affirmative reply.

Some of this evidence comes from professional educators like Genevieve Cerf, a computer science instructor at Columbia University, who believes women are more inclined to write programs with the user in mind. "They write neat programs, beautifully laid out. Women are much more verbal in their descriptions; variable names are well-chosen. They're terrifically logical."

Other evidence comes from psychobiologists. According to right/left brain theory, women excel at programming because it's essentially a "left brain" activity. This controversial theory postulates that the brain's two sides govern two separate functions. The right side handles visual/spatial relationships and nonverbal ideation, while the left controls language skills and linear (step-by-step) thinking. Certain studies claim women are more adept at left brain tasks, while men succeed more at right brain activities.

My own opinion shies away from biological differences and leans toward how the two genders are brought up and socialized. I think the differences result more from the traits in their personalities and thinking processes that are encouraged and

rewarded.

If a little girl pulls apart the toilet because she wants to see where all the water goes, does Mom attribute it to "natural curiosity" and excuse her daughter from punishment? If an 8 year-old boy spends all afternoon arranging his model cars in the order he received them, does Dad praise him for his neatness and sense of organization?

In programming, it's important to have a clear idea of the task in mind. It's just as important however to pay close attention to the individual parts that comprise the task. One must be able to see both the forest *and* the trees with equal clarity.

"I found that in my students, women tended to be more conscious of the little details and thus tended to have fewer bugs in their work," says Eleanor Girard, a programmer/analyst with Scripps Institution in La Jolla. "Men tended to think on a grander scale." Girard felt this different emphasis was due to social conditioning rather than innate ability.

Esther Dyson, vice-president of Rosen Research, concurs. "Women are often educated to pay more attention to detail, to be more painstaking. To that extent they should be better at programming. That's not biology, that's training."

If women are so well-suited for programming, why aren't there more in the industry?

During the war, most programmers were women, partly due to the absence of men, but also because it was

considered boring work. Following the war, Rosie the Riveter and Pam the Programmer went home. After that, the only way to learn about computers was to actually work with them and those jobs were men's domain. Only in the early 1970's did training begin to expand. As equal access became available, women reentered the industry. The ten to fifteen year time lag partially explains why women are still playing catch-up.

In fact, the number of female programmers has increased much faster than the number of available jobs. Only 32% of those jobs, however, are currently held by women. Sadly, more than 75% of women who work with computers are in the lower-paying and lower-skilled areas of keypunch and operations. Contrast this with statistics showing 75% of men's computer-connected careers are in repair, system analysis, engineering, and programming—work requiring more skill and offering higher pay.

What are the women that have landed programming jobs doing? Basically, they're taking care of business.

Gail Anderson, of Anderson Software, says that the women she knows are doing pretty much the same kind of applications work as their male counterparts. "They're involved in systems programming of the development-type. In applications work, they're writing accounting programs and sophisticated file management routines. Their programs are oriented towards business rather than men or women per se."

Some people believed (including myself) an influx of female programmers would cause a whole new genre of humanistic software to be born. What happened?

Economics plays a major part in this developing story. Women, as a rule, are still paid less for comparable work, even within the computer industry. While the gap is less here (a woman earns 75 cents to the man's dollar in the computer industry, as opposed to 59 cents to the man's dollar outside), it still means a difference of thousands of dollars a year in purchasing power. As a result there is less money and less possibility of buying a

day, advances are rapidly moving towards automatic program generation and applications which debug themselves. Programming itself is being "deskilled" as the technology improves.

Will women influence the industry in the future?

"Yes, but I don't envision it in the next 5 years," responds Gail Anderson. "The direction the industry will take is decided by management and management is still composed mostly of men. When women are at least 50% of management then you'll see changes."

Finally, I would offer two bits of ad-

When women's time is valued the same as men's, then you'll see more creative programs from women.

computer for personal use. Women aren't as likely to have unlimited computer access and are therefore less likely to program away from work.

Additionally, free time for learning how to program is a rare thing for most women. Spare time is usually devoted to house and spouse maintenance, children, and other non-computer related activities. Men don't have as many hours previously allocated for day-to-day sustenance so they have more time to "hack." When women's time is valued the same as men's, then you'll see more creative programs from women.

Very few "new age" applications have actually been created yet. In another five to seven years, we'll be able to more clearly see the effects of women, and the new genre of software will bloom. Quite likely, it'll be more user-friendly than anything seen before.

One thing for women to keep in mind is the incredibly accelerated pace of this industry. While programming is a real hot-shot skill to have to

vice to women who are considering a programming career. First: test the waters. Enroll in a class or two to see if it suits your own personality and cognitive style. "Most people have unreal expectations about programming," says Eleanor Girard, "like believing the math is too hard. Taking a class will let you discover whether it's a job you'd find interesting or terribly tedious."

The second tip is a good rule for would-be programmers of either sex: *don't be intimidated!* It's easy to confuse proficiency in "computerese" with actual knowledge.

The jury may still be out on whether women are inherently better programmers than men, but it is clear they're no worse. The bottom line, after all, is getting the job done. Employers don't really care *who* does the work, they want results. Witness the proliferation of "barefoot executives" in the industry. In programming, as in most other cases, competence is not a gender-specific attribute. □

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Includes Payroll		YES	NO	YES	YES	YES
Fully-Integrated		YES	YES	YES	YES	YES
Ready-to-Run		YES	YES	YES	YES	YES
Audio Cassette Tape Start-up & Training Aid		YES	NO	NO	NO	NO
System "Road Map" Guide		YES	NO	NO	NO	NO
Free Users' Newsletter		YES	NO	NO	NO	NO
Source Code Included At No Extra Charge		YES	NO	YES	NO	NO
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Sample Data Files for Practice & Training		YES	YES	YES	NO	YES

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9. Income Statement with prior year comparison
10. Departmental Income Statement(s)
11. Departmental Income Statement(s) with prior year comparison
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13. Trial Balance Statement

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8. Summary Cust. Account Report

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2. Daily Credit Report
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4. Check Register
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6. Cash Requirements Report
7. Transaction Register
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9. Aged Payables Report
10. Detailed Vendor Activity Report
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THE KAYPRO AND THE GREEN LIZARD

A CLASSIC FABLE

Once upon a time there was a little computer named Kaypro that traveled merrily about the land making friends everywhere it went. Its happy face was lit with new sayings, for it knew that it could do anything the world asked of it.

The people were left with wonderment at its language. The deeper meanings of 'Warm Boot' and 'I Can't Read Your Disk' were the subjects of many round table discussions.

One day, Kaypro happened upon a cobbler and his son. The cobbler peered at the computer's face and said "There is nothing more pleasant than 'Warm Boots' on a cold morning, but I need color graphics for my board of directors' meeting. I've got some zingy projections that will knock their socks off."

The son also looked closely at Kaypro and asked, "Can you produce graphics like the arcades? I'm getting tired of running to the castle to play star base or paleozoic monsters. Which reminds me, how are you at doing green lizards?"



Well, Kaypro was so flabbergasted that all it could muster was 'BDOS ERROR on B.'

So, for the next few months, poor Kaypro hardly showed its face. Though it knew its basic commands were unmatched and its spreadsheets were perfect, it realized that even a small green lizard was beyond its abilities.

Then one fine morning, Kaypro happened upon the Wizard of MicroSphere. "Hello little computer," the kind Wizard said.

"Hello Wiz," Kaypro said, panting, "I can't stop now, I'm searching for a green lizard."

MicroSphere's Composite Video Board

If you need a bigger view of your present monochromatic Kaypro screen then you need MicroSphere's new composite video board. With this easy to install board, you can output to any composite video B&W, green, or amber monitor. Plus, you can still use Kaypro's built in screen.

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"Perhaps you should turn your search inward," the Wizard said, as he deftly plugged MicroSphere's new Color Graphics Board into one of Kaypro's 40-pin sockets and slipped a disk into drive B.

Well, Kaypro soon discovered it had graphs and rockets and stars and much more, all in the most vibrant colors.

But, even more importantly, it had a complete graphics editor so that it could create the very nicest of green lizards in minutes.

And, it had a complete tutorial with example programs that it could show off. Now, even the cobbler would be able to integrate color graphics into his own business programs, and his son would be able to write games.



The Wizard also included a six-month subscription to Micro Cornucopia so that the cobbler and his son could keep up with the latest graphics information and could exchange programs (even the most primitive) with other users.

So, once again, Kaypro traveled about the land, its confidence renewed, and the people were left with something new to ponder: the meaning of green lizards.

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Technical forum

Our readers give some technical help . . . and opinions

Conducted by Tyler Sperry

Last issue was notable in many respects, and unfortunately the number of technical errors was one of them. Our usually dependable Technical Editor seemed to be preoccupied with other matters throughout most of the production schedule, and the technical review that we count on wasn't up to his usual standards. I had planned to give him a stern talking-to, but management had an even worse fate in mind and promoted him to Editor & Publisher.

Serves him right.

Until we can get another Technical Editor (and probably for some time after as well), there will be technical errors creeping into the text. Happily, the mail bag never seems to run out of letters from readers who will quite cheerfully point out how we have over-simplified or screwed up. The appearance of this column—actually a transmogrification of the Q & A department—is testament to that fact. The response we get indicates that quite a few of our readers have advanced to Licensed Hacker status.

Not all of the mail we get on technical matters consists of nitpicking, however. It is to be hoped that the give-and-take displayed here will be expanded in the future to cover topics other than mistakes in the text of the magazine. (For example, we could cover mistakes in the software, in the

documentation, in . . .) Indeed, this very column contains some news about using Perfect Writer & Filer together that is more a matter of undocumented capability than a bug report. But before we hit that, let's start off with the question that precipitated this column.

God bless Marcia King

A couple of months ago I was burning the midnight oil in an effort to finish the Q & A section in time for the magazine deadline. The letter at the top of the pile of questions was from one Marcia King of Toledo, Ohio. I gave the question some thought and then wrote down a brief reply that discussed the concept of keeping individual chapters in separate files along with the notion of using the @SET command to get consecutively numbered pages from chapter to chapter. So far, so good. I then managed to mistype the example so that the numbering was wrong, and in the desperate rush to get the magazine laid out the concluding two paragraphs of the answer were cut so that . . . Well, anyway, a few days after the magazine arrived in people's mail boxes, this letter arrived on my desk:

First, I want to express my appreciation for PROFILES. The articles on PIP, keypad reconfiguration, and the intro-

duction (in the November/December issue) to telecommunication, modems and RBBS were all extremely helpful.

The final impetus to get my Kaypro was to write my dissertation and to help prepare my wife's thesis. Both have been filed and I now know some things about pagination in Perfect Writer that may save others some struggling with trial and error efforts. First let me point out that (as I am sure many others have) the editor's response to Marcia King's letter (p. 20-21 of the November/December issue) contains an error. When using the "@SET(PAGE= n)" command to obtain consecutive page numbers from file to file, "n" should be set equal to the last page number used, not to the desired page number of the current file as stated. Therefore n+1 will equal the first page number in the current file.

When paginating front matter (preface, acknowledgments, etc.) which requires roman numerals, I found one method that works if somewhat laboriously. Use the command:

@PAGEFOOTING(center= "@ INCLUDE[con:]")

at the beginning of the file after the STYLE commands and before the text. Then during formatting, Perfect Formatter will pause at the end of each page after displaying a number indicating which page of file you are on. At this (Continued on page 67)

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Attention, Kaypro users.

There's a new magazine for you, and if you own a Kaypro computer it won't cost you a penny.

PROFILES, the Magazine for Kaypro Users, features a wide range of articles designed to help you make better use of your new Kaypro computer. We answer questions, provide assistance, help you explore new avenues... whether you're just a beginner or a real Kaypro wizard. And we attempt to do so with clear writing, professional design, and, above all, a sense of humor about the personal computer experience.

The best thing about *PROFILES* is the price. If you've purchased a Kaypro computer, the cost of a six-issue subscription was included in the purchase price. All it takes is a legible, complete end-user warranty card in our files, and you're on the mailing list. If you haven't received our premiere issue in the mail, please fill out the form below and send it in. Note: we must have accurate serial numbers and zip codes for subscriptions to go through, so please be thorough. If you don't have the luck to own a Kaypro, you can still subscribe (use the lower form). Or you can pick up a copy at any authorized Kaypro dealer.

Yes, I own a Kaypro.

I'd really like to receive the next six issues of *PROFILES*, free of charge, but I never sent in my warranty card, or I've moved. Anyway, I'm not now receiving the magazine, and I want it.

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Under the hacker's hat

A look at the programming mind.

by Roxanna Wright

Hacker (noun). 1. A computer expert or enthusiast. 2. A person who sees programming as an end in itself. 3. A compulsive programmer. (Not to be confused with the term "computer nerd.")

I am a beginning programmer, that I admit. But recently I was surprised to read that I could even be called a "prenovice" programmer. Suddenly the road to programming expertise began to seem impossibly long. And when I pondered that thought while at the local university computer center, I often found myself turning to stare at some fleetfingered "hacker" nearby, wondering how they manage to program with such speed and grace.

I came to realize that I ought to know how they program, not just to find a short cut to hackerdom, but because they are all around us. Hundreds of thousands of them. Indeed, we all ought to know more about them. Because from bedroom to boardroom their creations guide us and help shape the world. What they do, and how they do it, really matters.

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So I resolved to overcome my awe long enough to find out what goes on in the mind of the programmer. After quizzing the hackers I could corner, I scoured book stores and libraries for enlightenment. In the end, I found evidence that successful programmers do think differently. And, while their skills are undoubtedly impressive, their methods are within reach of the determined "prenovice."

The logical approach

The first process I examined was how programmers communicate with their computers—programmers talk to their electronic friends in a way drastically different from that we would use to urge on human helpers. Programmers can expect little help from computers in figuring out how to meet the needs of the program's future users. In addition to finding out as much as possible about the situation in which the program will be used, the programmer must have the analytical ability to break down the problem and solution

into minute logical steps. Many have complained that hackers are out of touch with the non-computer world. Even when this is true, hackers can generally make up for it by excelling in analysis and planning.

A hacker's analytical ability is directed first at the heart of the programs, the algorithms. An algorithm, technical as it may sound, is nothing more than a step-by-step procedure to be followed to achieve a given end. Normally we lose track of details and concentrate instead on the gestalt, the whole procedure. The programmer, on the other hand, must look carefully at every action required in a program and see just how many separate steps are involved.

These steps must be planned carefully, taking into account the necessary procedures and possible problems. It is best to use plain English to avoid confusion of planning issues with the technicalities of translation into computer language. Unfortunately, there is no mental X-ray vision that can immediately iden-

(Continued)



ILLUSTRATION BY EVERETT PECK

tify the underlying logic for a new program: coming up with these algorithms takes time. Obviously, patience is a necessary virtue for a programmer.

The formulation of algorithms is one of the most difficult aspects of programming, according to Cornell professors Richard Conway and James Archer. Yet this is an unavoidable process, since computer programs are nothing more than algorithms translated into a programming language. Makeshift, quickie algorithms, however, may spawn inelegant monster programs which eventually outgrow the control of their creators. Expert programmers may speed through the planning stage by adapting algorithms they have used in similar programs. But in the hands of the less experienced, programming without going through the formal algorithm stage is as risky as building a house without a foundation: things may fall apart unexpectedly.

Good programmers must therefore restrain any urges for instant ego gratification. In his classic book *Computer Power and Human Reason*, MIT's Joseph Weizenbaum pointed out a type of programmer, the "compulsive programmer," who is unable to do so. Compulsive programmers, he says, are a species of megalomaniac who delight in bending computers to their will. Their purpose in gaining expertise is to seek reinforcement of their fantasies of omnipotence. Fortunately, these people are easily identified by the inordinately high priority they assign to playing with their computers;

planning and any other work which takes place away from the computer is avoided. They may be so driven by their emotional needs that their work and their relationships with humans suffer. In contrast, it seems that truly professional programmers are no more compulsive than you or I.

Born logicians?

Despite the essential role of logic in their craft, programmers do not necessarily spring from the womb as extraordinarily logical people. As a matter of fact, most social scientists now believe that logical thinking is a learned skill rather than an inborn ability. Morton Hunt, in his *The Universe Within*, reports that "logical reasoning is not our usual—or natural—practice." Formal schooling provides us with an introduction to logic, yet we usually manage rather well without it.

Programming, however, is one of those tasks which requires quite a bit of logical thinking. That, in turn, requires some training and a lot of practice. Hunt introduced the cognitive science view that logical thinking may be fundamentally a kind of spatial mapping. So, if those who take to programming have particular visual-spatial aptitude, neurophysiology and culture may give men a slight edge. In any case, logical skill for programming may be cultivated through such exercises as drawing algorithms in flow-chart form.

Hunt also notes that "even fine minds are not so much led by logic as

prone to bend logic to their own conclusions." Programmers avoid this seductive pitfall to a certain extent due to the merciless judgement passed on their programs by those ultimately logical creatures, computers.

The natural way

However, to program is not to be confined to unrelieved, disciplined logical thinking. Problem-solving calls for more than just logic. Psychologist Paul E. Johnson of the University of Minnesota studied professionals in various scientific fields and found that "the expert finds logical thinking a pain in the neck and far too slow." It is the beginner who must rely most heavily upon logical thinking. An example: MIT's Gerald J. Sussman, who wrote the complex problem-solving program HACKER. When asked how he devised important changes in his programs, he said that he could not explain it in terms of logical steps.

The explanation for this seeming paradox is that a form of thinking less rigorous than formal logic is involved in problem-solving. This type of thought process, called "natural reasoning," can be very useful. It includes such things as inductive thinking, reasoning by analogy, or by cause and effect relationships—none of which measure up to the standards of formal logic. But since natural reasoning focuses on the plausible and probable rather than the provable, it is generally faster than logic. Natural reasoning is much more than simple guess-

ing, because it must be based on extensive programming experience. As programmers develop their skills, they may increasingly utilize natural reasoning. However, both natural and logical reasoning must be exercised at all levels of expertise.

Telling experts from beginners

The road to expertise is long, if not hard. Conway and Archer warn that, "Programming demands an attention to detail and a degree of perfection that is rarely required in human activity." Programmers who lack the will or ability to function in this way soon become ex-programmers. It takes a minimum of 5,000 hours (about 2-1/2 years of full-time work) to gain expertise in cognitive skills such as programming, estimates Donald Norman, a psychologist at the University of California at San Diego.

During the learning process programming experience helps build up a body of abstract knowledge, "a design schema." This knowledge consists of more than just an accumulation of facts; it is organized so that the programmer makes the proper connections between past programs and new tasks. What distinguishes beginners is not only that they know less, but also that they fail to apply all they do know. Beginners, lacking a developed schema, cannot foresee the complications implicit in programming tasks. Accordingly, novices tend to jump and start generating code immediately. Expert programmers, on the other

hand, spend considerable time planning.

Debugging against high odds

Since program creation calls upon so many mental resources, it is not surprising that even professionals must spend as much time correcting errors as in writing the first draft of the program. The computer itself provides some assistance initially, by sending messages pointing out meaningless or impossible statements in the program. After that, the programmer is pretty much on his own. Here again logical thinking will be called into play to devise effective testing schemes.

