

The Z-Letter

Newsletter of the CP/M and Z-System community

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| KEY | VINISKYROBER50 |
| NAME | Robert Vinisky |
| COMPANY | |
| STREET | 2704 N. Meridian St. |
| CITY/STATE/ZIP | Newberg OR 97132 |
| COUNTRY | |
| PHONE | (503) 538-7214 |
| DATE | 03/08/1992 |

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Displaying customers and subscriptions

Speeding up Eagle disk drives

Software Testing, part I

TeleSolutions-80 available from Lambda

FOG folds

Trenton Computer Faire '94 news

TABLE OF CONTENTS

| | |
|--|----|
| RANDOM ACCESS <i>Editorial ramblings and community news</i> | |
| Princely gifts | 3 |
| Wheeling and dealing | 3 |
| TeleSolutions-80 now available | 3 |
| In the works | 3 |
| Eagle news | 4 |
| Design considerations | 4 |
| CCP/M subscribes to TZL | 4 |
| FOG folds | 4 |
| DO IT YOURSELF | |
| Introducing a new column by Kirk L. Thompson | 4 |
| Speeding up Eagle disk drives by Bob Vinisky | 7 |
| A PROGRAMMER CORNERED | |
| Displaying customer and subscription information | 8 |
| PERSONAL ADS | 15 |
| ERRATA | 15 |
| LETTERS | |
| Zed Fest '94 at Trenton from Lee Bradley | 15 |
| Trenton, S-100 IDE, GSX, CDROM from Herbert R. Johnson | 16 |
| Calling programs from Spellbinder macros from Eugene Austin | 17 |
| Z3PLUS question from Gary Oliver | 18 |
| RESOURCES | 19 |
| PUBLICATIONS | 22 |

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The Z-Letter is indexed as time permits. The index for issues 1-5 appeared in issue 5. The index for issues 1-24 is being prepared; the contents section has been finished.

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RANDOM ACCESS

Princely gifts

Some tremendous donations have come my way since last issue, and I want to thank the donors for their generosity.

Chris McEwen recently moved, and decided to part with four boxes of stuff. He didn't even tell me they were coming, so it was a complete surprise when UPS delivered them. Inside were two Ampro Little Board computer boards, SCSI controllers, two Teac drives, a couple of Kenmore clock boards, lots of Ampro manuals, a number of books, and 225 disks, the complete backup of the Z-Node he used to run! For all this he asked nothing at all; I insisted on paying him back the shipping costs. When I get time, the Little Boards will be put into cases, hooked up to terminals, and will resume their active careers; the software will no doubt add considerably to my Sound Potentials collection.

Ken Thomson continues to haunt the flea markets and garage sales in the San Francisco Bay Area. Any CP/M material he can pick up free he does so, and passes it on to me; any that is not free, he gives them my card and tells them to give me a call. Over Memorial Day weekend Carol Jacobs and I drove down to San Jose, where Deborah and I loaded Carol's van and a rented trailer right to the top with all of our household goods. The 2500-pound load included a GBC System 9 computer and Lanier computer Ken had found, and about three boxes of manuals, books, and software.

Right before the trip, I got a call from **Ted DeCastro**, a member of the Bay Area Kaypro Users Group. Ted wanted to get rid of his CP/M stuff, and Ken had given him one of my cards. So we drove to Ted's place, and picked up three Kaypro IIs; an Epson Geneva with all the manuals, two external disk drives, and a printer; an array of special-purpose packages for Kaypros, including a disk alignment package and a board for hooking up 8" floppy-disk drives; and about five boxes of manuals, books, and software, including Select, Salvo, Nevada FORTRAN, Nevada Edit, Nevada Pilot, and MTBASIC.

Bill Donley sent me a Timex-Sinclair 1000, complete with manual, accessories, and optional memory module. Since I only collect CP/M machines, I'm trading this, along with a Sinclair ZX80, to David Greelish of HCS for a Sony SMC-70.

Wheeling and dealing

The local Goodwill stores recently had another sale. This was not nearly as big as the last one I told you about. The only system I bought was an Apple II+ that was set up and working. Other than that, I got some Apple cards and manuals, a lot of disks for 30 cents each, and some books and manuals. The Apple needed one connection soldered to make it work perfectly, and David Samson did that for me.

Speaking of Apples, I bought an ALS CP/M card for the Apple, complete with the DRI CP/M Plus and GSX manuals, the ALS manuals, and all the software, for \$25 plus shipping. Now I have an Apple to put it in, and this will allow me to test all the other Apples I have. So I should have two working Apples soon, and maybe even some extras. Anyone have another CP/M card, so I can have two Apple CP/M systems?

I sold one of my spare Epson QX-10s, complete with CP/M, Spellbinder, and one of David Samson's printers, to a friend of a friend who wanted a word-processing system.

TeleSolutions-80 now available

Lambda has concluded an agreement with TeleVideo Systems, Inc., to pay them a royalty on each copy of TeleSolutions-80 Lambda sells. TeleSolutions-80 is a software package for TeleVideo's CP/M computers, such as the TS-801, TS-802 and 802H, TS-803 and 803H, and the TPC-1 portable. It consists of TeleWrite, a word processor; TeleCalc, a spreadsheet; and TeleChart, a graphing and plotting program. TeleSolutions-80 is now available for \$25 per copy, manual included. Since it uses TeleVideo graphics, it will be supplied in TeleVideo disk format unless the customer indicates otherwise. It can be used on other computers connected to TeleVideo TVI-925 and later terminals.

In the works

I'm still trying to get permission to sell as many software packages as possible, except for really bad ones like WordStar and the other Micropro products. Borland said no, TeleVideo said yes. I'm talking to Novell about permission to sell more of DRI's CP/M tools and applications, and just starting talks with Software Toolworks. Wish me luck!

Eagle news

Bob Vinisky has fixed the long-standing Eagle floppy-disk problem (see his article in this issue). Now he's getting ambitious. He thinks he can modify the Eagle BIOS and formatting software to format and use half-height 40-Mb MFM and SCSI hard disks, possibly without even requiring a special board. If so, it should become a lot easier to turn an Eagle IV into an Eagle V, or a File 10 external hard-disk unit into a File 40. The new units should weigh less and draw less power, too.

Another great idea would be a small, simple board, or perhaps an EPROM, to replace the Eagle video chips. This is far and away the most common failure when an Eagle dies, and the video chips the Eagle uses aren't made any more. If they can be replaced with a special board or EPROM, a lot of old Eagles will come back to life, like phoenixes.

If both ideas bear fruit, a lot of dead Eagle IIs and IIIs could turn into working Eagle Vs with fast 32-Mb hard disks and fast, quiet 784K floppy-disk drives. That would really be something!

Design considerations

Another project being considered is an external hard disk for any computer with a 4-MHz Z80, which is the usual CPU for CP/M computers. Fancier systems such as the SB180, SB180LO, and YASBEC, have SCSI built in, and installation software that makes it easy to hook up a hard disk. But most CP/M computers have their own, unique ways of hooking up only certain makes and models of hard disks, and what works on one kind of computer won't work on another. Some even use hard-disk controllers or SASI/SCSI boards made by

the computer's manufacturer, and these boards can be difficult to impossible to obtain today; the Eagle and TeleVideo hard-disk boards are examples of this.

Preliminary design of a generic external hard disk is underway. It would rely on nothing in the host computer but the presence of a 4-MHz Z80 CPU, and would also add a large RAM disk, 512K or maybe more.

CCP/M subscribes to TZL

Effective this issue or the next, members of the Connecticut CP/M Users Group will receive *The Z-Letter* as part of their membership, through an agreement between CCP/M and Lambda. I welcome inquiries from any other user group that wants to follow CCP/M's example.

FOG folds

The computer support group FOG has closed its doors. Anyone calling its phone number is greeted with a message that they are going out of business and not accepting any new members.

FOG was originally First Osborne Group, an Osborne users' group. Over the years they expanded their mission to cover all CP/M and MS-DOS computers, eventually serving as a non-profit umbrella group that accepted user groups as well as individuals as members. This allowed many small user groups to flourish without worrying about incorporation hassles.

If anyone knows what is to become of all the boot disks and other goodies FOG accumulated over the years, please let me know. My messages offering support have not been returned.

DO IT YOURSELF

Introducing a new column by Kirk L. Thompson

Surviving in a world of Pentium processors and superduper Macs with an antiquated computer system takes some doing. Since support for the old systems is a lot further away than the computer store at the mall, the conditions are both necessary and sufficient for us to revert to ourselves for it. Instead of lugging the thing down to the store, we'll have to crack the cover ourselves to fix the power supply. Or we'll have to patch that commercial program so it works on our model. Or adapt the source code for a program we'd like, although we'd never set eyes on

the source language before. Or (horrors!) even teach ourselves assembly language so we can enhance our favorite operating system.

So there are both joys and trials to sticking with historical hardware. I count myself lucky to have grown up (so to speak) with Heathkit's H-89 Z80-based system. Assembling it from kit was, in the long run, probably the most important thing I did with the computer. After that, interfacing peripherals (including adding floppy drives), programming, repairing, and all the other stuff I continue to do with

the thing are cut and dried. To paraphrase an old saying, knowledge of the hardware is the beginning of wisdom.

Testing software yourself

In this column I will try to communicate to you the joys (and, yes, some of the trials) of doing things yourself. And I'll start with software testing. Very little is said about testing among all of the computer programming books I have in my library. This is amazing, considering that you have to somehow test your program to ensure that it does what it's supposed to do. Further, in the almost five years in which I've been employed as a tester for IBM mainframe software, I've discovered that testing isn't much more arcane than programming. There is a somewhat different mind set. But if you can do one, you can do the other.

Testing is a topic of interest to you no matter what language you may program in. I'll use Pascal (specifically, Borland's Turbo) for all my examples, mainly because that language emphasizes modularity and is an example of what design pseudo code could look like. However, the principles I discuss can apply just as well to BASIC, C, FORTRAN, or even assembler.

