

Saving Our HEATH Eight-Bit Machines!

SETHO JOURNAL

Volume 1, Number 9

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April, 1987



SEBHC JOURNAL

Volume 1, Number 2 Page 2

LETTERS, BOUQUETS, BRICKBATS, etc.

Dear Sir:

Last week I received Vol. 1, No. 3, of your journal and I've read it from cover to cover.

I want to thank you for the full-page advertisement of our Parallel Multiport I/O board for the H89. If anything has success in selling this board I expect it would be your paper.

Now for a few comments--

First - You seem to yearn for a return to the days of "the good old 8-bit computers". I have three of these, one H8, two H89s and they serve me very well. In fact, the two H89s are in daily use in our business. And our HUGNJ (Heath Users Group of New Jersey) has about a hundred members--over half of whom have 8-bit machines. I believe that Heath (and later Zenith) made about 50,000 or so of these machines. By normal standards this is a substantial base of users.

Next - What is happening to the H/Z 8-bit user base? Since there are no more of these machines being made, the base cannot be expanding. Some of them are invariably being scrapped. Others are variously being converted to run 16-bit software. In short, you seem to be addressing a "terminal market".

Last - What is happening in the small computer field? At CHUG-CON in Washington, DC, I learned Zenith is currently delivering 10,000 A MONTH [16-bit machines] on government contracts alone--and in 1987 this will increase to 16,000/month! This obviously dwarfs the 8-bit H/Z market--and the "step-up" is a big attraction to all [sic] 8-bit users also.

In short, I appreciate your sincerity, drive, enthusiasm, etc., and I'm sorry to have to prophesy a short life for your venture. All your articles are interesting--and they are better written than those in many other [8-bit] journals. I wish it could be otherwise--and that I could interest many more people in our Parallel I/O board (which our users say is terrific, and which I designed for my own machine work)--but I feel this is not to be. Best wishes anyway, and I shall appreciate receiving future issue of the JOURNAL.

Matt Baum

TECHNICAL ADVISORS, Inc.
Westwood, NJ 07675

[Note: The above letter was received last year and was unfortunately mislaid until now... Despite your pessimism Matt, we are going "great guns"! We're now receiving an average of two new subscription applications daily (5-day week), and our subscribers obviously do not feel the end is yet in sight for H/Z 8-bit computers. In fact, one of our contributing authors -- George Ewing, "Graphics Easy as PIE"--had a lot to say about how vitally active the H/Z user base is--"actually expanding slowly, and the loyal H8 and H89 users may very well be one of the groups to successfully buck the general trend (toward involuntary obsolescence)". I suggest you look up the April 1987 issue of COMPUTER SHOPPER and George's "The Next Greybox Generation" article starting on page 151. It's a fairly thorough--albeit rambling--review of what us 8-bit'ers are doing.]

Dear Mr. Geisler:

It was nice talking with you on the phone. It was fortunate that Mr. Fale remembered to print your number in H-SCOOP, else I would not have been able to so quickly subscribe to the SEBHC JOURNAL! [My phone's ringing off the hook, Henry! - ed]

In accord with your request for general data about my 8-bit equipment and what I use it for, I must first give you some personal background:

I am a retired USAF Officer, Electronics Engineer and Research Test Pilot. Upon leaving service I became very interested in computers, and returned to college with the intent of obtaining my Masters degree in Computer Science. Unfortunately--while I was in my third semester--my wife became seriously ill, needing my constant attention. I perforce abandoned my schooling and assumed full-time care of her at our home.

While attending school (a 250-mile round-trip!) I had purchased a Televideo 920 terminal and Novation Auto-Cat Modem for communicating with the school's mainframe after 11pm and over weekends. This enabled me to complete two of my courses, which included FORTRAN, COBOL, PASCAL, Assembly, and BASIC.

Continuing my education and satisfying my curiosity about computers I got the Heath ET-3400 kit with its' 4k RAM option, hooked the Televideo terminal to it, got a Radio Shack (ugh!) computer cassette recorder and used this combination in completing several Heath Learning Courses. I learned a great deal about computers, plus learning more assembly language and picked up Tiny BASIC. I still have the ET-3400 setup but it's now seldom used.

Because we live so far away from everything I've had to dig out everything for myself from computer publications such as REMark, Sextant and others. [And now the SEBHC JOURNAL -- ed] Now there is a new local group comprised of people using all makes and types of machines. I'm the only Heath member--but the club interests me, filling my need to talk with other computerists. Also, it's a place to pick up fresh ideas. I've gotten a few interesting programs there which I'm converting to Heath format. In some cases this isn't too bad (some members run CP/M) but I do have problems when converting their graphics to H19/H89 format!

I also belong to the Sacramento, California HUG and have been building a library of their programs--but restrictions on my activities resulting from my wife's illness permitted me to attend only three meetings in the last 10 months. I expect to eventually convert some HUG programs to run on our local user's (and some of my own high-number H/Z) machines.

Sincerely,

Charles P. Thomas

Carson City, NV 89701

[Hang in there, Charlie! Hope your SEBHC membership brings "many good vibes"! I also have an ET-3400, plus a \$29 K-Mart GE cassette recorder. "ET" is dedicate to run my Heath Voice-Synthesis Course chip set. Most sincere best wishes from us to you both for a continuing full and happy home life.]

MORE Letters, Bouquets, Brickbats &c

Dear Mr. Geisler:

I received my first subscription issue (1:8) of the SEBHC JOURNAL in last week's mail. It's great. Thanks! After reading through it, I decided to write you.

Over some years now, I've used a wide range of software on my H89--often in ways I've yet to see published. I would be prepared to write up some of these, but past experience with HUG was, to put it mildly, disheartening. Regardless of what REMark prints in its' January issues, non-staff contributors receive only the privilege of shelling out postage to send in their work. Incredibly, contributors are not even awarded free HUG membership. And that is about as logical as a golfer celebrating victory by destroying his clubs!

