The Z-Letter

Newsletter of the CP/M and Z-System community

Number 38   July/August 1995

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Welcome to *The Z-Letter*, the newsletter of the CP/M and Z-System community. *TZL* is copyright © 1995 by David A.J. McGlone, Lambda Software Publishing, 149 West Hilliard Lane, Eugene, Oregon 97404-3057, phone (503) 688-3563, email d.mcglone@genie.geis.com.

The purpose of this magazine is to spread the news of our community, and to help newcomers get the most out of their machines. We welcome news, product reviews, how-to articles, praise, gripes, or just plain questions. Please submit material online to the email address above, on any size floppy disk in any soft-sector format, or typed or printed on clean white unlined paper. We cannot pay for articles, but the author of any article we publish will receive that issue of *The Z-Letter* free. If the author has a subscription, the subscription will be extended for one issue.

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The Z-Letter is indexed as time permits. The index for issues 1-5 appeared in issue 5. Sections of an index for issues 1-34 will appear all this year (issues 35-40).

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RANDOM ACCESS

Morrow 2, 3 UniForm available

Thanks to **Jay Huddleston**, who sent me a copy, UniForm for the Morrow MD-2 and MD-3 is now available again. Previously I had only the version for the CP/M-Plus Morrows: the MD-5, -11, etc.

XLT86 1.1 available

Herb Johnson recently donated some software to my library, including a copy of XLT86 from Digital Research. This product translates 8080 assembly-language source code to 8086 assembly-language source code. It was used a lot in the three years after the IBM PC was introduced, when everybody's CP/M products were being translated for MS-DOS, so that the PC would have some software. XLT86 is sold through my contract with Novell.

The kindness of non-strangers

When people donate things to Lambda, rather than throwing them away, I try to acknowledge the donations in *The Z-Letter*. Sometimes I forget by the time the next issue comes out. I apologize to anyone who's been slighted that way.

Elliott Payson sent me two copies of the manual for double density for the Big Board or Xerox 820, plus an original 8" disk of the software.

Jay Sage gave me original copies of the manuals for Loki Engineering's Magic-L programming language.

Patrick J. Healy, a long-time member of the Screaming Eagles user's group, let me have two Eagle II computers, plus manuals and software, for the price of "you come get it, and it's yours".

Ken Thomson has been picking up things I might want in his garage-saling (if that's a verb). **Carol Jacobs** just returned from a trip to San Jose, bringing with her the Eagles from Patrick Healy, and from Ken three boxes of floppy disks (including 10 boxes of vinyl disk sleeves), two boxes of floppy-disk drives and hard disks, a monitor, some books, and some tape drives and the software to run them.

To these kind souls, and to any others I forgot to mention, my fervent thanks.

TVI 995 graphics "fixed"

One of the things that griped me about my new TVI 995 terminal was the graphics on it, which were apparently different from those of the TVI 965 I had been using. My subscriber and subscription data-base program, which drew nice boxes on the 965, displayed foreign accented characters on the 995 instead of the proper graphics verticals, horizontals, corners and joins.

This was on my list of things to deal with someday, but the 995 is so new that the programmer's manual wasn't available yet from TeleVideo. Tina Huovinen spurred me to call TeleVideo by asking me why the data-base program was so much uglier on the 995 than the much-older 950 terminal she's using.

DeMaris Williams in TeleVideo's customer-support department was very helpful. According to his information, the graphics on the 995 should have been the same as the 965. Despite no previous reports of this problem, he had me try the experiment of resetting the terminal to the factory defaults in the built-in SETUP program.

Lo and behold, suddenly the graphics worked properly. Apparently, someone at TeleVideo had used my 995 for something, and had downloaded a different character set than the standard. It must have been someone at TeleVideo, because I bought the terminal, new, directly from them.

The whole experience is a reminder to always question your assumptions. If a printer had been acting weird, I would have reset it as a matter of course. From now on, when I get a terminal, I will reset it to factory defaults right away.

NZ-COM "downdated"

Gary Ratliff's article, last issue, on NZ-COM and the HP 125 led me to take a close look at NZ-COM 12H, the current version. Gary mentioned VLU as a standard utility included with NZ-COM, which squared with what I remembered when I got NZ-COM 1.2D from Joe Wright for use on an Eagle. However, VLU is not included with 12H as revised by Jay Sage and Bridger Mitchell. A comparison of the utilities bundled with the two versions showed many other differences.

To make sure that purchasers of NZ-COM are not "cheated" out of any utility programs, I have added all the utilities from 12D to the 12H set, on separate disks. Henceforth anyone who orders NZ-COM will get both sets of programs. There is some duplication between the two sets, but the important thing is that nothing will be missing.

TCJ to change editors

Bill Kibler, burned out as editor of *The Computer Journal*, is looking for a person or team to take over the magazine. Bill has shipped #74, and intends to oversee #75 and #76, too; the new person or persons would begin with issue #77. If you are interested, contact him at the address listed for *The Computer Journal* in our RESOURCES section.

ZDB24A released

Terry Hazen has released version 2.4A of ZDB, the Z-System data-base program described by its other author, Joseph Mortensen, in issue 30. This version of ZDB comes with a utility to translate comma-delimited files, such as dBase II uses, into ZDB format. It can also print two-column labels and envelopes directly on printers using the PCL language, meaning all H-P LaserJet printers and many other H-P printers as well.

Note that ZDB is not a CP/M program; it requires the Z-System to run. So if you want to try it out, you'll have to run NZ-COM or Z3PLUS first, depending on whether your computer runs CP/M 2.2 or 3.0, respectively. ZDB further requires an extended TCAP of the kind described by Gary Ratliff in "The Z-System on an HP 125" in issue #37. The older kind of TCAP without the graphics characters is not sufficient.

You can contact Terry at 21460 Bear Creek Road, Los Gatos CA 95030-8210, phone (408) 354-7188. You can also reach him on a BBS called The Zee-Machine, (408) 245-1420.

Working Assets Long Distance

Included in the envelope with *The Z-Letter* this time around is a postcard-sized ad for Working Assets Long Distance. WALD is a long-distance company that donates an amount equal to a percentage of all its customers' bills to extremely worthwhile causes. Besides saving money on your long distance if you join, you will also be contributing to the future of mankind. Also, if you mention my name and phone number (503) 688-3563 when you join, Lambda will get $10 off its phone bill for you.

Have I "sold out"? I don't think so. Getting the postcards from WALD and including them was my idea, not theirs. Motivation is important here. I would do this even if it got Lambda no credit on my office phone bill, because I believe in the causes that WALD supports. I promise to do this only once a year.

Old-computer awareness mounts

Cherishing obsolete computers is becoming less odd in the public eye, to judge by two recent articles sent to me by readers.

From Ken Thomson comes John C. Dvorak's column in the June 26, 1995 issue of *Microtimes*. Titled *Junk Or History? Time Will Tell*, Dvorak's column nominates the Apple I "which isn't really a computer", as the "top machine to collect". Of course, he also calls the SOL-20 his "top pick to click" three paragraphs later; consistency has never been Dvorak's strong point. After rambling through mentions of many other pieces of hardware, he finishes by saying the original IBM PC "may become the most collectible of all."

The good people at Sydex sent me *A Trusty Machine That Got the Job Done*, a torrent of praise for the Kaypro II by Roderick Nordell. This appeared in the May 25, 1995 issue of *The Christian Science Monitor*.

No more typewriters

Smith-Corona's typewriter division announced in July that the company, the last manufacturer of typewriters, will no longer produce them. This announcement was greeted with many sad stories from old-time reporters, no doubt addicted to White-Out fumes.

Personally, I'm amazed that Smith-Corona held out so long. The fact that typewriters are still being made in 1995 can only be read as damning proof that personal computers have not lived up to their potential. Apparently people are still putting up with typewriter key noise, untangling jammed keys, making corrections with White-Out, and retyping whole documents when major revisions are called for, twenty years into the personal computer age! That means that computers are more intimidating, and are more perceived as hard to use, than my worse nightmares.

New Amigas coming

Meanwhile, a machine that deserves the loyalty it receives is making a comeback. German computer company Escom AG bought the assets and technology of Commodore Business Systems, and plans new Amiga models.

Amiga 4000 tower systems are scheduled to be available in August, mostly through video production retails. They will include a SCSI interface, and SCALA, a software-development tool for interactive multimedia productions, from SCALA Software of Norway.

