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On The Cover: Even with a hole in the disk, you can still recover your data . . . REALLY! See Pat Swayne's article on Page 65.



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BUGGIN' HUG

The Short, Unhappy Life of . . .

Dear HUG:

I am writing in response to Richard Tilden's article in the June 1988 issue of REMark (Volume 9, Issue 6), entitled "The Short, Unhappy Life of H/Z-100 dBASE III and dBLX, an Alternative."

I was particularly interested in this article since I was the author of this 'port' to the Z-100. There were apparently some misconceptions regarding the availability of an unprotected version of dBASE III for the Z-100 which is not copy protected to 'civilians'. To set the record straight, here are the facts:

The Ashton-Tate part number for the unprotected version of dBASE III is 6820-91001. If you have the protected version, you can obtain the unprotected version by calling Ashton-Tate Customer Service at (213) 329-9989. The upgrade fee is \$45.00

If you have dBASE II for the Z-100, you can upgrade to the unprotected dBASE III version for \$195.00.

Finally, if you don't already have a version of dBASE for the Z-100, you will have to order it from your dealer. Be sure you specify the part number above for the non-copy protected version.

I have no idea why this product was dropped from the Heath catalog. Perhaps, they too did not know of the unprotected version.

Mr. Tilden is probably right about the documentation. You should request the 'Wang and Other Ports' document.

I hope this clears up the confusion.

Keep those Z-100 articles coming.

Robert F. Doolittle
RD Software
1290 Monument Street
Pacific Palisades, CA 90272

DSBACKUP+

Dear HUG:

As a result of William Adney's review in the January 1988 issue of REMark, I got the ANSI version of Design Software's DSBACKUP+. My machine is a Z-100 with a hard disk, one regular floppy, and two external high-density AT type drives each having 1.25MBytes. The latter are configured as drives C and D, and the disk controller handles them without any difficulty, thinking that they are 8 inch drives. My hard disk has three partitions which are configured as drives E, F, and G. I used DSBACKUP+ to make backups from the hard disk to high density C or D drives, and the program ran beautifully, being much faster and more efficient than the MS-DOS BACKUP. However, then came the fateful day on which I needed to restore the partition on the E drive. The backup disk was in drive D. DSBACKUP+ was loaded and when the order to Restore was given had no difficulty in reading the directory in the backup disk, however, when the time came to actually restore the files, the program responded with an error message: "[6] Drive not ready error. Retry, Ignore, Abort." Retry had no effect, and Ignore led to the message: "[17] Could not open destination file. Aborting procedure." A call to Design Software elicited the information that although the program would backup from any one drive to any other drive, it would only restore to drive C, which is the normal hard disk drive in the IBM world. It was suggested that I remap the C drive into the E drive using the MS-DOS ASSIGN utility. Thus, to restore the E drive from the D drive, place the backup disk in D and issue the command:

```
ASSIGN C=E
```

then call DSBACKUP+, make the source drive C, the destination drive D (I know this sounds wrong, but that's the way the program wants it) and issue Restore.

The following belongs in the "never use undocumented tricks" department. When I first got my Z-100 back in the days of Z-DOS (MS-DOS 1), I wrote a program in assembly language that recorded the value of all registers at any designated place in DOS or BIOS. In the past, it had always worked very well, however, when I tried to use it recently, the program gave strange results. A little time with DEBUG

showed that the culprit was a modified form of the AAD statement, one that had to be introduced into the code by a DB statement (actually: DB 0DSH,10 which is interpreted as AAD 10) because it would not be processed by the assembler. This instruction was very useful in code that changed ASCII numerical input in binary. I had learned the technique from the source code for the Heath/Zenith BIOS that came with ZDOS. The comments in the code indicated that the programmers were very pleased with themselves for having discovered this undocumented feature which saved several lines of code. They used the technique all through the BIOS. Apparently, when NEC designed the V20, which many of us now use, they did not incorporate this undocumented feature, and consequently, I suspect that the old Z-DOS will not run properly in a machine that uses the V20. The new BIOS does not use AAD 10, although it does use its inverse, the equally undocumented AAM 10, which does work on the V20.

Sincerely yours,

Peter Cziffra
53 Wilton Street
Princeton, NJ 08540

WordPerfect V5 Not for the Z-100

Dear HUG:

Bad news for Z-100 users that had hoped to use WordPerfect version 5. Although the WordPerfect Corporation had announced that they would no longer be updating the Z-100 versions of WordPerfect beyond version 4.2, many of us had hoped, I'm sure, that version 5 would work with the various IBM-emulators available for the Z-100. Unfortunately, at least in my case, it won't.

I have a Z-100 low profile model with 768K of RAM, two 360K floppy disk drives, and a Gemini-PC emulator board installed. I am using Zenith's MS-DOS version 3.20 on my Z-100 in the IBM mode. I have the Z-100 version of WordPerfect V4.2 and have tried the IBM version of 4.2 on my computer using the Gemini board. Everything worked fine with both versions, but I have trouble getting used to the unusual key placement for some of the commands in the Z-100 version.

I also have a Zenith Z-148 and when my upgrade offer arrived, I looked forward to

being able to run the same version of WordPerfect on both of my computers. (That way, at least, the commands would use the same function keys even if they are in different locations on the two computers.) Version 5 seems to be working just fine on my Z-148 where I have it installed on my 30MB hard drive. Major problems exist running version 5 on the Z-100.

WordPerfect V5.0 will lockup my Z-100 if I attempt to enter any characters on the keyboard while the disk drive is being accessed during automatic backup. The only way out is to reboot the computer. I thought I could eliminate the problem by turning off the automatic backup feature. No such luck! My Z-100 locked up again at one point just after starting to type the second page of a document. Since I had the backup feature turned off, I lost the entire document when I had to reboot the computer. Version 5 seems to be resetting the computer's internal clock. When rebooting the computer, the time always indicates "00:56:XX.XX" (the "X's" are various digits). I have the automatic backup feature set to perform a backup every 10 minutes, but it seems to do it on a random basis ranging from every 2 to 10 minutes.

Problems also exist when trying to run the WordPerfect Tutor on the Z-100. It worked fine the first time I tried it. I was able to finish the introduction and lesson 1 and was in the middle of lesson 2 when the computer locked up. I rebooted the computer and got back to the tutor's main menu, but was unable to enter any of the lessons. Each time I tried I got a message indicating I had a bad disk controller. Rebooting the computer cleared the error, but I could not use the tutor program again.

I have written to WordPerfect Corporation about this problem and maybe they will be able to fix it. In the meantime, I'm confined to using WordPerfect V5 on my Z-148.

I'll let you know more about this problem if I find out anything, but thought your readers would like this information before they rush out to get version 5 for their Z-100's.

Sincerely,

Gary R. Evens
PSC Box 8533
APO NY 09012

Correction

Dear HUG:

In my recent article "A Potpourri of Stuff for the H/Z-100 Computer" (REMark Volume 9, Issue 6, June 1988), a few errors crept in. The listing of the file CP.BAT should have the following corrections:

```
Line 2
IF "%1"==" " GOTO BAD
Line 12
E:\BIN\BACKUP %1*. * H:COPIER /V/N/G
Line 22
E:\BIN\RESTORE H:COPIER %1*. * /O/V
```

Thank you,

Wojtek Bok
6390 Mary Jane Crescent
Gloucester, Ontario
CANADA K1C 3C2

Accounting System Users

Dear HUG:

Tony Liotta and I are extremely pleased with the acceptance of our little accounting system and send a special thanks to those of you who purchase the package. I am currently considering the possibility of adding special sub-routines of Payroll, Accounts Receivable, Accounts Payable, and Inventory, and would enjoy any and all of your suggestions for these modifications.

Carl D. Rife
806 Evergreen Drive
Papillion, NE 68046

SUPERSET, SUPERFONT, SUPERCLOCK

Dear HUG:

I've just received Lee Hart's SUPERSET, SUPERFONT, and SUPERCLOCK (H/Z-19/89 alternate & extended character-sets), and I must say that I am very impressed.

I have created a few alternate character sets for Lee to include in SUPERSET/SUPERFONT: Esperanto, Spanish, and Russian, as well as an additional English font. In addition, I am trying to complete a set of Arabic, and a subset of the International Phonetic Alphabet (broad transcriptions of Esperanto, Spanish, Russian,

and Arabic). In a couple of months, you should be able to get these from Lee. Don't know what he will charge.

Perhaps you can help me. I'd like to survey your choices of software; that is, how do you utilize your extra and extended SUPER' capabilities? Which HDOS and CP/M (I use HDOS) text editors and processors do you use? What about device drivers and printers . . . and, have any of you created new downloadable printer fonts? (on disk — SS or DS/HS/40T/SD).

I'll publish the results of this survey in a few months — and, please do not expect me to answer your letters too quickly (we're moving) — as of 18/88, my new address will be PHS Alaskan Native Hospital, Barrow, Alaska 99723.

Cordially,

Mark Hunt
PHS Alaskan Native Hospital
Barrow, AL 99723

Modifications For SETPRN.ASM

Dear HUG:

Reference Mr. William S. Hall's article "Switching Z-100 Hardware Printer Ports", REMark August 1985, page 64.

I had been using Mr. Hall's SETPRN routine to reconfigure ports from batch files, but then came along MS-DOS 3.1 and it never worked again. MS-DOS 3.1 doesn't support SWITCHAR. I wrote Mr. Hall, but to date, I have not received an answer.

Here is my "fix". I don't know that it's 100% Kosher, but anyway, it seems to work. With the original set-up according to the article, a command entry for the routine was:

```
SETPRN/x fname.ext
```

Where /x was to be /L for load a configuration or /M for make (save) a configuration.

With this setup in MS-DOS 3.1, the "/x" parameter appears to end up in FCB1 at 05Ch (DEFFCB1) and the file name ends up in FCB2 at 06Ch. I tried to use the FCB's, but FCB2 gets clobbered when any other disk operation is attempted, thus by the time you try to close the configuration

file, the FCB data is gone. I decided to make the program run a little more on the conventional side by making the command line entry format as follows:

```
SETPRN fname.ext/x
```

With this setup, the file name gets into FCB1 and the switch parameter is safe (for the moment) in the DTA at 080h. My modification to SETPRN.ASM is shown on the attached page. It scans the DTA for a switch character, then samples the next character after the switch for "L" or "M" to decide whether to Make a file or Load a file; otherwise, it just shows the configuration.

There may have been a change for this program published in REMark, but I have not seen it. I have also modified the program for SETAUX to do the same functions for the AUX port, if anyone is interested.

Sincerely,

Bobby E. Pennington
1087 Southgate Drive
Charleston, SC 29407

ark. My compiler objects strongly to unstructured code.

Yours sincerely,

Thomas Hayton
RD #1, Box 1885
Arlington, VT 05250

MS-DOS Users Who Have Been Unable To Use the Printer Program With PC-Write

Dear HUG:

Hopefully, this letter will be of value to MS-DOS users of PC-Write who have been unable to use its printer program, PR.COM. I corresponded with Quicksoft a year ago on this, but was not provided a solution. Then, just the other day it came to me why the problem might exist, and sure enough — I have the solution.