Further, there are some variations in approach that you can exercise as you test. It's possible to write a whole program, then test various parts of it in relative isolation. Indeed, later in this sub-series, I'll provide you with hints on how you can do just this. But for purposes of illustration and simplicity here at the beginning, I'll develop a testing method using narrowly-defined subroutines. This will ease you into the testing process. I think it's worthwhile testing complex subroutines in isolation anyway. To quote Kernighan and Plauger in their classic, *Software Tools in Pascal* (Addison-Wesley, 1981, page 114), "Incremental construction and testing make it easy to test a program whose pieces implement separate functions and interact only through clear, well-defined interfaces."

As I delve into the subject I'll let you in on many of the secrets the pros use, beginning in my next installment. I'll assume that you have a programming background somewhat beyond the novice level. My intention here is to teach you *testing*, not programming.

Library construction

Advanced languages usually provide some means of combining external code with the program you're currently writing. This could be as simple as the

MERGE statement in Microsoft BASIC (to add source code) or a linker such as Microsoft's L80 (to combine previously-compiled modules). Turbo Pascal, like BASIC, emphasizes the assembly of libraries at the source-code level. One way to build such a personal library of functions, procedures, and fragments is to copy them out of the multitude of books on your favorite language. This is a good source of undoubtedly quality material, but you'll often have to modify them to suit your needs or style and the peculiarities of your language implementation. Another method is to write, as you accumulate experience in a language, short programs that perform very narrowly defined functions or to write modules in the context of a larger program. Once you have them working properly, you can alter the source for use as "include" files.

However, some conversions don't work well this way. Perhaps because of the complexity of the input and output requirements, the canned function doesn't quite do what you want, or you need a different style of output. The approach I'm going to present in this first installment, and emphasize throughout, is to test your include modules, whether canned or home-grown, on a *test bench*. A test bench is a simple, general-purpose, easily modified shell of a program that lets you closely and reproducibly control I/O while you debug a module *in isolation*.

Isolation is exactly what you want when testing a complex new module (integration testing comes later). If a part of your program that uses a given procedure is malfunctioning, often you can't tell whether the bug is in the procedure or in the program section that calls it. So prior testing of procedures and functions in isolation will not only give you greater confidence in your subroutines, it can also help you locate bugs in other parts of your code. We'll be doing our isolated testing in TBENCH.

The test bench

The program listing is at the end of this installment. As you can see, it's extremely simple, but intentionally so. You'll find there a number of constants and variables declared. Also notice that I'm setting up a printer in case I need it. When I do this, the external file identifier in the program header *must* be there, otherwise the compiler objects vigorously; try it if you don't believe me. But these are set pieces and you don't have to use them if the module you're testing doesn't require them. I leave them there and use them as required. Pascal will gag when you try using something you haven't declared, but it doesn't care if you declare something but never use it (of course, you waste memory by doing that, but for a

program this small and the purpose to which we're putting it, that's immaterial). By leaving them there, the tools you'll need to work on your functions or procedures are always on the bench, so to speak.

After the constant and variable declarations, I pull in the module I plan to test. The one illustrated here is INTGR()INC.

Next is a boolean function used to test termination of the REPEAT/UNTIL loop in the main section of TBENCH. It accepts keyboard output from you and returns the values, TRUE or FALSE.

Finally, I come to the main program block. Here I'm explicitly assigning the variable PRINTER to the system hard-copy device. I've also commented out the code required to open a channel to the printer. But with just a few keystrokes, I can use it for output if required by the module I'm testing. Finally, within the REPEAT/UNTIL block, I place the code I need in order to test the module in question.

Assignment

Each installment of this series will include some things that you can try out. Even if you aren't using Pascal, fiddle with the equivalent statements or features in the language you *do* use regularly. These assignments are intended to give you hands-on experience in test design and to guide you in considering some of the issues involved in testing. For our immediate purposes, investigate your language's integer function. If you have Pascal, explore the differences between the standard functions ROUND and TRUNC. Set up TBENCH to aid your exploration. *Don't* just look in the manual; we're looking for kinks in the functions that the manual doesn't mention! You need to know what these are if you want accurate and reliable results from these functions. As you fiddle with these, consider what kinds of tests you might use to ensure that these built-in functions are working properly. Make a list of these and compare them with mine in the third installment in this tutorial.

Next time, I'll introduce you to some of the background you'll need when testing software. But if you need assistance applying any of the information I discuss, or have comments about this column's content, don't hesitate to contact me. I'm listed in the RESOURCES section of this magazine under *The Staunch 8/89'er*.

```
PROGRAM TBENCH (PRINTER);
{A user-modifiable envelope for testing
functions and procedures.}
```

```
CONST
  FF = #12;
```

```
VAR
  I, X, Y, Z : INTEGER;
  IREAL, R : REAL;
  C          : CHAR;
  PRINTER : TEXT;
  SPACE4   : ARRAY [1..4] OF CHAR;
```

```
{$I INTGR( )INC} {name of your include file}
```

```
FUNCTION NOTAGAIN : BOOLEAN;
  VAR C : CHAR;
  BEGIN
```

```
    WRITELN;
    WRITELN ('Another run? ');
    REPEAT
      WRITE ( ' (Y/N) and <RETURN> : ');
      READLN (C)
    UNTIL C IN ['y', 'Y', 'n', 'N'];
    WRITELN;
    NOTAGAIN := C IN ['n', 'N']
  END; {notagain}
```

```
BEGIN {main}
  SPACE4 := '    '; {4 spaces between the quotes}
  ASSIGN ( PRINTER, 'LST: ' );
  { REWRITE ( PRINTER );
  WRITELN ( PRINTER ); }
  REPEAT
    { your test code goes between REPEAT and UNTIL,
      for example:}
    WRITELN;
    WRITE ( 'Enter a REAL number ' );
    WRITE ( 'to be rounded: ' );
    READLN ( R );
    WRITELN ( R:17:7, ' becomes', INTGR (R):17:7 );
    WRITELN
  { end custom code}
  UNTIL NOTAGAIN
END.
```

[Kirk's TBENCH.PAS can be obtained from Lambda by sending a check or money order for \$10. If your disk format has enough room, the code from the other programming articles in this issue will also be included, and the Sound Potentials catalog. — DAJM]

SPEEDING UP EAGLE DISK DRIVES

by Bob Vinisky

The Eagle computer is a very nice machine. It comes with Spellbinder, it's easy to upgrade from the cheapest model to the fanciest by just changing the drives, and it has a 784K disk format with double-side floppy-disk drives. But it isn't perfect. The keyboard is built in, rather than attached with a cable; there are no function keys; and the SASI board needed to attach hard disks was made by Eagle, making it hard to find today.

Another long-standing irritation for Eagle owners is the noisiness and slowness of the floppy-disk drives. For years we have all sat there and listened to the floppy drives bellow and wheeze as we do anything. Startled users of other computers have been known to ask what was wrong when hearing this grinding noise for the first time.

A more technical user base might have fixed the annoyance, or complained to Eagle Computers and made them fix the problem. Eagles, however, were marketed to businessmen who didn't want to learn computers, just use them to make their businesses more productive. They didn't realize anything was wrong, or accepted Eagle's assurance that the drives were supposed to sound that way.

As a result, the first clue we had that the problem was fixable occurred at a meeting of the Eagle Computer Users Group. Joe Wright, Terry Hazen, and George Warner attended one meeting, and reacted immediately to David McGlone's Micromint SB180FX, whose 96-tpi drives made the same noise as the Eagles. Since David had Eagles before he went on to Micromints, he didn't expect any other noise out of 96-tpi drives. Joe Wright had David bring up the XBIOS SYSBUILD program, and substitute a much smaller access time for the slow default value being used. Immediately, the horrible noise went away. Subsequent experience showed that files were copied to and from the disk about twice as fast as before.

Joe assured the club that they had only to find the place in the BIOS where the step rate was set, change the value, reassemble the BIOS, and create a new operating system version to get the same results on the Eagle. Examination of the BIOS source, first by us and then by Joe, found no setting of the access time in the BIOS. Over the next year, I disassembled the Eagle IV BIOS, with Joe's help. I found a few small differences from the BIOS source supplied by Eagle, but still no place where the floppy-disk controller chip was initialized.

Then it must be done in the ROM, Joe said. So I downloaded the ROM to memory, saved it to disk,

and disassembled the ROM. Still nothing. Then Eagle must have just let the controller chip run with its default value, Joe said. There the matter rested for a while. Every once in a while, I would mention the problem to some computer guru, who would say that it must be in the BIOS, and if I would bring him the BIOS he would show it to me, etc. The results were always the same.

As I got more familiar with the Z-System, particularly NZCOM, and gained confidence from working with other computers like the DT42 and Xerox 16/8, I grew more determined to try to do something about the Eagle. Ron Reymore of Rondell Systems provided the information on setting the Eagle's MPD-765 floppy-disk controller chip. Three bytes must be sent to the right port to address the chip. The first byte is the command code for function to be performed; to set the step rate, the value is 03. The second byte sent comes in two four-bit nibbles; the high-order nibble is the step rate, the low-order nibble is the head-unload time. This value must be adjusted by ear; when you get the right value, the ugly noise goes away, and the drive performance improves drastically. For the drives in my possession, I found a value of C2 worked well for the full-height drives, and F1 for the half-height drives. The final byte uses bit 0 to tell the chip whether to operate in DMA or non-DMA mode, while bits 1-7 convey the head-load time. A value of 0A seems to work well.

The following script can be included in your startup alias so that it gets done automatically whenever you boot your system.

```
q s
nzcom steprcp.zrl /q
port 29 03
port 29 C2
port 29 0A
nzcom nzrcp.zrl /q
q r
echo ^m^j^j^j d%>one ...
```

This alias first uses NZCOM to replace your RCP with mine, to make sure you have the PORT command. PORT reads any port on your system or writes a byte to any port. The alias then outputs the relevant bytes to the floppy-disk data port, as explained above. Then NZCOM is used to reinstall NZRCP.ZRL from NZCOM.LBR. If you use another RCP as your default RCP, just change the command in the alias file. If you use a static Z-System, such as

the one that comes with an SB180 or SB180LO, instead of NZCOM, replace the NZCOM commands in the alias file with JETLDR, LDR, etc.