However, some programming mistakes may not be discovered until long after this stage, perhaps not until a program has been in use for years. Indeed, Conway and Archer claim, "The problem of program errors is perhaps the most serious facing the computing profession." The problem is serious enough to have generated a book, *Software Reflected* by Robert L. Baber, which discusses programming difficulties ranging from the amusing to the horrifying.

In one case, a consulting firm designed a program which had, among other bugs, a section which repeated infinitely. In one program run, this bug used up about \$1,000 worth of computer time. Also unnerving is the case of company which suffered losses of over \$10 million when it tried and failed to implement an overly ambitious computer system. But most so-

bering is the tale of the country whose computerized defense system contained an error which caused a false report of enemy attack.

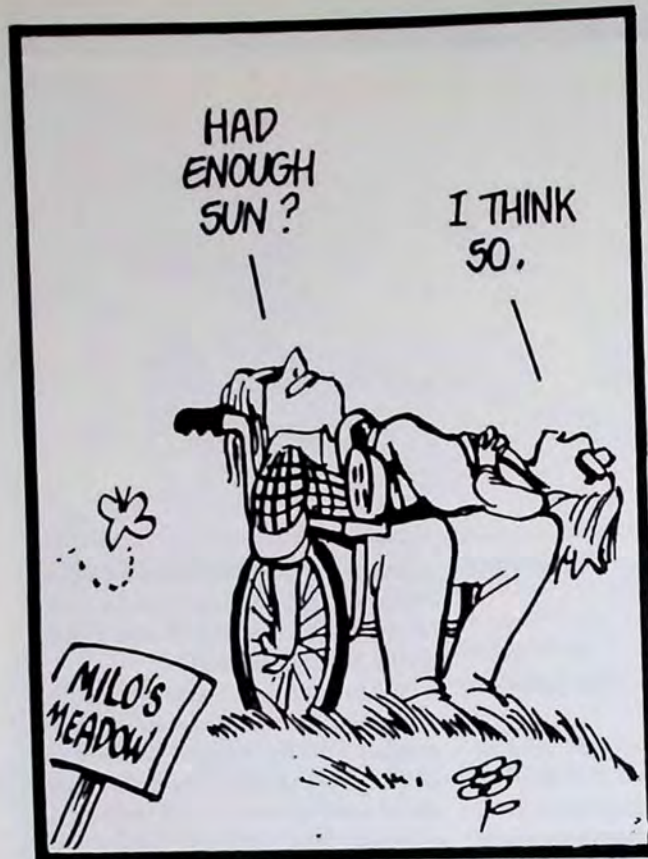
When confronted with error-laden programs, novices can draw some comfort from the thought that they are in good company. Expertise may mean fewer errors, and different kinds of errors. But, software design is so complex that the most professional programmers must be ever conscious of the high probability of error.

Imperfect tools

Though human error and a lack of rigorous training in the computer field contribute to programming difficulties, some problems stem from the very languages which make programming possible. After all, programming languages themselves are essentially only complex commands which compiler programs recognize. These compilers translate programming language statements into lower level language, so that commands end up in a binary code.

Many programmers complain about the rigidity of computer language syntax and of vocabulary which is difficult to remember. Switching between languages often aggravates such irritations. Novices tend to work with about three different languages, while experts use even more. Joseph Weizenbaum points out, however, that "... many [programmers], perhaps most, have no knowledge whatever of

(Continued on page 37)



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Technology alone is not enough

*People provide the missing link between
the disabled and computers*

by Terian Tyre

The combination of computers and the handicapped creates an interesting alchemy which often produces golden results. By using microcomputers as manipulators, processors, controllers or all three, the technology now exists to eliminate many of the functional disabilities plaguing human beings.

The one vital ingredient usually overlooked in this mix, however, is also the most elusive—that quirky human touch. People must provide the knowledge, time, and above all, energy necessary to pull all the pieces together. Fortunately, a new source of exactly this type of human support is emerging from computer clubs, users groups, and even high-tech manufacturers.

What seems to be happening are some unexpected (but not unwelcome) side effects from the general public's growing interest in computers. The mental chemistry which occurs when a human meets a computer generates a literal whirlwind of ideas and speculations. Some wonderful

creations are being born from these tempests. Some of these ideas are hardware-oriented such as optical scanning devices and customized keyboards, and some take software form, like text-to-braille translators. And some are both.

Minspeak is an excellent example of just what is meant by "both." Recently created by Bruce Baker, linguist and artificial language expert, Minspeak is a phrase/sentence recall system. It uses a special keyboard with just sixty keys, but their meanings change according to the order in which they are depressed. Thousands of spoken sentences can be made in this manner with fewer than seven strokes. Minspeak combines hardware (new keyboard) and software (a meaning) to overcome the problem of the slower speed at which information is communicated by some of the more severely disabled.

Human ingredient

None of these technological marvels

can help anyone if they aren't present in their everyday life. That's where other people come in. To place a system in a home takes experience with both hardware and software, knowledge of the special needs of the disabled, and the resources to get the equipment in the first place.

DIGSIG, the Disabled Interest Group of the San Diego Computer Society, is one group of people proving that 200 heads are infinitely more productive than one.

DIGSIG was started in April 1982 by Milton Blackstone just after portable computers emerged. He's an able-bodied and enthusiastic man, a real dynamo, who believes that the disabled, more so than other people, need the flexibility of portable computers.

DIGSIG's membership includes all levels of expertise, from the curious novice to those working within the computer industry. Able and disabled are equally represented; each member is fueled by private motivations. Some people are stimulated by the human-

(Continued)

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DISABLED

(Continued)

engineering challenges in getting systems physically adapted for use. Others have relatives they'd like to help. Still others want to help themselves by hands-on practice. As a whole, the group agrees its main purpose is to assist all its members in reaching personal goals.

The organization meets monthly at the Community Service Center for the Disabled in San Diego and usually invites a speaker. Every third month is Show & Tell, where new developments are demonstrated. The real action, however, isn't in the meetings. It's in the programs and projects they sponsor.

Plans and projects

One such project is the creation of a permanent lab. In order to provide truly equal access for handicapped people, systems need to be set up in a fixed location for use anytime. Ideally, DIGSIG hopes to have their system in communication with a university for computer-aided, and even auto-dialing of special interest bulletin boards. Combining portable computers and keyboard emulators would allow use of the lab by either disabled or able-bodied people. So far the major barrier has proved to be finding an accessible site for the lab.

A related project nearing successful completion is DIGSIG's own bulletin board. On-line 24 hours a day, a Kaypro 10 will be loaded with all kinds of data on the handicapped and the available resources. There will be a directory of members' skills, a list of completed projects, notices of equipment for sale or consultants for hire. An electronic message section will let people communicate personally.

One big reason for getting the bulletin board up and running is to cash in on the early networking frenzy of local, state, and federal agencies. Like kids with a new toy, organizations everywhere are plugging into elec-

tronic networks and sharing information. This is resulting in a tidal wave of valuable information which was not previously available to the public.

With a little help

Even with the grand plans, DIGSIG's number one priority is to match systems with the disabled population. They presently have five different systems in various members' homes, including an Osborne, Kaypro, IBM-PC, TRS-80 and Northstar. The lucky members use them for whatever tasks they want and report monthly on how they're progressing. The group is non-profit and cannot buy the equipment it needs, so donations are constantly pursued for this specific purpose.

Another vital service performed by the group involves financial assistance. A large kink in the Social Security Insurance disability structure is the regulation saying that any asset over \$2,000 makes a person ineligible for benefits. Most computer-assisted devices cost more than that limit. DIGSIG helps people by fixing them up with donated hardware. This follows the letter of the law because the equipment isn't legally owned by the handicapped user. Since these devices save money through lower attendant and care costs in the long run, it seems likely that particular requirement will soon be reviewed.

Some manufacturers realizing the resource present in these groups are attempting to tap it. DIGSIG has been in contact with a number of companies who want help in designing hardware/software products applicable to the disabled community. One such company is Kraft, Inc., makers of joystick controllers for home video games. They will be working together with DIGSIG members to design handles for manipulatively-impaired individuals. DIGSIG is already beta testing products for two other companies.

The other arena of contacts being developed through the organization lies in vocational training and employment for the handicapped. Milton has people talking to a firm in San Jose and another in Manhattan Beach regarding career placement opportunities for DIGSIG members; that particular future looks bright. Home employment isn't a new concept to the business world. Control Data Corporation has been doing it for years with their own employees in a program called Homework.

So where's the gold?

The disabled say that the major reason for being interested in microcomputers is their vocational potential. The opportunity to learn programming offers them a viable way to earn a decent and dignified living. While also true for the able-bodied, it's much more integral for the handicapped as their options are greatly restricted. There's definitely gold in learning how to program.

Conversely, as the invasive chip permeates more of everyday life, lack of knowledge or access will greatly hinder a person's career opportunities. That equals a lump of iron.

There's also a wealth of information being pulled together in an accessible form on electronic bulletin boards nationwide.

It's a golden opportunity as well for the newly-prestigious garage hacker to provide vital breakthroughs which might be applied towards the disabled.

The real treasure, however, lies in the act of people working together. There are hidden gifts in the exchange of information, energy, and support which feel more precious than gold. They are. You can't buy them or get them through mail-order. They are gifts of the self: you receive them only by giving. □

HACKER

(Continued from page 33)

their computer's machine language or of the content and structure of the translators." So, the nature of higher level programming languages has quite an impact on the actual experience of programming.

To complicate matters even more, there is controversy about how these languages should be improved. Computer scientists as well as would-be programmers yearn for languages which simplify programming and minimize human error, but there are differing views on how this can be accomplished.

Many dream of having the opportunity to program in plain English. That is currently impossible because no one has been able to produce a compiler which can translate English into a computer language. It is unclear whether such a compiler could be designed, or whether it would be usable if it were developed. The languages which we use so effortlessly are far more complex than most people recognize. For one thing, natural language, being the invention of living, feeling beings, is more than merely instrumental. To understand natural language, a computer would have to be able to distinguish such things as humor, sarcasm, hyperbole and metaphor from literal meaning. It is very difficult to provide a computer with the context that is the background of human language comprehension. So, until the field of artificial intelligence has made these things possible, programmers in effect must serve as human compilers.

An alternative solution is being pursued by Yale's Elliot Soloway, reports *Science News*. Using data on the types of errors made by novice pro-

grammers, he hopes to design a language more suited to humans' natural problem-solving strategies. However, there is some question about how "natural" these ways of approaching problems really are, whether they are biologically or culturally formed. This question may lose its relevance if, as Conway and Archer assert "... programming is not inherently a natural human process."

However, even if Soloway's plans come to naught, programmers do not necessarily have to resign themselves to a bug-filled future. *Science News* also notes that IBM's John Backus, who helped develop FORTRAN, is working on another type of computer language. In contrast to Soloway's plans for a language adapted to human mental models, Backus believes it is proper that computer languages demand a special way of thinking during programming. He envisions a consistent and logical language which would simplify matters by providing what are essentially ready-made program modules to be combined as required.

To program or not

Some computer users have the luck to quickly find data processing tools which meet the demands of the tasks they have in mind. Others end up experimenting with many varieties of hard and software. There are also, inevitably, those who begin to tinker with software and end up becoming programmers of some proficiency. Of course, it is unnecessary to learn programming if one's goal is simply to use a computer effectively. But any knowl-

edge of what goes through a programmer's mind, and how programs come to be, provides valuable insight into what is going on in the world around us.

Such knowledge is sure to prevent the "enormously exaggerated attributions an even well-educated audience is capable of making, even strives to make, to a technology it does not understand" of which Joseph Weizenbaum warns. In *Computer Power and Human Reason* he relates experiences of his own which vividly illustrate this tendency. For example, after he had written the ELIZA program, which parodied the conversation of Rogerian therapists, he found to his dismay that people felt the computer really understood their problems. Even his secretary, though witness to the programming process, actually asked Weizenbaum to leave the room so that she could open her heart to ELIZA. And she was only the first of many nonprogrammers to overestimate the program's capabilities.

Learning about programming is one way to learn about the realities of what computers can and cannot do, and what they should and should not be allowed to do. There is no better way to learn how programmers think than to become one. Fortunately, for those with little time or inclination to program, there are shortcuts such as reading the book *Programming for Poets: A Gentle Introduction Using Basic*. As its authors Conway and Archer observed, "If historians of the future call this the beginning of the computer age, it would be a sad and curious thing to have lived in this time without any appreciation of what was taking place." □

Reconfiguring your numeric keypad

The Kaypro's calculator keypad can become a dynamite set of dedicated function keys—if you know a few little tricks.

by Ezra Shapiro

The Kaypro keyboard has a lovely calculator-style numeric keypad that's wonderful for high-speed entry of statistical data. If the major portion of your work involves numerical computations, you're set.

However, if you do other things with the Kaypro, word-processing, say, and you're beginning to get tired of typing control-this and control-that, are you aware that this very same keypad might hold the, um, key to your salvation?

That's right. Those fourteen keys are *programmable*—you can change them easily to more convenient symbols, with the help of a utility program called CONFIG that's provided on your CP/M disk. It's a simple operation, but you'll have to immerse yourself in a bit of jargon before you can do it.

First, a brief explanation of how the keyboard works. Each key sends a unique code to the computer, where it is translated into a recognizable symbol before you (or your program) can see it. The 5 key on the keypad does

not generate the same code as the 5 key in the typewriter section (You can prove this to yourself. Hold down the shift key and type a typewriter-5; you get a percent sign. Do the same with a keypad-5; aha!—another five, something must be different.).

The translation table that the computer uses to interpret the keypad codes is contained in the *system tracks* that you place on each disk when you use the SYSGEN program (on earlier Kaypros) or "write CP/M to the disk" (as explained by the current Kaypro COPY program).

CONFIG merely modifies the list of definitions for the keypad codes that's contained in the *system tracks* on a particular disk. Thus, you can set up different keypad definitions for different disks—a word processing keypad, a database management keypad, a programming keypad... whatever you want. These definitions are stored by the computer as *hexadecimal numbers* (in slang, *hex* or *hex codes*).

The hexadecimal number system uses sixteen digits, as opposed to the

ten we're familiar with in our common decimal notation. 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 retain the same values, but hex goes on from there: A=10, B=11, C=12, D=13, E=14, and F=15. In decimal, the number 10 would equal zero ones and one ten; in hex, the same two digits would mean zero ones and one sixteen. There are fully 256 two-digit numbers possible in hex, from 00 to FF—far more than the 100 available in decimal, 00 to 99. All the symbols the computer gets from the keyboard—upper- and lower-case letters, numbers, punctuation marks, and commands like "carriage return" and "backspace"—are contained within the first 128 places in the hexadecimal table we've provided.

Look at the table; you'll notice that all the recognizable characters appear in the last six columns. The first two columns contain cryptic abbreviations for computer functions. Some of these are more or less obvious; BS means backspace, HT means horizontal tab, LF means linefeed, CR means carriage return, ESC indicates the

The hexadecimal translation table. Numbers along the top edge represent the first digit of a two-digit hex number, numbers along the left edge represent the second digit.

	0	1
0		^P
1	^A	^Q
2	^B	^R
3	^C	^S
4	^D	^T
5	^E	^U
6	^F	^V
7	^G	^W
8	^H	^X
9	^I	^Y
A	^J	^Z
B	^K	
C	^L	
D	^M	
E	^N	
F	^O	

The first two columns of the hex table as control characters.

	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

ESCAPE key, and so on. The other functions have their uses, too, but they're not really necessary for our purposes here.

Notice how the capital and lower-case letters appear in exactly the same pattern two rows apart. This is not coincidence, in fact, it's a rule: holding down the shift key subtracts hex 20 from the value of any lower-case character, yielding the value of the appropriate uppercase character. This rule only holds true for letters, but it never

varies—use of the shift key moves you two columns to the left.

The CONTROL key also acts as a shift key of sorts; holding CONTROL down moves you another four columns to the left. Try another experiment; type CONTROL-M. You'll get a carriage return.

This brings us to our second table, a listing of the first two columns as CONTROL functions.

You now have all the basic knowledge (Continued)

KEYPAD (Continued)

edge necessary to convert your keypad to explicit single-character function keys.

Place a disk that contains the CONFIG program in the A: drive and the disk on which you'd like the new definitions in B:. When you bring up CONFIG (just enter CONFIG followed by a carriage return after the A> prompt), select option 4 (numerical keypad definitions) from the main menu, and option 2 (change the numerical keypad settings) from the secondary menu.

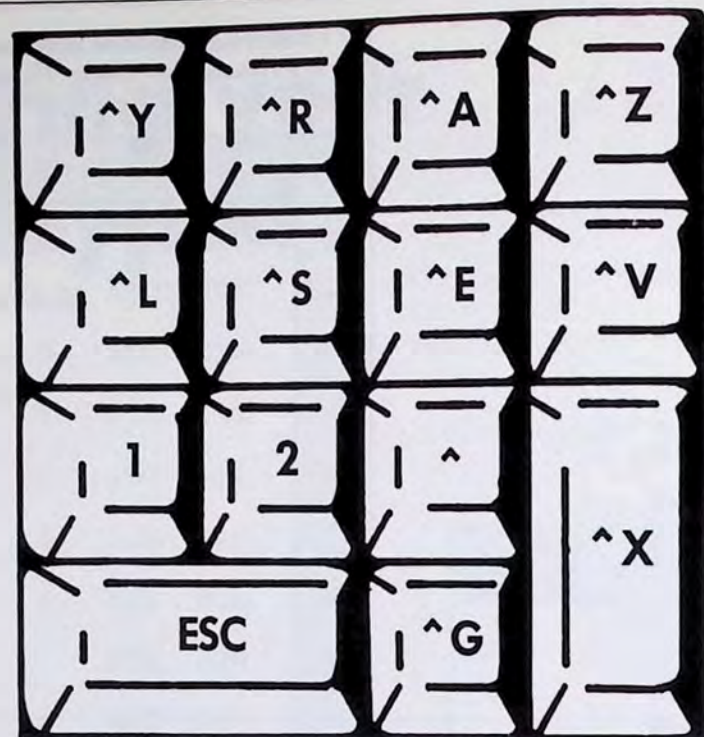
You'll see a diagram of the keypad. Shown beneath each number is its hex equivalent (see our diagram above). Follow the instructions to the right of the diagram, and enter new hex values for any key you wish to change.

If you want to use control symbols as they're employed by a program, follow our second table. Don't be concerned if our first table seems to indicate a contradictory meaning for the symbol; remember that this is a table of translations from key to hex to symbol. What the actual symbols do depends on yet another translation process, contained within any given program. The same symbol may command the computer to do entirely different things in different applications programs.