My computer is a Zenith 161, using MS-DOS 2.10. Apparently, PC-Write's PR.EXE is linked in somehow with the resident PRINT.COM. Unlike IBM's version, on the

Sincerely,

Clement Pepper
12938 Orangeburg Avenue
San Diego, CA 92129

Jim, Here's a Simpler Way

Dear HUG:

Your February '88 issue included a letter from Jim Meyer on accessing WordStar on a hard disk by creative use of batch files.

He's on the right track, but there's a faster, simpler way.

I use WordStar for everything from letters to writing code. I want to be able to call it from any directory and have the resulting text file wind up in that directory.

I keep WordStar and its overlays in a directory called WS <DIR>.

My AUTOEXEC.BAT file contains the following instructions:

```
PATH C:\DOS;C:\WS  
SUBST D: C:\WS
```

And I have reinstalled WordStar (run WINSTALL, select the menu of WordStar features, then use the R command) and changed the default drive to 4, which represents drive D.

That's all there is to it! WordStar comes up without delay from any directory and finds its overlays on the substitute drive.

Dave McCrady
Edmonton RCP/M
13324-138 Street
Edmonton, AB
CANADA T5L 2B4
24 Hr. BBS: (403) 454-6093
(300,1200,2400 baud)

Finally Agreed On One Thing

Dear HUG:

After a boisterous, if not very intelligent, discussion about the RAM upgrade (?) PALs and PROMs offered for sale in the box ads in REMark several of us HUGGIES finally agreed on one thing. None of us really knew precisely what added capability these chips offered. On that account, I was volunteered to solicit a measure of in-

Continued on Page 72

Between the labels start: and next2: the program should read as follows:
(The label next: and some associated code has been deleted.)
; remarks added to new code for explanation

```
start:  push  ds  
        mov  ax,0  
        push ax  
        mov  ax,extra  
        mov  es,ax  
        mov  bx,offset DEFDTA  
sloop:  mov  al,bx          ; loop to scan 20 DTA characters  
        cmp  al,'/'       ; check for switch  
        jz   next1        ; found it  
        inc  bx           ; increment pointer  
        cmp  bx,DEFDTA+20 ; scan this much  
        jnz  sloop        ; not done yet  
        jmp  show         ; switch not found  
next1:  mov  al,[bx+1]     ; check the next char  
        call mcu          ; make it upper case  
        cmp  al,'L'       ; is it Load ?  
        jnz  next2        ; no, try M for Make  
        jmp  change       ; it IS a Load  
next2:  cmp  al,'M'       ; is it Make ?  
        ...
```

Needs Structured Code

Dear HUG:

I would appreciate hearing from any HUGGIE who has produced a structured version (no spaghetti code) of the Super-Cheapcalc program given by Luis E. Suarez in the December 1986 issue of REM-

initial call to PRINT the following sequence takes place:

```
PRINT<cr>  
Name of list device [PRN]:<cr>  
Resident part of PRINT installed
```

By calling PRINT prior to calling PR normal printing will take place.

I have provided this information to Quicksoft.

ON THE SUBJECT OF . . .



**BERT U. ERIKSSON,
TECHNICAL MANAGER
COMPUTOUCH, INC.
2430 ALAMO S.E.
ALBUQUERQUE, NM 87106**

3.5" DISKS AND DRIVES

A customer in Las Cruces, NM had purchased direct from Zenith Data Systems a ZW-286-23, or as Zenith now elects to call it ZDF-2225-BK, Serial Number 739CD 0045. As far as the proud owner of the computer was concerned, it did not have a 1.44MB drive as advertised, and he could not transfer any of his software that he had accumulated on his office computer, an IBM PS/2 using a 1.44MB format.

This was a few weeks before Christmas, and as most everything, including Zenith Technical Support seems to break down around that time, I found myself on my own in helping this guy solve his problem of incompatibility. Besides, very little has been published on the various 3.5" drives, so help may not have been forthcoming anyway. At Heath Technical Support, the man on the phone was honest enough to say "I have not even seen any of these yet — Sorry."

Zenith Data Systems, in its wisdom, has chosen to use "Notch or Media Sensitive" Drives. As Al Giazzon of ZDS, on September 2, 1987 wrote in a letter to All ZDS

Sales and Support Personnel, quote: "Most 3.5" 1.4MB floppy drives available in the market today are "Notch or Media Sensitive". A little further on in the same memo he states, quote: "Drives on the IBM PS/2 are NOT "Media Sensitive"."

To me it sounds like IBM has cornered the market on Not Notch Sensitive Drives, and left the rest of the marketplace for the compatibles. But that is not so, Mitsubishi MF355AF seems to be available from several distributors, and that drive could not care if a disk has a notch or not. It also happens to be the exact drive I found in an IBM System 60 the other day.

Technically, the Zenith Data Systems route seems to be superior and ZDS has no known plans to abandon the "Notch or Media Sensitive" Drives. According to some folks at ZDS, quote: "That other company will sure have problems with their drives and media" and "Being IBM compatible in this respect is not desirable". Some persons in the industry feel that the media will be damaged as the write current is different in the two cases.

Yet others say that the integrity of the data is in jeopardy. In the Mitsubishi Technical Manual for their MF353AF and MF355AF drives, it just states to use the "Industry Standard Disks." A quick phone call to Mitsubishi Technical Support gave me the answer, quote: "If it works, it works, we see no problems with using normal density media for 1.44MB format."

Back to the customer and his problem. The drive installed was a Sony 1.44MB MP-F73W-01D drive, and the ROM or the Zenith version of MS-DOS for the PC Series computers apparently must see a "Notch or Media Sensitive Device". I tried first to install a standard 1.44MB Not Notch Sensitive Drive, and that did not work at all. The computer did not like that drive at all. I mean, Not At All. Technical Support at ZDS blamed it on the ROM. As shipped, the computer had ROM Version 2.0F, and after installing ROM Version 2.1A, it did not function any better. Now Technical Support blamed it on the Operating System. The computer was shipped with MS-DOS 3.21 (OS-64-61)

enhancement level -01. A quick change to MS-DOS 3.21 (OS-64-63) enhancement level -02 did not help any more than the ROM upgrade did. At least one should be able to use the FORMAT switches like n:9 or n:18 to set the number of sectors, but not so. The computer could FORMAT a disk as 1.44MB, but could not go back and boot up from the same disk, or do anything else with the disk for that matter.

Booting up with PC-DOS version 3.3 brought better results. At least I could format a floppy at 1.44MB, put the system on it and boot regularly from that floppy. I still had trouble telling the system that the drive was a 720KB drive and get it to function properly.

The computer was able to handle a Mitsubishi MF353AF (this is the 720KB cousin of the 1.44MB MF355AF), but naturally only at 720KB, which was of no help at all. So back in with the Sony. But not after some hardware modification to it.

Open up the drive and find the "Notch sensing device", a little switch which needs to be there. It is located on the opposite side of the "Write Protect" notch.

As there are no real identifying marks at the switch, I have, on my sketch, identified the various locations with A — E. Under normal operation A — B is closed for "Notched" Disks meaning High Density. For plain normal density disks the switch is activated, and A — C is closed.

From there, the following modification came easy.

- Purchase a Double Throw, Double Pole Switch at the local electronics shop (Radio Shack Cat. No. 275-1546) and hope that you have some solder and wire in your toolbox.
- Cut the trace at point "D".
- Connect "A" and "B" to the Normally Open one side of the Switch.
- Connect "C" and "E" to the Normally Closed other side of the Switch.
- Drill a hole in one of the empty card brackets in the back for the switch. Locate the switch so that DOWN is normal "Down to Earth" ZDS operation and UP is "Up Up and Away with IBM Style". After this, put the drive back in

its location, get the skin back on the computer and go to work with your Real Compatibility Computer.

If you want to FORMAT plain (Cheap) disks to 1.44MB, throw the switch UP so A — B closes and C — E opens. That tells the system that the disk is notched, and it will go about its business formatting it to 1.44MB. You may lose a sector or two, but at \$18.00 per box of 10 disks, who cares.

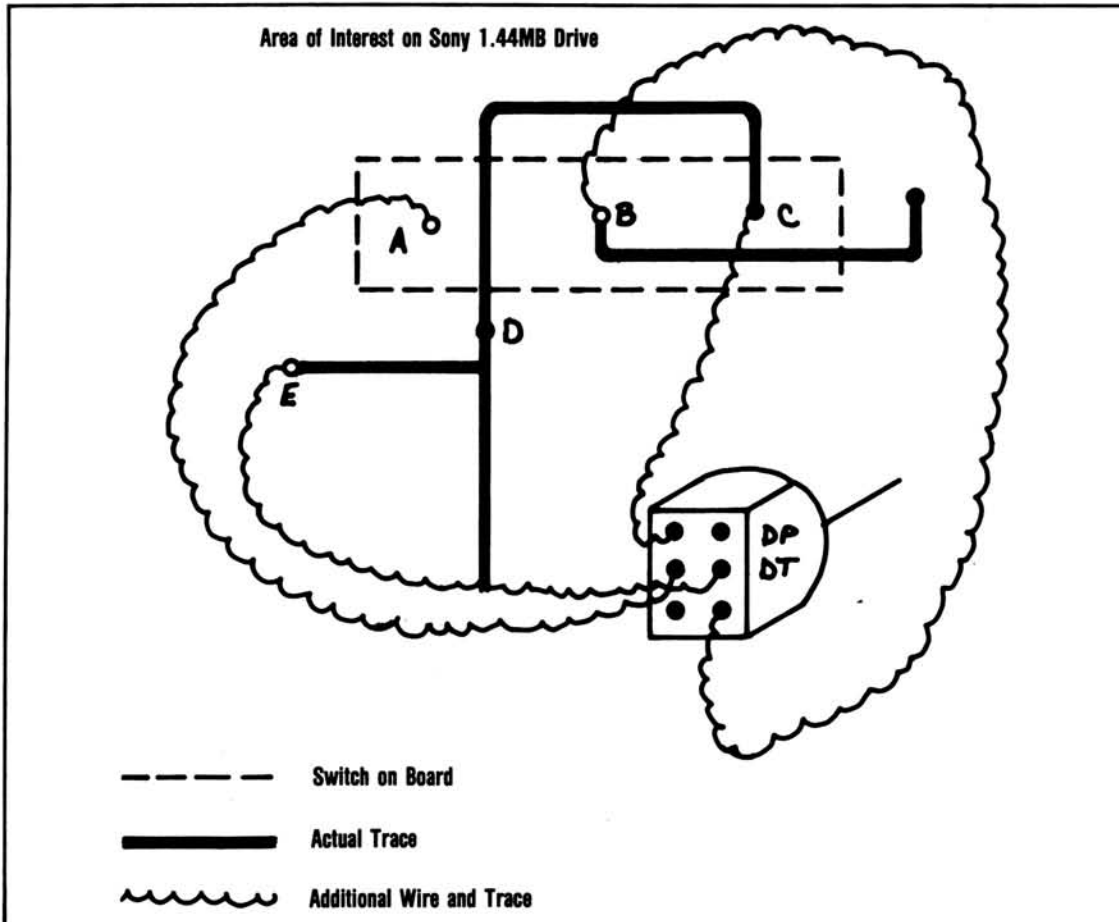
The box of 10 notched Hi-Density disks retails for \$125.00 in Albuquerque. I can not guarantee the integrity of the data, but if Big Blue can get away with it, why not.