I have tried to write a stand-alone program for use by Eagle owners who have still not moved out of the dark ages of CP/M into the Z-System. But there is a bug somewhere in my program. Every once in a while, it hangs the system up, and if renamed HELLO so that the Eagle will run it automatically on booting, it seems to do so every time. So the CP/M version isn't ready yet. I urge all CP/M users to move up to

the Z-System anyway. NZCOM is available from Lambda for only \$20, and you won't be sorry you made the switch. For myself, I can hardly remember how to use the old CP/M commands anymore.

[Bob's RCP and SSTEP-F and SSTEP-H aliases can be obtained from Lambda by sending a check or money order for \$10. If your disk format has enough room, the code from the other programming articles in this issue will also be included, and the Sound Potentials catalog. — DAJM]

A PROGRAMMER CORNERED

Displaying customer and subscription information

Much to everyone's dismay, I'm sure, I have decided to put off describing how I did my taxes on computer this year. It would have been timely to do so before tax time, but I was too busy *doing* it to write about it. I will put a note on the calendar to cover how I did taxes this year, and how I'm going to do them next year, before tax time rolls around again. Instead I'm going to present a program for rapid retrieval of information from the customer and subscription data bases I've been describing.

This program has a single simple purpose: to read the customer data base and retrieve the name, address, and phone number of the customer I've requested, or tell me there's no such person in the data base if that's the case. If a customer is found, it also lists his entries in my subscription data base, or tells me there are none if such is the case. That's all it does, but it does it fairly quickly.

The reason I've been wanting such a program has to do with the SB180FX which is my main computer. Joe Wright's original BIOS doesn't leave enough TPA to run SELECTOR V, the data-base manager I use. Malcolm Kemp's XBIOS does, which is why I use it, but programs written in compiled CBASIC, such as SELECTOR and Accounting Plus, run very slowly under XBIOS. And there isn't yet a version of BPBios for the SB180FX and SB180LO, only the SB180.

Besides running slowly, SELECTOR is a general-purpose data-base manager, not one dedicated to the particular customer and subscription data bases for which I mostly use it. Every time you invoke SELECTOR, you get a main menu and must choose which function you want to do. After the overlay for that function is loaded, you then choose what to do from its menu in turn, tell it what data base to open, what key you're going to use, and type in the key. This must be done every single time.

As usual, the program is written in COBOL, because that's the language I like best. There is no reason it couldn't have been written in Pascal or some other language. COBOL purists will dislike my primitive style. Most of it is forced on me by my choice of Nevada COBOL, which doesn't implement a lot of COBOL's nicer features, such as Level 88 items. Because Nevada COBOL cost about \$38, and all the other COBOLs for CP/M cost \$700-\$800, Nevada COBOL is by far the most common COBOL for CP/M. By restricting myself to it, rather than DRI COBOL, Micro Focus COBOL, Microsoft COBOL, or Ryan/MacFarland COBOL, I ensure that the program can be compiled and run by any other CP/M COBOL programmers there may be.

In one sense, I didn't have to write a program at all. SELECTOR is perfectly capable of presenting this information on demand. By doing this manually once, and saving the keystrokes in what SELECTOR calls an auto-pilot file, I could avoid the necessity of specifying the main-menu function, data file to be opened, etc. But it would still run very slowly, so that's not a solution in this case.

The general program logic is very simple. First DISPLAY prompts me for the first and last name of the customer, shifts whatever I type to upper case, and concatenates them with the last name first. The key field in my data bases, as we've seen before consists of the first seven letters of the last name, plus the first five letters of the first name, plus a number between 00 and 99 to avoid key conflicts. COBOL automatically trims the first name to 5 characters and the last name to seven, just because that's the lengths of the fields I defined for them, and fills in trailing spaces if I type fewer characters for either name.

The key field K is a unique key in the customer data base, so SELECTOR creates and maintains a

CUSTOMER.KEY file whenever the data file is added to or amended. The KEY file consists of all the K entries in alphabetical order, each marked as being field 1 of the record definition, and each followed by the corresponding record number in the data base. The entries for the other key, COUNTRY, are marked as being field 6 and follow the K entries. To keep the complications to a minimum at first, the present version of the DISPLAY program does a sequential pass through the KEY file, stopping when it runs out of K entries, or when it finds a matching key, whichever comes first. If no matching key is found, it goes to the REPORT-NO-MATCH paragraph and prints "Sorry, no such person in the data base." on the screen. If a matching key is found, it retrieves the data from the customer data file by doing a relative read of the file, using the record number from the customer key file.

In the SELECTOR screen definition, the field names are surrounded by square brackets, as SELECTOR requires, and I drew a box around the fields and their labels using asterisks. For the DISPLAY program, I made it look nicer. Instead of asterisks, I use the graphics available to my TeleVideo 955 terminal. Sending ESC \$ (1B,24) to the screen turns on the terminal's graphics, allowing me to draw the box shown on the cover. When I need to turn off the graphics to print regular characters, I send ESC % (1B,25) instead.

Once the customer information has been found and displayed, DISPLAY searches the subscription data file sequentially, formatting and showing any subscription records for the chosen customer. Because there are no unique keys in the subscription definition, SELECTOR doesn't make a KEY file for this data base, so for right now we have no choice but to search this file sequentially. If no subscription information is found, DISPLAY goes to the paragraph REPORT-NO-SUBSCRIPTION and prints "This person has never received *The Z-Letter*." Here I take advantage of the TeleVideo's graphics to print the magazine's name in underlined characters on the screen!

I am very pleased with my little program, but there are a number of obvious improvements to be made:

1. It would be easier to use if you could just type DISPLAY instead of RUN DISPLAY, and provide the customer's first and last name as parameters instead of being prompted for them. Since Nevada COBOL does not create COM files or read parameters from the command line, and LPascal does, translating the program to LPascal does the obvious answer here. Or I could use a fancier COBOL, but few people have one, as I said

before.

2. The existing logic should operate within a loop, so that after displaying each customer's address and subscription information, the user is prompted to (Q)uit, (N)ew customer, or (P)rint the display to a file.
3. Do a binary search, rather than a sequential one, of the customer key file, and set up and maintain a subscription key file and do a binary search of it.
4. Allow the user to correct mistakes made in typing the customer's first and last name, as long as he hasn't hit ENTER yet.
5. Allow wild-card characters in the key and display the customer(s) that match them.
6. Allow the user to "browse" through the data base, showing the next one in order and the previous one at any point. Possibly the prompt in (2) should use K for (K)ey and reserve N for (N)ext record and P for (P)revious record.

Obviously, we're talking about a lot of work here. Eventually we might end up writing a complete database manager, similar to ZDB or SSG's NAD. SELECTOR could then be reserved for prototyping data bases.

IDENTIFICATION DIVISION.

*

PROGRAM-ID.
DISPLAY.

*

AUTHOR.
DAVID ANTHONY JOSEPH MCGLONE.

*

DATE-WRITTEN.
2 JUNE 1994.

*

DATE-COMPILED.
6 JUNE 1994.

*

- * This program retrieves the name, address, phone,
- * and subscription information (if any) for the first
- * match of a user-supplied key. It allows me to
- * browse through the SELECTOR data bases without
- * invoking SELECTOR, telling SELECTOR which file
- * to get, switching to another file, finding the
- * matching information, etc.

*

ENVIRONMENT DIVISION.

*

CONFIGURATION SECTION.