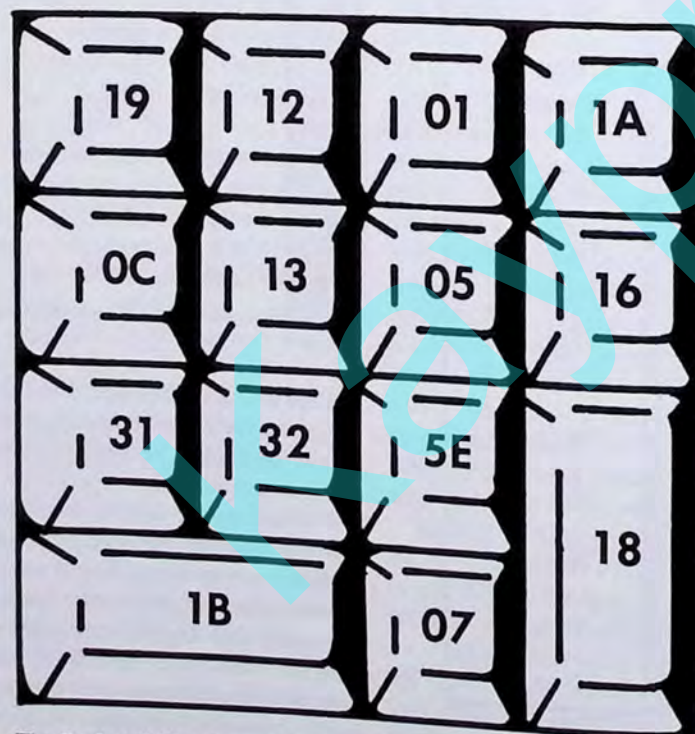
We've prepared a couple of examples, reconfigured keypads for both Perfect Writer and Wordstar, to show you how to set up the keypad to handle frequently used commands. You might want to rearrange the keys, or incorporate different ones... go to it. This is for your convenience.

When you've changed all the keys you want to change, follow instructions to exit the program. Place the reconfigured disk in the A: drive, push the reset button on the back of the computer, and your new keypad is up and running.

If you change A: disks and wish to return to the original keypad definitions, you'll have to hit the reset button again, likewise if you move from



A sample Perfect Writer keypad. This one is provided by Kevin Karth of Portland, Oregon, but feel free to come up with your own variation.



The Perfect Writer keypad in hex.

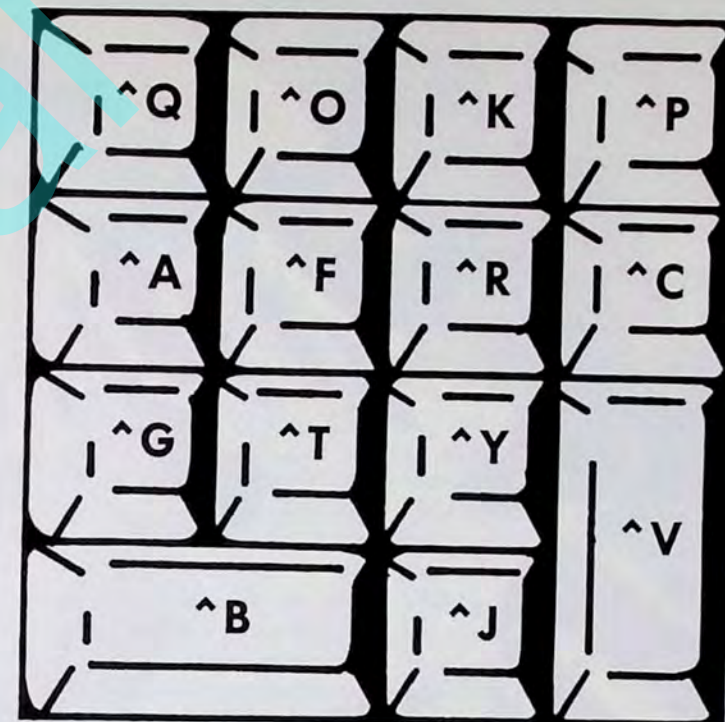
an unaltered disk to a modified one and wish to use the new definitions. This is because the computer reads the system tracks into memory from the first disk that's placed in A: after the machine is turned on; in order to erase that memory image you have to "cold boot" the machine, either by turning it off and on again or by using the reset button.

You can set up as many keypads as you like (Be careful not to confuse yourself!), one per disk. But because of the memory situation outlined above, you won't be able to switch back and forth once you're into a program.

Note: if you have reasons to want to change the definitions of the cursor movement keys, another menu selection of CONFIG will do that for you. The procedure is exactly the same. □

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Editor's note: When this article first appeared last summer, it was followed by capsule reviews of four commercial programs. These programs took the idea of a programmable Kaypro keyboard several steps further. It was our original intention to reprint the article with just those evaluations. Since last summer, however, several new programs have appeared with the same sort of capabilities. Clearly, it wouldn't be fair to either the manufacturers or our readers to print just the old information. Accordingly we had planned to add the newer software into the evaluations. Unfortunately, time and space constraints have forced us to delay our keyboard software evaluations until next issue. We apologize for any inconvenience this may cause.



A Wordstar keypad. Same idea.





Getting to know Perfect Filer

A look at how this list manager can pull your life together

by Anne Wayman-Blick

If you still expect to act on your New Year's resolution to computerize your life, Perfect Filer, the list manager that came with your Kaypro, may provide some help. With minimum effort, you can record the names and addresses you use most often. You can then print the names and addresses on a sorted list, on mailing labels or on envelopes. With a little more effort, you actually use your list with a form letter you design, making it possible for you to personally address your multiple love letters, send quantities of generic thank-you notes, or even do a mailing for a very small business. With even more effort, you can design your own data bases from scratch. On the other hand, if your tasks include organizing a mailing list for a major political candidate or trying to keep track of a multitude of serialized widgets, you'll probably want to look beyond Perfect Filer to a full-fledged data base management system.

Perfect Filer is a data or list filing system. Simply put, this means you can enter a list of items, create a data base, update the list, sort the list by any of several criteria, and cause the list to be printed on your screen or on paper, in a variety of ways.

In order to store, update, sort, and report a list, Filer uses three components: a data record, a list format and a printer form. The data record is sim-

ply a formatted screen. The screen format displays prompts, called Data Descriptors, with space to fill in the appropriate information. Each space, known as a field, also has its own name, known as a 'tag.' These tags allow Filer to find the information you want and put it in the form you designate. The data record, a definition of the amount and type of data to be used, actually determines the nature of your data base.

A list format is a series of commands telling Perfect Filer how you want specific information from your data base to be displayed, either on the screen or by a printer. Several list formats can be made up for each data base. For instance, you might want to print a list of names alphabetically, and then make a second list of the same names sorted by zip code.

Printer forms are used only in Perfect Filer's Generate Mail function. As the name implies, Generate Mail allows you to use your list to address form letters, labels, envelopes and similar documents.

The bad news

Perfect Filer also has some limitations. The most obvious of these is Filer's inability to perform any arithmetic functions, making it useless for any application requiring tallies or automatically figured numbers.

Filer comes ready to accept 503 rec-

ords in each data base. Modifying the Filer system parameters allows the creation of data bases of up to 1201 records.

Each data base must be on its own disk. In other words, if you maintain a customer list and an inventory list, each must be on its own disk. This is true even on the Kaypro 10—only one data base may be kept on drive A and one on drive B—all the rest will have to be on separate, floppy disks, accomplished by telling Filer your data base is on drive C.

Perfect Filer does not let you name your data base in the disk file. (This is one of the reasons each data base must be on a separate disk.) All your data base names are the same as far as the computer is concerned; you keep track by putting your name of each data base on the diskette label. These limitations will not affect the casual user, but anyone contemplating a large or complex data base may want to consider other software.

Predesigned data bases

Perfect Filer comes with two pre-designed data bases: the Individual Member Data Base, which is set up for names and addresses, and the Organizational Data Base, which files names and addresses under the name of an organization.

(continued)

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PERFECT FILER (continued)

Each of these predesigned data bases come equipped with list formats and printer forms that allow you to personalize form letters, put addresses on labels or envelopes, and generate lists in several ways. Both data bases come with eight sample names and addresses which can be used for practice sessions. Many people find they can make use of these predesigned data bases just as they come by deleting the sample information and entering their own.

It is, of course, possible to design

The simplest way to become familiar with the IMDB is to begin to use it. Put your Perfect Filer working diskette in drive A and a working diskette with the IMDB in drive B. Reset or warm boot your Kaypro, and at the A>, type: FILER followed by <Return>. You will be asked which drive contains your data base—the answer is "B", unless you're using a Kaypro 10 and want your data base on a diskette, in which case the answer is "C".

Your computer will read the neces-

Be gentle with yourself as you work with Perfect Filer.

your own data base from scratch. Although such a project is considered a giant hassle by many, it does allow you to tailor Perfect Filer specifically for your needs.

Even if you're sure you're going to design your own data base, experience has shown it's worthwhile to first work through the functions of the Individual Member Data Base. Perfect Filer is less than perfect, and in some places downright confusing. We'll briefly run through some practice steps which will give you a sense of the system and make the manual easier to understand.

The Individual Member Data Base, known as the IMDB, is located on your Perfect Filer disk. It contains eight sample names and addresses. The predesigned list format allows you to select any of several list types. The printer forms permit a range of formats including one inch wide mailing labels by one across, regular envelopes, and form letters.

The first step is to make sure you have a working disk of the IMDB.

sary information into memory, present you with a date, and the option to either change or accept the date as correct.

Perfect Filer is a "menu-driven" program. As you work your way through the data base, you will be presented with what sometimes appears to be an endless series of menus. You move around these menus by pressing the return key to go down, and the back space key to go up. Your cursor position is shown by a blinking X. Once your cursor is at the correct location, you press "X" to activate your choice.

Since the date a record is entered can be important, and because Filer will automatically put the date you choose as correct on the data record, you might as well go ahead and make the date correct by choosing the "Change Date" option. Screen prompts will guide you through the rest of this process.

Once the date is corrected, and you've confirmed this, you will be presented with another menu. Since you

don't yet have a list of the eight sample names, you can't access them. By adding your own name and address you will have a place to start.

Adding members

Now choose "Add a New Member". Perfect Filer will display a blank data record. The data record looks easy, but there are a few things you should know before you begin to enter information.

One of the more annoying things about Filer is the requirement that you use the Control commands to move around the data record. Thus <CTRL>-B will move you backward a character at a time; <CTRL>-F will move you forward a character at a time; <CTRL>-N will move you to the next field; <CTRL>-P will move you to the previous field.

It's true, as you're likely to discover,

up and typing over. The space bar deletes unwanted characters.

The data record provides space, on the first line, for first, middle and last name. When you want to review, change or delete a record on the IMDB, Filer will ask for the first initial of the first name, and the first three letters of the last name. These three characters make up the ID tag. Since you don't yet know the sample names, entering your own name will give you a chance to see what's happening.

The rest of the data record is a bit trickier. The second line calls for two Titles and a Salutation. The first Title is intended to be a form of address, such as "Ms.", "Mr.", etc. The second title is for qualifiers such as "Jr." or "Pres." The second title, however, is limited to six characters, which means that you will often have to abbreviate.

You may want to fill in the salutation blank with the person's first name. If it's left blank, Filer will pick up the first Title and the last name,

If the title and salutation are left blank, Filer will default to the uninspired Dear Person.

you can move around the data record with the return key. Don't! Filer recognizes the Return key as a character, even though you don't see it on the screen. Although your data record will look fine, when you print a list or use the data base for form letters, much of the data will be out of alignment. The only way to correct this is to go back and re-enter the information on each data record. It's easier to use the proper commands in the first place.

You will undoubtedly soon find Filer doesn't recognize the Delete key; instead, you make changes by backing

giving you, for example, *Dear Mr. Jones*. If both titles and the salutation are left blank, Filer will default to the uninspired *Dear Person*.

The third line is for the person's organization. This can be left blank since the IMDB list format doesn't include it.

The fourth and fifth lines are labeled Address 1 and Address 2. The second address is meant to be used only as a continuation of the first, not as an alternate address.

The country blank may be filled in
(continued)

"Extremely Useful program for Microsoft Basic users."

Jerry Pournelle

"The User's Column"

Byte Magazine, April 1983

WE DO WINDOWS!

Spaghetti code is what many experts call a beginner's Basic program which is all tangled up and difficult to follow. The Active Trace package will help you learn how to avoid the pitfalls of structureless programs. And if you already have a program which is too confusing to follow, or has an error which is hiding, relax. Active Trace doesn't get confused. Active Trace pops a window into Basic that lets you see inside your program as you run it. It will lead you through your program letting you know variable values (all variables or just those you specify) as they change. In a form a novice can understand, your program's internal activity is presented on your screen, or printer, or it can be saved on disk.

WE EVEN SAVE WINDOWS

For more advanced programmers, creating a disk file of a program's activity can make debugging virtually automatic. If X=42, and it shouldn't and you can't figure out where you went wrong, you can instruct your word processor to find "X=42" in the activity file created by Active Trace's Scope. The line number responsible for your problem, the line in which X became equal to 42, will appear on your screen! You'll also see a display of every other variable and function value at that point in program execution. You can then step backwards through your program's "real time" activity if the problem had its roots elsewhere.

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Printerizers go far beyond those magazine patches, using an installer that is VERY easy to run. They add from 0 to 5K to WS.COM, depending on the printer selected. The specifics of what will be gained vary from printer to printer, but they all have the same goal in common:

"Give the user easy access to every useful capability of his printer."

Some Printerizations (notably Epson and Gemini) require HexPrintR to access some of the printer's less frequently used options. Call or write (specifying your printer) for details.

HexPrintR changes the WordStar printer control character ^R into a "Hex-Printer" function.

For example:

^R 10, 15, 20 ^R

in a file printed by WordStar with HexPrintR installed into it would send the same thing to the printer as the BASIC program statement:

LPRINT CHR\$(10); CHR\$(15); CHR\$(20);
HexPrintR is available in a variety of disk formats.

PRINTERIZERS ARE AVAILABLE FOR:

- ☐ Epson FX printer
- ☐ Epson w/Graftrax 80
- ☐ MX20-111 / MX100-111 / Any w/Graftrax Plus
- ☐ MX100 w/o Graftrax
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- ☐ Gemini 10X or 15X
- ☐ IDS Prism / Microprism
- ☐ Okidata 82A / 83A
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PERFECT FILER (continued)

or not, as you choose. If you do fill it in, the country will appear at the bottom of the address on letters as well as labels.

The phone number blanks are self-explanatory. The phone information is only available on screen, unless you alter the list format.

An X may be placed in the active box. The predesigned list format allows you to choose all members, inactive members only or active members only.

The comment lines are just that, places you may add a comment or two about the person. There is, however, no provision for comments in the predesigned list format, so any comments will only show when you display the record on the screen.

The date shown on the data record will be the data you accepted or changed when you first entered Filer. Again, no provision has been made to indicate dates on the predesigned list format, although this can be included if you design your own.

Go ahead, and complete at least a portion of the data record with your own name and address. When you're finished, press <CTRL>-E to enter the information on the data base. You will be given another blank data record.

Perfect Filer allows you to use the key "ESC" to move backwards through the menus. If you want to see your own name displayed, choose the "Review/Update" option. To get at the rest of the names, you'll have to print your list. "Escape" back to the main menu and choose the "Generate List/Report" option. Next, pick the "Members by Name" option, followed by: "All members."

If your Kaypro is connected to a printer, make sure the printer is on, and direct your output to it by pressing "X" in front of the word Printer. Your printer will begin to print a list of names, and yours should be included.

Using this list, you can go back and experiment with the various other options.

Fun with form letters

Once you've got a handle on the various ways you can print and display the members in the IMDB, you may want to experiment with a form letter.

When you create a form letter you insert, in angle brackets, the tags indicating the information you want drawn from your data base. Thus, Dear <name>, will result in the salutation, Dear Mary, if the tag name is used in the data record.

The easiest way to be sure of the exact tags used is to print the screen definition. This is done by running the "Create" program (from CP/M), choosing the "Display Screen Definition" and sending the output to the printer. In fact, if you anticipate sending many different form letters, or if you're using several data bases, it's a good idea to set up a file containing printed copies of all the screen definitions you use. This way you'll have a record of the tags when you need it.

Form letters must be generated on your data base diskette by a word processor; either Perfect Writer or WordStar will do nicely. Again, there are some things you need to know before you begin. Filer will not recognize the use of the TAB key. The inclusion of a tab will result in the error message: "Bad character [Ascii 9]." The only answer to such a message is to redo the letter, using the space bar to create indentations.

In addition, you are not allowed to use Perfect Writer's NEWPAGE or @ commands. There is a specific set of word processing type commands understood by Filer listed in the manual.

Once your letter is written, return Filer to your A drive and print it from
(continued on page 61)

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Master of The Word

He's not a famous novelist or poet, but he's created software that's a writer's best friend.

by Susan Hyman

Behind every successful software program is a programmer. Often he's hidden behind the closed doors and secrecy of a large corporation, but sometimes he's lavished with praise and thrust suddenly into the spotlight. Wayne Holder, author of the tremendously popular spelling checker, The Word Plus, may have gone beyond mere compliments and media attention. For some people, he's practically a hero.

For instance, one woman told Holder she was afraid to write *anything* before she bought The Word Plus. She said the program relieved her anxiety about writing, and made her more experimental.

Her feelings are not unusual. "In school, we're taught to be ashamed of our bad spelling," says Holder. "Many people have commented that The Word Plus has restored their self-esteem."

That's a fair accomplishment for a piece of software. It's probably why Holder has sold over 80,000 copies of

The Word Plus and his sales still increase. But it wasn't always roses for the enterprising Holder.

A humble beginning

Holder got involved with computers while studying electrical engineering at a local college in 1973. The department had acquired some surplus computers. "It was a nice environment," said Holder. "The instructor simply pointed us to the computer room and handed us some manuals. There were no formal courses. I wrote my first program there and spent all my free time working on computer projects."

While in college, he met Tom Lafleur, who is now director of research and development for Digital Research. Lafleur introduced Holder to CP/M at an early West Coast Computer Faire. Lafleur dragged Holder over to the then small booth of Gary Kildall, the inventor of CP/M, and said, "You've got to buy this program." He did.

Holder left school for a Civil Service job doing assembly language pro-

gramming and electrical engineering. "At the time, I really wanted to do electrical engineering and computers were only a way into that," Holder says. "I've always been on the fence between software and hardware."

After three years there, Holder moved to a job with Systems Consultants, now called Syscon Corporation. There, he did microprocessor design work on a hand-held terminal that was used for ordering products via modem. But he continued to write software.

"I'm always writing software," he said. "I've written tons of programs. The Word was just the first one I wrote with the idea of selling it myself."

How The Word came to life

Holder started work on The Word, predecessor of The Word Plus, around December 1979. It wasn't intended to be a spelling checker at first. According to Holder, he was only interested in producing a dictionary. Holder's wife is a writer and he used several of

(Continued)

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PHOTO BY KEITH GRIFFITHS

JANUARY/FEBRUARY 49

HOLDER
(Continued)

her books to form the first dictionary. Then, he collected every bit of text he could to add more words.

After compiling all the words he could, he spent two months, eight to ten hours a day, physically checking the spelling of all the words in his electronic dictionary against those in the

bound dictionary. The time was supposed to be a paid vacation. "It was the most miserable period of my life," he says, not a hint of joking in his voice.

These months were not without calamity, either. He almost had a major disaster when he incorporated an ex-

tremely poor public domain dictionary into his main dictionary and didn't have a backup of the original. He had started to go through and get those words out by hand, when he found an original copy. "I thought I had really blown it," he said.

