

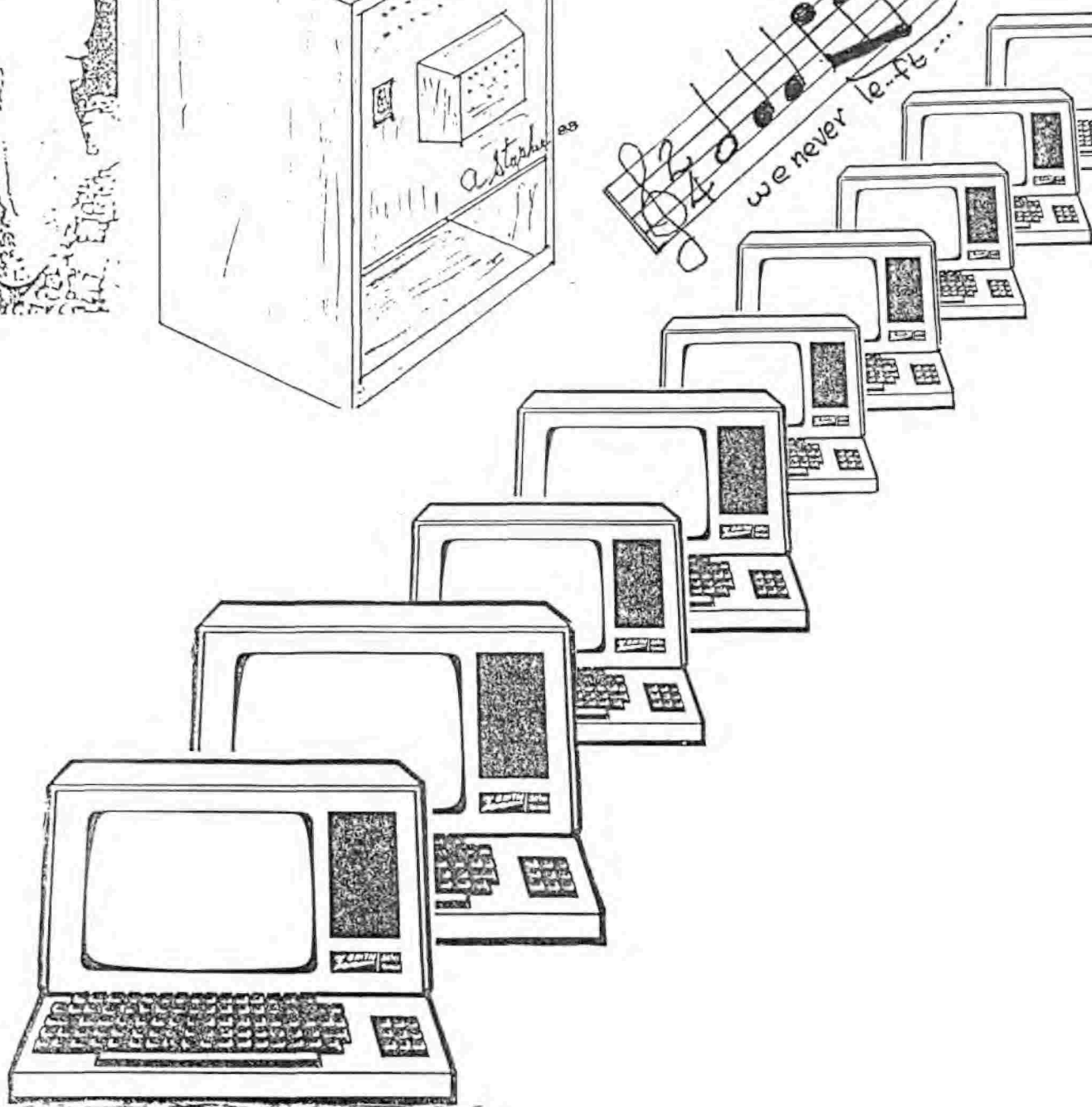
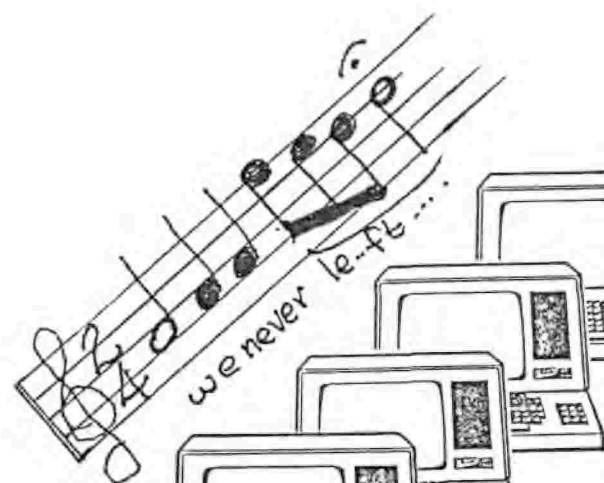
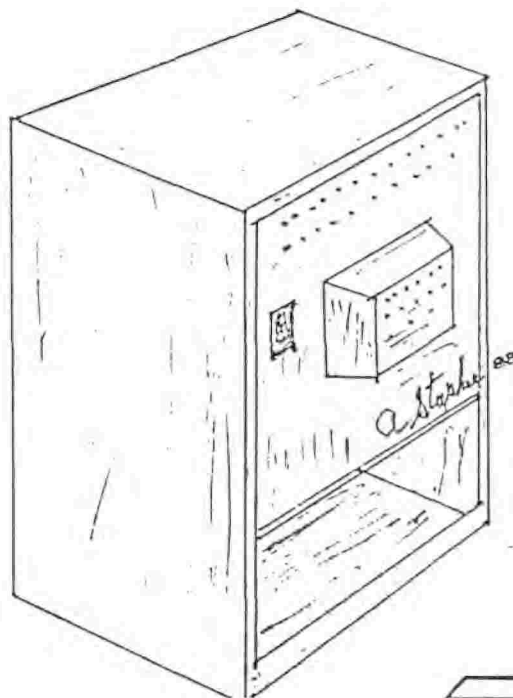
Saving Our HEATH Eight-Bit Machines!

SETHO JOURNAL

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October, 1988



Staunch 8/89er News

The **Staunch 8/89'er**, the quality quarterly newsletter for H-8 and H/Z-89/90 computer users is very pleased to make two announcements concerning software it is handling. First, **Staunch** is now distributor of Richard Streeter's HDOS 3.0 enhancements. These include the following:

HDOS 3.0 Enhancements -- Modified system command processor (SYSCMD.SYS), peripheral interface program (PIP.ABS), terminal device driver (TT.DVD), and line editor (EDIT.ABS). These enhancements support USER areas and numbers, new commands in both SYSCMD and PIP, and the special function keys are enabled at the command prompt (>) and type SYSHELP.H19 to the terminal (red), clear the screen (ERASE), or run an .ABS or .BAT program as set by the user. These enhancements **presume** an H/Z-19 or -89 terminal and are supplied in both 8080 or Z80 code. The 8080 versions use more memory.

HDOS 3.0 Enhancements Source -- Full source for the above package, including a set of modified .ACM files. Assembly of these enhancements **requires** the UltiMeth HDOS assembler (UASM.ABS) from Quikdata, Inc.

UD.DVD Object and Source -- Universal printer device drivers for HDOS 3.0 only or HDOS 1.6 through 3.0. These drivers support the following: baud rates to 38,400 (provided by included enhanced SET.ABS); multiple SET options allowed on the same command line; and SET options for the HDOS 3.0 (only) driver are written to **both** disk and memory, so they take effect immediately in a LOAded driver. Assembly of the source in this package requires the UltiMeth assembler.

Each of these packages is available for \$12 postpaid. Please specify the HDOS format you require (standard hard-sector or single- or double-sided **40-track** soft-sector).

Second, **The Staunch 8/89'er** is also very pleased to announce that it is now distributing **Lucidata Pascal**, which was recently placed in the public domain by Larry Reeve of Polybytes, Inc., Cedar Rapids, IA. **Lucidata Pascal** is a substantial subset of the Pascal language, originally developed by Niklaus Wirth. The compiler translates Pascal source code (created with a text editor) into a file of p-code ("pseudo"-code). The latter file is then interpreted by a run-time system (PRUN or RUNCOM). This results in a language package which is faster executing than conventional interpreters, yet the compiled p-code file is generally smaller than equivalent code produced by a conventional assembler. If execution speed is especially critical, this package also includes a program which will translate p-code files to source code for Microsoft's M80 assembler and linker.