Other models planned include the A1200, a lower-end product, and the Amiga CD32, a non-keyboard game machine with a built-in CD-ROM drive.

The Amiga is a non-CP/M machine based on the Motorola 68000 CPU series. However, a Z80 emulator for it, called AmigaZ80, is available from Lambda. True CP/M and Z-System can run on the Amiga using the AmigaZ80 software to emulate a Zilog Z80 CPU.

Reminder: Oregon gets new area code

All of Oregon has been area code 503 for as long as there have been area codes. With multiple phones per household, plus cellular phones, car phones, pagers, faxes, and modems, there are no longer enough 503 numbers. Effective November 5, 1995, the northwestern corner of the state, including Portland, will retain area code 503; the rest of the state, including Eugene, will switch to area code 541. This notice will be repeated in *The Z-Letter* until the change occurs.

Area codes used to have a middle digit of 0 or 1 until the nationwide number crunch used all those up. Some older phone switches don't recognize area codes with middle numbers other than 0 or 1. To test whether YOU will be able to phone Eugene after November, dial information in a new-style area code and see whether you get through. I suggest 360, the new area code for western Washington state except for the Seattle, Tacoma, and Everett area. If you can get through to 1-360-555-1212, all's well. If not, call your local phone company and/or your long-distance phone company, and start badgering them to make the necessary changes NOW. As new area codes are established all over the country, this problem will become more and more widespread.

Who's Who in the West

It's official: yours truly is going to be listed in the 25th edition of *Who's Who in the West*, a companion volume to *Who's Who in America*. The galley proof which I returned reads:

MCGLONE, DAVID ANTHONY JOSEPH, publishing executive; b. Castle AFB, Calif., Feb. 28, 1952; s. Willard Estel and Joan Marianne (Legrande) M.; m. Carolyn Frances Illig, July 30, 1973 (div. 1978); m. Deborah Snavely, May 1, 1977. Student, San Diego State U., 1970-72. Cook various restaurants, San Diego, Riverside, Calif., 1972-77; keypunch operator Mrs. Keypunch, San Francisco, 1977-78; messenger, dispatcher Bradford Security Trust Co., San Francisco, 1978-81; with customer support dept. Tymshare, Sunnyvale, Calif., 1983; tech., software developer Tandem Computers, Cupertino, Calif., 1984-92; pres. Lambda Software Pub., Eugene, Oreg., 1988—. Editor, pub. The Z-Letter, 1988—, Eagle Computer User Group NL, 1987-90, Kirjasto, 1982-84; author: (software) LPascal, 1992-93. Contbr. So. Poverty Law Ctr., 1985—. SSG, USAR, 1976-82. Mem. Hist. Computer Soc., Amnesty Internat., ACLU, Soc. for Creative Anachronism (Order of Laurel 1976, Order of Pelican 1979). Democrat. Avocations: writing software, writing fiction, reading, collecting computers, playing the recorder. Home and Office: 149 W Hilliard Ln Eugene OR 97404-3057.

Who's Who in the West is published by Marquis Who's Who, 121 Chanlon Road, New Providence NJ 07974, phone (800) 521-8110 ext. 7014. The cost is $249.95 for the "Classic 25th Edition" or $289.95 for the "Leather-Bound Deluxe 25th Edition". Myself, I can't afford a copy.

Revised indexing schedule

The third section of the index to issues 1-34, the Subjects section, will not appear in this and the next issue as originally planned. The reason? It's simply too large. Even divided into three installments, it would crowd out too much of the regular features.

The entire index for this year's issues, issues 35-40, will still appear in issue 40 as planned. Shortly thereafter, the combined index for issues 1-40 will be available as a separate publication, which will include all the Subjects information for issues 1-34.

NEXT ISSUE

Bob Vinisky and Tina Huovinen will continue their columns, and I will describe the quirks of my new YASBEC. If space permits and they finish it in time, Gina Jefferson and Katey Mackie will write about running CP/M programs on that most unlikely of CP/M computers, the PC. See you then.

SPELLBOUND

Soft keys for many TeleVideo models
by Tina Huovinen

Hi! This is the first installment of SPELLBOUND, a column about Spellbinder Word Processor. Since I'm new to Spellbinder, I thought I could share my discoveries with you as I make them. David will let me know if I mess up, but we're counting on you old-time Spellbinder users out there to catch any goofs he misses. So let us hear from you!

Ye Olde Editor asked me to say something about myself first, so you'd have an idea who I am and where I'm coming from. My name is Christina Frederica Huovinen, but my friends (including all *TZL* readers, I hope) just call me Tina. I was born right here in Eugene, Oregon, and I've lived here all my life. Huovinen is pronounced HUGH-oh-vie-nen. In my grandfather's native Finland it would be pronounced HOO-oh-vee-nen, but we Americanized it a long time ago. I was born September 1, 1976; I graduated from a Catholic high school this June, and I start as a freshman at the University of Oregon (Go Ducks!) this September. I'm 5'4" tall, I weigh 120 pounds, my hair is blonde, and my eyes are sometimes green, sometimes blue. I have a father, Wilho (Finnish for William), a mother, Ann, and a sister, Margaret.

How I got into CP/M

I never heard of CP/M before June. I have a Macintosh at home, which I used to do my homework, play games, draw pictures, etc. But one day I was in the UO library, when a strange man looked at my notebook, and said, "Huovinen? What part of Finland does your family come from?" I'd never met anyone before who recognized Huovinen as a Finnish name, and pronounced it right! He even knew about the writer Veikko Huovinen, a distant cousin.

So I took him home to meet my family, and my Dad invited him to dinner. It turns out that David had a Finnish "persona" in something called the Society for Creative Anachronism, and did lots of reading about Finland. He has books about prehistoric and medieval Finland, and Finnish dictionaries!

The first thing I saw in David's house was the computers everywhere. He told me all about CP/M, and showed me all kinds of old computers, including some Apple IIs and IIIs, and some programs, such as Spellbinder, and the data-base program he wrote to keep track of subscribers and subscriptions. "Subscribers to what?" I asked innocently. So then he showed me *The Z-Letter*.

By the time my family left for vacation in the Grand Tetons, right after graduation, I was playing around with David's old computer, and had promised to do a column on Spellbinder. I think he thought I might change my mind by the time I came back, but here I am, and here we go.

Getting organized

Since David has switched to a YASBEC computer, his Micromint SB180FX is free for me to use. We moved the office copier and put the SB180FX in its place, so that both computers can reach the laser printer. For a terminal, we dug out the TeleVideo 950 that David had used before he got his 965. David showed me how to install the Spellbinder table for the 950 that he used to use (see *Introduction to Spellbinder*, "Customizing Spellbinder for a TeleVideo 950 terminal").

This table goes back quite a few years. It doesn't use soft keys, so the eleven function keys are programmed for edit-mode commands, and the other keys along the top of the keyboard, which can't be programmed, are assigned to command-mode commands inside Spellbinder itself. You can write over your text by hitting a command-mode key while in edit mode. Also, we both wanted both keyboards to work the same, so we could use either machine without switching between two sets of reflexes.

So it fell on me, the novice Spellbinder user, to read through the Spellbinder manuals, and the articles

in *The Z-Letter*, and figure out how to make the 950 keyboard work like the 965's. Oh joy!

Breaking the task in half

David set up the soft keys on the 965 in two steps ("Setting up Spellbinder's soft keys", *TZL* 35, pp. 14-17). First he wrote a custom table 7 to substitute single characters not emitted by any other keys on the keyboard for the three-key sequence emitted by the function keys. Then a custom table 13 defines what commands these values stand for in edit mode, and what they stand for in command mode.

I realized that the second half of what he did wouldn't have to be changed. By writing a different table 7 for the 950, I could assign its 11 function keys and the first five keys to their right to the same values as the 965's 16 function keys. Then the same soft-key table could be used to give me the same results on the 950's keyboard as the 965's.

In fact, using this approach, we could use custom MKTAB tables with the same soft-key table on any of the common TeleVideo terminals and computers. David suggested the 925, 950, 970, 965, and 995 terminals, and the 802, 802H, 803, 803H, and TPC-I computers. These are the most common terminals, and he doesn't have any others here. And the other models of TeleVideo computers use terminals, but these models have terminals built in.

Digging through the files

"It shouldn't add much work to include the other terminals and computers," David said, "because they're all very much alike, anyway. The arrow keys may be a little different." Well, yes and no, as it turned out.