It was during this time that he wrote all the tools: LOOKUP, FIND, SPELL, and the rest. They were done as diversions.

"I was going crazy, so I wrote those programs to unwind," he said. "To me, there are two kinds of programming—programming you like to do, and programming you have to do. I need programming that I like to get through the other programming. It keeps my mind sharper when I have a second fun project on which to work."

By mid-February 1980, the project had turned into a spelling checker. Shortly after that in March, Spellguard, another spelling checker, was announced at a trade show and began selling like hotcakes. The news was disappointing to Holder, who had a product that was better and cheaper. Spellguard sold for \$300, and The Word was only \$75. The Word also had a larger dictionary, took less space, was faster and did more.

Holder had wanted to be the first spelling checker, but he plodded on with The Word just the same. In May, he first introduced it at a small computer show in San Diego. He sold \$2000 worth of the product in one weekend, a performance he has never exceeded. However, he was still employed full-time and was financing the business on a shoestring. There soon were other problems. Because he was selling it so inexpensively, people thought something was wrong with it. He fought that for about six months.

Then, he got his big break. In November 1980, Byte Magazine did a comparative review of spelling checkers and rated his the best. "My sales quadrupled immediately after that," he said.

(Continued)

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The best got better

He quit his full-time job in January 1981 when Oasis Systems took off. In March of that year, he introduced The Word Plus. Why? He wanted to write a new product so he could raise the price to \$150 and get out of the "\$75 can't buy a good product" reception of The

Word. He also wanted to make improvements, like making the program do corrections and hyphenation automatically, and adding the REVIEW and TW program.

"The changes were based on comments of people who called and wrote," he said. "I collected them for six months and designed The Word

Plus from them. Essentially, The Word Plus was what people wanted. And that's the approach I've adapted for all my programs ever since. There's no better way for me to know the way everyone would like a product to work.

"A lot of people in this business to whom I've talked don't like the idea of bending their own ideas about how software should be done. I think that accounts for many of the bad programs around."

Another type of writing aid

He followed the same process when he wrote Punctuation and Style. He introduced the package at the Comdex trade show in Fall 1982, made improvements based on users' comments, and then began shipping it in March 1983.

Holder got the idea for Punctuation and Style from a package produced at Bell Laboratories called "The Writer's Workbench," which runs on the Unix operating system. Like Punctuation and Style, Writer's Workbench has individual tools (programs) that can be used together or separately. He discovered The Writer's Workbench project when reading a book called *Software Tools* (written by authors very familiar with the software at Bell Labs). The book talked about the philosophy of making programs separate entities so that they can either be used for different purposes, or put together to make a more sophisticated program.

Holder gathered all the technical literature on The Writer's Workbench and looked up related articles, accumulating a stack of paper on writing aids that was two-feet high. After filtering through that, he wrote many experimental programs, which eventually resulted in Punctuation and Style.

The program, which sells for \$125, has done well, but not as well as The

Word Plus. "The reason is that it's not as cut and dry as a spelling checker," says Holder. "With Punctuation and Style, it's more of a value judgement."

Punctuation and Style was much more complex to write, Holder says. The CLEANUP portion was the most difficult of the company's whole series of tools because it has over 2,000 separate rule sets.

Why would someone who's not a writer go through all the tedious work involved in writing these programs? "I was tremendously motivated to start my own business and be independent," he says.

He does admit to liking word games, however. He's been madly trying to win a prize by solving a puzzle in the magazine *Fun & Games*, to which he subscribes. "Some of them are close to what my programs can do," he says. "However, there's always a little gotcha that explodes any solution I try with the computer."

Success wasn't easy

Holder believes one reason his programs sell is reliability. One horrible incident set him on this path.

When he was selling his product for the first time at the small computer show in San Diego, a man who had purchased The Word came rushing in. He was irate, and with good reason. He had run The Word on a WordStar file and it had damaged it.

"I was so embarrassed that I decided something like this wasn't going to happen again," Holder says. "From then on, I've exhaustively tested."

Part of Holder's design process involves anticipating as many ways as possible that someone can make a mistake, and having an error message for it.

"There are about seven or eight error messages in The Word Plus that I can't imagine anybody invoking," he says. "But they are there just in case."

Another reason he thinks his product sells is value. "I put enough extra

stuff in the programs so people are amazed that they got as much as they did, rather than being shocked at how little they got for so much money," he says.

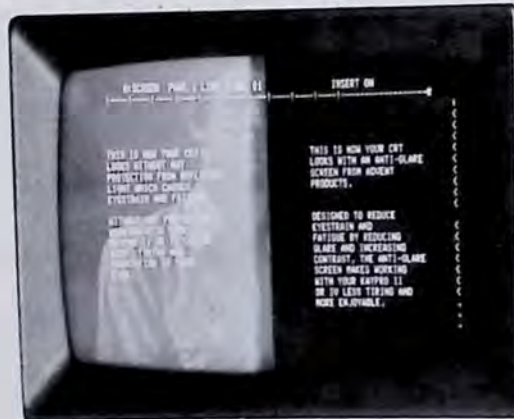
A boost from a neophyte

He initially marketed The Word through display advertising, word-of-mouth and the Byte review. Then, he got a big boost from an unexpected source.

One night in February 1981, his phone rang at home. He wasn't going to pick it up, but he did anyway. It was

(Continued)

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a man named Peter McWilliams, who was then a computer neophyte who wanted to know more about The Word. McWilliams bought the program, and wrote a review about it in Popular Computing magazine, which was one of the first articles McWilliams wrote about computers.

"Next thing I knew," Holder said, "McWilliams had written several books, his books were best sellers, and I was in every chapter."

Business still run on a small scale

Holder's company has only four employees and he handles all the customer support himself. The biggest problems he hears have nothing to do with software bugs. People either haven't read the manuals, or they don't know anything about CP/M when they call, he says.

"My favorite call," said Holder, "was this man who after I answered, paused. 'Wayne Holder!' he said, 'I can't be talking to you—you're famous!' That was great because most people could care less who I am."

Holder also wrote all the manuals himself and had his wife, who's written about a dozen romance novels, help with the editing. "My wife is an excellent speller," he says. "She uses my product, but she's the only person I know who really doesn't need it. People often brag that they don't, but they're usually wrong."

Because he revises his products often, Holder has developed an update policy for those who've already purchased the programs. If it's a completely new product, like The Word Plus was, he offers it for the difference in price, such as \$75 to The Word owners. If it's only a revision, he charges about \$15 to update, depending on how much extra items, like manuals, he has to ship.

The Word Plus goes European

His programs currently run on CP/M-80, CP/M-86, MS-DOS, and all PC compatible machines. He also has foreign versions of The Word Plus available in German, Swedish, Norwegian and Danish. He's working on a French version, which he calls "a nightmare language for a spelling checker, especially all the accent marks."

Holder plans to license more and more foreign versions. Kaypro has shipped the German and Swedish versions with their machines to Europe already, says Holder.

Future plans

Holder has several software projects he's currently writing. He's working on an indexing program that will read a document and compile an index automatically. They won't be complete indices, but it will cut down on some of the work of doing it manually, he says.

He's also doing a video game for Apple computers called SunDog. It's a science fiction adventure game with controlled graphics through use of a joystick. "There's a spaceship that can travel around 12 planets and 58 cities in seven star systems," he said. "You can get in fights, dismantle your ship and even stop in a bar for a drink."

Advice for software sellers

Holder is often asked about how to run a software business. "They think I've hit upon some magic secret," he says. He does have a few suggestions.

The biggest mistake a company makes, according to Holder, is not sending out their products for review. "Many companies I've called and asked for review copies to assure that our product works with theirs have given me the third degree and refused to send it," says Holder.

A misunderstanding of advertising is also a reason for failure, he says. Many companies spend all their cash

on the magazine who offers the cheapest price on space, and don't think about circulation or readership. And they think that one ad will make the phones ring. "I tell people in this business that if they spend all their money on one ad and get little response, they'll convince themselves they have a bad product," he says. "I explain that they've got to plan on a period of time for promotion."

User vs. programmer

Even though he can be considered a business entrepreneur, Holder still sees himself as a programmer. "The business side is something I do because I have to," he says. "But what I really enjoy is programming."

In his opinion, should a user learn to program?

"Only if they find they like it," he says. "Programming is evolving so that most users will never have to deal with most of the programming languages to use computers effectively. Most people don't want to program. What they really want are adaptable products."

"That's why I think the concept of the software tool is so valuable. If you have a large enough collection of well-designed and documented tools, you can do everything you want to do, without ever having to touch programming."

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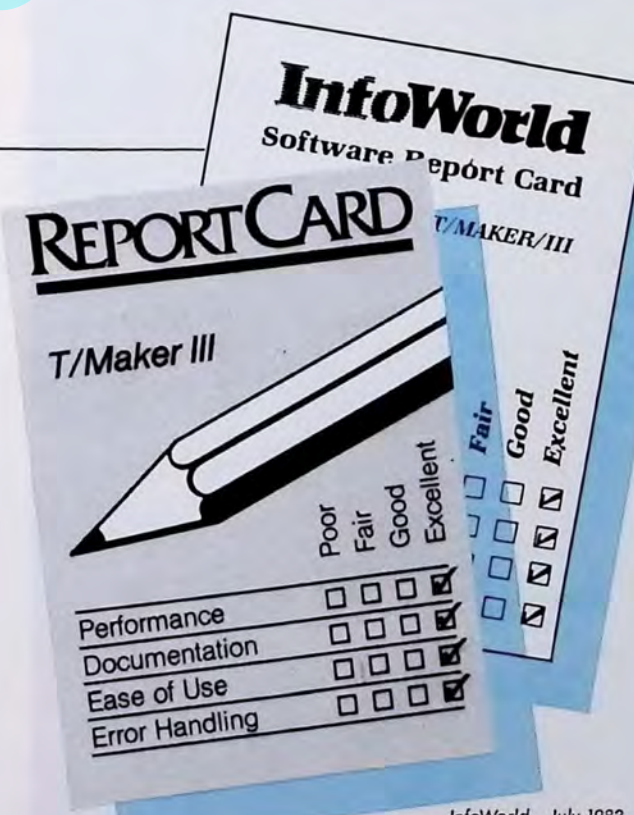
Of all the tools, the one Holder hears the most compliments on is WORD-COUNT or WC.

"It's funny because that's the simplest program in the whole set," says Holder.

That's comforting to hear. Since many of us depend heavily on Holder's programs for our own work or play, we hope he keeps on writing those easy programs.

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Keeping track with STAT

How to size up disk files, and other mysteries

by Steve McMahon

STAT is nearly always one of the first CP/M utilities encountered in the process of learning CP/M. The program's ability to report how much space is left on a disk solves a pressing problem: it gives the CP/M user a way to avoid a catastrophic "DISK FULL" situation.

Most CP/M users limit their use of the STAT utility to this vital function. Experienced users may know that STAT can do more, but few realize just how many things it can do.

STAT is the CP/M statistics utility. Unlike any shy statistician you may have met, though, STAT has powers far beyond simply generating a report on the status of disks and files. STAT can also dramatically change the order of things.

This little program can make files disappear from the directory, it can mark files or even whole disks "read only," and it can even give command of your Kaypro to an external terminal.

The bare STATs

To do all this, however, the file STAT.COM has to be present on a disk in the computer. Like many CP/M utilities, STAT is a file kept on disk, rather than an integral part of CP/M like the DIR and ERA commands. This means that just copying the CP/M operating system onto a disk won't automatically allow you to use STAT. Instead, you'll have to use PIP or some other file-copying utility to copy STAT.COM onto the disk on which you intend to use it.

Once you get STAT onto one of the disks in your machine, you can issue the command:

A>stat

at the CP/M "A>" prompt and STAT will return a disk space report of the variety you've probably already seen:

A: R/W, Space: 48k

informing you that there are 48 kilobytes (around 24 double-spaced manuscript pages) of disk space empty on the current disk and that the disk can

be both read from and written to by the computer (indicated by the R/W).

If you would like to get a report on the other disk in the computer, you can just append a disk name (remember the colon) to the STAT command line:

A>stat b:

which will yield a report like:

Bytes Remaining On B: 39k

STAT will also report how much room a single file or set of files occupy if you just put a file name on the command get a report on LETTER1.MSS by just entering:

A>stat letter1.mss

or, you could get a report on a set of files by phrasing your request ambiguously:

A>stat *.doc

which would yield a report something like this:

(Continued)

Recs	Bytes	Ext	Acc
2	1k	1	R/W A:22.DOC
2	1k	1	R/W A:23.DOC
42	6k	1	R/W A:CACHE.DOC
7	1k	1	R/W A:COPY.DOC
39	5k	1	R/W A:LIBRARY.DOC
62	8k	1	R/W A:NEWCPM.DOC
19	3k	1	R/W A:ZCPRKPII.DOC

Bytes Remaining On A: 48k

In the command above, the "*.doc" stands for all files with a .DOC suffix. Similarly, "letter.*" could stand for all files with "LETTER" for the first part of their file name and any suffix at all after the period. Putting the two asterisks together with a disk designation,

A>stat b:.*

would ask for a report like the one above for every file on the B: disk.

You can also use a question mark to stand for any character, so that "letter?.doc" could refer equally to LETTER1.DOC, LETTER2.DOC or LETTERM.DOC.

Now, what does the above report tell you? The numbers with the k's following them are the size of the file in kilobytes (1,024 character chunks). The column on the left is a different measure of the size of each file: the number of 128-byte sectors (or records) the file occupies.

The "Ext" column is an interesting one: it indicates how many entry spaces, or "extents," the file actually occupies in the disk directory. Small files only appear once in the section of your disk reserved for the directory; larger files may appear many times. A lot more housekeeping information is required for a 153k file than a 2k file.

These multiple entries are usually invisible to the CP/M user: a file does not appear several times when you ask for a directory just because it takes up more room in the disk directory area. The number of extents a file occupies may be none-the-less worth knowing, because each of these extents counts against the maximum number of files you can have on a disk. Both the Kaypro II and the 4 will accept a maximum of 64 directory entries per disk. If you ever receive an error message indicating you have passed the maximum, but a count of the directory reveals less than 64 files, you should use STAT to check how many extents are actually in use.

STAT's modest self-evaluation

The kind of file and disk status reports shown above may be all that most readers have ever seen STAT produce. In STAT's own evaluation of its capabilities, though, the program doesn't even deign to mention these functions.

STAT will summarize all the different types of commands it makes available if you type the command line:

A>stat val:

to which STAT will reply:

Temp R/O Disk: d:=R/O
Set Indicator: d:filename.typ
\$R/O \$R/W \$SYS \$DIR
Disk Status : DSK: d:DSK:
User Status : USR:
Iobyte Assign:

CON: = TTY: CRT: BAT: UC1:
RDR: = TTY: PTR: UR1: UR2:
PUN: = TTY: PTP: UP1: UP2:
LST: = TTY: CRT: LPT: UL1:

The STAT VAL: command is a useful one to remember because if you recall it, you can forget many of the others: most of them are summarized in this command report. Five different commands are covered here. Two of them, the disk and user status commands, are simple report requests. The other three commands can cause the state of your computer to change: they can set a disk or files "read-only," hide files from normal directories or change the way the computer is connected to the rest of the world.

Connecting logical and physical devices

Nearly all CP/M computers (including all the Kaypros) have a single character (byte), called the "IOBYTE," stored near the bottom of the memory which they consult to determine where to get their input from and where to send their output to. This byte tells CP/M how to connect its "logical" devices to its "physical" ones.

Logical devices are the generic types of input and output mechanisms that a computer may have. Any computer must have a console, a keyboard and display used by the operator to control the computer. This console is referred to in CP/M as the CON: logical device. (A colon after a name tells you that the reference is to a device.) Computers also usually have a

printer, a mechanism referred to in the abstract as the list (LST:) device.

CP/M also allows for the possibility of a couple of other abstract mechanisms: an input-only device called the RDR: (for reader), and an output-only device called the PUN: (for punch). The names are left over from the days when nearly every small computer had a paper tape punch and reader. RDR: and PUN: are rarely used for this particular purpose these days. On the Kaypro, their main use is as assignments to the serial port mentioned below.

Physical devices are also identified by names ending in a colon. Physical devices are the actual mechanisms, like the Kaypro's video display (CRT:) and I/O ports: the Centronics-style parallel port (LPT:) or the RS-232 serial port (TTY:) on the back of the Kaypro. One of the reasons CP/M programs can run on so many different computers is that the programs can refer to generic devices like the LST: printer or the CON: console and depend upon CP/M to match up these references with actual, physical mechanisms.

STAT comes into play here because it can temporarily change the IOBYTE, and thus the way that CP/M connects logical and physical devices together. Each of the logical devices listed in the last portion of the STAT VAL: report can be connected with any of the four physical devices listed after the logical device name.

You can get a list of how your logical and physical devices are connected at the moment by typing:

A>stat dev:

That list will probably look something like this (if anything is different it will probably be the last line):

CON: is CRT:
RDR: is TTY:
PUN: is TTY:
LST: is LPT:

The STAT command that changes these assignments has the form:

A>stat <logical> = <physical>

For example, to make your serial port your LST: device, and thus the default printer, you should issue the command:

A>stat lst: = tty:

thereby connecting the logical printer with the physical serial port (you'll also probably need to set the serial baud rate and possibly solve some cabling problems to use this port for a printer).

Another assignment change that is potentially useful on the Kaypro is to reassign the console to be the serial port, rather than the Kaypro's built-in video screen and keyboard. This allows you to hook a terminal to the serial port (using a correctly wired cable), thus bypassing some of the limitations of a nine-inch screen with limited video effects. The assignment to do this is:

A>stat con: = tty:

where TTY: is the same serial port we just mentioned. Most of the possible logical-to-physical connections on the

Kaypro either connect to the serial port or are of no particular use.

(Kaypro 10 users should note that only the serial printer port is affected by STAT and the IOBYTE. The serial port for modems is not installed as an IOBYTE selection. Thus, any software using the modem port will have to drive the port directly rather than using CP/M. 'Tis a pity.—Ed.)

Assignment changes made with STAT will remain in effect until you either turn the computer off or push the reset button. Then you go back to whatever assignments the copy of CP/M on your disk has. You can, of course, change the "boot up" device assignments by using the CONFIG program.

Marking files "read-only"

While you can use STAT to change an entire disk to "read-only" status, it isn't a particularly useful thing to do since the read-only designation is undone by the next warm boot. You can probably find some uses for marking disk files read-only. When a file is marked read-only, you can't delete it or write over it without first using STAT to change its status back to read/write. (PIP allows an exception to this: it can overwrite protected files if you give it an ok.) You can use this feature of STAT to mark system utilities or sensitive material read-only to protect them from accidental erasure or modification by yourself or others using the machine. (Perfect Writer users should be careful not to mark PW.SWP read-only!)

(Continued)

If you had a file named SAVE.ME that you wished to protect in this fashion, you could type:

A>stat save.me \$r/o

Later, if SAVE.ME's privileged status becomes annoying, you can force it to join the ranks of the normal, mortal files with the command:

A>stat save.me \$r/w

As with other STAT file commands, you can use ambiguous filenames like *.* in place of a single file name if you wish to expand the scope of your actions.

