

KAYPRO

The Magazine for Kaypro Users
November/December 1983

**Special issue on
Telecommunications!**

Gaining access to . . .
bulletin boards
free software
and more!

An interview with
the creator of S-BASIC

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PRO FILES

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November/December 1983

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What Will You Give Your **KAYPRO** For Christmas!!

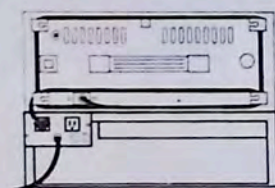


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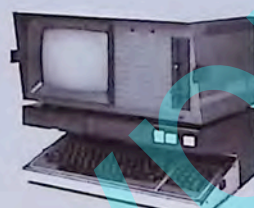
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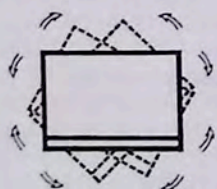
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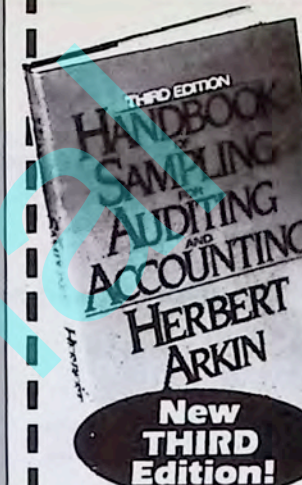
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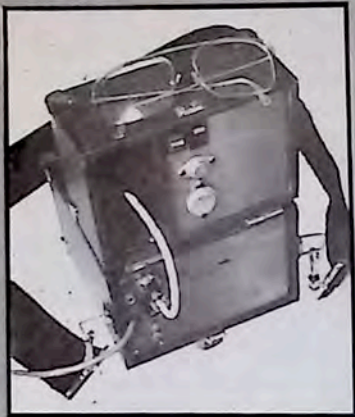
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A brief rundown on our purpose and policies

Subscriptions

Subscriptions to **Pro/Files** are available to everyone in the United States and Canada who purchases a Kaypro computer, or already owns one. The price of a half a dozen issues is included in the price of your computer.

Developing a mailing list is not as easy as it sounds—to date, we've had a dismal return rate of Kaypro warranty cards, our primary source. If you've sent in your card, you should be receiving the magazine. If you've just purchased a Kaypro, send in that card—not only will it insure your subscription, it will also protect you should your computer malfunction.

If you've sent in your card and still 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. The same also applies if you purchased your machine more than ninety days ago, or you never sent in your warranty card. With this information, we'll make sure you start receiving your subscription as soon as possible.

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; it will speed things up for us.

If you don't yet own a Kaypro and you'd like to get the magazine, the price is \$12.00 for six issues. Sorry, but if you decide to buy a Kaypro sometime later, there will be no refund.

At this time, we are not able to offer international subscriptions.

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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.

Responsibility for products advertised lies with the advertisers. We will not knowingly publish false or misleading advertising, nor will we continue to publish fraudulent materials. Should there be any consumer complaints arising from goods or services purchased from our advertisers, we would appreciate notification to that effect, to aid in our own screening process.

MICRO CORNUCOPIA

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

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.

KayPro Schematic Package \$20.00

Micro Cornucopia

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Edited and Published by David Thompson

Plus KayPro ROMs

As we used KayPros here we found we couldn't leave well enough alone.

Ask for KayPro ROM information.

SUBSCRIPTION RATES:

1 yr.(6 issues-bulk rate)	\$16.00
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1 yr.(Canada & Mexico)	\$20.00
1 yr.(other foreign)	\$26.00
Sample Issue (with 5 MHz mod)	\$2.00

SPECIAL OFFER!

KayPro II Schematic Package
(If you also order subscription) \$10.00

*KayPro is a registered trademark of Non-Linear Systems, Inc.

KAYPRO II USERS DISKS

The following are full disks of software assembled specifically for the KayPro II. Each program has a .DOC (documentation) file and many come with source.

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 is 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!

DUMPMX.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.

WUMPUS.COM: Classic wumpus hunter's game.

KayPro II Users Disks

\$12.00 each ppd.

KayPro Disk K4 - Adventure

This disk contains one 191K game, 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 whitespace, and more.

KayPro Disk K7

Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's original C compiler. Version 2 includes many more expressions, a substantially extended library, and much more. This disk contains the compiler, documentation, and library.

KayPro Disk K8 - Small C Version 2 Source
More of Small C Version 2. This disk contains the compiler, documentation, and the source of Small C version 2. It compiles itself.

NEW!

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.

PASSWORD: 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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By Vivitar

L E T T E R S

A little controversy

More kudos for McMahon and Grosswirth,
but as for Shapiro and Tyre ...

Praise and PIP

What a pleasant surprise to receive *Pro/Files*. I've been battling a few demons in my efforts to go "state-of-the-art" on my current screenplay. Your magazine is not unlike the sound of the calvary coming over the ridge, as I sit pulling arrows out of my backside.

Brian Narelle
Mill Valley, CA

Words fail me! Surprise and delight were overwhelming as I leafed through the issue. Within minutes, I knew I would have to write this letter, begging for a copy of Volume 1, Number 1.

Your magazine is marvelous. How refreshing to read through an article simply by turning pages. What a pleasure to read advertisements which are relevant. And McMahon's PIP explanation will forever be invaluable.

Thank you for a truly great publication.

David S. Berg
Haworth, NJ

We've been deluged with requests for back issues. Since our primary purpose is creating the next magazine, answering these requests is often delayed. As

time permits and as long as the supply lasts, we will be sending out back issues.
—Ed.

Technophobia

I believe that Marvin Grosswirth has hit the nail on the head with his article "Bringing Up Baby In The Small Office" (Vol. 1, No. 2). His analysis of the symptoms of technophobia corresponds quite well with my organization's experience over the past two years; a time when micro's have been introduced into some two-dozen-plus "small offices" under my command. These offices range in size from several dozen people down to just one person, and are scattered geographically from coast to coast. I have encountered both successes and failures along the way, and find myself wishing I had had the benefit of Mr. Grosswirth's comments two or three years earlier, so that some of the failures might have been averted.

Donald S. Tribe
Rock Island, IL

About that cover

Congratulations to T. Tyre on her up-

to-date analysis of the impact of our new information oriented society on women ("Women and Computers").

What I wonder is how Tyre can manage to develop such fine ideas in the obviously women oppressed atmosphere of *Pro/Files*. By the look of last issue's "Covergirl" my guess is that Ezra Shapiro and company are not in the least bit interested in giving any more than lip service to the changing roles for women in today's society.

The stance at your publication is clearly one designed to maintain the status quo, where the eyes of power are on women's bustlines and behinds. It is about time that serious articles such as Tyre's make an impact on the image of your publication. You hold the power to be a leader—with the cover of your second issue you failed.

Janice Burke
Los Angeles, CA

Do we have to have a pin-up on the cover of the magazine, swinging a Kaypro around in a dangerous and destructive manner? And this comes in the same issue as a very condescending article on women and computers. The author, (male? or female?) came to the all-too-obvious conclusion that a) women are discriminated in the computer industry just as they are everywhere in business and b) they

(Continued)

PROGRAMMER'S TREAT.

JRT's language triple-dipper. Pascal 3, of course, and now two exciting new flavors: zippy Pascal 4 and exotic Modula-2. They'll make every programmer's mouth water; try 'em. (Sorry—no plain vanilla.)

PASCAL 3: THE WORLD'S MOST POPULAR CP/M* PASCAL.

The industry's standard. Compared to Basic, expect to write programs three to ten times faster with JRT Pascal 3.

Modular programming lets you easily handle big programs, and use common modules in several programs. Self-documenting code. Verbal error messages. 12 data types. 3 looping statements. Strings up to 64K. Dynamic storage ends memory waste.

You can pay ten times more—but why? The sweetest Pascal is also the sweetest Pascal bargain.

NEW PASCAL 4: TWICE AS FAST AS 3.

JRT Pascal 4 has all of 3's great features—refined. To make a long story short, we fine-tuned the compiler's critical components. Result: speed. 3 was already the fastest Pascal compiler, and new 4 is twice as fast! If your taste is speed, Pascal 4 is for you.

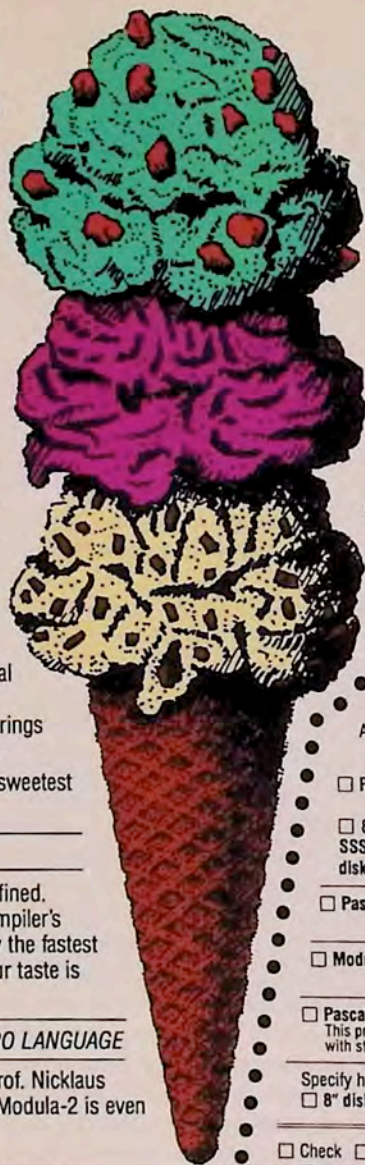
ALL NEW MODULA-2: TODAY'S ULTIMATE MICRO LANGUAGE

The latest creation from Pascal's designer, Prof. Nicklaus Wirth. Evolved from 12 years Pascal experience, Modula-2 is even more powerful, concise, and easy-to-learn.

Modula-2 refines Pascal's syntax and adds:

- The MODULE concept—similar to Pascal's external procedures but much more flexible. Build up a module library; use common modules for many programs. The compiler type-checks across modules so they correctly reference.
- The PROCESS concept for multi-programming; supports process creation, monitors, signals.
- PROCEDURE VARIABLES for new program control possibilities.
- LOW-LEVEL FACILITIES give direct hardware control. And there's much, much more.

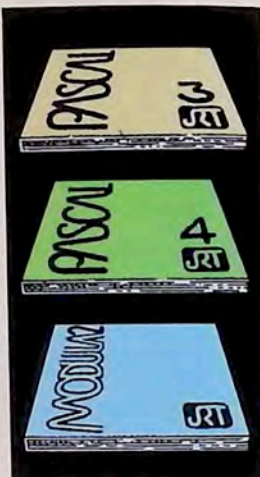
Does our menu whet your appetite? Then why not treat yourself to easier, faster, more efficient JRT programming?—today.



JRT PASCAL 3.
Modular programming, self-documenting code, verbal error messages, 3 looping statements, 12 data types, strings up to 64K, dynamic storage.

NEW JRT PASCAL 4.
4's many refinements double the already fast compiling speed of Pascal 3.

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LETTERS

(Continued)

are too sensible and too damn BUSY to sit around staring at a CRT for 15 hours a day while the dinner gets burned and the baby falls in the washtub.

I bought a Kaypro because I am a working journalist and translator, and it has practical applications for me. Frankly, I am delighted that most women have better things to do than play Donkey Kong or Frogger. It is yet another proof of how vastly superior we are to men in every way.

Josephine Bacon
Garden Grove, CA

Superior? I won't get into that.

About the cover, we chose an energetic-looking woman and put her in a full-length jumpsuit. All staff members felt it was attractive without being exploitative.

As for women and computers—come to your own conclusions and decisions. My hope is simply that women will actively think about both the opportunities and pitfalls present in this new technology. The implications are far too important to be left to chance.

—T. Tyre

Unpopular attitudes

Editor Ezra Shapiro's article, "Unhealthy Attitudes," had me nodding my head in agreement, but I would like to add an however of my own. I don't think the industry should accuse users of wanting to be spoonfed. After all, look at all the advertisements designed to take the fright out of using computers. Superlative buzz words, with "friendly" leading the way, seduce would-be computer users into the land of frustration.

I am a writer and editor and find the language misuse in all the books and User's Guides annoying. Just one example is the word edit. To me, that is a specific process of cleaning up written material. In computerese it also means writing, which caused me some

problems until I got used to it. This is so simple that I am sure most of your readers think this letter is written by a five year old. But computers are advertised as being usable by anyone, and I qualify as anyone.

Elizabeth Helmer
Ithaca, NY

Two points:

1. *What's the Catch?* Although this "article" looks exactly like the editorial content of the magazine and is in no way labeled otherwise, it is in fact an advertisement. Whether this ad was paid for or was a complementary "bonus" for placing an expensive insert in the magazine is irrelevant. Such lack of clear boundaries between editorial and advertising copy is, at best, poor judgement.

2. *Unhealthy Attitudes.* This article sets up your readers—gaining their confidence, and then kicking them in the teeth. A magazine published by the manufacturer must be particularly careful to demonstrate its editorial independence. An article that says in so many words "The company is in the right even when it treats you with discourtesy. That's what you get for being a pioneer", hardly establishes this.

As for what can be expected from manufacturers and dealers when problems develop—in a word, *Courtesy*. I expect phone calls to be returned and letters answered. I expect to be listened to. I expect explanations instead of excuses. Customers may accept the idea that things can go wrong; dealers and manufacturers cannot afford to.

Pro/Files is in a position to reverse an unfortunate trend. Instead of defending indefensible attitudes and behavior, you might elicit readers' advice about ways in which customer service from Kaypro and dealers can be improved. I hope in the future you will take advantage of this position instead of browbeating the already downtrodden Kaypro owner.

Betsy Feist
New York, NY

Far be it from the Pro/Files staff to defend indefensible attitudes! As the majority of our articles will attest, we are sincerely interested in helping our readers learn to use and enjoy their Kaypros. Variety is essential for a magazine like this one: tutorial material should be mixed with interviews and other topics. We are always open to reader suggestions for article topics, but as a magazine, there isn't much we can do to influence customer service or dealer operations.

Finally, one of the purposes of a good column is to stimulate thinking and discussion. By that criteria, "Unhealthy Attitudes" was a very good piece.

—Ed.

Responding to your "Unhealthy Attitudes" in issue No. 2, few will dispute that some of the weaknesses of the computer industry's service to its consumers is in part excused by the industry's youth.

All the same, the manuals should be satisfactory, and right now.

As a professional educator, I see several errors.

1. There is a fear that giving a simple step-by-step explanation will "insult the readers' intelligence." Solution: just remember that your target audience is the ordinary folk who will be grateful for a simplified set of instructions.

2. Learning the *how* of doing something is a very different matter from learning the *why* of it. There is a different logic and a different time frame involved.

The inexperienced teacher's (read: almost all writers of hardware and software manuals) besetting mistake is to mix up the "how" and "why", trying to present them at the same time. The solution: *separate them*. First show how to make the system do the things it can; lead the learner by the hand, leaving out nothing. Only then

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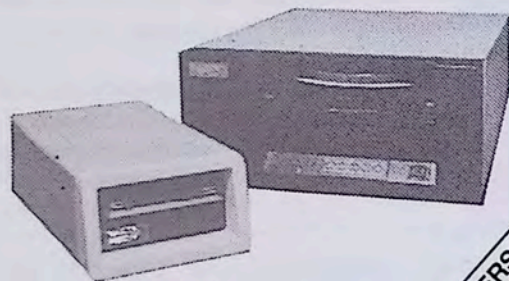
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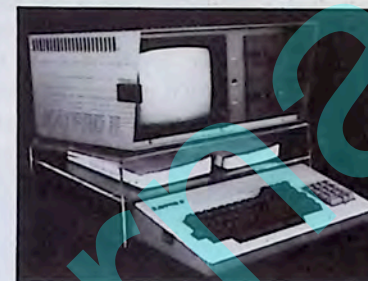
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LETTERS

(Continued)

do you go back to explain the why of it. In short, the *psycho*-logic of the learning process is one thing; the *logi*-cal explanation of phenomena is quite another. Try to mix the two together, and you'll get . . . the sort of manuals we consumers are complaining about.

James W. Roberts
Portland, MA

BASIC advice

I can hardly BELIEVE the quality of your magazine! After owning Radio Shack equipment and reading their idea of a magazine (back-patting and lots of ads) I am impressed with your publication. You come off as a most sincere company—interested in helping people you have ALREADY SOLD get more out of their purchase. It's a pity people considering their first purchase will not know of this until after they buy. Your magazine compares very well—a little philosophy and a little DP to stimulate and educate most everyone.

One bit of advice I will offer your "first computer" users: Learn BASIC! It's true, 90% of what you want to do can be done through the fine programs that come with the Kaypro. In fact, Perfect Calc allows you to "write" a program in an hour that would take a week (evenings) in BASIC. But that still makes you an OPERATOR not a programmer! BASIC, with its prompting and custom screen and printer formatting allows you to write very "friendly" programs for financial and business tasks. Learn BASIC!

John Baker
Erie, PA

Next issue we'll have more to say about the question of whether Users should become Programmers.

—Ed.

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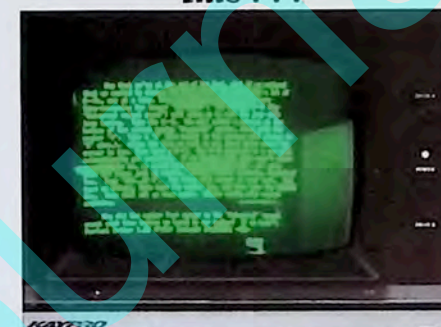
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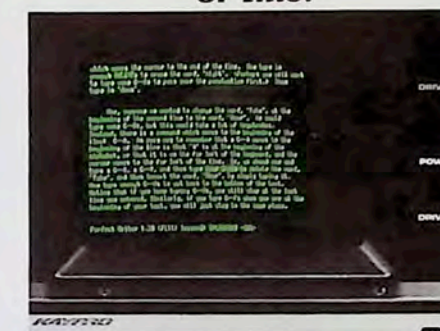
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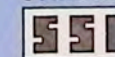
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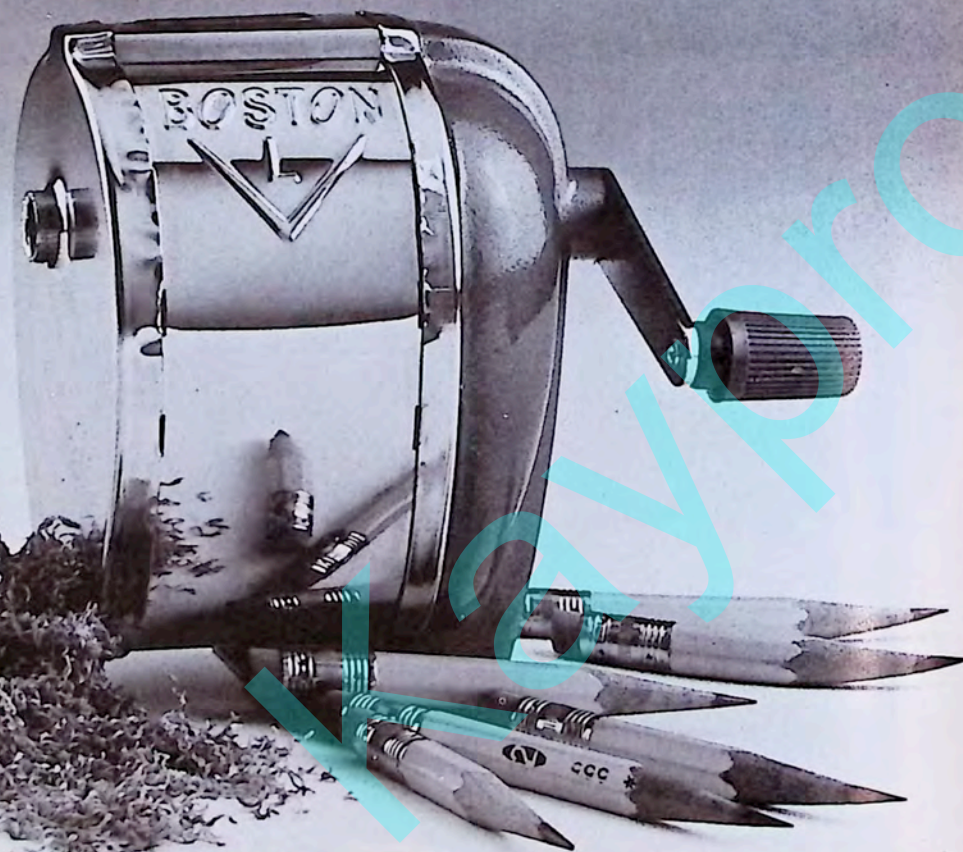
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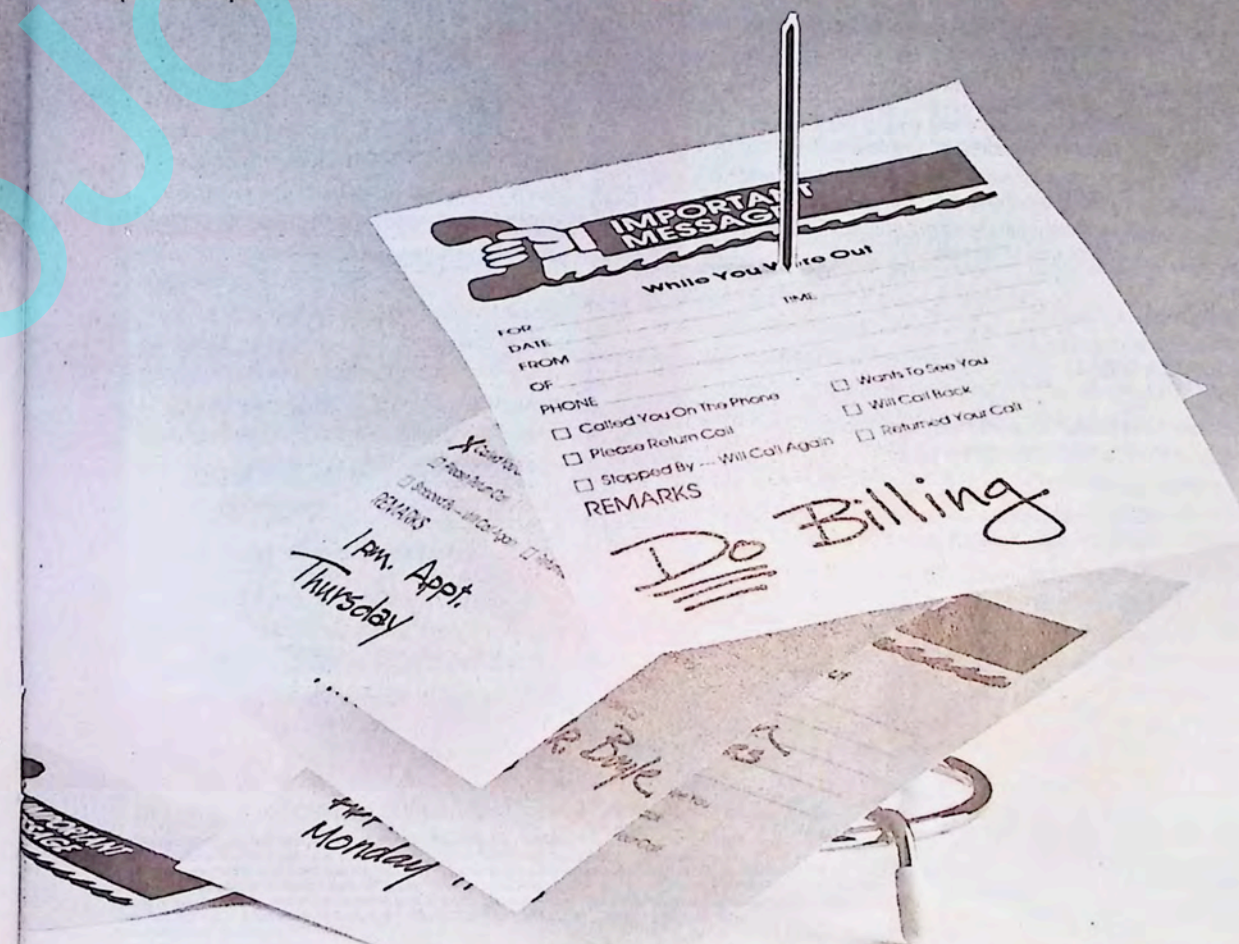
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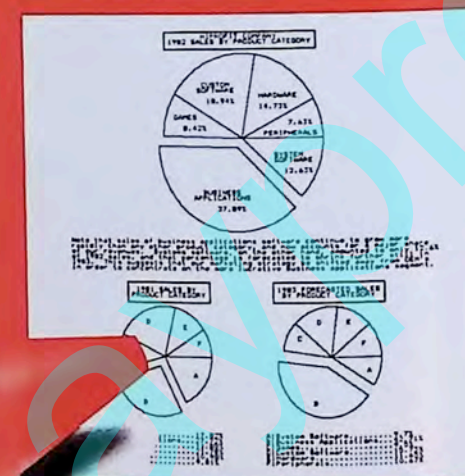
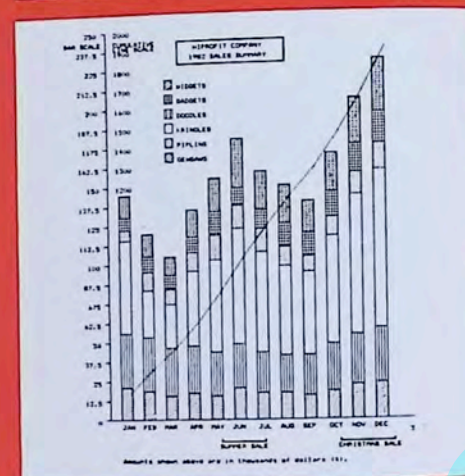
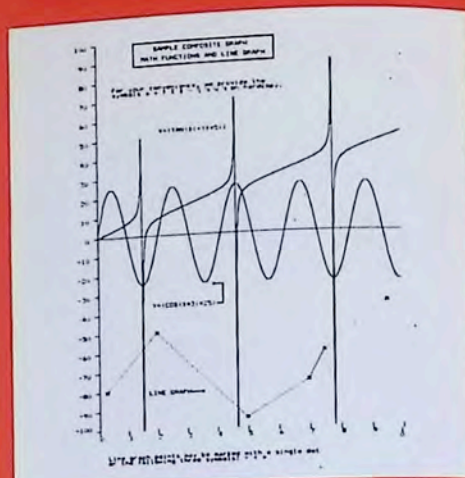
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More technical serendipity

Printer configurations, the usual hardware/software mix, and a Perfectly hidden help command

by Tyler Sperry

Printer configurations

WARNING! Although making the XYZ printer work with Perfect Writer or WordStar may seem like a perfectly reasonable request for this column, the simple fact is that there are far too many printers (and software packages) for adequate coverage with our limited resources. Therefore, our policy on questions regarding printer configurations is to pass them on to the Technical Support staff at Kaypro Corporation. If you have a question or problem with getting a printer to work with your Kaypro, you should seriously consider cutting out the Q & A middleman and calling Kaypro Technical Support yourself. The number is (619) 481-3920.