Though not as extended as **Turbo Pascal**, this implementation is still more than adequate for most programming tasks. It is the fullest implementation of Pascal presently available for HDOS at this price. It is also a very reasonable alternate to Borland's out-of-production **Turbo** for CP/M.

This two- or three-disk package is available on either standard hard-sector or single- or double-sided, **40-track**, soft-sector disks for \$25 postpaid. It includes a 100-page hardcopy manual. Please specify operating system (HDOS or CP/M) and disk format you require.

Kirk L. Thompson, Editor
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West Branch, IA 52358
Phone: (319) 643-7136

MBASIC LISTING -- This'n That Notes

CONVERT.BAS

A Numbers to Text Converter Routine

by Paul Oullette

[Editor's note: This useful routine just now floated up to my slush pile's top! I hope subscriber Oullette will forgive my tardy handling of his very interesting routine! Please note that this routine is quite different than similar "cheque-writers" printed in early issues of REMark and other publications. It doesn't handle the various words as data statements, just goes to the appropriate subroutine. Wish I had thought of this back when I was trying to get HUG's Small Business Package III to print cheques the way I wanted them!]

```

5 REM CONVERT.BAS for MBASIC 4.82, 5.2, & maybe 8H BASIC
10 PRINT TAB(10)"Enter Amount: ";INPUT x
20 GOSUB 1030
30 x$=x$+STRING$(57,42):REM Adds 57 asterisks to text value
40 PRINT TAB(13);LEFT$(x$,57):REM Print 57 characters total,
  amount plus filler stars
50 END
1000 REM Conversion routine: Enter with amount in x,
  exit with text value in x$.
1030 x$="":x1$="":x2$=""
1040 x2%=100*(x-INT(x)):x2$=STR$(x2%)/"100":IF LEN(x2$)=6
  THEN x2$=" 0"+RIGHT$(x2$,5)
1050 IF x>999.99 THEN x1=INT(x/1000):GOSUB 1100:x$=x1$+"Thous
  and ":x=x-(INT(x/1000)*1000)
1060 IF x>99.99 THEN x1=INT(x/100):GOSUB 1100:x$=x$+x1$+"Hund
  red ":x=x-(INT(x/100)*100)
1070 IF x>19.99 THEN x1=INT(x/10):GOSUB 1310:x$=x$+x1$:x=x1$-
  (INT(x/10)*10):IF x>0.99 THEN GOTO 1400 ELSE GOTO 1080
1080 x1=INT(x):GOSUB 1100:IF x1$="" THEN x$=x2$ ELSE x$=x1$+"
  and "+x2$
1090 RETURN
1100 IF x1=0 THEN x1$=""
1110 IF x1=1 THEN x1$="One "
1120 IF x1=2 THEN x1$="Two "
1130 IF x1=3 THEN x1$="Three "
1140 IF x1=4 THEN x1$="Four "
1150 IF x1=5 THEN x1$="Five "
1160 IF x1=6 THEN x1$="Six "
1170 IF x1=7 THEN x1$="Seven "
1180 IF x1=8 THEN x1$="Eight "
1190 IF x1=9 THEN x1$="Nine "
1200 IF x1=10 THEN x1$="Ten "
1210 IF x1=11 THEN x1$="Eleven "
1220 IF x1=12 THEN x1$="Twelve "
1230 IF x1=13 THEN x1$="Thirteen "
1240 IF x1=14 THEN x1$="Fourteen "
1250 IF x1=15 THEN x1$="Fifteen "
1260 IF x1=16 THEN x1$="Sixteen "
1270 IF x1=17 THEN x1$="Seventeen "
1280 IF x1=18 THEN x1$="Eighteen "
1290 IF x1=19 THEN x1$="Nineteen "

```

```

1300 RETURN
1310 IF x1=2 THEN x1$="Twenty "
1320 IF x1=3 THEN x1$="Thirty "
1330 IF x1=4 THEN x1$="Forty "
1340 IF x1=5 THEN x1$="Fifty "
1350 IF x1=6 THEN x1$="Sixty "
1360 IF x1=7 THEN x1$="Seventy "
1370 IF x1=8 THEN x1$="Eighty "
1380 IF x1=9 THEN x1$="Ninety "
1390 RETURN
1400 x$=LEFT$(x$,LEN(x$)-1)+"-
1410 x1=INT(X)
1420 GOSUB 1100
1430 x$=x$+x1$+"and "+x2$
1440 GOTO 1090

```

A BIT OF WISDOM FOR THIS MONTH

"Resources are generally finite, but information is infinite, and is the greatest value-added portion of today's new economy. Whereas hydrocarbons were the major fuel for the industrial economy, information is the major fuel which provides energy for the new economy. Furthermore, knowledge is the foremost product of this fuel. Although there are limits to growth of finite resources, there are no limits to learning, the ultimate renewable resource."

(Excerpted from "FUTURE PERFECT" by Stanley M Davis; reprinted with the kind permission of D:KUG.DOC, Official Newsletter of the Detroit Metropolitan Kaypro Users Group, Post Office Box 5187, Warren, MI 48090-5187.

Notes about this'n that...

I recently (about 4 months ago) purchased--for 52 bucks--an almost anonymous grey box from the University of Michigan's Property Disposition Office (fancy name for their Surplus dump). The thing is 18-1/2" x 8-3/4" w x 6-1/2" h and contains one Tandon Double-Sided 8-inch drive, a 280 CPU with 4-meg clock 64-k single-board computer, cooling fan, a 3-port I/O card, and a switching power supply. The documentation (see below) says the computer has provision for selecting either parallel or serial I/O, plus hard-disc connection abilities. It also has three D825 RS232 female connectors, external power and reset switches, and a neat fuse and three-prong power connector assembly on the back panel. The tubular fuse is protected by a clear plastic sliding cover which moves aside ONLY if the power cord is removed from the connector. Pretty nifty safety idea.

I bought the 30-lb box thinking it was just an eight-inch, stand-alone drive. After getting home I scrutinised it thoroughly and found that my "drive" actually had a *REAL* Single

This 'n That

Board Computer mounted piggyback atop the disc drive's circuit board! And those three DB25 jacks are marked TERMINAL, MODEM, and PRINTER. As is usual with anything bought from the UM's Surplus dump, there was NO documentation with it. After much flailing around, including a call to the Santa Cruz Chamber of Commerce, I found that Alspa Computer, Inc. had ceased to exist (sound familiar?) and their former landlord didn't have any forwarding address for any of the firm's owners. For the moment I put the box on a shelf and went on to more pressing duties...

Last week I ran into all kinds of trouble trying to access GENie's library and download some CP/M public-domain utilities. As a result, their CP/M Sysop (Keith Peterson of Warren, MI) got in touch with me and talked me through GENie's half-to-full duplex sign-on protocol and gave me a few hints about how to go directly to a library of my choice. In the course of our chat I mentioned that I had a presently-unusable Alspa ACI-1 computer for which I was trying to find operating instructions and possibly its' CP/M system disc(s) or software.

Keith very kindly put me in touch with another GENie subscriber, Bill Duerr--also in Warren--who had once owned a similar Alspa machine which he'd used briefly on his D:KUG BBS. Bill said he'd sold his machine, complete with all documentation and operating system discs, to another D:KUG member--Gus Bakalis--because Gus needed the Alspa's Corvus Smeagabit hard disc.

Eventually Gus and I managed to check out my "orphan" with his discs and terminal and found that my machine was alive and well! I was suprised to find that its' single drive actually holds a full 1.2 megs of data! Gus kindly made up a set of operating system discs and loaned me all his original documentation to copy for my own use. A pretty decent guy! Thank you very much, Gus.

Talking about pretty decent guys, Howard Norton--a real estate agent in Scotts Valley, CA--tried to locate any of the three partners who ran Alspa Computer back in 1981. Seems he'd been Alspa's original plant's rental agent (see advertisement reproduction), but couldn't find any trace of them other than a vague rumour that they'd moved their operation to Nevada. Well, we can't all be winners! Thanks to you anyway, Howard, it was a good try! I hope you enjoy your courtesy copy of the JOURNAL...