I know nothing of your editorial policy concerning articles which are neither games or utilities. But, providing you do not share HUG's inclination to preserve their contributors' "amateur status", I could prepare manuscripts fairly quickly in these areas: 1) Grafting FORTRAN library routines onto regular, interpreted BASIC programs to yield true double-precision arithmetical capability; 2) a reasonably bug-free method of making Turbo PASCAL's editor work properly with Heath's wierd BIOS. If either or both of these items are of sufficient interest to be considered for publication in the JOURNAL to the mutual benefit of myself and the Society, please send me your requirements for submitting manuscripts.

Sincerely,
John Broome
Wilmington, NC 28403

[John, ANYTHING is grist for our 'mill'! To save time & postage, here are our criteria for articles, manuscripts, games, utilities, computer-oriented fiction and cartoons: Any item submitted to us for use in the JOURNAL, and which is accepted and printed, automatically earns its' submitter 1) a no-charge one-year extension to membership and JOURNAL subscription--for each submission, 2) if any kind of software which the JOURNAL subsequently sells, 50% of the NET profit therefrom. So what are you waiting for?! One more thing--we don't sit on your stuff the way certain other publishers do; we break our necks getting it into the next edition if at all possible.]

Dear Len,

First things first. I want to thank you for the excellent job you're doing with the JOURNAL. I am a Charter Member and intend to subscribe always. I've not yet submitted an article, but I intend to change all that. I'm not much of an article writer, but when I saw your request for software in the March edition (1:8) I immediately decided to send you an item I had once offered to HUG (REMark). They felt it wasn't marketable, but I feel it is a truly unique program and worth sharing with my fellow SEBHC members.

Enclosed is a disc of my CASM HDOS program and instructions for you to check out. Although the instructions say it's for HDOS 2.0, I'm running it with HDOS 3.0 without problems.

CASM acts as a front-end processor for HDOS's ASMBler. It accepts an abbreviated command line, converts it to ASM format and then links to ASM.ABS. CASM uses SETUP files which the programmer writes. When a certain Assembly task is required, the programmer enters the appropriate command line and CASM takes over from there. This utility saves time and virtually eliminate programmer's errors when used together with ASM.ABS.

Robert Gregory
Glen Ellyn, IL 60137

[Thanks for your confidence in us, Bob! I've checked over the instruction set you'd enclosed with the disc and it looks very professional and competently written. I have not yet had an opportunity to try out CASM as we are presently nearly swamped with new subscriptions, but I hope to have a review ready for the May edition (if not May, surely June!). Please let us know how much you think your utility should sell for, and whether you'd like it included in our "HDOS Programmer's CARE Package" disc series. Presently, just the first disc (#0) in this series is on sale at \$3.66 in hard-sector, \$3.00 in soft-sector. But don't let that affect your judgement!]

Dear Len,

I'm a dyed-in-the-wool H89 eight-bitter and saw your newsletter mentioned both in H-SCOOP and later in REMark. I want to stay in touch with the eight-bit world through the SEBHC JOURNAL!

I have yet to find anything "obsolete" about the H89 computers. It really amazes me what great strides computer technology has made in the past ten years, but I personally don't need a "16-megaflops" system. I'm one of those folk who built their H89 back when we still needed a little skill with a soldering iron (and egg cartons for all those tiny parts) in order to assemble it. It was solidly engineered to withstand amateur kit builders rather than for mass production in Taiwan. It didn't come with lots of bells and whistles, but Heath obviously knew a thing or two about "open architecture" and expandability when they designed it. Sure, the newer computers are flashy and exciting, but the H89 I built from a kit is MY computer. No impersonal giant corporation can force me to believe otherwise...

Presently I'm in the Navy, stationed in Europe and out of direct contact with bulletin boards and HUG meetings. I must depend on the mails and publications such as yours and H-SCOOP to keep up with the "old" Heath world. I feel that the H89 is a solid, reliable computer which faded from the scene far sooner than it should have. The only thing I have against the new technology is that in general we Americans don't maintain the "old" things which still run well and perform usefully. I don't really blame Heath or Zenith for this, it's just the way we [Americans] do business...

Sincerely,
Robert E. Nisbet -- US NAVSECGRU Activity
Box 37 FPO NY 09521

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STILL MORE Letters, Bouquets & Stuff

[Continued from page 3]

[Welcome aboard, sir! We know you'll be satisfied with your subscription to the JOURNAL, and we'll do everything in our power to keep you well-informed of 8-bit news and happenings.]

Dear Mr. Geisler,

My cheque for one year's subscription to the SEBHC JOURNAL is enclosed--I found out about your newsletter in Hank Lotz's "Staunch 8/89er".

My system isn't very elaborate; an H89A with hard & soft-sector controllers, one H17 and a Z37 high-capacity system, an MPI printer, HDOS and CP/M, and recently-added HDOS 3.0. I mainly use my system to keep parts inventories and service records of my "bread-and-butter" two-way radio systems installation and service business.

My hobby is restoring old "antique" radios and I also use my computer to keep records of those people and firms who can supply parts and schematics, also the antique radio clubs.

Of all the many newsletters out there, very few have much to offer us eight-bit machine users any more. When a new one comes along, it's like a fresh breath of spring air.

Very truly yours,

Allie Lingo

Dierks, AR 71833-0118

[Thanks, Allie--we'll keep on a'striving to maintain your supply of (8-bit computer) oxygen. Welcome to the Society--also our thanks to Hank Lotz for kindly mentioning our JOURNAL.]