*

SOURCE-COMPUTER.
8080-CPU.
OBJECT-COMPUTER.

```

8080-CPU.
*
INPUT-OUTPUT SECTION.
*
FILE-CONTROL.
*
SELECT CUSTOMER-KEY-FILE ASSIGN TO DISK
  ORGANIZATION      IS SEQUENTIAL
  ACCESS MODE       IS SEQUENTIAL
  RECORD DELIMITER IS STANDARD.
*
SELECT CUSTOMER-DATA-FILE ASSIGN TO DISK
  ORGANIZATION      IS RELATIVE
  ACCESS MODE       IS RANDOM
  RELATIVE KEY      IS WS-RECORD-NUMBER.
*
SELECT SUBSCRIPTION-DATA-FILE
  ASSIGN TO DISK
  ORGANIZATION      IS SEQUENTIAL
  ACCESS MODE       IS SEQUENTIAL
  RECORD DELIMITER IS STANDARD.
*
SELECT OUTPUT-FILE ASSIGN TO DISK
  ORGANIZATION      IS SEQUENTIAL
  ACCESS MODE       IS SEQUENTIAL
  RECORD DELIMITER IS STANDARD.
*
*
DATA DIVISION.
*
FILE SECTION.
*
FD CUSTOMER-KEY-FILE
  LABEL RECORDS ARE STANDARD
  VALUE OF FILE-ID IS "B:CUSTOMERKEY"
  DATA RECORD IS CUSTOMER-KEY-RECORD.
01 CUSTOMER-KEY-RECORD.
   05 CKR-KEY-ID          PIC 9(02).
   05 CKR-ACTUAL-KEY.
      10 CKR-NAME-ID      PIC X(12).
      10 CKR-HASH         PIC X(02).
   05 CKR-RECORD-NUMBER  PIC X(11).
*
FD CUSTOMER-DATA-FILE
  LABEL RECORDS ARE STANDARD
  VALUE OF FILE-ID IS "B:CUSTOMERDAT".
01 CUSTOMER-DATA-RECORD.
   05 CDR-K              PIC X(14).
   05 CDR-NAME           PIC X(40).
   05 CDR-COMPANY        PIC X(40).
   05 CDR-ADDRESS1       PIC X(40).
   05 CDR-ADDRESS2       PIC X(40).
   05 CDR-COUNTRY        PIC X(20).
   05 CDR-PHONE          PIC X(20).
   05 CDR-DATE.
*
*
10 CDR-YEAR             PIC X(04).
10 CDR-MONTH            PIC X(02).
10 CDR-DAY              PIC X(02).
05 CDR-CARRIAGE-RETURN PIC X(01).
05 CDR-LINE-FEED        PIC X(01).
*
FD SUBSCRIPTION-DATA-FILE
  LABEL RECORDS ARE STANDARD
  VALUE OF FILE-ID IS "B:ZLTRSUBSDAT"
  DATA RECORD IS
    SUBSCRIPTION-DATA-RECORD.
01 SUBSCRIPTION-DATA-RECORD.
   05 SDR-K              PIC X(14).
   05 SDR-FIRSTISSUE    PIC X(05).
   05 SDR-LASTISSUE     PIC X(05).
   05 SDR-AMOUNT        PIC X(08).
   05 SDR-DATEPAID.
      10 SDR-YEAR        PIC X(04).
      10 SDR-MONTH      PIC X(02).
      10 SDR-DAY        PIC X(02).
   05 SDR-CANCEL        PIC X(01).
   05 SDR-CARRIAGE-RETURN PIC X(01).
   05 SDR-LINE-FEED     PIC X(01).
*
FD OUTPUT-FILE
  LABEL RECORDS ARE STANDARD
  VALUE OF FILE-ID IS "A:CUSTINFO.OUT".
01 OUTPUT-RECORD       PIC X(40).
*
WORKING-STORAGE SECTION.
*
01 WS-CLS              PIC X(01)
   VALUE ""1A"".
01 WS-ACTUAL-KEY.
   05 WS-NAME-ID.
      10 WS-LAST-NAME   PIC X(07)
         VALUE SPACES.
      10 WS-FIRST-NAME  PIC X(05)
         VALUE SPACES.
   05 WS-HASH          PIC X(02)
         VALUE SPACES.
01 WS-CANCELED        PIC X(08)
   VALUE "CANCELED".
01 WS-CUSTOMER-FOUND  PIC X(01)
   VALUE SPACES.
01 WS-CUSTOMER-RECORD.
* Line 1 of customer display.
   05 FILLER           PIC X(02)
         VALUE ""1B,24"".
   05 FILLER           PIC X(20)
         VAL "FKKKKKKKKKKKKKKKKKKKKKKK".
   05 FILLER           PIC X(20)
         VAL "KKKKKKKKKKKKKKKKKKKKKKKK".
   05 FILLER           PIC X(20)
         VAL "KKKKKKKKKKKKKKKKKKKKKKKK".

```

| | | | |
|------------------------------------|-----------|------------------------|-------------------------------|
| 05 FILLER | PIC X(20) | VALUE "*" " | |
| VAL "KKKKKKKKKKKKKKKKKKKG " | | | * Line 6 of customer display. |
| * Line 2 of customer display. | | | |
| 05 FILLER | PIC X(01) | VALUE "***" | PIC X(01) |
| VALUE "***" | | | |
| 05 FILLER | PIC X(02) | VALUE ""1B,25"" | PIC X(02) |
| VALUE ""1B,25"" | | | |
| 05 FILLER | PIC X(20) | VALUE " COMPANY | PIC X(20) |
| VALUE SPACES. | | " | |
| 05 FILLER | PIC X(27) | 05 WS-COMPANY | PIC X(40) |
| VALUE "Lambda Software Publishing" | | VALUE SPACES. | |
| 05 FILLER | PIC X(30) | 05 FILLER | PIC X(02) |
| VALUE SPACES. | | VALUE ""1B,24"" | |
| 05 FILLER | PIC X(02) | 05 FILLER | PIC X(19) |
| VALUE ""1B,24"" | | VALUE " * | |
| 05 FILLER | PIC X(02) | | |
| VALUE "*" " | | | * Line 7 of customer display. |
| * Line 3 of customer display. | | | |
| 05 FILLER | PIC X(20) | 05 FILLER | PIC X(01) |
| VAL "MKKKKKKKKKKKKKKKKKKKK" | | VALUE "***" | |
| 05 FILLER | PIC X(20) | 05 FILLER | PIC X(02) |
| VAL "KKKKKKKKKKKKKKKKKKKKK" | | VALUE ""1B,25"" | |
| 05 FILLER | PIC X(20) | 05 FILLER | PIC X(20) |
| VAL "KKKKKKKKKKKKKKKKKKKKK" | | VALUE " STREET | " |
| 05 FILLER | PIC X(20) | 05 WS-ADDRESS1 | PIC X(40) |
| VAL "KKKKKKKKKKKKKKKKKKKKL " | | VALUE SPACES. | |
| * Line 4 of customer display. | | 05 FILLER | PIC X(02) |
| 05 FILLER | PIC X(01) | VALUE ""1B,24"" | |
| VALUE "***" | | 05 FILLER | PIC X(19) |
| 05 FILLER | PIC X(02) | VALUE " * | |
| VALUE ""1B,25"" | | | * Line 8 of customer display. |
| 05 FILLER | PIC X(20) | 05 FILLER | PIC X(01) |
| VALUE " KEY | " | VALUE "***" | |
| 05 WS-K | PIC X(14) | 05 FILLER | PIC X(02) |
| VALUE SPACES. | | VALUE ""1B,25"" | |
| 05 FILLER | PIC X(43) | 05 FILLER | PIC X(20) |
| VALUE SPACES. | | VALUE " CITY/STATE/ZIP | " |
| 05 FILLER | PIC X(02) | 05 WS-ADDRESS2 | PIC X(40) |
| VALUE ""1B,24"" | | VALUE SPACES. | |
| 05 FILLER | PIC X(02) | 05 FILLER | PIC X(02) |
| VALUE "*" " | | VALUE ""1B,24"" | |
| * Line 5 of customer display. | | 05 FILLER | PIC X(19) |
| 05 FILLER | PIC X(01) | VALUE " * | |
| VALUE "***" | | | * Line 9 of customer display. |
| 05 FILLER | PIC X(02) | 05 FILLER | PIC X(01) |
| VALUE ""1B,25"" | | VALUE "***" | |
| 05 FILLER | PIC X(20) | 05 FILLER | PIC X(02) |
| VALUE " NAME | " | VALUE ""1B,25"" | |
| 05 WS-NAME | PIC X(40) | 05 FILLER | PIC X(20) |
| VALUE SPACES. | | VALUE " COUNTRY | " |
| 05 FILLER | PIC X(17) | 05 WS-COUNTRY | PIC X(20) |
| VALUE SPACES. | | VALUE SPACES. | |
| 05 FILLER | PIC X(02) | 05 FILLER | PIC X(37) |
| VALUE ""1B,24"" | | VALUE SPACES. | |
| 05 FILLER | PIC X(02) | 05 FILLER | PIC X(02) |
| | | VALUE ""1B,24"" | |
| | | 05 FILLER | PIC X(02) |
| | | VALUE "*" " | |