Now as soon as I get this issue out the door, I shall plug my H29 terminal (set to 19.2kbaud) into the ACI-1 to check if its' CP/M 2.2--"version 2.9"--will read "standard" CP/M soft-sectored 8-inch discs and then PIP files from them to my two Heath machines. That's what I bought the funny thing for in the first place...

One Very Important Note: SEBHC JOURNAL subscribers who've been grumbling that "there oughta be 'nate-bit HDOS bulletin board fer us users", PAY ATTENTION!!! Keith Peterson says we should establish a regular H/2 8-Bit Special Interest Group (H/28BIT SIG) on GENie if enough interested folks contact the JOURNAL (ten users minimum suggested) so y'all write, hear?!

MAILBOX

Dear Lenny,

Thanks for the quick response on the TXTPRO DEMO disc and CP/M Disc #0 update. But I'm returning them both. Something must be wrong with the CP/M #0 disc, my machine just won't read it. I have a [standard] hard-sector drive and two 96tpi drives running CP/M. Could you please check it for me and mail one which works? Here is something on TXTPRO, other [text] editors, and word processors: I've used Wordstar, Magic Wand, OutThink--an outline processor by Kamasoft--

and Autoscribe (HDOS). I own Magic Wand, PIE and OutThink. The first one I used was Autoscribe. A friend loaned me a copy to try out and I dropped it because it was for HDOS and I was running CP/M and didn't want to bother with two operating systems.

My second editor was PIE which I used mainly for programming in BASIC, which it did quite well. I liked its' use of the function and keypad keys, and especially the "macro" capability. PIE's shortcomings were that it couldn't handle lines longer than 80 characters, the file must fit in memory, and it had no easy printing capabilities--especially when compared with Autoscribe.

Wordstar was my next experience. A friend loaned me a copy for several months' trial. It did some neat printing things such as underline and boldface, but without full documentation I had some frustrations. I always seemed to get paragraphs reformatted into undesirable style, it was slow--always accessing disc drives--and moving the cursor around in text was an awful test of left-hand finger dexterity (HUG's Keymapper would have been a great help). The final insult was its' high price, non-ASCII text files, and Mail Merge cost extra as well. So when I got a dealer clearance price on Magic Wand, I jumped at it!

Magic Wand has seen lots of use--I'm writing this with it. I've done mass mailings with it, my master's thesis, and most things which require an editor. I've found that Magic Wand has remarkable similarity with PIE's cursor control protocol.



MAILBOX Continued

But, unlike PIE, it can handle files larger than memory if you use the proper commands. It can handle lines longer than 80 columns (important for editing data files) and it stores files in standard ASCII form. Magic Word would be improved by enhanced dot-matrix printer support and a PIE-like macro function. I was hoping that TXTPRO might have those features but it doesn't seem able to handle lines longer than 80 columns from what I've seen on the DEMO disc. If anyone knows of an editor having all of these features, please let me know. [Check TXTPRO DEMO file's HELP pages (press RED function key). Set TXTPRO for line wrap mode via MODE and WRAP function keys (f2 first, then f4 and see +WRAP change to -WRAP). Insert "invisible" printer control characters in any finished text file using the OTHER and SPECINS keys; also see TXTPRO HELP page 10. -- ed]

The last editor/processor--Out-Think--is billed as an outline processor, and it does that much better than work as a text editor. I've used Keymapper and configured it to accept cursor commands quite similar to Magic Wand. It comes with the option of using either Wordstar or Perfect Writer commands. At first I thought I would use it as a sort of "complete office environment", but I ended up keeping my work process schedules on it. Also I set up on it lesson plans and overhead materials for the VoTech College adult agriculture classes which I teach.

I'm writing not in defense of Magic Wand, but just to reveal my experiences with it. And I do wish Magic Wand had macro capabilities.

On another subject: Last year I wrote asking JOURNAL subscribers for information on TD Engineering's Herby RAM drive for the H89. Several responded, and I want to thank them. I now have a Herby 1-meg RAM drive installed, and it's been running wonderfully for the past 6 months. Its' biggest disadvantage is the time required to load the RAM disc. But beyond that, program operation and file loading and saving is very much faster than before. I installed Pat Swaynes "4MHz mod" and the combination really has increased my H89's overall performance.

[For my Herby drive] I've set up a 62-k CP/M system and a bootable working floppy disc with a SUBMIT file that--on cold boot--loads the RAM drive software and Keymap setup for running directories, sweep programs and programs above CP/M. Once Keymap has loaded above CP/M, I press one function key and everything copies from boot drive to RAM drive. (I usually do something else for the five minutes it takes for that operation.) I then reassign the RAM drive as the default drive and am off and running at RAM speed. By loading Keymap above CP/M I can still load Write-Hand Man and another version of Keymap below the top of CP/M. That can limit working RAM when using Miltiplan or Out-Think, but I can always turn off any resident programs below the top of CP/M to gain some more room. I copy data files to RAM drive as needed and back them up to a floppy disc after I'm done.

I realise there's a lot of information packed into that paragraph. If anyone is interested in doing something simi-

lar to the above description but needs better instructions, get in contact with me.

Thanks for the SEBHC JOURNAL. It's a very useful tool for me. Keep up the good work.

DANIEL GILBERTSON, Rte 2, Box 314, Richland Center, WI 53581
Phone 616-647-3375

[Well, all right! By now you've received the TXTPRO DEMO and CP/M GAMES discs reformatted (we hope) into a readable form. We've been having some soft-sector media trouble lately. We bought 200 no-name discs recently for about 39 cents each, and have been getting "bad sector" messages back from about every 10th or 50th disc we format and use FINDBAD on to lock out bad sectors. But the other day FINDBAD hung up on a disc for nearly 5 minutes! We had to use the BREAK key to get out of that! Tried the same disc on two different 40trk drives, same problem. Filed it in the trash can. Takes lots of time to run FINDBAD, but worth the wait for it to do its' thing... Now about Magic Wand--I've had a chance to try it, and found it cramped my style after having become proficient with TXTPRO. Because TXTPRO does everything I want it to do except automatically insert line numbers as ED.COM does, why change? I got two review copies of CompuView's "VEDIT" which were to be written up in the JOURNAL over a year ago, but haven't yet been. Lee Hart has both versions. He offered to "configure the function keys" but hasn't returned the software, so I'm unable to tell you much about this full-screen editor. If Lee ever gets a Round Tuit and returns the software and documentation to me, I can then get a Round Tuit and write that review I promised CompuView! Seems to me VEDIT's capable of doing just about everything you can think of, but until I actually run it I can't say anything about it. Please let us all know how you're doing with TXTPRO; we've gotten a whole bunch of un-solicited phone calls about how neat it is to use. Your quite favorable remarks about the Herby RAM disc makes me feel very left out of things! My H89 has a D-G Electronics Super89 CPU card w/256k RAM in place of the standard CPU card so I have a 147k RAM disc available. I know what one can do with this "disc". At the two-megacycle clock rate it's fast; at 4Mc/Sec it's awesomely fast! Do you have commercial data about how & where I may obtain a Herby? Write Real Soon Now! -- ed]

Dear Leonard,

Here are the two sets of CP/M QUERY!3 and CALCulator you requested. They're in hard-sector format, not soft-sector as my H89 was on the fritz. After talking with you I found the trouble with my H89 was caused by the FUSE having corroded! Hope you are able to use the hard-sector discs!

HUGHES B HOYLE iii, Hoyle & Hoyle Software, Inc., 111 Sparrow Drive, Isle of Palms, SC 29451 -- phone 803-886-5802

[We have no problems with hard-sector, and if someone wants a

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MAILBOX Continued

QUERY!3 and CALC!3 ads in this issue, and I do hope you get lots of action from them. By the way, a fellow computerist who's boss just acquired an H120 wants to know if you still sell a version for that machine. He reports that he can run some 8-bit stuff on it, but not QUERY!3 or Text Processor (the latter is supposed to automatically switch between 8080 and Z80 CPU modes but doesn't). Drop us a line if you have time! -- ed]

Dear Mr Geisler,

I'm now trying to learn the 'C' language. I have a compiler from MIX Software for CP/M. It is called 'a full-featured compiler'. I don't have enough knowledge to comment on that quote, but the tutorial section is very well written and easy to follow. The Reference Manual section covers program elements, structure, data types and declarations, operators and expressions, functions, pointers and arrays, structures and unions, and statements.