Dear Len,

As a charter member (#72) I'm congratulating you on the fine job you're doing with our JOURNAL. And here's my hint for other SEBHC members:

There have been article after article in all the computer magazines on software write-protection and computer security. Because I am running an H8, I have what essentially amounts to a bank vault. If you don't know the H8's front-panel keypad "combination", you'll never get it to run for you. And using hard-sector discs, I have even more security. So, for all you folks with H8s, HANG IN THERE! There still are people who believe in us.

I'm enclosing my cheque for \$12.50 to renew my subscription even though it expires in November. I was going to use one of the subscription blanks until I noticed they're all different. Maybe someday they'll be "collectables". But I really enjoy the JOURNAL and your fine sense of humor.

L.T. Ridlon

Auburn, ME 04120

[L.T., if you look on page one of editions six through 8, you'll see that our one-year subscription rate is \$15. All subscription blanks since 1-Jan-87 also have this price printed on them somewhere. I admit that for a while we were formatting the blanks differently, but now we have standard-

ised on the one you will find on the last sheet of this issue. This is the same one we send out to potential new subscribers.

Comparing H8s with combination locks--now that's unusually smart! Henceforth, I'll keep all my business records, and our SEBHC membership addresses and data on hard-sectored discs, readable only on my H-8 or Super-89!

Along the same line, did you see the letter in BUSS #137 written by another 8-bit'er? Annoyed by an Officious Body insistently demanding that he "voluntarily" submit personal and private information about himself, he replied, "The information requested is on copyrighted disc number (xx), and is available for \$500 a copy". He's not since heard a peep out of that Officious Body. I don't think he is running an H8 but hard sector discs certainly have unimaginably-useful potential lurking behind those innocent-looking 11 holes. And look how worthwhile copyright protection is!

Thank you very much for the kind remark about our sense of humour--it's nice to be appreciated occasionally.]

[A reader recently phoned us to find out how/if he could send characters from the SuperSet Greek font out to his dot-matrix printer. I regret to say there simply *IS NOT* an easy way! SuperSet characters appear only on your H19 or H89 screen. ==>They are invisible to the main CPU.<== To print these, or other special characters, you *MUST* have a graphics text formatter, such as Skycastle Computer Products' Calligraphy-II utility with its' own font editor and graphics printer driver (yes, you CAN have drivers under CP/M!). And HDOS users can use Lindley Systems' MXV44.DVD and GR.DVD, to get quite similar results. I've sent him one of Skycastle's illustrated brochures and a sample Greek character font printout to show how it is done. Good luck!

****CALLIGRAPHY-II is a Very BIG Package of Fabulous Software At A Ridiculously Low Price! Call Skycastle Computer Products for details--415-254-3931, 7 to 11pm Pacific time.****

An alternate way of printing special characters--for example with a printer having RAM font-storage capability, such as MPI, Epson, Okidata models, or equal--is to write & save a HEX character file to disc. Then download the HEX file to printer RAM and call up characters via seldom-used H89 keys assigned to each one. It's described briefly in the SuperSet manual--I've not yet tried this method with my new LQ-800--but TMSI creates illustrations this way with their MPI printer.]

A CHALLENGE!

We believe that there are many SEBHC members who're interested in how and why their fellow members got into computing with H/2 8-bit machines, their use, and whether they write specialised software for their machines. This's a not-so-subtle request for a few "first-person" articles for publication in future editions of the JOURNAL. Here are a few ideas for you to consider writing us about: [Continued on page 5]

And a Little MORE Stuff...

[Continued from Page 4]

How do you organise your discs? Do you use a particular label colour to indicate an operating system, or is the colour keyed to MBASIC or something else? How do you back up your valuable files? Do you store backups in an anti-magnetic impermeable fire-proof safe, or a tinder-dry old shoe box? Do you make and save backup copies of commercial software distribution discs? If not, why not?

For example, I store all CP/M boot discs in two different 50-disc case groups, one for Heather, a DG Super-89 (hard-sector only), the other group for Hachibanko the HB--my two most-faithful girl friends! Also I have a 100-disc case temporarily reserved for Soft-Sector (WH-37) boot and data discs, half HDOS, the other half CP/M. All my HDOS BOOT DISCS are numbered 000 through 009. INIT/SYSGEN discs all are "Volume 000" (SDUP17/37 can change the number to 000 while duplicating a disc). HDOS MBASIC boot disc is Volume 001, data discs are 10, 11, 12, etc. Benton-Harbor BASIC is group two, ASSEMBLY is three, TEXT PROCESSOR = four, and so on. Red-tagged labels indicate discs in group one, orange for 2, green = 3, violet (as in Purple Prose!) for 4, etc. My CP/M disc labels follow a similar colour code on discs for both machines, helping me keep track of all "like-minded" files...

How do YOU do it? Let us in on your system--your method could earn a free subscription--BUT Only If You Write Us About It! TODAY!!

-- DISC & MISCELLANEOUS NEWS --

We've been selling CP/M GAMES DISC #0 "like crazy"--also the HDOS "Programmer's CARE Package" disc, ever since BUSS kindly published news about us in issue #137. Consequentially, our subscription base has nearly doubled during April. Also, look for our ads in the May-June Sextant and BUSS Directory. We're hoping to get enough additional subscribers that we can go to bulk mailing, thus reducing postage by 50% (the Post Office is threatening to increase 1st class to \$0.25/the half ounce). So tell all your friends, neighbors, and relatives about the JOURNAL!

Several members have written us for a programme listing for both the HDOS "Programmer's CARE Package" and CP/M-80 GAMES DISC #0. Replying individually is a nice personal touch, but prevents other members from knowing what is presently available, so we're listing the discs here, together with a brief description of each utility.