Video bright spot, revisited

In your September/October issue someone asked about a bright spot that appears on their screen for a few seconds after shutting the machine off. You told them how to fix it but you didn't mention if it "should" be fixed. Is this a problem? If so, why? I have the same condition on my unit and I'd like to know if I should repair it.

Ivan Misner
Covina, CA

When you turn your Kaypro off, it takes a while for the high voltage in the video section to discharge. It isn't unusual to

have the CRT act like a storage capacitor which can give you a healthy (or rather, unhealthy) ZAP! If the manufacturer doesn't provide some means of discharging the high voltage on the CRT (the most common means being the bleeder resistor mentioned last issue), then you will probably see a bright dot appear in the center of your screen for several seconds after turning the computer off. In the case last month, the machine suddenly changed from never showing a dot—indicating a good design in the video section—to showing a dot every time the user turned his machine off. If your computer has always showed the spot at turn-off, then it is quite possible that no bleeder resistor was designed into the video section. (Kaypro has used both kinds of design.)

As to whether this is a cause for concern, it depends upon a number of things. The potential cost of the dot appearing is a "burn spot" on the screen that will be slightly discolored. Burn spots and patterns are inevitable in the normal use of the video display. However, the single dot isn't nearly as bad for the monitor as the common practice of leaving a page of text displayed on the screen overnight.

If you are as fussy as a double Virgo and find the dot's appearance intolerable, then I would suggest you have your dealer look into the matter. He will be able to determine whether you need a new monitor or just a repair.

Bankable ROM

I would first like to say that I like Pro/Files and think the magazine is going to help all Kaypro owners to a better understanding of the hardware and software.

I have been trying to access the video RAM in bank 1 of memory. I have been trying to set the high bit of port ICH to address bank 1 of memory; to this point I have been unsuccessful. Can you provide any help?

Robert L. Murphy
Lexington, KY

The listing below is a demonstration program for the Kaypro II (and Kaypro 4) that clears the video screen, selects the alternate bank of memory, and then puts the first 64 characters available in the Kaypro II Character ROM on the top line of the display. I hope this example helps you.

Owners of the Kaypro 10 won't be able to use this program, because the video circuitry is different. For those who are really interested in manipulating the video display of the Ten, I would suggest careful perusal of the Kaypro 10 Tinker Kit (scheduled for release in a couple of months—sorry about that), and the video portion of the schematic. A data sheet from a manufacturer of the 6545 CRT Controller IC will also be helpful if you haven't programmed the device before.

(Continued)

(Continued)

XAMN versus DU

Is there a way of searching for a string through the tracks and sectors of Kaypro II diskettes in CP/M?

I imagine some kind of routine could be "patched" into XAMN.BAS. Has such a patch been written up? If not, I may have to find time to write my own.

Fr. V. Marasigan, S.J.
Loyola Heights, Q.C., Philippines

While it would be possible to modify XAMN.BAS to allow disk searches for ASCII strings, this is not the most efficient way to handle it. Rule #1 in the Licensed Hacker's Manual:

Never reinvent the wheel.

It just so happens that there is already a public domain program written by Ward Christensen (called DU, for Disk Utility,) that will do just what you are asking. Several versions are available: Micro Cornucopia advertises a version on their utilities disk for \$12. For more details on getting a copy of DU, see "Software for the Asking" further on in this issue.

Once you have gotten a copy of DU, finding and changing an ASCII string is pretty simple: experimentation (with a working copy of your CP/M diskette) is the easiest way to learn how to edit disk data. As an illustration of the string searching function, the following command line (entered at the DU colon prompt and terminated with a return), will cause DU to search the entire disk for the string "Warm Boot" and then display the relevant disk sector when it finds the string:

10;sl; = Warm Boot;d

A complete course in the use of DU is at least an article's worth of space; I hope this small sample is sufficient to get you started.

UniForm and the Kaypro 4

"UniForm" appears to have been

freely distributed along with the system software on the Kaypro II's CP/M S-BASIC diskette. It is supposed to allow disk formatting, reading and writing (for various 5 1/4" diskette formats).

Is this useful program available to Kaypro 4 owners also? I couldn't find it anywhere in the standard software package that comes with the Kaypro 4 and no reference to it was even made in the Kaypro II User's Guide. If so where can one get a copy? My dealer doesn't know!

Sy Lieberman
Sherman Oaks, CA

Unfortunately, the small differences between the Kaypro II and Kaypro 4 are enough to insure that the version of UniForm distributed with the Kaypro II won't work properly with the double-sided drives of the Kaypro 4. A different version of UniForm, customized for the Kaypro 4, is available. This newer version handles a variety of double-sided formats as well as the expected single-sided formats, and you can order it from MicroSolutions, 125 S. 4th St., De Kalb, IL 60115 for \$49.95. (When ordering, be sure to specify which model Kaypro you have, and include \$2 for shipping/handling.) They expect to have a version that works with the Kaypro 10 soon.

As mentioned in last issue's Q & A, don't presume that because you can read the diskettes from another computer that you will be able use software in that format. Software video routines designed for an Osborne's 52 columns are apt to do strange things to a Kaypro's screen.

Tinker Kits explained

In the original information package that came with the Kaypro 4, mention is made of "TINKERKIT," a ROM BIOS, and utility source listings,

which I presume comes on a disk. Is this available for the Kaypro 4, as well as the Kaypro II, and what does it cost?

Sy Lieberman
Sherman Oaks, CA

As you guessed, the Kaypro II Tinker Kit is a diskette which contains the assembly language source code for the System ROM, as well as the source code for such utility programs as BAUD, CONFIG and COPY. (The System ROM contains, among other things, the Kaypro BIOS for CP/M.)

For BIOS modification and other adventures, you will need an assembler such as MACRO-80 from Microsoft in addition to the Tinker Kit itself. If you don't know how to assemble Z-80 code already, or what a BIOS does, or if any of this sounds confusing, it is extremely unlikely that the Tinker Kit is going to be at all useful to you.

The suggested list price for the Kaypro II/4 Tinker Kit is \$95, which includes the source code for both Kaypro II and Kaypro 4 software. Order through your local dealer. You can expect a Kaypro 10 Tinker Kit to be available soon for about the same price.

Perfect page numbers

Using Perfect Writer, how does one assemble a lengthy, book-size manuscript whose files (or chapters) fill more than one disk, and whose pages must be numbered consecutively (as opposed to Chapter I, page 1, Chapter II, page 1, etc.)?

Marcia King
Toledo, OH

There are two separate issues here, the size of the chapters, and keeping the page numbering consecutive from chapter to chapter. As to the first point, if you do in fact have HUGE chapters that are

(Continued)

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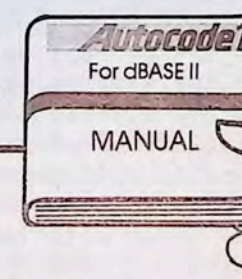
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Q & A

(Continued)

too big to be handled on a single disk, the only thing I can suggest is breaking the chapters into sections. This is the same procedure that you normally use to make a book-length manuscript manageable: you break it into chapters (or files), with each chapter having a different filename.

Keeping page numbers accurate with Perfect Writer can be troublesome. While it is true that you can set the page count to whatever you wish with a @SET command, this is only effective

for the file (or chapter) that contains the command. The only way I know to get consecutive page numbers from chapter to chapter involves formatting the individual chapter files to find the true page count, and then using an @SET command at the beginning of each file. Thus if CHAP1.MSS is forty pages long when formatted, you would start CHAP2.MSS with:

```
@SET(PAGE = 41)
```

Hidden help

Several moons ago, Ezra Shapiro and I were trying to figure out some arcane aspect of Perfect Writer. In the midst of the difficulties, after spending a great

deal of time looking through the manual, I made the suggestion we try the help files of Perfect Writer for more information. Alas, neither of us could remember the special key sequence to access the help facility. We checked the index of the manual under 'H'—no help there. We admitted defeat when our search of the Command Reference Card yielded nothing. (The information was there, we just didn't find it.)

For those of you who have need of the help facility in Perfect Writer, please be advised that the "secret" command is the control-X pair followed by a question mark. This is cleverly hidden on the Command Reference Card under the Perfect Speller commands!

```

; EXAMPLE.ASM
;
; ORG 100H ; CP/M .COM file
;
; WARM EQU 0 ; CP/M Warm boot address.
; BDOS EQU 5 ; BDOS Function call address.
; CONOUT EQU 2 ; Function # for console output.
; SYSTEM EQU 1CH ; System bit port for Kaypro II/4.
; VIDRAM EQU 3000H ; Kaypro II/4 video RAM.
; DESTIN EQU 8000H ; Ultimate location of relocatable code.
;
; START: MVI C,CONOUT
; MVI E,1AH ; = ^Z to clear screen.
; CALL BDOS
; CMOVE: LXI H,RCODE ; HL = Current position of relocatable code.
; LXI D,DESTIN ; DE = Where it will eventually wind up.
; LXI B,(LAST-RCODE) ; BC = Length of code to transfer.
; DB 0EDH,0B0H ; Z-80 'LDIR' instruction.
; JMP DESTIN ; Go execute the code just moved.
;
; RCODE: IN SYSTEM ; Get System Port data.
; ORI 80H ; SET the Bank Select bit.
; OUT SYSTEM ; Restore altered System data.
; XRA A ; Reset accumulator and flags.
; LXI H,VIDRAM+64 ; Point to 65th byte of video RAM.
; LOOP: DCX H ; Decrement video pointer.
; MOV M,L ; Poke Video with lower half of address.
; CMP L ; Does L = 0 yet? If not, loop again.
; DB 20H,0FBH ; Z-80 'JR NZ,LOOP' relative jump.
; DONE: IN SYSTEM ; Restore System to normal,
; ANI 01111111B ; with a RESET Bank Select bit.
; OUT SYSTEM
; JMP WARM
; LAST: END

```

Q & A Listing. This simple program can be assembled using ASM, the 8080 assembler that comes with all Kaypros. In operation, the program clears the screen by sending a control-Z (1AH) to the video routines, moves the instructions starting at location 10EH to a higher address (beyond the section of RAM that is bank switchable), and then executes those instructions. The routine located at 10EH is a simple demonstration of "poking" values into the video display RAM. Note: we are always interested in what our reader's think about the magazine. Is this program example too complex? Too simple? Are there enough comments? Let us know.—Ed.



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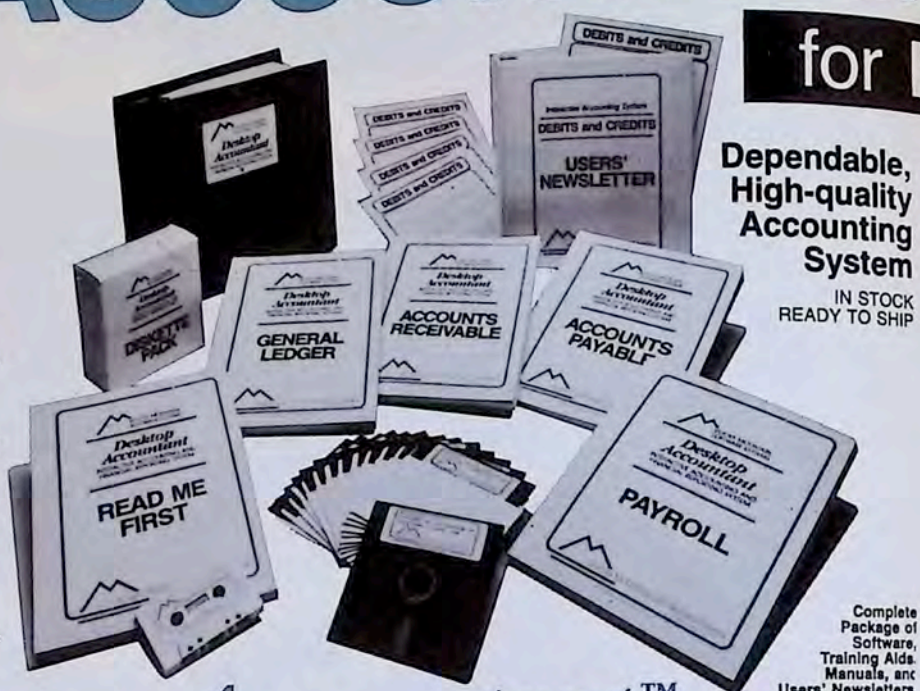
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System "Road Map" Guide	YES	NO	NO	NO	NO
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Source Code Included At No Extra Charge	YES	NO	YES	NO	NO
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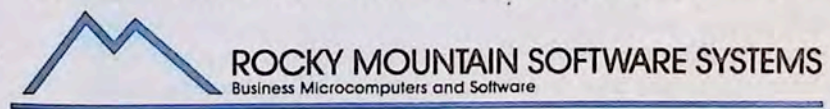
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Trouble in utopia

Tackling a computer project without proper planning can lead to moderate disaster.

by Ezra Shapiro

The major reason I bought a Kaypro in the first place was to help streamline my writing and bookkeeping, and to organize the unsorted mess of accumulated paper that I allege is a filing system.

Fifteen months later, the novel is still sitting there unfinished, my finances are as scatterbrained as ever, and the stacks of debris around my work area have reached new heights (or depths, if you prefer) largely due to the incorporation of disks, manuals, magazines, and the related paraphernalia of insatiable computer addiction.

The other day I was talking to Larry Magid, a computer columnist and educator who has certainly collected as much computer-related garbage as I have. At one point I asked him for the phone number of another friend.

"Let's see," he said, "that'd be under D... then H..." I could hear the sound of keys clicking. "Aha! Here it is!" A computer beeped in the background.

"Does this mean," I asked, my mouth going a bit dry with envy in anticipation of his answer, "that you've actually got your address book on computer?"

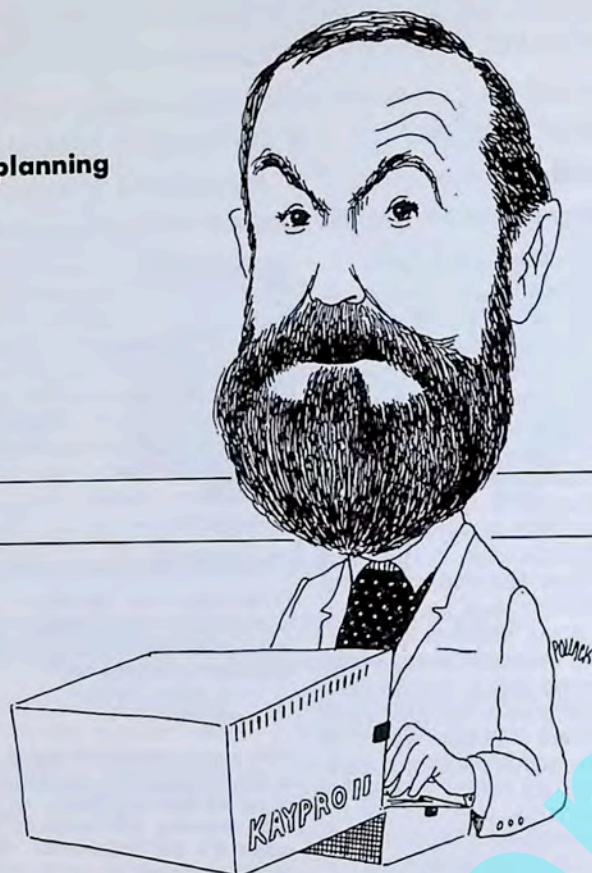
"Well," he replied, somewhat apolo-

getically, "I couldn't have done it without a hard disk."

Excuses aside, Larry has done something I've been planning to do for months. My Electronic Rolodex project—a grand scheme—has never quite made it. I have two separate batches of names stored in two different and largely incompatible dBase II files, another list set up as a WordStar MailMerge file, three (count 'em—three) half-filled card files, and piles and piles of business cards and

scraps of paper that have yet to be entered anywhere because I haven't decided, really, which filing system I want to use.

The problem in my case has nothing to do with hard disks—it's merely an example of how not to go about a computer project. If I'd started by figuring out my needs, then choosing the appropriate software, then developing an interim system that would have allowed me use of the names until I had completed all the data entry, I might



Computerizing your life takes a good understanding of just exactly what your goals are—and some very careful planning.

ILLUSTRATION BY SCOTT POLLACK

be calling up phone numbers and addresses from the keyboard at this very moment.

So what's the point of all this? Simply that computerizing your life takes a good understanding of just exactly what your goals are—and some very careful planning.

The computer itself is not a solution to any given problem; it's merely a tool—a difficult tool at that—and using it can create a whole new series of obstacles to productivity if you don't watch your step.

It's tempting to try to learn too much too fast; it's amazingly easy to lose sight of your original goals and never quite achieve full mastery of any single aspect of personal computing before moving on to the next.

The message can be broken down as follows:

1. Assess your needs and determine your aims before you begin to computerize tasks. Changing your mind in the middle of a project will wipe out a lot of effort, and it'll be tough to regain momentum. You may end up less organized than you were before you started.
2. Computerize one task at a time.

Don't bite off more than you can chew—you won't accomplish anything, and you'll waste a lot of time. Scurrying back and forth from one project to another like a headless chicken is a surefire way to sabotage yourself.

3. Don't attempt to do something too far above your level of expertise. A bit of a challenge may give you some incentive, but overextending yourself can kill the best of intentions. You're only human, and you have a built-in learning curve. Trying to run before you can walk won't get you anywhere.
4. Take your enthusiasms with a grain of salt. If you've already got a manual system for some task that is fast and efficient, don't let your lust for

If I hadn't been so eager to tap the potential of the computer before I knew what I was doing, I'd have been better off.

computerization turn your head. If the old way works—and you can see no problems with it down the road—leave it alone. And don't abandon tools and methods you may need again (The deterioration of my typing skills since I've started relying too heavily on my word processor is a good example of this syndrome.). Keep in practice; it's amazing how quickly one forgets.

5. Plan ahead.

I'm hoping I've learned my lesson from the Electronic Rolodex. If I hadn't been so eager to tap the potential of the computer before I knew what I was doing, I'd have been better off—at least my tired old card files would have been up to date.

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The cottage computerist

Being a consultant is great at cocktail parties. Being able to afford a Big Mac is better.

by David Thompson

This column is about consulting. Yep, you, a consultant. Many people think of a consultant as a Ph.D. from Stanford who has authored a shelf of unreadable tomes and who is known world-wide for his daring exploits while chasing systems bugs in Micronesia.

It turns out that the Ph.D. from Stanford is probably doing quite well as a consultant, but then so are a lot of other folks. You need some expertise, that's pretty obvious, otherwise why would anyone want to hire you? However, a post graduate degree from a famous university is only one of many ways to make yourself wanted (check the posters in your post office for other ways).

In the previous column (Pro/Files September/October), we discussed how you could find your niche in the software arena. Well, just as you can use your current expertise to create unique and important programs, you can sell that same expertise (along with your computer experience) by the hour, by becoming a consultant.

An example

Let's say you are a timber cruiser (you inspect stands of trees, taking

copious notes about diameters, heights, species, how close they are together, how straight, how free of disease . . .). Once you have made all your notes, you spend weeks manually transposing them into meaningful information.

The meaningful information might include: how many board-feet per species, the number of trees which are straight enough to use as poles, the

number of board feet of saw logs, and the number of cubic feet of chips to be sold to paper mills.

You get all this information from the raw measurements scribbled in your notebook.

Timber cruising is a long, arduous job but a very important one. Companies need to know when to harvest various parcels, and public agencies

(Continued)

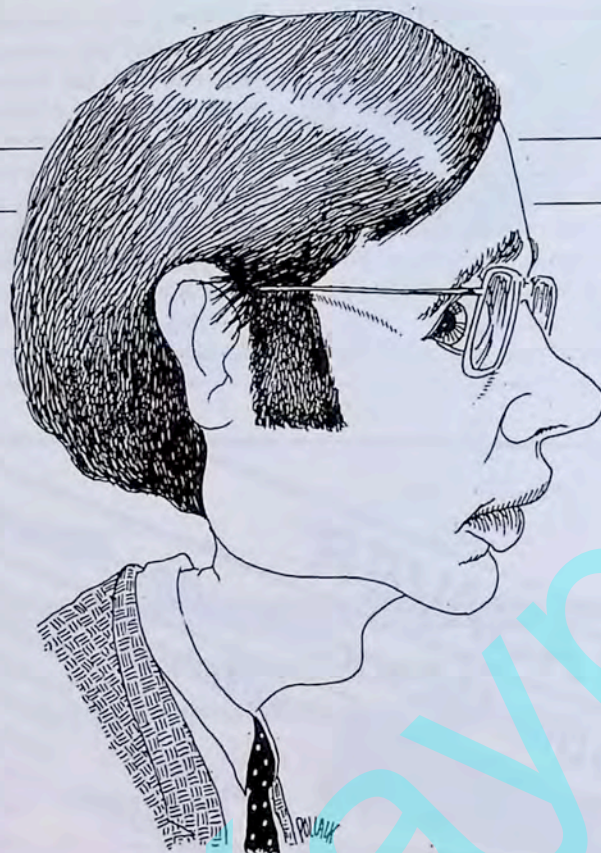


ILLUSTRATION BY SCOTT POLLACK

This One Decision Saved our Business and Grossed over \$1,000,000. in Sales

In 1979, our recreational manufacturing business was booming. And we had developed a new product that looked like a real winner. The new product was extremely important, in that it appeared to be the answer to a seasonality problem associated with our other product lines.