Another way to protect a file would be to completely remove it from pry-

ing eyes. You can do this to a limited extent by labeling a file as a "system" file:

A>stat hide.me \$sys

and HIDE.ME won't be listed in a normal DIR directory request. (HIDE.ME would still show up in a STAT report with parentheses around its name.) To take the wraps off HIDE.ME, you could type:

A>stat hide.me \$dir

Checking user areas

Finally, let's cover an ability of STAT which should be of special interest to Kaypro 10 users: STAT can tell you which user areas have files in them if you give it a command like:

A>stat usr:

STAT's report would look something like this:

Active User: 0
Active Files: 0 1 2 3 4 7

indicating that you are logged into area 0 and that there are files in areas zero through four and seven. Try this the next time you need to find an empty user area.

And even more

For a summary of some STAT functions not considered here, you might try Digital Research's *An Introduction to CP/M Features and Facilities* and the *CP/M 2 User's Guide*, both in the Kaypro CP/M manual. Be sure to check both, because STAT underwent a major revision when CP/M 2.0 was released and the extra features added aren't covered in the earlier *Guide*. □

PERFECT FILER

(continued from page 46)

the "Generate Mail" option. If you wrote your letter with WordStar, don't be alarmed when the letter shows up on the screen, as it moves through Filer, with Greek or graphic characters. These won't show up on your printed copy. (These are side effects of WordStar's "housekeeping."—Ed.)

You may also want to practice a bit with the Organizational Data Base. The procedures are the same. There are some differences, however. The

ODB uses the first 4 characters, including blank spaces if any, of the Organization's name to locate a specific record. Also note that, unlike the Individual Member Data Base, the ODB does not recognize the tag <name>. Instead, it uses the tag <contact person>. Be sure your form letter uses this tag or else you'll end up with letters addressed to Dear Person.

Be gentle with yourself as you work with Perfect Filer. Even working with

the predesigned data bases is an exacting process, subject to many errors. The key is patience. Be willing to walk away from your Kaypro for a cup of coffee, a walk around the block, or even a full night's sleep.

If neither of the predesigned data bases will work for you, you will need to use Create to build your own. Next issue, we'll discuss the methods and pitfalls involved with designing your own data base using Perfect Filer. □

HOW TO CREATE PERFECT FILER WORKING DISKETTES

Perfect Filer comes with both an Individual Member Data Base (IMDB) and an Organizational Data Base (ODB). These are predesigned formats, complete with a data record, list format and several printer forms.

These data bases are included so that you can begin to organize your affairs (romantic ones too if you like) right away.

In order to use these data bases on the Kaypro 2 and 4, however, "working" diskettes need to be made. To make working diskettes, you need working copies (notched diskettes without the write-protect tab) of Perfect Filer, Perfect Writer Installation, CP/M, and two blank, formatted diskettes. The Individual Member Data Base is on the Perfect Filer diskette and the Organizational Data Base comes on the Perfect Writer Installation diskette.

Working diskettes for Perfect Filer are made by copying the 15 files for data storage and reporting to the new disk, using the PIP utility of CP/M.

Put your working CP/M in drive A and reset your computer. At the A>, type: PIP and press <Rtn>. The screen

will display an asterisk. Replace the CP/M diskette with the working copy of Perfect Filer. Put a blank, formatted diskette in drive B.

At the asterisk, type in any one of the following 15 files listed below, and press <Rtn>. If another asterisk appears, the copy procedure was successful and you may continue. If you receive an error message, the procedure failed. The most likely causes of errors are a confusion between drives, use of a semicolon instead of a colon, or mistakes in the filename. If any of these occur, simply press <Rtn> until an asterisk appears and try, try again.

By the way, the [OV] at the end of each filename tells PIP to be sure that there is an end-of-file marker, and to verify that the copy it made is accurate.

When the copy is complete, label the diskette immediately. Leaving the labeling procedure till later is a dangerous practice. It's also a good idea to add a large B to the label since it will always be used in the B drive. Use the same procedure to copy the same files from the Perfect Writer Installation disk onto the other blank diskette and label accordingly.

You now have the two data bases on two different diskettes. To use Perfect Filer, simply insert a working diskette of Filer in drive A, and either of the two data base diskettes in drive B. And away you go. *Note: the reason you can't put both data bases on the same diskette is that Filer cannot tell the difference between them. It will get confused as to which data belongs to which data base.*

If you're using a Kaypro 10, you will find the predesigned data bases listed in the Master Menu.

B: = A:HASHTAB[OV]
B: = A:MEMBER.H[OV]
B: = A:DATABASE[OV]
B: = A:DB.DEF[OV]
B: = A:DB.TXT[OV]
B: = A:LABEL.TXT[OV]
B: = A:LABEL2.TXT[OV]
B: = A:SS.SAV[OV]
B: = A:LFORMDSC.SAV[OV]
B: = A:SSLIST.SAV[OV]
B: = A:MAILFORM.SAV[OV]
B: = A:MFROMDSC.SAV[OV]
B: = A:SSDESC.SAV[OV]
B: = A:LISTFORM.SAV[OV]
B: = A:MAILEST.MSS[OV]



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SMARTKEY™ is a unique utility that can redefine any key to become anything you want. For example, the "\$" on your KayPro™ keypad can become "pip b:=a:.com[v]", or the "\n" can become the PerfectWriter™ command "@BEGIN(FLUSHLEFT)". With a single stroke, a key can represent a chosen character or string at the system level or within a program. Instantly. Without rewiring or soldering.

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Understanding S-BASIC data files

An introduction to data files for the occasional programmer.

By Tyler Sperry

Editor's note: This issue marks the beginning of our coverage of the S-BASIC programming language. This article is aimed at those readers who have some experience with programming and CP/M, but are still having problems with S-BASIC. There are, apparently, quite a few of you. Space limitations have forced us to cut this article short; next issue's continuation will be larger as a result. Next issue will also have a more introductory article on S-BASIC for the "average" reader.

Data files. S-BASIC. Three words guaranteed to strike terror into the heart of your average Kaypro owner. Why is this? Why is S-BASIC, designed to be simple and straight-forward to use, so incomprehensible and awkward in practice?

That question is best answered by an examination of the S-BASIC manual. Originally written by an expert in the language as a reference manual for experts in other programming languages, and then rewritten by non-programmers, the manual is tough going at best. And while virtually every section could stand a major rewrite by someone who happens to be both a brilliant writer and an expert in S-BASIC, the section on files is particularly nasty. In the space of the less

than twenty pages "covering" the file handling capabilities of S-BASIC, even veteran programmers familiar with MBASIC can get lost and confused.

Yet, despite all the confusion and the evidence to the contrary, S-BASIC can be an easy language to learn and to use. (I wouldn't recommend it as a first programming language, but that's a subject for another article). It is straight-forward in design, and once you decipher the clues left in the manual, not hard to handle.

Similarly, file handling isn't intrinsically a difficult topic. Most of the problems that people have with S-BASIC and data files stem from the mistaken assumption that all BASICs use files in the same manner. Not so! BASIC-80 (from Microsoft) is the interpreter commonly known as "MBASIC", and the way it handles data files isn't the same as the way CBASIC (from the folks at Digital Research) handles them. Properly designed S-BASIC programs can use any data file, but again the rules aren't quite the same as expected if your only experience is with another brand of BASIC. This series will examine the areas where these three BASICs differ, as well as the topics common to all BASIC file handling.

Having said all that, and assuming the reader has some familiarity with programming and CP/M, let's get down to business.

What is a data file?

Simply put: a data file is just like any other CP/M file, a collection of data on disk. Notice that we haven't put any limits on what form the data is in—only that it exists as a CP/M file. As mentioned above, MBASIC and CBASIC will impose a certain order on their handling of data files, but as far as S-BASIC and CP/M are concerned, a file is a file. What you put into the file is your business.

Traditionally, of course, there are two types of files: text and binary. Text files use ASCII—the American Standard Code for Information Interchange—and are generally well-behaved. ASCII, for newcomers, is a code that represents the various text and formatting characters by using bytes having values from zero to 127. In practice, this means that the ASCII set only uses seven of the eight bits in every byte, and by convention, the bytes in an ASCII file always have the highest bit set to zero.

If you want to use all eight bits of each byte, then you are really talking about a "binary" file. A simple example of a program using binary files as data is the S-BASIC compiler itself. As part of the process of compiling a program, two binary files (BASICLIB.REL and USERLIB.REL) hold the templates for the various routines included in the generated .COM file.

(Continued on page 66)

S-BASIC Listings

```
REM      RENAME.BAS
REM      allows renaming of files to lower case, etc.

VAR old.name, new.name = STRING

INPUT "Name to change from"; old.name
INPUT "Name to change to"; new.name

RENAME old.name TO new.name

END OF RENAME.BAS
```

Listing 1.

```
REM      SPACE.BAS
REM      displays the space available on a disk (K4).

VAR available, total, used = INTEGER

total = 390
REM      = 192 for Kaypro II version of program.

used = SIZE("*.*)
available = total - used

PRINT used; " kbytes used by files, and";
PRINT available; " kbytes available for storage."

END OF SPACE.BAS
```

Listing 2.

```
REM      CREATE.BAS
REM      A simple example of creating files in S-BASIC.

VAR file.name = STRING

INPUT "What filename do you wish to create"; file.name

CREATE file.name

END OF CREATE
```

Listing 3.

You can't ride out of the Stone Age on a dinosaur.

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Reports: Vendor listings—by account number, in alphabetical order • Item file listings, with descriptions, supports up to 5 different prices for each item ordered • Month-to-date item purchased report • Vendor aging—by account number, in alphabetical order • Purchase orders • Debit memos • Vendor activity worksheets • Vendor account status reports

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S-BASIC

(Continued from page 62)

One of the prime motivations for using binary files is the savings in file storage. For example, saving the information "12345" as a string will cost you six bytes: five characters plus the delimiting character. If you save the same information in the form of a binary integer, you have only used two bytes. Multiply this difference by ten thousand widgets that you're keeping tabs on with your data base and you'll begin to see the savings.

Please note that the differences between binary and text files are almost all concerned with how you put the information into the file and get it out again. There are only a few points where the differences affect how CP/M will treat a file.

No matter what type of data you have in your file, there is a way for S-BASIC to handle it. Indeed, quite a bit of data file programming has nothing whatsoever to do with the actual information stored but rather with the manipulation of files and the CP/M directory.

Examples of file handling

The S-BASIC keywords that relate to data files can be divided into two classes: those that deal with file handling, and those that deal with the details of getting data into and out of files. The latter category will be dealt with next time, and contains words like FILES, OPEN and READ.

The first class of words we mentioned are fairly easy to get the hang of, if only because they perform functions similar to the normal operations of CP/M. For example, the INITIALIZE statement performs some of the same functions as warm booting with the Control-C pair at the CP/M prompt. (To be specific, it resets the disk system.)

The first example program shown is quite similar to the REN command inherent in CP/M. Two string variables are declared—for some reason,

declaring variables always seems to be a problem for MBASIC users learning S-BASIC—and the answers given by the operator are fed to the RENAME statement. What could be simpler?

Small is beautiful. And faster too.

As a small digression, it is a very good idea when learning a new programming language to proceed in small steps, trying out each new idea or statement type in midget programs like the ones shown. The advantages are many and should be obvious. By keeping things small, you are limiting the amount of effort in tracking down typos and logic errors. Another advantage of small programs is time: it takes proportionally longer for a bigger program to compile. Why wait ten minutes for the compiler to tell you that you misspelled something on line 200?

There is one surprise lurking in that simple first listing. Careful readers of the CP/M documentation will recall that proper filenames use only upper-case letters. When you are entering characters at the CP/M prompt this isn't something to be concerned about, because the CCP module that handles keyboard entries automatically converts your input to upper-case. Of course, once you're inside an S-BASIC program you don't have the CCP manhandling your input and this is as it should be. However, this means that unless you perform upper-case conversion yourself, the program in Listing 1 will quite happily rename files to lower-case names. This in itself isn't unusual; MBASIC and various other software packages allow the creation of these lower forms of life as well. The problems arise when you try to access your file named "address.dat" from WordStar or CP/M. Every time you enter "address.dat", CP/M will convert it to "ADDRESS.DAT" for you. Not a calamity, but something to be aware of.

With the simplicity of these examples, it shouldn't be difficult to figure out the purpose of the SIZE function used in Listing 2. This small program performs the job that is the most common request of STAT: "How much space do I have left?" Note that because we are calculating the amount of free space from the amount of space already used, this program will require a slight modification to give the right answers on a Kaypro II single-sided disk. See the remark in the listing.

(A note for the curious. The first version of the SPACE program used the S-BASIC intrinsic function called FRE. To recap the manual, when called with a non-zero argument, FRE is supposed to return the amount of storage used on disk by checking the CP/M bitmap. In contrast, checking the disk directory is the method used in the example. As to why the faster FRE() wasn't used, the answer is left, as they say, as an exercise for the reader.)

How big is zero k?

The last listing is a demonstration that it is quite possible to fool CP/M. In a fashion quite similar to the old hacker's trick of SAVEing an empty file, this program creates a directory entry for the file name that you give it. (All the conversation above about upper- and lower-case file names applies here as well.) It is quite possible for a directory entry to exist for a file without there being any space taken up by the file. A name without substance. This trick is often used to put notes concerning the contents of a diskette into the directory so that a DIR of the disk will allow you to see "-Volume.027" along with the files.

Of course, the real reason that you create a file is to prepare for writing data to disk... but that's next issue's topic. □

FORUM

(continued from page 27)

point manually enter the desired roman numeral. If you want to have the hyphens that normally fence page numbers, you will have to enter those manually along with the alphabetic characters for the roman numerals. After entering the necessary information for that page enter a Ctrl-Z to indicate that formatting may resume. If you make an error, delete all the characters from the line using Ctrl-X and try again.

When my wife was preparing her final draft, she casually informed me that the archivist at UCLA would not accept her thesis if the page numbers were fenced with hyphens. I nearly tore my hair out at that point. No one, including the "factory trained" staff person at my Kaypro outlet knew how to solve this problem. Finally, after poring over the Perfect Writer manual, and some experimentation, I found a method that works:

```
@PAGEFOOTING(center=  
"@VALUE,page.")
```

This command produces normal pagination but without the hyphens.

The limitation of having to format a lengthy manuscript one file at a time, and then entering Perfect Writer again and again for each subsequent file to add the correct @SET(PAGE= n), then formatting that file before being able to set the page in the next file is very time consuming. But it is less time consuming than having to proofread a typist's copy for the errors the human driven "printer" inevitably makes. It can also be very frustrating when the next to last page of a chapter appears on the printer with the last section title on the bottom line necessitating re-entering that file through Perfect Writer to add a "newpage" command and then reformatting the entire file again. At least we can be thankful that Perfect Writer allows us the option of beginning printing at the page of our choice.

As for the issue of chapter or rather file length, I have found that there are

two limiting factors. The first is the increasing amount of time spent waiting during "save to disk" procedures that is required when a file becomes lengthy. The second is the impossibility of moving chunks of text between files that are both longer than about 25k. The swap file becomes overloaded, the screen locks up (which can be freed with Ctrl-G), and then you find only part of the text has been properly transferred. Perhaps there is a way around this limitation, but I found that 25k was a safe limit on file size in dealing with this problem.

At one point before having learned this lesson, I ended up with a manuscript file of about 36k. As I remember, trying to split this into separate files proved to be quite difficult. I tried to do this using the two screen command, then moving about half the original file to the newly created file using the copy and move commands (ESC-space bar, ESC-W), and then saving this new file. For some reason this overloaded the swap file. Now I understand that there is a command to write a region of a file to disk that is not documented in the text of the Perfect Writer manual or on the summary card, but which is listed in the FUNCS.TXT file which begins on p. A-43 of the manual. Thus any section of a file can be written to disk using ESC-space bar to make the beginning of the region; moving the cursor to the end of the region entering Ctrl-X, releasing the Ctrl key and entering "R;" then give the disk and a new file name when the "Write Region to File<CR>:" message appears.

In fact, the FUNCS.TXT makes very worthwhile reading, especially if you take some time to experiment with the commands whose "descriptions" are less than self-explanatory.

Good luck, and if anyone knows a way to consistently ensure two spaces after a period (other than the impossibly laborious @W<space-space>) and only one after abbreviations, I would appreciate knowing it. Perfect Writer seems to have a mind of its own when it

comes to spaces after periods. If this is a program bug, it sure is a frustrating one.

Andrew Leeds, Ph.D.
Santa Monica, California

As an editor, I like that letter a lot. Rather than complaining about the software endlessly or making himself out an expert, Dr. Leeds simply reports the facts, announces what he has found, and asks if anyone can help him with his particular stumper. Note that when relating the problem, Dr. Leeds refrains from categorical pronouncements about bugs and software. What I like best about the letter, though, is the spirit of experimentation and curiosity expressed. Homer Groening of Portland, Oregon was more concise:

If Chapter 1 has 40 pages, format Chapter 2 like this:

```
@SET(page 40)  
@SET(chapter 1)
```

Your second chapter will then be printed "Chapter 2" and the page will be 41.

I hate to say that it took me a month to figure that out. A dealer even told me that Perfect Writer won't number pages except when you let it start with 1.

Why don't you do a piece on "How can an imperfect writer write good?"

After the third or fourth day of letters I began to realize that there are a lot of Kaypro users out there putting Perfect Writer through its paces, and that some of those users are pretty sharp.

Most of the letters were written in the same tone as the first letter from Dr. Leeds: a user of Perfect Writer who has learned something not related in the documentation and wants to share his (or her) knowledge.

(Continued on page 91)

"Traveling" overlay files for the Kaypro 10

When a program needs access to a file in a different user area, you'd be out of luck without this program.

by Mark Gardner

My personal approach to using a computer's software is one of separation. I believe all the programs that I use should be together in one place, and all of the projects that I do with the programs could be someplace else.

With the two-floppy systems that preceded the Kaypro 10, this philosophy meant that I'd have a "program" disk in the A drive, and one of several "object" disks in the B drive, depending on what project I was working on at the moment. My object disks each contained one subject: finances, correspondence, fiction; or one project: a program under development, a manual or article in preparation or finished, or data files for a particular data base. Each disk would be labelled appropriately.

But even the 400K floppy in my Kaypro 4 was not large enough for everything I wanted on my program disk, so in reality I had two or three. On the other hand, individual projects rarely took up an entire disk, so I'd usually have two or three on a single

object disk. I always work logged on to drive A, and almost always include B: in the name of any file I specify as object. (Incidentally, I make sure that all of my project disks include bootable system tracks, and I put PIP file on each, to aid in backing up data.)

My program disk would ideally contain all the CP/M utilities (STAT, PIP, etc.); all the editors (ED, Perfect Writer, WordStar); all the program

of the time, only changing to another when absolutely necessary.