-- HDOS 2.0 "Programmer's CARE Package" Disc #0 --

BCH .DVD -- Keys Mapper for Benton-Harbor BASIC
 BCH .DVD -- Keys Mapper for MBASIC 4.82
 BHB2MBAS.BAS -- BASIC Code Converter from REmark
 EXTRACT .BAS -- CodeWorks' File Reader
 FOGINDEX.BAS -- Helps you write CONCISELY -- CodeWorks
 LETTRES .BAS -- French-language C.A.I. -- M. Desmeules

WOEL .BAS -- J. McGraw's Xmas in French -- M.D.
 OUTLINE .BAS -- CodeWorks' Program-Outlining utility
 SD .ABS -- Nifty Pip-like Sorted Directory
 SDV55 .DOC -- How to use the SD Utility (text)
 SEARCH .BAS -- CodeWorks' Variables Finder/Listener
 SYSCHECK.ABS -- Graphics STATS Utility -- M. Desmeules
 SYSERR .ABS -- Non-graphics STATS version -- M.D.
 YNKEYS .BAS -- Input "garbage strainer" -- REmark

(Prices: Hard Sector = \$3.66, Soft = \$3.00. We dup FREE onto your hard or soft-sector disc IF you enclose \$1 for postage.)

-- CP/M-80 SEBHC JOURNAL GAMES DISC #0 --

ACES .BAS -- Ace-of-Aces Graphics Game -- L. Hart
 CLS .ASM -- Clear-screen utility listing -- l.e.g.
 CLS .COM -- Clear-screen utility -- l.e.g.
 COPY .COM -- Copies files easier than w/PIP -- P.S.
 ERRORS .COM -- Lists soft errors since last warm boot
 FRAMES .BAS -- Graphic frames enhance pgms -- REmark
 LABEL .ASM -- Disc labeller listing -- l.e.g.
 LABEL .COM -- Disc label from above -- l.e.g.
 NEWPIP .COM -- PIP patched per L. Hart's article
 PIPHELP .ASM -- ASM listing of PIP patch -- L. Hart
 RENAME .COM -- Easy way to REN files -- P.S.
 RENUMBER.BAS -- CodeWorks' MBASIC 5.2 Internal RENUM Utility (See JOURNAL, V1:#8)

(Prices: Hard Sector = \$7.96, Soft = \$6.96. Less \$1.00 in either format if we DUP over onto your own disc. Note: Hard-sector discs are now QUITE SCARCE; we were forced to raise our prices on them.)

If you think these games/utilities discs are not worth all the bother, read what member Terry Hall has to say:

"That HDOS disc you sent is superb! I didn't have ANY of those utilities. I don't know how I lived without SD.ABS before! Are there any more HDOS utilities like those floating around?

"I'm surprised there has been nothing appearing anywhere about HDOS 3.0. Is anyone using it? Have bugs appeared?"

Thanks Terry, for your enthusiastic note and kind remarks! Check with new member R.E. Nisbet (pg 3); he's getting HDOS 3 "just to play with" and may be able help bring you up to date. Can some other SEBHC member(s) help Terry also?

=====

COMING SOON--> HDOS "Programmer's CARE Package" Disc #1--more utilities--and HDOS GAME DISC #0 with Lee Hart's "Ace of Aces" in HDOS MBASIC, plus a new one-player game I originally wrote in BH Cassette BASIC, converted to MBASIC with BH2MB.BAS, then lavishly graphics-enhanced... Soft-sector CP/M GAMES DISC #0 is getting more useful files, such as the CodeWorks' MBASIC Wood Worker's Calculator & Cutting-guide-pattern Programme for those who prefer scrapless plywood cutting that I'm presently up-spiffing. Watch for announcement of these upgraded and new discs in our May and June editions...

A FEW WORDS FROM SCHUMACHER ASSOCIATES, INC.

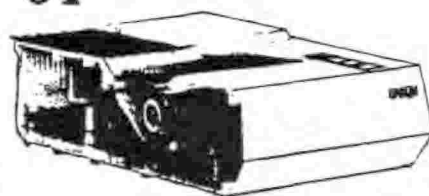
ABOUT ... TEXT FORMATTERS

A text formatter is a program used in conjunction with your editor. While the editor is used to create and modify files, the text formatter is used in printing these files in the desired format. Text formatters allow documents to be printed with such nice-to-have items as automatic page numbering, header/footer labels at the top/bottom of each page, automatic centering of text on the page, underlining using double printing, right justification by embedding extra blanks between words, and inserting of special characters if required for special printer functions. This special formatting is performed via insertion of special 2 character codes preceded by a period within the text. For example, the code `.ce` would cause the next line of text to be centered on the printed page. The text formatter uses these special codes to modify the text appropriately before it is sent to your printer.

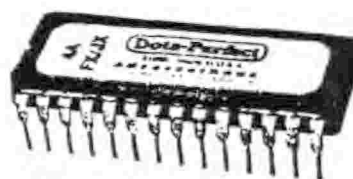
Note that the combination of your editor and a text formatter becomes a "budget word processor"; refer to the article by Hugh Kenner in the premier issue of Sextant magazine to see how a professional writer was (is still??) using an HDOS H89 with this combination!! "Hackers" can add the name of their program at the top and page number at the bottom of each page of their listings by simply adding two lines to the beginning of their program (using the `.pb` and `.he` commands) before it is printed.

Recognizing the power of a text formatter that could be used in conjunction with its HDOS editor, the Heath Company introduced Text Formatter as one of its first Softstuff products. Originally selling for \$55, the Softstuff HDOS Text Formatter is now available at the sellout price of \$15 plus \$2 shipping and handling fee through Schumacher Associates, Inc., 12619 Valleywood Drive, Woodbridge, VA 22192. (Schumacher Associates, Inc. specializes sells 8-bit software at up to 75% off original prices. Send a self-addressed, stamped envelope for our current software sales flyer; please mention SEBHC.)