By early summer, our order book was bulging. It really looked as if our off-season sales and production problems were over. Then just as quickly the roof fell in. Gas shortages devastated the recreational vehicle market overnight. And our order book for over two million dollars worth of the new product disintegrated.

Faced with a fall and winter of virtually no sales, many thousands of dollars of unneeded parts and excess production staff, I had no choice but to shut down the production lines. And if a solution to our problem couldn't be found, the business itself was in jeopardy.

A life saving decision

I spent many sleepless nights trying to come up with a solution to this nightmarish situation. Then I remembered a course I had taken in decision analysis. I spent the rest of that night reviewing course material and other books I had bought on the subject. The next day, I called an emergency meeting.

Using the decision making techniques I had learned, we spent the rest of the week searching for and analysing potential solutions. The net result was that not only was the company pulled back from the brink of destruction, but we added over \$1,000,000.00 in gross sales during that off-season.

A way of life

From that point on, almost every critical decision (and there were many) regarding new products, marketing channels, pricing, advertising, production equipment, engineering projects, received this same type of analysis.

Although the process was very time consuming and clumsy, because it had to be done by hand, our decisions were much improved. And there were some real benefits that we had not anticipated.

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4. Consensus became easier because we were forced to focus and resolve each part of the problem, one piece at a time.

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Decision-Analyst was created because the process of evaluating complex decisions with multiple alternatives and many criteria is very tedious and time-consuming if you do it on paper. And doing it in your head is virtually impossible.

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If you're saying to yourself that you really don't have any earth shattering applications for

Decision-Analyst . . . then consider this. If you're in business, chances are that the most important thing you do is make decisions.

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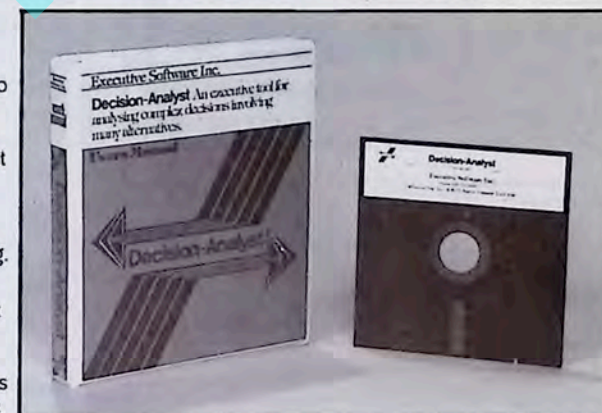
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THOMPSON

(Continued)

need to know the value of standing timber for tax purposes.

Meanwhile, it's obvious that a computer could contribute mightily to the process. Let's say you pick up one of the little hand-held systems so that you can enter and edit your notes on a computer right in the field. Then when you get back to the office, you dump the raw data into your Kaypro via the serial port.

The Kaypro can then do in an hour what took weeks before. You can do more cruising, produce results faster, and offer more professional looking reports so clients are happier.

Plus, you can play some "what if" games with the data. For instance, you could check to see if money spent on fertilizing a particular plot would be likely to yield a reasonable return five or ten years down the road (given the soil types, climatic possibilities, and fluctuations in the prices for a particular species). Try working that out by hand.

Plus, you can offer this kind of information as a special service to your client for an additional fee. Then who are they going to go back to when they want a new study made? In fact, you might wind up hiring a bunch of people to do the field work while you spend your days in front of the Kaypro playing "what if" for money.

Writing the program

So, you first work out just how the two computers can help you in the timber business.

You design the data input screens and the data base for the handheld. And, you work out the data transfer routine and the really substantial program(s) that will generate intelligible information out of a seemingly random collection of feet, inches, and types.

Once you are done, you have a number of options.

You can keep the software and hardware information to yourself and

THOMPSON

(Continued)

figure on being the most sought-after cruiser in your area.

You can sell the software along with an instruction manual to other timber cruisers.

Or you can act as a consultant and sell your expertise on software, hardware, and training for so much an hour to companies that hold large tracts of timber so they can gather their own information.

No matter which route(s) you choose, you definitely have something to sell.

Promotion

It turns out that in this example, you also have a market that is pretty easy to reach. There are only a few major trade journals in the timber business so it's not difficult to tell people about your package or service.

In fact, it would probably be very easy to get one or more of the journals to run an article about what you are doing, especially if you are willing to write it yourself. As an author, you not only get publicity for your product, you become a bit of a celebrity besides.

If you and your software have generated some information that no one has attempted previously, definitely mention it in the article. That kind of "first" is a very good way to get invited to speak at conventions and write more articles.

Be a little careful about accepting too many of these special projects. You need to make a living, and the fame and glory things usually don't pay. But, you can usually sign up consulting clients at these conventions, so go prepared.

Figure out ahead of time what you plan to offer and how much you will charge. Also, have business cards to hand out.

It doesn't hurt to look successful. If your address is "12 Railroad Ave, Space 35," then you definitely need a post office box. But, there is another

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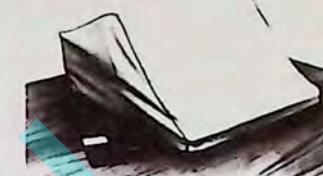
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(Continued)

big advantage to having a postal box: you won't have clients (or salesmen) dropping in unannounced (though you might be surprised what you find curled up with your mail).

Don't assume that you can drop by the post office on your way to get your cards and letterheads printed and get a box number. Many post offices have long waiting lists for boxes (even for boxes too small to hold micro size postcards). Also, you don't have to go to your post office box, the post office can deliver your box mail directly to your home.

If you are going to offer a valuable service and look professional you might as well ask professional rates. What are professional rates? Well, that depends.

Consulting fees

Let's move over to engineers for a minute because I'm more familiar with their salaries. A mid-level electrical engineer in Oregon makes about \$30,000 (\$15.00 per hour). Counting space, sick pay, stock options, unemployment, supervision, and kids' braces, our engineer probably costs his company a total of \$60,000. Now, if you figure the coffee breaks, training, office parties, meetings, and socializing you can figure that he spends about half his time actually working (I know, I'm being optimistic). So figure he costs the company about \$60.00 for each hour he actually works.

So, if a consultant charges four times as much per hour as the regular employee, the consultant costs the company no more per hour worked than the employee.

You can charge whatever you want, since you are essentially a free agent and it's a free market. If you are offering something particularly valuable and unique that's of interest to large, wealthy companies, then \$100 an hour is certainly within reason.

Of course, there are some other

considerations. If you aren't the only consultant in the field, and others (who are equally qualified and equally available) charge \$50 per hour, or if your clients are not made of money, then you'll have to think smaller.

Getting paid

Of course, once you have made yourself famous and expensive and you have clients lining up for your services, you have it made right? Wrong.

I remember one Christmas when we were wondering if we would be able to keep the house warm and purchase gifts for our two little girls. It had been a very successful fall (by our standards), but no one had gotten around to paying. Normal 30-day checks had been in our receivables column for 3 and 4 months.

On about December 15, I paid some personal visits to some very nice people occupying some very plush offices in some very high high-rises and begged for money. I explained (only half in jest) that we would be needing a Salvation Army Christmas basket if they didn't come through with some money.

Two days later, checks started rolling in and it turned out to be a very merry Christmas after all, but that was only one of many times when we were rich on paper, but had nothing that even vaguely interested the neighborhood grocer.

We were lucky. Only a few jobs turned out to be busts financially. And it turned out that they were the first jobs I got when I went out on my own.

The companies that will be most anxious to hire you when you are getting started will be new startups themselves. They are the most anxious, because the established consultants know better than to deal with them.

New startups have one basic problem. Money. They have the best, most exciting ideas, and they know they will

be profitable just as soon as this new product gets out the door. They have a very short timetable, and they are "going for it." They say they'll be able to pay you just as soon as you complete the project. Don't bet on it.

A time payment plan

Successful projects tend to run about 3 times as long as planned. Unsuccessful projects tend to run on forever. So, a 2-month project will probably take 6 months (assuming it is successful) and then (assuming they have lots of spare cash and they still like you) you'll get paid 30-90 days after completion. So, instead of waiting 2 months for your first paycheck, you'll be waiting 7 to 9 months.

So, any project that you accept should include partial payments along the way. These partial payments should be keyed to biweekly or monthly mile stones and should be more than enough for you to live comfortably. If they miss a payment, you stop work. You no longer have much leverage once you have completed the project (even if you have a hard and fast contract in writing).

Startups can be very lucrative, however, if you play your cards right. By accepting less money up front (reduced payments along the way and lower total price), you can usually negotiate for royalties on the product. If the product does very well, you do very well (but be sure you can eat in the meantime).

In conclusion

Consulting can be very interesting and very profitable. On the other hand, you can wind up being little more than a glorified employee with no benefits, no security, and no assurance of payment if things get tight.

Fair warning: MacDonald's likes cash. □

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ILLUSTRATION BY J. A. CARROLL

C O M M E N T

Adventures in computing

A game that's pure fantasy fun also lets you explore the valuable treasures of the trade.

by Walt Bilofsky

Has anyone managed to stay involved in personal computing for more than a short time without getting trapped into the game of Adventure? (If some of you haven't, cancel all your appointments for a couple weeks and order up a copy.) Adventure has captured the imagination of both computing amateurs and professionals alike, and has inspired imitation like nothing since the invention of programming.

In Adventure, you explore a cave containing treasures, obstacles, magic spells, and danger. You type commands to the computer such as "go north" and "take lamp." There are puzzles which require you to figure out the right thing to do, and then discover how to command the program to do it. The stated object is to gather all the treasures, but the player soon finds that the real reward is in exploring the cave, and acquiring the knowledge and power to roam it at will.

But it's not just a game. To make my point, I'll ask you to read the following statement:

It's frustrating. If you don't type exactly the right thing, it won't do anything. Or it does something else and gets you completely confused.

The instructions don't give you nearly enough information; you have to keep trying things, one after the other, until you hit on the right commands.

After a while, though, you get the feel of what it's expecting from you. You develop an instinct, so that when you get into an area you've never explored before, or even start using other, similar programs, you can quickly begin doing things.

And it's rewarding. Sure, when you type a wrong command, it says something dumb, sarcastic, or incomprehensible. But when you get past the obstacles and can go where you want, do what you want, there's a great feeling of accomplishment and power.

Is that a statement about Adventure? Sure sounds like it. But read it again, thinking not only about the game, but also about learning to use CP/M, BASIC, word processing, a general ledger package, or any other operating system and programs you have on your computer.

In a review for the Houston Users' Group newsletter, *SCALL*, C.E. Moore wrote: "I find a definite correlation between the CP/M manual

and the game Adventure."

Sure, he was criticizing the manual. But playing Adventure gave him confidence that the manual could be deciphered, and some instinct for how to go about it.

Adventure comes on like a game, but it teaches you how to deal with computers and programs in general. As you play, by trial and error, you learn the unwritten rules:

1. The instructions don't always help—or tell the truth—or describe all the features.
2. When stuck, it's generally useful to try anything you can think of. Don't sit there and wonder; try it.
3. It helps to search for clues, and to pay careful attention to exactly what you see happening.
4. You can and should save what you're working on before you try potentially destructive experiments.
5. When all else fails, it helps to sleep on the problem.

These rules can be valuable not only in computer games, but also in dealing with many an unfamiliar software package or programming situation.

Adventure was always grounded
(Continued)

Who needs a mainframe?

At the University of Washington, scholars are using Kaypros to revolutionize the humanities.

by Schuyler Ingle

Leroy Searle may have something of the visionary in him. He certainly has the look: high, domed forehead; swept back hair; a handsome, literate beard; and two brown eyes as evenly balanced and aligned as the disk drives on his Kaypro II. Clear eyes. They shine when he speaks, particularly when the subject is computers.

Searle is associate chairman of the English department in the College of Arts and Sciences at the University of Washington, Seattle. His specialty is twentieth century literature and literary critical theory. That and computers. Searle used his recent sabbatical year to study computers, building two in the process. "I did it," he says in his quiet, precise way, "partly because computers made me incredibly nervous. Here's something on the order of the invention of print, and I didn't

know anything about it. Fourteen-year old kids knew more about it." The fruits of Searle's inquiry include an innovative computer center for arts and humanities just now developing at the university, which views it as a prototype program.

Computing needs vs. the budget

Like many state schools in the nation, the University of Washington is facing two issues at once: computer literacy with computer access as a part of modern academic life, and an empty purse. The University agreed with their regional accreditation board that computing will be one of the main issues of the next decade and something to concentrate on now.

"That seemed to me both a very smart and very complicated choice," Searle says. "If you start with a university as big (over 30,000 students) and as important to the region as this one, and take away its funding, and then commit it to an incredibly expensive technology, how are you going to do it?"

There are universities, MIT say, or Carnegie-Mellon, where students in their freshman year buy their own computers from the school. They pay them off over the four-year stretch. The university supplies the faculty

with terminals and the entire campus is wired into the university computer system.

"A lot of state campuses have taken this route," Searle says. "At the University of Toledo, all computing is centrally provided using several IBM mainframes. All the departments, as well as many of the faculty offices, are connected. The University of Iowa has a central facility with terminals installed.

"In a somewhat crotchety way," Searle admits, "I looked at this and thought, 'They have blundered badly. They are going to regret this because that's not what's happening.' Those systems aren't flexible."

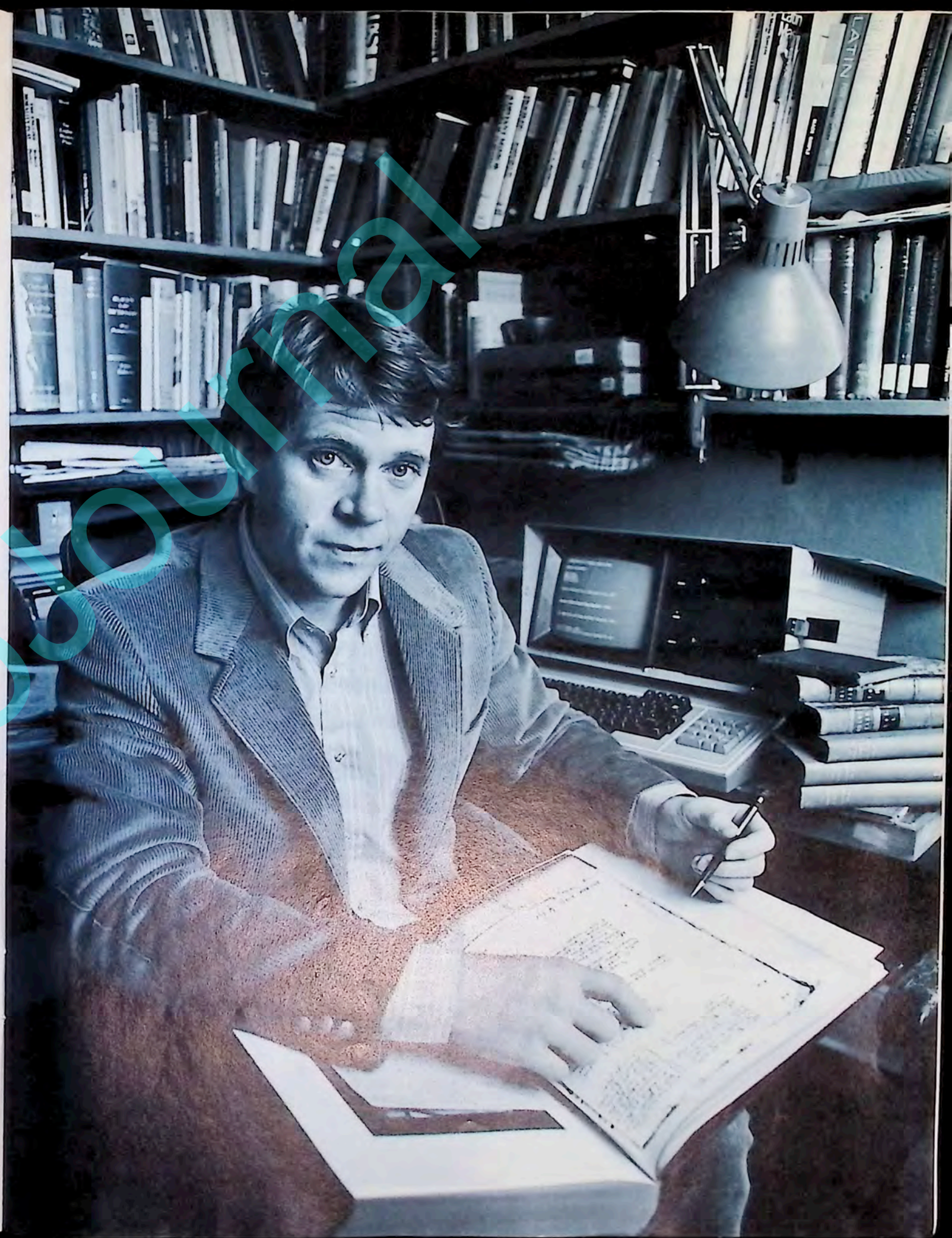
Searle feels the microcomputer is important because it gives the academic more control over his work. It is immediate and direct: no walking halfway across campus, no waiting for someone else to get off the system. "If you want to work at 3 a.m.," Searle says, "that's fine. If you want to work at 11 a.m., that's fine too."

In the beginning

Searle returned from his sabbatical and installed one of his home-built computers in the English department

(Continued)

(OPPOSITE PAGE) One example of the new alliance between the humanities and microcomputers is John Coldewey, editor of the Modern Language Quarterly. Coldewey's interest in bibliographies and other records led him to set up a bulletin board system for fellow researchers. "The data base implications for English scholars are tremendous."



MAINFRAME

(Continued)

office, swearing he would never use a typewriter again if he didn't have to. There was enough interest among his colleagues that, last fall, he sent out a questionnaire concerning computers. Six already had computers. A dozen or so department members wanted computers for specific projects, and another 20 or so were interested in getting computers.

That's where the Kaypros come into the story. "I discussed all this with my colleagues," Searle says, "to see if there was enough interest to look around town for a group purchase. This happened to coincide with the opening of a new dealer, Anchor Computer Systems, in Seattle." Searle, with his self-taught background, had already done an analysis of other systems (Eagle, Apple, Osborne, Tele-Video and TRS-80 among them) based on price, ease of use, and a broad range of compatibility. He set-

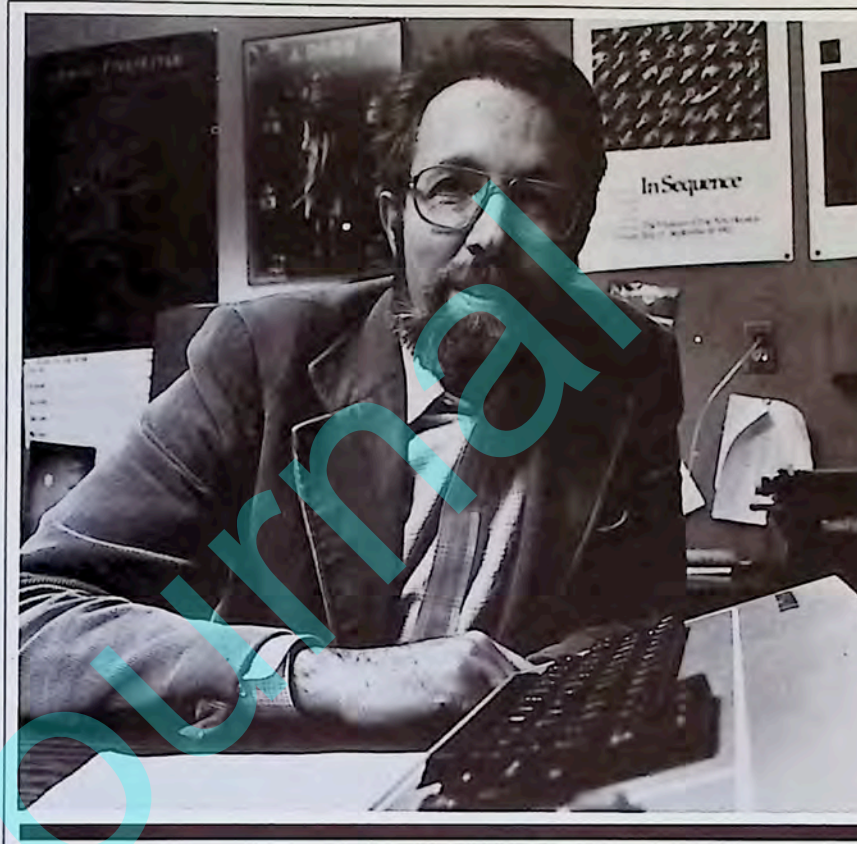
tled on the Kaypro II (the Kaypro 4 was not then available) because of its high quality of design and construction, its wide range of software, and the service support likely to come from the dealer. Portability, of course, allowed the faculty member to use his computer at home, at the office, and at scholarly meetings. Searle negotiated a group purchase with the dealer, expecting five or so individuals to invest in Kaypro IIs. "Well, in the English department there are now 12 Kaypros," Searle points out. "More all the time. In Speech Communications, Romance Languages, History, Anthropology, Sociology—it spread though the whole humanities area. I lost count after 75 machines."

A three step plan

This couldn't have happened without a great deal of departmental planning. The issue was how the university could best support privately-owned equipment to arrive at a common goal. Searle envisions a three-phase program to develop a pluralistic com-

puter system with privately-owned and university equipment in the same context. The first phase was to get the individual equipment purchases started while backing that up from the university side with a letter-quality printer and one Kaypro II in the English office. Communications were established with the computer in the office of the Dean of Arts and Sciences (primarily for administrative purposes), as well as with the two university computers in the medical school and the Academic Computing Center.

Sarah Van Den Berg, a Milton specialist, explains it this way: "We invested our own money in transportable computers. We can bring in the work we do at home and have the department run it off so that it is manuscript-ready for journal publication. The secretarial staff is now trained in Kaypros. Since we are configured with the computer in the dean's office as well as the two large academic computers, my basement office at home is, in effect, a trunkline on a railroad that feeds all the way up to the biggest computer in the university."



"The game is up for the scientists dominating computers."

Leroy Searle, Associate Chairman of the English department at the University of Washington, Seattle, is the man who started it all. After investigating micros during his sabbatical, he looked into fixing up a few friends with Kaypros. "I lost count after 75 machines."

The second phase is to establish a hub system of local area networks in the various humanities departments. These networks would in turn be connected to the Humanities and Arts Computer Center, a facility funded by the college but not yet in place. The center would be there for bigger services. Those services would include providing communications to other university computer systems, and support for specialized projects. These would be productive projects, like the scheduled printing of a never-before-published manuscript of John of Trevisa (1326-1402), put together by department medievalist Dave Fowler; or developmental projects to write

software more in tune with the needs of the working academic.

Searle figured it would take three years to proceed from phase one to phase three, starting last fall with the first individual purchases. He now figures the department is one full year ahead of schedule. But there are tremendous difficulties yet to be resolved.

The problem of compatibility

One such difficulty is making sure all the computers can communicate easily. Kaypros, after all, are not the only computers you would expect to see on campus.

"It couldn't be the English department acting unilaterally," Searle says. "It's less that everyone should buy a Kaypro than it is that everyone should buy machines where compatibility is not an insuperable problem. If you can get around that, you can do some really interesting things."

At some point, as one professor indicated, the university has to come out with a policy on what systems it will and will not, support. The history department, as an example, has several Kaypro users, one Eagle, one Osborne owner, and a Burroughs-dedicated word processor in the office. "The compatibility problem is enormous," Searle points out, "and will only be resolved through a combination of hard negotiation and jungle evolution. Our planning for the center has been pluralistic from the start, providing support for a number of systems." He predicts that the standard 8-bit system that runs CP/M will always be part of the landscape, but that the next major support decision will be on the IBM PC. While the PC is too expensive for most professors to acquire on their own, Searle suggests it is folly, from the institutional point of view, not to support it.