| | | | | |
|--------------------------------|-----------|---------------------------------------|---------------|--|
| * Line 10 of customer display. | | | VALUE SPACES. | |
| 05 FILLER | PIC X(01) | 05 RECNUM1 | PIC 9(01) | |
| VALUE "" | | VALUE ZERO. | | |
| 05 FILLER | PIC X(02) | 01 WS-RECNUM2. | | |
| VALUE ""1B,25"" | | 05 FILLER | PIC X(09) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VALUE " PHONE | " | 05 RECNUM2 | PIC 9(02) | |
| 05 WS-PHONE | PIC X(20) | VALUE ZERO. | | |
| VALUE SPACES. | | 01 WS-RECNUM3. | | |
| 05 FILLER | PIC X(37) | 05 FILLER | PIC X(08) | |
| VALUE SPACES. | | VALUE SPACES. | | |
| 05 FILLER | PIC X(02) | 05 RECNUM3 | PIC 9(03) | |
| VALUE ""1B,24"" | | VALUE ZERO. | | |
| 05 FILLER | PIC X(02) | 01 WS-RECNUM4. | | |
| VALUE "" " | | 05 FILLER | PIC X(07) | |
| * Line 11 of customer display. | | VALUE SPACES. | | |
| 05 FILLER | PIC X(01) | 05 RECNUM4 | PIC 9(04) | |
| VALUE "" | | VALUE ZERO. | | |
| 05 FILLER | PIC X(02) | 01 WS-RECNUM5. | | |
| VALUE ""1B,25"" | | 05 FILLER | PIC X(06) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VALUE " DATE | " | 05 RECNUM5 | PIC 9(05) | |
| 05 WS-MONTH | PIC X(02) | VALUE ZERO. | | |
| VALUE SPACES. | | 01 WS-RECORD-NUMBER | PIC 9(05) | |
| 05 FILLER | PIC X(01) | VALUE ZERO. | | |
| VALUE "/" | | 01 WS-RESPONSE | PIC X(01) | |
| 05 WS-DAY | PIC X(02) | VALUE SPACE. | | |
| VALUE SPACES. | | 01 WS-SCREEN-OFF | PIC X(02) | |
| 05 FILLER | PIC X(01) | VALUE ""1B,6F"" | | |
| VALUE "/" | | 01 WS-SCREEN-ON | PIC X(02) | |
| 05 WS-YEAR | PIC X(04) | VALUE ""1B,6E"" | | |
| VALUE SPACES. | | 01 WS-SPACES-COUNTED | PIC 9(02) | |
| 05 FILLER | PIC X(47) | VALUE ZERO. | | |
| VALUE SPACES. | | 01 WS-SUBSCRIPTION-FOUND | PIC X(01) | |
| 05 FILLER | PIC X(02) | VALUE "0". | | |
| VALUE ""1B,24"" | | 01 WS-SUBSCRIPTION-HEADER | PIC X(39) | |
| 05 FILLER | PIC X(02) | VALUE " First Last Amount Date paid". | | |
| VALUE "" " | | 01 WS-SUBSCRIPTION-ITEM. | | |
| * Line 12 of customer display. | | 05 FILLER | PIC X(05) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VAL "EKKKKKKKKKKKKKKKKKKKKK" | | 05 WS-FIRSTISSUE | PIC X(05) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VAL "KKKKKKKKKKKKKKKKKKKKK" | | 05 FILLER | PIC X(02) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VAL "KKKKKKKKKKKKKKKKKKKKK" | | 05 WS-LASTISSUE | PIC X(05) | |
| 05 FILLER | PIC X(20) | VALUE SPACES. | | |
| VAL "KKKKKKKKKKKKKKKKKKKH " | | 05 FILLER | PIC X(02) | |
| 05 FILLER | PIC X(02) | VALUE SPACES. | | |
| VALUE ""1B,25"" | | 05 WS-AMOUNT | PIC X(08) | |
| 01 WS-MORE-INPUT | PIC X(01) | VALUE SPACES. | | |
| VALUE SPACES. | | 05 FILLER | PIC X(02) | |
| 01 WS-RAW-RECORD-NUMBER | PIC X(11) | VALUE SPACES. | | |
| VALUE SPACES. | | 05 WS-SUBMONTH | PIC X(02) | |
| 01 WS-RECNUM1 | | VALUE SPACES. | | |
| 05 FILLER | PIC X(10) | 05 FILLER | PIC X(01) | |

```

        VALUE "/".
05 WS-SUBDAY          PIC X(02)
        VALUE SPACES.
05 FILLER             PIC X(01)
        VALUE "/".
05 WS-SUBYEAR        PIC X(04)
        VALUE SPACES.
05 FILLER             PIC X(02)
        VALUE SPACES.
05 WS-CANCEL         PIC X(08)
        VALUE SPACES.
01 WS-UNDERLINE-OFF PIC X(03)
        VALUE ""1B,47,30"".
01 WS-UNDERLINE-ON  PIC X(03)
        VALUE ""1B,47,38"".
*
*
PROCEDURE DIVISION.
*
MAIN-PROCEDURE.
    PERFORM OPEN-FILES.
    PERFORM ACCEPT-KEY.
    READ CUSTOMER-KEY-FILE
        AT END MOVE HIGH-VALUE
            TO WS-MORE-INPUT.
    PERFORM FIND-CUSTOMER
        UNTIL WS-MORE-INPUT IS EQUAL
            TO HIGH-VALUE.
    IF WS-CUSTOMER-FOUND IS EQUAL
        TO SPACES
        PERFORM REPORT-NO-MATCH
    ELSE
        PERFORM
            DISPLAY-CUSTOMER-INFORMATION
        PERFORM FIND-SUBSCRIPTIONS.
    PERFORM END-PROGRAM.
*
*
    Subordinate procedures
*
ACCEPT-KEY.
    PERFORM CLEAR-SCREEN.
    MOVE SPACES TO WS-CUSTOMER-FOUND,
        WS-MORE-INPUT, WS-NAME-ID.
    DISPLAY "Customer's first name? "
    ACCEPT WS-FIRST-NAME.
    DISPLAY "        Last name? "
    ACCEPT WS-LAST-NAME.
    INSPECT WS-NAME-ID REPLACING
        ALL "a" BY "A", ALL "b" BY "B",
        ALL "c" BY "C", ALL "d" BY "D",
        ALL "e" BY "E", ALL "f" BY "F",
        ALL "g" BY "G", ALL "h" BY "H",
        ALL "i" BY "I", ALL "j" BY "J",
        ALL "k" BY "K", ALL "l" BY "L",
        ALL "m" BY "M", ALL "n" BY "N",
        ALL "o" BY "O", ALL "p" BY "P",
        ALL "q" BY "Q", ALL "r" BY "R",
        ALL "s" BY "S", ALL "t" BY "T",
        ALL "u" BY "U", ALL "v" BY "V",
        ALL "w" BY "W", ALL "x" BY "X",
        ALL "y" BY "Y", ALL "z" BY "Z".
    DISPLAY SPACE.
    DISPLAY "Searching for ",
        WS-NAME-ID, " . . .".
*
    CLEAR-SCREEN.
    DISPLAY WS-CLS.
*
    DISPLAY-CUSTOMER-INFORMATION.
    INSPECT WS-RAW-RECORD-NUMBER
        TALLYING WS-SPACES-COUNTED
            FOR ALL " ".
    IF WS-SPACES-COUNTED IS EQUAL TO 10
        MOVE WS-RAW-RECORD-NUMBER
            TO WS-RECNUM1
        MOVE RECNUM1 TO
            WS-RECORD-NUMBER.
    IF WS-SPACES-COUNTED IS EQUAL TO 9
        MOVE WS-RAW-RECORD-NUMBER
            TO WS-RECNUM2
        MOVE RECNUM2 TO
            WS-RECORD-NUMBER.
    IF WS-SPACES-COUNTED IS EQUAL TO 8
        MOVE WS-RAW-RECORD-NUMBER
            TO WS-RECNUM3
        MOVE RECNUM3 TO
            WS-RECORD-NUMBER.
    IF WS-SPACES-COUNTED IS EQUAL TO 7
        MOVE WS-RAW-RECORD-NUMBER
            TO WS-RECNUM4
        MOVE RECNUM4 TO
            WS-RECORD-NUMBER.
    IF WS-SPACES-COUNTED IS EQUAL TO 6
        MOVE WS-RAW-RECORD-NUMBER
            TO WS-RECNUM5
        MOVE RECNUM5 TO
            WS-RECORD-NUMBER.
    IF WS-SPACES-COUNTED IS LESS THAN 6
        DISPLAY SPACE
        DISPLAY "*** ERROR ***
            Record number is too large!"
        PERFORM END-PROGRAM.
    READ CUSTOMER-DATA-FILE
        INVALID KEY
            DISPLAY "*** ERROR *** Invalid key!".
    PERFORM CLEAR-SCREEN.
    MOVE SPACES TO WS-K, WS-NAME,
        WS-COMPANY, WS-ADDRESS1,
        WS-ADDRESS2, WS-COUNTRY,
        WS-PHONE, WS-YEAR,

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    WS-MONTH, WS-DAY.
    MOVE CDR-K TO WS-K.
    MOVE CDR-NAME TO WS-NAME.
    MOVE CDR-COMPANY TO WS-COMPANY.
    MOVE CDR-ADDRESS1 TO WS-ADDRESS1.
    MOVE CDR-ADDRESS2 TO WS-ADDRESS2.
    MOVE CDR-COUNTRY TO WS-COUNTRY.
    MOVE CDR-PHONE TO WS-PHONE.
    MOVE CDR-YEAR TO WS-YEAR.
    MOVE CDR-MONTH TO WS-MONTH.
    MOVE CDR-DAY TO WS-DAY.
    DISPLAY WS-CUSTOMER-RECORD.
*
DISPLAY-SUBSCRIPTIONS.
    IF SDR-K IS EQUAL TO WS-K
        PERFORM MAKE-SUBSCRIPTION-LINE
        DISPLAY WS-SUBSCRIPTION-ITEM.
    READ SUBSCRIPTION-DATA-FILE
    AT END MOVE HIGH-VALUE
    TO WS-MORE-INPUT.
*
END-PROGRAM.
    CLOSE CUSTOMER-KEY-FILE.
    CLOSE CUSTOMER-DATA-FILE.
    CLOSE SUBSCRIPTION-DATA-FILE.
    CLOSE OUTPUT-FILE.
    STOP RUN.
*
FIND-CUSTOMER.
    IF CKR-KEY-ID IS NOT EQUAL TO 01
        MOVE HIGH-VALUE TO
        WS-MORE-INPUT.
    IF CKR-NAME-ID IS EQUAL TO WS-NAME-ID
        MOVE CKR-HASH TO WS-HASH
        MOVE CKR-RECORD-NUMBER TO
        WS-RAW-RECORD-NUMBER
        MOVE HIGH-VALUE TO
        WS-CUSTOMER-FOUND,
        WS-MORE-INPUT.
    READ CUSTOMER-KEY-FILE
    AT END MOVE HIGH-VALUE
    TO WS-MORE-INPUT.
*
FIND-SUBSCRIPTIONS.
    MOVE SPACES TO WS-MORE-INPUT.
    READ SUBSCRIPTION-DATA-FILE
    AT END MOVE HIGH-VALUE
    TO WS-MORE-INPUT.
    PERFORM DISPLAY-SUBSCRIPTIONS

```

```

    UNTIL WS-MORE-INPUT IS EQUAL
    TO HIGH-VALUE.
    IF WS-SUBSCRIPTION-FOUND IS EQUAL TO 0
    PERFORM REPORT-NO-SUBSCRIPTION.
*
MAKE-SUBSCRIPTION-LINE.
    IF WS-SUBSCRIPTION-FOUND IS EQUAL TO 0
    MOVE 1 TO WS-SUBSCRIPTION-FOUND
    DISPLAY WS-SUBSCRIPTION-HEADER.
    MOVE SPACES TO WS-FIRSTISSUE,
    WS-LASTISSUE, WS-SUBMONTH,
    WS-SUBDAY, WS-SUBYEAR,
    WS-AMOUNT, WS-CANCEL.
    MOVE SDR-FIRSTISSUE TO WS-FIRSTISSUE.
    MOVE SDR-LASTISSUE TO WS-LASTISSUE.
    MOVE SDR-AMOUNT TO WS-AMOUNT.
    MOVE SDR-YEAR TO WS-SUBYEAR.
    MOVE SDR-MONTH TO WS-SUBMONTH.
    MOVE SDR-DAY TO WS-SUBDAY.
    IF SDR-CANCEL IS NOT EQUAL TO SPACES
    MOVE WS-CANCELED TO WS-CANCEL.
*
OPEN-FILES.
    OPEN INPUT CUSTOMER-KEY-FILE.
    OPEN INPUT CUSTOMER-DATA-FILE.
    OPEN INPUT SUBSCRIPTION-DATA-FILE.
    OPEN OUTPUT OUTPUT-FILE.
*
REPORT-NO-MATCH.
    DISPLAY SPACE.
    DISPLAY "    Sorry, no such person
    in the data base."
*
REPORT-NO-SUBSCRIPTION.
    DISPLAY WS-SCREEN-OFF,
    "    This person has never received",
    WS-UNDERLINE-ON,
    "The Z-Letter.",
    WS-UNDERLINE-OFF,
    WS-SCREEN-ON.
*
END PROGRAM DISPLAY.