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Additional Information about Dots-Perfect for Epson FX, JX, RX and MX printers

Dots-Perfect is an upgrade for Epson FX-80/100, JX-80, RX and MX-series printers. The package contains new ROM chips for your printer, complete installation and operating instructions, and an attractive reference menu for your printer. Simple, plug-in installation uses only two screwdrivers. No soldering is required. Once installed, Dots-Perfect will give your printer these new features:

NLQ Print Mode

Without Dots-Perfect your printer prints only in draft mode. Notice how the dots that make up each character are visible. Draft mode is great for high speed printing of data, but not for reports and correspondence.

NLQ (near letter quality) print uses four times the dot resolution of regular draft print to achieve greater character detail. In NLQ, the "dotty" look is gone; characters look like they were printed by a typewriter.

Print Sample

NLQ abdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ12345
Draft abdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ12345

Panel Button Print Control

With Dots-Perfect you can select print functions using your printer panel buttons (on-line, FF, LF). Functions include NLQ/draft, condensed, double-wide, emphasized, double-strike, perf-skip, italics, underline, 8 lines/inch, 1/2" left margin, fine print, and others. On the JX-80 you can even select color from the panel buttons.

Buffer Clear

With Dots-Perfect you can clear any printer buffer or spooler simply by pushing on-line and LF simultaneously. The printer will read in all pending print data, but not print it.

IBM/Apple printer emulation

On FX, JX, and MX printers with Dots-Perfect, you can set the printer to print the special IBM graphics printer character set. On FX and JX printers you can also set the printer to accept graphics and control codes in the Apple Imagewriter format.

This information sheet was printed in NLQ with Dots-Perfect.

H/Z89 and H8 High Performance Products

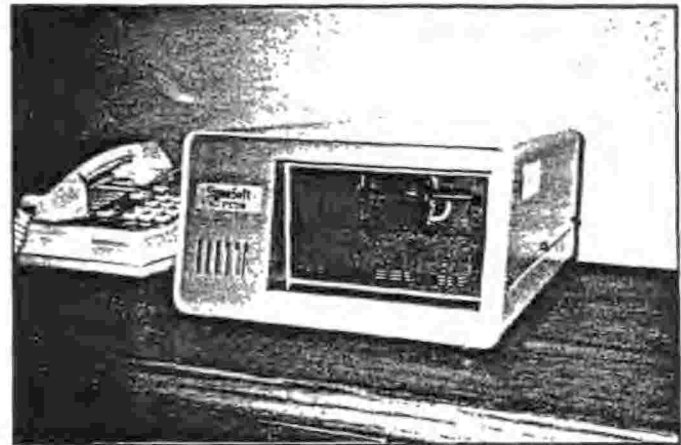
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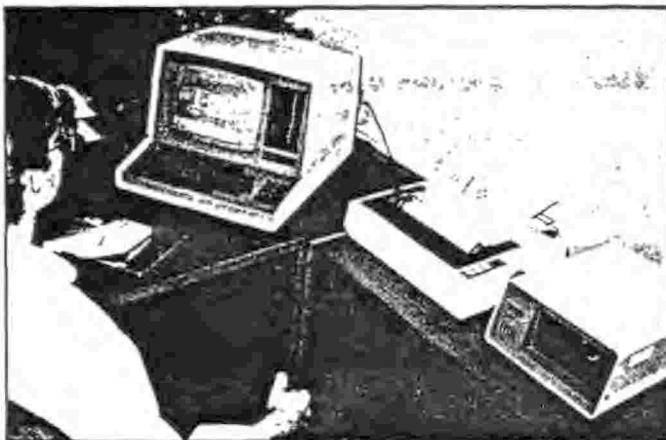


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20 MB with External Cabinet (65 ms)	\$995
30 MB with External Cabinet (40 ms)	\$1325
40 MB with External Cabinet (40 ms)	\$1435
67 MB with External Cabinet (40 ms)	\$2295
Optional 40 Track Floppy Drive (as Shown)	\$125
Optional 80 Track Floppy Drive	\$175
Users' Manual Only (Deductable)	\$10



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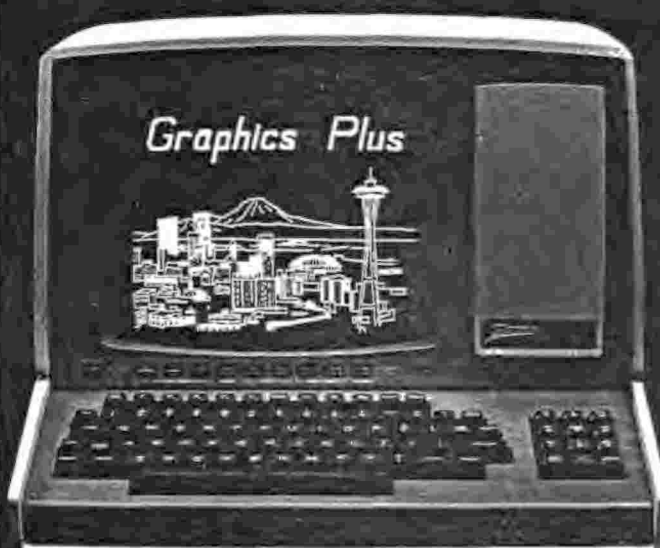
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A NEW PORTABLE H-89?!

You may remember Dr. Bunsen Honeydew and his faithless assistant Beaker, two of Jim Henson's famous Muppets. Dr. Honeydew is the resident genius of Muppet Labs, inventor of many wonderful (if a bit weird) gadgets. Poor Beaker is his hapless assistant, forever discovering that each new invention has a few "minor" bugs to work out.

Now Dr. Honeydew and Beaker have real-life counterparts residing at the Knoxville home of Walter Scott and Karen Morton. Dr. Honeydew is disguised as a Heathkit H8, and Beaker bears a startling resemblance to the Radio Shack Model 100 portable computer.