Mouth-watering possibilities

But what do these humanists do with their machines? Primarily word processing. "Once you get a publishing hungry environment like an English department to the point of understanding what this all implies," Searle says, his eyes shining, "the game is up for the scientists dominating computers. They have seen nothing in terms of the demands for computing. We're going to make them look sick."

John Coldewey, editor of the *Modern Language Quarterly*, saw the tell-tale signs of word processing: upwards of a 60% increase in manuscripts being submitted by scholars from the U.S., Canada, and England. "I watched that," Coldewey says, "and I knew there was a micro in my future." He has since computerized the MLQ office with two Kaypros and an S-100 system that communicates with the Locke Computer Center on campus. "I have set up a bulletin board," Coldewey explains, "so scholars can modem in text and I can produce hard copy if they want it, edit them, shoot them over to Locke, to the print plant, and into type. The author acts as his own typesetter."

"As writers and scholars," Coldewey (continued on page 86)



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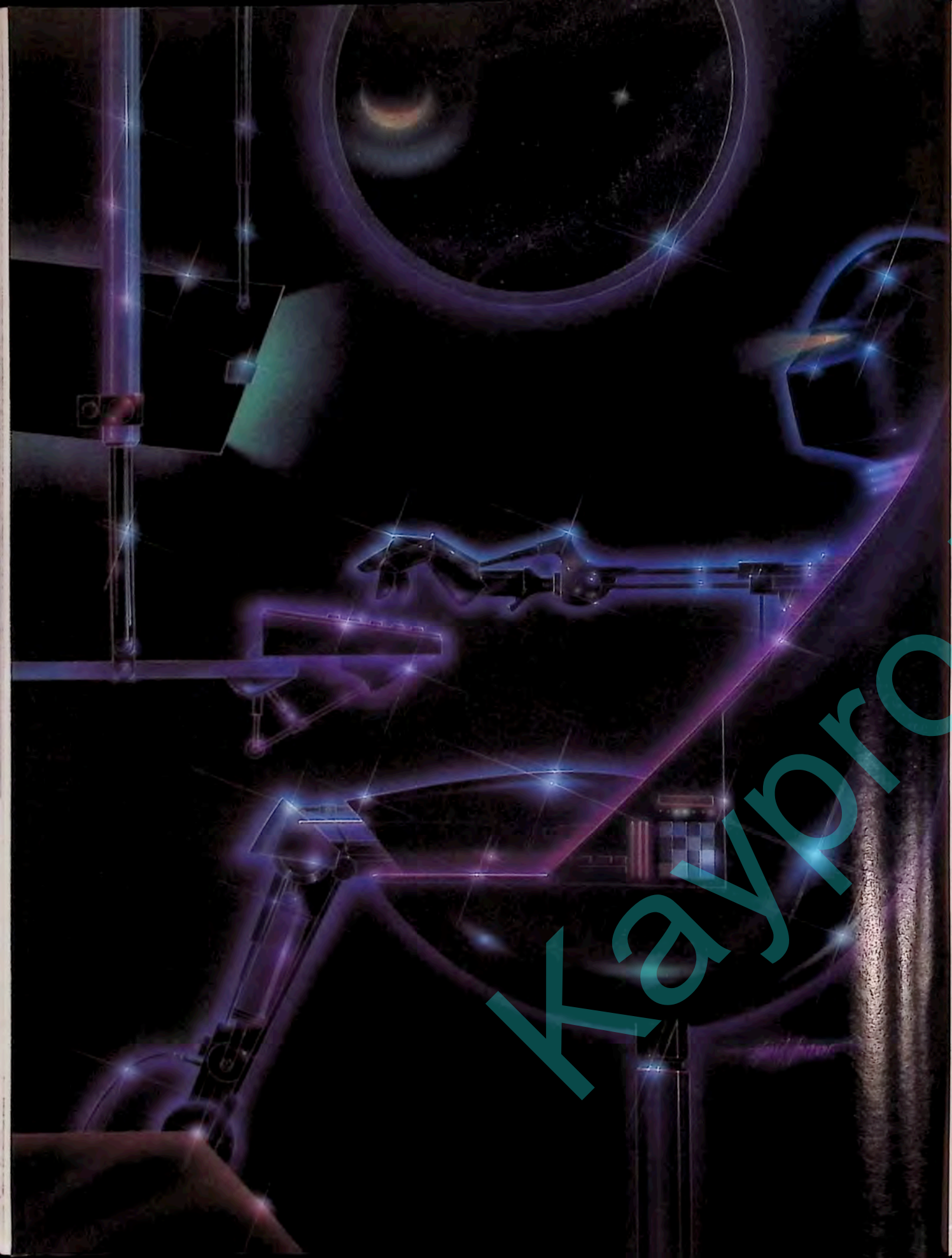
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Designing your workspace

Advice on what you'll need, how to get organized and ways to avoid disaster

by Susan Hyman

You've probably been amazed at what you and your new Kaypro have accomplished together. You've done such feats as finishing two chapters of your novel, filing your massive stamp collection, and organizing your bookkeeping, among other tasks. Things are running so smoothly for you, it feels like nothing could go wrong.

One day, however, your bliss may be thwarted. Your neck will begin to ache after a long session in front of the screen. Then, you'll run out of ribbon while printing a ten-page manuscript and will realize you don't have another ribbon on hand. You'll stand up to take a break and trip over an inconveniently-placed extension cord. And to top it all off, you'll walk to the kitchen and discover the five disks containing last week's hard work are withering slowly in the sun. (And, of course, you forgot to back them up.)

Sound too awful to be true? Unfortunately, many users do experience these types of situations. Take heart, however, there are ways to avoid these crises. Planning your com-

puter workstation carefully may prevent these painful scenarios.

Furniture

Many companies specialize in furniture designed specifically for computers. The problem is that there are so many computers with differing space needs that furniture manufacturers can't possibly accommodate them all. If you have the time and the money to search for the perfect desk and chair, do it. However, if you don't, here are some suggestions.

A workstation arrangement that works well is a regular desk and a smaller table put together in an L-shape. The printer sits on the side table next to the computer. This set-up leaves desk space for other tasks and allows easy access to the printer. Some people put their computers and printers on a separate table behind their desk, with room between to turn around. Although satisfactory for certain people, the combination doesn't leave much space to the side of the computer. For those who like to spread out their notes before them

when working on the terminal, this approach doesn't cut the mustard.

Stacking the printer on top of the computer can be done if you don't have another table, but it's inconvenient for loading paper and you can't tilt the screen for viewing.

The proper chair is the single most important furniture selection you will make. A good chair will provide both firm support and freedom of movement; a poor selection will result in back aches and loss of productivity. An adjustable, firm back support is essential. Make sure you're comfortable in the chair for the amount of time you'll be using it.

A chair that adjusts in height is especially desirable. It can be set at the right height for any person to allow maximum comfort when using the system. Ideally, the monitor should be at eye level so the head doesn't tilt. The keyboard should sit at comfortable typing height (about 26 to 27 inches off the ground). Adjustable chairs can make life easier when two or more people use the workstation at

(Continued)

The proper chair is the single most important furniture selection you will make.

different times during the day.

Computer stands can also increase user comfort. There are many on the market for Kaypros and what's best depends on personal preference. The cost starts at \$45. It's a good idea to try them out at a dealership before buying them.

Lighting and glare

The National Research Council of the National Academy of Sciences released a study this July stating that there is no danger of radiation from video display terminals. Most of the eye discomfort from prolonged VDT use was attributed to workstation design, which includes lighting and glare.

Glare comes from windows or interior lights shining into the screen. Moving the computer to a position where the monitor isn't facing the window or putting up proper window covering can often be the solution for sunlight problems. Experiment with interior lighting to get the best placement to avoid glare.

A special problem can occur when entering data from written documents. Sometimes there's too much contrast between a bright page on a desk and a dim monitor, causing the eyes to read just continually. Adjusting the brightness control on the monitor or changing the room lighting, or both, may be necessary.

If lighting adjustments don't help, you can try an anti-glare screen attachment that several companies manufacture for the Kaypro II and 4. (The Kaypro 10 has a special, non-glare screen as a standard feature.) The screens fit into the bezel around the Kaypro's display. They reduce glare and provide a darker background so characters are easier to read.

Two companies that sell these screens are Screen Data Corp., 24 Cedar Knolls Rd., Cedar Knolls, NJ

07927, \$34.95, and Advent Products Inc., 965 N. Main St., Orange, CA 92667, \$37.95. Both provide money back guarantees.

Printers and paper storage

When finding a place for your printer, make sure you have enough room in the back so you can load and unload paper easily. Avoid putting your printer up against the wall for this reason.

If you buy a printer that vibrates excessively when in use, place it on a desk or table that's sturdy and make sure there's a desk pad or other padding underneath. Printers can be placed in specially-designed large clear acrylic boxes that muffle printer noise; however, these noise covers start at \$200.

Having plenty of extra printer paper around is always a good idea. Single sheet paper can be kept in a nearby drawer or shelf. Tractor feed paper takes up a bit more room; the easiest method is to leave it in its box on the floor under the printer table. Some stands don't leave enough room underneath for a whole box, so you'll be forced to use a part of it at a time. The wooden or wire bins that hook to the back of tractor feed printers (about \$30) are nice if you don't want to let the paper drop on the floor or stand there holding it.

Filing and storing disks

How you keep track of disks is a matter of taste; the most common method is the use of plastic file boxes with upright dividers, which cost between \$30 and \$40. These enable you to file by category, such as programs, correspondence, and the ever-popular miscellaneous.

The plastic library cases, although many people won't touch them, can be used for keeping disks not used often, and transportation. However, it's not as easy to find a disk quickly with

them as with the file boxes.

A written directory of what's on each disk may be necessary in large corporations and for individuals who have large amounts of data. Looseleaf sheets with slots to hold disks attached are useful for this purpose. The cost, with a three-ring binder, is about \$10. Sometimes this procedure can be more hassle than help; evaluate your needs carefully before trying this arrangement.

There should be agreement on the filing system if two or more people will be using it. Mix-ups here may cause a person to waste valuable work time looking for a misfiled disk.

Keep disks in a safe place where there are no temperature extremes. Master disks are better off stored in a separate place, away from the computer. If a disaster does occur, you can limit the damage to the working copies of your diskettes. Some people even put their master diskettes in a bank safe deposit box. Businesses with large accounting systems especially should have off-site diskette storage. It's usually cheaper to replace your Kaypro than, say, all your payroll records.

Electrical outlets and cables

Remember that you'll need at least two grounded (three-prong) power sockets: one for your Kaypro, one for your printer. Adapters for two-prong outlets can provide as many grounded three-prong outlets as you need. Avoid using an already heavily-loaded outlet, such as the one powering a refrigerator or heater. If you need an extension cord, buy a heavy-duty one.

The type of printer cable you need will either be an RS-232 serial or a Centronics-type parallel, depending on your printer. (The pin connections of the RS-232 cable may have to be changed, depending on the make and model of your printer.—Ed.) Cables are available in various lengths; however, those longer than about 20 feet may create problems. Prices range from \$16 to \$35.

If you want to use a modem, you'll need a standard RS-232 cable for that also. Note that only the Kaypro 10 will allow connecting both a serial printer and a modem at the same time. If you have a Kaypro II or 4, you may have to

get a box that either expands the number of serial ports or allows you to switch between the two serial devices. The cost is between \$60 and \$300.

Documentation

Your manuals should be close by until you're comfortable with the material. Even when you've passed the stage of using them daily, all should be readily accessible.

Temperature

Rodney Zaks in his book, *Don't (Or How To Care For Your Computer)*, recommends a workstation temperature of between 60 and 80 degrees, with a humidity of 50% or higher. However, it's easier to follow this simple rule: if you're comfortable, the computer will be.

Be wary of the sun beating down on machines and don't locate your workstation near a heater. Storing disks in hot closets is another big risk. Remember that disk sleeves will stick permanently to disks if left in the sun.

However you set up your workspace, leave the holes on the bottom and sides of the computer enough room for ventilation.

Special hazards

Make sure electrical cords and cables are not hanging in a place where people can trip over them. (Especially yourself!)

Some pets may behave in your workspace, but if you're not sure, don't take the chance with sharp claws, teeth, and flying fur. A computer makes an expensive doggy bone.

Small children will probably be fascinated with all those wonderful buttons, knobs and lights—supervise carefully.

Keep track of important items. One Kaypro dealer reports that a user called up once, desperate about her machine not working. It turns out she was missing the coiled cord for the keyboard, which, after a frantic search, was discovered in her husband's coat pocket.

Other useful items and hints

Buying extra of certain items is vital. Here's what to include in this list: printer paper, ribbons, diskettes, and

labels. Remember that regular file folder labels work as well or better than those specially designed for diskettes.

A power back-up system is useful preparation for power failures. Whether you need it depends upon the importance of your data, and the limits of your pocketbook. (An uninterruptible power supply can protect your system from blackouts and brownouts, but the prices start at \$200.) It may be easier and more effective to simply make back-up copies of your disks.

You may need protection from other power line problems also. Short spurts of too much electrical voltage, called spikes and surges, can garble your Kaypro's data, and do other damage. To safeguard against these nuisances, surge suppressors that plug into a Kaypro's power cord are available for \$20 to \$100.

A dust cover (about \$14 to \$30) and cloth are a good addition to a workspace, especially if you live in an area where dust or other debris is a problem.

An upright copy holder is a dream come true for most computer users who do massive data entry, like secretaries. It lets the user keep his or her head upright when typing, which reduces neck strain. They cost somewhere around \$20.

As mentioned in a previous issue of Pro/Files (September/October), cleaning disk drives is important—keep a cleaning kit close by.

Finally, save boxes and shipping materials. You may need something in which to pack the equipment if you move to another location or if you need to return it for repair.

Designing your computer workstation is like setting up house in a new city. Both involve planning, hard work and your own personal taste. However, most people have had more experience with moving their belongings than planning their computer workspaces. Like learning any new skill, it takes time to become an expert. And remember to back up those disks, okay? □

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An introduction to telecomputing

*Lost in the buzzword jungle?
Here's a short primer on modems
and serial communication
to help out*

by Gordon Lewis

One of the first peripherals you'll add to your computer (if you haven't already) is a modem. And for good reason. With the addition of a modem and the proper software, your Kaypro can access an awesome amount of information and computing power. Granted, the required hardware, software and terminology may seem intimidating. Like most computer applications, however, telecomputing is remarkably easy once you get past the rituals of installation and those tentative first steps. With that in mind, let's look at some of the basic information you'll need to get up and running.

Please bear in mind that sticking to basics requires subjective judgements about what's important and what isn't. Sooner or later, as you get more involved in telecomputing, every bit of information will be valuable in one way or another. My bias will be toward providing operational detail rather than a complete explanation of how and why the systems work. I've also slanted this information to apply to affordably-priced microcomputers and communications accessories in

general and the Kaypro in particular. If you'd like in-depth information, you should by all means refer to one of the books listed at the end of this article.

Information access

Let's begin with a short definition of telecomputing: the transfer of information between two or more computers, using the telephone network as the medium of communication instead of direct cable connection. Several obvious and immediate benefits come to mind. First, telecomputing allows you to communicate over great distances and to any location that has a telephone hookup. Second, these communications can be "real time" (meaning "right now") or can be stored for later access and retrieval. This is an extremely important benefit, since it allows either end of the link to communicate at any time.

Telecomputing allows you convenient access to all sorts of information resources. You can investigate areas as serious as medical research and government statistics, check airline sched-

ules as well as national news services, and keep up with the stock market—without having to leave your home or office. Unfortunately, some people use this ability to gain unauthorized and illegal access to information and computer systems that they don't have permission to use. If you have fantasies of acting out your own "WarGames" scenarios you would be well advised to retain the services of a good lawyer and have plenty of bail money.

Transferring information

File transfers are another very common application. The most common type of file is your ordinary, run-of-the-mill text file, which consists of characters encoded in ASCII (American Standard Code for Information Interchange). Virtually every commercial program allows the transfer of ASCII files, but with the right software you can transfer practically any type of file. The possible uses include uploading and downloading of data files, command files, and programs.

An increasingly popular application
(Continued on page 49)

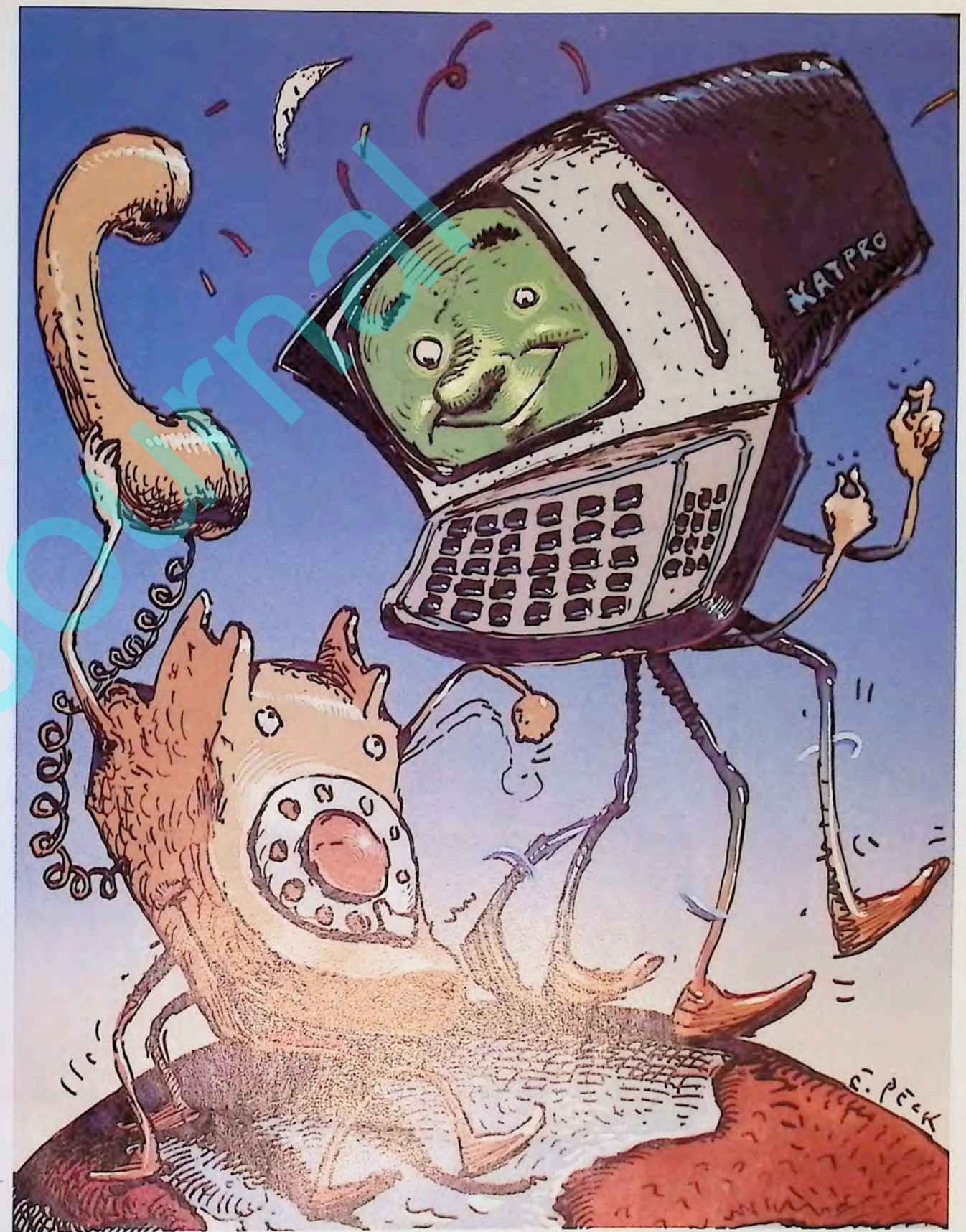


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TELECOMPUTING

(Continued)

of this capability is computer-automated typesetting. The words in a text file can be transferred directly to the floppy disks used by computerized typesetting machines. By adding the necessary typesetting codes for type size, font, and line spacing, your text is converted into final typeset copy. This saves time and money since the typesetter doesn't have to manually retype your writing. The copy is typed only once, by you. Assuming you carefully proofread the copy before transmission, there's much less chance of errors creeping into the final output this way.

Work and play

Telecomputing can be done everywhere you happen to have the necessary hardware and software: the comfort of home, a hotel room, or your office. This allows you the freedom to work at home or on the road. The "main office" can be in a distant city, yet you can transmit and receive information any time you like. With the proper software, you can also store the information you receive onto floppy disk. Information or bulletins you send can also be saved on the other end. Sophisticated modems and communications software provide deluxe features such as automatic answering of incoming calls and automatic dialing of previously stored numbers.

Finally, looking at the subject from a less utilitarian standpoint, telecomputing can be a relaxing pastime or even, if you'll pardon the expression, fun. If your private passion is gourmet cooking, photography, sports, mystery novels, or even playing with computers, you can find dozens of fellow enthusiasts to communicate with. Special interest computer bulletin boards are available that are devoted to that specific purpose. You can also play games via modem. You can either pit yourself against a computer or against

a crafty human opponent.

The above benefits and possibilities are only those that exist today. As software, hardware, and the telephone system improve, you'll be able to do much more at less cost, with smaller, more powerful equipment. An excellent example is home banking. Imagine the advantages of being able to use your Kaypro to pay bills, make deposits and withdrawals, and keep-up-to-the-minute track of account activity, all without having to stand in line or endure unsympathetic tellers.

Getting started

Let's return to the here and now. The Kaypro is fully capable of handling any telecomputing use you have in mind. It's compatible with practically any modem currently available and

there are dozens of CP/M-based communications programs to choose from. In fact, part of the software bundled with the Kaypro 10 is Suprterm, a highly versatile "smart" terminal program.

Before you can make any intelligent choices however, you have to understand the specifications—particularly in terms of hook-up and everyday operation. It's also helpful to know how the process works, but not essential.

Serial data and the SIO

The most primary concept to understand is that, as far as telecomputing is concerned, information is transmitted and received serially. What this means is that the eight bits in a byte (what computers recognize as a single character) are sent one by one.

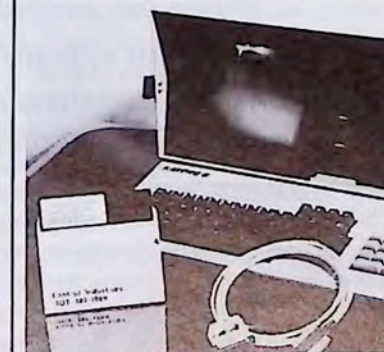
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TELECOMPUTING

(Continued)

acter) must travel one after the other rather than in parallel. There are many reasons for this, the most important being that the telephone system simply isn't a wide enough pathway. Parallel communications require at least eight wires (one per bit) and the telephone system provides only two.

A special integrated circuit (all Kaypros use the Z80 SIO—Serial Input-Output Controller) converts bytes from the parallel stream used within the computer, to a serial stream which is better suited to long-distance communications. This stream of bits doesn't just spill forth haphazardly. Both ends of the link must have some agreed upon method for determining where one character ends and the next begins. The Z80 SIO therefore adds a "start" bit to mark the beginning of a character, and a "stop" bit to mark the end. This method of separating data characters is referred to as asynchronous communications.

Nuts, bolts, and RS-232

On the Kaypro, the point of input and output for this serial data stream is the RS-232-C standard port. Note that the term RS-232-C defines the electrical signal standards used by the serial port, not the physical connector itself. The standard 25-pin connector used on the Kaypro is properly referred to as a DB-25 connector. You're no doubt using it as a serial printer port. If you want to connect a modem, you'll have to disconnect your printer.

(The Electronic Industries Association has a number of standards that are referred to by number and revision. Thus you have Recommended Standard number 232 which is currently at the "C" revision level. For most applications, you can forget the revision letter and simply talk about "RS-232" without fear of being misunderstood. —Ed.)