The first thing I did was dig out the manuals for the models David listed. He's had a love affair with TeleVideo for a long time, judging by the drawers full of documentation. The function keys are all very similar. All TeleVideo function keys emit Control-A, some character, Carriage-Return, where the character in the middle is:

Key	Unshifted	Shifted
F1	@	'
F2	A	a
F3	B	b
F4	C	c
F5	D	d
F6	E	e
F7	F	f
F8	G	g
F9	H	h
F10	I	i
F11	J	j
F12	K	k
F13	L	l
F14	M	m
F15	N	n
F16	O	o

The 925's function keys are not programmable; all the other models have programmable function keys. Since we're not programming them, this doesn't matter. The 925, 950, 802, and 802H have only 11 function keys; the 970, 965, 995, 803, and 803H have 16. The 965 and 995 have a second set of function-key values you can switch to by sending an escape sequence to the terminal; we're not going to use it, and the values shown above are the normal ones. The TPC-I has 10 function keys arranged to the left of the keyboard, like a PC; to use the F11 through F16 values, hold down the CONTROL key while hitting F1 through F6. To get SF11 through SF16, hold down both CONTROL and SHIFT while pressing F1 through F6.

Digging through the *piles*

The TeleVideo manuals are very technical, and they go into quite a lot of detail on programming the machines and using all sorts of strange features, not only graphics but protected mode, edit mode, and so forth. When it came to telling me what the keys emit other than the function keys, such as HOME, they were less helpful. In many cases I couldn't find out what a key emits when shifted. So I asked David to drag out the actual machines (he gets so few chances to be macho), so I could fill in the gaps. There's no working 925 or 970 in the house, so values not found in the manuals are marked "unknown" in the table on the next page. When a machine has no equivalent key, the table says "no such key."

There were lots of differences. About the only constants were the LINE FEED and DEL keys, which emit Control-J and Delete on every model, shifted or not.

Generally speaking, the 925, 950, 802, 965, and 995 are very similar to each other, and the 970, 803, and 803H form another similar group. The TPC-I is closer to the second group, but it has a keyboard layout similar to a PC, which distorts everything. Its HOME key is the 7 key on the numeric keypad, the down arrow is the 2 key, the up arrow is the 8, the left arrow is the 4, and the right arrow is the 6. The 0 key is labeled "Ins" rather than "Line Insert", the 1 key is labeled "End" instead of "Line Delete", and the 3 key "Pg Dn" instead of "Page Erase". The 5 key, which

emits the same characters as the other models' "Line Erase", isn't labeled. The 9 key, also labeled "Pg Up", emits Escape K unshifted, Escape J shifted. This corresponds to the "Page" key on an 803 or 803H.

Key	925	950	970	965/995	802/802H	803/803H	TPC-I
Home	Control-^	Control-^	Control-^	Control-^	Control-^	Control-^	Control-^
shifted	*unknown*	Control-^	*unknown*	Control-^	Control-^	Control-F	Control-F
Down arrow	Control-V	Control-V	Control-V	Control-V	Control-V	Control-V	Control-V
shifted	*unknown*	Control-J	Control-V	Control-J	Control-M	Control-W	Control-W
Up arrow	Control-K	Control-K	Control-K	Control-K	Control-K	Control-K	Control-K
shifted	*unknown*	Escape j	Control-K	Escape j	Escape j	Control-T	Control-T
Left arrow	Control-H	Control-H	Control-H	Control-H	Control-H	Control-H	Control-H
shifted	*unknown*	Control-H	Control-H	Control-H	Control-H	Control-H	Control-H
Right arrow	Control-L	Control-L	Control-L	Control-L	Control-L	Control-L	Control-L
shifted	*unknown*	Control-L	Control-L	Control-L	Control-L	Control-\	Control-\
Backspace	Control-H	Control-H	Control-H	Control-H	Control-H	Control-H	Control-H
shifted	*unknown*	Control-H	Control-H	Control-H	Control-H	Control-G	Control-G
Tab	Control-I	Control-I	Control-I	Control-I	Control-I	Control-I	Control-I
shifted	*unknown*	Control-I	Control-I	Escape I	Control-I	Escape I	Escape I
Back tab	Escape I	Escape I	Escape I	Escape I	Escape I	Escape I	*no such key*
shifted	*unknown*	Escape I	Escape I	Escape I	Escape I	Escape I	*no such key*
Char insert	Escape Q	Escape Q	Escape Q	Escape Q	Escape Q	Escape Q	*no such key*
shifted	*unknown*	Escape q	Escape q	Escape q	Escape q	Escape q	*no such key*
Char delete	Escape W	Escape W	Escape W	Escape W	Escape W	Escape W	*no such key*
shifted	*unknown*	Escape r	*unknown*	Escape r	Escape r	Escape r	*no such key*
Line insert	Escape E	Escape E	Escape E	Escape E	Escape E	Escape E	Escape E
shifted	*unknown*	Escape N	Escape N	Escape N	Escape N	Escape N	Escape N
Line delete	Escape R	Escape R	Escape R	Escape R	Escape R	Escape R	Escape R
shifted	*unknown*	Escape O	Escape O	Escape O	Escape O	Escape O	Escape O
Line erase	Escape T	Escape T	Escape T	Escape T	Escape T	Escape T	Escape T
shifted	Escape t	Escape t	Escape t	Escape t	Escape t	Escape t	Escape t
Page erase	Escape Y	Escape Y	Escape Y	Escape Y	Escape Y	Escape Y	Escape Y
shifted	Escape y	Escape y	Escape y	Escape y	Escape y	Escape y	Escape y
Send	*unknown*	Escape 7	Escape 7	Escape 7	Escape 7	*no such key*	*no such key*
shifted	*unknown*	Escape 6	Escape 6	Escape 6	Escape 6	*no such key*	*no such key*

Changes to the MKTAB table

"Wait a minute!" I said. "This isn't the same as the table in issue 35!"

"No," David agreed. "There are several small changes, and one big one. I added four lines to the MKTAB table so that I can type 3½", 5¼", Lambda Software Publishing, and *The Z-Letter* with two keystrokes each; holding down the FUNCT key and tapping ";", "'", "[", and "]" respectively. I have to type these often enough that is was worth defining special keys for them. I chose these particular keys because the semi-colon and apostrophe are the next pair of keys past L, and [and] are the pair of keys next to P. If I had three phrases I wanted keys for, I could use the comma, period, and slash for them."

```
&7
    001 ; MULTI-KEY LEAD-IN 1 is the ASCII value for CONTROL-A.
    013 ; TERMINATOR 1 is the ASCII value for carriage return.
    003 ; KEY COUNT 1 equals 3. Each key sends a 3-character sequence.
    000 ; SHIFT FLAG 1 equals 1. Ignore upper/lower case.
    016 ; DELAY is set to 16.
    027 ; MULTI-KEY LEAD-IN 2 is the ASCII value for ESCAPE.
    000 ; TERMINATOR 2 indicates no terminator is necessary.
    002 ; KEY COUNT 2 equals 2. Each key sends a 2-character sequence.
    000 ; SHIFT FLAG 2 equals 0. Do NOT ignore upper/lower case.
```

```
016 ; DELAY is set to 16.
;
001 ; This byte indicates beginning of first multi-key lead-in block.
      ; All strings following are for keys with a lead-in of CTRL-A and
      ; terminated with carriage return. These values are generated by
      ; holding down the FUNCT key and striking the key indicated. The
      ; function keys also emit sequences of this type. Any such
      ; combinations not included in this table will be ignored by
      ; Spellbinder.                    KEY
039 '5~=010~$~=001~" ' 255         ;  apostrophe
045 '~=939~' 255                   ; "-"    18-point titles
048 '~=010~' 255                   ; "0"    MagicSymbol
049 '~=001~' 255                   ; "1"    Normal text
050 '~=002~' 255                   ; "2"    Bold text
051 '~=003~' 255                   ; "3"    Italic text
052 '~=004~' 255                   ; "4"    Bold italic text
053 '~=005~' 255                   ; "5"    Special symbols
054 '~=083~' 255                   ; "6"    Math symbols
055 '~=701~' 255                   ; "7"    14-point titles
056 '~=184~' 255                   ; "8"    Bold Greek
057 '~=323~' 255                   ; "9"    Italic Greek
059 '3~=010~@~=001~" ' 255         ; semi-colon
064 222 255   065 223 255   066 224 255   067 225 255  ; F1    F2    F3    F4
068 226 255   069 227 255   070 228 255   071 229 255  ; F5    F6    F7    F8
072 230 255   073 231 255   074 232 255   075 233 255  ; F9    F10   F11   F12
076 023 255   077 235 255   078 236 255   079 237 255  ; F13   F14   F15   F16
091 'Lambda Software Publishing' 255                   ; [
093 '~=003~The Z-Letter ~=001~ ' 255                   ; ]
096 238 255   097 239 255   098 240 255   099 241 255  ; SF1   SF2   SF3   SF4
100 242 255   101 243 255   102 244 255   103 245 255  ; SF5   SF6   SF7   SF8
104 246 255   105 247 255   106 248 255   107 249 255  ; SF9   SF10  SF11  SF12
108 250 255   109 251 255   110 252 255   111 253 255  ; SF13  SF14  SF15  SF16
255 ; Block Terminator
;
027 ; This byte indicates beginning of second multi-key lead-in block.
      ; All strings following are for keys with a lead-in of "ESCAPE".
      ;                    BEFORE     AFTER     SB FUNCTION     TVI 965 KEY AFFECTED
081 019 002 006 255   ; ESC Q      ^S^B^F    'Line End'      CHAR INSERT
106 011 255           ; ESC j      CTR-K     Cursor Up       Shifted Up arrow
255 ; Block Terminator
;
254 ;                    SPECIAL TABLE FOR SINGLE-CODE KEYS
      ;                    BEFORE     AFTER     SB FUNCTION     TVI 965 KEY AFFECTED
022 010 255           ; CTR-V      CTR-J     Cursor Down     DOWN ARROW
030 019 255           ; CTR-^      CTR-S     Scan            HOME
255 ; Block Terminator
;
255 ; END OF MKTAB
```