"Dr. Honeydew wakes me in the morning, turns on the bathroom heat about 10 minutes before I need to use it, and starts the coffee maker. He checks the mailbox, advises me when mail arrives, alerts me to visitors at our front gate, controls the air conditioning, and even reminds me of birthdays and anniversaries", explains Scott. Dr. Honeydew appeared in the Scott's home in 1981, and has been evolving ever since. Running continuously, he controls about sixteen tasks at once.

Beaker, on the other hand, is always on the move. Whenever Walter and Karen leave home, Beaker tags along. With Beaker's built-in modem, Walter can call Honeydew to have him manipulate the house lights to deter thieves, or set the thermostat so they'll have a nice, warm house on their return. Scott is an electrical engineer with the Tennessee Valley Authority. Currently he's working on designs of atmospheric fluidized-bed combustion chambers which permit efficient, clean burning of inexpensive, high-sulphur fuel in coal-fired power plants. "I use Beaker for writing memos, and for lots of the tedious number-crunching in my design work", explains Scott. "Data can be captured right on the spot with the 100, and later uploaded to a bigger system for serious processing. It's far more efficient than entering it directly into the TVA's big mainframes".

For technical writing, Walter says he uses the model 100 almost exclusively. He even uses it to take notes in business meetings. "Nobody has objected yet though I do get some raised eyebrows", he says. (But the technique seems to be contagious; several of Scott's colleagues now carry their own portables.) Karen does dBase-II programming, and writes science fiction on the side. Married about a year ago, they met at (where else) a computer club meeting.

Honeydew's machinations have revealed a few idiosyncracies. One night, a few years back, he turned off every light in the house. Another time, on one of the coldest winter days, he turned the air conditioning on full blast. "But Honeydew hasn't misbehaved in years", claims Scott. "The computers are like our kids. We're very pleased with them--and very dependent on them". (From "LAPTOP USERS" Mar/Apr Edition.)

Now here's a couple who've found something quite practical to use their micros for: home control, and portable computing--two applications most frequently mentioned by new computer enthusiasts. Yet almost no one has ever actually put them to work. Why not? Because the most-common microcomputers (Apples, IBMs, Commodores, etc.) are nearly worthless for such applications. But Heath's H8 and H89 kits (and to some extent later models) virtually beg to be adapted for home and other control applications. They are completely open systems. When originally introduced, tinkerers immediately started designing and building myriads of interfaces for these machines.

But how about portable computing? It's been pretty much ignored in the H/Z world, because Heath and Zenith have never made a decent portable. Zenith seems to think that making something "portable" means sticking a plastic handle onto a nineteen-inch console TV.

Now let's consider the Radio Shack model 100. I had to do some portable computing recently, and after looking over the field, wound up with one of these charming little beasts. At first I tended to look down my nose at it; early experiences with the original TRS80 were a horror I'd no desire to repeat. But the model 100 is small, light, inexpensive, and performs its tasks superbly. Even Radio Shack can accidentally do something right every so often.

Radio Shack actually has a whole series of compatible machines, namely, the TRS-80 models 100, 102, 200, and 600. I bought the cheapest one, last year's model 100 for \$399. It measures 12" wide by 8" high, and less than 2" thick. It has a full-sized keyboard, and a highly-readable 8 line by 40 character liquid-crystal display (LCD). At 3-1/2 pounds, it's less than half the weight of any Zenith portable, and runs for something like 20 hours on an inexpensive set of four AA cells.

If there's a place in the world for 8-bit computers, it has to be portables. Radio Shack puts its model 100 2.5 MHz 80C85 microcomputer, 64K memory, keyboard, display, RS-232 serial port, Centronic parallel port, real-time clock, and 300 baud modem into a package only slightly larger than a paperback book. A PC-clone portable takes twice the parts to do the same job. This automatically translates into greater size and weight, higher cost, and shorter battery life compared with the model 100. Zenith's crop of porta-clones demonstrate this with a vengeance.

A Discless Operating System

When you turn on the 100, you see a directory of the files "on disc" (CMOS ROM and RAM disc, that is). They include BASIC; the TELCOM modem program, a TEXT editor, an ADDRESS (GOTO next page please)

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PORTABLE H-89, Continued

book program, an appointment calendar - SCHEDL, plus any files you might have created. Time and date appear on the top line, and the number of free bytes on the bottom. Like CP/M or HDOS, you type the file's name to run a program. File names are limited to eight characters, with a 2-character extent. To use a program, instead of PROGRAM.BAS; you enter PROGRAM.BA. Or, just position the cursor to the desired program and hit the carriage return (which Radio Shack machines traditionally label ENTER). If you select a program, it runs. If you select a BASIC program, BASIC automatically loads, then loads and runs the called program. If you select a text file, the text editor automatically loads itself, then the file. Handy! It started me thinking about how I might add this useful feature to CP/M.

The 100 has no built-in disk drive or cassette storage. Instead, the default drive (A:, or SY0: if you will) is a RAM disk (RAM:). It retains data with power OFF (and even with the battery removed; it has a separate NiCad battery).

BASIC Bonus

BASIC is the familiar Microsoft BASIC, virtually identical to Heath's dialect, but with a few extensions peculiar to the Radio Shack model 100. There are graphics commands to draw points, lines, boxes, fill areas, etc. Sound commands let you make noises or play music with the built-in speaker (if you call sounds from a one-inch speaker music). The top-row function keys are programmable, so common commands like LOAD, RUN, or LIST can be a single key stroke. BASIC's kinky line EDIT command has been replaced with a full-screen editor; now entering EDIT calls the text editor and loads the current BASIC program for editing. Boy, is that one nice feature!

