

**Saving Our CLASSIC Heath 8-Bit Machines!**

# The SEBHC JOURNAL

*The Society of Eight Bit Heath Computerists' Official Monthly Newsletter*

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*See Inside of Last Page for Subscription Information & Order Blank*

**This is Our Yearly Birthday Edition...  
7 YEARS OLD AND STILL A-GOING!**

**So Long HUG, So Long REMark....**

**HELLO, SEBHC JOURNAL...**

**HELLO, STAUNCH 8/89er!**

**Shinde-shimai, Groupe Boorroo!**

*(That's "Drop Dead, Groupe Bull" in Japanese....)*

***Happy  
Birthday***



# CELEBRATION

## EIGHT BITS EQUALS ONE BIGHT?

Our "WHAT SHALL I DO WITH MY OLD COMPUTER?!" Department

Ever wondered what to do with a computer you no longer are using but hate to throw out because of all that money you've invested in it? Here's the pertinent quote from what Janet Endrijonas recently wrote in her article "The Old Gray Monitor Ain't What She Used To Be"--COMPUTER MONTHLY, Aug. 1992:

"East West Education Development Fondation (One Exter Plaza, 15th Floor, Boston, MA 02116, 617-542-1234) is taking old computers donated by corporations, dealers, and individuals, refurbishing them and distributing them as requested and needed throughout the world. The Fondation has recently received a \$220,000 grant from Washington's national Endowment for Democracy that directs them to place donations of computer equipment in organisations which promote democracy and reform in the East."

[Note: We haven't had a chance to check out the Fondation's willingness to accept "Old Grey Boxes", but some H/Z-89 owner in the Boston vicinity really ought to call Them Real Soon Now! Be sure to let us at the SEBHC JOURNAL know if anything they say is printable--if so we'd like to pass it along to our readers. -- ed]

The same edition of COMPUTER MONTHLY carried a rather long letter from Charles Emerson which covers some Heath/Zenith history which may be of interest to our readers. [I had to condense it some to make it fit our page format. -- ed]

"I'll bet you didn't know that 1992 marks the 13th anniversary of the year Zenith Data Systems could have launched and established the PC standard. [Instead] they bungled it royally and are still bungling things today. Back in 1979, when personal computers were in their infancy, Zenith Radio Corp. decided to get into the business the quick way. They bought Heath Company from a French conglomerate Schlumberger, who was strapped for cash after buying a Fairchild division. Heath Co. specialised in electronic kits and had a sophisticated all-in-one desk-top computer called the H-89, which was better than anything Radio Shack and Apple had in those long-ago days. More important, at the time of the Zenith acquisition, Heath had a working prototype of a 16-bit computer based on Intel's 8086 microprocessor ready for production.

"But Zenith was intent on maximising its' return on the \$40-million it had paid for Heath and went into full production and national distribution with the H-89 now renamed the Z-89. The 16-bit computer project, dubbed the Z-100, was shelved. Instead, Zenith invested a lot of money designing new peripherals and enhancements for the Z-89, and arranging for business software, programming languages, compilers and other stuff [to be produced].

"In 1981, IBM came out with its' own 16-bit computer, based

on the less complex 8088 microprocessor. This was IBM's 2nd attempt at a small business desktop computer. In 1988-89 it had manufactured a take-off on the H-89, but didn't know how to market it. IBM's quick success caused Zenith management to dust off the Z-100 design it had acquired from Heath, revamp it and put it into production.

"Unfortunately, it was a little too late and not compatible with IBM's graphics. The Z-100 became known as a generic MS-DOS computer, along with many others from the likes of Sanyo, Morrow, Eagle, Columbia, etc., because it ran character-based MS-DOS software. Graphics-based software had to be rewritten to accomodate the Z-100 graphics chip, and that proved to be a fight because the big money was in supporting IBM's PC standard.

"A couple years later, armed with a non-infringing BIOS, Zenith entered the IBM-compatibles market. Along the way it bought a portable computer prototype from Morrow (who was close to bankruptcy) and made a killing selling it to the IRS. Eying big bucks in the government and military markets, it went all-out to capture as many contracts as it could, out-bidding all major competitors. During these years (the mid-80s) it neglected its' dealer base. When the government contracts ran out and other competitors began getting a share, Zenith found itself with rapidly-diminishing sales.