Now, in "SETUP" tell the system that Drive 0 is 1.4M and that Drive 1 is set at Not Present. Then in DSKSETUP, set Drive A: to 1.4M and Drive B: to 720k.

To Format Standard Density (Cheap) disks as 720KB — throw switch DOWN and FORMAT B:

To Format Standard Density (Cheap) disks as 1.44MB — throw switch UP and FORMAT A:

To Format Hi-Density (Expensive) disks



as 720KB — Sorry but do you really want to do this. If you really want to do this, place some tape over the notch, throw the switch DOWN and FORMAT B:

To Format Hi-Density (Expensive) Disks as 1.44MB — Switch UP or DOWN and FORMAT A: The alternate way of accomplishing all this, is to nibble or drill a notch in your 720KB disks, but due to all the plastic shavings, this sounds like the last thing you want to do with your disks.

If you also want to install a second floppy, like a 5.25", then the floppy disk drive controller cable that Zenith supplied with the machine will not suffice, but you need to order an HE-134-1960 cable. This will take care of the two different data cable connectors on the two drives. As the 1.44MB drive is a High Density Drive, you need to mask out pin 34 on 5.25" floppy if it is a 360KB drive. Other aspects of this installation have been covered in previous REMark issues.

After a week or so of operating the switch, ZDS technical support says: "It is Not under Warranty", well who cares, it works, and works just fine. I fully understand

ZDS' hesitation in approving this modification. Any one who undertakes the modification should do so at his own risk of damaging the media or losing data off the disk. In this case, the customer who sent the computer to me is just as delighted as can be, and I think that counts.

Now — Someone out there — software writer, of course, should be able to figure out how to do this switch from the keyboard. So please, help out by writing the routine. I will be glad to test it out for you.

✱



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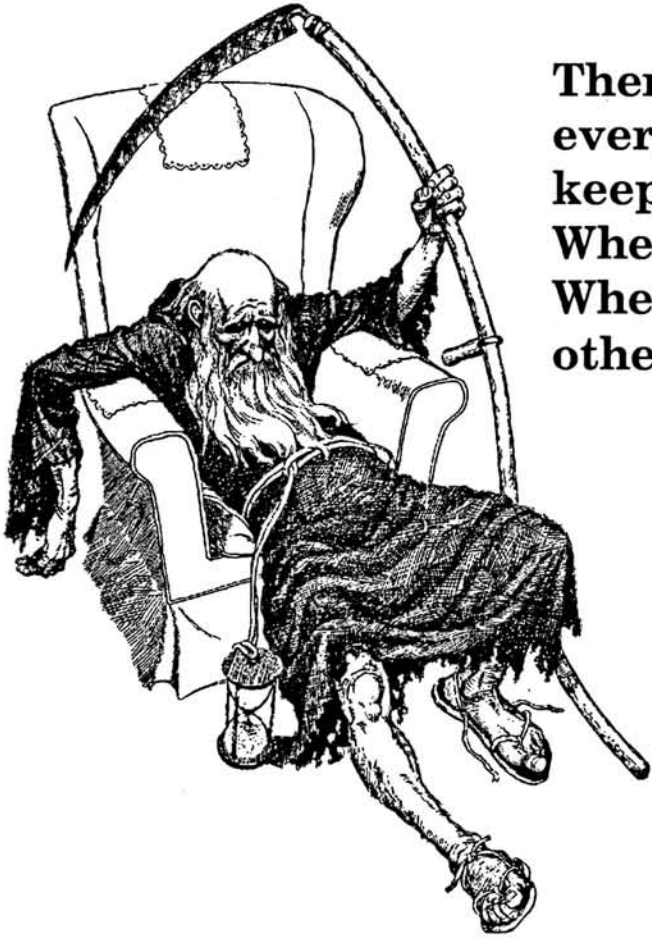
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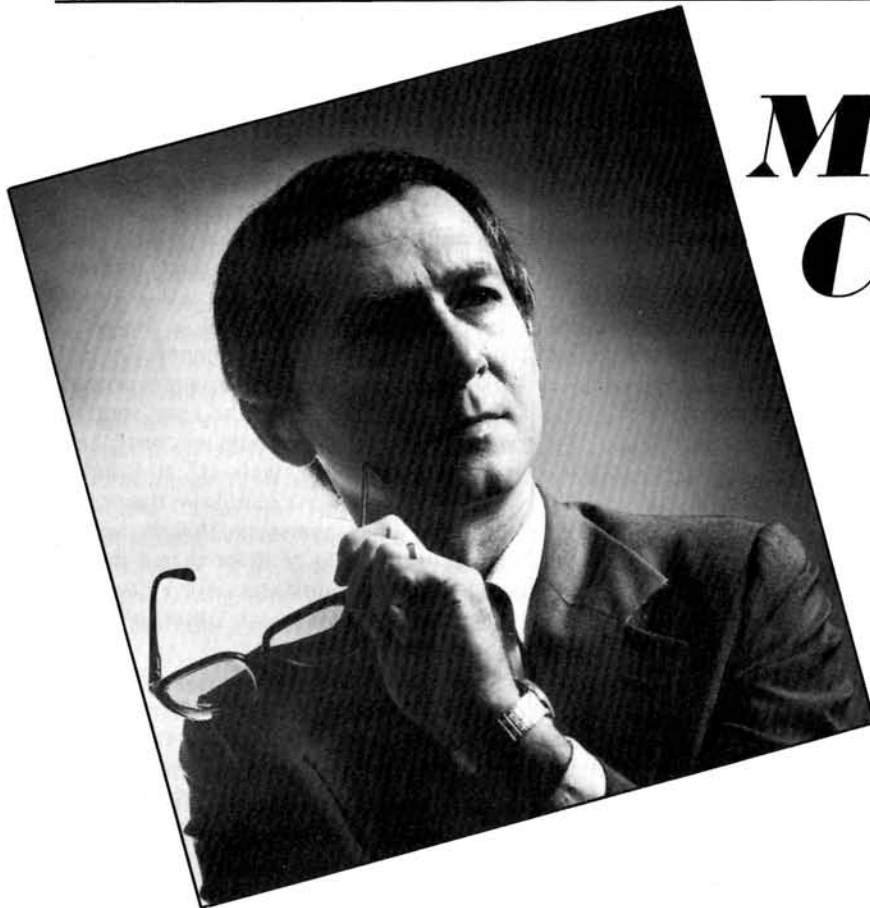
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Mainstream Computing

Joseph Katz

103 South Edisto Avenue
Columbia, SC 29205

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Do you get the fantods when some major new development elbows your computer system further back into history? Does every word about 80386 microcomputers cause you physical discomfort? So you think you have troubles?

Then it might cheer you at least a little to know that the main telephone numbers of two giant companies are linked still to the ancient Intel 8080 microprocessor and, by extension, to the CP/M operating system for it: Intel Corporation's number is (408) 987-8080 and Microsoft Corporation's is (206) 882-8080.

The idea of both companies in 1976, I assume, was market identification with the standard for mainstream computers of that day--the Intel 8080. Intel was the sole source for 8080 chips then. It's the sole source of 80386 chips now. Microsoft made microcomputer programming languages and, as I recall, a decathalon game then. I don't know if Microsoft still produces that decathalon game now, but who cares. Microsoft dominates microcomputer languages, is a major force in applications software, and supplies both MS-DOS (the "Microsoft Disk Operating

System") and Microsoft Windows. The latter are today's standard microcomputer operating system and today's dominant "graphical environment" environment for it. From Windows, Microsoft has developed concepts for what most people expect will be the next standard microcomputer operating system, OS/2.

Intel and Microsoft therefore are two of the companies on that short list of those in control of the microcomputer industry from the very beginning. Even so, they couldn't predict the immediate future well enough to avoid a phone number that has only historical interest today. Less than twelve years have seen so many generations of microprocessors that only old timers remember the 8080. There are severe limits on anyone's ability to plan ahead in this industry.

Absolutely no one is a true prophet when it comes to microcomputers. Phone numbers show it again. For example, the "Business Bulletin" on the front page of the *Wall Street Journal* for July 14, 1988, says that this country's telephone system is running out of phone numbers. The reason seems to be a failure in the Bell

System's planning. It simply did not anticipate the numbers of facsimile machines and personal computers used in telecommunications today. For the past few years the Bell companies have been meeting that situation by adding new area codes. But that solution has its own problem: when area codes were first introduced, just a few decades ago, Bell made a serious misstep. It decided that the middle of the three digits could be only a one or a zero. I suppose the binary logic was impeccable in producing big savings on switching equipment. Now, however, it restricts the possible number of area

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Address all correspondence to me at 103 South Edisto Avenue, Columbia, SC 29205. I'll try to answer letters accompanied by a self-addressed stamped envelope, but my volume of mail is too heavy for me to promise. Unless it specifically says otherwise, I'll assume the right to publish your letter (edited, if I think that appropriate).

codes, which in turn restricts the possible number of telephones, which means that within the next few years the system will have to be reworked drastically. I imagine the cost will be high. You really do have to plan ahead in this industry.

Get some perspective and you'll realize that there's a classic "double fault" situation here. You're damned if you do, damned if you don't. Psychologists say such a situation is sure to drive you nuts if you let it. Don't let it.

And be very, very careful about how you speak to chip manufacturers, operating system vendors, telecommunications people, anyone in the computer industry, and the microcomputer columnists who deal with them. Take the products and run.

Northgate's OmniKey/102 keyboard again

Here's an example of why microcomputer columnists are in that potentially tetchy group.

You might recall that just this May (*REMark*, May 1988, p. 44) I told you about Northgate Computer Systems' C/T 84 keyboard and how much I enjoyed it. I still do, by the way. The day after that column went off, I called Northgate with a question about something and was surprised to hear that they had discontinued the C/T 84 immediately after they sent me one. But I oughta try their new OmniKey/102, which now superseded it, and which now is the latest best thing since sliced bread. So I did and it was. I worked with it on my Z-248 and found it a pleasure. When my Z-386 came in, the OmniKey/102 moved there and it worked like a charm there too. I shared its pleasures with you this June (*REMark*, June 1988, pp. 23, 24) and, by the way, I still enjoy it.

Many of you therefore ordered a Northgate OmniKey/102. What many of you got, however, did not work. If you're one of those people, here's the reason: you and I probably have different keyboards, both of which were shipped as the OmniKey/102. Look at the photograph of mine on p. 24 of the June "Mainstream Computing" and pay first attention to the top row of keys. There are thirteen keys between the Escape key and the Backspace key, the Backspace key is identified only with an arrow, and it's the

same size as the other keys in that row. The other OmniKey/102, as I've just discovered, has differences that include only twelve keys in that top row between the Escape key and the Backspace key; the Backspace key is marked "Backspace" in addition to the arrow, and it's oversized as on other keyboards.

I immediately called Northgate and was told that they had begun shipping that other OmniKey/102 around the end of June or beginning of July 1988. They said they'll be sending me one of those keyboards too.

I'll look at it, of course, but that's probably all I'll do. When I accept a product to consider for writing about here, one of my conditions is that I get what you'll be getting if you buy it. An obvious reason, of course, is to avoid situations like this one. This column is a user's column, where I share with you my own experiences using what you can use, and my reflections on those experiences. My immediate reflection on this experience is this: I'd be scared to buy a Northgate computer, in part because now I couldn't be sure I'd get a machine that's exactly the same as the one my favorite reviewers praised, and in part because I couldn't be sure that the machine I bought was serviceable by anyone but Northgate. Who but Northgate could figure out the possible combination of components that might be substituted within an entire computer? When different components have the same model number, problems seem inevitable.