```

DISPLAY.CBL can be obtained from Lambda by sending a check or money order for \$10. If your disk format has enough room, the code from the other programming articles in this issue will also be included, and the Sound Potentials catalog. - DAJM

PERSONAL ADS

Computers for sale or trade

Two **Kaypro 10** computers, good condition, \$100 plus shipping. All standard software on disk, some manuals. Three **Kaypro II** computers, good condition, \$50 plus shipping. One **Epson QX-10** computer, good condition, two **DSDD** floppy-disk drives, \$50 plus shipping. Two **Epson PX-8 (Geneva)** laptops, including external 3½" floppy-disk drive unit and manuals, \$60 each plus shipping. One **Epson portable printer** for the Geneva, \$30 plus shipping. One **Epson FX-80** dot-matrix printer, \$80 plus shipping. One **NEC PC-8801A** computer, monitor, dual 5¼" floppy-disk drives, working condition (2 key caps missing), \$50 plus shipping. One **Morrow MD2** computer, good condition, \$50 plus shipping; terminal not included. Two **Eagle File 10** external hard-disk units, excellent condition, \$100 plus shipping. Two working **TRS-80 Model II** computers, one **SSDD** 8" floppy-disk drive each; one with keyboard \$50 plus shipping, one without keyboard \$30 plus shipping, or both together for \$60 plus shipping. 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 represented in my collection. Contact David McGlone, phone (503) 688-3563.

Morrow Micro Decision 3 for sale

Includes computer, most if not all software and

manuals. Does not include terminal. \$45 plus shipping. Dorene Minter, 1121 Key Peninsula Hwy S., Lakebay WA 98349, (206) 884-2574.

Printer for sale

Juki 6100 daisy-wheel printer, tractor feed, extra print wheels, cable for use with Kaypro computer. Works fine! Close-out price: \$45 plus shipping. Dave Templin, 2978 Spruce Way, West Sacramento CA 95691, phone (916) 371-2964.

Amstrad 8256 for sale

In excellent working condition. Includes additional chips to make it an 8512, a second 3" drive, original Parallel/Serial interface, lots of Amstrad software on original 3" disks with original user guides. Make an offer. Peter Hollander, 820 West End Avenue, Suite 12E, New York NY 10025, (212) 865-6567.

DEC Rainbow 100 for sale

Has printer, extended memory, extra monitor and keyboard. Loads of software, original manuals. \$100 or best offer. Bill Donley, 1197 Ella Street, San Luis Obispo CA 93401, phone (805) 541-1352.

TeleVideo TS-802 for sale

Includes some software, manual. \$50 plus shipping. Ramin Oskoui, 320 Beech Park Blvd., Foster City CA 94404, phone (415) 349-1319.

ERRATA

The editor misunderstood the name of Jim Thale's new YASBEC board (RANDOM ACCESS, last issue). It is called not YASBIO, but YASMIO, for Yet Another Single-board Multiple IO. My apologies to Jim Thale and company.

LETTERS

Zed Fest '94 at Trenton

4/18/94

Dear David:

I am transcribing these notes from ones I took while attending Hal Bower's presentation. They were written on the original TCF '94 flier, which did not have any CP/M Z-System Conference scheduled.

But, due to the efforts of one fellow whose name I am afraid I never got, the final schedule did include a CP/M Z-System conference.

Hal talked about the latest hardware and software advances he's been working on. B/PBios, the YASMIO board for the YASBEC computer, and ZSDOS2 fixes and new features were the main topics. While taking classes at MIT

recently, Hal learned about hashing techniques. He incorporated what he learned into ZSDOS2. The YASMIO board was driving a 1.76-megabyte 3½" drive!

Throughout the weekend the overriding sense was that we are at the end of one era and at the beginning of another. Hal asked the audience of perhaps 15, "Where do we go with these things we have created?" That evening, at the Stage Depot Motel, Bruce Morgen posed the question, "Are we all going to end up running Z-System and CP/M on PCs under My-Z80?"

I think the development may be just about over. Howard Goldstein has not heard a word from Simeon Cran in quite a while. Version 12 of My-Z80 was expected out some time ago. Perhaps Simeon has had a change in circumstances which is preventing the release. I, for one, am very interested in all the repairs and enhancements Howard has told me will be in it.

The weather was quite dangerous Saturday morning. Heavy rains and winds delayed the opening of the 19th annual Trenton Computer Festival. On the way from the Festival to the Stage Depot Motel Saturday evening, Jay Sage, Eric Palm and I were detoured because several phone/power poles were downed in the road. A "microburst" (how appropriate!) had hit during the day. At least one person got the scare of his life when a power pole fell directly on his car.

Jay Sage had talked to the management at the Stage Depot when he arrived on Friday and learned the Stage is under new management. They graciously offered our group the "Lounge" at "Stage II" for free. Despite the fact that next to no organizing had been done this year, there were probably 25 to 30 die-hards who showed up for the Saturday night Zed Fest. Kyle Dane and Blair Groves set up a LAN under Network OS in one of the rooms. Another fellow mentioned he was developing a "Universal Z80 Interface" and was wondering if anyone was interested. Herb Johnson looked over the schematics and encouraged him to complete the project.

I mentioned I had a few copies of the latest incarnation of a full-up Z-System under My-Z80 for sale for \$10 and I sold more copies than I had. This is a set of four high-density 3½" disks with about 20 pages of installation, introduction, and file-directory information. I'll make more copies and send them to anyone who sends me a check for \$10.

Ian Cottrell presented the Hobbyist of the Year award to Hal Bower, who seemed quite surprised to get it. Hal joins Jay Sage and Howard Goldstein as the third recipient of the coveted "Looney." Hal

richly deserves the honor.

I never made it to the Flea Market. My wife Linda, Eric Palm and I left early Sunday. I spent most of Saturday attending talks on things like Memory Management and the Pentium vs the PowerPC, a RISC chip. There were vendors scattered throughout the Mercer County Community College buildings, so I did get to see what was new (as opposed to what was old and at the Flea). Hal Bower said he saw a mess of 100-Mb IDE drives for well under \$100 at the Flea! Richard Parsons picked up an Expandoram board for Stephen Griswold for either \$0.75 or \$2.00, I can't remember which! This year seems to be the year of the CD ROM Reader and multi-media computers. Eric Palm bought a CD ROM Reader and Sound Card package for about \$225. His is "double speed" but the latest word is that a triple- and a quadruple-speed reader are available.

I learned a few new terms. Do you know what the term "Mosaic" means? Something like Internet Plus whereby you can go beyond text and graphics and see what lies underneath the surface of both.

I think the CP/M community has become more of a social group and less of a technical group. And I think we'll probably all see each other again next year!

Lee Bradley
24 East Cedar Street
Newington CT 06111
(203) 666-3139

Lee: Thanks for the report on Trenton this year. On the future of CP/M and Z-System development, I think you are too pessimistic. It's true there isn't as much software and hardware being developed and sold as when CP/M was the chief commercial operating system for micro computers. But I hear about a lot of it being done by hobbyists, which is what we are. I don't print it all, because I prefer to wait until it's completed, to avoid a constant string of vaporware announcements. People are starting to collect CP/M computers in large numbers, and historical computer societies are springing up all over. Inevitably, some of these with a software bent will write new software, and those with hardware leanings will make new hardware. Meanwhile, it's up to each of us to support such efforts however we can. — DAJM

Trenton, S-100 IDE, GSX, CDROM

April 27th 1994

Dear David:

"Dr. S-100" hasn't written to you lately. Just before my trip to Ohio on a "house call" to a radio telescope, I thought I'd say hello:

Trenton Computerfest

I was at the 19th Trenton Computer festival this year; my previous visit was several years ago. I might send you a full report later, but the short version is that "Dr. S-100" was there to buy and sell! I picked up a few systems of note to you, namely an SD Systems S-100 card set (the cabinet and drives were too massive to fit my overpacked car!); an H-89 (Heath/Zenith Z80 system); a Z-100 (Heath/Zenith 8085/8088 S-100 system); and some assorted S-100 cards. Costs for these systems were under \$100. Test equipment prices, for oscilloscopes and voltmeters and more sophisticated stuff, were usually at dealer wholesale (i.e., *Nuts and Volts* magazine) rates, except for the car-trunk people. These are sellers with a car trunk full of stuff, a folding table, and a desire to sell all their stuff in one day, usually the rainy one. Consequently, I bought an \$800 HP oscilloscope for \$150! These computer flea markets are always good places to make contacts and swap stories. Next year, maybe I'll set up an "oral history" booth for all those engineers who used to work at those "classic computer" companies, who can tell us how good it used to be!

By the way, your readers should not confuse one of these "computerfests" with those "computer shows" that occur around the country, where IBM-PC clone vendors sell 386SX motherboards and CD-ROMs of American history. Those are more like "farmer's markets" for cheap produce (i.e., computers) and only have a few vendors with used stuff. Trenton had its share, but I'd say only 20% of the outside vendors were IBM-PC-oids. Amateur radio fleamarkets are a better choice for classic computerists.

IDE for Z-80?

I am looking closely at producing an S-100 IDE interface card. It would use a single-chip interface designed by an engineer in Australia, but I would provide software support (given my dozens of S-100 systems!). My first estimate for price is \$125, including software, for a minimal card as I will describe. One of my early target machines would be the Heath/Zenith Z100, as it is represented by a large and technical constituency; but the BIOS should be adaptable to any other CP/M system. I would like your readers to respond to the following questions:

1. Would you be interested in an IDE S-100 card at this price?
2. What system would it run on?
3. Would you want on this card a floppy disk controller for another \$25 or so?
4. Would you want on this card a serial port for another \$20 or so?