"Okay, I see that," I said. "What's this line where you redefine ESC Q as Control-S Control-B Control-F and call it 'Line End'? I don't remember a Line End command from the manual."

"There isn't one," he told me. "But for almost as long as I've been using Spellbinder, I've had a need to jump to the end of a line, especially in preparing indexes, where you want to add a new reference to the end of the existing references for a subject. Scan (Control-S) jumps between the right and left sides of the screen, but your line usually doesn't fill the screen, so you have to space back to the end of the

line. On the 965 keyboard, the key immediatey to the right of the function keys is Char Insert, which emits Escape Q. I've redefined it to do the same keystrokes I've used all these years. Control-S takes the cursor to the right side of the screen; Control-B jumps it back to the beginning of the last word of the line, and Control-F moves it forward to the end of that word, which is the end of the line. Now I can do all that at one keystroke. I made up the name Line End. I chose the Char Insert key because it isn't one used by the 965's built-in calculator, and it's right next to the function keys."

"Cute! Now why did you change F13?" In issue 35's tables, F13 was redefined in the MKTAB table as ASCII 234; then in the soft-key table, 234 was selected as Control-W (Enter Enhance) in edit mode, Delete in command mode. In this new MKTAB table, F13 was redefined as Control-W. The new soft-key table is the same as the one in issue 35, except that F13 is left undefined.

"I'll show you. Are you in Spellbinder right now? Go into command mode." David came over to stand behind me.

"OK, now what?"

"Now let's say we wanted to search for a font change. The command is **SA [Return].**" I typed it, and Spellbinder replied with **SEARCH FOR:**

"Now MagicIndex font changes have the form ~=###~, where ### represents any three digits. In the search command, Spellbinder will take those ### literally, unless we enhance them; an enhanced # stands for any digit. So your keystrokes to specify 'any font change' are: tilde, equals sign, Enter Enhance, ###, Enter Enhance again, Return. Try it."

When I did, I got: ~=j###j

"You see," David said, "and I only discovered this by accident, you can't use soft keys inside a command-mode command. Once the SA is entered, for instance, the soft-key table is not being consulted."

"But j? Why j?"

;	BEFORE	AFTER
073 009 255	ESC I	CTR-I

With this new line, a shifted Tab key on the 965 or 995 will still be a Tab, and not a Back Tab. Of course, the Back Tab key also emits Escape I, so it will now be a tab key too. Spellbinder doesn't recognize Back Tab, so this probably doesn't matter.

Other than the function keys, the 802 and 802H are the same as the 965, except that the shifted down arrow on the 802/802H is a carriage return instead of down arrow. There's no way to deal with this without disabling your return key, so 802 users will just have to remember not to press the shift and

"Good question. In the old MKTAB table, F13 was redefined as 234. ASCII 234 is the letter 'j' plus 128; what Spellbinder calls an enhanced 'j'. Instead of interpreting the 234 through the soft-key table and replacing it with a Control-W, the search command is accepting 234 as a 'j', ignoring the fact that it's enhanced. So, if we define F13 as Enter Enhance through the soft-key table, we can't use that key to specify 'any number' in a search command. We'd have to remember that Control-W is Enter Enhance, and use those two keystrokes in any search command. Rather than that, I changed the table so that F13 is redefined as Control-W through the MKTAB table, just as it used to be before I got into soft keys."

The new MKTAB tables

The MKTAB table above can be used for the 965 and 995. But the 925, 950, 802, and 802H have only 11 function keys. For these machines, we delete F12 through F16 and SF12 through SF16 from the first section of the table. In the second section, we add lines redefining the Escape sequences emitted by the shifted and unshifted Char Insert, Char Delete, Line Insert, Line Delete, and Line Erase keys to 233-237, and 249-253 (except that unshifted Char Delete is redefined to Enter Enhance). Unshifted Page Erase gets redefined to David's "Line End" command.

With the 925, I'm assuming that the unknown key values are the same as the 950's; if David gets a working 925, we can look at that assumption again.

Other than the missing function keys, there's only one difference between the 950 and the 965; the 950's TAB key emits a tab character whether shifted or not, whereas the 965's TAB key, shifted, emits an Escape I (Back Tab) sequence. If one ignores the Back Tab, as I do, that doesn't matter. To be 100% thorough, anyone using a 965 should add a line to the Escape section of the MKTAB table, like this:

SB FUNCTION	KEY AFFECTED
Tab	Shifted Tab

down-arrow keys at the same time. But why would you, anyway?

The 970's cursor keys emit the same values whether shifted or not, so the line in the MKTAB table redefining the shifted up arrow from Escape j to Control-K is unnecessary, while the line redefining Control-V to Control-J is needed for both the shifted and unshifted down arrow. If the shifted Home key and shifted Char Delete keys emit the same values as the 965, then the table above can be used unchanged for the 970.

The 803 and 803H have a number of keys which differ from the other models. Like the 965, the shifted Tab key is Escape I. The Home key, the cursor keys, and the Backspace key have different values shifted and unshifted. This requires more new lines in the last section of the MKTAB table:

254 ;			SPECIAL TABLE FOR SINGLE-CODE KEYS	
;	BEFORE	AFTER	SB FUNCTION	KEY AFFECTED
006 019 255	; CTR-F	CTR-S	Scan	Shifted HOME
007 008 255	; CTR-G	CTR-H	Cursor Left	Shifted Back Space
020 011 255	; CTR-T	CTR-K	Cursor Up	Shifted up arrow
022 010 255	; CTR-V	CTR-J	Cursor Down	DOWN ARROW
023 010 255	; CTR-W	CTR-J	Cursor Down	Shifted down arrow
028 012 255	; CTR-\	CTR-L	Cursor Right	Shifted right arrow
030 019 255	; CTR-^	CTR-S	Scan	HOME
255 ; Block Terminator				
;				

The TPC-I requires the same extra lines as the 803 or 803H. Many of the keys on the other models don't exist on the TPC-I's keyboard, but we aren't using most of them, so it doesn't matter. The Char Insert key, redefined by David as "Line End", has no equivalent on the TPC-I, so some other key must be used on the TPC-I. I suggest the 9 key on the numeric keypad. It's the equivalent of the Page key on the 970, 803, and 803H keyboards, but we're not using Page, and PgDown has no equivalent on the other models. Two lines would have to be added to the Escape section of the MKTAB table:

;	BEFORE	AFTER	SB FUNCTION	KEY AFFECTED
074 019 002 006 255	; ESC J	^S^B^F	"Line End"	Shifted PgUp
075 019 002 006 255	; ESC K	^S^B^F	"Line End"	PgUp

Wrapping it up

The ten models of TeleVideos we've been examining can be customized with only two MKTAB tables. TVI11.TAB has all the lines suggested for the 925, 950, 802, and 802H, which have only 11 function keys. TVI16.TAB has all the lines suggested for the 970, 965, 995, 803, 803H, and TPC-I, which have 16 function keys. Some of the lines are never used by a particular model, but that's perfectly harmless. The soft-key table David mentioned, leaving F13 unspecified, serves for all ten machines. *[There's no room this issue for complete listings of these three tables, but they're available on disk in the library SBTABS50 — DAJM]*

I thought David was being compulsive about listing the values in each section in order by ASCII value. When experimenting, I rearranged the first section so that the '3½" ' and '5¼" ' keys were together, and the 'Lambda Software Publishing' and *'The Z-Letter '* keys were together and not interrupting the function-key listing. What a mistake that was! Spellbinder requires everything to be in order so that it can look them up properly. If you get them out of order, whole blocks of them can't be found at all, so that some of your changes work, and some don't! So keep them in order, just the way they're shown.