Each item has examples (I like that). Then it has a Function section which describes all the library functions. It is grouped into categories for convenience, then each function is designated as to standard, not standard, DOS only, CP/M only, or BIOS only.

I can't compare [it] to some other variety of 'C' because this is the first time I have ever looked at the language. I do like the manual, and the only fault I've so far discovered is that the index is not as complete as I'd like.

G R STRADLEY, 1304 Witthollow Road, Sevierville, TN 37862, ph 615-428-2057

[GR, I'm fooling around with Software Toolworks C/80 and not getting anywhere with it! Think you can send us an article on how you "learned to love and live with the C language" Real Soon Now?! I'm sure our other readers shall greatly appreciate something along those lines. And I hope you enjoy those two Volume One issues when they arrive. I enclosed a 3-hole punched cover for your back issues so they'll stand out better from your other Valuable Reference Material. - ed]

Dear Lenny,

Since subscribing I have received two issues of the SEBHC JOURNAL:

1. A barely readable July 1988 issue (the copy machine was in bad shape that day!)
2. An August, 1988 issue.

Now it's Oct 5th and I have not yet received my September, 1988 issue! (Although I haven't received it, I assume "it's in the mail".)

Please check this for me as I look forward to [reading] each issue. Thank you!

THEODORE J LEKAS, 7010 N W 39th Street, Coral Springs, FL 33065

[Ted, I mailed out your duplicate copy of the July issue to-

day. I do hope you'll forgive my helper for letting a bad'un slip through her fingers like that. And you're quite right about the copier being in trouble--the photo-sensitive drum had to be thrown away (all \$105-worth!) because its' surface was thoroughly ruined by many horribly-deep grooves in it. I caught about fifteen copies in which black streaks on almost every page (caused by the grooves) blacked them out horribly. But I don't know how many more escaped detection. I leased this machine in order to "save money and exercise better quality control over our product". Somehow it has cost us almost three times more than having a regular copy shop do the work and the quality isn't much better. Too bad I'm stuck with two more years of *Irrevocable Lease* to go on it, otherwise I would be rushing back to my original copy shop (only this time carrying a big whip!). -- ed]

Dear Mr Geisler,

Thank you for your advice during our telephone conversation last week. As a result you are getting my first output via PIE and TEXT from my H89.

I built my '89 in 1985 but only recently have been trying to use its' word-processing capabilities. I'm a radio amateur ("ham" to the fraternity) and used the '89 mainly for radio teletype, plus a few games and [Morse] code. Recently I acquired an H25 printer, so I dug out my PIE and TEXT discs and tried to get it all working. But since TEXT was on a hard-sector disc, I used the internal H17 drive in copying TEXT over onto a soft-sector disc in an external H37 drive. I used the Setup disc in the H17 so that my system recognised both drive types.

Next I tried to get PIE-TEXT working from one disc but found it wouldn't! After days of intense research--much like a burglar trying to guess a safe's combination--I happened across this in "How To Use Zenith/Heath Computers": "After a document is created with PIE and written to disc (where it becomes a 'source file'), TEXT is invoked and directed to make a copy of the source file."

I then put PIP.COM on the same disc with PIE and TEXT and created a DOCUMENT.TXT file which I PIPped to TEXT and there it was, ready to send to the printer!

Yes, I have a feeling of accomplishment, but I also have a lot of resentment brought on by trying to decypher instructions which assumes the reader knows more about the next step than he actually does. Although I have an Extra Class Amateur Radio license and a J.D. degree, it's possible "some kid down the street" might have a lot less trouble with computers than I do. [You CAN teach an old dog new tricks, even if it kills him! -- ed]

But I must say that I do enjoy the [computer] challenge. Long live the Heath Eight-Bit Machines! Incidentally, I'm looking for a copy of Software Toolworks' CP/M Ed-A-Sketch... and maybe some other new challenges.

A C STODDARD, 1502 Briarwood, Lansing, MI 48917

MAILBOX Continued

[Glad to hear you've caught on how-2 run PIE and TEXT. Personally, I prefer Text Processor (TXTPRO) because you can create a finished text file ready to PIP to your printer without bothering with those extra software gyrations. Does anyone have an extra copy of CP/M Ed-A-Sketch with complete documentation for sale to our friend...cheap? I have an HDOS version but it won't work properly under CP/M with HUG's HRUN utility no matter how I try to force it to do so. And, even though you may be able to run HDOS TXTPRO.ABS on CP/M via H-RUN.COM, lots of the special HDOS-only printer control codes will bomb out! -- ed]

Hi, Len,

I'm enclosing a cheque for renewal of my subscription. I don't want to take a chance of missing any issues.

Several months ago I read in the JOURNAL about a problem with the universal printer driver--UD.DVD--and HDOS 3.0. So I decided to look into it and found that the 'open' routine in the driver checks for the HDOS version number. It checks for only 1.6 and 2.0 and does a slightly-different bit of housekeeping depending upon the version detected. If neither version is detected, there is no housekeeping done, and an error is returned.

It appears that HDOS 3.0 ignores the error and continues as if everything is ok. I tried patching the driver to force the 2.0 version and that worked fine. Then I tried forcing the 1.6 version, and it also worked! My driver version is 2.0 and I've listed the code below for patching reference. Either of these patches worked for me:

address 002 257 313/303	change JZ to JMP
address 002 272 312/303	change JZ to JMP

Here's the code...

002245	SCALL	.VERS	
002247	CPI	040A	
002251	LXI	H,063346A	
002257	JZ	002301A	* VERSION 2.0
002262	CPI	026A	
002264	LXI	H,063244A	
002267	LXI	B,5	
002272	JZ	002301A	* VERSION 1.6
002275	MVI	A,050A	* 050 = WRONG HDOS
			* VERSION
002277	STC		* INDICATE ERROR
002300	RET		

For those who don't yet have a fix, I hope this helps!

BOB OLSON, 24450 Kirby Street, #146, Hemet, CA 92343

[Bob, we all thank you for sending this HDOS 3.0 UD.DVD patch in! You other readers, let us know if it helps. Meanwhile, I'm still trying to find time to get HDOS 3.0 up & running,

between trying to get the JOURNAL out, repair several sick '89s and '90s, answering phone questions from readers and subscribers, installing storm windows, etc.! -- ed]

Hi Len,

Just a few words. My subscription is now straightened out --thanks! I also ordered one of those \$179.00 CalDigi Z89s (modified). It arrived in the nick of time--my Old Trusty had just bitten the dust.

Ref: articles by Bob Olson, III:2, p3, and by Anthony "Tony" P Musnik, p8.

Because my Old Trusty had developed a CPU problem I studied the "new" one for some time, then went on to change things around. Mine had arrived with the drive inoperable so I called CalDigi and got an product return number. What a to-do!

I finally swapped my 5-1/4" drive, drive controller board, I/O board and cables, and replaced the backplate. Also swapped the keyboard as my wife didn't like the new one's keys. Ran the cables under the other boards and installed my old boards and brackets. Booted up and, LO AND BEHOLD, IT WORKED! I was happily on my way, and the wife's H89 was back in business with the new green screen and all. As yet she hasn't had any problems with either HDOS or CP/M.

With my machine I received NO drawings, schematics or anything except a 'boot' disc which got corrupted by the bad drive. CalDigi replaced both disc and drive--eventually, but I still haven't tried either.

When you get a printable copy [of those drawings the other subscriber sent you] please send me a set with any available instructions.

Keep up the good work. I've worked on main frames and taught basic computer use for many years, but I'm still learning new tricks, even though [I'm] now retired.

WALTER PEARSON, P O Box 1139, Graham, TX 76046

[OK Walt, I'll put your request for a set of drawings "on the spike" with the others. Look for something in an early issue regarding their availability. Glad that you made the grade with your missus and her computer! Wish I could convince my wife that my computers are something more than "X-rated adult toys"! Have any ideas? -- ed]

Dear Lenny,

Enclosed is the original disc you sent which had TXTPRO files on it. I found that when I tried to transfer some of the files to my working disc that CP/M kept returning "Bad Sector Error" messages. I also tried to run two of the programs from your disc and got the same error message. Then I tried reading the disc in an 80-track drive with the same result. Guess the snail service must have done something nasty to the disc, or maybe it actually has some bad sectors. By the way, what's the difference between TXTPRO and TXTPROS?