"It took a while to rebuild the confidence of the dealer channel. By updating its' computers and releasing a wide array of laptops, the company managed to keep its' head above water. When Zenith Radio decided to concentrate all of its' efforts on High Definition Television technology, it sold Zenith Data Systems (which included Heath Co. and a nationwide chain of Heath/Zenith computer stores) to French computer maker [sic] Bull for just under a billion dollars [1,000-megabucks - ed]. Since, Bull has revamped Zenith's product line several times. It lost its' substantial market share in laptops, dumped 1200 of its' 1400 Gold Medallion dealers, and is now manufacturing notebook computers for IBM and trying to get back into the good graces of its' corporate customers. What goes around, comes around!"

[Note: Groupe Bull started out as a consortium of COAL MINING companies in France, and later got into computers as part of A Really Big international diversification scheme. Small wonder that Zenith is now in such a deep, dark hole! As the old saying goes, "we feel for you but can't touch you"! - ed]

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EMERGENCY SALE... EMERGENCY SALE... EMERGENCY SALE... E  
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Must sell my \$5 face-value rolls (50 coins/roll) non "peanut-butter sandwich" Post-WWII SILVER US 10c coins. All clean & date-sorted, many are near-uncirculated. Call Lenny any time (313-662-0750) with your BEST offer. Shipping and insurance is \$5 each roll. Will sell only by 50-coin unbroken roll!

## READER'S MAILBOX

Dear Lenny,

I'm upset by the rapid decline of ZUG (or HUG as I prefer to remember them). By definition, a User's Group is run by USERS. [I always supposed that too. -- ed] It's about time that H/Z users took over again [sic] before it's too late!

From HUG's beginning, Heath Company was remarkably philanthropic. They generously contributed money and resources to make HUG an exceptionally fine computer user's group. [It's an old business axiom that the best advertisement is a satisfied customer...and HUG existed to Keep Us Satisfied!! -- ed] Yet Heath didn't force HUG to grant special favours. Early REMarks routinely printed critical hardware and software reviews, equipment modifications, and other information [nominally] unfavourable to Heath, but valuable to readers. Also, HUG programs [published in REMark] helped us modify, expand, or avoid buying expensive software products.

When Zenith came on the scene, they were more sales oriented; they pressured HUG to turn a profit [regardless] and promote sales of Heath/Zenith products. REMark articles focused on buying new products such as hardware and software, not on ways to get more from what you already had. HUG software that might compete with [Zenith's] commercial products faded away. [See article on page two opposite. -- ed]

Matters have now come to a head now that Groupe Bull has taken over [Heath/Zenith]. There was no place for a user's group in Bull's "Grand Strategic Plans". In the end, REMark was entirely filled by "Bull" and advertisers; it was no more than a sales catalogue to which readers had to subscribe.

A user's group is absolutely vital, now that all of our "orphaned computers". Do YOU want to see your multi-thousand dollar investment turn into junk for lack of parts or support?!

HUGgies, UNITE! It's time to get our user's group back before it's too late!

Back when Osborne failed, the First Osborne Group (FOG, their equivalent of HUG) formed a non-profit corporation to maintain support of their orphaned Osborne computers. They bought up the [company's] remaining parts, software, and manuals to ensure a [continuing] source of supplies. They sponsored group buys, and did short production runs of vital custom parts such as ROMs and so on.

I'm a member of two other clubs which did the same thing successfully: the Corvair Society of America, Inc., and the Tripoli Amateur Rocketry Association, Inc.

I propose we immediately create a new non-profit HUG. Its' charter purpose would be to help [NewHUG] members maintain and enhance their H/Z computers. It can continue the HUG library, bulletin board, and REMark magazine. It can maintain sources for critical parts, such as upgraded ROMs, and hard-sectored disc. A good response would even let us continue support of those dedicated individuals who have contributed so much to the H/Z [computer] world, for example, Pat Swayne--among numerous other worthy individuals.