Zenith's ZKB-2 keyboard

Speaking of keyboards, my Z-386 came with Zenith's ZKB-2 keyboard. It has a nice feature you might miss if you don't know about it and don't read manuals carefully. The Zenith Data Systems logo in the upper left hand corner of the keyboard is actually molded into a plastic plug. Pry that plug off carefully and you'll expose a switch that allows you to adapt the keyboard for use with either an AT compatible or an XT compatible computer. That feature has quietly become standard on the better keyboards. I like it.

Of mice and me

A few years ago I couldn't imagine myself becoming dependent on a mouse, much less becoming something of a mouse maven. But you can't survive Microsoft

Windows without a mouse or similar pointing device, which means that the Presentation Manager for OS/2 will turn you into a babbling idiot without one, and you'll go nuts if you try working with any professional level desktop publishing program without one.

But not all mice are created equal. I've worked with many different mice, including a Genius that I believe was named way too optimistically and a SummaMouse that I rather liked except for its required mouse pad and separate power supply. I kept losing the pad under mounds of stuff, had some irreconcilable personality clashes with it, and kept getting tangled in the cord from the power supply. I can see though, that someone a little more agile or tidier than I might really like the SummaMouse. We have no hard feelings about each other. It's just not for me.

Radio Shack used to sell a mouse, made by Microsoft, I think, that used a steel ball instead of rubber. It had no traction on a laminated desktop, so I'd wind up rolling it along the right leg of my trousers. That worked, but I felt silly and wasted enormous amounts of time explaining to startled observers that I was not some kind of electronic deviant.

The absolute worst mouse I have ever seen in my life is the one I've just seen from IBM for its Desktop Publishing SolutionPac. I really thought that the mouse on the first machine I tried was broken, or maybe it was connected wrong, or maybe there was something wrong with the cable. So I tried another, with the same results. I had to row it across an ocean of desktop to get the cursor across a rivulet of pixels on the screen. What I did to alleviate the problem was fiddle with the speed adjustment in Microsoft Windows: it's one of the options in the Windows Control module. My fiddling made things a little more tolerable, but didn't make them all better. I thought that the mouse itself must be an insensitive little rodent. Maybe it is. Or maybe it was I who was insensitive to the inevitable consequence of using a low resolution mouse with a high resolution EGA or VGA display.

Logitech's HiREZ mouse

Think about it for a second and you'll recognize what's implied in the connection between the motions of the

mouse on your desktop and the cursor on your display. CGA has a resolution of 640 X 200, EGA a resolution of 640 X 350, and VGA has a resolution of 640 X 480. Look at that resolution in terms of pixels: CGA allows 128,000, EGA allows 224,000, and VGA allows 307,200. Now translate those numbers into the relative increase in work you'll need to perform with the mouse you've loved so well with a CGA display. Keep that mouse when you upgrade from EGA to VGA and you'll have to move the mouse 1.37 times further just to move the cursor the same distance on your sleek new display. Upgrade from CGA to EGA will cost you 1.75 times more mouse movement. Zoom up from CGA to VGA and you'll rub a groove in your desktop, moving that mouse 2.40 times more. Indeed those numbers do translate into the need for increased desk space as a mouse track. No wonder, then, that my arm nearly dropped off a few hours after STB Systems' new VGA Extra/EM arrived and I reinstalled Ventura Publisher with the optional 800 X 600 driver supplied with that board: 480,000 pixels is a long row to hoe with a mouse made for comfort with only 128,000 pixels — 3.75 times longer.

Salvation is Logitech's HiREZ Mouse. It's a buss mouse with a board that just slips

into any slot in a Zenith IBM compatible computer. Installation is easy. There are two jumpers: JMP1 and JMP2. JMP2 sets the "report rate" for the mouse. The HiREZ mouse requires a report rate of 60Hz, which is the jumper setting on my board as I received it, so I left it alone. JMP1 sets the IRQ (the hardware interrupt request channel) the board should use, with choices from IRQ2 through IRQ5. My board came set for IRQ3, which is the channel for the COM2 port. Because I never use the mouse at the same time there's a device active on COM2, I left that setting alone too. In other words, all I did to install the board in my Z-386 was replace the board for my Logitech Bus mouse with the board for my Logitech HiREZ Mouse. You understand why I say installation was easy.

Logitech's HiREZ Mouse package comes stuffed with software, including a mouse device driver and a TSR ("Terminate and Stay Resident") program that can substitute for it, prefabricated mouse menus for many popular applications programs, a compiler so you can try your hand at rolling your own mouse menus, and Logitech's splendid Click software that can serve to load the correct mouse menus for each of your applications

programs automatically when you run those programs. There's also Point, a powerful mouse-driven editor written in Logitech's Modula-2. Point is undeniably powerful, but I haven't really done much with it because my other editors make me happy already. If you need an editor, though, explore Point before you buy something else. You shouldn't need to buy any other mouse software than what you get with the Logitech HiREZ Mouse. Logitech mice are compatible with mice from Microsoft, Mouse Systems, and others, which might be a convenience in some situations. That compatibility was important a few years ago but isn't now. I don't know even one major applications program that doesn't support the Logitech mouse. Over the years I've used all the Logitech mice so far--Serial, Bus, and now HiREZ--and enjoy them all. The Logitech HiREZ Mouse is the one for an EGA or VGA display. It's an armsaver.

See you later.

*



ENABLE

Part 10

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A Tutorial Advanced Database (Almost)

In this, the tenth in a series on ENABLE, the database module will be revisited. Of all of the modules in ENABLE, the database is the real shining star. It is friendly and easy to use. Hopefully over the last two database articles this has been made clear. In article seven, I completed the database construction for the DoD micro-computer contract. In this article the reminder of the ENABLE basic database commands will be presented. In article 13, the advanced capabilities of the ".dot" commands in report will be discussed.

In the last database article, "Find", "Display", and "Add" were discussed. The next command is "Browse". This command will display the number of items that match a selected field using the index. This can be used to mark records for use in any of the database functions. Use the DBMS/Graphics Interact mode to get to the database main command menu. Press (B)rowse to access this function. Like all of ENABLE, you can place a "?" and a <RETURN> to get a list of database

files available. You can also put in other disk drives and/or directories, if necessary. Highlight the selection and press <RETURN> to have it accepted. For this example we will use "AFCOMPR". The next selection is for the "Index" which is the key to the browse feature. When you move to this block, ENABLE will display all index choices for the database. You can type one in or press "SHIFT/3" (PgDn for the PC) and then use the cursor keys to highlight your choice. Pressing <RETURN> will select the choice and move it to the index prompt. Starting in version 2.0, "SYS:RECORD" can be used as a choice. Note that on the Status line, the type field and length are displayed. For this example we have selected "CLIN". The next choice is the "Where" clause. This must match the choice in "Index". Using the "Where" clause, we will have ENABLE browse through the database and display the number of CLIN items that start with "0001". During the input, the CLIN number was set to six places. To display all of the variations, place a wild card "\$" after the "1". This character has the

same meaning as it has in DOS, that is, select all characters no matter how many, following the "1". You can use the available operators in the "Where" clause to specify the record(s) you are looking for. As an example, you could put in CLIN = "0001\$" or CLIN = "0002\$". This would display all CLIN items that start 0001 OR 0002. Pressing a <RETURN> will cause ENABLE to search through all of the records looking for a match of "0001XX" and will display them with a count. You can use the two marking methods, if desired. From the word processor, "F7" can be used to mark several lines of records or "F0 M" (ALT/M for the PC) to mark individual records.

To move to the next record, the previous record, to save the records, or to quit, press the "F10" key for the Top Line Menu. The default is the Next record. Pressing a <RETURN> will cause ENABLE to move to the next record in any of the functions being explained in this article.