Make sure that whatever modem you buy includes a cable with a male DB-25 connector. The connector may

have as few as three or as many as 25 pins. It must have a minimum of three pins: one for transmitting, one for receiving, and one for the signal ground. Any other pins are used for other control and signalling functions. Make sure the cable is wired so that your Kaypro (which is wired as Data Terminal Equipment, or DTE) sees the modem as Data Communications Equipment (DCE). This means that pin 2 on both connectors is used to transmit data from the computer to the modem and pin 3 is used to transmit data from the modem to the computer. Pin 7 is always used for the signal ground.

From logic levels to tones

Moving from the computer through the cable we get to the modem itself. The word modem is a combination of the words MODulator-DEModulator, which is exactly what a modem does. Telephones can only transmit and receive sound. Computers only understand direct current voltage pulses.

Acoustically coupled modems have foam rubber cups designed to fit a "standard" telephone handset. The two advantages to this type of modem are its low cost and compatibility with older, non-modular telephones. There are two disadvantages: whatever telephone you use must have a standard desk phone headset. Your favorite Mickey Mouse telephone simply won't do. Second, acoustically coupled modems are vulnerable to outside noise. Any noise louder than the volume of the tones coming through the handset will cause data errors.

The speeds of sound

There are two standard ways of specifying the transmission speed of a modem: baud rate and bits-per-second. Baud is a measure of how many signal transitions are transmitted per second. Bits-per-second (bps) is a measure of how many actual units of information (digital zeros or ones) are transmitted. Technically, the two terms aren't the same, but in most

*When the integrity of the data is vital,
the least expensive and most reliable
way of transferring data and programs
is through the U.S. Mail.*

The modem serves the necessary purpose of modulating outgoing voltage pulses into alternating tone frequencies acceptable to the telephone system while also demodulating incoming tones into the voltage pulses acceptable to the computer.

Modems are most broadly classified by their operating speed and how they connect to the telephone system. Looking first at the method of connection, a modem can either be directly or acoustically coupled to the phone line. Direct-connection modems are designed to be compatible with telephones having modular phone jacks. You use standard telephone cords to connect your telephone to the modem and the modem to the telephone wall outlet. (Some direct-connection modems must be connected between the telephone body and the handset.)

cases they can be used interchangeably.

Modems are available in speeds ranging from 110 to over 9600 baud. The lowest speed, 110 baud, is used almost exclusively for transmissions to older equipment. The higher speeds, 2400 and 9600 baud, cost as much or more than your Kaypro and require special data transmission lines. Low-to-medium speed 300 to 1200 baud modems are therefore the most popular choices. For most purposes, 300 baud modems offer the best value. They are relatively inexpensive (less than \$350), and they place only moderate demands on the telephone system (which means fewer transmission errors). Subscription information services charge less for 300 baud communications.

On the other hand, if you must

often transfer large files, it may be worth the expense (\$500 or more) of buying a 1200 baud modem. Its four-times faster transmission speed can greatly shorten the amount of time your phone line and computer are tied up. You will inevitably have more transmission errors, but if they become a serious problem you can usually switch the modem down to 300 baud. (This obviously depends on the brand of modem you buy.) Also bear in mind that for critical data transfers, the least expensive and most reliable way of transmitting data and programs is through the U.S. Mail.

You'll often see 300 baud modems referred to as Bell 103 compatible while 1200 baud modems are called Bell 212 compatible. These are Bell Telephone Laboratory standards for tone signaling. Bell 103 compatible modems use two frequencies to represent zeros and ones. The modem that originates the transmission uses 225/hz to represent "1" and 2025/hz to represent "0." The answering modem uses 1270/hz to represent 1 and 1070/hz to represent 0. Bell 212 modems use phase-shifting to represent 1 and 0. The transmission frequency stays the same but the phasing of the signal is changed. A 180 degree shift equals "0." No shift equals "1." Phase-shifting requires much more sophisticated circuitry, hence the additional expense of 1200 baud modems.

Some low cost modems are originate-only, meaning they are only capable of transmitting data. Others are answer-only; they can only receive data. Originate/answer modems can do both. They are obviously the better choice for general use. Some originate/answer modems require you to manually switch from one mode to the other; others do this automatically.

Make sure that whatever modem you get is full-duplex—that is, capable of receiving and transmitting data simultaneously. Half-duplex modems must be electronically switched from

one mode to the other. This requires a protocol that few computer bulletin boards and information utilities support.

Are you still with me?

Good. You can breathe a sigh of relief. You've made it through the most heavy-duty telecommunications jargon. The rest is practically self-explanatory.

You'll need one more item to make the system complete: intelligence. No, not your intelligence; I mean programmed intelligence in the form of firmware (a smart modem) or software (a smart terminal program). Let's put aside the issue of where the intelligence resides and instead concentrate on what it can do for you. At its most basic level, a terminal emulation program will allow your computer to perform basic terminal functions. It will allow you to call to, or answer a call from, a remote computer. You'll be able to read whatever characters are on your screen and scroll forward and backward within the text. You can also type characters onto your screen and have them simultaneously transmitted to a remote computer.

A terminal emulation program also controls the various communications protocols required by different services and remote computers. There is no one standard for microcomputer telecommunications, there are many. They exist not out of any perversity on the part of computer and telephone industry conspirators, but because there is such a wide variety of equipment users to be accommodated. The better terminal emulation programs simplify all this by storing different protocols and sign-on procedures on disk. You can summon whatever you need with just a few keystrokes instead of having to make manual changes.

Using that intelligence

These features, although essential,

aren't very exciting. The real fun begins when the hardware or software makes increasing use of your Kaypro's computing and controlling power. For example, why not have the computer dial the telephone? It can dial a lot faster than you can, and if it has the right telephone number to begin with, it's also a lot more accurate. With the right modem or terminal program you can do not only that, you can store a directory of your most frequently called numbers and dial any one of them with just one or two keystrokes. If the line is busy or if you are accidentally disconnected, some programs even offer automatic redialing.

Auto-answer is another feature worth having. You can leave the computer unattended and it will answer incoming calls from other computers while you're away. It won't, however, tell your creditors that "the check is in the mail." Note that any auto-answer feature should also include auto-disconnect. You don't want your computer to stay on the line after the remote computer has hung up.

One other feature you'll find indispensable is the ability to upload disks. Uploading is when you send a file; downloading is when you receive a file. This file can either be text or a program, although with programs you are limited to using only those that are truly compatible with your hardware, disk operating system, and language interpreter.

We're now back full-circle to where we began: possibilities. The pieces of hardware—such as your Kaypro, a telephone, and a modem—are simply tools. Software provides you with a convenient and sophisticated means of controlling these tools. You, however, provide that most essential ingredient: a purpose. The possibilities are endless, yet it is you who determines whether a modem is a necessity or just another piece of hardware. □

What the #@!* is an RBBS?

*Once you've got the modem and
the software, who do you call?*

by Tom Enright

An interesting side effect of the personal computer revolution has been the development of what are known as BBS and RCPM systems; computers set up to act as public bulletin boards and software exchanges. Computer bulletin boards serve the same purpose as the ones down at the local A & P and at the office—they're places to put notices of interest to anyone reading them. In most cases, such systems represent genuine philanthropy on the part of the hobbyists who run them. System operators ("SYSOPs") contribute computer time, equipment, and software, usually with no financial compensation.

Since these systems are operated as a public service to computer enthusiasts, there is no charge to you for using them. The only thing to pay is the telephone bill.

Electronic mail

A BBS, or Bulletin Board System, carries announcements. It's really just a computerized mail drop; callers can post messages to other individual users or to everyone.

BBS software is designed to deal with many different operating systems since there's no knowing what sort of computer an individual caller may be using. In order to cope, some type of common ground is needed. That common ground is ASCII, the "American

Standard Code for Information Interchange." ASCII is a code used by virtually all popular computers to represent printable characters. Disk files containing only printable characters are called ASCII files. All notices, mail, and other text files on bulletin board systems are ASCII files so you can read them even if your computer is named after a fruit or a vegetable.

With the rapid growth of personal computing in the past few years, bulletin boards have sprung up all over the place. Every major population center has a batch of them, and you'll be surprised at what constitutes a "major" center. Though most BBS systems are general-purpose message centers, quite a few of the newer ones are devoted to specific topics of interest—hardware (usually particular brands of computers), software (dBase II and the C language are examples), and even computer dating. Often, a computer dealer will run a system as a community service (who else would have hardware lying around unused?), and, surprisingly, there is rarely any abuse of the opportunity to promote products for sale.

At best, though, BBS systems are semi-private. Even if you're required to use a password, and callers must provide one to read your message, the SYSOP still will have access to all communications. (This is necessary in order to determine whether any mail might put the system in the position of

aiding an illegal operation, or of violating any of several laws pertinent to use of the telephone.)

Software exchanges

The RCPM ("Remote CP/M") is a different breed of system. Though many RCPMs have an area devoted to messages, their primary purpose is the exchange of public domain software. Once you have gone through the sign-on ritual, you'll find yourself in a CP/M environment; that is, you'll be operating the other computer, nosing around its directory and seeing what's on file that you'd like to have.

Some people donate programs because they are tired of finding advertising copy that is better written than the software they buy. This is the method they have chosen to fight back. Others develop small utility programs and get real satisfaction out of giving them away to those who appreciate the effort required to write them. Another reason is that when these people were just starting out with computers, someone was kind enough to help them. Helping the next newcomer is a nice way to say thanks to the people who have helped you. Many of the programs are really quite good, and won't eat your favorite disk for lunch.

Though much of the software is "generic" CP/M stuff, many remote systems feature sections devoted to

specific computers.

Gaining access

By this time you're probably thinking "Enough already, how do I find one of these bloody things?" Outfits like the Source, CompuServe, Dow Jones, and other large private information brokers can do their own advertising. The smaller, free systems depend on word-of-mouth and newsletters to make their presence known. Your local users' group or computer club is the best place to find out. Who knows—they may even operate one themselves. If there isn't a club near you, ask your dealer.

After you've bought a modem, you still have to get your hot little hands on some communications software, commonly called a "modem program". If there's a Kaypro users' group near you, get a copy of a public domain telecommunications program from them. They can usually supply it for less than five dollars (The reason for getting it from a Kaypro users' group is that it should be already installed for your Kaypro.). If you can use CP/M, you should be able to use any of the public domain modem programs. If you find that you really don't like them, you're not out that much money, and can buy something you like more at a future date. Besides,

after using one of the public domain programs, you'll be in a much better position to know what features you want, and the sales clerk won't seem so intimidating. If you must buy a modem program, be certain that it conforms to the XMODEM protocol developed by Ward Christensen. Every remote system in the country will either use or recognize this protocol. If the sales clerk doesn't know what you're talking about, go somewhere else—you're in the wrong store.

What's a protocol?

Since the original modem program, the grandfather of hobbyist telecommunications software, was written by Ward Christensen, "XMODEM protocol" and "Christensen protocol" are synonymous. A protocol is the set of rules that two computers use to talk to one another. When you mix in the telephone system, transmitting over lines designed for voices, things get a little more complicated. Pay attention the next time you're making a long distance, or even a local, telephone call. Do you hear static or someone else's voice in the background? You can mentally filter this kind of thing out because you know it doesn't pertain to your conversation. A computer can't do that. (See the previous article and the box titled "Further Reading"

for details about the Christensen protocol, and how it helps overcome reliability problems and static. —Ed.)

Before you dial up a BBS, you need to have some idea of what you're going to do. Most communications programs have two modes of operation, COMMAND and TERMINAL. In command code you're giving orders to your own system; in terminal mode the orders go to the other system. Command mode should allow you the option of saving received signals as an ASCII file, sometimes called a "terminal mode file", or in "block mode." Block mode, with error checking, corresponds to the Christensen protocol mentioned above. Terminal mode does away with some of the error checking procedures and transmits in a steady stream. Therefore, it's more likely to produce some errors in transmission—terminal mode is accurate about eighty percent of the time. For most text files, or interactive uses such as "conversing" with the other system, this is good enough. (The reliability of either mode is obviously dependent on your local phone conditions.)

Now you're ready to place that all-important FIRST CALL. Fire up your trusty Kaypro and start the modem program.

Keep a log, on disk, of your first
(Continued)

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BULLETIN BOARDS

(Continued)

contact. Why? You'll want the log because no two remote systems will operate exactly the same way. Your file will keep a record of instructions on how a particular BBS or RCPM operates. Keep such a log each time you call a new system, and *bingo!*—instant User's Guide. If you call several remote systems regularly, there is no way you can remember all the commands for each one. Eventually your user's guide will become almost a Bible to you.

Once in command mode, open an ASCII file called "CALL-1.LOG", or something you'll remember. Then go into terminal mode and dial the number. If you have an auto-dial modem, great—it's a lot simpler that way. Otherwise you'll have to dial the phone manually, then switch on the modem at the right time. When the other computer answers, you'll hear a high-pitched tone. The other modem is asking "Who's there?" Both modems will screech at each other for a few seconds until the modems have recognized each other. Now press RETURN one or two times. That tells the other computer that you're there, and waiting to begin.

The next thing you should see is some type of greeting message on the screen. What message you will get is impossible to say; no two systems are the same, remember. Usually you'll be asked for a password, your name, or how many NULLS you need. Answer the nulls question with 0.

Just what are nulls? Nulls are "do nothing" characters, a holdover from the past when video displays didn't exist. Before CRTs made their appearance, everything was displayed on mechanical terminals like Teletypes, which required a delay in order to return the carriage at the end of each line. By sending several nulls (that the

printer would ignore), a computer could mark time until the printer or terminal was ready for another printable character. Even some of today's terminals still need nulls, they're still around. The Kaypro is fast enough not to need them at 300 baud. Occasionally you might lose characters if you are transmitting at 1200 baud, but not very often. If you do work at 1200 baud, and lose characters after a carriage return or clear screen, then specify two or three NULLS when the other system asks if you need them. Ninety-nine percent of the time you will have absolutely no use for them.

Next, if the other system uses a password system, it will tell you to use a temporary password like "Guest" or "New" the first time. Nearly all remote systems keep a file with the names of all the authorized users. When you log on to the system, it will

"?" to get to the help files. In either case be certain to read the help files as they move by on the screen. The scrolling should be slow enough, at 300 baud, to be read without any difficulty. Remember, they're being saved in an ASCII file for later reference (You did toggle in the save file feature, didn't you?).

Anyway, once you've read the help files, you can snoop around on the BBS, or disconnect and review the user's guide you have on disk. There is no way to tell you exactly what to expect on a BBS or RCPM. Each one is set up by the person or group that runs it, so each one will be different. The best advice is to read the screen prompts as you see them. They are there to tell you what to do.

It could be a good idea to watch an experienced operator work with a BBS a couple of times before trying it on

Some people donate programs because they are tired of finding advertising that is better written than the software they buy.

go away for a little while to see if you have any messages, or whether you're some clod who has been abusing the system. With any luck your password or name won't be the same as some idiot that has been declared "not wanted" on the system. Remember, humans aren't the only ones who can hang up a telephone.

After the BBS has checked you out, it will allow you into its command level. Some systems automatically squirt you to the HELP FILES if you're a first-time user. Others want you to enter a command like "H" or

your own. You might be able to lure a hacker from a users' group by agreeing to foot the phone bill for a couple of calls. This works every time, assuming that your wallet can stand the strain. No joke! Many very good RCPMs are located in-out-of-the-way places. The phone bill can reach alarming proportions in a very short time.

File transfer

When you are ready to tell a remote system to download some programs to

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Software for the asking

*Lots of programs exist in the public domain,
but there's no such thing as a free lunch.*

by Ezra Shapiro

Sooner or later, someone is going to tell you that there are tons and tons of free programs available for your Kaypro that you can acquire from users' groups and remote CP/M bulletin boards (RCPMs). And it's true—there are dozens of invaluable pieces of copyrighted software that have been contributed by their authors to the public domain, free for the taking as long as you don't intend to distribute them for profit. Quite a few of them are as good as, or better than, commercial packages that sell for substantial sums.

However, this garden of roses is not without its thorns; there's a huge amount of public domain software out there, much of it untested, poorly documented, and infested with bugs, and what you save in dollars can easily be spent in time—the time it takes to find and debug the truly useful programs. Unlike commercial software, public domain programs come with no menu-driven installation routines, no guarantees, no dealer support, and no toll-free hot lines—you're on your own.

The best place to pick up public domain software is from Kaypro users' groups (see the list towards the back of this magazine). Many groups hold copying sessions where their members

can duplicate disks from the groups' software libraries, often at no charge, and a number of the larger groups sell disks for a nominal fee, usually barely more than the price of a blank disk, packing materials, and postage. Also, a few groups are now running bulletin boards that feature software downloading by modem. You can breathe easier knowing that these programs have at least been tested on Kaypros by other Kaypro users.

If you're more adventurous (and it really is a lot like looking for buried treasure), you can wander out into the larger world of CP/M public domain programs, available from CP/M users' groups and non-Kaypro RCPMs (from which most of the Kaypro stuff was pulled to begin with). Here, there are very few road signs; most of the software was developed before there even were Kaypros. Whether a specific program will work for you is a matter of luck, and/or your skill at debugging.

These warnings are not meant to be discouraging—messing around with public domain software is both educational and rewarding. It's hard to describe the smug satisfaction one can feel after getting a particularly ugly program up and running. But if you dislike surprises and unscheduled in-

conveniences, public domain software is probably not for you.

What follows is a brief introduction to the kinds of programs you can find in the public domain, and a few recommendations. It's certainly not a complete survey; the national CP/M users' group alone has over a hundred 8-inch disks in its library. . . .

Word processing

Though there's nothing in the public domain to rival commercial word processing packages like WordStar and Perfect Writer, there are quite a few programs devoted to the manipulation and output of text.

Line editors, such as E, TED, and EDIT, are great for the preparation of simple text files, and can serve as useful additions to your programming language disks. They take up very little storage space, and are quite adequate for the production of ASCII listings that will run on most compilers and interpreters. They're also worthwhile to have on telecommunications disks as an easy method of generating messages to upload into electronic mail systems.

If you want to get fancier, text formatters like ROFF (from Runoff) contain many of the standard features

of large word processors—justification, pagination, headers and footers, and so on (at least one Kaypro owner we know enters text with Perfect Writer and prints it out using ROFF.—Ed.).

Text processing utilities abound. INDEX101 generates indices from WordStar files. WCOUNT is a perfectly useable word and line counter that will ignore comment and command lines that start with backslashes or single dots. There are several spelling checkers and a variety of specialized dictionaries from which to choose. Last, but not least, there are setup routines for all the most popular dot matrix printers.

Communications

Some of the highest-quality programs to be had for free are public domain file transfer and telecommunications programs. Ward Christensen's original MODEM is the starting point for the majority of microcomputer communications packages, including most commercial products. Some public domain modem programs require a bit of work to install for the Kaypro's port configurations, but with a little effort you can come up with a telecommunications program that could cost as much as \$200 on the market. (Most Kaypro User Groups, as well as Micro Cornucopia, offer versions of Christensen's MODEM program specifically configured for the Kaypro.—Ed.)

Games

Public domain games range from the notorious 191 K Adventure prose fantasy and a relatively good chess program all the way down to simple-minded black jack and dice-rolling games in BASIC.

The BASIC games are the safest bet. Most of them are written in Microsoft BASIC, and will run just fine on the Kaypro. There are some pretty good ones, too, including backgammon, poker, and Monopoly.

As with all public domain CP/M material, beware of assembled .COM files (in Fortran or assembler or whatever) that make use of graphics and/or special terminal characteristics for other computers. Without source

**Public domain programs come with
no guarantees, no dealer support,
and no toll-free hot lines—
you're on your own.**

code, or knowledge of how (and where) to patch the programs, you'll wind up with useless garbage on your screen.

Enhanced utilities

CP/M offers features that seem to stop just short of being truly complete. A good deal of effort by independent programmers has gone into developing utilities that extend CP/M's capabilities, providing those final touches that make life a lot simpler.

READ, a nifty little 1 K .COM file, solves the major annoyance of CP/M's TYPE command. TYPE prints a text file on your screen without stopping; in order to actually see something in the middle of a file you have to jab S with lightning speed and amazing eye-hand coordination. READ prints files a screenful at a time; you can gaze as long as you like before moving along to the next chunk. (Another program with the same function is called SHOW.)

RENAME expands on REN to allow the renaming of groups of files instead of having to change filenames one at a time. For example, if you wanted to change the name of all your text files from .MSS to .DOC, you would type:

```
RENAME *.DOC=*.MSS
```

Saves an awful lot of bother.

ERAQ (also called ERAA and XERA) is an erase-with-query. CP/M's ERA will wipe out a whole group of files at one shot; ERAQ will ask for a Y or N response on each file.

Super directories

Perhaps the most important of CP/M's built-in commands, DIR, spits out a list of files on a disk in the order in which they were created. Sorted directory programs, among

them D, DIRR, SD, and XDIR, alphabetize the list and also show file sizes—a real plus that eliminates much of the need for STAT. Most of these programs will display a calculation of space used and space remaining at the bottom of the output.

Many directory programs will accept additional parameters, which will:

- *Output directory listings to either your printer or to text files on disk, so you can develop a catalog with a minimum of fuss.
- *Indicate status of files (read/write, read/only, system).
- *Search all user areas, and indicate which files are in which areas.
- *Display directories of both disk drives without reentering the command.
- *Toggle between horizontal and vertical alphabetized listings, or between sorting by filename and filetype.

Programmers have attempted to keep these .COM files small enough (usually 2 or 3 K) to make them easy to include on every one of your working disks.

More utilities

Once upon a time there was a huge program called SWEEP that let the user tag files on a disk and then transfer either tagged or untagged files to another disk, as a batch. Today, there are two programs, WASH and DISK, that do roughly the same thing, only each takes up a slight 4 K of space.

The latest version of DISK (number 7.6), is a wonderful program that tags files, keeps a running tally of tagged files in K, copies either single files or groups of files, verifies accuracy of copied files, sends files to a printer, displays text files on the screen (a la

(Continued)

SOFTWARE

(Continued)

READ, above), and deletes individual files with a Y/N query. Another program to keep on every disk . . . ?

UNERASE and ERA restore inadvertently erased files. DIRCHK makes sure you've retrieved the right one.

ALLOC generates a "bit map" of a disk, a graphic representation of which sectors of a disk are occupied.

DIRU is a sorted directory program that shows *exact* file size in tenths of K, rather than rounding off to the nearest whole number.

COMPARE and CRCK check two files for equality.

SUPERSUB and EX expand upon CP/M's SUBMIT and XSUB programs.

File storage

Creating archives of inactive files can use up a lot of disk space (and disks!), and the resulting filing problems can grow into a major headache. Three groups of programs can help.

First, SQ and USQ (SQUEEZE and UNSQUEEZE) can compress and restore files. The programs were designed to cut down on long distance telephone charges when transmitting data, but are just as effective in solving storage hassles. Squeezing a text file can save as much as 40 percent of its original size.

Second, LU (Library Utility) groups files into self-contained libraries and eliminates wasted space between files. This is not such a big deal for Kaypro II files, which use up disk space in one K blocks, but when you start dealing with the Kaypro 4 (2 K blocks) or the Kaypro 10 (4 K blocks), waste can be a major factor. Three companion programs complete the package. LDIR lists entries in a library, LTYPE types individual files, and LRUN allows commands that have been stored to be executed from CP/M.

Finally, a series of programs called CATALOG can be used to develop a

master index of all your files on all your disks.

Languages

There are a number of public domain programming languages kicking around on RCPMs and users' group disks, including at least three versions of BASIC (Tiny BASIC, BASIC E, Lawrence Livermore Labs BASIC), a subset of the C language (Small C), PILOT (a text-oriented processor for building question-and-answer educa-

Forth is another matter. The language itself has lived in the public domain for much of its history, and by its nature is not as restricted as many other languages (Forth allows you to build your own vocabulary from a brief list of commands.). However, whether a particular implementation of Forth will run on a Kaypro, whether it will contain the editor necessary to allow you to save programs, and whether you'll be able to find the slightest shred of documentation for it are all open questions. Be prepared for

*Documentation is a gamble—
sometimes you'll find it,
sometimes you won't.*

tional quizzes), several incarnations of Forth, and STOIC (a Forth-like threaded interpretive language). These are all complete, workable languages in theory, but like most public domain programs, there are some booby traps to watch out for.