Received a reply from Kirk Thompson to a query I sent to him and the STAUNCH 8/89er about a program on one of the

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MAILBOX Continued

discs his newsletter sells--Z89CPU.ABS--and the problems I had with it. Perhaps I mentioned this on the phone during your call. Also, Hank Lotz is about to release a new program --MCOLS.COM--which I understand is a text to multiple-columns creation utility. Kirk said Hank'll be sending him a copy.

I included a check for postage which should cover return of that sick disc, plus a hardcopy of Frank Cepulkowski's "HDOS Type-Ahead Buffer/Turnkey Utility" (SEBHC JOURNAL II:7, pli). And whatever has happened to Frank? I believe there was mention of a couple more programs by him made in a later issue, but for the life of me I can't find, or have overlooked them.

Here are the lines of Frank's program which are giving me a problem:

```
A 042.217 000 171 00032 DB 0CB,79H BIT 7,C (Z80
                                CODE)
                                00056 *T9 END OF BUFFER
                                IN (HL)
042.311 361 00072 POP PSW POP T7 INTO (A)
```

In the first line I got an ASM "Operand Syntax" error. In the second line the label T7 got REM'ed and in the third and final line there is reference to Label T7 which is not listed anywhere in the program's label field.

I very much enjoyed the JOURNAL's August issue, especially the article by Rick Swenton, "Getting The Bugs Out Of Heath Software And Other Nice Things To Know". There were some things which I knew about, and some which I didn't. Some of the things which I did, I didn't know why there was an error. NOW I do!

And Tom Bohon Disk Label program...I thought his article was quite good. I am presently--when time permits--working with some of his program's code to modify it to work with an '89 and MPI 99G printer combination. I've written Tome about a couple lines of code which I was unable to decipher as to what it did for his printer.

It was nice talking with you on the phone the other day, and I want to thank you for the extra disc of "goodies" you sent me with that other software disc. I think the JOURNAL and its' CONTRIBUTORS are doing a "Slam-Bang Good Job", and I wish everyone further success.

ALLIE C LINGO, P O Box 118, Dierks, AR 71833-0118

[Allie, the disc you returned checked out as having numerous bad sectors! Why that didn't show up with FINDBAD I don't know. The disc must have had other things happen to it also because some of the directory entries which showed up were actually unreadable! I re-did the same software on that other disc you had included without incident. Since then I've not heard from you, so it must be ok! Some time back, I bought 200 "really-cheap no-name" discs from an outfit in Ohio. The first packet of 50 checked out nearly 100%, only one bad'un. The second packet had 5 bad'uns, and the 3rd

packet had 15 bad'uns! (A bad'un is a disc with one or more bad sectors.) As to Frank Cepulkowski's other programs, they came as hardcopy listings, which I haven't had time to re-type. (If you INSIST, I may photo-copy them for you.) And thanks for the nice remarks about us. Please understand that the JOURNAL is doing so good is a direct result of our contributing authors' efforts. My contribution nowadays is primarily taken up with mechanics of typing, publishing, etc., and I don't have much time to program anything. All 8-bit knowledge, lore, fact and information which subscribers send us is what makes our effort in behalf of the H/Z 8-bit community worthwhile. Incidentally, I was offered the right to copy a Whole Bunch of H/Z service bulletins for the '89s and '90s (about 50 lbs of paper!). As time permits, I'll try to condense the stuff so that it can be gotten at by our subscribers. If there is anyone living reasonably nearby who has some spare time to contribute to that task, let me know, Real Soon Now, y'hear?! -- ed]

Dear SEBHC JOURNAL:

Enclosed is a copy of my letter to Lee Hart of TMSI about my California Digital H89. Mine doesn't fit Lee's description, and I think there may be more than one version. Mine, an H89A marked Carterfone Model 7700-001, ran "right out of the box", has only three runs cut on the CPU card and included diagrams of the special boards. The TLB appears to be stock except for a small added printed-circuit board tied to the +18v, -18v, ground, and R414. This may be some kind of reset modification since R414 part of the original reset circuitry. It looks as if this modification was an advance power-down circuit because it pulls RESET down when power is switched off.

My keyboard had five locked-out keys, four of which I fixed with replacement plungers and springs from a STACKPOLE KS-200 keyboard spare-parts kit. I couldn't fix the OFF-LINE key. It appears that when a dummy plunger was installed the push-on/push-off mechanism broke off and damaged the keypad body.

The biggest difference between my unit and Lee's description is on the CPU board. Mine doesn't have extensive p-c trace modifications. It did have three modifications which CalDigital fixed before shipping it to me. These were: the run to Q501's collector, the run to U552's pin 6, and U553's pins 12-13 were reconnected back to pin 14. No other cut run or repair was visible.

My unit comes up with the "H:" prompt and acts like it has an MTR-89 ROM and runs HDOS from an 80trk ss hs disc.

Here's a listing of the various non-standard ICs on my CPU card:

Location	Part #	Type #
U516	444-41	
U520	444-19	
U523		2114
U525		2114
U517	502063	6309

[Continued]

MAILBOX, Concluded

Location	Part #	Type #
U550	502064	6309
U518	7716	"H89 Type 1"

And here are how the CPU card jumpers are placed:

JU501 = 1	JU503 = 8	JU505 = 1	JU507 = 1
JU502 = 1	JU504 = 1	JU506 = 1	

The special 32k RAM, special 3-port serial I/O, and disc-controller boards all came with my unit. It also had schematics of all these special boards.

I was unable to identify what the parts at U517 and U550 are (or if they were made special for Carterfone or were installed by CalDigital). Also the U550 decoder ROM has different numbers on it, I'm not sure if standard Heath serial or soft-sector controller cards will work (also I haven't tried them yet). I also haven't tried Lee Hart's (low power) LP001 kit parts at U516 and U518--they possibly could accidentally be damaged.

The disc drive is single-sided, 80trks. Its' drive-select plug jumpers were uncut as were the MX and HS jumpers (contrary to Heath standards) so you can select any drive--SY0:, SY1:, or SY2:. HDOS uses the HUG HSY.DVD to support 80trk operation.

More about the U550 I/O decoder ROM:

Pin 9	decodes port 320 - 327Q
Pin 10	decodes port 330 - 337Q
Pin 11	decodes port 340 - 347Q
Pin 12	decodes port 270 - 317Q

Pin 12 also selects serial card 1 or 2 via pins 510 - 511, thus:

Pin 9	decodes 320 - 327Q alone, 270 - 277Q with pin 12
Pin 10	" 330 - 337Q alone, 300 - 307Q with pin 12
Pin 11	" 340 - 347Q alone, 310 - 317Q with pin 12
-----00-----	

Heath's parts department still has the 444-61 I/O decoder PROM available, and it shouldn't be too hard to isolate pin 12 and tie the internal line high with a resistor.

Hope this will be of some value to other subscribers...

BRIAN L HANSEN, 315 Roast Meat Hill Road, Killingworth, CT 06417

[Thanks for all that data, Brian. Please continue to keep us informed! -- ed]

=====

H/2-89s, H/2-90s for spare parts, \$35 ea w/green crt, \$25 ea, NO crt. Two complete '89s (once ran) \$50 ea. U-pay Shipping --call Lenny, 313-769-6052 6pm - 9pm Eastern Time.

=====

Dear Mr Geisler:

I just finished reading your September issue and it prompted me to write you to find if you may know of someone on Florida's "Space Coast" who's familiar with our beloved H89s and is capable of repairing them without the folderol of trial and error stabs, and lengthy, costly delays.

I'm a writer and live constantly with the fear that my faithful H89 with its' hard-sector disc drive will break down in the middle of a manuscript. I hardly know the difference between a bite [sic] and a bit and I'm certainly not electronically inclined. My husband did put the kit together when we purchased the unit with its' MX-80 printer in Fort Lauderdale in 1981.