The floppy would allow immediate bootup from a "standard" diskette. The serial port would allow a stand-alone BIOS to boot up and communicate without regard to other hardware.

Other notes

DRI developed a graphics standard called GSX, about a year or so before they began to drop the CP/M product line. One of my Computer Journal readers described it to me and I was impressed. As a Digital Research vendor, do you have anything on GSX? Does anyone?

Last I heard at the Computerfest, the Walnut Creek CD-ROM for CP/M is still in progress. Word is that Walnut Creek considers it a "low priority" product given its market. I suppose more contacts by your readers would encourage them (1547 Palos Verdes, Suite 260, Walnut Creek CA 94596-2228). David, have you considered putting some of your collections on CD-ROM (using an MS-DOS system as a CP/M file server of course)?

I liked your paperstock on issue #29: very good quality! And, I enjoy your "Computer Classics" series. I encourage my readers and customers to subscribe to *The Z-Letter* almost every issue. Keep up the work, and keep in touch! We should trade some S-100 documentation sometime . . .

Sincerely yours,
Herbert R. Johnson
CN 5256 #105
Princeton, NJ 08543a
(609) 771-1503

Herb: Thanks for the Trenton report. I have little use for an S-100 hard-disk interface myself, but David Samson, who has a Compupro, is very interested!

GSX is indeed impressive. I have a copy of the software and manuals for it along with an ALS CP/M card for the Apple II, and I hope to be able to sell it and the other DRI products soon.

Walnut Creek CDROM has promised me "several" copies of the CP/M CDROM when it's done, in return for all the software I sent them on disk. Obviously I'll have to install a CD-ROM drive on my PC to get access to it — unless some hardware hacker comes up with a CD-ROM interface for the SB180FX. That would really be something! — DAJM

Calling programs from Spellbinder macros

May 6, 1994

Dear David:

Since you sell Spellbinder 5.3 with the Macro Manual, I assume some write application programs in MPL [*The Spellbinder Macro Programming Language*

– DAJM]. I wanted to use `C/filename {command tail}` from inside a Spellbinder macro, to call two specially written COM programs. It went to error exit at the `C/` line. There is an undocumented way around that.

The MPL command `:OE n` diverts error exit to macro line `n`. You cannot use `/+n` (a relative line number), only an absolute line number. That can be used to circumvent error exit at the COM call line.

Clear the work area, and type and run the following macro:

```
<
:IN"#1/#30/#10/#0/BEGIN TEST:<
:PR"#1/"<
:OE 6<
C/STAT **<
:PR"#30/#0/#40/#6/"<
:IN"#30/#0/#40/END TEST"<
:PR"#1/"<
:EC<
<
```

It uses STAT to put file names on screen, and returns to Spellbinder on exit from STAT. `:OE 6` diverts error exit to the line after the STAT call. The Spellbinder message "ERROR LINE 5" will come up and be erased by line 6. The rest is conventional macro technique. This doesn't work on resident commands such as DIR, because the `C/` command loads and runs transient programs (COM files). For some reason, it locks up on exit from DISKUTIL (the Eagle disk-utility program).

Sincerely,
Eugene Austin
P.O. Box 115
Tilden NE 68781
No Telephone

Thanks, Gene, for the tip. I hadn't tried to call a COM file from a Spellbinder macro, so I was unaware of this behavior. Thanks for documenting it, and the way around it. – DAJM

Z3PLUS question

May 26, 1994

Dear David:

Sorry for the delay in renewing my subscription. Your letter was put in the pile of things to do which never seem to get done. Even fewer of them seem to get done since I installed Z3PLUS. With all the software available I'll probably never finish all the things I'd like to do with it. The more I use it, the more things I can think of to do with it, and the more I wonder why anyone would want to switch to

a PC or a Mac.

I'm using a Morrow MD222, which is an MD16 with an upgrade BIOS/BDOS and two Seagate hard disks. I have one problem with Z3PLUS which I haven't been able to solve. I've discussed it with Jay Sage, but he can't think of any solution, and he doesn't have a machine to try it on. CP/M Plus doesn't recognize the drive/user form of a command so `du:filename` causes an error. Under the Z-System many shells reload themselves with the form `du:filename`, so Z3PLUS should accept the drive/user format. However, on my machine I still get an error.

With shells such as MENU and VMENU, the name in the shell stack is in the form `filename`. For instance, when MENU is loaded, the first entry in the shell stack is `MENU A00:MENU.MNU`. This shell will reload itself, since the shell name has no drive/user. The `A00:` is acceptable in the command tail. If a shell such as ZFILER is loaded, the entry in the shell stack is `A0:ZFILER`. When this shell tries to reload, all I get is an error message `A0:ZFILER?` The `du` format is fine in a command tail, but always gives an error in a command.

I recently tried a program called ZPM3 by Simeon Cran. This is a CP/M 3.0 BDOS replacement which supposedly supports drive/user format in the command line. I've been using this program for a couple of weeks now and everything seems to work fine except the `du` format. According to the documentation, "ZPM3 parses the user number ... as long as you set a special word in the SCB. For Z3PLUS users, a special utility is available which automatically sets this word." I've tried this special utility, but no success.

No matter what I try I can't get `du:filename` to work as a command. Have you ever tried Z3PLUS on any of your machines? I'm curious to know whether this problem is unique to the modified Morrow, or whether it's a problem with Z3PLUS.

Other than that one problem, Z3PLUS is great. I'm working mainly with dBase II and some fairly large data bases. The Morrow is a bit slow when there are a lot of disk reads, so I'm thinking I might upgrade to an SB180, which I understand is quite a bit faster. I would like to go for a YASBEC but I don't have the skill or the means to assemble one. At least the SB180 is ready to go except for drives and power supply, which are easy to add. If I do go for the SB180, then I can add the full Z-System and won't have to worry about the Z3PLUS problem.

Enclosed is my cheque for the subscription renewal. It's nice to know that I'm not the only one who thinks that old and reliable is preferable to new and improved and more expensive. I'm going to miss Jay's column. I hope you can find someone to

replace him. If you can get the update service going again, count on me for support. Downloading from a bulletin board is fine, but it can get expensive. Keep up the good work.

Yours truly,
Gary Oliver
25930 Dewdney Trunk Road
Maple Ridge, B.C.
Canada V4R 1Y4

Gary: If Jay can't figure out the problem, there's little chance I will. My guess is that the problem arises because CP/M Plus does have a combined drive/user form, only it's backwards from the standard used by the Z-System. CP/M Plus lists user area first, drive second, e.g., 0A. Probably the command tail is not processed when the program is loaded, which is why du references in the command tail cause no problems. Once the COM file is loaded, it processes the command tail, and everything's fine. But to load the COM file, the ZCPR calls the CP/M

Plus BDOS, who chokes on the du reference; remember, Z3PLUS replaces only the CCP with ZCPR, retaining not only the CP/M Plus BIOS but also the BDOS.

If I am correct in all this, any CP/M Plus machine will choke the same way. Someone running Z3PLUS on a Commodore 128, Bondwell 14, TRS-80 Model 4, or PMC Micromate (to name but a few) can confirm this quickly, just by typing A0:STAT at the command line. Right now I'm too busy to make the experiment myself.

The only real fix is for Jay Sage or Bridger Mitchell to change ZCPR so that it translate du references to ud when running with a CP/M Plus BDOS. Perhaps they can come up with a better idea. Otherwise, you have to find all du references and patch them, which is ugly. Moving to an SB180 or SB180LO will certainly solve the problem for you, and get you greater speed also. But I'd like to see a solution for all Z3PLUS users.

No one can replace Jay, but Kirk Thompson wanted to do a column, which starts this issue. Let me know what you think of it. — DAJM

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. Hal Bower, 7914 Redglobe Court, Severn MD 21144-1048, phone (410) 551-5922. [4/94]

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. *The Computer Journal*, P.O. Box 535, Lincoln CA 95648-0535, phone (800) 424-8825. [4/94]

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. They also sell Keytronic keyboards in QWERTY or Dvorak; the KB5150 is \$112, KB5151 is \$164; shipping and handling extra. Corvatek, 561 N.W. Van Buren St., Corvallis OR 97330, phone (503) 752-4833. [4/94]

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). 8020 San Miguel Canyon Road, Salinas CA 93907, (408) 663-6966. [4/94]

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 \$2.00 shipping and handling to Elliam Associates, P.O. Box 2664, Atascadero CA 93423, or phone (805) 466-8440. [4/94]

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, or phone (609) 771-1503. [4/94]

Lambda Software Publishing publishes this magazine and sells a variety of CP/M and Z-System products. See our ad at the back of this magazine.