Time and date are normal string variables; with the ON command you can set up actions to be performed at specific times. For instance, ON TIME\$="08:00:00" BEEP builds an alarm clock that goes off every morning at 8:00 o'clock. What if the computer is turned off? No problem; POWER and RESUME commands in your stored program let the model 100 turn itself on and off!

TEXT Editor

TEXT is an adequate text editor, but by no means what I would call a word processor. It reminds me of Software Tool-work's PIE with the UNDO and RECORD key-sequence commands removed, and with Word-wrap and Character-insert modes turned on permanently.

TEXT assumes you will enter each paragraph as one long line, much as with the Magic Wand word processor. You hit a RETURN only at a paragraph's end, and a special symbol is displayed to mark it. As you insert or delete characters within such a "superline", the whole paragraph is automatically re-

formatted to fit current margins. When it is time to print or transfer the file, you can specify the desired margins (80 columns or whatever). This way the model 100 can cope with 80 column lines on a 40 column screen.

Block moves or deletes are done with a "cut-and-paste" technique, and need not be on line boundaries. You simply move to the 1st character of the block and hit f7 (=mark). As you move the cursor, the block is simultaneously highlighted in reverse video. Move to the last character, and hit f6 (=cut). The selected text disappears from the screen and the paragraph is reformatted to fill in the hole. The block is now in TEXT's "paste" buffer. Move to a new location, hit the "paste" function key and see buffer contents copied into their new location.

This is more useful than you might think. The "paste" buffer's contents remain undisturbed until the next time you do a cut. You can cut text out once, and paste it back in many different places. You can cut text from one file, and paste it into a completely different file. Cut text can even be pasted into BASIC.

The model 100 has 224 unique displayable characters. Unlike the H19/89, no ESC sequences are needed to access graphics. Instead there are two extra shift keys, labelled GRAPH and CODE. They work just like CONTROL and SHIFT to produce graphics codes when used with the alphabetic keys; for instance "graph-C" is the halftone fill (graphics "i" on an H19). The consequence is that TEXT handles graphics characters just like text; no special graphics program is needed to draw pictures.

Here's another nice touch. BASIC and TEXT automatically save the file you're working on when you exit. No more editing for hours and then forgetting to save it.

TELCOM

TELCOM is a modem program that lets the model 100 send and receive data from another computer via its RS-232 port or built-in modem. It has the usual features of a good modem program, such as the ability to autodial phone numbers, set communications protocol, and upload or download files from/to disk. You can also write little "scripts" to automatically handle log-on and passwords for bulletin boards (dial this number, wait for a tone, send this sequence, wait a second, wait for this character, etc.). It is particularly easy to set baud rate, parity, number of data/stop bits, etc.

Though it's a direct-connect modem, Radio Shack uses a non-standard DIN connector so you have to buy their special cable. They also have a cable with rubber "cups" to work as an acoustic coupler with pay phones, or in motel rooms.

One quirk of Radio Shack equipment is that there's no line feed added after a carriage return; the ENTER key generates just a carriage return. This doesn't matter if you use only Radio Shack equipment, but it's a real byte in the butt when you try to work with normal systems. If I simply upload a model 100 text file to my H89 and then print it, every new line prints right over the previous one. I wound up writing a little BASIC program to add/delete a line feed (CHR\$(10)--or Control-J) after every carriage return. By the way; ever wonder what the H19 sequence 'ESC x 8' (auto LF on CR) is for? Why, it's so you can TYPE Radio Shack files to the screen and still read them!

Despite Radio Shack's claims, the serial port does not meet RS-232 standards. It works fine with an H89, but I've had a lot of trouble with PC clones and other less-forgiving equipment. The RS-232 standard says the minimum output voltage is +/- 5 volts; the model 100 delivers less than +/- 2 volts. On receive, RS-232 expects an input impedance maximum of 7K-ohms; the model 100 is over 24K ohms.

Looking at the service manual proved enlightening. For some unfathomably inane reason, RS engineers stuck a 5.6K-ohm resistor in series with each output (R91, R94, and R99). I replaced them with 470 ohm resistors to solve the drive problem. Likewise, I replaced 8.2K resistors R87, R88, and R89 with 1.8K; and 18K resistors R92, R96, and R98 with 5.6K ohms. This lowers the input impedance so external devices can tell that something is actually plugged in.

ADDRESS and SCHEDL

These two seem to be "freebies" that were included just to round out the ROM to 32K. Basically, they just search a text file (previously created with TEXT) for a particular character string. For instance, you make up a file of people's names and addresses. Then ADDRESS lets you search for "Tom". You can just as well use TEXT's "find" function, though it takes a few more keystrokes.

Keyboard and Display

The main keyboard is a full-size typewriter layout with full-travel keys. There's not a hint of cheapness in the keyboard, and layout is remarkably normal. If you removed the H19's tilde, backslash, and curly-bracket keys and slide the return, backspace, and delete keys left, you'd have the model 100 keyboard. There are a caps-lock, and a number-lock key which allows you to use part of the main keyboard as a number pad. But the sixteen function keys in the top row are another story. These narrow little "chicklet" key caps remind me of a pocket calculator. Since model 100 programs make frequent use of the function keys, this can be a real nuisance, especially if you're in a hurry and haven't used the 100 recently.

The liquid-crystal display holds 8 lines of 40 characters. Like the Z-100, it's actually a graphics display of 240 by 64 pixels; some model 100 programs display more lines or characters by using their own special character set. The eighth, or bottom line works similar to the H19/89s 25th line. Many programs use it for function key labels, help messages and so on. The "label" function key toggles the 8th line between normal and status-line use.

The display is perhaps the model 100's greatest strength -- and weakness. It has excellent contrast, and is even visible in direct sunlight. The characters are about 1/4" high, distinct and quite legible. The weakness is in its' holding only 1/6 the number of characters as an 80x24 screen. Until you become accustomed to the size, it's rather like peering at your data through a keyhole.