Under the old, strictly-MKTAB scheme that David used before he got into soft keys, any values not defined were ignored by Spellbinder. So if shifted F5 had no function defined, for example, and you hit shifted F5 by mistake, nothing happened. With soft keys, if a value is not in the soft key table, it gets passed right through. Under the soft-key table from issue 35, for instance, SF5, SF7, SF9, and SF11 are undefined in edit mode. They are not ignored if you press them! These keys are redefined by MKTAB as 242, 244, 246, and 248, respectively. If you press them, you get 'r' (242 - 128), 't' (244 - 128), 'v' (246 - 128), and 'x' (248 - 128), for the same reason the Enter Enhance key didn't work when defined as a soft key. Neither David nor I can think of a way to change this, so we'll just have to live with it.

I'm sorry to start my column with such an advanced topic. It was very hard for me, too; without David's help, I couldn't possibly have tackled this kind of stuff so soon. David wanted to get the corrections to the stuff in issue 35 into *The Z-Letter* before too many issues, and I had to do this, or have him do it, before I could use the 950 on my computer. Next time we'll start way back at the beginning and work forward from there, I promise. Give yourself a hug from me, for hanging on all the way through this, and I'll see you again next issue. — *Tina*

THE Z-SYSTEM APOLOGIST

A first look at shells
by Bob Virisky

The concept and working of a *shell* is easy to understand. A shell's a program that acts as a "front end" to the ZCPR command processor — you interact with the shell, then the shell supplies the commands necessary to carry out your choice. A simple example is the Z-System MENU tool. You choose a menu selection and the menu tool converts this selection into a Z-System command line passed to the command processor.

Think of shells as layers of an onion with the normal command line at the center and shells layered "on top of" the command line. We learned that the ZCPR command processor looks for the next command to execute in the following order: the multiple command line buffer, a ZEX command, a SUBMIT command, a shell command and, finally, your input from the keyboard. You may've noticed a Z-System buffer called the *shell stack*. The shell stack acts like a storage place for command lines. When you enter a shell, the name of the tool is placed in the first shell-stack location. Any shell command already in that position gets moved to the second position. There are usually four levels to the shell stack so you could have up to four shells active at a time. As you leave the first shell tool it's removed from the first position and any shell(s) in the second through the fourth position get moved up one level. If the shell stack's empty, ZCPR looks for keyboard input for the next command.

There are three basic classes of shell tools: (1) Menu shells, (2) Command-history shells and (3) shell variables. We'll concentrate on menu and history shells at first and look at shell variables later.

Menu shells are the easiest to use and understand, so let's start there. The basic tool is called (suprise!) MENU. It's perfect for setting up an entire environment for your work habits. In an office environment, for example, you could run the MENU upon startup (included at the end of your startup alias) and immediately after booting be presented with a menu offering choices like:

XYZ Company

A. Bookkeeping	Databases	D.
B. Word Processing	Telecommunications	E.
C. Spreadsheets	System Work	F.

By choosing one of the above letters, you execute a command (which may be an alias). You can have up to 255 menus per menu command file, so any of the above choices may chain to another menu! For example, by choosing A. from the menu you could run a bookkeeping program, run an alias establishing a new environment for bookkeeping work, chain to another menu offering custom selections for your personal bookkeeping needs, etc. The possibilities are only limited by your imagination. Menus offer a personal working environment outside the command line. If you desire, you can set up menus to reduce your normal computing needs to simple menu choices.

Another important menu shell is ZFILER. ZFILER's display is a sorted list of files in the directory you're currently logged into. There are a number of single-key choices available to copy, erase, rename, etc., files in the list. As a file manipulation tool, ZFILER has no equal, but the fun just begins with the main display. ZFILER also has a built-in macro facility allowing you to define up to 36 separate macros (A through Z and 0 through 9) to perform virtually any function you can imagine. Since these macros can include aliases, any functions not provided inside ZFILER can be handled by ARUNZ, letting you do complicated tasks with the press of a key! I've spent many enjoyable hours in ZFILER, and consider it a necessary tool.

The second type of shell is the history shell. A history shell presents you with a command line similar to the normal Z-System prompt. As you type commands, the commands are stored in a file, providing a history of your actions. The history shell allows you to examine this history and reuse old command lines. If you're doing repetitive work, a history shell makes your job easier because you won't have to retype the same old command time after time. For example, let's imagine you're developing a command file for the MENU shell. You would create the command file with your text editor (let's say ZDE), then test it out with MENU. Your commands would be **ZDE TEST.MNU** and **MENU TEST**. With a history shell installed you would still enter the two commands above, but, after you tried your command file and noted changes needed, search back through the history to the **ZDE TEST.MNU** command line and press enter. Presto — the command is run! Now

imagine this scenario with a complicated command, say,

CONCAT TEST.TXT = TEST1.DOC, TEST2.DOC, TEST3.DOC, TEST4.DOC

You would wear out your fingers typing that command 10 times!

There are four main history shell tools: HSH, EASE, CLED, and LSH. EASE, the so-called upgrade to HSH, has problems and shouldn't be used. No big deal, though, LSH's the history tool of choice. LSH is a very flexible and complete history shell maintenance tool that deserves a place in your startup alias — if your system has a hard disk or RAM disk. On a floppy-disk system LSH is just too slow for comfortable operation — CLED to the rescue! CLED's an RCP segment, making it the perfect simple history shell for a floppy-disk system.

A closing note on the tools mentioned. Alias construction's covered in depth in documentation located in ARUNZ11.LBR and ALIAS17.LBR. *ZCPR3 — The Manual* also contains information on aliases and shells. ZF11.LBR (the ZFILER distribution library) has a reprint of Jay Sage's *TCJ* articles on ZFILER (complete documentation on operation and macro creation). The help files (and *ZCPR3 — The Manual*) cover menu shells. See MENU or VMENU libraries for major menu shells. Another wonderful source of information on all aspects of the Z-System is *The Z-News*, the newsletter Echelon used to publish.

There's a lot of material here, and understanding the power now available will take time to assimilate. The combination of *ZCPR — The Manual*, help files, documentation from the tools library and back issues of Z-System magazines (*The Z-News, The Computer Journal*, and *The Z-Letter*) covers virtually every aspect of the Z-System and will provide many ideas on how to make your computer *YOUR* computer.

LETTERS

Xerox 820 Corvus hard disk

15 July 1995

I just read Mr. Ron Blizzard's letter in *TZL #37*.

The Corvus hard disk he describes is a 5¼" unit that is commonly referred to as the "flat-cable" drive to distinguish it from Corvus' more widely-known OmniDrive/OmniNet products.

These drives were available in 5-, 10-, and (almost) 20-Mb sizes. Mr. Blizzard is correct in assuming that the connector marked "processor" should be attached to the computer host adapter (which would appear to be the box/cable assembly he has).

The "Drive" connector is for chaining another such drive behind the first one. I don't know what the maximum number of chained drives is. The VCR connector and Video In and Video Out connectors are for the Corvus Mirror videotape backup system. The VCR connector is for a remote-control unit and Video In and Video Out are for — well, data I/O in this case.

If you open up the Corvus case, you should see either one or two interface boards installed into a 2-connector backplane. If it's just one board, it's just the hard-disk controller. If two boards, one of them is the Corvus Mirror controller board.