I've even thought of a name; how about the "Homebrew Electronics And Technological Hobbist Computer Organisation

(HEATHCO for short).

How about it fellow hackers? Any lawyers out there who know what it takes to set up a non-profit corporation? Do HUG/ZUG members have a right to vote on what happens to it? It's our money, too!

LEE A HART, 323 West 19th Street, Holland, MI 49423

[Hey, Lee! You're right, the original HUG was good for all us hobbyists and computerniks. Heath's probable intent was to keep Heath Company's books in the black while ensuring continuing to keep consumer loyalty to future Heath products alive and well. It seems to me that HUG's creators succeeded beyond their wildest dreams, else why are there so many of us trying to carry the HUG torch onward and upward? Now it's up to all subscribers to H-SCOOP, Staunch 8/89er, SEBHC JOURNAL, and Z100 LIFELINE to get on the stick and put something practical and workable together, Really Soon Now! Obviously, the first step is to establish the NewHUG Bulletin Board Service. I have been working on something along that line for quite a while, but it keeps getting shoved onto an unlit back burner, probably because I've heard far too little from our JOURNAL subscribers on the subject. I have a slightly-inoperative Z100 with 10MB hard drive which could be refurbished and equipped with a larger-capacity hard drive. Also I have two excellent RBBS programs, one which could run under HDOS, the other under CP/M-80 (and '85 on my Z-machine) just itching to spring into action. And there's another CP/M RBBS program languishing on an 8-inch disc from my presently-inoperative ALSPA computer. Unfortunately, I'm not able to devote any time to fixing those computers right now, but any help some member might offer would be most gratefully received! Personally, I'd like to see our NewHUG BBS instantly blossom into service...will you readers please help? -- ed]

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TTENTION, SEBHC JOURNAL SUBSCRIBERS... ATTENTION, SEBHC JOU

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All JOURNAL readers please write Henry Fale (QUIKDATA and H-SCOOP) and wish him speedy recovery from his recent surgery for a ruptured colon (NOT caused by his vegetarian diet)! Send letters to: Henry Fale, c/o Quikdata, Inc., 2618 Penn Circle, Sheboygan, WI 53081-4250. Please tell Henry that Lenny said, "Get Well Hank, Real Soon Now!"

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RNAL SUBSCRIBERS... ATTENTION, SEBHC JOURNAL SUBSCRIBERS...

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[Editor's comments: The JOURNAL's been running on 'E' for a long time now. We definately need a refill of "how-2" and "Gee whiz, look whut I did!" stories. I can't do EVERYTHING alone! BH BASIC will be done pretty soon; I need GOOD 8-bit ASCII, Right Away! -- lenny]

# SEBHC JOURNAL

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## WE NOW HAVE HUG'S SOFTWARE!

Ex-HUG Software Engineer Pat Swayne Donates 8-Bit Master Files.

Says, "They're all Public Domain now that REMark is dead!"

Recently Pat Swayne called me and said he was no longer employed by HUG/Zenith, that HUG and REMark had been dissolved and "all personnel had been terminated". Pat said that because he was interviewing for several new positions, it was necessary that he dispose of much of his older computer stuff and out-dated software. Assuming that he'd get a new position "Real Soon", it would be too great a burden to drag everything to a new location.

Pat told me that he was donating his 8-bit computer equipment, and all master files of 8-bit software he had written for HUG to me to dispose of as I saw fit. "Make it public domain even", he said. I did have to drive over to his place in Coloma, Michigan, and pick it up, but for a price that low, how could I refuse?!

So now I am the guardian of a very large assortment of hard and soft sector discs with "885-xxxx" part numbers on them. I must catalogue and make duplicates of all of them to share with Kirk Thompson and his Staunch 8/89er. Both Kirk and I will be cooperating to make these marvelous old gems available to all our subscribers at reasonable prices. A portion of the proceeds of such sales will go to help Pat in his relocation and as a token of our gratitude for his making these items available to us serious 8-bit users. (I'm sure those "Bull Groupies" would have thrown everything out long before now, and all worthwhile items would be forever gone!)