Documentation, particularly, is a gamble—sometimes you'll find it, sometimes you won't. And it's rather tough to write programs when you haven't the vaguest clues to command sets and legal syntax.

Also, power is severely limited, and programming shortcuts are almost non-existent. The BASICs and C are all rudimentary designs, kept as simple as possible for two reasons: 1.) they were written early in the development of these microcomputer-based languages, and represent exercises on the part of the authors, and 2.) the less the dependency on routines specific to individual computers, the easier it is to transport languages from one machine to another. If you don't mind the programming equivalent of speaking in words of one syllable, fine, but you may find doing anything complicated really tedious, especially if it involves hardware control.

disappointments.

STOIC, a language much like Forth, exists for the most part as a collection of assembly language modules that have to be modified for your specific set-up, compiled, and linked together before you can use it. STOIC, as such, is not for either the inexperienced programmer or the faint of heart.

PILOT (an acronym of Programmed Instruction, Learning, Or Teaching), is a simple language that allows you to write quizzes; it searches for keywords in answers to questions and chooses responses accordingly. It's great for owners with kids who are dismayed at the abysmal lack of good educational software and want to write their own, without having to learn much about programming. A nice idea, really, but the public domain implementations lack coherent documentation and seem somewhat buggy. The source code, written in assembler, is available and can be cleaned up, but so much for not having to learn much about programming. . .

Public domain languages, with their limitations, are an easy way for the

tinkerer to fool around with programming (you can't beat the price), but there are reasons why commercial software companies *sell* language packages.

Source code

Original, uncompiled program code for public domain software is usually easy to find (and comments in the listings may be the only documentation available for some programs), but, alas, that's not the blessing it would seem to be at first glance. Errors abound, and if you don't have the right compiler, well, have fun rewriting.

Quite a few programs are written in BASIC and C. The BASIC programs are usually in MBASIC, CBASIC, or BASIC E—all of which are interpretive languages. That's good because the programs can be read and modified; bad because you have to have the right interpreter. C programs seem to use BDS C for the most part, but other manufacturers' compilers are beginning to appear. But because C produces .COM files, most programs are available both as source and as working commands.

Most assembly language listings are in 8080 and Z-80 code (no problem as Z-80 is merely an extension of 8080), but lots of authors have used macro-assemblers, principally Macro-80 from Microsoft and MAC from Digital Research, and CP/M's ASM.COM is helpless with such code.

There's not much in the way of Pascal, but what there is seems to be consistent with the UCSD model. Other languages, such as Fortran/Ratfor and PL/I, are represented marginally, but don't waste time looking for COBOL and other listings that use languages only recently transported from larger computer systems.

Advanced tools

Disassemblers, notably ZZSOURCE

(a descendant of a program named RESOURCE, rewritten to produce Z-80 code), can be used to generate assembly language listings from compiled .COM files.

DU (Disk Utility) is an incredibly powerful program that combines dump facilities, string searches, and

byte-by-byte editing of disk files, using macro commands.

ZCPR is a replacement for CP/M's Console Command Processor that refines built-in commands and adds a few new ones, most of which are of interest primarily to program devel-

(Continued)

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BULLETIN BOARDS

(Continued)

your machine, things are done a little differently. Since nearly all BBS and RCPM systems respond to XMODEM commands, we can get a little more specific here. Just to play it safe, always heed what the other system has to say about downloading files. Assuming that you're dealing with an RCPM/BBS that has a file called "BOO.DOC", you would enter the following command from terminal mode:

XMODEM S BOO.DOC

which instructs the remote computer to use XMODEM to send the file. The standard XMODEM message will appear, informing you that the remote system is ready to send. It will also tell you the length of the file, and how long the transfer will take at 300 baud.

Immediately enter command mode and tell your system to receive BOO.DOC, using the commands applicable to your software.

The other system will not actually begin sending until your system tells it that it's ready to receive. When the remote system is finished transmitting BOO.DOC it will send your computer a signal that means "All finished." As soon as your system receives that signal, it will close the file, and let you know that you can resume other activities.

A couple of tips

A few points to remember. When you are in terminal mode, commands are sent to the remote system. Therefore, the command must be phrased from the viewpoint of the other system. In command mode, obviously, the commands should make sense to your system.

Most remote systems will ask you to limit time of use to a certain amount per day or per session. Don't be a hog. That's a very quick way to become unpopular in a hurry. After a couple of repetitions, you may find yourself locked out of the system. And after all this work, it would be a shame to lose access to all that free software, wouldn't it? □

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SOFTWARE

(Continued from 61)

opers. ZCPR2, obviously, is a later and more powerful version. Both versions are accompanied by a collection of transient utilities, much like the Unix operating system.

by hobbyists, and the programs they have contributed manifest their interests—and their weaknesses. It's wise to remember that while many free programs are superbly written and ex-

*Tapping into this array of
software can be both
productive and just plain fun.*

Conclusion

There are programs that sort lists, generate mailing labels, figure loan amortization, plot biorhythm charts, turn your computer into a calculator, generate calendars, and so on. Some of this stuff can be used on Kaypros, and some of it can't.

The world of public domain software has been created and maintained

tremely useful, for one reason or another their authors made a conscious decision not to try to market them.

Tapping into this array of software can be both productive and just plain fun. Should you unearth programs that you find valuable, why don't you consider repaying the courtesy of those authors who have given away their work by planning, someday, to contribute something of your own? □

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The articles and programs in **KUGRAM**® are aimed at the first time user and the "pro." We have received welcoming comments from both. Our article (tutorial) on CP/M, titled **CP/M STUFF**, is regarded as a fine learning experience in working with the Kaypro operating system. Other columns include **BOX 100** (letters from members), **CHAPTERS** (new chapters from around the world), **IN RESPONSE** (answers to many of the questions we receive), **VENDORS** (suppliers of Kaypro compatible products) and **REVIEWS** of software and hardware for the Kaypro.

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Recommended reading

The books listed below are suggestions for further reading on the subject of telecommunications. While these books are all aimed at "the beginner," the level of technical sophistication assumed by the authors will vary greatly.

If, in browsing through some of these books, you feel intimidated by the technical material, don't fret. The amount of technical savvy necessary to run most of the current telecommunications software and hardware isn't as great as you might believe. Try one of the more elementary books, relax, and remember that every hacker was once a beginner too.

One last thought: The book that seems hopelessly complex today might very well turn out to be just what you are looking for a month or two down the road.—Ed.

Beeston, Tom and Tom Tucker. *Hooking In*. Westlake Village, CA; ComputerFood Press, 1983. \$12.95, paper. Subtitled "The Underground Computer Bulletin Board Workbook and Guide," the emphasis here is on the how instead of the why. This book is unusual in that all of the phone numbers listed as computer bulletin boards were actually tested before being printed.

Brooner, E. G. and Phil Wells. *Computer Communication Techniques*. Indianapolis, IN: Howard W. Sams, 1983. \$15.95, paper.

A good background text, perhaps a little more technical than most will need.

Derfler, Frank J. *Microcomputer Data Communications Systems*. Englewood Cliffs, NJ: Prentice-Hall, 1982. \$12.95, paper.

An excellent beginning text with coverage of hardware, software, etc.

Glossbrenner, Alfred. *The Complete Handbook of Personal Computer Com-*

munications. NY, NY: St. Martin's Press, 1983. \$14.95, paper.

After some general introductory information, this book deals with the major information services a chapter at a time. If you are interested in data banks more than bulletin boards, this book is an excellent way to learn what is available.

Myers, Larry. *How to Create Your Own Computer Bulletin Board*. Blue Ridge Summit, PA: TAB, 1983. \$12.50, paper.

An interesting twist on the usual telecommunications text, this book assumes that you are already capable of programming in BASIC and wish to set up your own bulletin board. If you wish to follow Steve Sander's advice elsewhere in this issue ("Starting a Remote System"), you would be well advised to skim through this book first.

Nichols, Elizabeth A., et al. *Data Communications for Microcomputers*. New York, NY: McGraw-Hill, 1982. \$16.95, paper.

A good, heavy-duty text on serial communications. Worth acquiring if only as a reference book.

Nilles, Jack M. *Micros and Modems: Telecommunicating with Personal Computers*. Reston, Virginia: Reston Publishing Co., 1983. \$16.95, paper.

A general text, but with more emphasis on software than in the Brooner & Wells book above.

Shapiro, Neil L. *The Small Computer Connection*. New York, NY: McGraw-Hill, 1983. \$15.95, paper.

Good general coverage of telecommunications, it includes an introduction to the information utilities, as well as the obligatory list of phone numbers.

Sturz, Larry and Jeff Williams. *Using Computer Information Services*. Indi-

anapolis, IN: Howard W. Sams, 1983. \$12.95, paper.

Like the Glossbrenner book, this text zeroes in on the various information services. In addition to the general material, there are examples of normal operation (including logon procedures). □

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Starting a remote system

If you have the programming skills and the necessary patience, this article will show you how to turn your Kaypro into a bulletin board or RCP/M.

by Steven Sanders

It seems a lot of folks are looking for something to do with their computers beyond editing letters and keeping mailing lists. As the Sysop of an RCP/M (a system operator of a Remote CP/M system), I am frequently asked if *anyone* can start an RCP/M or bulletin board system. The answer is a definite "maybe."

Steve Sanders is the System Operator for the Tampa Bay Bandit Board RCP/M (813-937-3608) in Palm Harbor, Florida. The Tampa Bay Bandit Board runs on a Kaypro 10 and contains much of the public domain software mentioned in Ezra Shapiro's article on page 58.

First, you must have some knowledge of CP/M and assembly language to be able to modify programs. As important as technical knowledge is the endless patience required for dealing with first-time users and "twits." A "twit" is a user (abuser) who is determined to either destroy your system or just tie it up so others cannot get in.

Some terminology

There are distinct differences between an RBBS and RCP/M system. An RBBS (Remote Bulletin Board) offers only a message-based system where callers can enter and retrieve messages. The RCP/M, on the other hand,

offers access to the host computer's CP/M operating system to allow transfer of files.

The BYE (remote console) program is the heart of any system. It allows callers to use *your computer* as if they were sitting at your keyboard. The process of getting BYE to work on your Kaypro can be lengthy. First, there are several system-dependent equates that must be customized for your computer. Next, the running location of the BYE program must be set either above or below the CCP (Console Command Processor), depending on your particular system. BYE operates in high RAM to allow other command files to run in the TPA (Transient Program Area). The usual configuration allows for a "welcome file" to be run after the connection is made which identifies the system, baud rate, etc. The RBBS command program can then be loaded and run.

There are many different Bulletin Board programs from which to choose. The public domain series of RBBS programs are the most popular,

with the most recent release being version 3.1. It's written in Microsoft BASIC and must be compiled with Microsoft's BASCOM compiler. You must make some changes to the source code, such as your system's name, the sysop's name for sign-in, and select the various options desired. Next, you interpret the program under MBASIC 5.2, correct any syntax errors, save it in ASCII form, then compile it with BASCOM. After linking with L80 to obtain the RBBS in the form of a command file, the program can be used.

The one drawback to this method is cost. The BASCOM package currently runs in the \$300 to \$400 range. An alternative is to use the CBBS package, which is available in machine language form, and can be assembled into .COM form with ASM. The cost of the CBBS is around \$50. To use it,

moved by changing the hex values to 00. Furthermore, replacing the TYPE command with TYPE20 allows viewing ASCII files in either regular or "squeezed" form. Squeezed files are found on most RCP/M systems because they offer callers the ability to transfer faster. A squeezed file is a regular CP/M file that has been compressed by use of a program called SQ-15.COM. (This public domain program is rather sophisticated. The "squeezing" process works best on large text files; it is not uncommon to save up to 50% of a file's storage space and thereby reduce the modem transfer time similarly. Squeezed files are usually identified by a "Q" as the middle letter of the filename's extension. Thus, the squeezed version of PROGRAM.DOC would be named PROGRAM.DQC. —Ed.)

To protect your system against twits, use a utility program like DU to go into the operating system and remove the built-in commands.

however, you do need to know assembly language.

File transfer and protection

For an RCP/M, the most popular method of file transfer is with the MODEM/ XMODEM protocol, originally designed by Ward Christensen. This means the caller runs a MODEM program supporting "CRC" or "Checksum" protocol and uses the remote system's XMODEM program for the actual transfer. Remember that an RCP/M system allows access into the operating system of the host (remote) computer. Just think about someone being able to rummage through your files and use all the resident commands like ERA or REN.

To protect your system against twits, use a program like DU (Disk Utility) to go into the actual operating system tracks of the floppy or hard disk and remove the built-in commands. All the destructive commands such as ERA and REN can be re-

Other programs similar to TYPE20, called TYPE2040 or TYPE 2080, will allow the viewing of only 40 or 80 lines of text respectively. This prevents callers from turning an active system into a library for reading purposes and keeping the system tied up. Whatever program you decide to use, just rename it to TYPE.COM and you're all set.

Similarly, the DIR command can be replaced with programs like SD-71.COM. This is the latest version of the popular Super Directory program, which features options beyond the standard DIR command. For example, it contains the important ability to show the respective "K" sizes of files, so callers can judge how long a transfer will take. Other transient programs like LDIR, LTYPE, CRCK, FILE-FIND, XFERTIME, and HELP aid users in better operation of the system.

For purposes of security, all system related files such as the comments and message files are STAT'd to \$SYS to make them invisible in directory searches. The \$SYS and .COM

files cannot be transferred out of the system by XMODEM. If you are running a hard disk with multi-user areas available, another program called USRPW37 (user password) replaces the standard USER command and limits the areas one can enter.

Even with all this security, you should still run a printer to capture all remote keyboard input to the system. This will answer your question of "how did that guy 1000 miles away break my security and damage the system?". No matter how smart you think you are, there is *always* somebody just a little smarter. Additionally, always make a back-up of all system files every night just to be safe.

Maintenance of an on-line system is very important. From time to time the messages file must be purged to remove deleted entries. This is particularly important with systems running on computers with limited disk space, like the Kaypro II.

Expenses

If we're going to be at all honest about this, running a remote system or bulletin board is not the cheapest hobby in the world. First of all, you have to purchase a modem that can answer calls. And while a separate phone line isn't absolutely necessary for operation, the inconvenience of sharing your phone with the modem may drive you (or your spouse) batty.

If you are running an RCP/M, you must also attempt to keep up with all the latest revisions of the public domain programs. This in itself can cost a small fortune in telephone bills, even with MCI or one of the other services. I usually have a \$150 bill per month for long distance calls to other systems gathering new programs and keeping abreast of the latest tech poop.

A reminder: when your system is up and being used by others, you won't be able to use your Kaypro for other projects. For dedicated hackers, this may be the biggest problem of all.

I hope I have cleared the muddy waters for those who have been toying with the idea of starting a system. It involves a little expense, a lot of hard work and endless hours staring at a CRT, but I find it very satisfying to be able to help others. □

The BYE (remote console) program is the heart of any remote system. It allows callers to use your Kaypro as if they were sitting at the keyboard.

Getting in sync

When your Kaypro talks with a mainframe, chances are you'll be using synchronous communications

by Leslie Brooks

Many of you have recently bought your very first microcomputer and are now busy putting it to use in your business or home. You may also use it to talk to the Source or CompuServe, but not very many of you have managed to talk to the mainframe (or minicomputer) at the office. Even fewer of you have managed to share files with the mainframe. I know, because I deal with microcomputer users like you every single day.

Why is it that some big computers are easy to get into, and others are a real pain? Is there some way around all of the problems? How can you share files with a mainframe, and be sure that you don't lose a character or two in the process? To answer these questions, we need to look at the history of computing.

A brief history lesson

The early computers did not have terminals attached. The CPU in these behemoths did not have enough power to talk to terminals and get any useful work done at the same time. Jobs were submitted on cards, the operator read

them into the computer, and some hours (or days) later you got back a printout telling you why the computer did not like your cards.

Of course, users did not like this very much—they wanted to be able to submit cards and get error messages printed in their own building or office, rather than carrying cards to the computer. Eventually, mainframe manufacturers satisfied this desire with RJE (Remote Job Entry) stations. Still, the manufacturers were concerned about burdening their CPU's, so they made the RJE stations communicate in a manner that minimized the load on the computer. Because it is more efficient to communicate in blocks of data rather than a character of time, each RJE station was required to put its data (cards and commands) into blocks before sending it. An RJE station could be given enough intelligence to do this, because each station was expected to serve many users and cost tens of thousands of dollars. Also, because the RJE station was expected to cost a great deal, the manufacturer could justify putting an expensive, high speed modem on it. (For synchronous modems, baud rates of 9600 are common and 56,000 baud is not

unheard of.) These high speed modems used *synchronous* communication techniques.

What is synchronous communication? The box to the right covers this question in some detail. The basic difference, however, between asynchronous and synchronous is in the timing of the data. In asynchronous transfers, a start bit signals the beginning of a byte, and once the start bit is recognized, timing for the rest of the byte is based on the frequency standard maintained by the receiving computer.

In contrast, a synchronous transfer uses one of several tricky methods to maintain a synchronizing (or "clocking") signal that travels along with the data. Once the receiving station is synchronized with the data stream, it is possible to transfer large blocks of data without requiring start and stop bits for each byte.

Synchronous protocols

Back to the history lesson. The use of blocks of data was the beginning of the first synchronous communications protocols. (A protocol is just an agreed (Continued on page 70)

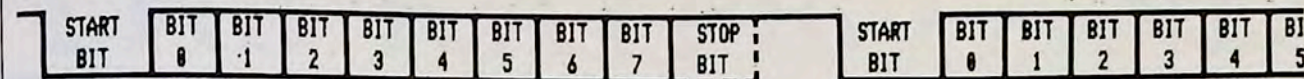


Figure 1: A typical asynchronous format uses start and stop bits to frame each byte of information.

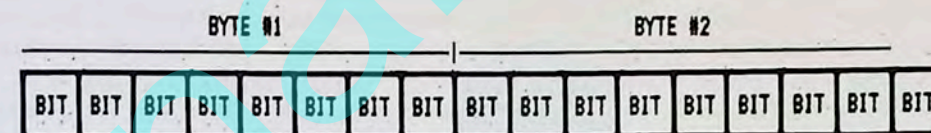


Figure 2: Two bytes of information embedded in the bit stream of a typical synchronous format.



Figure 3: A synchronous protocol will use headers and trailers to frame a stream of bits equal to many bytes of information.

What is synchronous communication?

First of all, synchronous communication is not what you use to talk to the Source or CompuServe. Neither is it what you normally feed through your Hayes SmartModem. These are all designed for asynchronous use: the characters that are transmitted have no definite time relationship. If you type a message to put on the Source, there is no set time when you strike the keys. Some letters come very close together, and others come further apart. Thus the characters are asynchronous; the Source mainframe never knows when it will get another one from you. Because each character is sent separately, your micro attaches a couple of extra bits to each one. These start and stop bits tell the mainframe where the beginning and end of a character are. However, they also take up extra space on the communications line, thus slowing down the maximum transmission speed. Transmitting two characters asynchronously looks something like Figure 1, where each character

contains eight data bits, and is preceded by a start bit, and followed by a stop bit. While the amount of time the transmission of each character will take is known rather accurately (from the baud rate), there is an unknown length of time between characters.

In synchronous communications, no characters are sent by themselves, but only as part of a large block of characters. This means that each character does not need a start and stop bit, because we know that another character will follow immediately after the current one, with no gap between, until we reach the end of the block. This makes for more efficient use of the communications line, but also requires more sophisticated hardware and software. The modems that work for asynchronous communications do not usually work for synchronous communications. In particular, synchronous modems generate the clock signals used by the computer, while asynchronous modems

require the computer to use its own internal clock. This can cause some problems. Also, we must put some header and trailer information on each block, so that we can find the beginning and ending of it. The header (or trailer) also usually contains some information that allows us to check the block for errors in transmission. Thus two characters inside a block of synchronous data would look like Figure 2. Notice that there are no start or stop bits, and no gaps, just the sixteen data bits jammed together.

Following the pattern, an entire synchronous message would look like Figure 3. Notice that there are no gaps within the message; each character immediately follows the one ahead of it. This is the essential difference between synchronous and asynchronous. It is also the reason that synchronous communications requires some intelligence on both ends. □

upon way of talking to someone.) Over the years, many companies have developed communications protocols that were similar to each other but not quite the same. Whatever the originator, the purpose was the same: a well-designed protocol guarantees that data will be transferred correctly. Thus the two machines (the computer and the RJE station) communicate something like this:

RJE — HELLO, I'M HERE
Main — OK, WHO ARE YOU?
RJE — I'M REMOTE 41
Main — OK, HERE'S SOME DATA FOR THE PRINTER
RJE — OK
Main — HERE IS MORE PRINTER DATA
RJE — I DIDN'T GET THAT CORRECTLY
Main — HERE IT IS AGAIN
RJE — OK
Main — HERE IS THE LAST OF THE PRINTER DATA
RJE — BYE
Main — BYE

Later, as mainframes became more powerful, the first interactive operating systems were developed. These allowed users to sit down at a terminal and type "cards" that the system would then process. Of course, the terminals then were slow and dumb—usually an electromechanical device like a Teletype—with no electronic circuitry at all. The people who designed the operating system for the mainframe knew that these terminals would never have any intelligence. It was too expensive to consider, because each terminal served only one or a few users. Since terminals were too dumb to block up their characters before sending them, the mainframe manufacturers had to break down and let the terminals send characters asyn-

chronously. However, they knew that the terminals could never send characters at a very high rate of speed, because it was only a person out there hitting keys.

This brings us to the present, with you trying to share a file with the corporate mainframe. If you pretend that your Kaypro is a terminal, then the mainframe "knows" that your Kaypro is quite dumb, and not very fast either. Your Kaypro then attempts to transmit at a full 1200 baud, and the mainframe loses characters (thinking "How can that guy possibly type that fast?"). Next you try XMODEM, or some other similar communications package—but you discover that your mainframe can't use the XMODEM protocol. After all, asynchronous terminals are dumb, and don't use protocols. What do you do now?

Remember those RJE stations? If we could just make the Kaypro look like one, then it could send data to the mainframe at high speed, with full error checking and correction. Is this possible? Certainly, because the Kaypro is itself a quite capable computer—something the mainframe manufacturers had never envisioned as possible. All we have to do is pick the right protocol.

Some common protocols

There are many synchronous protocols in use today, some much more common than others. Some run on many varieties of machines, others are restricted to only one vendor. Some are very capable, others are restricted in one or more ways. Let's take a look at a few protocols and their vendors. **3270** This protocol is very common in IBM environments, but rare or nonexistent in others. It is a newer protocol, primarily designed for screen-oriented interaction between a single user (using an intelligent and relatively expensive terminal) and a mainframe.

There is a great deal of IBM software that uses this protocol and the associated terminal. This protocol is not of much use if you want to move files back and forth.

2780/3780 A very well known protocol, this one has been in existence for a long time, and again is primarily used at IBM sites, although it is also very common on other (DEC, Data General, CDC) machines. This was one of the early RJE protocols, and works pretty well for moving files back and forth. The largest disadvantage here is that the protocol can really only deal with one device at a time: a single card reader, a single printer, etc.

UT200 A Control Data Corporation protocol, also one of the very early RJE protocols. This one is no longer in widespread use (thank goodness—I had to maintain an emulator for it), and was never to my knowledge used outside of CDC sites. A few large sites (such as NCAR, the National Center for Atmospheric Research) still use it. Its primary flaw is that it allows only upper case characters to be transmitted.

Burroughs Burroughs Corporation uses several proprietary protocols. No other mainframe manufacturer uses them, and very few third party vendors support them. It is possible to get **HASP** (an IBM protocol) for Burroughs machines.

DDCMP Digital Data Communications Message Protocol, used by DEC. To my knowledge, no one else uses this protocol. It is a recent protocol, and not bad in its capabilities.