Kaypro 10 has different problems

With floppy disks the available storage space is decidedly finite. The available directory space limits the number of files on the floppy to about sixty-four,

Instead of changing disks, the Kaypro 10 initiate moves to another "user area" for each of his applications.

compilers (ASM, BSCBAS, C, PASCAL, etc.); and all my universally used programs and files (MBAS, MBASIC, PRO, FF, TW, etc.). As was indicated, all this won't fit on a single disk, but the principle is clear. I rarely change the program disk, because I've managed to trim down the most essential stuff to one disk which I use most

and usually any collection of significant files will fill up the disk storage space before the directory is full. A directory of the entire disk will fit on the CRT screen, and the practice of keeping similar projects on the same disk tends to make all the entries related, or at least appearing in groups.

On the Kaypro 10, the ten megabyte disk is equivalent to a number of floppies so substantial that backups can be lengthy and expensive. But the ability to have really big files is a blessing. Such files are not uncommon in data base operations and program development, and are often bigger than would fit on a single floppy.

If the user were to follow the my separation scheme, all the programs would go on the A drive, and occupy a paltry fraction of it; the projects would go on the B drive, and soon the B directory would be so huge as to require multiple pages of CRT image. However, use of CP/M's system of "user areas" on both A and B drives allows files to be separated into small and meaningful groups.

into user 15, for example, you must be logged into user space 15, then enter the command line

PIP A:=A:filename.ext[G4]

The bracketed G4 at the end tells PIP to "Get" the source file from user area 4.

Because of the way the CCP (Console Command Processor) works, it's not necessary that PIP.COM itself be in the current user area (true for Kaypro 10, but not for all CP/M systems). The command line given in the preceding paragraph will work if PIP.COM is either in the user 0 space, in the current user space, or both. The CCP looks in user space 0 if the program requested in the command line can't be found in the current area.

MBAS in its project area, say user space 5. You will create a version of MBAS.COM in user space 5 that's (newer and more powerful, or accidentally broken, or . . .) different from the version that you stashed in user 0. From user space 5, if you invoke the program by entering MBAS at the prompt, you won't know which version of the program you'll get, because there's no control over the order of entries in the directory.

Generally, however, this feature of the CCP is a great boon to the separatist. All of the system software goes in user 0, and the other user areas are used for projects. And the disk is so big, it's not much of a burden to put most of the system files in the user 0 space on both drives A and B. All that's required then is to avoid creat-

What to do with 32 "disks"

Instead of changing floppy disks, the Kaypro 10 initiate moves to another user area for each of his applications. The CP/M prompt on the Kaypro 10 includes the number 0 as well as the A that indicates the logged drive. The number 0 is the current user number, and can be changed to any number from 0 to 15 by using the USER x command, where x is the desired user number. Thus, the directory on drive A can be "sorted" into 16 sections, each appropriate to a particular application. User areas can be treated very much as would be physically separate floppy disks. With drive B included, there are 32 such user areas on the Kaypro 10.

This solves the need for separation, but introduces a new problem—how does one access files in user areas other than the current one?

PIP is okay—watch out with the CCP

PIP is the program used to move files from disk to disk, or from user area to user area. To copy a file from user 4

Reread that last sentence, and be warned that although it sounds good, that's just the way it looks from the outside. What really happens is that the CCP uses whatever it finds first. So if there's a copy of PIP in the current user area, and a copy of PIP in user 0, the one that's used will be whichever one has its entry first in the directory on the disk, which is built as entries are added over time, paying no attention to user areas. For PIP (in fact, for most programs) this is probably no big deal.

But suppose you're developing an important program that you intend to use frequently, and you get it to some level that's acceptable temporarily. Being a separatist, and wanting to have access to the program (for the sake of example, let's call it MBAS.COM) from every user area, you move it into the user 0 space. Then suppose you continue to develop

ing.COM files in individual user areas with the same names as in user 0.

The resulting problem comes not from separatist practices, but from CP/M itself. The CCP is "nice" and will give you what you ask for, either from user 0 or from the current user area. However, when a program in progress calls on the CP/M BDOS (Basic Disk Operating System) to open a file, it will only access a file in the current user area. If there is a file with the same name on user 0, it remains sacrosanct and unaccessed.

To give a specific example, WordStar (named WS.COM) requires the use of two overlay files, WSOVL1.OVR and WSMGS.OVR. The first of these is a series of program overlays that perform various editing functions, collected into this separate file to keep WS.COM small, so that more memory

(Continued)


```

00 45 44 20 20 20 20 20 20 43 4F 4D 00 00 00 34 .ED COM...4
1B 00 1C 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 41 53 4D 20 20 20 20 20 43 4F 4D 00 00 00 40 .ASM COM...3
1D 00 1E 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 44 44 54 20 20 20 20 20 43 4F 4D 00 00 00 26 .DDT COM...&
1F 00 20 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 53 54 41 54 20 20 20 20 43 4F 4D 00 00 00 29 .STAT COM...>
21 00 22 00 00 00 00 00 00 00 00 00 00 00 00 !.".....

```

Figure 1. Excerpt from Kaypro 10 directory on Winchester disk. The first entry for ED.COM shows it is in user 0 (the first byte of the thirty-two byte entry), occupies two blocks (numbered 001B and 001C), and contains 52 (34 hex) records.

```

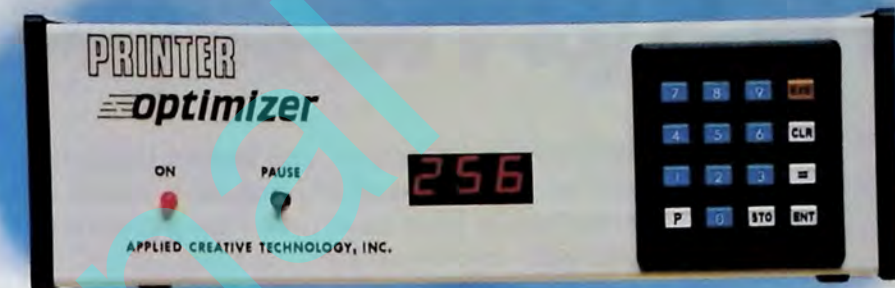
*Begin WSGET
  Initialize variables
    Marked Flag to 0
    Determine current user
    Establish buffer area
  For each sector in the directory space on the disk
    For each entry in the sector (0-3)
      If the entry is for WSMMSG.OVR or WSOVLY1.OVR
        Set the marked flag
        Mark the entry to the current user
      End if
    End for
    If the marked flag is set
      Write the changed buffer to the disk
      Clear the marked flag
    End if
  End for
  Move the WS loader into high memory
  Load WS.COM
  Transfer control
-End WSGET

```

Figure 2. Program (in pseudo-code) to invoke WordStar from any user, by changing the directory entry for the two required overlay files WS.COM uses.

(Continued on page 81)

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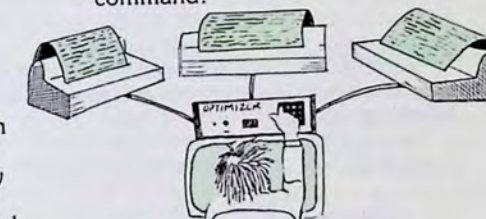
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and my (PRINTER
becomes...
and my **PRINTER**
because it turns on bold & italics

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WSGET.ASM Listing

;W.ASM by Mark Gardner 9/12/83

;Program to invoke WordStar from any user, by changing the
;directory entry for the two required overlay files that
;WS.COM will access. Once the directory entries are found
;and changed, WS.COM is loaded and control is given to it.
;Any filename entered after the W on the command line
;is passed along directly to WordStar.

;*Begin WSGET

ORG 100H

BDOS EQU 5
BIOS EQU 0EA00H
SETTRK EQU BIOS+1EH
SETSEC EQU BIOS+21H
SETDMA EQU BIOS+24H
READ EQU BIOS+27H
WRITE EQU BIOS+2AH

; Initialize Variables

; Marked Flag to 0

MVI A,0
STA MARKED

; Determine current user

MVI C,20H
MVI E,0FFH
CALL 5
STA USER

; 'GET USER' BDOS FUNCTION

;SAVE USER CODE FOR LATER USE

; Establish buffer area

LXI B,BUFFER
CALL SETDMA
JMP PROG

;BIOS SETDMA FUNCTION

;JUMP OVER STORED VARIABLES

BUFFER EQU 8000H
USER: DS 1
SECTOR: DS 1
TRACK: DS 1
MARKED: DS 1

;SIMPLE AND SAFE LOCATION
;CODE FOR CURRENT USER AREA
;STORAGE FOR DIRECTORY SECTOR
;STORAGE FOR DIRECTORY TRACK
;SET WHEN .OVR FILE IN SECTOR

FRSTRK EQU 4
LASTRK EQU 7
FRSSEC EQU 0
LASSEC EQU 67
MSGSTR: DB 'WSMSG\$ OVR'
OVLSTR: DB 'WSOVL\$1 OVR'

;FIRST DIRECTORY TRACK ON DISK
;LAST DIRECTORY TRACK ON DISK
;FIRST SECTOR ON EACH TRACK
;LAST SECTOR ON EACH TRACK
;NAME OF MESSAGE OVERLAYS
;NAME OF PROGRAM OVERLAYS

(continued on page 80)

LISTING

(Continued)

```
;;COMPARE SUBROUTINE
;;COMPARES TWO STRINGS OF LENGTH 11 -- ONE STRING POINTER IN DE,
;;OTHER IN HL. MUST PRESERVE C. RETURNS Z IF EQUAL, NZ IF NOT.
```

```
COMPAR:
COMLUP: MVI    B,12          ;COUNTER FOR 11 COMPARES
        DCR    B           ;DECREASE THE COUNTER
        RZ     ;IF ZERO, STRINGS ARE EQUAL
        LDAX   D           ;ELSE, COMPARE NEXT ENTRIES
        CMP    M
        RNZ    ;IF NOT EQUAL, RETURN WITH NZ
        INX    H           ;ELSE CONTINUE TO NEXT ENTRIES
        INX    D
        JMP    COMLUP
```

```
PROG:
```

```
; For each sector in the directory space on the disk
```

```
;TRACK LOOP
```

```
        MVI    A,FRSTRK-1   ;START WITH THE FIRST TRACK
        STA    TRACK
TRKLUP: LDA    TRACK
        INR    A           ;INCREASE IT EACH TIME
        STA    TRACK
        CPI    LASTRK+1    ;AND STOP AFTER THE LAST
        JZ     MOVL0D
```

```
;;SECTOR LOOP
```

```
        MVI    A,FRSSEC-1   ;START WITH THE FIRST SECTOR
        STA    SECTOR
```

```
SECLUP:
```

```
        LDA    SECTOR
        INR    A           ;INCREASE IT EACH TIME
        STA    SECTOR
        CPI    LASSEC+1    ;AND STOP AFTER THE LAST
        JZ     TRKLUP
```

```
; For each entry in the sector (0 - 3)\
```

```
        LDA    TRACK       ;CALL THE SETTRACK ROUTINE
        MOV    C,A
        MVI    B,0
        CALL   SETTRK
        LDA    SECTOR      ;CALL THE SET SECTOR ROUTINE
        MOV    C,A
        MVI    B,0
        CALL   SETSEC
        CALL   READ        ;READ THE SECTOR FROM DIRECTORY
```

```
;;ENTRY LOOP
        MVI    A,7*32      ;KLUGE FOR -32
        MOV    C,A         ;STORE ENTRY POINTER
ENTLUP: MOV    A,C         ;START WITH FIRST ENTRY
        ADI    32          ;INCREASE EACH TIME
        MOV    C,A
        CPI    80H        ;AND STOP AFTER THE LAST
        JZ     ENDENT
; If the entry is for WSMGS.OVL or for WSOVL1.OVL
        LXI    D,BUFFER
        MOV    E,A         ;SET UP POINTER TO BUFFER STRING
        LDAX   D           ;PICK UP FIRST BYTE OF ENTRY
        CPI    0E5H       ;IF IS A DELETED ENTRY, DON'T BOTHER
        JZ     ENTLUP
        INR    E           ;POINT TO ENTRY NAME
        LXI    H,MSGSTR    ;POINT TO COMPARE STRING
        CALL   COMPAR      ;AND SEE IF EQUAL
        JNZ    TRYOVL      ;IF NOT, PROCEED TO OVL1
        MVI    A,0FFH      ;IF SO, SET MARKED FLAG
        STA    MARKED
        LXI    H,BUFFER
        MOV    L,C         ;AND SET DIRECTORY ENTRY TO
        LDA    USER       ;CURRENT USER CODE
        MOV    M,A
TRYOVL: MOV    A,C         ;THIS SECTION IDENTICAL TO ABOVE,
        INR    A           ;BUT FOR WSOVL1.OVR FILE
        LXI    D,BUFFER
        MOV    E,A
        LXI    H,OVLSTR
        CALL   COMPAR
        JNZ    ENTLUP
; Set the marked flag
        MVI    A,0FFH
        STA    MARKED
; Mark the entry to the current user
        LXI    H,BUFFER
        MOV    L,C
        LDA    USER
        MOV    M,A
; End if
        JMP    ENTLUP
; End for
ENDENT:
```

(Continued)

LISTING

(Continued).

```

; If the marked flag is set
    LDA    MARKED    ;IF THE CURRENT BUFFERFUL
    ANA    A          ;OF DIRECTORY ENTRIES HAD ANY
    JZ     SECLUP     ;MATCHES, THEN WRITE NEW CODE
; Write the changed buffer to the disk
    CALL   WRITE      ;BIOS WRITE FUNCTION
; Clear the marked flag
    MVI    A,0        ;CLEAR THE MARKED FLAG IN
    STA    MARKED     ;PREP FOR NEXT BUFFER
; End if
; End for
    JMP    SECLUP
MOVLDD:
; Move the WS loader into high memory

PATCBS EQU    0C000H    ;LOCATION FOR PATCH ASSEMBLY
TRANSI EQU    100H      ;TRANSIENT PROGRAM AREA
OPEN EQU    0FH        ;BDOS OPEN FILE
BDREAD EQU    20        ;BDOS FILE READ
BDSDMA EQU    26        ;BDOS SET DMA

    MVI    E,0
    MVI    C,20H
    CALL   BDOS        ;SET USER TO 0 TEMPORARILY

    LXI    H,MOVBAS    ;MOVE THE LOADER AND PATCH
    LXI    D,MOVLOC    ;TO THE UPPER MEMORY AREA
    LXI    B,MOVSIZ

MOVLUP:
    MOV    A,M          ;GET A BYTE OF PATCH
    STAX   D            ;AND MOVE TO PATCH AREA
    DCX    B            ;SEE IF DONE
    MOV    A,B
    ORA    C
    JZ     LOAD + OFFSET ;IF DONE, THEN GO TO WS LOADER
    INX    H
    INX    D
    JMP    MOVLUP       ;ELSE, GET NEXT BYTE TO MOVE

; Load WS.COM
; Transfer control
;-End WSGET

```

(Continued on page 104)

TRAVELING

(Continued)

can be used for the file being edited. Similarly, the second overlay file contains all the text (menus and other messages) that is never needed in memory, only on the screen. WordStar accesses these overlay files via the BDOS, and consequently they must be in the current user area, or WordStar can't find them, and so will not work correctly. Thus, while WS.COM could be located in user 0, and called from any other area on the disk, copies of the two overlay files would have to be located in every user area from which WS.COM might be called.

A solution for WordStar

I'm particularly fond of WordStar. This is a condition resulting from familiarity, and I may in time establish a similar relationship with Perfect Writer. But for the moment, I use WordStar for letters, articles, programming, manuals, consulting reports, and so on. I want WordStar to be there when I ask for it. Keeping WS.COM in user 0 is part of the answer. Keeping the two .OVR files in every user area is ordinarily the only other part of the answer.

However, it seems a bit ridiculous to me to keep thirty-two files around when only two are needed. If only WordStar could find them on user 0. Or if only they could be moved to my current space automatically when I invoked WordStar. I chose the latter solution, since I could do it without modifying WordStar itself. The program that does the work for me (see the program listing) is W.COM, which is stored in user 0.

About disks and directories

In the directory, the two .OVR files are each represented (as is every other file on the disk) by an entry consisting of thirty-two bytes. The first byte indicates the user area to which the file is assigned, or is set to a hexadecimal

value E5 to indicate that the file has been deleted and the entry space is available for other use. The second through twelfth bytes contain the filename (up to eight bytes, padded with spaces) and the extension (the other three bytes, also padded with spaces). The last four of the first sixteen bytes contain flags and counters relating to the file size and the existence of addi-

tional entries (required for very large files). The final sixteen bytes contain a list of the "blocks" assigned to the file. Figure 1 shows an excerpt from the Kaypro 10 directory, with four entries included.

A block is the minimum storage space assignable to a file stored on the disk, and on the Kaypro 10 is 32 rec-

(Continued on page 84)

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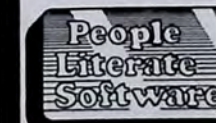
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TRAVELING (Continued)

ords of 128 bytes each, or 4K. You will notice the effect of this block structure in the output from STAT *.*. All the file sizes are multiples of 4K. (On floppy disks, CP/M is usually configured so a block is 2K long, and sometimes even 1K.) The blocks are numbered from zero to the last one that will fit on the disk. The directory occupies the first few blocks, depending on how many directory entries are configured. On the Kaypro 10, the first eight blocks are directory, allowing 1024 directory entries.

The second sixteen bytes in the directory give a list of the blocks assigned to the file. In the Kaypro 10, each block takes two bytes to identify, since the disk is big enough that more than 256 blocks are on the disk. Consequently, each directory entry can point to eight blocks, defining a file of up to 32K. For files bigger than this, additional directory entries are required, each allowing eight more blocks to be added to the list.

How the program works

Once the directory entry is understood, the program is simple. All the program does is to examine every directory entry. When one is found that is not deleted and matches the name WSOVLY1.OVR or WSMGS.OVR, its first byte is changed to match the number of the current user area, and the entry is rewritten to the disk. Once this is done, a portion of the program is moved to location hex C000 (to be out of the way), and it loads the WS.COM file (from user 0), and transfers control to it. Any filename specified on the command line is passed along to WordStar and handled correctly.

On examination of the program, if you've done work in assembly language, you may find some things a bit out of the ordinary. The most promi-

nent of these is the program's calls directory to the various disk-handling routines in the BIOS (Basic Input/Output System). This is generally verboten, but is the only access to the directory by which it can be written (not strictly true, of course, but a good approximation). Usually disk access is via the BDOS, but this only allows access to files, and the directory is not a file.

To complicate matters slightly, these BIOS calls return 128-byte records, each of which contains four directory entries. Each of the entries must be examined and checked, and if any of them is modified, only then is the record written back to the disk. The program contains three nested loops, the outermost being for the disk tracks from 4 to 7, the next being for the sectors from 0 to 67, and the innermost being for the entries in each sector, from 0 to 3. At the innermost level, you might construe another loop, since a check is made for each of two names, but this has been written as simple in-line code. The structure of the program is made more clear, perhaps, by an examination of the pseudo-code for the program presented in Fig. 2.

It might seem that this search through an entire directory, with rewrites of a few portions of it, would take a long time. The hard disk and Kaypro 10's Z-80A are sufficiently fast that it is not any problem, and the response time until you can begin editing is only a few seconds longer than direct invocation of WordStar itself.

Once the files have been "moved" to the current user area, the program changes the current user (temporarily) to user 0, and loads WS.COM into the TPA (Transient Program Area, locations hex 100 and up), and transfers control to it. You are now in WordStar.