His description of the drive's behavior (BUSY and FAULT lights on continuously, READY light blinking) is the normal behavior while the Corvus drive is spinning up. It appears he didn't wait long enough. When the drive is fully up to speed, the READY light should be on continuously. If there is a problem, the FAULT light will be on continuously.

The Corvus flat-cable drives use a controller made by IMI inside the case. The controller's firmware knows only the geometry of the drive. It actually loads additional "firmware" (as Corvus calls it) from cylinder 0, head 0 of the drive itself! I suspect this "firmware" is the actual code that does the disk mapping when the host adapter/software requests a block of data from the drive — that way, it could be updated more easily as improvements were made and features were added.

The switches on the front should be (from left to right): Normal/LSI-11, Single/Multiplexer, Normal/Format, Normal/Reset.

For typical applications, all switch handles should be to the left (Normal, Single, Normal, Normal). I'm not certain what the Normal/LSI-11 switch is for, but all drives and chained drives used on a single-CPU system should be set to "Single". The Multiplexer was a network adapter that allowed multiple CPUs and hard-disk units to share one another's resources. The Format switch is there to prevent the controller from low-level formatting the disk mechanism unless the swich is changed to the Format position. The Reset switch should be spring-loaded and it will cause the disk controller to "reboot" and reload its "firmware" from the

beginning of the disk.

Background: I was given one of these drives and managed to find the host adapter card for the Apple II series for it. I have the original Apple manual for it. I'm running it as I write this on an Apple II+ with PCPI AppliCard and am using the drive under Apple ProDOS via the ProCore host firmware by Tom Vier and under CP/M via the "PDOSHD.DVR" ProDOS hard disk driver by Steve Hirsch.

Alas, I do not have a Corvus Mirror board in my drive so I can't tell you any more about those. If Mr. Blizzard has one, perhaps some information could be gleaned from the Apple II Corvus manual which describes using the Corvus Mirror.

More to come, I hope. Take care.

<div style="text-align:center">

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TeleVideo TS-802H problem solved

Bill Haygood sent me e-mail 15 July that his TeleVideo TS-802H would no longer boot. Did I have another that he might buy? On 18 July I replied that I had no spare 802H, and what exactly was wrong? Did it seem to him to be the hard disk itself, or the controller? On 20 July Bill wrote:

David, after reading the article in *The Z-Letter* for May-June 1995 titled "Fixing the System Tracks of the TS-802H", I fixed my non-boot problem by following the procedure outlined there exactly.

Interestingly, the floppy would not boot initially, but I left it in the drive some minutes while I busied myself on something else. Suddenly, I heard the floppy-disk drive whirring and the TeleVideo booted!

Thanks for the project-saving article by Zener!

<div style="text-align:center">

Bill Haygood

billh@haygood.com

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More Z-Node information

<div style="text-align:right">

July 29, 1995

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Dear David:

It was very helpful of Wil Schuemann to try to call all the Z-Nodes. I'm not surprised that he found many of them no longer to be in service. I am, however, a little suspicious of his modem, which failed to connect in many cases.

I'm especially puzzled that it would not connect to my 617-965-7259 number, since that line has a US Robotics modem, like his. It is set up as 8N1; all three phone lines are. I have trouble myself connecting to the high-speed modems on the other lines, but the USR modem at 2400 bps always works fine.

In any case, if you are going to print any updated information, you can confirm that Z-Node #3, the Newton Centre Z-Node, is still in operation in combination with the Boston Computer Society Zitel User Group BBS. The BBS is now running on MS-DOS hardware using PCBoard software. Most of the old Z-Node files are available on-line, and the CP/M CDROM is mounted on rotation or on request. The phone numbers and corresponding modems are as follows:

(617) 965-7046
> Main number with a Zoom v.32bis (14400 bps) modem; if this line is busy, the call is routed automatically to the 7785 line.

(617) 965-7785
> Zoom v.fast modem (28800 bps).

(617) 965-7259
> Independent phone line from the old Z-Node with a USR Courier HST modem (2400 bps except with another similar modem).

<div style="text-align:center">

Jay Sage

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Shoe by Jeff MacNelly Reprinted by permission: Tribune Media Services

PERSONAL ADS

COMPUTERS FOR SALE OR TRADE

Each one in working condition, price $50 plus shipping, unless otherwise specified. One **Eagle III** computer, two 784K disk drives, $75 plus shipping. One **Eagle II** computer. Two **TeleVideo 802** computers. One **TeleVideo 803** computer. One **TeleVideo TPC-1** portable computer. One **Epson FX-80** dot-matrix printer, $80 plus shipping. One **Morrow MD-2** computer; terminal not included. One **Morrow MD-3** computer; terminal not included. One **Xerox 820** computer with dual 8" drive units. Two **TRS-80 Model II** computers, one SSDD 8" floppy-disk drive each. Five **NorthStar Horizon** computers, condition unknown, $20 plus shipping; wood and steel covers available. Other computers come and go all the time; let me know what you're looking for. Will trade for comparable computers not in my collection. Contact David McGlone, phone (503) 688-3563.

WANTED!

Will buy, or trade spare computer parts, books, manuals, software for the following items: **Boot disks:** Actrix single-sided, Actrix double-sided, Altos 8000 with hard disk, DEC VT180, Maxicom D/L with hard disk, Sanyo 2000, Sharp 5500, 5600, 5631, Sharp YX-3500, Systel 3, Telcom ECD 4000EX (3½"), TRS-80 Model II/12/16/6000 CP/M 3.0, Xerox 820 (5¼"), Zeus 3X with hard disk. **Hardware:** Three (3) NorthStar Advantage hard-disk controller cards; three (3) TeleVideo hard-disk controller cards, Zenith Z-100 data separator card. **Software:** Any version of UniForm other than UniForm-PC and the CP/M versions listed in the price list at the back of this magazine. Contact David A.J. McGlone, (503) 688-3563.

BOOKS FOR SALE

Even after keeping two copies each, the following titles are extra in the quantities listed: *CP/M Assembly Language Programming*, Barbier, 1. *CP/M Handbook with MP/M*, Zaks, 3. *CP/M Primer*, Murtha & Waite, 5. *dBase II User Guide*, Green, 3. *The Epson Connection: Kaypro*, Oaks, 1. *Everyman's Data Base Primer*, Byers, 1. *Kaypro User's Handbook*, anonymous, 1. *The MBASIC Handbook*, Ettlin & Solberg, 2. *Osborne CP/M User Guide*, Hogan, 3. *The Perfect Manual for the Kaypro II*, anonymous, 2. *Problem Solving and Structured Programming in Pascal*, Koffman, 1. *The Programmer's CP/M Handbook*, Johnson-Laird, 5. *Using CP/M*, Fernandez & Ashley, 5. *Using dBase II*, Townsend, 3. *Z-80 and 8080 Assembly Language Programming*,

Spracklen, 1. *Z80 Assembly Language Programming*, Leventhal, 2. *The Z80 Microcomputer Haandbook*, Barden, 3. Will sell for $15 each, or $10 each if you buy four or more. Will also trade for any not listed here if I don't have two copies already, especially *CP/M Solutions* and *CP/M Techniques* by Barbier. Please help me lighten the load in my file cabinets! Contact David A.J. McGlone, (503) 688-3563.

MECHANICAL CALCULATOR FOR SALE

Lightning portable adding machine, "Mfgd. by Lightning Adding Machine Sales Co., Los Angeles 7, Calif, U.S.A." circa 1935-1955. No zip code, trademark, copyright symbol, or patent information anywhere in package (indication of age). Complete cardboard box in fair condition, 7-wheel calculator 12" x 2.5" in like-new condition. Metal, felt backing, 13 ounces. Bakelite (!) desk holder in mint condition, 11 ounces. Complete documentation. Calculator does addition and subtraction, up to 7 digits. Metal stylus missing, all else present. Make offer, $200 minimum, to David A.J. McGlone, (503) 688-3563.

NorthStar Horizon for sale

S-100 system, two hard-sectored floppy-disk drives, Qume terminal, Okidata printer, $50 for the lot. Contact Ron Davis, (415) 647-2982.

HELP!

Need a copy of the MicroSphere **SUPERSPEED** installation manual for the Kaypro 4 '84 and 2X models. Looking for jumper connections on the 74LS373 chip and PIO. Also want to buy **Kaypro memorabilia**. George Kleiser, P.O. Box 752, Duson LA 70529.