The same thing can be accomplished by pressing "F5". Pressing (P)revious will

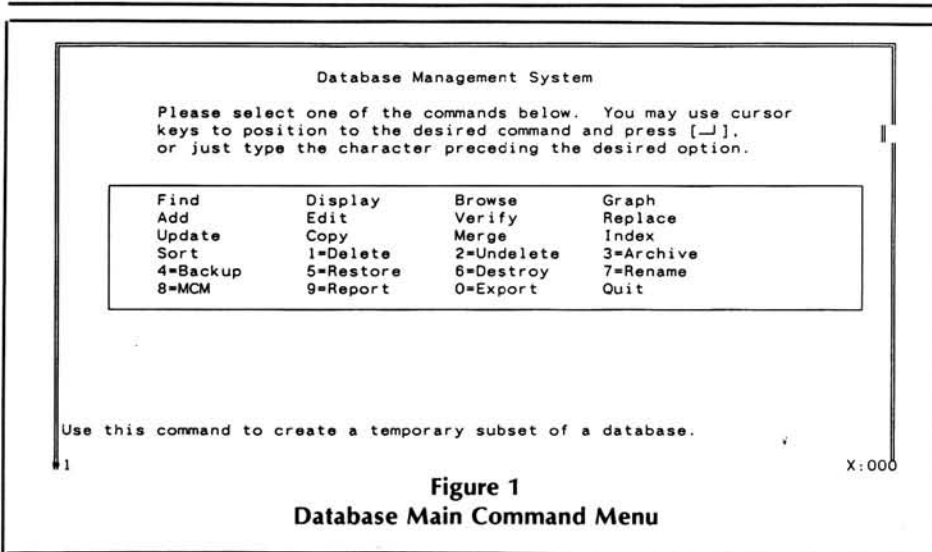


Figure 1
Database Main Command Menu

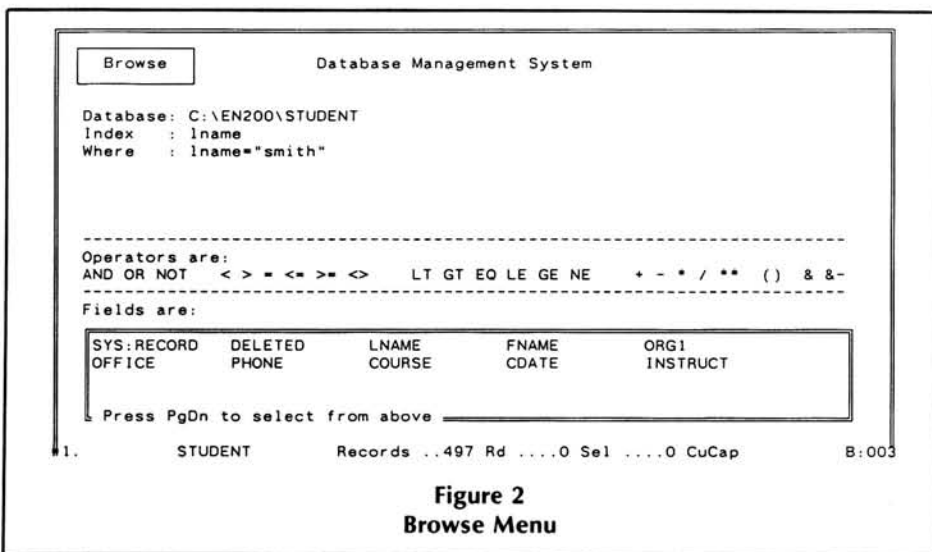


Figure 2
Browse Menu

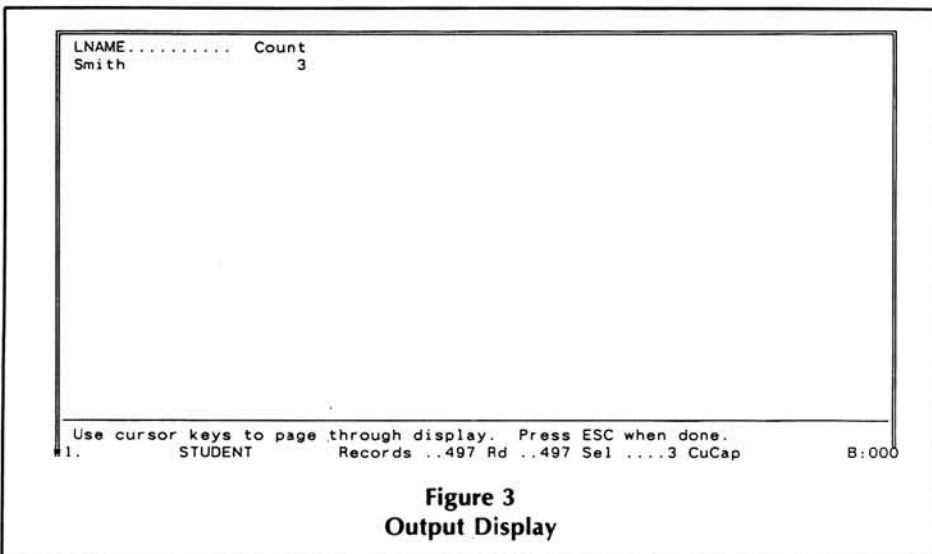


Figure 3
Output Display

move to the record immediately before the current record. Pressing "F6" will do the same thing. Pressing {ESC} will return you to the ENABLE database main menu.

The next command is SORT. This command provides a sorted database on fields that are not indexed. Sorting results in a new database being developed with the same name but with the extension

".SS". The database can be sorted on eight different fields in either ascending or descending order. Sorting is case sensitive, so this must be considered during data entry so that the mix of upper and lower case letters is consistent. As an example, using an ascending sort, numbers come first, followed by capital letters and then lower case letters. Like BROWSE, SORT is selected from the database main menu. You are prompted for the database name. Next, you are prompted for an index. Because the sort takes precedence, index will come last after the selected sort fields. The "Where" clause is next and permits you to select a subset of the entire database based on the parameter typed into this block. Again, you can use the operators to assist in this definition. Next, you type in the field name, a comma and either an "A" or "D" for ascending or descending on up to eight fields. A <RETURN> in a blank field or completing the eighth field will start the sorting routine. This file can be used in the same manner as any normal database and will be carried forward for any further database functions. The first field entries will be the key and all of the records will be sorted on it, except where several data elements are the same, then it will sort on the second field and so on.

As you work with a database, adding records, deleting records, or editing records, if you wish to add another index to the basic database or any of the other ENABLE functions, you will need to use the Index command. You can also use this to correct index files if they become corrupted. Selecting Index from the database main menu, the Index screen will be displayed. Again, select from the available database file using the "?" or typing in the file name. Remember that the total number of Indexes in a database is ten. While the index will help in finding records faster, it does slow down the overall operation of ENABLE because these files have to be opened and closed for all operations using the database.

Once the database is selected, the next prompt is for "Field-name". ENABLE will display all available field names below the prompt area. You can either type in the name or use the "SHIFT/3" (PgDn for the PC) to use the highlighting feature. Next, you are prompted for the name of the Index. If you are re-indexing, after you input the field name, the index name will be placed in the index block by ENABLE. If you are making a new index, remember

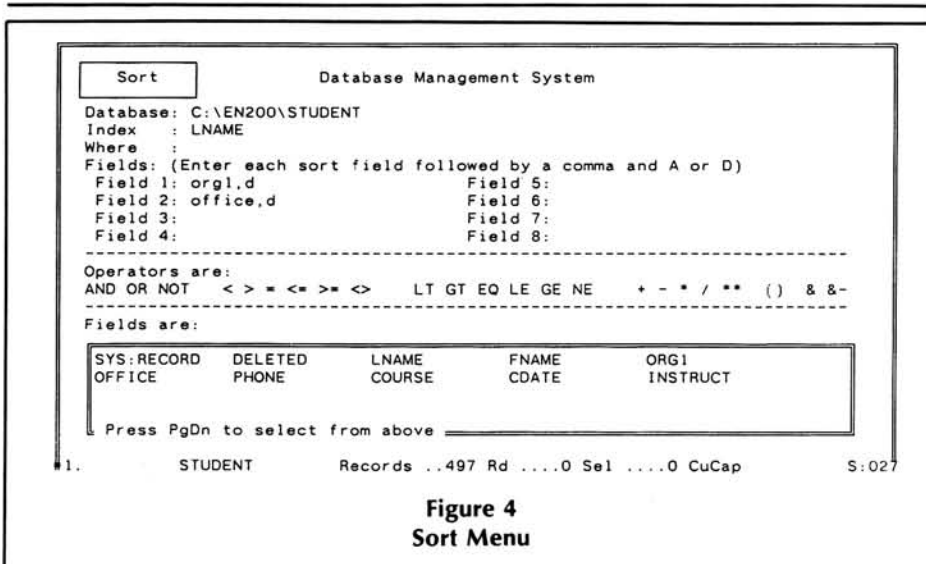


Figure 4
Sort Menu

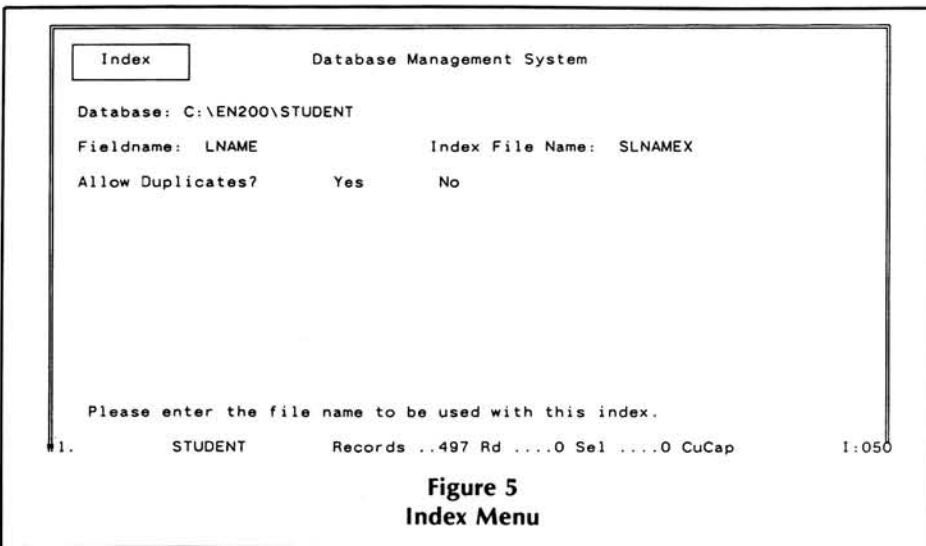


Figure 5
Index Menu

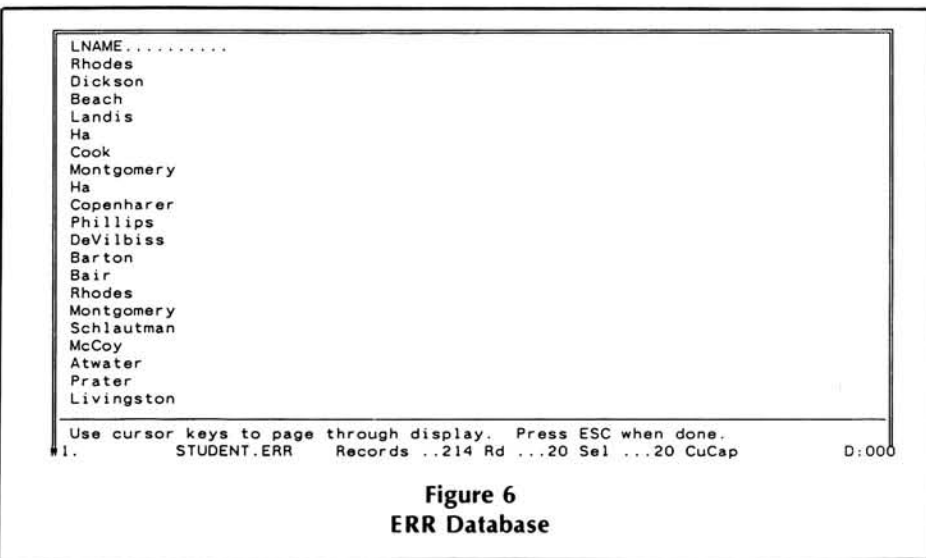


Figure 6
ERR Database

eight characters and may contain an underscore “_”. ENABLE then permits you to specify if duplicate record names are permitted. If you select “NO”, ENABLE will inform you that duplicate records exist if that is the case, or during entry will notify you if duplicate entries are input. This field is useful for establishing unique numbers or a field for identification purposes. If you select “NO” duplicates and they are found during the index generation, ENABLE will generate another file with the same name as the database, but with a “.ERR” extension. All problem records will be placed in this database for correction. During the index generation process, ENABLE will provide an update of the records being processed on the status line. When completed, ENABLE will display the total number of records indexed.