One breakdown when my external disc drive gave out caused a three-month outage because the first Zenith "dealer" [we took it to] was unable to sort out the problem and sent it to another "computer expert" who [then] let my unit languish in his shop for another two months before he scouted around and found a replacement disc drive. I located one [myself] in Fort Lauderdale where I [originally] bought the H89 and was told by those fine men that I should send everything down to them "the next time". But I do not like the idea of packing up my friend and sending him via UPS to Lauderdale, wondering the while about what kind of bugs found their way into him while he was under weigh.

I do know there's a Heath User's Group in my area as I did find one fellow who volunteered his time to help me upgrade from 48 to 64k. But he's since left the area--as most military men do here on the Space Coast--and I've no way of contacting the HUG. And every Zenith dealer I've asked doesn't know of their existence. Also, I've followed up many local advertisements from computer repair places and asked if they were familiar with the '89s. "Well, you can send it in and we'll see what we can do", say these hunt-&-peck guys who'd really like to see me out the back door to make way for an ibm or Macintosh coming in the front!

I'm not asking for free help. I just want to find someone capable of repairing my friend whenever necessary. Is that asking too much?! My friend and I have a close relationship with Magic Wand software, and I'd rather not part with either one. I do my writing in the early morning hours before I join my husband in our busy furniture-refinishing shop on US#1. It's difficult for me to break away from the shop for all but essential errands, so locating a knowledgeable repairman would be of inestimable value to me.

Will your other subscribers please help me?

SUE MOSELY, 3760 North Highway 1, Cocoa, FL 32926 -- phone 407-631-7575, Eastern Time

[I certainly hope one of our other subscribers living near Ms Mosely will get in touch with her Real Soon Now! Preferrably Right Away, THIS INSTANT! But Sue, don't be too hard on UPS! A professional packer can box an 89 so it can survive a 2-way trip just fine. DO INSURE FOR FULL VALUE. Good Luck! -- ed]

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NZ-COM OPERATING SYSTEM

NZ-COM - The Journey Is Just Beginning

Copyright 1988 by Rick Swenton
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If you are not currently using NZ-COM, you should order it now BECAUSE YOU NEED IT. You may not be aware of it but you can't live without it. I suppose I should say, if you don't use it, you don't know how to live!

You need NZ-COM because you need Z-System, and until now, the only way for most people to get Z-System involved a tedious and frightening installation ordeal. Now with NZ-COM, Z-System only takes minutes to create on virtually any Z80 system which can run CP/M 2.2. A similar system called Z3PLUS is available for systems which run CP/M+ (CP/M 3.0).

The Basics

Just to whet your appetite so you will continue reading, I am very briefly listing some of the features available under Z-System when you purchase NZ-COM.

Multiple Commands -- Are allowed on a single command line. For example, you could type: DIR A:;DIR B:;DIR C: which would display the directories of drives A: B: and C:. Commands are separated by semicolons.

Named Directories -- Are used to assign a meaningful name to a drive/user area. For example, suppose you have BASIC files in drive A: user 2 and you have TEXT files in drive B: user 4. When you are in your BASIC area, the Z-System command prompt will look like this: A2:BASIC> and when you are in your text area, the Z-System command prompt will look like this: B4:TEXT> The old command prompts under CP/M would have been just A: and B: respectively. You can change back and forth between those areas either by typing "A2:" or "B4:" as well as typing "BASIC:" or "TEXT:".

Resident Commands -- Are available to be instantly called from memory. Typical commands are DIR, REN, ERA, TYPE, LIST, ECHO, NOTE, PEEK, POKE, COPY, PROT, PORT. There are many different Resident Command modules which can include speciality commands such as those used in a memory resident debugger similar to DDT.

Flow Control -- Commands are available to have the system do things differently depending on certain conditions. The basic IF...,ELSE...FI (endif) can be used to test for such things as the existence of a certain file (IF EXIST), to see if an error occurred during a certain program (IF ERROR), to ask the user for a yes or no input (IF INPUT) and many more such as testing two file names to see if they are the same name.

Search Path -- Used to tell the system what drives to search for requested files. You can place your files anywhere on any drive and they can be found automatically if that drive/user area is in the path. For example, suppose you have a search path defined as A0 A15 \$0 \$\$ (The '\$' symbol is used as a wild card. \$0 means "The current disk, user 0". \$\$ means "The current disk, current user".) Let's pretend that we are in our text area B4:TEXT> and we type a command, such as NSWEEP. Based on our path definition, Z-System will search for NSWEEP.COM in this order:

(Here is our path definition: A0 A15 \$0 \$\$)

First on ----> A0

Second on ----> A15

Third on ----> B0 (\$0 means current drive, user 0)

Fourth on ----> B4 (\$\$ means current drive, current user)

If NSWEEP.COM existed in any of these four areas, Z-System will have found it and executed it.

Extended Command Processing -- The next step. Suppose that NSWEEP.COM could not be found along that path. You could set up the system to go further by trying to find NSWEEP somewhere else. You could have placed it in a library of other command files. A library is a single disk file which actually contains many other separate files within. It is sort of "a file of files". A library is used to hold or cluster related files into one main file for convenience and storage efficiency. If NSWEEP was not found along the path, you could have specified going onward and have Z-System look for it in a file called COMMAND.LBR. On my system, I have placed all the old standby utilities inside COMMAND.LBR. I have infrequent need of files like PIP, STAT, DDT and many others but I prefer to have them available on-line. So I cluster all these files into COMMAND.LBR. COMMAND.LBR takes only one directory entry and does not clutter my DIR display with the names of all those old utilities. The important thing is that, through Extended Command Processing, they all appear to be available.

Aliases -- Let's assume that NSWEEP.COM was also not found within COMMAND.LBR. There's more; it gets even better! I now have set up my system to check to see if an alias called NSWEEP is defined in the ALIAS.CMD file. ALIAS.CMD is a plain text file which contains definitions of aliases. For example, the following alias could be defined in that file:

GAME=PLAY=FUN mbasic starwar.bas

What this alias means is that you could type "GAME" or "PLAY" or "FUN" and the system will issue the command "MBASIC STARWAR.BAS" for you automatically.

As a matter of routine, a utility is available to create

NZ-COM Continued

ordinary aliases in the form of COM files. Using the games example above, an alias called GAMES.COM could have been created. When you type "GAMES", the alias would cause execution of the command "MBASIC STARWAR.BAS". In some ways, this is similar in operation to a SUBMIT job. The main difference is that the alias is a stand-alone COM file and requires no additional support. You are also required to limit the number of characters in the alias command line to the maximum ZCPR3 command line buffer size (generally 204 characters).

Error Handling -- Finally, let's suppose that NSWEEP was not defined in the ALIAS.COM file. As far as Z-System is concerned, it has exhausted all its resources looking for it. It now invokes the Error Handler, if one was loaded. The Error Handler could be something simple, like one which would simply say to you "Your requested command--NSWEEP--could not be found." Or, more likely, it will invoke a command line editor which will display your original command and allow you to edit it and resubmit it for processing all over again. Remember that your command did not have to be just NSWEEP. It could have been a very long multiple command line in which NSWEEP was just a small part. The entire balance of the unprocessed command line will be offered back to you for editing. This is great for sloppy typers such as me.

Shells -- A shell is a special program which, when invoked, will install itself as a "front-end" to process user commands. One such shell is VMENU, a full-screen menu processor. The user will program a menu so that the system can be operated by an inexperienced user who can type only single letter or number menu commands. Each time a menu selection function is completed, the system returns to VMENU, rather than to the command prompt. A Shell always re-invokes itself after it causes something to happen. A user may or may not be allowed to exit a shell, depending on how the menu or Shell was programmed.

Another Z-System Shell is EASE, an Error handler And Shell Editor. When the Shell portion of EASE is running, you have the ability to edit your command line in almost any desirable manner, such as deleting or inserting letters or commands. You can also scroll back and forth between previously issued command lines, having the ability to recall the last 50 commands you typed, even the ones you typed days ago!

Public Areas -- ZRDOS allows you to define a drive/user area as Public. This means that all files in that area are available from within all other user areas. Programs like Wordstar and dBASE-II can now be run from a user area different than the user area in which Wordstar or dBASE-II are in and they will still be able to find their overlay files if that area was declared Public.

Disk Swapping -- ZRDOS will not give you an error if you

forget to press control-C before you swap a disk. We all remember those blasted CP/M "BDOS Err on 8:" messages!