TRS-80 Model I, III, IV hardware wanted

...Such as the screen printer, voice synthesizers, etc. Also various versions of DOS for the above computers and other software. Please call (916) 383-0726 collect, or write to Charles Doughty, Box 60550, Sacramento CA 95860-0550.

Books wanted

Looking for *Perfectly Serious, an Indepth Look at Perfect Writer*, by Kristine Farry. Also another one by Beverly Howard. Already have the PeopleTalk manual, not useful. Would like to have something on WordStar 4 besides the user manual, too. Contact George Kleiser, P.O. Box 752, Duson LA 70529.

RESOURCES

Hal Bower writes, sells, and supports B/PBios, the most advanced CP/M-compatible operating system today. Presently it's available for the Ampro Little Board, the Micromint SB180, and the YASBEC. The cost is $69.95 plus $3 shipping and handling. Hal Bower, 7914 Redglobe Court, Severn MD 21144-1048, phone (410) 551-5922. [2/95]

Lee Bradley sells My-Z-Demo, a package for running CP/M or the Z-System on a PC. It comes on a high-density 3½" disk with Simeon Cran's Z80 emulator My-Z80, version 1.11, the disk also contains the shareware version of 22DISK, 170 utilities, and copious documentation files. The cost is $10.00. Lee R. Bradley, 24 East Cedar Street, Newington CT 06111-2534, phone (203) 666-3139. [2/95]

The Computer Journal is the foremost magazine for small computer systems, including CP/M. Published 6 times a year. Free sample issue available. Subscription is $24/year surface, $34 air, $44/2 years surface, $64 air, in the US. In Canada and Mexico, $32, $34, $60, $64 respectively. Elsewhere $34, $44, $64, $84 respectively. Write to P.O. Box 535, Lincoln CA 95648-0535, phone (916) 645-1670. [2/95]

Corvatek sells KEY-UP, a keyboard interface for IBM-style keyboards. The DM-1 for Big Boards, DM-2 for Xerox 820, DM-3 for Kaypro, DM-4 for Franklin, DM-5 for ASCII Universal, DM-6 for Apple II are each $129. Inquire for other models and custom key definitions and applications. Corvatek, 561 N.W. Van Buren St., Corvallis OR 97330, phone (503) 752-4833. [2/95]

dieHard, the Flyer for 8-bit Commodore computers, including the Plus/4, VIC-20, PET, C16, C64, and C128, is published bimonthly. A single copy is $3.95 US and Canada, $4.95 all other countries. Subscription is $16.97/year US, $20.97 Canada, $24.97 all other countries. Subscriptions to the *Spinner*, a disk of the software in each issue, joint Flyer/Spinner subscriptions, and back issues are available; see the magazine for this information. Send orders to LynnCarthy Industries, Inc., 816 West Bannock, Suite 502, Boise ID 83702-5850, phone (208) 383-0300. [2/95]

Discus Distribution Services, Inc. sells Digital Research products, including its many operating systems. Their price for CP/M is $150. They also offer CBASIC ($600), FORTRAN-77 ($350), and Pascal/MT+ ($600). 16600 Meridian Road, Salinas CA 93907, (408) 663-6966. [2/95]

Elliam Associates sells disks of public-domain software and commercial software for most CP/M computers, including the Amstrad PCW. For a 100+ page catalog, send $8.50 plus $3.00 shipping and handling to Elliam Associates, P.O. Box 2664, Atascadero CA 93423, or phone (805) 466-8440. [2/95]

Herbert R. Johnson is "Dr. S-100". He supports S-100 bus computers, including NorthStar, Compupro, Cromemco, IMSAI, and Vector. He can sell you S-100 boards, manuals, books, etc. Write to him at P.O. Box CN-5256 #105, Princeton NJ 08543, e-mail hjohnson@pluto.njcc.com, phone (609) 771-1503. [2/95]

Lambda Software Publishing publishes this magazine; see our price list in the back.

Microcomputer Mail-Order Library of books, manuals, and periodicals relating to microcomputers in general, and Heath/Zenith systems in particular, will loan you any item for 4 weeks for a handling fee plus postage. The price is deliberately low to encourage people to learn more about their computers. Inevitably, some items will be lost in the mail or not returned. Donations of printed material would therefore be greatly appreciated! For details, a list of available items, or to borrow material, write to Library c/o Lee A. Hart, 4209 France Avenue North, Robbinsdale MN 55422, phone (612) 533-3226 [2/95]

Micromint makes and sells the SB180 and SB180LO computers. These are 9-MHz HD64180/Z180 single-board computers with 256K RAM. The SB180 is the size of a 3½" disk drive, costs $299 ($195 each 100 quantity), or $399 with ZCPR, ZRDOS, BIOS and ROM sources. The SB180LO is the size of a 5¼" disk drive, has SCSI, costs $329 ($295 each 100 quantity), or $429 with ZCPR, ZRDOS, BIOS and ROM sources, Z-System utilities. The SB180FXMME 2-Mb memory-expansion board, populated with 256K, costs $319. Micromint, Inc., 4 Park Street, Vernon CT 06066. Technical Assistance, (203) 871-6170. To order, (800) 635-3355. [2/95]

MicroSolutions makes several products of interest to our community. UniForm-PC costs more

($69.95) and knows fewer formats than 22DISK (see Sydex, below), but includes a few formats 22DISK doesn't. MicroSolutions also sells the CompatiCard IV, which lets a PC use 4 floppy-disk drives (including 8" drives) for $95. MicroSolutions Computer Products, 132 W. Lincoln Hwy, DeKalb IL 60115, phone (815) 756-3411. [2/95]

David Mo rison deals in Xerox 820, 820-II, and 16/8 compute , software, and manuals. P.O. Box 1911, Mishawaka IN 46546-1911, phone (219) 257-0193. [5/95]

Morrow Atlanta Users Group is a national Morrow computer user group. Membership is $15 per year, which includes technical support and a subscription to their bimonthly newsletter, *Mor-Atlanta News*. Send membership checks to David McDonald, 5461 E. Wind Drive, Lilburn GA 30247, phone (404) 381-1384. Send articles for *Mor-Atlanta News* to Harold Arnovitz, 1259 Kittredge Court NE, Atlanta GA 30329; or upload them to (404) 634-1612. You can also upload them to the group's BBS, (510) 654-3798; leave a message to Editor. [2/95]

Rondell Systems services and repairs all kinds of computers. Call Ron Reymore at (503) 981-8617, or write to him at 9993 Broadacres Road NE, Hubbard OR 97032. [2/95]

Sage Microsystems East, selling and supporting the best in 8-bit software. NZ-COM, Z3PLUS, XBIOS, 4DOS, DSD, BackGrounder ii, ZSDOS/ZDDOS, DosDisk, JetFind, ZMATE, BDS C, ZMAC, MEX-Plus and MEX-Pack. Next-day shipping of most products with modem download and support available. Order by phone, mail, or modem. Shipping and handling $3 USA, $4 Canada per order; based on actual cost elsewhere. Check, VISA, MasterCard. Specify PC 360K or Kaypro 4 disk format. Sage Microsystems East, 1435 Centre St., Newton Centre MA 02159-2469, Voice (617) 965-3552 (9:00 AM to 11:30 PM), Modem (617) 965-7259 (2400 bps) or (617) 965-7046 (v.32bis), e-mail SAGE@LL.MIT.EDU [2/95]

The SEBHC Journal is the magazine of the Society of Eight-Bit Heath Computerists, dedicated to Heath/Zenith H-8 and H-89 computers. It's published by Leonard Geisler, 895 Starwick Drive, Ann Arbor MI 48105, phone (313) 662-0750. [2/95]

Chuck Stafford sells products for Kaypro computers: Advent TurboROM, $35; hard-disk conversion kit, $175 (without clock); *Micro Cornucopia*

Schematics and Theory of Operations for Kaypro II/2/IV, Kaypro 10, '84 Kaypros, $15 each, any two for $25, all three for $30; Kaypro 10 Tinker Kit, $10; Teac 96-tpi drives, $15 each or two for $25. Prices include tax and shipping. He sometimes has hard disks for sale: ST-225, ST-251, and others. Write to Charles B. Stafford, 4000 Norris Avenue, Sacramento CA 95821, or phone (916) 483-0312 evenings or weekends. [2/95]