HASP Another IBM protocol, closely related to 2780/3780, but with many more capabilities. This protocol is very widespread, you can get it for virtually any minicomputer, and (I think) for all the mainframes except Univac. On IBM mainframes it is virtually a standard feature. It is sometimes disguised under names such as **POWER**,
(Continued)

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."

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— Fits Kaypro II & 4 —
Only \$59⁹⁵

"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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SYNCHRONOUS

(Continued)

JES, RES, or JES2. HASP has some very powerful features, including the ability to manage multiple tasks at once. For example, you could easily be sending a file to your mainframe, while at the same time your mainframe sends a listing to your printer. If you decide to check the status of a job, you could even do that at the same time the file was going up and the listing coming down!

If you think that I am partial to HASP, perhaps you are right. It is a good protocol, and gives you many advantages over most of the others. Of course, if you just want to play terminal to an IBM host, use 3170. If, however, you really want to download data for SuperCalc from the mainframe, or send data to the mainframe in large quantities, HASP is a much better choice. Also, HASP can transmit programs—not just data—to or from

the mainframe. This allows you to keep the latest copy of a CP/M utility on the mainframe, and anyone who dials in using HASP can download it.

How does all this help?

If you go to your corporate Data Processing manager and say "Hi, I want to hook my micro up to the mainframe," the chances are good that you will get a negative response. Your Data Center manager does not want the headache of trying to hook up an unknown micro to his (protected) mainframe. However, if you say "I would like to connect a micro pretending to be a HASP RJE station to the mainframe," you will probably get a much nicer answer. You have told the manager that you want to do something that he is familiar with; he knows all about RJE stations. The fact

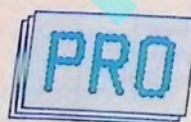
that it is a micro may surprise him, but you can soothe him by reminding him that it is "just an RJE station emulator." (You and I certainly know that it is much more than that!) You now have the manager on your side (or at least not actively opposing you), and you can start thinking about the data you want to move back and forth. Your DP manager will talk about synchronous modems, and dedicated versus dial-up lines, but you needn't worry much about this. He knows how to get you a phone line and a modem. This is a simple problem for him. All you have left to do is drop by the Kaypro dealer, get your synchronous communications package and get your machine set up to run it (there will be a few minor hardware changes), and you are ready to start. Just think of downloading a subset of the corporate database into Dbase II! □



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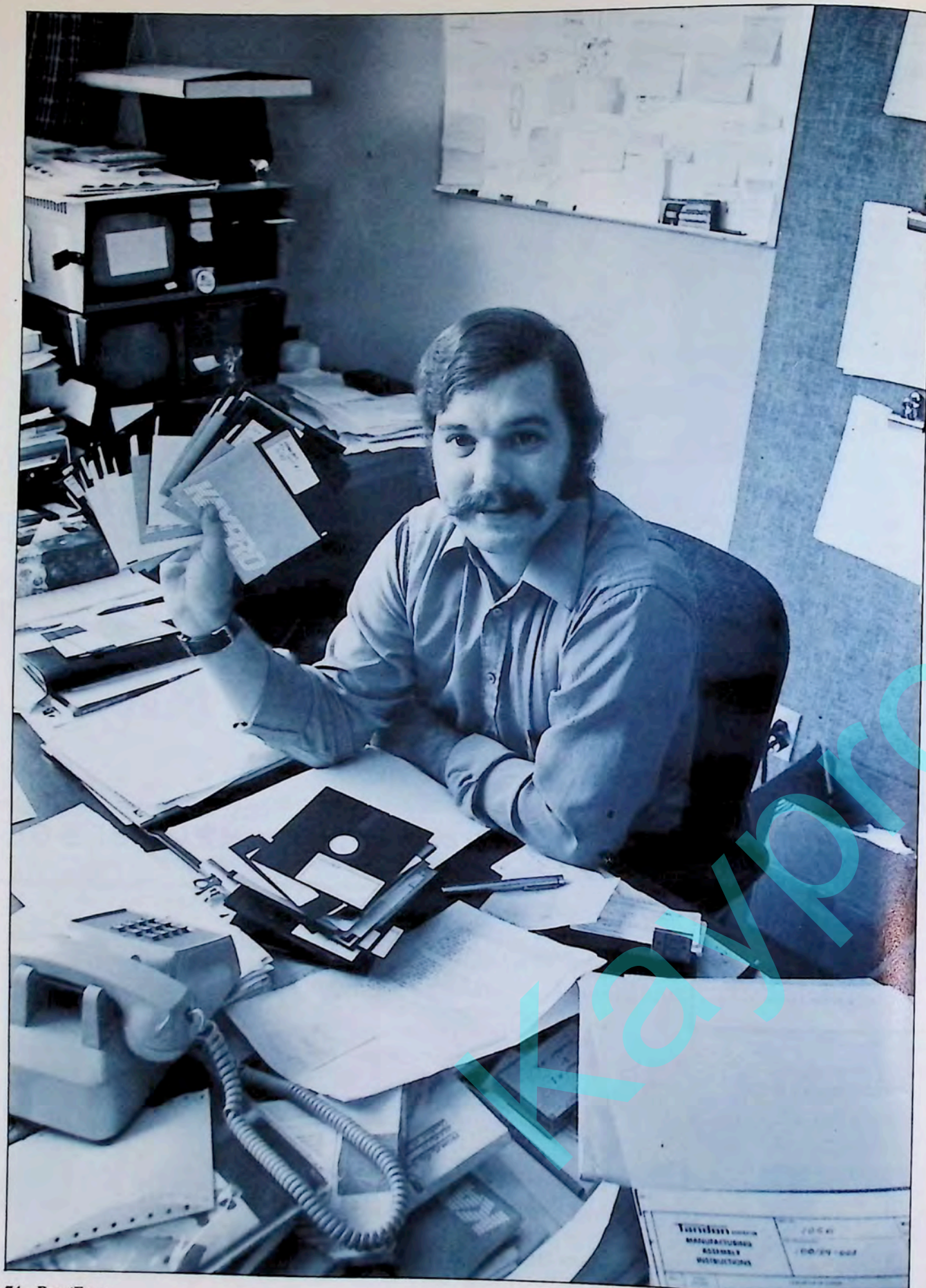
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Conversation with a guru

Gilbert Ohnysty, author of S-BASIC, reveals why he wrote the program and other mysteries.

by Terian Tyre

P/F: First of all, let's get a little background. What led you to write S-BASIC as opposed to using programs already on the market?

Ohnysty: There were three points. 1) At the time, there was a need for an actual object-code producing compiler. 2) The bulk of the people playing around with microcomputers are experienced in one language—BASIC. If there's to be any ability to grow, to add new functions and introduce new concepts, BASIC is a good vehicle for providing it. 3) In order to implement what is now state-of-the-art structured programming, certain extensions needed to be added to the BASIC language.

I have a complaint with Pascal and C, which are both nice structured languages. I view them as rather cluttered entities. They tend to get lots of semicolons, colons and other extraneous syntactic characters strewn through-

out the code. This reduces the readability and understandability of the stuff. It's marvelous for an actual teaching environment where you want to force your students into good programming practices, but it necessarily leads to some nettlesome problems. You can make the compiler a little smarter and relieve the programmer of the burden of worrying about where to put his colons and such things. S-BASIC implements a lot of the structured things, but tries to maintain a BASIC syntactic foundation.

P/F: What sort of programs have you written for yourself with S-BASIC?

Ohnysty: Aside from the compiler test programs, I've used it for a variety of personal programming endeavors, mostly in accounting and bookkeeping systems for Topaz Programming.

Unfortunately, I spend an awful lot of time in the compiler's code and in the guts of the computer. I don't get to exercise it as much as I'd like to.

P/F: Is S-BASIC better for certain kinds of tasks or projects than other BASIC languages?

Ohnysty: Yes, it really targets at two markets simultaneously. It targets not so much at the beginning programmer, but at the programmer that's got BASIC under his belt and wants to start taking off after some of the more advanced programming concepts. It's been hindered in this respect because the S-BASIC reference manual presumes that you're already familiar with concepts, not that you're trying to learn them. S-BASIC as a language is a good vehicle for learning, but it lacks the tutorial material necessary to make that successful.

Basically, after you learn S-BASIC and all of its different data types, functions and operations, you can move rather easily to Pascal, C, Ada, or any of the other languages because you'll have a firm grasp of concepts. It's just a matter of learning how they implement the concepts.

There are also, for the professional programmer in the commercial mar-

(Continued)

"Software guru" Gilbert Ohnysty is Kaypro's chief software engineer. He's interviewed by Senior Editor, Terian Tyre.

ketplace, all the features he needs to write good, concise, correct programs with proper style and proper structure, and not some sort of kludgy syntactic creation. It looks fairly clean and natural. It lets them produce good-looking code and good-looking code helps a programmer produce a correct program.

The second area where it's targeted, and has been its primary reason for success, is the business computing marketplace. You can write S-BASIC programs that do significant amounts of disk I/O activity in the CP/M environment that run very quickly and store large quantities of information on the disk drives.

P/F: So, to clarify things, it's a faster BASIC language, once you know how to use it, as opposed to other BASIC languages?

Ohnysty: It's inherently faster because it's a compiler and it offers lots of advanced features for handling the disk drive. If anything, that may be some of its downfall, in that there are so many features that the programmer ends up optioned to death and can't choose the right one to use for his particular application.

P/F: There's a myth out that says programmers can write programs but they can't write manuals to make them understandable. What about writing the manual; what sort of torture was that?

Ohnysty: Well, the S-BASIC manual wasn't really intended as a manual, it was a reference guide. It presumed that you were familiar with concepts and simply outlined and specified how those concepts were implemented in S-BASIC. So consequently, if you opened the book and thumbed to the chapter on files and began reading the random disk I/O sections, it told you how to do a particular kind of random disk I/O, but if you didn't know what

that disk I/O was, you could very quickly get lost.

P/F: And the Kaypro Documentation Department is working on still another version of the manual?

Ohnysty: Well, the manual is interesting. It started off as a reference guide and is now becoming a reference manual, which is something of a different creature and requires substantial rewriting.

Also, another common complaint is a lack of examples. People like to have more examples.

P/F: How did you get into programming?

Ohnysty: It was cheaper than hardware. I actually got started in hardware, but I rapidly discovered on my meager budget that after I built this thing I could then spend weeks upon weeks upon months programming it, not spending any money except paper and pencil. It became very clear to someone of restrained financial resources, that it was a whole lot cheaper to program.

P/F: When did you start Topaz Programming?

Ohnysty: It was about 3 or 4 years ago. Topaz existed long before S-BASIC. I have been associated full-time in the microcomputer industry with the first store that opened here in San Diego and I had been doing it for some time before they arrived. So I've been at it since the inception.

P/F: Are hardware related occupations going to grow as fast as software occupations?

Ohnysty: I think that there's more and more hardware design going on than in the past. It's just that with the software, there's a lot more of it in terms of numbers, but that doesn't mean that hardware is shrinking. Hard-

ware's growing, it's just not growing as large.

P/F: Where do you see software going?

Ohnysty: I see it maturing. I see the complexity of software increasing. The barrier to entry is going up for the freelance hot-shot programmer. In other words, it's going to be much harder to write a significant marketable program in your garage.

With the increasing complexity, a very strong move is coming towards user-friendliness. Part of this making sure that the code is correct. We're seeing much better quality here at Kaypro as the years roll by. The source code is cleaner, more professional, better writing, better documented, and basically, the software industry is maturing.

P/F: What makes an application program a good program?

Ohnysty: It should do what the manual says it's going to do. It should behave in a consistent way. There should not be intuitively unexpected results in operations. The explanation of what you, the programmer, want from a user should be clear. You should not ask ambiguous questions that presume too much knowledge of the customer. You could say that this is something of a definition of "What is user-friendly?"

Most important of all, it should work. I think far too little effort is spent in testing programs and insuring that they are correct. There's much too much going on in the industry of 'Let's write this program and start selling it' and not nearly enough testing. If you look at some of the really successful programs in our marketplace, one of the things that can be said for them is that they work right out of the box. They have not gone through lots and lots of revision changes.

P/F: When is a program too user-friendly?

Ohnysty: First of all, that's very hard to do. You could say that you've crossed that line when the user-friendliness gets in the way and starts to become an obstacle to getting work done. The best example, intuitively, that I can offer is a menu-driven program that has just far, far too many menus. Every time you turn around, the machine is erasing the screen and repainting it with another menu that you have to pick another option from.

P/F: How much expertise in things like logic should a programmer expect a novice user to develop?

Ohnysty: The rule of thumb that's come out of our documentation area is very good and that's to assume unlimited ignorance and infinite intelligence.

P/F: Are enough programs on the market designed so that the more sophisticated user can strip away that which he doesn't need as he develops expertise?

Ohnysty: Some do and some don't. WordStar is an example of one that has a large menu facility which you can then start suppressing as you become acquainted with its options.

An example of systems that don't are accounting systems that are menu-driven. They tend to be hardwired and you never can get rid of the menus even if you know the options up front. They don't have a terse command mode, or an expert command mode if you will, that once you know the system, you can slip into to tell the machine concisely, directly, explicitly what you want it to do.

P/F: Do you see having an expert command mode as a great advantage?

Ohnysty: I think the machine should offer both. In a "canned application,"

you have to start out with the premise that you're dealing with a novice user, but as that novice becomes an expert, the ability to slip naturally into an expert mode is desirable. You don't want to forever burden him with the help text.

Now you can loop this back around to saying, "isn't there a point where you've got too much help text?" The answer is to remember your original marketplace. Your original market is

would have been around \$800, now selling in the \$300 price range. So I think rationality is coming to the software price game.

P/F: Why have things been priced as high as they've been priced? Merely because there's been so little competition?

Ohnysty: Low volume. When the market was young, there just wasn't high

The rule of thumb is to assume unlimited ignorance and infinite intelligence.

not people who are already familiar with your program. They are people who become experienced with it. So, at the point of sale, I don't know that you can ever argue that you've got too much help, too much user-friendliness.

P/F: How much access should users be allowed to code and sections of code? Should patchability and modifiability be incorporated into more packages?

Ohnysty: I think you have to select judiciously whether something needs to be field-configurable. Obviously WordStar, which was designed to sell in an unspecified terminal and with an unspecified printer, needs a very wide-ranging, very capable way of being field-configured. In an accounting system that's doing database manipulations, that may not be desirable.

P/F: Do you feel comfortable with prices being charged for software?

Ohnysty: My personal opinion is that, in general, they tend to run rather steep, although that judgement is tempered. I see things that 5 or 8 years ago

volume and to recoup production expenses, you had to have high prices. Additionally, the software piracy issue further eroded the number of units you sold and required you to raise the price.

P/F: How do you stop software piracy?

Ohnysty: You have to do what amounts to an unnatural act. You have to start lowering the price, making the piracy less and less profitable. However, as the volume starts to go up, once again the piracy comes back into play. The recording industry has piracy problems too and records don't sell for anywhere near as much money as software does.

P/F: Is there any way you can write protections against piracy into a program?

Ohnysty: Oh, there are a variety of different kinds of copy protection schemes running around. What's really needed are laws.

P/F: How enforceable would those laws be? (Continued)

OHNYSTY (Continued)

Ohnysty: Once they're given some teeth, I think they can be enforced. But at the moment, software has not really been given legal protection. For a long time it was even ambiguous as to whether or not it actually had copyright protection. We've had a variety of rulings recently which help strengthen the whole issue, making it a lot safer to go into the software business and deal with pirates.

P/F: It's analogous to what's going on with records and tapes. Major bootleggers are going to be taken out, but the individual who swaps a copy of a program with a buddy, is not going to be prosecuted.

Ohnysty: Yes, you're always going to have that. The only way you're going to combat that kind of thing is to price the software such that it's not really necessary. One reason I think that CP/M caught on so fast and became so successful is that it was one of the first major chunks of useable software available for less than a hundred bucks.

P/F: One question that we constantly see coming up from absolute novices is, "I'd like to learn something about programming, which language should I choose?"

Ohnysty: I have a bias in this respect. A language like S-BASIC I think works well, but as I said earlier, there's a lack of tutorial materials, so it's difficult for the novice.

P/F: What do you see as the "fun" stuff for the end-user when it comes to working with computers?

Ohnysty: It depends. I see basically two groups of end-users forming. I see those end-users that are buying the machine in the same way that they buy any other appliance; they've bought it to solve a problem, and "no thank you, I'm not interested in learning how to program."

I see another group of users that may or may not be buying it to solve a

problem, but they're also buying it as an extension of their intellect. They view it as a way of magnifying their thought power in the same way that they might view a calculator as a way to enhance their ability to do financial calculations. They seek to learn how to program, not only to accomplish an end, but as an end unto itself.

P/F: Should an end-user attempt to computerize everything?

Ohnysty: I don't think the computer belongs in the bedroom. Although, they have even managed to end up there. Many years ago, a program came out called Interlude. It was designed to help people select different kinds of romantic experiences.

P/F: Was it successful?

Ohnysty: I don't know. I tended to view it more as a curiosity than anything else, an interesting comment upon our society and the way we're making use of computers.

P/F: What is your reaction to the depiction of computers and hackers in the entertainment media? I'm thinking of *WarGames* and *Whiz Kids*.

Ohnysty: I think it's something of a natural outgrowth. The free spirit, the guy with some baling wire, masking tape, rubber bands, and a few integrated circuits, whips together a super-computer in his basement that he uses to solve crimes. It's not realistic, but it makes for interesting fantasy.

P/F: Do you think it's a dangerous perception of what hackers and computers are really like?

Ohnysty: I suspect it's more fun than it is dangerous.

P/F: Speaking of danger, is the fostering of unreal expectations dangerous?

Ohnysty: The unreal expectations are bad. People still expect more from computers than they are actually ca-

(Continued)

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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);
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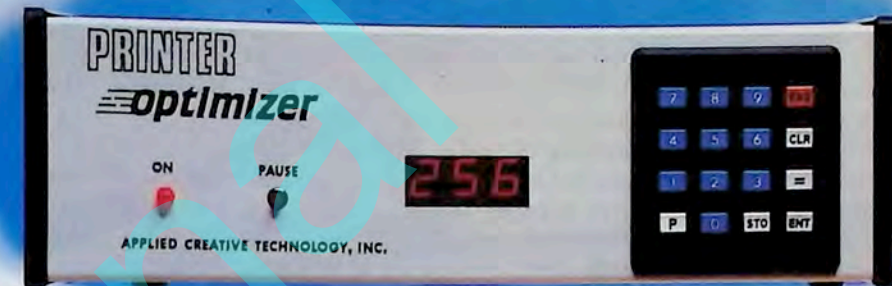
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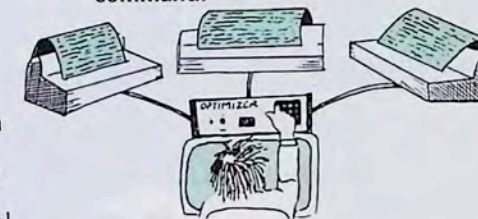
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Most people who buy a dot matrix printer get a bunch of features they can't even use, unless they can write their own programs. The Printer Optimizer makes controlling a smart printer as easy as using a remote control TV set.

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

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pable of providing.

You have programmers and hackers trotting about, but there are other people who are attempting to have some sense of professionalism about what they do. And they are also conscious about their role in society and the role that their programs play in that society. I have met many programmers and software engineers that have declined to work in the defense industry and for the military-industrial complex.

P/F: What about computers in education? Are people seeing computers as substitutes for teachers, rather than being a powerful aid?

Ohnysty: Computers are not essential at this stage. Their role in education is expanding and growing, but they're more of an aid to learning. I'm not so concerned about replacing the teacher in the classroom with a computer. I'm more concerned about some of the social impacts, the lack of socialization for the students, the lack of group activities. Regardless of the types of technological capabilities that these new generation of computers have, I don't think they can replace teachers as human role models in the socialization process.

P/F: So what about computers and morality? Looking at *WarGames*, figuring out how to crack into the school's computer to change a failing Biology grade, becomes an exercise in logic as opposed to something that is morally wrong.

Ohnysty: The problem with hackers crashing systems is the lack of moral awareness of what they're actually doing. What's happened is that, for computers and the kids that use them, the power has grown faster than the adults' awareness of what the children are capable of doing. This is more a problem with supervision of children and making them aware of proper

moral and ethical values. You can argue that the mistake is made in *WarGames* not because the student went crashing into the NORAD computer, but because his parents left him up in a room full of computers unsupervised.

P/F: Isn't that part of the bigger picture of the time lag problem in our society between students and their parents? And is there anything the industry itself can do to help educate the adults?

Ohnysty: What you're really asking is how can a non-technical person supervise a technical undertaking, whether it be his children at home or a manager in an office. And yes, I think it's

Ohnysty: What it is to the kid is a fun, intellectual exercise.

P/F: That's what appears to be to the child, but is that what it truly is?

Ohnysty: No, but that's because he doesn't appreciate the full magnitude of what's going on. It is to the kid soaping windows; it is to the society opening up on a house with a fully automatic weapon.

P/F: Precisely. Moving from soaping windows to machine-gunning your neighbors rarely happens. I suspect it's a much easier step however, because no one is "hurt," to grow from cracking

I don't think the computer belongs in the bedroom. Although, they've even managed to end up there.

possible if the parent cares. You start having problems if the parents are computerphobic. As soon as the kid starts talking about what he's doing with his computer, does the parent turn him off? My experience with these kids that do this kind of stuff is that they love to talk about it; this is one way they get ego satisfaction. And if the parents aren't aware of what's going on, it's because in some instances they haven't been paying attention. But this is the same problem you have with the kid that's on drugs and the parents aren't aware of it. But if the parent wants to, the parent can be aware.

P/F: But if we're not projecting morality as a society, then kids breaking into a system is a logical consequence.

into the school's computer to crashing a bank's system.

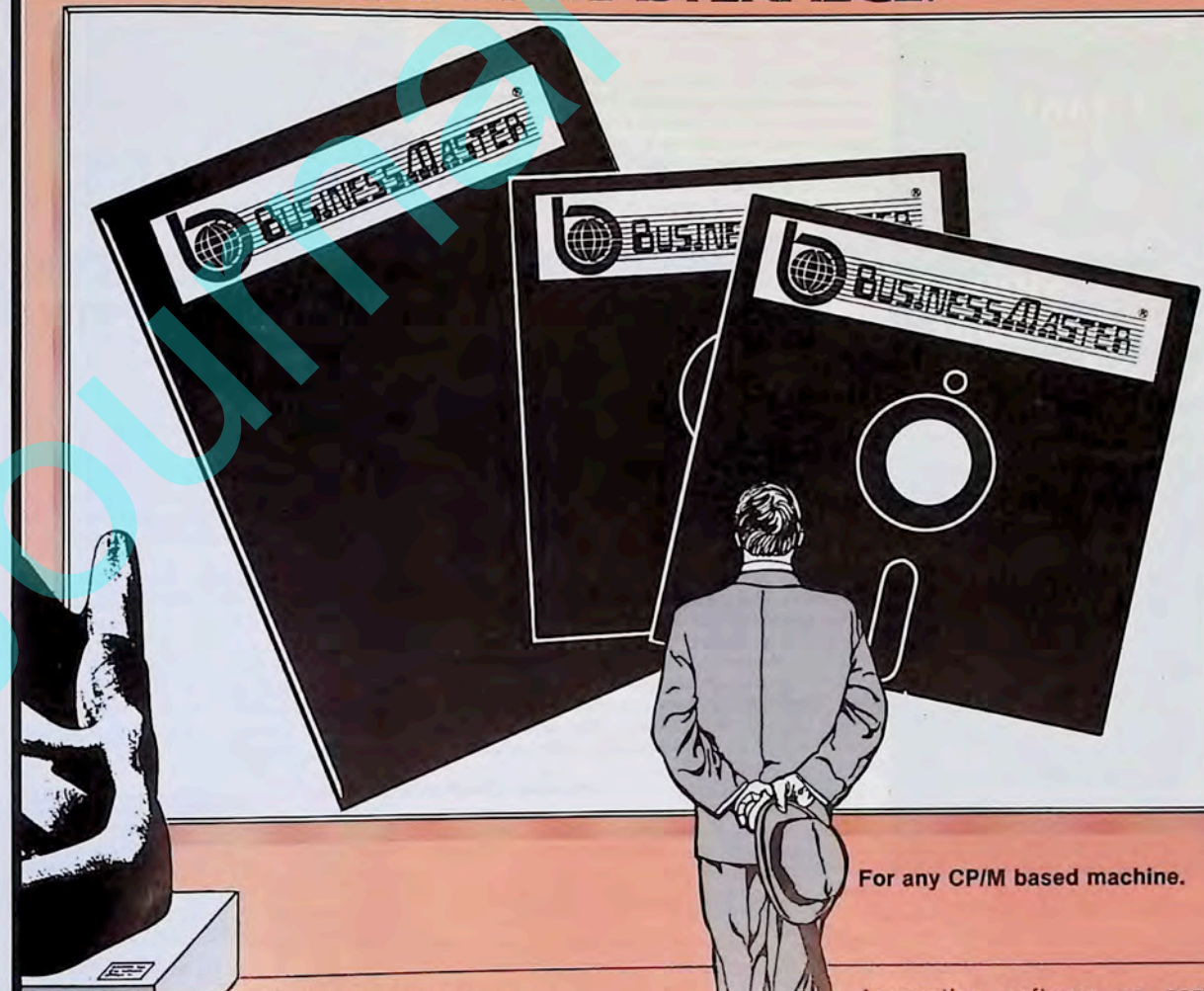
Ohnysty: I view it like a lot of children running around with loaded guns. Fortunately, we all wear bullet-proof vests so they can't do a whole lot of damage. But I think we just need more supervision and control over the guns in the hands of children. I just think a lot of people have not comprehended how much power one puts in the hands of a kid when he gets a computer. Actually, guns are a bad analogy, because people think of them emotionally as weapons. A far better analogy is cars. It's sort of like dropping the legal driving age to ten.