When the edit session is finished, the two .OVR files will remain and show in the directory of your user

area. Just leave them be, they will be moved to wherever needed on your next use of WordStar. Note that it's important, before your first use of this program, to delete every copy of the two .OVR files from every user except 0 on the disk. The program is pretty dumb about multiple copies, and will move them all into your current area, something to be avoided.

How to use it

First, you need to enter the program into a file on some user area (you may omit comments, if you wish, to reduce the typing burden) using WordStar the old-fashioned way. The file should be named W.ASM. Then assemble the file with ASM W, and then load it (create a .COM file) with LOAD W. Put the W.COM file you just generated into user 0. Then invoke it by typing "W filename.ext" at the command line in any user area (after clearing any multiple copies of the .OVR files, see the previous paragraph). Everything will be familiar to you, but you will not have to worry anymore about where you are, or where WordStar is, when you want to use it. □

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COTTAGE COMPUTERIST cont'd from page 21

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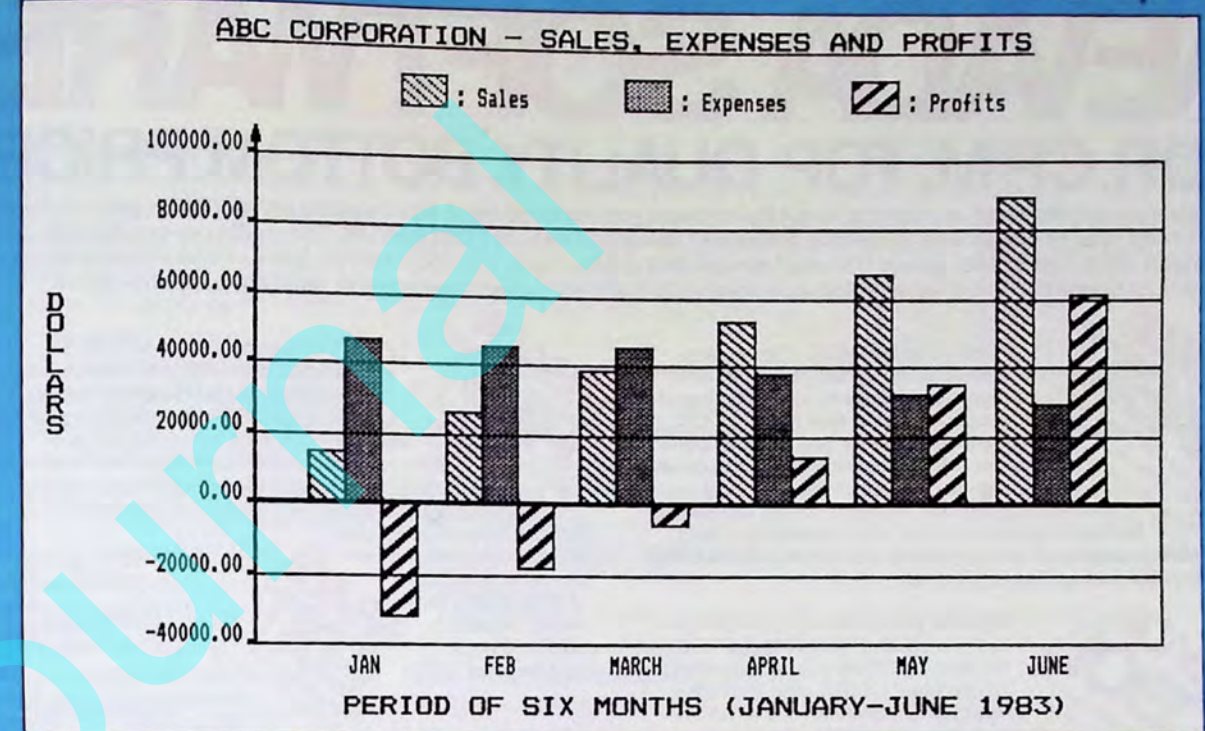
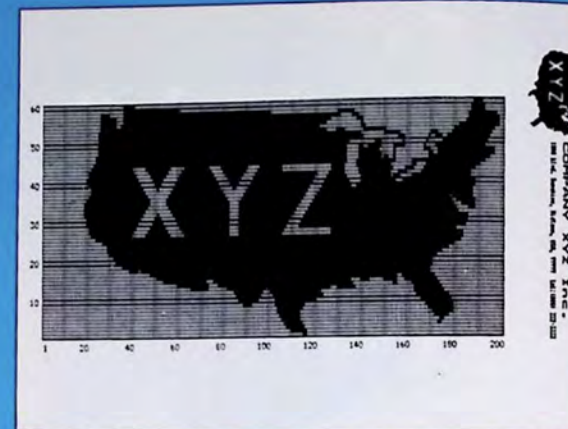
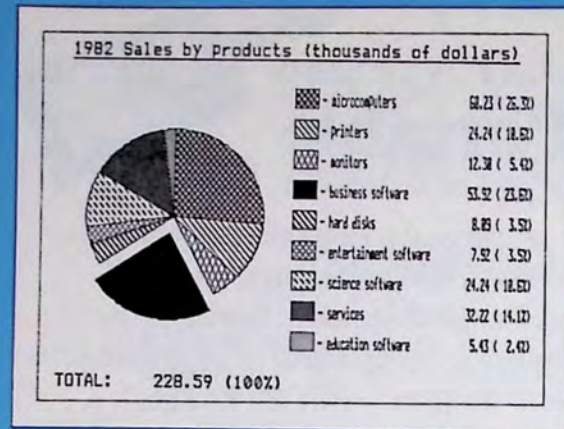
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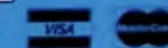
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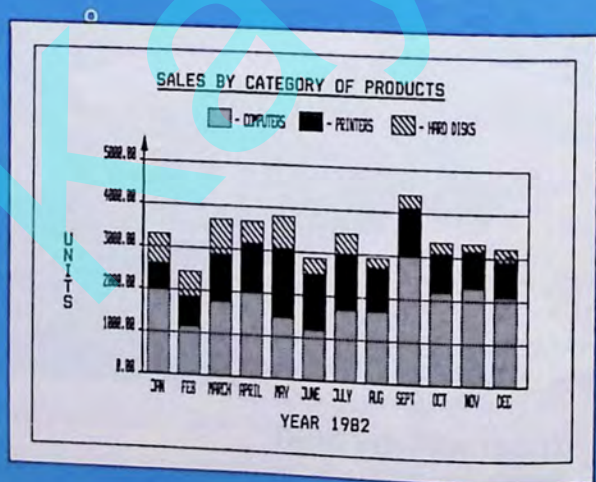
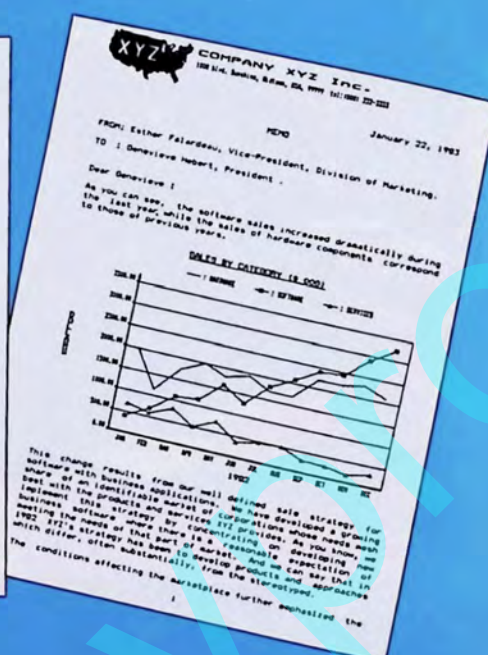
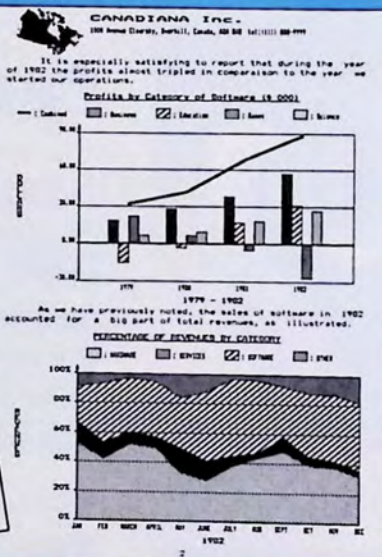
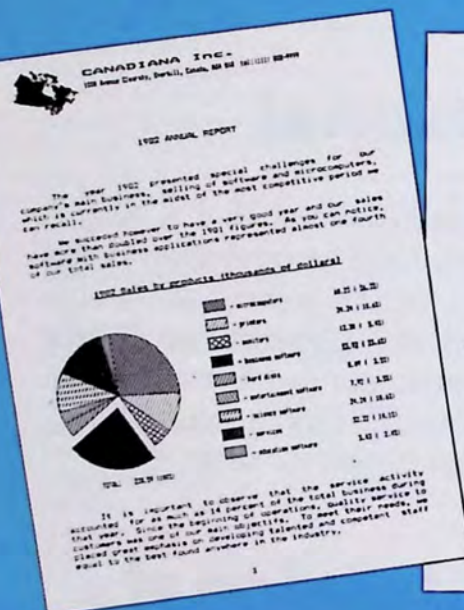
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The CP/M operating system, an 8080, 8085, or Z-80 microprocessor, and 32K RAM are required. Note: Double Density drives can read Single Density diskettes.

FORUM

(Continued from page 67)

I have some not-too-earthshaking comments for people like Marcia King, who occasionally must deal with large text files using Perfect Writer and Perfect Formatter. Your answer to Marcia recommending "breaking up" or segmenting her file is clearly the only approach if the file length really exceeds the disk capacity (192k), but I suspect that many users begin segmenting their files (due to apparent disk capacity limitations) prematurely and that the following procedure or a similar one would allow them to accommodate files that are nearly twice the size.

When editing a file, most of us have the PW software (including PW.SWP) all on one disk drive, and the text file by itself on the other drive. The limitation arises when we Perfect Format the file to the same disk that contains the original text file... the usual procedure. In this case, the space available is cut in half because the one disk must hold both the text file and the .FIN file.

An alternative approach could be implemented through the following steps:

1. Pip PF.COM and PF.DAT onto a blank disk. This disk will ultimately run, say, on Drive A.
2. On the same disk create a small "master file," MASTER.FIL, using Perfect Writer in the normal way. MASTER.FIL contains nothing more than one or more "@INCLUDE" statements where each filename is referenced to Drive B. (E.g., "@INCLUDE B:FILE.TXT" where FILE.TXT is the large text file we wish to format.) This disk also contains roughly 150k of blank space in which the .FIN file will be received.
3. Now, with the disk containing PF.COM and MASTER.FIL in A: and the disk with the text file, FILE.TXT, in B:, and with A: selected as the CP/M default drive, enter the command, "PF MASTER.FIL" after the CP/M prompt A>.

Perfect Formatter will be loaded from

A: and will format the small file MASTER.FIL, which, in turn, "@INCLUDES" the large text file located on B:. The ".FIN" file ends up on A:, separate from the original text file on B:. Much larger files can be formatted due to this separation.

Concerning the problem of page numbering, as you recommended, Perfect Formatter will display the proper page numbers as it formats and will even account for skipping pages or other breaks in the numbering scheme caused by embedded "@SET" commands, etc.

The problem is (unless recently corrected) that Perfect Formatter returns to the Menu immediately after finishing the formatting; and that if you want to know what the last page number is you either have to sit and watch the Formatter work or you have to print or list the last page to see how it's numbered. The same is true for chapter and section numbers. This is particularly annoying for large files that take more formatting time. There is a nifty way around this.

Make the following two lines the last two lines in your text file:

```
@MESSAGE(Type Ctrl-Z to continue)
@INCLUDE(CON:)
```

The effect of these commands is to halt the formatting process and await a dummy input from the console. Ctrl-Z causes the formatting to resume (in this case that means formatting any Table of Contents and/or Index and then returning to the Menu), but not until you're back from your coffee break and have had a change to see the page numbering (and error messages) produced by Perfect Formatter.

And there's more. Once the ending page number on the first segment is known, you can use the following formatting commands at the beginning of the next segment of your document to "@SET" the page number rather than going through the time-consuming process of editing the next segment.

"@MESSAGE (What page should I start numbering at? Your answer should take the form of "@set [page=nn]" followed by Ctrl-Z where nn is the desired page number minus 1)"
@INCLUDE(CON:)"

In other words, you can actually insert the "@SET" command at formatting time. This is especially helpful if you have to go through several formatting sessions on the file.

Hopefully, these two applications of known formatting commands, while not solving the page and section numbering problems inherent in segmenting a large file, will make the process easier to handle.

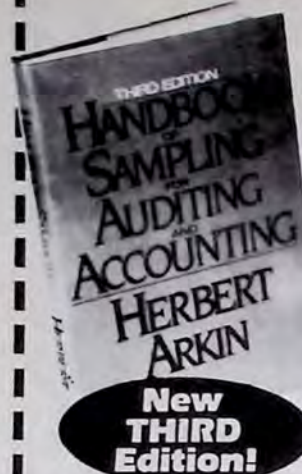
William C. Bush
Palmyra, New York

Several people (including Alexis Gilliland who drew the cartoon elsewhere in this issue,) wrote in to mention that you can link your chapters together with the @INCLUDE command. Certainly true, but there remains the problem that the amount of text Perfect Writer can handle is directly related to the size of the swap file. That is, if you have a 64k swap file and start stringing files together using the @INCLUDE, you will find things work (if slowly) until the total storage of the files linked comes close to 64k. (In addition to text, the swap file contains pointers and other housekeeping variables that take up a fraction of the available space.) Of course, this isn't a major problem on the Kaypro 10 where you have a swap file that is a quarter Megabyte(!) in size.

The problem with the Kaypro 10 setup is that you need a program like Mark Gardner's WSGET (see page 68 of this issue) to move the swap file from user area to user area, otherwise you wind up with over 200k of storage wasted in each user area. A Kaypro 10's hard disk may seem large, but it would only take the use of Perfect

(Continued)

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FORUM (Continued)

Writer in four user areas to obliterate a Megabyte of storage!

Still stimulated by the article in your first issue on reconfiguring the numeric keypad and trying to learn how the machine works (with some success), I have come up with a discovery that no doubt is not unique to me, but may be of some interest to other readers who have Perfect Writer. The result is that you can save, at least for some functions, two or three keystrokes.

Although there are indeed 128 decimals to denote the ASCII characters, as you clearly show in the article, Perfect Writer uses 383 (many "unknown commands"), as I discovered in persuing the FUNCTS.TXT file, which is also in Appendix A of the manual. It occurred to me the program must use these codes, which indeed it does. This means the numeric keypad can utilize code numbers up to 255 or FF hex. Unfortunately, some of the "goodies" like Ctrl-X, Ctrl-S, to save a file are beyond that number, but there are some that I use frequently that are within range. For instance, to display the beginning of the buffer requires <ESC>, then <SHIFT>, then '<'—three keystrokes. In the function list, this command is 188 or ~BC hex. BE hex takes you to the end of the buffer.

Thus, my suggestion is to search the functions list, from 128 to 255 for any that you would like to put in the numeric keypad. There are plenty of two-stroke commands and four other three-stroke commands, including <ESC>, Ctrl-K to kill a line.

I hope this will be helpful to some readers. I am now awaiting an article on how to reconfigure the main keyboard.

Ruth Wessler
Downers Grove, Illinois

It has developed that "Reconfiguring Your Numeric Keypad" is tied with Steve McMahon's "On the Move with PIP" for the honor of all-time favorite *PROFILES* article. Due to over-

whelming demand, we have managed to run out of both of the back issues that contained these pieces. This issue we have reprinted Ezra's article to help folks out.

The reason that everyone finds it easy to translate the numeric and cursor pads is because of the codes they generate. The main keyboard generates your standard ASCII codes, but the numeric and cursor pads have the highest bit set when transmitted. Of course, this makes it an easy matter to write a trapping routine for translation. Writing a translator for all the keys is a little more tricky, due to the amount of space required. Next issue we will review some of the commercial programs that do this, as well as the latest Kaypro 10 CONFIG program that allows up to four keystrokes to be associated with each key of the numeric and cursor pads.

Mixing bits and baud

Lest I be accused of dwelling on Perfect Writer, let's move on to "Introduction to Telecommunications" by Gordon Lewis. When the article got to my desk I debated long and hard with myself about the tough going in the section on baud rate. I finally cut out the overly technical passage, and then, not to leave bad enough alone, I added the infamous phrase that bits-per-second and baud could "in most cases be used interchangeably." Oops.

Not letters on this one, but phone calls from my old stomping grounds: the engineering department at Kaypro. Russ Lemon, in particular, was quite displeased with the inaccuracy. You see, while it is true that the ordinary, garden-variety, 300 baud modem will transmit and receive at 300 bits-per-second, things get a lot trickier at the higher speeds. The most common example would be the new 1200 bits-per-second modems. They are not 1200 baud modems, but 600 baud (Continued)

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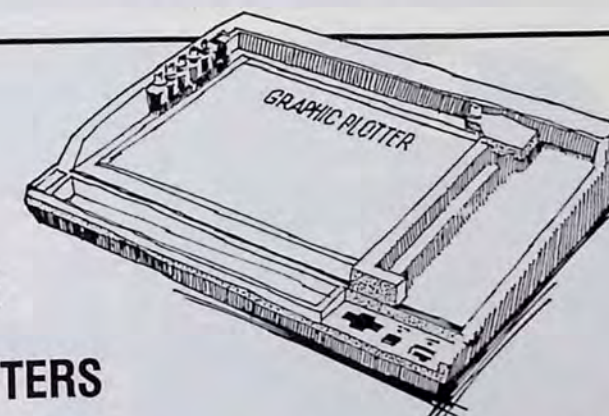
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FORUM

(Continued)

modems. The key ingredient here is that at the higher data transfer rates encoding becomes common in trying to increase the bit rate without changing the bandwidth of the channel. It is analogous to the use of MFM to coax double-density out of floppy diskettes. (Why do I have the feeling that, even as you read this, there is an engineer somewhere writing a letter that explains why MFM is an inaccurate analogy? Heavy sigh.)

Getting our of sync

Congratulations on an excellent issue focusing on telecommunications. There are a couple of facts that readers might be interested in before they get scared off, or make unneeded investments:

1. The statement that "when your Kaypro talks with a mainframe, chances are you'll be using synchronous communications" is just flat wrong. By far the majority of micro-to-mainframe connections are via normal Bell 103 or 212 asynchronous linkups. You do not need expensive synchronous equipment. All you need is a modem, the free program MODEM7, a phone number, and a little help from the data processing department. Some hints based on extensive use of Burroughs and HP equipment:

To send files to a Burroughs or HP: these machines need to be told that they are receiving paper tape! You may have to hunt a while to find anyone in the DP department who remembers how to do this, but the procedure is simple and demands no changes at the DP end.

To receive files from the mainframe, you need to have the capture buffer on your modem program, then list the file on the terminal. This works even if the lines are longer than 80 characters, even though they will look odd.