User Community Support -- Z-System is heavily supported by the user community. There are literally hundreds of programs available from the user community (including source code). Many of the prominent ones are included with the purchase of NZ-COM. No other operating system has enjoyed such a proliferation of user-supported, high-quality software.

"Good Neighbor" Helpers -- This is a published list of volunteer Z-System experts. It contains the names, addresses, telephone numbers and types of computers the volunteers specialize in. From across the USA and several other countries, the Good Neighbor Helpers are a valuable resource for both the novice and expert.

Z-Nodes -- There also is a published list of remote-access computer systems supporting Z-System. These dial-up systems (Bulletin Board Systems) can provide operational guidance and technical support through their message system as well as provide the latest update to a Z-System file or utility. The service is generally free except for cost of a phone call. Some Z-Nodes also offer commercial software for sale (such as NZ-COM and other products).

Definitions:

To properly describe NZ-COM, it is necessary to refer to many terms which are unique for Z-System. Let's try to explain some of these definitions in chronological order.

Keep this list of definitions for future reference. Many more-experienced NZ-COM users casually toss these terms around, assuming that everyone knows about them.

CCP: Digital Research's standard Console Command Processor for CP/M 2.2. This part of CP/M processes user's commands.

BDOS: Digital Research's standard Basic Disk Operating System for CP/M 2.2. This part of CP/M contains the logical system routines used for such things as reading and writing to disk and console and peripheral input/output. It contains a standard interface used by programmers to simplify an application program's access to CP/M functions.

BIOS: The Basic Input/Output System. This part of CP/M is usually written by the computer's manufacturer. It contains the physical, hardware-dependent routines called by BDOS's logical routines to actually perform the low-level computer hardware access.

TPA: Transient Program Area is memory available for general use after the operating system is loaded. This is the place

NZ-COM Continued

where programs such as WordStar and MBASIC would be running. The larger the operating system, the smaller the TPA becomes.

CPR: A general term which refers to a Command Processor Replacement. This would define any CCP other than a standard Digital Research CCP.

ZCPR: Now referred to as ZCPR1, this was the first effort to replace Digital Research's CCP with an enhanced Z80 version. Since many Z80 instructions could do equivalent 8080 commands with fewer bytes, writing ZCPR1 in Z80 code created free space which was used to add features. The added commands were JUMP, DFU, LIST, GO and GET. Other standard commands were enhanced. ZCPR1 is still widely used today in many CP/M 2.2-compatible plain systems.

ZCPR2: This is the next progression in replacement Z80 CCP's. Unlike ZCPR1, ZCPR2 required the user to modify his computer's BIOS in order to install the system. The added features were revolutionary but many users either did not have access to their computer's BIOS or they lacked the skill in assembly language programming and CP/M system generation. ZCPR2 is considered obsolete since the introduction of ZCPR3 and very few people still use it or support it.

ZCPR3: As we continue to add and improve features, we introduce ZCPR3. The user still needs to modify his BIOS to install ZCPR3 but its popularity has grown so much that many have offered bootable disks for common systems such as Kaypro and Heath. User groups also specialized in "hand-holding" to assist new users in getting ZCPR3 running. Many perceive the power of ZCPR3 to exceed that of later versions of MS-DOS.

RCP: Resident Command Package for ZCPR3. Typically a 2K module, it contains commands such as ERA, REN, and TYPE which were removed from the CPR in order to make the CPR do other more important things without exceeding the CPR's maximum size of 2K.

FCP: Flow Command Package for ZCPR3. Typically a 1/2-K module, it contains flow commands such as IF, ELSE and FI (endif).

IOP: Input/Output Package for ZCPR3. Typically a 1.5K module, it has a wide variety of uses, most common of which are commercial products such as a background print spooler, a keyboard key definition program, and a recorder program which captures I/O data to or from the console or printers to a disc file.

ENV: Environment Descriptor for ZCPR3. This is an area in memory reserved for holding important information about ZCPR3. It contains addresses of all the major modules as well as their size. ENV is the system definition module.

TCAP: Terminal Capabilities for ZCPR3. TCAP is actually the

second half of the ENV module. It contains definitions for the console CRT and system printers. It contains information such as CRT control codes for positioning the cursor and clearing the screen. It also contains such information as how many lines of print can be typed on each page in the printer. Many ZCPR3 programs use TCAP to send full-screen commands to the console CRT. This means that the same ZCPR3 program can cause correct screen operation on many different systems without changing the program itself.

Z3-DOT-COM: A clever Californian (Joe Wright) crafted a way to run ZCPR3 without the previously required user BIOS modifications. This innovative system installs itself from within a running CP/M 2.2 system. This was the first important commercial implementation of ZCPR3. This is called "Auto-Install ZCPR3".

ZRDOS: This is a replacement for Digital Research's standard Basic Disk Operating System module (BDOS). Like the various CPR's, ZRDOS was written in Z80 code and improved certain operations and added features.

Z-System: This term generally refers to a system which combines ZCPR3 and ZRDOS to run simultaneously. For a manually installed Z-System, ZCPR3 and ZRDOS completely replace all Digital Research CP/M code in memory and on disc. The only part remaining is the BIOS which was written by the computer's manufacturer and customized by the installer. Generally, with all the auto-installed versions of Z-System (Z3-DOT-COM, Z-COM and NZ-COM), the system is cold booted from a standard CP/M 2.2 disk, and then Z-System is brought in by overlaying portions of CP/M in memory. Typically, an auto-installed Z-System uses slightly more memory than a manually installed system.

Z-COM: Joe Wright's upgrade of Z3-DOT-COM. Z-COM is essentially Z3-DOT-COM with addition of ZRDOS and IOP support. This is called "Auto-Install Z-System".

ZCPR33: A clever Bostonian (or was it a Newtonian?) took the old ZCPR3 and evolved and enhanced it to the point that ZCPR33 was almost as revolutionary as ZCPR3 was in its own day. Jay Sage (from Newton, MA) was responsible for the years of planning which went into ZCPR33.

NZ-COM: Things seem to be progressing exponentially these days. NZ-COM is a very powerful "Auto-Install Z-System" with many important differences. First, NZ-COM contains ZCPR34 and ZRDOS19 which are only available in NZ-COM (or by special purchase). Second, NZ-COM has the revolutionary ability to dynamically change size.

Most serious Z-System users have migrated over to NZ-COM. Even "die-hard" manual system installers such as me have realized the benefits of NZ-COM over the older systems.

NZ-COM Continued

Why NZ-COM? NZ-COM resolves nearly every complaint ever made about Z-System. The most common complaint about Z-System is that it requires expert skill in assembly language and CP/M system-building to get Z-System running. In nearly all cases, a manually installed Z-System requires you to modify the computer's BIOS. Having a listing was not enough. You actually needed the BIOS source code on disc. Many computer vendors did not release the source code to their BIOS because they felt end users wouldn't need it. "It's too complicated for folks to understand", was the most-common excuse voiced.

Another complaint: Even though bootable, pre-installed discs do exist for many computers, chances are there isn't one for your particular system. This is especially true if your machine runs CP/M+ as does the Commodore 128, or the Osborne Executive.

Finally, users complain that all Z-System implementations reduce available system memory. A full-featured Z-System running on a system having a large BIOS could possibly reduce the available user memory (TPA) to as low as 45K! Programs such as WordStar and dBASE-II require a minimum of around 48K to run properly. Some memory-intensive programs such as language compilers require much more than 48K. Once Z-System is loaded, users complain that a fair percentage of programs won't run because memory is so full.

NZ-COM addresses all these complaints. NZ-COM systems are automatically installed and it takes only minutes to do. NZ-COM systems are created under plain, unmodified CP/M 2.2. A companion system called Z3PLUS is available for CP/M+ systems. For the sake of this discussion, the features and facilities of NZ-COM and Z3PLUS are identical. After a minute or so, your Z-System is up and running and you begin "testing the water" and discovering the sudden and dramatic change in your old computer.

Later, you may notice some of your existing programs are bothered by the reduction in TPA memory. No problem; NZ-COM allows you to create another Z-System with only a slight reduction in user memory size. When using this system, some memory resident commands will not be available, but that's OK since we won't need them while we are using our memory-hungry program. After we create the new smaller system, we can load it, load our application program, and then return to the large Z-System automatically after we are done with our application! If we have to, we can even return to plain CP/M to do some special work and then return to Z-System anytime.