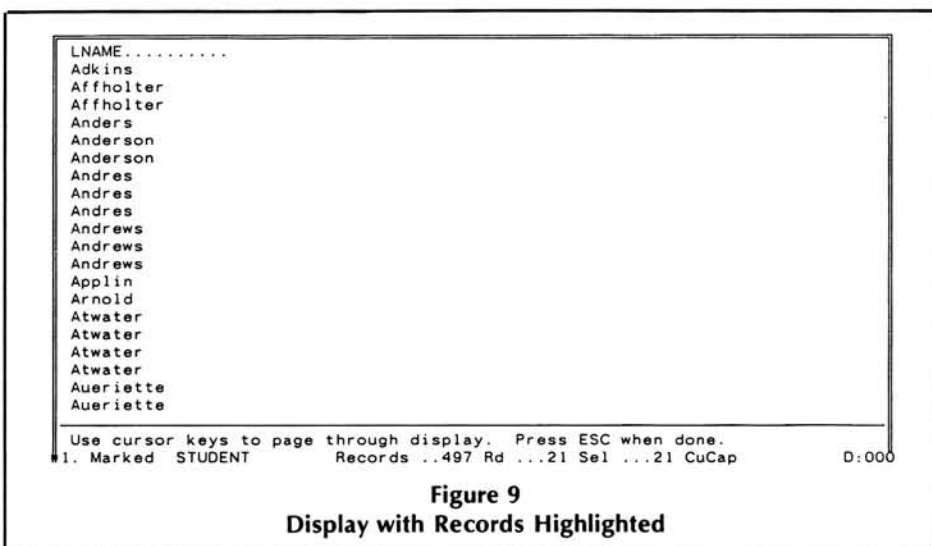
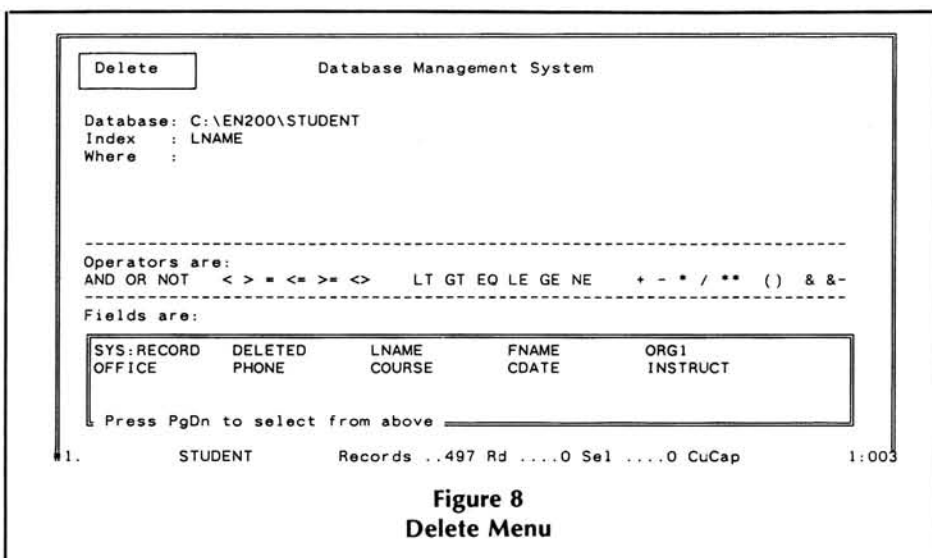
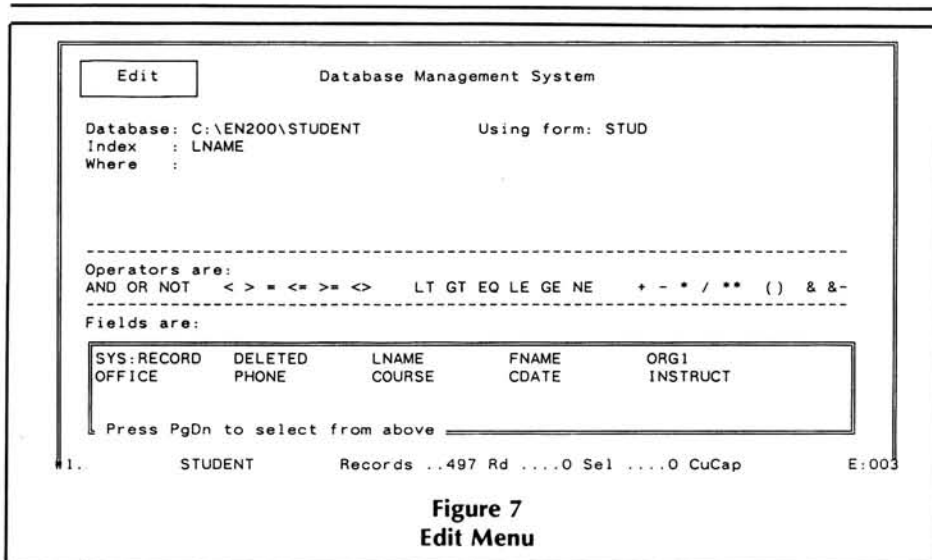
To correct a record in a database, like the .ERR set generated above or any other database, the EDIT function is used. When selected from the database menu, another menu is displayed. All of the function menus are similar, so once you are familiar with one, the others will come easy. Edit provides the means to change data in any field in a record. The first choice in the Edit menu is the database name. Again, either a “?” or the database name is required. The error set (.ERR) or the select set (.SS) from sort can also be used. If you plan on using one of these, you must insert the extension. If you have just generated the select set using the sort, this database will be carried forward to this step.

After selecting the database, you are prompted for the input form. If this was input during the database definition step, it will be inserted by ENABLE. If there is no input form, ENABLE will generate a default form. The next response required is the Index. All fields that have an index will be displayed on the bottom of the screen. Selecting an index will indicate the order that the records will be displayed.

The “Where” clause is next. All fields in the database will be displayed at this time. The available operators will also be displayed for your assistance. You can type in the field(s) you would like to key on or press “SHIFT/3” (PgDn on the PC) to move the cursor into the list of field names. Use the cursor keys to move the highlighted area around the field names and press <RETURN> on the one you have selected. Multiple field names can

that the name MUST be unique. If you have two different fields with the same index name, ENABLE, or for that matter any database program, will get confused and

you may end up losing your main file. If you try to use an index name that exists, ENABLE will not permit you to continue. The index name can not be longer than



be used by using the operators. An example would be:

lname="smith" and city<>"Chicago"

This would select all records, where the last name equals "Smith", that do not live in "Chicago". Note that the "Where" clause is NOT case sensitive so "SMITH",

"smith", or "Smith" are all the same. Pressing <RETURN> will now start ENABLE looking through the database to find the first occurrence specified in the Where clause. As soon as the database is selected, the total number of records will be displayed on the status line. As ENABLE searches for a match, the record being processed (Rd), and the number selected (Sel), and the current location (Cur) will be updated. Once the first record match is found, it will be displayed on the screen using the selected input form. To move to the next record, press "F10" and <RETURN> as the default value on the top line menu is the next record. The function keys "F5" will save the change and move to the next record. "F6" will save the work and go back to the previous record. It is a good habit to get into using function keys or ALWAYS Save the work before Quitting.

If you wish to delete a record from the database, ENABLE requires a two step process to prevent inadvertent deletions. Select Delete from the database main menu and insert the database name and index, if desired. The "Where" clause permits you to specify which record to delete. All of the fields in the database will be displayed to assist in making the selection. All selected records are then marked for deletion. Using the Display command, you can see the records that are so marked.

Another way to mark records for deletions is to use the display command. Select the database, index and fields that will identify the record and press <RETURN>. Records marked for deletion using the Delete command will be reflected as such. To mark any other records, position the highlight bar over the record and press "F7" which will mark the record. If you have several records together, move the cursor to the last record and press "F7" again. All the records that are marked for deletion should now be highlighted. You can press "F10 Quit {ESC}" to return to the database main menu.

All records that have been marked for deletion are still in the database and can be returned by using the "2-Undelete" command. To Undelete a record(s), select "2" from the database main menu. Select the database, index, and Where clause to identify those records you want restored. Press <RETURN> and the Delete flag will be removed from the record(s). Records marked using the Display command and

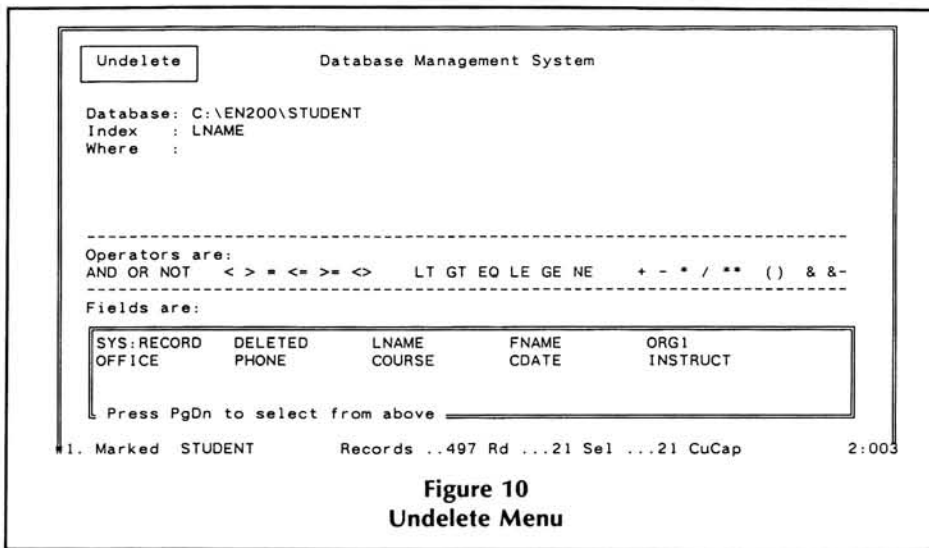


Figure 10
Undelete Menu

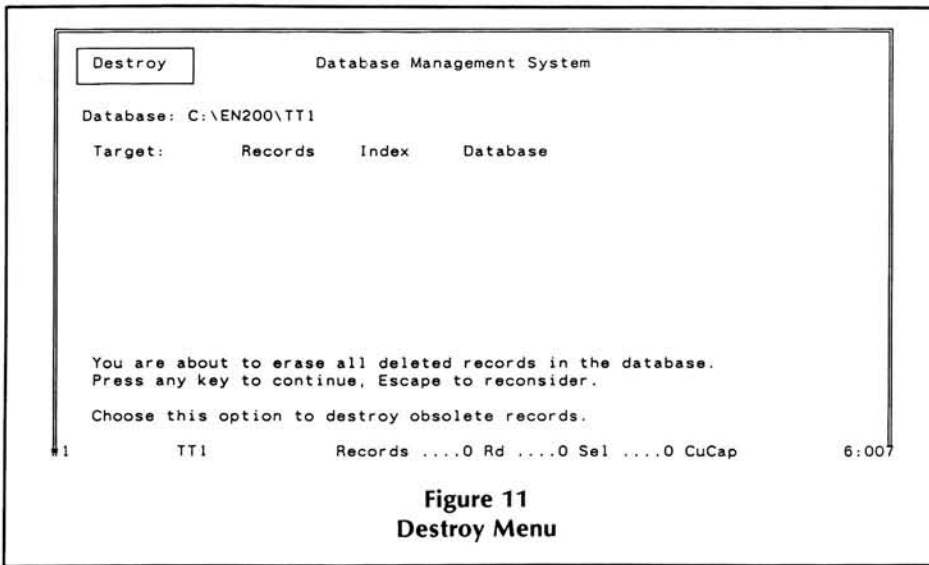


Figure 11
Destroy Menu

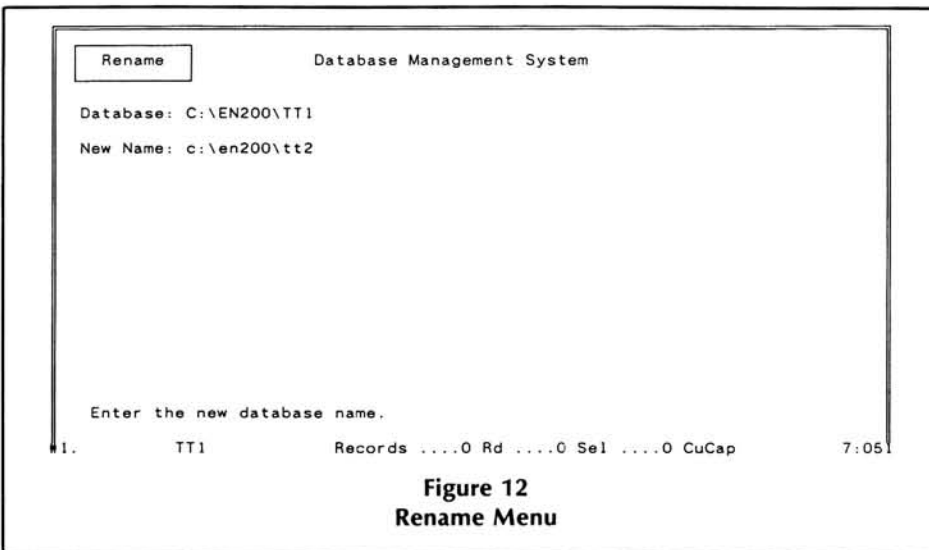


Figure 12
Rename Menu

cess. From the main database menu, select Destroy which causes the Destroy menu screen to be displayed. The database name is first entered, unless you have been working with the database without quitting to the ENABLE main menu. ENABLE will always carry the database name forward to the next command, as long as you do not leave the database module. The next prompt is for the target of the destroy command, individual records, entire index files, or the entire database. For the destruction of the records marked in the Delete command, select the record which is the default value. ENABLE will permit you one last chance to change your mind on the destruction of the records before completing the process. If you wish to quit the Destroy command, press {ESC}. ENABLE will show the total number of records destroyed, along with the total number of records saved. During this process, all index files will be updated.