By now you must have guessed that things are rather busy at Chez Geisler, what with a bunged-up back, three computers, a nagging frau, and a newsletter all screaming for full-time attention! But sooner or later, things will shape up and our readers will be much better off. I may even be able to rearrange my computer room so one may get in and out without falling over anything, or knocking something fragile onto the floor....

While shifting piles of stuff around trying to make room for Pat's donated stuff, I ran across a little personal utility program written by subscriber Oscar Yohai which he'd sent me ages ago. It's in CP/M MBASIC, but can easily be redone to run under HDOS in BH BASIC or MBASIC. I've written several of these myself to do similar things, and think the idea is worth giving to our subscribers. Here's the original listing:

```
100 E$=CHR$(27)
110 PRINT E$;"E"          REM Clear screen
120 P$= "Program name is ..... PRINT.WS ....."
130 PRINT P$:PRINT
140 PRINT "                Written by Oscar Yohai 6/85":PRINT
150 PRINT "This program is designed to send the control"
160 PRINT "codes to your printer when you use this BASIC"
170 PRINT "program.":PRINT
180 PRINT TAB(20);"SELECTIONS":PRINT
190 PRINT TAB(15);"1) PICA 10 CPI"
```

```
200 PRINT TAB(15);"2) ELITE 12 CPI"
210 PRINT TAB(15);"3) CONDENSED 17 CPI"
220 PRINT TAB(15);"4) NLQ 10 CPI ONLY":PRINT
230 PRINT TAB(15);"5) ITALICS - ON"
240 PRINT TAB(15);"6) ITALICS - OFF"
250 PRINT
260 INPUT "MAKE YOUR SELECTION ";S
270 REM          "STAR SD10" PRINTER CODES USED W/WORDSTAR
280 IF S=1 THEN LPRINT E$;"B";CHR$(1):PRINT "YOU HAVE
      SELECTED ";S;"PICA"
290 IF S=2 THEN LPRINT E$;"B";CHR$(2):PRINT "YOU HAVE
      SELECTED ";S;"ELITE"
300 IF S=3 THEN LPRINT E$;"B";CHR$(3):PRINT "YOU HAVE
      SELECTED ";S;"CONDENSED"
310 IF S=4 THEN LPRINT E$;"B";CHR$(4):PRINT "YOU HAVE
      SELECTED ";S;"NLQ"
320 IF S=5 THEN LPRINT E$;"4":PRINT "YOU HAVE SELECTED "
      ;S;"ITALICS ON"
330 IF S=6 THEN LPRINT E$;"5":PRINT "YOU HAVE SELECTED "
      ;S;"ITALICS OFF"
340 END
```

Oscar noted on the back of his listing: "Lenny, this is no big deal, but this is how I communicate with my printer to select the most common print types. In Wordstar I have to call up RUN A PROGRAM MBASIC (this program) to set the printer. Any better ideas? Wish I could have a menu of print types for Supercalc!"

Hmmm...seems that's a pretty nifty idea for some hot-shot programmer to work out and send to us for publishing! Back in the dim, dark early days of 8-bit fever, we had no way of encapsulating any printer control sequences inside most software such as Supercalc. (In fact, I don't think you can do it now even with "windows"!)

You pre-set the printer to whatever type style you wanted (or that which was in the printer) and stuck with it until the program ended.

BH BASIC did let you play around with printer control codes and that was a big help. Somewhere in my personal archives I have a BH BASIC program similar to Oscar's except that it lets you write text files with some words emphasised by italics or double-struck letters. When I find it, I'll print it in the next-available JOURNAL edition. Meanwhile, why not drop us a line about how YOU have solved your typeface problem(s)? (You do know that we're always looking for more ASCII to publish in the JOURNAL....)

Anyone who sends us a useable program listing (.ASM, BASIC or whatever) which we accept and publish will automatically get a FREE one-year extension of their subscription and the word "Author" on their mailing label. Five or more such articles will put you on the permanent FREE mailing list, and ten or more makes you a Genuine Assistant Editor! What are you waiting for?!