If you are receiving files that are larger than the buffer in your modem program, some modem programs like ASCOM will just trash the file. MODEM7 will send a Control-S ask-

ing the other computer to stop. HP machines will stop. Burroughs machines will not, causing some loss of information. (This is the infamous XON/XOFF protocol at work.—Ed.) When MODEM7 clears the buffer to disk, it sends a second code telling the other computer to start up again.

This procedure works just fine with standard 7-bit ASCII. If you have any problems with 8-bit codes (like Select and Wordstar text files and .COM files you can try two things. If you can do without the soft carriage returns and other neat stuff that makes Select and Wordstar files nonstandard, then use PIP's Z option to strip off the 8th bit: PIP newfile.nam=oldfile.nam[Z].

If you really need to recover every bit of information, then find the public domain program UNLOAD. Use this to unload your file, transfer it, then use the CP/M program LOAD to put it together again. Unfortunately, the unloading procedure makes the file about 2.5 times as big as it started out, which makes it take longer to transmit.

Leslie Brooks is far more optimistic about the receptivity of DP people to synchronous links than I am. In fact, we now use micros in asynchronous mode to transfer some data between two mainframes because political considerations prevent these machines from being directly, synchronously linked.

Mike Kruger
Glenview, Illinois

A question for the readers

I started with Perfect Writer, but began a few weeks ago to flirt with Wordstar. All in all, I much prefer the former, except for one thing. I wish there were some way the PW would indicate page breaks with the clarity that Wordstar does. Is there any enhancement available that could provide that one vital improvement? Or is there some devilishly simple trick that beats counting lines and printing trial runs and re-

editing and re-formatting and re-printing? I write language texts, and a well laid out page is important to me. At the moment I'm using the meta repeat plus cursor to help me estimate where I'm likely to land, but a document command in the middle of a page can throw

the whole system out.

S.T. Mallon

Frobisher Bay, N.W.T. Canada

This is the classic problem—anybody have a solution? ☐



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New products

Ring in the New Year with presents for your Kaypro

The following new product listings are not reviews, and should not be considered as tested endorsements. We have looked at some of the products, but we do not necessarily have hands-on experience with them.

Free on-line software library. Computer users will now have access to a software database that lists, describes and demonstrates software packages free of charge. The company offering this free access software library, Searchmart Corporation, expects to be on-line beginning January 1, 1984.

The database will contain individual applications and systems software that is updated daily. The software will be categorized by manufacturer, publisher or vendor, operating system type, protocol requirements, features, price and ordering information. A software vendor will describe his product on pages of 40-character by 20-line screen.

The telephone numbers will be published in January through a direct mail and computer magazine advertising campaign.

For more information, contact Mary K. Hamm, Marketing Services Director, Searchmart Corp., 636 U.S. Highway 1, Suite 210, North Palm Beach, FL 33408 (305) 845-2996.

Word processing service start-up kit. Interested in making some extra money with your Kaypro? This kit, which consists of software, manual and pamphlets, can help you start a small word processing business at home.

The software contains sample start-up, marketing and operating plans.

The cost is \$29.95 and the kit comes with a moneyback guarantee.

South Bay Word Processing, 1558 Oro Vista Rd., Suite 290, San Diego, CA 92154 (619) 575-8381.

"Killer" spike and surge protector. Called the SurgeSentry, this product has a three-stage, three-way common mode design that shields computers from very large voltage surges and high-speed power spikes of up to 1.5 million watts.

A high-speed component of the SurgeSentry detects power in less than 5 picoseconds (five-trillionths of a second), not the 5 nanoseconds (billionths) that is standard with other surge suppressors. It detects and dissipates powerful spikes before they damage equipment and cause data loss.

Contact RKS Industries, Inc., 4865 Scotts Valley Dr., Scotts Valley, CA 95066. Call toll-free at 800-892-1342 or in California at 408-438-5760.

Program map for MBASIC. A cross reference tool for Microsoft BASIC, Program Map speeds program development and helps users accurately debug, modify, convert and document their BASIC programs in a small amount of time.

Program Map produces alphabetical lists of variables, commands, functions, constants, quoted strings and line numbers. Each word is listed with the line number(s) in which it is found. Print width and paging control is also included.

Price is \$150. The Software Store, 706 Chippewa Square, Marquette, MI 49855 (906) 228-7622.

Convert a typewriter into a printer. A product that turns Adler 1010/1011 and Royal 5010/5011 electronic typewriters into letter-quality printers is now on the market.



The AR-180 Micro-Type interface module provides both RS-232 serial and Centronics parallel interfaces on a single circuit board that is easily installed inside the typewriter. No external box or power supply is required.

The AR-180 has a 4K buffer memory for on-line printing of most documents. It includes computer control of tabs, margins, underlining, boldfacing, subscript, superscript and line-feed. The AR-180 also is compatible with most baud rates and protocols.

Selectone, Computer Products Division, 28301 Industrial Blvd., Hayward, CA 94545 (415) 887-1950. Call toll-free at (800) 421-5389 (CA only) or (800) 227-0376 (outside CA).

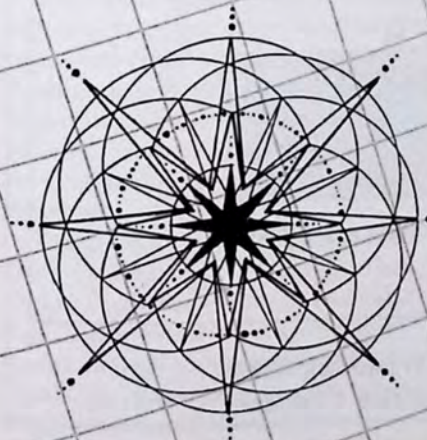
Portable copyholder. Designed to sit above the Kaypro's screen, the Kayware Copyholder can hold books, (continued)

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NEW PRODUCTS

(continued)

manuals and paper for easy viewing while using the machine.

Made of anodized aluminum, the KAYware Copyholder can be removed and positioned against the closed Kaypro for carrying ease.

Available for \$16.95 from KAYware, 460 West Clapier St., Philadelphia, PA 19144 (215) 849-6648.

Suppressor with EMI/RFI filter. The Electra-Guard System 4 protects against power surges, and prevents damage from electronic noise, called EMI (Electro-Magnetic Interference) and RFI (Radio Frequency Interference).



The Electra-Guard System 4 plugs into any three-prong outlet and expands two-outlet power receptacles to three outlets. A filter is included between the input power line and the three outlets, which reduces EMI and RFI before they reach a user's computer circuits.

Computers can malfunction when EMI or RFI occurs because they create erroneous signals and false logic levels. Noise can come from different sources: copying machines, electronic typewriters, stereos, televisions, VCRs and all microprocessor-

controlled equipment.

Price is \$79.95. Computer Power Solutions, Inc., 8800 49th St. N., Suite 203, Pinellas Park, FL 33565 (813) 544-8802 or toll free: (800) 237-6010.

Time and billing system. The TKR III is a stand alone package designed for small to large accounting, engineering, legal and other professional practices.

The TKR III provides control and accountability of firm time. It reports who performed the work, how much and what type of work was done, and for which client or project it was performed.

Some features include daily review of work-in-progress, free form billing, workstation data entry and staff and workcode productivity analysis.

If interested, contact Jim Hoey, Marketing Director, E.F. Haskell & Associates, Inc., 1528 E. Missouri, Suite A131, Phoenix, AZ 85014 (602) 277-2534.

Tasmanian robot. A mobile robot designed in the Australian island state of Tasmania has found a home in the U.S.

The Tasman Turtle, a small mobile robot that can be connected to a computer via cable or remote control, has a variety of uses in education, research and hobby computing, according to Adrian Firth of Flexible Systems, the company that designed it. The turtle can move in many directions and has a pen attached so a user can command him (her?) to draw a line. A user can also operate a two-tone horn and green lamp with the use of LOGO.

An optional Turtle Talk Board, a speech generation device, is also available.

The concept for this robot stems from the original work of Professor S. Papert at the Massachusetts Institute of Technology on the computing language LOGO, which along with BASIC, is used for programming.

(continued)

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(continued)

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Software that turns your computer into an electronic mailbox. Telex/TWX communications can now be done from small computers with the use of software that links them to EasyLink, Western Union's store and message service.

The software, called Micro-ezLink, enables users to send Telex, Telegram, Cablegram, Mailgram, International Telegram and Infocom messages directly from their computer. Micro-ezLink receives and stores messages to disk without user intervention. It also can receive data from Western Union's FYI News Service.

The software package includes a built-in word processor, on-line help screens, an instruction manual, and two installation programs that customize the software to specific terminals, computers and modems.

For more information call or write Advanced Micro Techniques, 1291 East Hillsdale Blvd., Foster City, CA 94404 (415) 349-9336.

Nevada BASIC. This BASIC interpreter has many advanced features not available in other BASICs. There's a built-in full-screen text editor, so the cursor can be moved freely about the screen to make additions, deletions, and corrections. It automatically generates new line numbers, which saves time. Also, if an error occurs while running a BASIC program, the user need only press the return key to reactivate the text editor and have the cursor be in the error line.

Priced at \$39.95. Available from Ellis Computing, Inc., 3917 Noriega St., San Francisco, CA 94122 (415) 753-0186.

Modular furniture. Designed to work together or as separate units, this computer furniture consists of a desk, printer table, shelf unit and an ex-

NEW PRODUCTS

(continued)

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Prices are \$153.95 for the desk, \$109.95 for the printer table, \$32.95 for the expander, and \$103.95 for the shelf unit.

Gusdorf Corporation, 6900 Manchester Ave., St. Louis, MO 63143.

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The package is sold as a complete system or can be added to an existing Kaypro through a national network of independent mailing equipment dealers.

System 10, 2011 N. Capitol Ave., San Jose, CA 95132 (408) 946-1010.

Portable surge suppressor. A company has now put all the surge suppression and noise filtering circuitry a computer needs into a power cord.

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\$249.95. Furniture Plus, P.O. Box 11761, Eugene, OR 97440 (503) 345-9193.

Security programs. Three software packages, called Security, Security-Plus and Security-Plus-Log, can protect your computer from unwanted visitors.

Security provides password protection for all programs without affecting normal processing and with no modifications to the operating system. Security-Plus adds the option of password protection for individual files, and Security-Plus-Log maintains a complete record of program and file activities.

The price is \$50 for Security, \$100 for Security-Plus, and \$150 for Security-Plus-Log. A demonstration disk is available for \$25.00 which can be returned for credit toward purchase of any package.

The Answer In Computers, 6035 University Ave., Suite 7, San Diego, CA 92115 (619) 287-0795.

Create your own word puzzles. Seek & Find is a menu-driven program for all ages that creates anagrams like those found in national magazines. The pro-

gram generates puzzles from simple 3x3s to far more elaborate ones. It also supplies solutions.

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It's all there for you, all you need is a BCN disk, your Kaypro and a modem. We'll give you the BCN disk for FREE and if you need a modem, we'll sell you a Signalman Mark VII for \$99.95 (plus \$3.00 for shipping and handling), regularly a \$159.95 value.

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LISTING

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BDOSRE:
MOV BAS:
WSTFCB: ;FILE CONTROL BLOCK FOR MBASIC
DB 0,'WS COM'
DB 0,0,0,0,0,0,0,0
DB 0,0,0,0,0,0,0,0
DB 0,0,0,0,0,0,0,0

LOAD: ;LOAD WORDSTAR AND TRANSFER CONTROL
LDA USER ;SET UP TO RESTORE USER
STA RESUSR+1+OFFSET

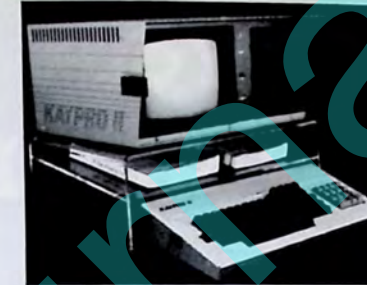
LXI D,WSTFCB+OFFSET ;OPEN THE FILE
MVI C,OPEN
CALL BDOS
LXI D,TRANSI ;LOAD INTO THE USER TPA
LOADLP: ;LOAD LOOP
PUSH D ;SAVE FOR INCREMENTING
MVI C,BDS DMA
CALL BDOS
LXI D,WSTFCB+OFFSET
MVI C,BDREAD ;BDOS READ
CALL BDOS
POP D
ANA A ;SEE IF END OF FILE
JNZ RESUSR+OFFSET ;IF SO, GO TO WORDSTAR, ELSE
LXI H,128 ;POINT TO NEXT SECTOR AREA
DAD D
XCHG
JMP LOADLP+OFFSET ;AND GO LOAD NEXT FILE SECTOR
RESUSR: ;RESTORE THE USER
MVI E,0 ;(REPLACED BEFORE EXECUTION)
MVI C,20H ;'SET USER' BDOS FUNCTION
CALL BDOS
JMP TRANSI ;ALL SET, START WORDSTAR

MOVLIM:

;;EQUATE STATEMENTS TO CALCULATE MOVE PARAMETERS FOR MOVLUP
MOVSI2 EQU MOVLIM-MOVBAS
MOVLOC EQU PATCBS-(BDOSRE-MOVBAS)
OFFSET EQU PATCBS-BDOSRE
END

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G R O U P S

Users' groups

Help may be just around the corner

Users' groups are non-profit membership organizations comprised of people interested in exchanging information about computers. A certain proportion of their activities are purely social, but a major component of most groups' functions are educational in nature. Many of them run training seminars, hold regular speakers meetings, publish newsletters, and so on.

If you're a new computer owner, a users' group is the ideal place for you to learn about your machine, and about the applications that matter to you. Chances are you'll meet someone who is using his computer to perform tasks similar to those you have in mind, and who'll be willing to show you the ropes. Either one-on-one coaching or group training sessions may provide you with the insights you need for a running start.

As you develop into a more advanced computer user, the chance to bounce your ideas off other experienced users may prove invaluable. And outside speakers and regular newsletters can be a precious source of tips and useful information.

If you're still in the process of making those critical decisions about hard-

ware and software, there's no better place to go for unbiased opinions. Unlike certain vendors, other users have no vested interest in profiting from your ignorance.

If there's no group in your area, starting a group is usually as easy as placing an ad in the computer column in your local Sunday newspaper classifieds. List a time, meeting place, and a phone number for further information. You'll probably be amazed at the response. You might also do well to let Kaypro dealers in your region know about your plans for a group. They'll let their customers know, and many retailers will volunteer to provide various forms of assistance—meeting space, speakers, technical advice, newsletter printing, discounts to group members, etc. Friendly cooperation at all levels will eventually lead to larger membership for groups, more sales for dealers, and increased services for owners—and everyone will profit, one way or another.

Keeping a group going will depend on the individual members. The amount of time and initiative necessary to maintain a group can be surprising; don't underestimate the amount of work required. Try to in-

volve as many people as you can in actual operations—that way you may avoid having all the work fall on one or two active members—the most common pitfall of new groups. A good committee structure seems essential; some suggestions for working teams are Newsletters, Finances, Meetings and Speakers, Training and Education, Manufacturer Liaison, Software Development, etc. One of the key things to remember as you get into developing a users' group is to keep sight of your goals; don't let organizational megalomania distort your perception of the group. Increasing membership is not an end unto itself, particularly if it defeats the original aim of sociable information exchange. If all your group ever does is pull a dozen people together once a month to eat some pizza, drink some beer, and gossip about computers, what's wrong with that?

Kaypro users' groups have no official relationship with Kaypro Corporation. Therefore, we can take no responsibility for the accuracy of the information in the list below, nor for the activities of the groups themselves. This list is based on the most recent infor-

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Clifford Odendhal, KUG Manager
533 Stevens Ave.
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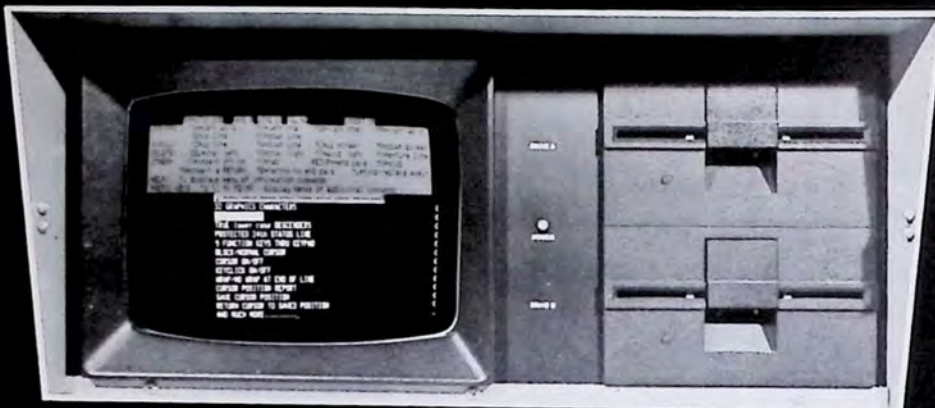
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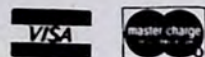
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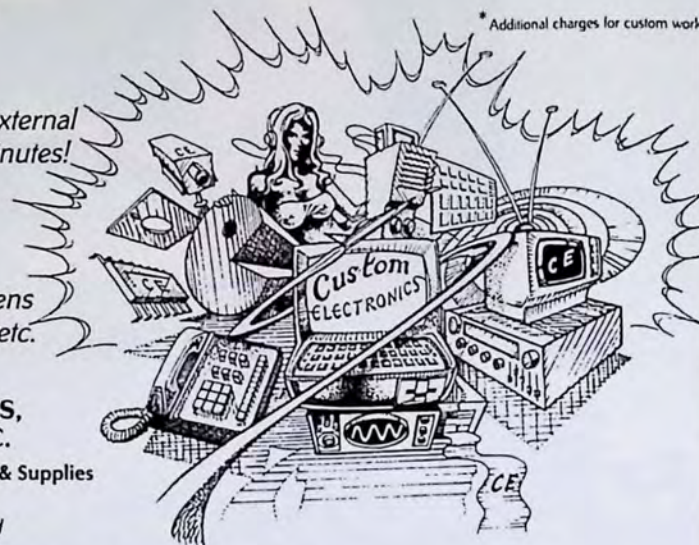
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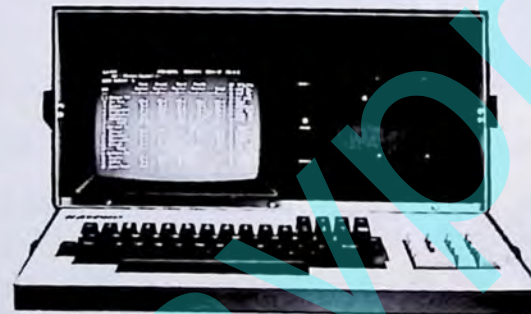
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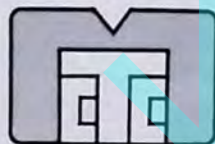
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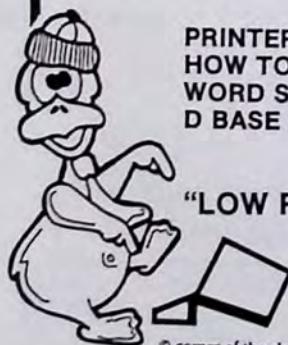
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