ENABLE permits you to Rename the database from the database main menu. This is a simple two step process that starts by selecting Rename. The first prompt is for the name of the database file and then the second prompt is for the new name. If you select a name that is already on the disk, ENABLE will prompt you for another name or to destroy the other database.

ENABLE has a Replace command which permits rapid replacement of fields in a database. This is a quick way to replace information in a field by defining it in the "Where" clause. I have replaced the values in a field with a calculation that was input in the "With" clause. This is a powerful tool for updating individual fields. To use this feature, select Replace from the database main command menu, input the database name in the first prompt, and Index, if you desire. The "Where" clause is next and can be used to specify in detail the records you wish to change. It is also possible to mark the records in the same manner used in the Delete command, which used the "F7" key and the Display command. Once the records have been defined, the next option is the Field you wish to change. As normal, ENABLE will display all fields in the selected database to assist you. The last prompt is the "With" clause. The data you place in this block will be placed in the selected field of the selected records. If you use calculations, numbers or logic statements, no quotation marks are necessary. Other replacement data requires that quotation

"F7" can be Unmarked by using "F0 F7" (ALT/F7 for the PC) while in Display just like in the word processing block command.

As I said earlier, removing records from the database is a two step process. After marking the records for deletion, they must be destroyed to complete this pro-

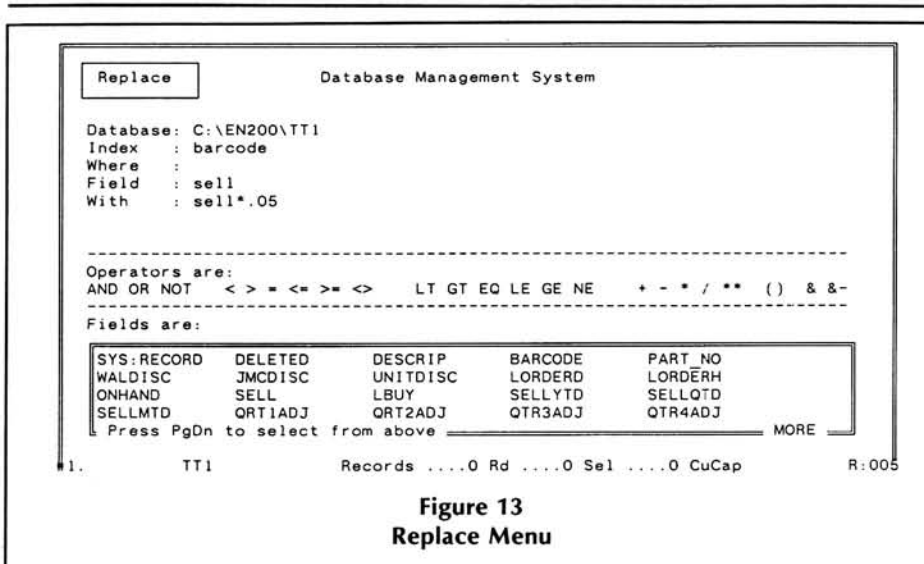


Figure 13
Replace Menu

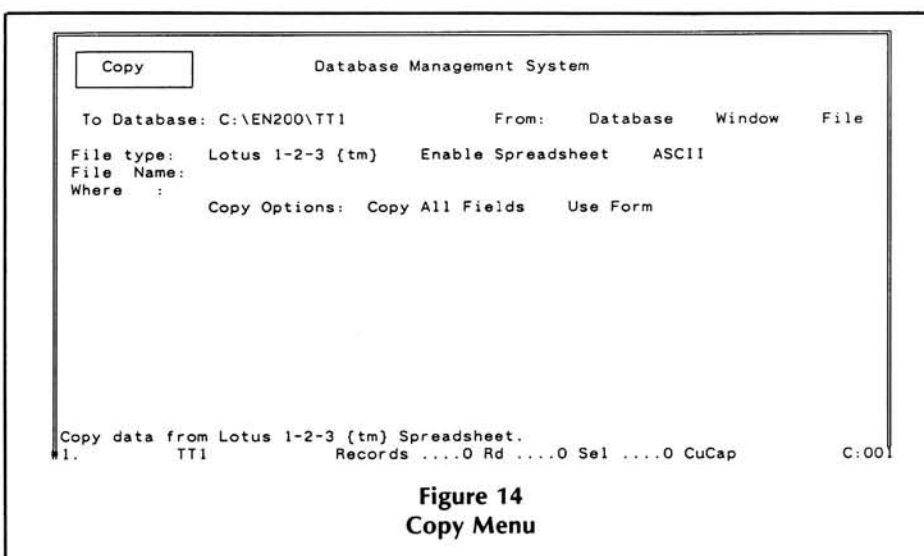


Figure 14
Copy Menu

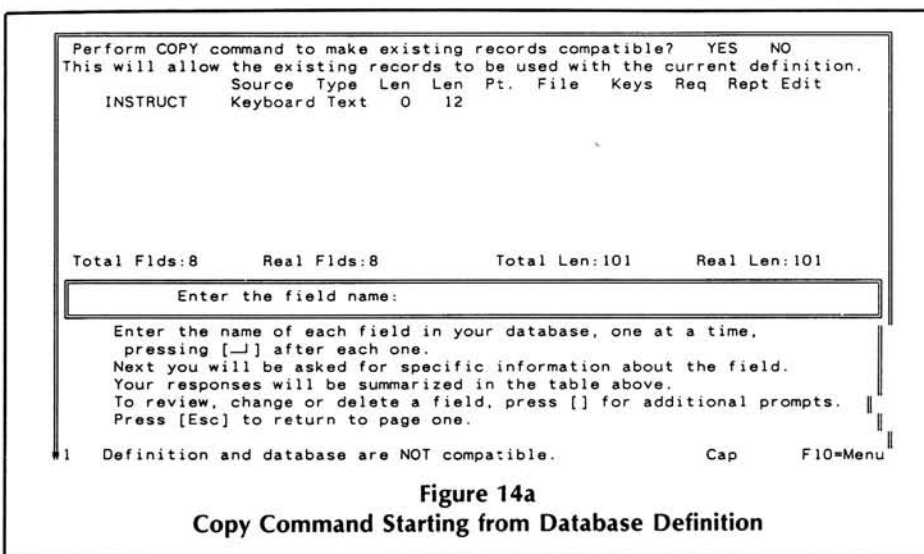


Figure 14a
Copy Command Starting from Database Definition

marks be placed on both sides of the replacement data. The calculation capability is shown in this example.

With: [number*.1]

This will replace the value in the field number with a number that is increased

by .1. This could be used to increase the value of a product or for a mass price increase of items in a database.

The Copy command provides a means to copy data between two databases. ENABLE, versions 2.0 and up, provides an automatic copy function when you change a database definition. This copy is completed when you quit the definition menu. You must follow the on-screen prompts and not press keys until asked or you could lose data. Versions before this require that you make manual copies using the copy command or you will get the infamous "database and definition incompatible" error statement. The copy command can also be used to copy information between windows and other files. Selecting Copy from the database main menu will cause the Copy menu to be displayed.

The first prompt is the To Database or the location of the new records and must exist with the required definitions. The next option is the source of the data, another database, a window, or from a file. If you select database, you are prompted for Index and a Where clause. The next option is to "Copy All Fields" or to "Use a Form". If you copy all fields, the definitions are checked and exact matches are copied, record for record. If you use the form, ENABLE will display a default form which lists the fields in both databases. If they are an exact match, they will be aligned. If not, blank expressions are displayed in the Form database. This form permits you to move fields around to meet your needs.

You can also prevent the copying of a field by placing a semicolon before the field name. You can also specify the field name from another database by typing in the database name, a period, and the field name, e.g., AFCOMPTR.CLIN. If you plan to use this form again, press "F0 F10" (ALT/F10 for the PC) to save it. Once you have completed or accepted the form, press "SHIFT/F9" and then (C)opy to copy the records. ENABLE will display the total number of records that were copied. If you select Window as the source of the information, ENABLE will present the copy window from which you must select the window that contains the information.

If File is selected, it will prompt with LOTUS™, ENABLE spreadsheet, or ASCII. If the data is to be input from LOTUS™ or the ENABLE spreadsheet, it must be in the correct format. This format is: row one


```

Copy
Database Management System

To Database: C:\EN200\STUDENT      From: Database Window File
Database: C:\EN200\TMPDBXX1
Index :
Where : DELETED OR NOT DELETED
      Copy Options: Copy All Fields Use Form
      Using form: C:\EN200\TMPDBXX1.CTF

#2. OPENING INDEX FILE SLNAMEX FIELD LNAME DATABASE STUDENT C:054

```

Figure 14b
Copy Menu Used During MACRO Copy for Record Compatibility

```

To Field      From Field / Expression  Press Shift/F9 to execute Copy
DELETED      DELETED
LNAME        LNAME
FNAME        FNAME
ORG1         ORG1
OFFICE       OFFICE
PHONE        PHONE
COURSE       COURSE
CDATE        CDATE
INSTRUCT     INSTRUCT

C:\TMPDBXX1.CTF      DRAFT      Cap

```

Figure 15
Copy Field Display

```

C:\:
#1  C:\EN200\TEST.SSF

      A          B          C          D          E          F          G
      LNAME      FNAME      ORG1
      C          C          C
      15        15        5
      Elwood    George    XRS
      Smith     Mary     ACW
      Jones     Tom      RMS
      Frank     Bill     CRS
      Smith     John    RMA

#1  C:\EN200\TEST.SSF      Cap      C8

```

Figure 16
Spreadsheet Import Format

must contain the field names, row two must contain the data type (N for number, C for character), and row three must contain the field length. Rows four and

below will contain the data. The ASCII data must be in either comma separated form or in fixed length columns. ENABLE will import either of these forms without a

problem. ENABLE will respond in the same manner as in copying between databases. Importing of dBase II or dBase III files does not require any of these steps, as ENABLE will read these files directly and use them as though they are ENABLE files.

Another command that can be used to update fields is the Update command. Unlike Replace and Copy, this command permits you to change the contents of one or more fields with the contents of similar fields in another database. ENABLE calls the database being changed the Master file, while the one providing data, the Transaction file. Access this command from the database main menu by selecting Update. You first must select the Master database and the link field that is common between both databases. This field must be indexed in the master file. The next prompt is for the Transaction file, another database, an open window, or another file. The next prompt is index, which is optional. In version 2.0 and up, you can use "SYS:RECORD" as the index. The "Where" clause is next and is used to specify the parameters of the fields you wish to update. The last prompt is the link field name. After answering these questions, you receive prompts that are the same as the Copy command.