# The CONTINUING STORY of The +55+ GANG

## Or, Back to BH BASICs

Command Mode, continued from last month...

BYE is used to terminate the current session of BH BASIC (henceforth labeled BHB) and return your control of the computer to HDOS. Unfortunately, BYE won't save your program, close files, or clean up in any other way. If you want to save anything you have running, or are writing, use SAVE or REPLACE \* before \* using BYE! But BYE will ask if you are sure before terminating. Here's an example of what happens whenever you enter BYE:

```
*BYE <CR>
SURE?YES <CR>      (enter yes ONLY if you're SURE!)
>                  (HDOS prompt re-appears)
```

CONTINUE is used to begin or resume execution of a loaded BHB program. It has the unique feature of not affecting any existing variable values, nor does it affect the GOSUB or FOR stack. It's normally used to resume execution after an error has stopped the program, or after you have entered CTRL-C to stop it. You may also use CONTINUE to enter your program at a specific line (in conjunction with a GOTO). Do not confuse CONTINUE with RUN which resets all variables, stacks, and so on. Here are a couple examples of how this versatile command works:

```
*CONTINUE <CR>      (restarts program after error or ^C)

*GOTO 100 <CR>
*CONTINUE <CR>      (start/resume execution at line 100)

*A = 23.5 <CR>      (new value for variable A)
*GOTO 230 <CR>      (resume execution despite program's
*CONTINUE <CR>      earlier affect on A)
```

DELETE is a command which you use to remove one or more lines from a BHB program. Say that you want to fix the program after you found a bug in lines 210 through 300. Use DELETE as in this example:

```
*DELETE 210,300 <CR>      (they're gone!)
```

Note that you'll get an error message if you enter a line number GREATER than the ending line number.

DELETE usually is used to eliminate one or more lines of text. If you want to wipe out all text, use SCRATCH. If you want to erase only one line, just enter that line's number followed by a <CR>, thus:

```
*2005 <CR>      (line 2005 is GONE, everything else
                  above and below it is still there)
```

The LIST command prints program lines on the CRT for review or editing purposes. Just entering LIST <CR> will give

you a rapidly-scrolling display of the entire program--not very useful in most cases. To get around this problem, use CTRL-S and CTRL-Q. These commands stop and restart the display on an H19 or H89-type terminal's screen. CTRL-C cancels LIST. To see a number of lines, enter the command thus:

```
*LIST [linenum1], [linenum2] <CR>      (linenum1 is the 1st
                                          line to display, the
                                          other is the last)
```

Here are some more precise examples illustrated by a simple program:

```
10 LET A=5:LET B=6
20 PRINT A,B,A+B,
30 LET C=A/B
40 PRINT C
50 END
```

```
*RUN <CR>
5    6    11    .833333
```

```
END AT LINE 50
```

```
*LIST <CR>

10 LET A=5:LET B=6
20 PRINT A,B,A+B,
30 LET C=A/B
40 PRINT C
50 END
*LIST 20 <CR>

20 PRINT A,B,A+B,
```

```
*LIST 20,40 <CR>

20 PRINT A,B,A+B,
30 LET C=A/B
40 PRINT C
*_
```

OLD is the way you tell BHB to read a pre-existing program from disc storage. When you enter this command, OLD performs a SCRATCH which erases any existing program before reading in the new one. (It is good practice to always SAVE whatever you are working on to disc BEFORE OLDing another program, unless you don't mind re-writing it!) To load a program, enter the OLD command thus:

```
*OLD "fnam" <CR>      ("fnam" is the saved program's file name,
                        preceeded by a drive name if it's on your
                        secondary drive: OLD "SY1:fnam"<CR>)
```

Unless the command states otherwise, BHB assumes that the



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## MORE "+55+" GANG & BHB

filename ends in ".BAS". For example, entering this line:

```
*OLD "DEMO" <cr>
```

tells BHB "load the program DEMO.xxx from SY0:". But you may have more than one program named DEMO on that disc, each with a different filename extension, such as DEMO.GAM, DEMO.PIC, or whatever. Then you must use the correct name extension to OLD the particular file you want to run because poor old BHB is sometimes pretty easy to confuse!