Sydex sells PC software useful for copying CP/M files and handling CP/M disk formats (22DISK), running CP/M programs on a PC (22NICE), and copying CP/M boot disks without having the original machine (AnaDisk). Free sampler disks with the limited shareware versions are available. The registered versions, which are more powerful, are $25 each for 22DISK and AnaDisk, $40 for 22NICE (which includes 22DISK). Add $2.50 for shipping and handling with each order. Talk to Chuck or Miriam at Sydex, P.O. Box 5700, Eugene OR 97405, phone (503) 683-6033. [2/95]

Jim Thale sells the I/O board which gives the YASBEC two additional high-capacity disk formats, two serial ports, and two Centronics ports. The board's available with surface-mounts, PAL, and big chips only for $150, or with the additional parts for $210. James S. Thale, Jr., 1150 Somerset Avenue, Deerfield IL 60015-2944, phone (708) 948-5731. [2/95]

Trio Company of Cheektowaga, Ltd. sells several CP/M packages as well as PC software. They offer InfoStar 1.5 ($160), SuperSort 1.60 ($130), and WordStar 4.0 ($130). Write P.O. Box 594, Cheektowaga NY 14225, or call (716) 892-9630. [2/95]

Steven W. Vagts publishes *Z-100 LifeLine*, a bimonthly journal dedicated to the Zenith Z-100 dual 8088-8085 computer. A one-year subscription is $15 per year to any U.S. zip code, $18 to Canada or Mexico, and $20 to any other country, from Steven W. Vagts, 2409 Riddick Road, Elizabeth City NC 27909, phone (919) 338-8302. [2/95]

Walnut Creek CDROM sells the CP/M CDROM, containing over 480 Mb of CP/M public-domain software and freeware, including the entire Sound Potentials, CP/MUG, and SIGM collections. The cost is $39.95. California residents add 8.25% sales tax. Shipping is $5 in the US or Canada, $9 elsewhere. Walnut Creek CDROM, 4041 Pike Lane, Suite D-893, Concord CA 94520. Orders can also be placed at (800) 786-9907, or orders@cdrom.com. For questions phone (510) 674-0783 or fax (510) 674-0821. [2/95]

PUBLICATIONS

The following magazines and newsletters were received since last issue:

Amstrad PCW User's SIG, Vol. 8 No. 6 (July 1995), is the newsletter of a special interest group of American Mens Ltd. The SIG chairman and publisher is Al Warsh, 2751 Reche Canyon Road #93, Colton CA 92324, phone (909) 370-0359, CompuServe 73300,2644. Contact him for membership or subscription information. [Amstrad PCW]

The Analytical Engine, Vol. 2 No. 4, August 1995, is published February, May, August, and November by CHAC, the Computer History Association of California, 3375 Alma Street, Suite 263, Palo Alto CA 94306-3518, fax (415) 856-9914, Internet engine@chac.org. This issue has *The Mac and Me* by Jef Raskin, which actually includes a lot of interesting pre-Mac stuff; everything else is non-CP/M. Subscriptions are $35 per year individual, $85 per year corporate or institutional, $25 per year low-income, student, or senior. The ENGINE's available online or hard copy. [All computers]

AUGER, July/August 1995. AUGER (*ADAM Users Group Educational Report*) is the newsletter of ECAUG, the Emerald Coast ADAM Users Group. Membership's $15 per family per year. A 36-page list of the disks in the group's public-domain library, plus the year's issues of AUGER, come with the membership. Send the money to Norman J. Deere, Treasurer and Editor, at P.O. Box 4934, Fort Walton Beach FL 32549-4934, phone (904) 244-1516. All back issues of AUGER are available; see the ad in any issue. [Coleco ADAM]

A Bit More, June 1995, is the newsletter of NOVAOUG, the Nova Osborne Users Group. Membership's $12 per year from William E. Kost, 7007 Brocton Court, Springfield VA 22150, phone (703) 569-2213. [Osbornes and PCs]

Classic Computer Society Newsletter, June 1995 and July 1995, is edited by Andy Shapiro. The June issue has *Watch This*, in which Al Paarmann goes over writing an RSX for CP/M. Contact the Classic Computer Society, P.O. Box 2007, Santa Barbara CA 93120, (805) 684-8838, for membership information. [All computers]

The Computer Journal, #74 (July/August 1995): Bill Kibler discusses the collectibility of computers in *Antique or Junk?* Chuck Stafford's "Mr. Kaypro" instructs us on external monitors for Kaypros. Bill Roch briefly describes the Amstrad PCW, its software, possible hardware mods, etc. Herb Johnson, in his "Dr. S-100" column, talks more about GIDE and answers letters. The center fold this issue is the S-100 power supply. Ramond F. Gandia goes into some detail about the *Palmtech CPUZ180*, which he has bought and helped to domesticate. Walter J. Rottenkolber writes about *Disk I/O in Forth*, and part 8 of Brad Rodriguez's *Moving Forth* appears. See our RESOURCES section for *TCJ*'s address and subscription rates. [All computers]

Mor-Atlanta News, Vol. 11, No. 1 (June/July 1995), is the newsletter of the Morrow Atlanta Users Group. This issue has *Access Alternatives to the Internet* by Bill Steele, a reprint of part 2 of Bob Vinisky's "Z-System Apologist" column from this magazine, and part II of *Lightning* by Willis Cook. See RESOURCES for MAUG's address and membership/subscription rate. [Morrow]

Z-100 LifeLine, #39 (May-June 1995). This issue has complete source listings for EATUMUP by Robert F. Hassard, a loan amortization program by Steven W. Vagts, and CHNGCHR, a redefinition program, from Thierry Klein; they might run under CP/M if converted to a CP/M implementation of BASIC. See RESOURCES for address and subscription rates. [Z-100]

ART CREDITS

The cartoon on our cover is by Don Wright of the *Palm Beach Post*, and is published with the permission of the artist. The picture of Tina Huovinen on page 6 was drawn by Tina Huovinen from a photograph taken by Maddy Huovinen.

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  CP/M 2.2
    Operating System Manual
  CP/M 3.0 (CP/M Plus)
    Programmer's Guide
    System Guide
    User's Guide
  The CP/M Card
    User's Guide
  CP/M Software Finder
  CP/Net 1.1
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  MAC 2.0
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  MP/M
  MP/M II
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  Pascal/MT+ 5.6.1
    Reference Manual
  Personal Basic Reference Guide
  Personal Basic Tutorial
  PL/I-80 1.4

    Applications Guide
    Language Manual
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  RMAC 1.1
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Eagle Computer Users Group newsletter —
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Echelon products —
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  Publications, $15 each,
    $10 each if four or more ordered.
  JetFind User's Guide
  Kaypro Z-System Manual
  ZCPR3 and IOPs
  ZCPR3: The Libraries
  ZCPR 3.3 User's Guide
  ZDM/ZDMZ/ZDMH User's Guide
  Z-Index, index to *The Z-News*
  The Z-News, complete set
  Z-Node Configuration
  ZRDOS 1.0 Programmer's Guide
  Z-System User's Guide

LeBug (version 5.1) — $20.

MagicIndex text formatter (version 3.00) — $100.

Micro Cornucopia —
  Back issues:
    Issues 8, 10, 11: $8 @ US, Canada, Mexico,

$10 each elsewhere.
All other issues: $4 @ US, Canada, Mexico,
    $6 apiece elsewhere.
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Author and subject index on disk: $10.
Kaypro disks —
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    Catalog disk: $10. Lists all 310 disks.
    Individual disks: $10 each.
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**Sound Potentials and Sound Potentials II
public-domain software** —
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    Versions available:
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       Morrow MD-5, 11, 16, 34
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Z-Fonts catalog — $3 (US, Canada, Mexico),
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    NuKey (version 2.03) — $25.
       All three at once — $60.

We have extra copies of many other computer manuals, software manuals, and books, in quantities too small to list here, for $15 each ($10 each if you order four or more). Call us and ask!

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Disk copying service – $10 per disk. Discounts over 20 disks.

HOW TO ORDER

Write your name, company name if any, address, home and business phone, and the computer format in which software should be supplied. Specify completely what merchandise you want. Please allow 4-6 weeks for delivery.

Sorry, no credit cards or CODs. If you live outside the U.S., payment should be in U.S. funds in an international money order. Don't add anything for shipping and handling; it's included in the price. Don't add anything for sales tax; Oregon has none.