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. Send the deposit plus enough for postage, and the requested items will be sent you by first class priority mail. When you return them, the deposit and any left-over postage, minus the handling fee, will be refunded. For periodicals, the

deposit is \$1 per issue, \$0.25 handling; books and hardware manuals are \$5 deposit, \$2 handling fee; software manuals are \$10 deposit, \$5 handling fee. 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! To obtain a list of available items, or to borrow material, write to Library c/o Hart, 4209 France Avenue North, Robbinsdale MN 55422, phone (612) 533-3226 [4/94]

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. [4/94]

MicroSolutions makes several products of interest to our community. Uniform format-translation software costs more and knows fewer formats than 22DISK (see Sydex, below), but 22DISK only runs on PCs. Versions of Uniform are available for CP/M machines: Actrix, Bondwell (12 and 14), Epson QX-10, Kaypro (all models except Robie), Micromint SB180, Morrow Micro Decision (2, 3, 5, 11, 16, and 34), NEC PC-8801, Osborne 1 (double density), TeleVideo (801, 802, 803, and TPC-1), Toshiba T100, Xerox 820-II, and Zenith Z-100. All versions of Uniform, including Uniform-PC, cost \$69.95. MicroSolutions also sells UniDOS, a Z80 card for PCs, for \$175; and their CompatiCard IV 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. [6/93]

Morgan, Thielmann & Associates sells and services computers, not only the latest 386 and 486 systems with Novell DOS and Personal Netware, but also Eagle computers, all models, and other CP/M computers. Call Jerry Davis at (408) 972-1965 for prices and information. [4/94]

Sage Microsystems East, selling and supporting the best in 8-bit software. NZCOM, Z3PLUS, XBIOS, PCED, 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) 965-7529 (pw=DDT) [4/94]

Chuck Stafford sells products for Kaypro computers. The Advent TurboROM allows flexible configuration of your entire system, reading and writing additional formats, and more; \$35. The hard-disk conversion kit includes everything needed to add a hard disk except the hard disk itself; the interface, controller, TurboROM, software and manual. \$175 without clock, \$200 with clock; very few are left, so order now. Orders receive a free copy of the schematic for the Personality Decoder Board which lets you run more than two drives, and use 96-tpi drives (when combined with the TurboROM); unfortunately there are no more of the actual boards left. Write him at 4000 Norris Avenue, Sacramento CA 95821, or phone (916) 483-0312 evenings or weekends. [4/94]

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 is published by Leonard Geisler, 895 Starwick Drive, Ann Arbor MI 48105, phone (313) 662-0750. [4/94]

The Staunch 8/89'er is a magazine for users of Heath/Zenith H-8 and H-89 computers; \$15 per year U.S. and Canada, \$19 overseas. Kirk L. Thompson, the editor, also sells CP/M and HDOS software, in all H/Z formats, including hard-sector. Write him at P.O. Box 548, West Branch IA 52358, or phone (319) 643-7136 (evenings and weekends). [4/94]

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). \$25 each plus \$2.50 shipping and handling per order. Free sampler disks with the limited shareware versions are available. Talk to Chuck or Miriam at Sydex, P.O. Box 5700, Eugene OR 97405, phone (503) 683-6033. [4/94]

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 is 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. [4/94]

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. [6/94]

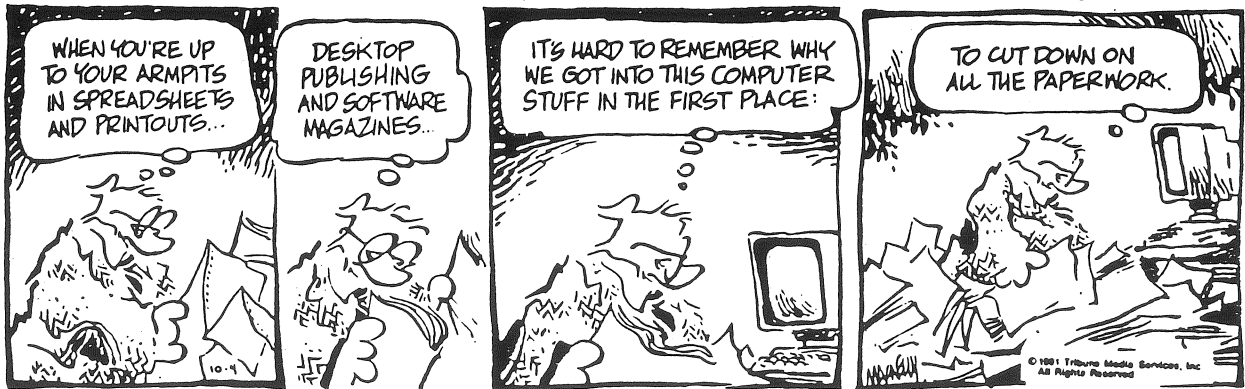
Steven W. Vagts publishes Z-100 LifeLine, a bimonthly journal dedicated to the Zenith Z-100 dual 8088-8085 computer. A one-year subscription is \$12 per year to any U.S. zip code, \$16 to Canada or Mexico, and \$20 to any other country, from Steven W. Vagts, 2215 Americana Drive, Roseville CA 95747, phone (916) 773-4822 evenings and weekends. No calls after 10 PM PST, please. [4/94]

SHOE



Shoe

by MacNelly



SHOE



PUBLICATIONS

The following magazines and newsletters were received since last issue:

ADVISA, May/June 1994, is the newsletter of VISA, the Vancouver Island Senior ADAMphiles. It is published by David Cobby, 17-885 Berwick Road, Qualicum Beach, B.C., Canada V9K 1N7, phone (604) 752-1984. Write or call him for membership information. [Coleco ADAM]

AIM, #101 (Vol. 10 No. 5, May/June 1994), is the newsletter of Adam's House, a company selling Coleco ADAM products. The publisher is Terry R. Fowler, Adam's House, Route 2 Box 2756, Pearland TX 77581-9503, phone (713) 482-5040, fax (713) 997-6907. [Coleco ADAM]

Amstrad PCW User's SIG, Vol. 7 No. 5 (May 1994), is the newsletter of the group of the same name, a special interest group of American Mensa 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. 1 No. 4, April-June 1994, is the journal of CHAC, the Computer History Association of California. CHAC has received its recognition as a non-profit organization from California and is now working on the federal version. They've received a lot of donations of computers and documentation and desperately need storage space, shelves, etc. Contact them at 1001 Elm Court, El Cerrito CA 94530-2602, fax (510) 528-5138, Internet cpu@chac.win.net. Subscriptions are \$35 per year individual, \$85 per year corporate or institutional, \$25 per year low-income, student, or senior. The ENGINE is available online or hard copy. [All computers]

AUGER, May 1994, June 1994, and new library listing. AUGER (ADAM Users Group Educational Report) is the newsletter of ECAUG, the Emerald Coast ADAM Users Group. Membership is \$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, April 1994 and May 1994, is the newsletter of NOVAOUG, the Nova Osborne Users Group. The April issue was titled *A Bit Much* and was 204 pages long, all but 2 pages of that computer jokes! I enjoyed it immensely. Membership is \$12 per year from William E. Kost, 7007 Brocton Court, Springfield VA 22150, phone (703) 569-2213. [Osbornes and PCs]

The Computer Journal, #66 (March/April 1994) and #67 (May/June 1994). The center fold in #66 is the Advent decoder board from Chuck Stafford, "Mr. Kaypro". Herb Johnson's "Dr. S-100" column, Tilmann Reh's series on connecting IDE drives, and J.W. Weaver's "Support Groups for the Classics" continue. Dave Baldwin's "Little Circuits" covers battery backup circuits. In #67, Helmut Jungkunz' "The European Beat" continues the history of the Amstrad, and Walter J. Rottenkolber discusses *Serial Interrupts for Kaypro II*. Herb Johnson's "Dr. S-100" column, Brad Rodriguez' "Moving Forth", and J.W. Weaver's "Support Groups" continue. Dave Baldwin discusses wires and cables. See our RESOURCES section for TCJ's address and subscription rates. [All computers]

Historically Brewed, #5 (May/June 1994), is published by the Historical Computer Society. This issue has part III of the Apple origin series by Steven Weyhrich and part II (1983) of the Kaypro history by Erroll Foldes, and lots more on the history of computers in general. To subscribe to *Historically Brewed* and join HCS, send \$18.00 (\$20 Canada, \$24 elsewhere) to HCS, 10928 Ted Williams Place, El Paso TX 79934. [All computers]

The SEBHC Journal, Vol. VIII, No.s 5-6, December 1993/January 1994. See RESOURCES for address and subscriptions rates. [H8, H89]

Z-100 LifeLine, #32 (March-April 1994) and #33 (May-June 1994). Most of this magazine is MS-DOS stuff, with these two issues heavy on MS-DOS 4.01 for the Z-100. However, issue 32 has some CP/M-related ads and lists user groups. In #33, Steve Vagts covers *Z-100 Keyboard Key Repair*. See RESOURCES for the address and subscription rates. [Z-100]

Lambda Software Publishing

149 West Hilliard Lane, Eugene, OR 97404-3057
(503) 688-3563

Operating system

CP/M (version 2.2) or CP/M Plus (version 3.0), \$25. A lot of my customers have picked up a computer without a disk to operate it. I can sell you the disk to run your computer. Manuals not included. (DRI)

Boot disks wanted! I am building a library of CP/M boot disks so that I can supply working CP/M disks for all makes of machines. The disk should contain the CP/M utilities, the formatting and other utilities that are specific to the machine, and have the operating system on the boot tracks. I will pay you \$5 for each one I don't have already, or deduct \$5 from any products you buy from me.

Manuals and newsletters

Computer manuals, software manuals, and books, \$15 each. I have manuals for many different makes and models of CP/M computers, for many different software packages, and copies of many books on CP/M subjects. Far too many to list here; please inquire. (Various companies)

The Z-Letter, back issues: \$3/issue (US, Canada, Mexico), \$5/issue (elsewhere).

The Z-Letter, subscription: \$18/12 issues (US), \$22/12 issues (Canada & Mexico), \$36/12 issues (all other). Published bi-monthly.

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Kaypro, Xerox, and Big Board computers. All 53 issues are available. (Micro Cornucopia)

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Word processing

Spellbinder (version 5.3H), \$60. The best CP/M word processor. Includes all four manuals and full support. (Ltek)

MagicIndex (version 3.00), \$100. Text formatter used to produce this newsletter. Versions available for standard word processor or WordStar, LaserJet or Diablo 630. Please specify your word processor and printer when ordering. (CES)

Z-Fonts catalog, \$3 (US, Canada, Mexico), \$5 (elsewhere). Samples of all the fonts available from Lambda for HP LaserJet printers, with instructions on how to choose what size, orientation, etc. you wish.

Z-Fonts, \$8 per font. (Digi-Fonts)

SuperCalc 2

The standard CP/M spread sheet (version 2.0), \$30. (Sorcim)

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ZCPR 3.4 source code, \$15, \$10 if purchased with

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