On the other hand, suppose you're presently running part of a program which has a number of variables set "just so" and you also have another short program which is intended to work on these variables. To load it into BHB and link it to the running program, enter:

```
*CHAIN "(dv:)fnam" <cr>      (the "dv:" means any drive  
                             other than SY0:)
```

Now you can enter RUN or CONTINUE and BHB does its' thing.

Note that BHB does a preliminary syntax check on lines it reads in by the OLD command. If OLD detects any syntax error in the lines it reads from disc, it inserts the characters \*ERR\* at the spot in the line where it detected the error. This won't happen in programs you are entering or modifying in BHB because it just won't let you type in errors. But the \*ERR\* warning may happen when you've written or edited a program listing with HDOS's EDIT and later load it into BHB.

REPLACE lets you replace a file you've stored on disc earlier with a later version. If you try to use SAVE without first having deleted an old version, SAVE refuses to write over the older one. This prevents your using the same name for two different programs and blocks accidental deletion of either one. In these cases BHB prints an error message: "ERROR - FILE ALREADY EXISTS". It's then up to you to solve your problem.

REPLACE is also used to send a hardcopy listing of the current program to the LP: device (first be sure your printer is ON and plugged into the computer!). Enter:

```
*REPLACE "LP:" <CR>
```

Note that you cannot use SAVE for hardcopy output. If you do want to make a hardcopy from a program stored on disc, be sure the printer is connected (online) and powered up, then enter from HDOS this command string:

```
>COPY LP:=dn:fnam.ext <CR>      (do not use dn: in command if  
                                file is on SY0:)
```

Whenever you want to load a program or write a newer ver-

sion of one already in BHB memory, use the SCRATCH command. It clears any commands, programs, data, strings, or symbols currently stored by BHB. SCRATCH is a very conscientious command and tries to make sure you don't accidentally erase some important item; for example:

```
*SCRATCH <CR>
SURE?                      (If you're SURE, enter Y <CR>; if not
                           enter N <CR>)
```

\*\_ (You entered Y and BHB is ready to go to work again)

CHAIN is a very useful command. It may be used alone in command mode, or within a program to start execution of another program. CHAIN deletes current program text, reads in the new program, and starts its' execution. If no line number is specified, execution begins at the first line of the new program. If a number is specified, execution starts at that line number. Note that GOSUB and FOR loop tables are cleared by CHAIN, but that data values are affected, but the data pointer is reset to the top of data statements. In addition, user-defined functions are un-defined, and the random process is restarted. Open data files are not affected. Here are some ways to use CHAIN:

```
*CHAIN fnam <CR>           (or)
*CHAIN fnam,linenum <CR>
*CHAIN "DEMO" <CR>
```

You can use CHAIN in execution mode to start a different program executing while maintaining any open files and data values. Thus, a program too large to fit into memory all at once can be written in a number of small sections, with each section chaining to the next one when ready. For example, assume we've written a payroll maintenance program that's too large to fit all at once in memory. Also assume the program can perform five different functions upon the payroll file. One function might be "add an employee", another one, "print monthly cheques", and so on. Because of the memory size limitation, we split our program into five pieces, each of which performs one of the five functions. A section of that program might appear thus:

```
00020 DIM A$(4)
00030 A$(0)="SY1:PAYROL1.BAS"
00040 A$(1)="SY1:PAYROL2.BAS"
.
.
.
02000 INPUT "CHOOSE FUNCTION (1 - 5)",F
02010 CHAIN A$(F-1)
```

The program enters any number the operator keys in, then CHAIN to and executes the appropriate program.

## And more +55+ GANG w/BHB!

The value of A\$ and values of all other variables are preserved during the CHAIN. In this example the individual service programs CHAIN bac to the master program when done with a statement:

```
CHAIN "PAYROLL",2000 <CR>
```

so the PAYROLL program doesn't start back at the beginning but rather starts at line 2000.