All of NZ-COM's reserved memory is allocatable dynamically. You can create as many diverse systems as you need and load them in and out of memory at the blink of an eye. You can pick and choose the modules that you need. You will also see a display of the memory size so you will know what affect a particular module or module size can have on TPA reduction.

Not For Novices Only! -- The features and facilities of NZ-COM will appeal not only to beginners but also to the most discriminating hacker. Along with the idea that NZ-COM can create systems which can vary in size dynamically comes the idea that Z-System files themselves must also possess the ability to run dynamically anywhere in memory. A new breed of files is evolving as a result of NZ-COM. The system segments are relocatable files similar to REL files generated by compilers and assemblers. NZ-COM system files are of type ZRL. On the surface, they look like standard REL files. Internally, they conform to a special NZ-COM specification whereby they can refer to external memory references which are unknown at assembly time. Simply put, a ZRL file has many references to things which will be defined at the very last minute. This is because the file will not know where it will exist in memory until then. Furthermore, some of those references themselves may also vary at the last minute.

Another file which came about during the evolution of NZ-COM is a Type-4 file for use with ZCPR34. Perhaps we should digress and explain ZCPR3 file types.

A Type-1 file is a normal COM file for use with ZCPR3. It contains a reference to the ZCPR3 external environment descriptor. This is how the COM file can find specific information about the currently running ZCPR3 system such as the terminal escape codes or the memory locations of various system segments. A Type-1 file is loaded and executed at address 100H the same as a CP/M COM file.

A Type-2 file is similar, except that the entire environment descriptor is contained within the COM file. If you change your system, you need to re-assemble all Type-2 COM files as well, since system definitions are contained within each program. The Type-2 file is considered obsolete.

The Type-3 file was introduced with ZCPR33. This is a COM file similar to a Type-1 file. The major difference is that a Type-3 file is loaded and executed at some address different than the standard 100H. This is so that a Type-3 program can run without disturbing the TPA contents below it. A very common loading address for a Type-3 program is 8000H (the middle of memory, from 32K on up). When a Type-3 program runs at 8000H, the entire lower 32K of a 64K system remains undisturbed. Commands entered after a Type-3 program finishes--such as PEEK, POKE, and GO--have their desired affect upon the lower memory's preserved contents. Ideal candidates for Type-3 programs are Error Handlers and Transient Command files, such as ERASE.COM and RENAME.COM. Other logical candidates are SAVE.COM and DEBUG.COM, since similar programs need to load and run without disturbing the existing contents of lower memory. The main disadvantage in a Type-3 program is in selecting its' running address. Setting an address too low reduces the protected lower-memory area's available size. Setting the address too high limits the Type-3 program's

NZ-COM Conclusion

size; it must fit between the starting address and bottom of system memory (the CCP).

Finally, the Type-4 program progresses to the next logical step. The Type-4 program, which will only run under ZCPE34, dynamically locates itself to the highest-possible memory location. It finds the system's bottom, and--based on its own size--calculates the maximum running address and then positions itself as high in memory as possible. The Type-4 file is a modified version of a Page Relocatable file (type PRL) as was found in the MP/M multi-user version of CP/M. This type of file contains object code followed by a bit map. The bit map is a series of ones and zeros which tells the loader which bytes of object code need to be adjusted to the new running address and which bytes need to remain unchanged.

If you're a hacker, NZ-COM will open new worlds for your discovery and exploration. You'll experiment and learn and grow and never exhaust your opportunities. When NZ-COM creates a new system, one of the files it creates is a type ZCM. This file (NORMAL.ZCM, for example) contains what looks like a symbol table (a SYM file). It has all the addresses and labels of all the NZ-COM system definitions. Using a text editor, you can fine-tune your system and conduct countless experiments. Who knows, you may even develop a revolutionary technique and become famous!

Enough of this technical talk. I think I have made my point. With NZ-COM, you don't have to conform to any certain type of user. If you want to just use, you can. If you want the challenge of systems development, you can too--with the same system!

How Do I Get NZ-COM? This part is easy too. First, check with your local CP/M computer club. Most of the Kaypro, Osborne and other 8-bit oriented computer clubs have signed up under the Z-PLAN to become a dealer for Alpha System products. The club purchases software from Alpha Systems at a discount and either passes all of the savings on to its members or it retains a portion for the club treasury. The discount applies to all software sold by Alpha System. This includes Datestamper and Background-ii as well as NZ-COM and Z3PLUS.

If your computer club doesn't participate in Z-PLAN, I strongly recommend that you urge them to join. Meanwhile until they do, order directly from Alpha Systems:

Alpha Systems Corporation
711 Chatsworth Place
San Jose, CA 95128
(408) 297-5583

Alpha Systems is the focal point for past and future commer-

cial Z-System operations. They have assumed the work previously conducted by Echelon, Inc.

You can also order products through authorized Z-Node systems and other Alpha Systems dealers. One such source is Jay Sage:

Sage Microsystems East
1435 Centre Street
Newton, MA 02159

Voice: (617) 965-3552 9 AM to 11:30 PM Eastern Time
Modem: (617) 965-7259 24 hrs 300/1200/2400 bps

Support and Questions: You can contact me via The Computer Club PBBS system in Farmington, CT. (203) 673-8752 24 hrs, 300/1200/2400 bps.

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YUCKS... YUCKS... YUCK... YUCKS... YUCKS... YUCKS...
=====

The computer age has finally reached our local school's cafeteria, our next-door neighbor's 10-year-old reports. There, he says, trays and utensils are known as "hardware", the paper plates and napkins as "software", and the pizzas as "floppy discs".

.....

Some folks look for signs of an early winter in the behavior of squirrels or catipillar's fuzzy coats. But I say that cold weather always comes two weeks BEFORE I get time to put up the storm windows!

.....

Carole, my "occasional helper" said, looking up from balancing her cheque-book the other day, "I know money won't buy happiness, but an adequate supply sure steadies the nerves!"

.....

My greatest fear is that the candidates I vote for won't keep their campaign promises. My second-greatest fear is that they will!

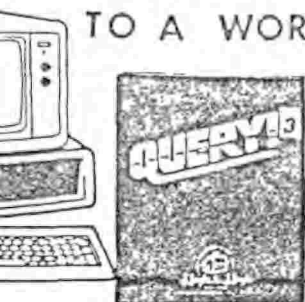
.....

Mother to reluctant child: "'Just say no' has NOTHING to do with broccoli!"

=====

... YUCKS... YUCKS... YUCKS... YUCKS... YUCKS...
=====

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7. format numerical fields to line up all of your decimals in your final reports.
8. use formatted printing of characters or numbers -right or left justified in any number of spaces you choose.
9. set form length, number of lines per form, maximum width per form, and enable wrap-around of lines if you wish.
10. send your final output to the printer, screen, or to a disk file.
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Our READER'S LETTERS feature is provided as an open forum for the free exchange of H/Z 8-bit computer information between all subscribers and readers of the SEBHC JOURNAL. We ask all correspondants to keep their letters reasonably concise and preferably around 250 words maximum length (about six screens, 24 lines/screen of ASCII text). The JOURNAL shall exercise its' right to condense letters exceeding this recommended maximum unless that might destroy their intent or meaning. In such cases we shall contact the writer.

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* Subscriptions: \$17.50/year in Canada, Mexico, the U.S.A. and its possessions (all others \$25/yr) and start in month following receipt of application. Please make cheques or money orders payable to L.E. Geisler. Single back-issue copies by special order--allow 6 weeks for processing.

* Subscribers are automatically Society of Eight-Bit Heath Computerists members. Members' ID# and expiration follows the name on mailing label. The three member classes are: REGULAR (H/Z 8-bit user), ADVERTISING (one vote/vendor), ASSOCIATE (non-8-bit computerist, library, etc.). REGULAR members can vote and hold any Society office. ASSOCIATE members cannot hold office or vote in Society elections. The Society's official meeting once coincided with HUGCONS, now the place and time will be announced in July JOURNAL issues. Advance registration is US\$25 by 15 May.

* The SEBHC JOURNAL is composed, edited and published by L.E. Geisler at 895 Starwick Drive, Ann Arbor, MI 48105. Phone 313-662-0750, 9am - 6pm Eastern Time, Monday thru Friday. Off hours, try 313-662-0750.

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