You see, the hacker right now is something of an idealized role model. I've been struggling to try and think of

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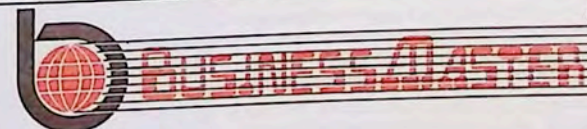
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You see, the hacker right now is something of an idealized role model. I've been struggling to try and think of a way to describe it, and the best I can come up with, is sort of a Robin Hood complex. The kid that goes charging off and does the impossible and conquers the foes.

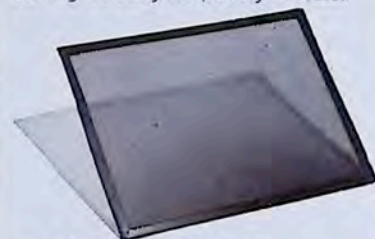
I don't think most hackers are committing acts of theft, per se, although industry likes to call stolen computer time "theft." The hacker is not stealing computer time as an act of theft, at least not to him, whereas I don't think that there's any doubt that the guy who bilks the bank's computer for a \$100,000, is thieving. There's a difference between the hacker as a game-player and the hacker as a thief. I don't think we have many hackers as thieves. □

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MAINFRAME

(Continued)

dewey says, "we rarely need the power of a mainframe." The capacity now exists, though, for the Kaypro to act as a terminal to the university of Washington's academic computer. Humanist scholars could open accounts and maintain data base files, then download into their micros what they need for their immediate work.

"Data base implications for English scholars are tremendous," Coldewey insists. He has begun taking dBase II classes. "With the Kaypro, we'll be able to take a bibliography program and store just stacks and stacks of references, annotations on books, and what not, for more or less instant retrieval." Coldewey will, in turn, have access to other scholars' bibliography files; should he want to look into an area outside his own specialty, it's only a matter of copying the diskette.

Software troubles

The biggest complaints among these specialized users concern software. Software packages, they say, are all written for businessmen. "The people who wrote Perfect Writer," one professor said, "never heard of the Chicago Manual of Style or the MLA Style Sheet." To be published, scholarly manuscripts have to follow specific guidelines. Footnotes, for example, have to be double-spaced.

Dolores Palomo, a specialist in Jacobean drama, was drooling at the Perfect Writer footnoting command. "There is nothing worse than having to number footnotes," she says. "Then I discovered they come out single-spaced with Perfect Writer, and that's just not acceptable. The second problem is that many of our footnotes are longer than the space allowed, forcing you to use a chaining technique. But revising is so easy and so free of errors. The computer frees up the mind." A colleague of Palomo's suggested to her that getting accustomed to this new technology "is probably what scholars went through after Gutenberg."

George Shipley, a scholar in Ro-

mance Languages, had a different problem—the inability to place accent marks, called diacriticals, in the hard copy or see them on the screen. With the help of his dealer's technical staff, and using WordStar, Shipley has managed to overcome this word processing inadequacy, which the manuals say can't be done.

Sarah Van Den Berg is the faculty adviser to Mortarboard, an undergraduate honor society on campus. In the first meeting, she asked new senior members how many of them owned a computer. Only one did. "I told them I

thought they were probably the last generation of high achievers who would be able to say that," Van Den Berg says. The same could be said for their professors as well.

Personal power

Searle is astonished at how quickly everything has mushroomed from the time he brought his home-built computer into the English office. The number of computing humanists will, no doubt, double in the year to come

(continued on page 91)

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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
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Interview with the author of S-Basic

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MAINFRAME

(Continued)

when they see the university willing to support their personal equipment purchases. The potential end result, an integrated campus computer system, may in the long run be more creative than the more typical centralized systems in other schools.

The English department's unique approach to computerization, mixing private and university-owned equipment, is seen by George Shipley as "an intriguing project that doesn't depend on power and authority in the hands of a few who will dole out the goodies. It decentralizes that power as a matter of policy rather than by accident. Humanists tend to work as individual scholars and individual minds, not as teams. A decentralized system like this gives power to people who can plug in." And most faculty can afford the price of a micro.

As Searle points out, "For the price of an IBM self-correcting typing system you can get a serious computer, not a game player, and with no trouble at all you can integrate into a larger system. I have no hesitation saying these other universities with centralized systems aren't going to come up with much. They already missed the boat. They don't have the flexibility or the responsiveness of a pluralistic system. I think the University of Washington, for all its financial disadvantages, is coming up with something quite interesting." □



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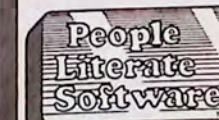
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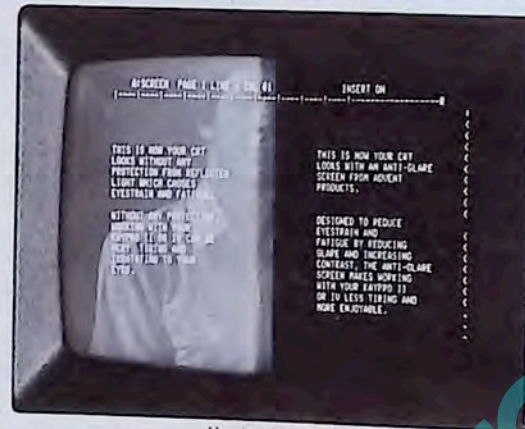
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Next issue

Our January/February issue will examine the differences—real and perceived—between computer users and computer programmers. Will the new breed of data base programs make custom programming obsolete? How necessary is a knowledge of CP/M or BASIC to making the machine do what you want? What

kind of mind does it take to become proficient in programming? We'll look at those questions, and we'll have the first in a series of tutorial articles on S-BASIC. Next issue will also see the debut of Terian Tyre's column on Women and Computers, and news of the Pro/Files bulletin board coming in 1984.

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Until now, that meant you were forced to pay money for application software off the shelf, or if you could afford it, have it custom written for you, or if you were qualified, do it yourself...spending endless hours figuring it out and writing it. Now, your computer can write individual application programs for you. These programs are each separate, unique software programs that run in the standard BASIC on your computer.

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Byte Magazine, April 1983

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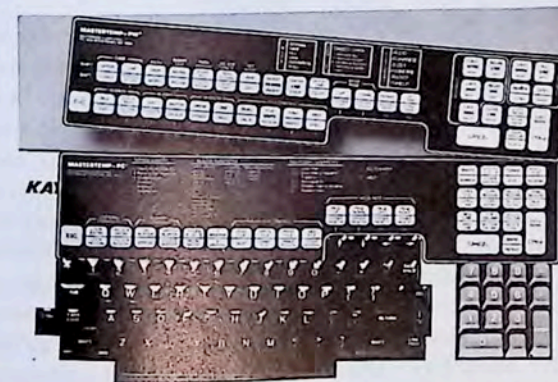
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New products

Bells and whistles for the 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.

Internal modem. Designed for all Kaypro computers, this new modem is a 300 baud, auto-answer, auto-dial, direct connect that's easy to install with no drilling, soldering, or computer modification needed. The Datasolver 300 AD/Direct Connect can also be easily removed.

Drawing only 200 mw, the DS300AD draws its power from the Kaypro. It can be connected to any standard direct-dial modular telephone line. All cables come with purchase. Datasolvers will be introducing a 1200 baud, Hayes-compatible internal modem for the Kaypro in the near future.

The modem comes complete with operational software, a one-year warranty and an hour on The Source. Recommended retail price is \$229.

Contact your local Kaypro dealer or Datasolvers, 509 S. Fern, Wichita, KS 67213, (316) 264-5068.

Real-time clock/calendar. This battery-operated clock eliminates the

need to constantly re-enter the time and date on your Kaypro II. The K-Clock plugs directly into the Z-80 socket inside the II and requires no technical know-how, modifications, or soldering to install. The diskette included with the K-Clock makes setting the clock/calendar and displaying the time/date as easy as using a wrist watch.

The K-Clock can be purchased for \$99.50, plus \$5.00 for shipping and handling, from Holmes Engineering, 5175 Greenpine Drive, Murray, Utah 84107, (801) 261-5652.

Clear acrylic stand. This attractive space-age design stand matches any decor while eliminating the usual problems of clutter and usable desk space. The Custom Kaypro Stand lifts the computer off the desk and places it on an angled platform, thus improving screen visibility and viewing comfort. The keyboard may be moved about freely by the operator and tucked underneath the stand when not in use. Another feature is the additional shelf, handy for storing diskettes, manuals and other frequently used items.

The suggested retail price is \$45.00. A clear vinyl custom fitted Dust Cover is also available for \$15.00; the Stand and Dust Cover purchased together

are \$55.00. Available through Kaypro dealers, or by mail from SGW. (Add \$3.00 for shipping and handling.) SGW has a free catalogue of products carefully selected for Kaypro users. SGW Enterprises, 722 Genevieve Street, Suite J, Solana Beach, CA 92075.

Software that improves your prose. If you think spelling checkers are a writer's dream come true, you're in for another treat with **Punctuation and Style**, a new program from the creators of **The Word Plus**. The program searches your text for grammar and punctuation errors and displays them on the screen. You may change, ignore, or mark problems for future reference. It looks for mistakes like misplaced commas, unbalanced quotes, improper abbreviations, missing capitalization, and incorrect command toggles. It also reviews your style, keeping track of misused, redundant, erroneous, faulty, and overused phrases. It then suggests alternatives. **Punctuation and Style** will remember those sentences you don't want to change and ignore them through subsequent passes. It's possible to edit the program to either remove errors you don't want checked or to add new ones to the list.

The company also provides a man-

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.....and yourself an inner peace. When Datasolvers introduced the DS300AD, the first internal modem for Kaypro, we did it because you told us you were tired of dragging along an external modem with your portable system. It just didn't make sense! You also said you were weary of constantly connecting and disconnecting the external carry alongs. We listened to your needs, and provided a quality product in response. The DS300AD, a 300 baud, auto-dial/auto-answer, internal modem.... the answer at a cost of only \$199.00 (comes complete with 180 day warranty and software on diskette).

We didn't stop listening there however.... You said you wanted 1200 baud rate with Hayes compatibility, so

we've responded again. Datasolvers is pleased to announce our internal modem expansion with the introduction of the DS1200SMT. This modem is a 300/1200 baud, Hayes compatible modem that is installed internally without any soldering, drilling or Kaypro modification. And, the modem comes complete with a 90 day warranty, all needed cables, and software at a price of only \$427.50.

More and more in today's computer world you have need of a modem. The ways of communicating are unlike ever before; don't miss out! Get a modem that is quality made, and one that makes sense; a DS300AD or DS1200SMT. Check your local Kaypro dealer for details, or call us at the number listed below.



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NEW PRODUCTS

(Continued)

ual containing 50 pages of specific examples that show how to improve your writing.

Available for \$125 from Oasis Systems, 2765 Reynard Way, San Diego, CA 92103, (619) 222-1153.

Graphics adaptor board. This add-on gives the Kaypro II some of the capabilities of a Heath/Zenith H19 terminal, including reverse video, 32 graphics characters, protected status line, block/invisible cursor, keyclick on/off, reverse index, insert character, additional erase commands, enhanced keypad support, and more. The Graphics Adapter Board also lets the Kaypro owners have access to a wealth of H19 graphic games and business software.

The board is about the size of a playing card and requires a Phillips screwdriver to install.

The price is \$175. Contact Gilderfluke & Company, 120 Midway Drive, #013, Anaheim, CA 92805, (714) 776-2207.

Script formatter. Scriptor is not a text editor, it's a text formatter designed to eliminate the time-consuming technicalities of formatting screenplays on a microcomputer. Scriptor utilizes command menus to guide you through over thirty menu-settable variables and sixteen formats which can be saved and recalled.

Intelligent page breaking is a highlighted feature of Scriptor. It knows where it is both permissible and aesthetic to make a page break. If it must break dialogue, "(more)" will be added under the interrupted dialogue, and the character name, followed by "(cont'd)", will be copied to the top of the next page. Later, if the script is re-

processed, the broken dialogue will be automatically reconnected, as if the break never took place.

How Scriptor operates is the secret of its power. It takes a script and creates a whole new file, containing all re-formatted text, page numbers, continuations, etc. This new file is in addition to the source file and still in pure screenplay format; you have a choice of which to edit. Each script is processed as one contiguous file, regardless of how many diskettes that may be.

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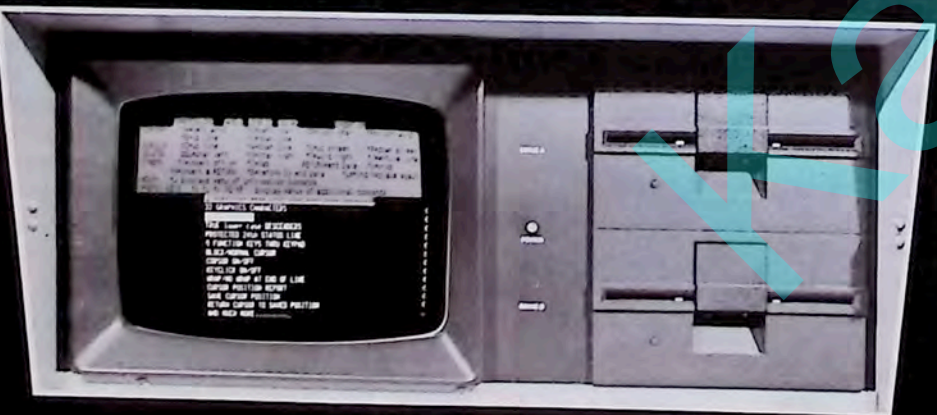
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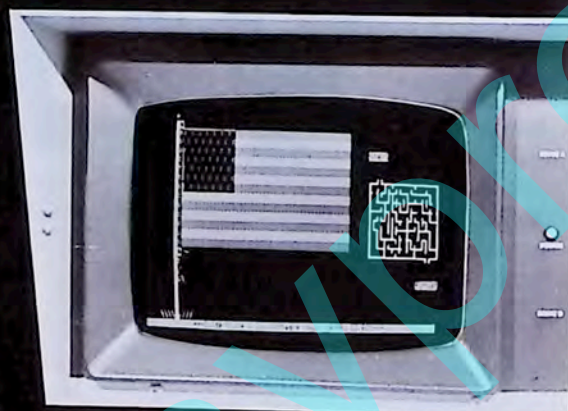
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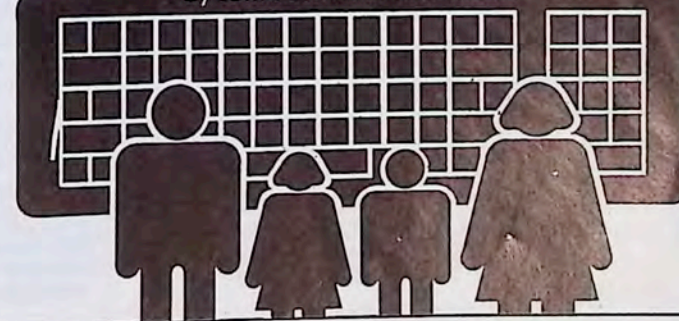
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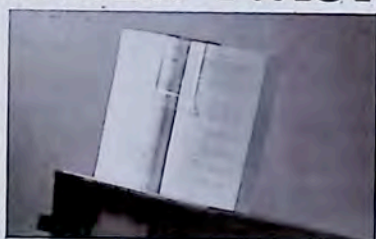
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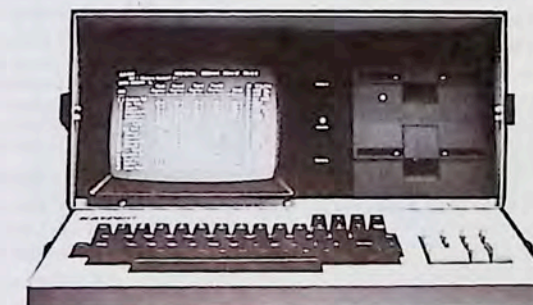
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Users' groups

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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 hardware 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, a meeting place, and a phone number for further informa-

tion. 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 involve 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 Newsletter, 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, manufacturers of the Kaypro line of portable computers. Therefore, we can take no responsibility for the accuracy of the information in the list below, nor for the activities of the groups themselves. For further information, write to Clifford Odendhal, KUG Manager, Kaypro Corp., 533 Stevens Ave., Solana Beach, CA 92075.

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Kaypro Users' Group
P.O. Box 100
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Birmingham Area KUG
4165 Sharpsburg Dr.
Birmingham, AL 35213

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Political Science Dept., UCLA
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BAK-UP
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Oakland, CA 94620

Kaypro Special Interest Group
North Orange County Computer Club
P.O. Box 3616
Orange, CA 92665

Kaypro SIG
San Diego Computer Society
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San Diego, CA 92128

North Bay KUG
1266 Kerney St.
Santa Rosa, CA 95401

Santa Cruz KUG
1005 Cedar St.
Santa Cruz, CA 95060

KUG-San Fernando Valley
c/o Unicom Inc.
18639 Ventura Blvd.
Tarzana, CA 91356

TUG—Tehachapi Users' Group
P.O. Box 323
Tehachapi, CA 93561
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171 Unity Way
Vista, CA 92083

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Woodland Hills, CA 91367

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Aspen, CO 81611

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Aurora, CO 80013

Kaypro User's Association of
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Fort Collins, CO 80522
Loveland/Greeley KUG
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Loveland, CO 80537

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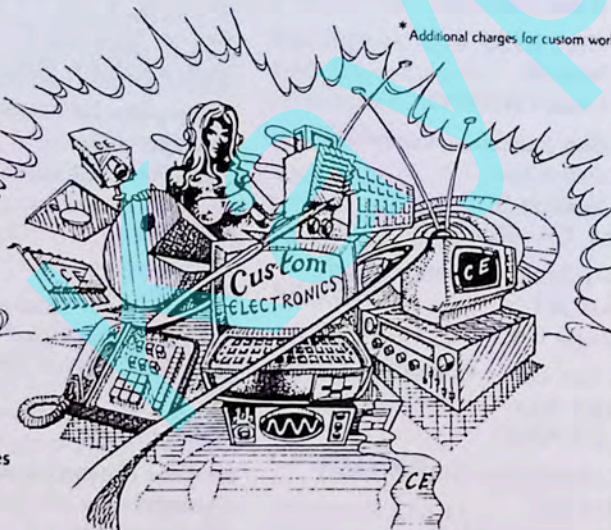
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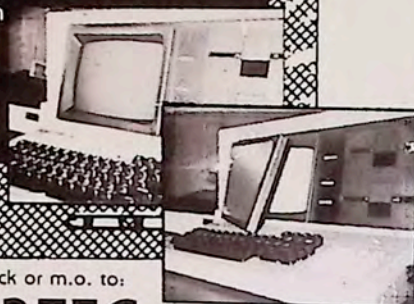
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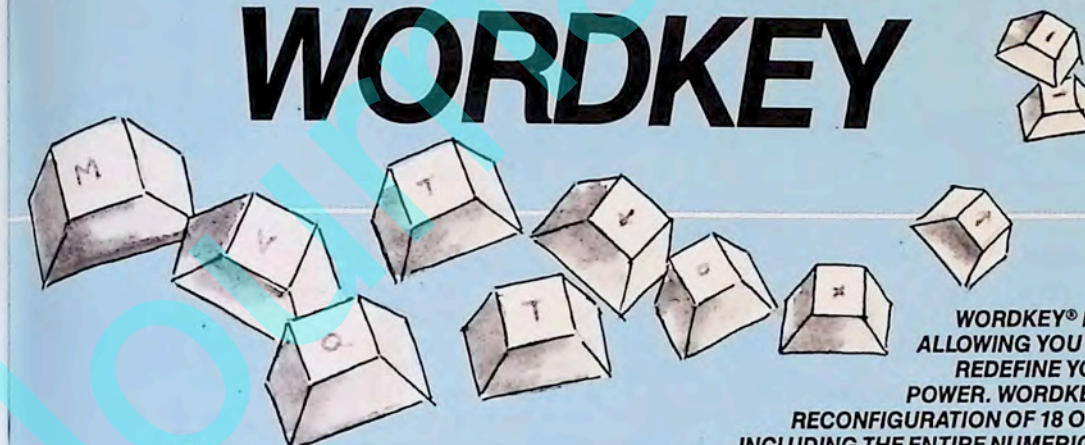
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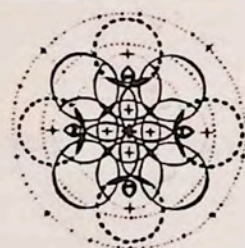
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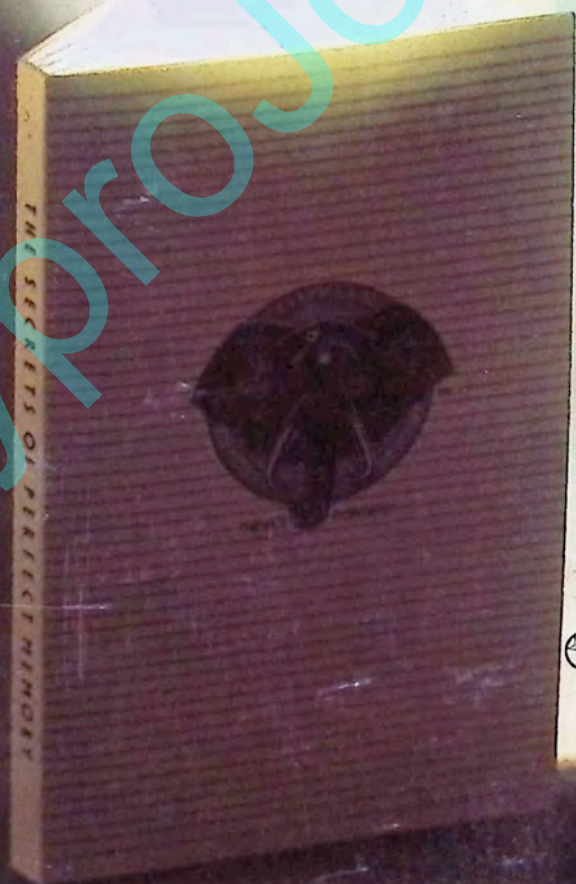
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