CLEAR sets the contents of all variables, arrays, string buffers, and stacks to zero without otherwise affecting the program itself. CLEAR is generally used before re-running a program if it started with a command other than RUN. The CLEAR statement form is:

```
*CLEAR <CR> (or)
*CLEAR varname <CR> (where varname is A$, AI$, etc.)
```

RUN automatically clears all variables, arrays, string buffers, and so on before a program executes, therefore CLEAR isn't required. But a program terminated before execution (by a STOP command or an error) does not set these variables to zero. They're left containing the last-assigned value(s). When a varname is specified, the CLEAR command clears that variable, array, or DEF FN (user-defined function).

Note that memory space used by string variables and arrays is not freed when CLEAR varname is used. String values should be set to null (for example, A\$="") before clearing so the string space can be recovered. For example:

```
CLEAR A <CR> (clears variable A)
CLEAR A$ <CR> (clears variable A$)
CLEAR A( <CR> (clears dimensioned variable A( )
```

If a program section is to be re-run after editing, variables, arrays, dimensions, etc., should be re-initialised. Do this by using the CLEAR statement in command mode.

Use CLOSE to close an HDOS file. To read from or write to a file you must do these three things in sequence:

1. Open the file (see OPEN)
2. Perform Input or Output (via "INPUT #chan" or "PRINT #chan").
3. Close the file.

CLOSE statement format is:

```
CLOSE #chan1 <CR> (or)
CLOSE #chan1, . . . ,#chann <CR>
```

where "#chan" is the channel number assigned to the file when it was opened. The CLOSE command does three things:

1. If the file was OPENed for writing, the new file is entered in the disc directory. If the file is not closed, it, and the information written to it, are lost.
2. The BHB channel number is freed so a different file may be OPENed on that channel.
3. If there are no open channels with numbers higher than the ones being closed, the FILE table buffer space is freed (see the FREE command). That is, if channels 1 & 2 are open, and you close channel 2, then the FILE table space for both channels is freed.

If your program blows up without closing its' channels you may want to type CLEAR to discard partially-written files. If you want to save any partial files, use CLOSE in command mode to close the files. If channel numbers listed in the CLOSE command have not been opened, or have already been closed, they are ignored.

CONTROL (CTRL) is a multi-purpose command used to set various options and flags. The CONTROL statement form is:

```
CNTRL iexp1, iexp2 <CR>
```

The various CNTRL options are:

	iexp1	iexp2
CNTRL	0	nnn
CNTRL	1,	n
CNTRL	2,	n
CNTRL	3,	n
CNTRL	4,	n

What the various CNTRL options do:

CNTRL 0, nnn sets up a GOSUB routine to process CTRL-B characters. The line number of the routine is specified as "iexp2". Entering a CTRL-B at the keyboard passes program control to the specified statement (beginning at line iexp2) via a GOSUB linkage after the statement being executed is completed. (Confused? The following example may help:)

```
00010 CNTRL 0,500
00020 FOR A=1 TO 9
00030 PRINT A,A*A,A*A*A
00040 NEXT A
00050 END
00500 PRINT "THAT TICKLES!"
00510 RETURN
*RUN <CR>
1      1      1
<CTRL-B> 2      4      8
THAT TICKLES!
3      9      27
4      16 <CTRL-B> 64
```

[continued on p8]

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And MORE "+55+" etc.

```
THAT TICKLES!
5      25      125
6      36      216
<CTRL-B>THAT TICKLES!
7      49      <CTRL-B> 343
THAT TICKLES!
8      64      512
9      81      729
END AT LINE 50
*_
```

In the above example, whenever you enter a <CTRL-B> at the keyboard, it momentarily interrupts program execution. The program completes printing the line in progress, then enters the subroutine at line 500 and prints the "THAT TICKLES!" string. Then it goes on to the next statement--RETURN--causing the program to resume execution.