Liquid-crystal display technology is still in its infancy; the more pixels, the worse their definition. So you're forced to compromise. The model 100 opted for fewer pixels and good legibility; most others go for more pixels at the expense of readability. The Zenith Z-181 has perhaps the best 80x24 liquid-crystal display on the market, but with half the model 100's contrast. So for now I'd rather "peek through the keyhole" than get eyestrain from a dim, washed-out display.

Accessories

The model 100 comes with 8K of RAM, with sockets for 32K. There is 32K of ROM, with an extra socket for 32K more. But don't expect any deals on accessories from Radio Shack. If you think Heath overcharges for accessories, you ain't seen nothin' yet! The Shack wants \$50 for each 8K memory chip, plus \$30 for installing them. Cables are \$15 to \$50 each. A disk drive is \$200, and blank disks are \$4.50 each. Believe it or not, they're hard-sectored, hold 100K apiece, and the drives are slower than molasses in Antarctica!

Luckily, there is a vigorous aftermarket for supplies. The magazine "Laptop User" is the Sextant of the model-100 world and an invaluable guide to accessories at competitive prices. Those \$50 memory chips go for \$7, and companies offer expansions to 256K. The \$395 "Chipmunk" soft-sector disk system has four times the storage and 10 times the performance of RS's system. Many companies offer software on ROMs, disks, and cassettes. It's refreshing to see so much activity for these 8-bit systems.

Manuals

Easily the worst aspect of the 100 are its manuals (but then I'm probably spoiled by Heath). The main manual is a spiral bound book that's as big as the computer; then there's [Please GOTO next page]

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Conclusion, PORTABLE H-89!

a pocket-sized quick reference guide that fits neatly in the computer's soft-vinyl carrying case. Both are carefully laid out and professionally typeset, printed on good paper, nicely bound, devoid of spelling errors, and contain about as much useful information as daytime TV.

The manuals give very few examples, and the ones they do include aren't well-enough explained to make sense. The chapter on Microsoft BASIC reads like a technical reference manual that was transcribed for a 5-year-old. Some commands are listed only in the main manual, but not the quick reference guide --and vice versa. Others are not listed at all; I found them only through trying Heath BASIC commands or reading published program listings in various computer magazines.

The best way to learn the model 100 is to treat it much like a pocket calculator; ignore the manuals and keep pushing buttons 'til you get the hang of it. The actual machine works so smoothly that if you already know BASIC and have used a text editor, everything falls into place. Actually, that's the way a computer OUGHT to work.

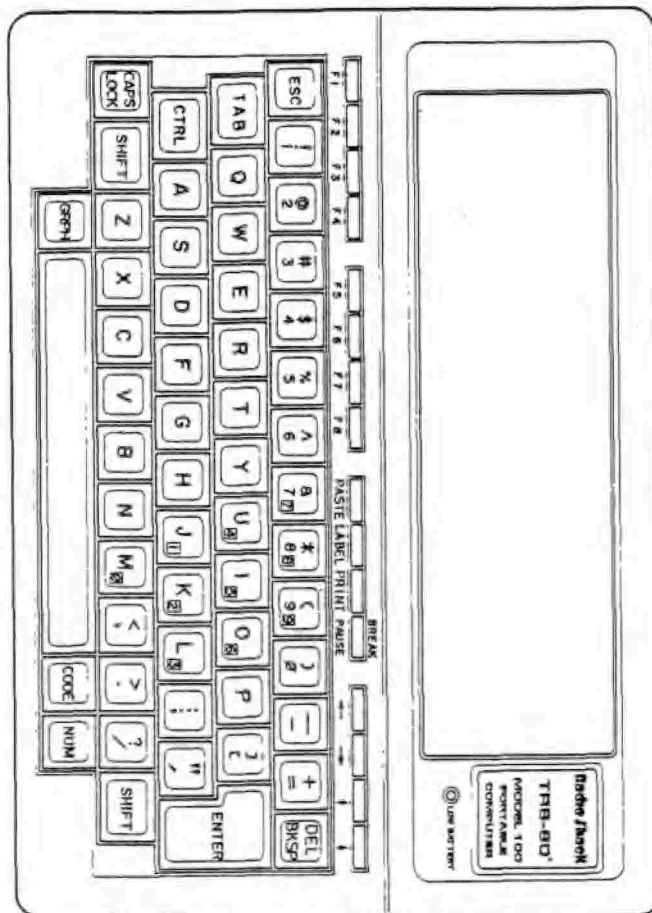
Conclusions

Despite its reputation for having computers that are smarter than most of their salesmen, Radio Shack has a winner here. It opened up a whole new aspect of computing that was previously unavailable to me. It speeds my work by allowing me to take it anywhere. It makes me more productive, and is even a bit of fun to use. And it's a great conversation starter on those long aeroplane trips.

It also gives me ideas for many improvements in the H89. I wonder: How we can patch our BASIC to automatically save files on exit, or leap instantly to and from a text editor? Could we make CP/M's CCP menu-driven similar to the model 100 (get a DIRectory, point, and go)? One thing I'm sure of: You're going to see many of TELCOM's and EDIT's cut-and-paste characteristics showing up in my next Write-Hand-Man update!

I'm also wondering about creating an H89 portable version. Surplus H89 CPU boards are common, and every chip on them can be replaced with CMOS copies. Now that dozens of manufacturers are using large liquid-crystal displays, their prices have fallen below \$100. JAMCO sells brand-new H19-style keyboards for \$30. We'd have to make a replacement for the terminal logic board with a keyboard encoder and parallel port to drive the LCD, and provide sockets for CMOS RAM, but it doesn't look too difficult. I'll bet it could be done profitably for under \$500. What do you think?

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