CNTRL 1, n sets the number of digits permitted before the exponential notation ("powers to the many") is used. Normal mode is N=6. For example:

```
*CNTRL 1,2 <CR>      (numbers 100 and greater are to be in
                      exponential format)
*PRINT 101 <CR>
1.01000E+02
```

CNTRL-2,n controls the H8 front-panel LED display mode. Control functions are:

```
CNTRL 2,0 <CR>      turn display off (normal mode)
CNTRL 2,1 <CR>      turn on display w/o update
CNTRL 2,2 <CR>      turn on display w/update
```

NOTE: CNTRL-2,n has no affect on an H89 because it doesn't have an LED front-panel display. For readers who use H8s, we shall be publishing some BHB program listings for them, Real Soon Now.

CNTRL 3,n is a command unique to BHB--no other BASIC I know of has anything like it. This CNTRL controls the size of a print zone--normally 14 spaces--to any other quantity. Here is an example:

```
*CNTRL 3,5 <CR>
*PRINT 1,2,3,4,3,2,1,0 <CR>
  1    2    3    2    3    4    3    2    1    0
```

CNTRL 4,n controls how HDOS handles overlays. Part of HDOS doesn't permanently reside in RAM but is kept on the boot disc in SYO:. When it's needed, it's temporarily read into memory and is used when files are opened and closed. To make these overlays permanently remain in memory, enter:

```
CNTRL 4,1 <CR>
```

This greatly speeds execution of RUN, SAVE, UNSAVE, OLD, REPLACE, OPEN, and CLOSE statements at a cost of about 2.5k bytes of free RAM. To cancel the above command, enter:

```
CNTRL 4,0 <CR>
```

and HDOS is restored to normal mode, allowing BHB to regain use of those freed 2.5k bytes. BHB always starts up in CNTRL 4,0 mode, but if you have plenty of free space, you'll find a noticable increase in speed when you use CNTRL 4,1.

NOTE: You can't use CNTRL 4,n commands as program statements. If you want to lock overlays in memory, do it before executing a program, preferably before putting the program into memory.

DIMENSION statements explicitly defines the maximum dimensions of array variables. A single-dimension array is often called a vector (why, I don't know). Here's an illustration of a 6x6 array (36 values):

```
DIM A(5,5) <CR>
```

Each value in this statement ranges from zero through 5, 6 steps each, or 6x6 total. If a dimensioned variable is numeric, the values are preset to zero, but if it is a string all values are set to a null string.

You may declare severa variables in one DIMENSION statement by separating them with commas. For example:

```
*DIM A6(3,2), B(5,5), C3(10,10) <CR>
```

dimensions the following arrays:

VARIABLE	SIZE
A6	4 x 3 12 elements
B	6 x 6 36 elements
C3	11 x 11 121 elements

You can place a DIMENSION statement anywhere in a multiple statement line and it can appear anywhere in the program. But an array can be dimensioned once in a program unless is cleared. [PAUSE]

Next month we'll continue with DIMENSION statements and provide a short demo program which prints out a 6 x 11 array.

We have yet to hear anything from you, our readers, if you think this review of EXTENDED BENTON HARBOR BASIC should go on, or that we should drop it and do something different. We shall be most grateful if you will send us a postcard giving us your opinion of this series and suggestions of alternate subjects which may have more entertainment value as opposed to providing expanded knowledge of our 8-bit systems.



# SEBHC JOURNAL

Volume VII, Number 1, Page 9

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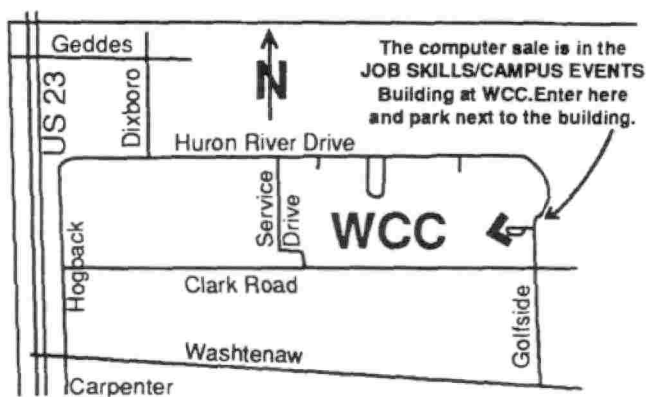
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