Another command that is similar to Update is Merge. This command permits you to combine some or all of two databases or files into a third new database. The first prompt is for the Master database name. An optional index is requested next. Finally a linked field is requested for the Master file. Next comes the "With" database. Only the name and the link field are requested for it. Next comes the "To database", which is the resulting database. Only the name and the "Where" clause are requested. You are then prompted for the merge options of merging all fields or using a form as in the copy command.

ENABLE will Export the database or selected fields to other formats. Using the Export command will cause the database output to be saved to ASCII, Volkwriter, Easy (inexpensive WordStar), WordStar, Multimate, Peachtext, or DCA format. The ASCII format is useful as a means to transfer data to mainframe computer systems. Access is through the database main menu with the database name the first prompt. Next comes the optional Index, the "Where" clause, and the Field you wish to Export. The next question is the

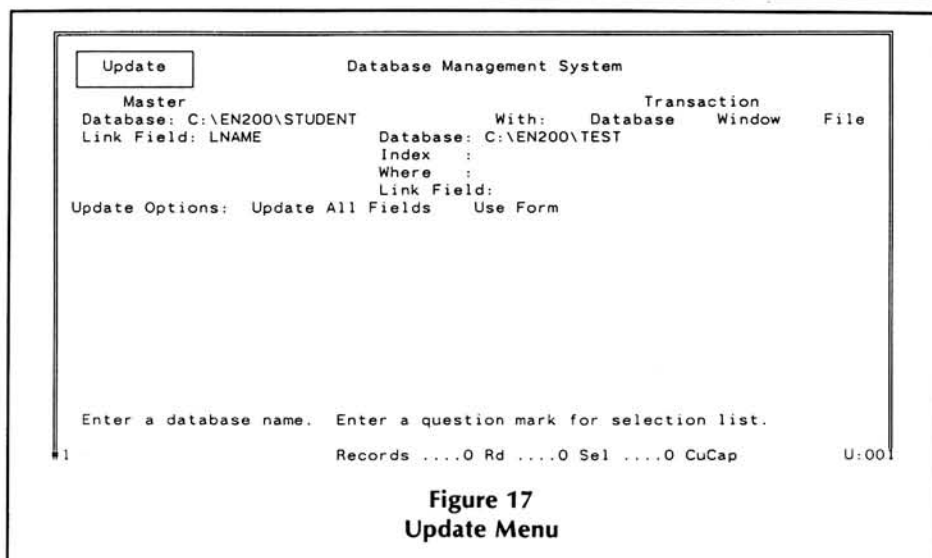


Figure 17
Update Menu

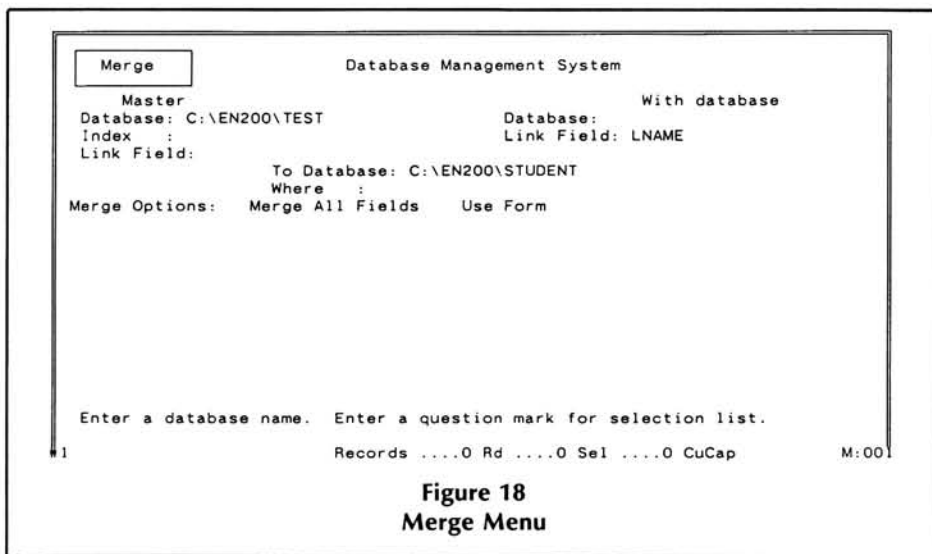


Figure 18
Merge Menu

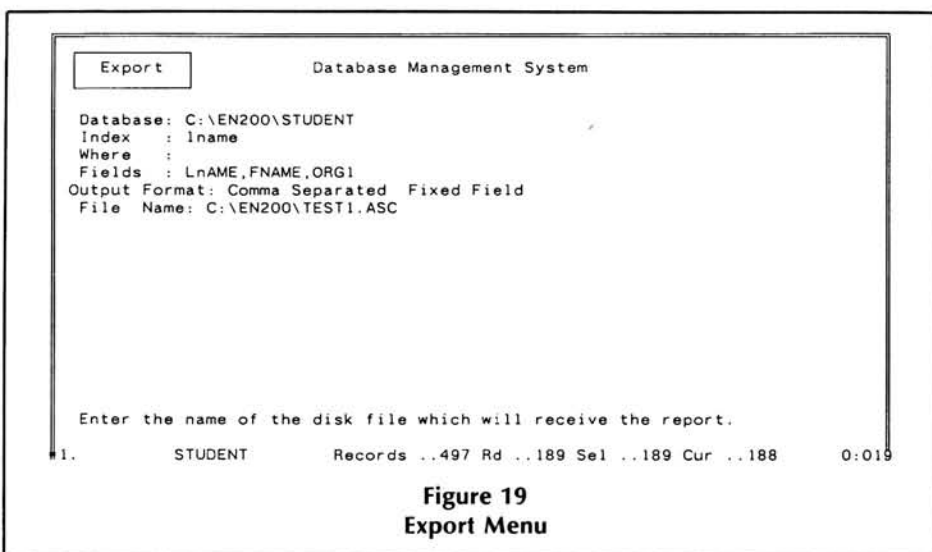


Figure 19
Export Menu

format of the Exported file. ENABLE permits two options, either Comma separation of fields which removes any trailing blank spaces or Fixed field lengths which

keeps the field complete, including blank spaces as defined in the database definition. Finally, comes the output File Name. This can be any eight characters, plus ex-

ension, if you desire. The ASCII format will provide an automatic ".ASC" extension. If you select ASCII, ENABLE will only output in 80 character lines. Anything over this will be lost, so if longer output records are required, multiple saves will be required.

Another option in ENABLE is the verification of input records. This command is used in conjunction with the input screen command for verification. You can select the fields that you want verified which requires that the entry be rekeyed exactly. If they are different, ENABLE will BEEP until both inputs are the same. The Verify command is invoked from the database main menu with the normal response. After you have found an error and you do not know what it is, pressing "F8" will display the original value.

Earlier in this article, the destroy command was discussed. As an alternative to destroying records, ENABLE will permit you to Archive these records into a database that can be saved rather than completely destroying them. The Archive command will save the deleted records and place them in a new file that can be restored, if necessary. ENABLE has two options with the Archive command, the first continues to add the deleted records to the file which may contain duplicate records, while the second option keeps non-duplicate records. Selecting Archive from the ENABLE main database menu, you are prompted for the database name. The next option is to Destroy the archive file before adding new records. If you have not destroyed the deleted records in the basic database after this procedure, then destroying the archive file is the way to go. This will archive all of the deleted records and no duplicate records will be in the file. If you have destroyed the deleted records in the Master database, then archive will simply copy newly deleted records to the archive file. Once the destroy option is answered, ENABLE will complete the Archive procedure displaying the number of records that have been moved.

The last two database commands to be discussed will be Backup and Restore. These commands work together and have been included as a safety blanket for ENABLE users. BACKUP will make a complete copy of the database, its definition and index files. This file IS NOT usable as a file, but can be RESTORED. This command can only be used on a hard disk system.

```

"Beach", "Brenda", "ASD"
"Cook", "Kathleen", "ASD"
"Ha", "Joung C.", "ASD"
"Landis", "Carolyn", "ASD"
"Millsap", "Donald", "ASD"
"Picklesimer", "Patricia", "ASD"
"Rhodes", "Beverly", "ASD"
"Rosengarten", "Steven", "ASD"
"Smith", "Charles F.", "ASD"

```

Figure 20
ASCII Output Record
Comma Separation

Beach	Brenda	ASD
Cook	Kathleen	ASD
Ha	Joung C.	ASD
Landis	Carolyn	ASD
Millsap	Donald	ASD
Picklesimer	Patricia	ASD
Rhodes	Beverly	ASD
Rosengarten	Steven	ASD
Smith	Charles F.	ASD

Figure 21
ASCII Output Record
Fixed Field Length

```

Archive Database Management System
Database: C:\EN200\STUDENT
Destroy old archive file before adding new records? Yes No

Use this option to begin a new archive file.
1. STUDENT Records ..497 Rd ....0 Sel ....0 CuCap 3:00

```

Figure 22
Archive Menu

The BACKUP command is accessed from the database main menu and has only two prompts, the name of the database and the drive to save it to. The RESTORE command has three prompts and can restore both BACKUP and ARCHIVE files. The first prompt is to determine the source, the second is for the name, and the last prompt is the From drive. The Restore command will only give you an all or nothing restore. You can not use it to selectively recover records.

This completes the tenth in a series on ENABLE. In the next article we will revisit the word processing module. Transfer between the modules will be covered. Until next time . . .

```

Backup Database Management System
Database: C:\EN200\STUDENT
To drive:

Enter the BACKUP drive as a single letter
1. STUDENT Records ..497 Rd ....0 Sel ....0 CuCap 4:036

```

Figure 23
Backup Menu

```

Restore Database Management System
From : Backup Archive
Database: C:\EN200\STUDENT
From drive:

Enter a database name. Enter a question mark for selection list.
1. STUDENT Records ..497 Rd ....0 Sel ....0 CuCap 5:00

```

Figure 24
Restore Menu

**Are you reading
a borrowed copy of REMark?
Subscribe now!**

XENIX



VI

**VISUAL
EDITOR**

Matt Elwood
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Beavercreek, OH 45432

PART FOUR

This is the fourth article about XENIX, the multiuser system that is the micro-computer version of UNIX. So far in this series I have provided an introduction to XENIX, showed you how to install it, and showed how to use the basic commands of this operating system. In this article I will discuss Vi, the visual editor in UNIX/XENIX. Many people have used this product and there is even a PC version of it.

I am using Microsoft XENIX System V/286 for 80286 computers. I am running this on a 80386 H-386 computer. Santa Cruz Operations (SCO) has a version of XENIX written for the 386 based machines which provides more power to the user by taking advantage of the capability. SCO also offers more bundled software through the company because of their commitment to UNIX and XENIX. If possible, I will discuss this product as it compares to the Microsoft version. If you want to see what is available for XENIX, you can get the XENIX Applications Directory (CB-7063-1) from Heath. It includes descriptions for about 400 products ranging from general ledgers to a BASIC interpreter. This directory is ongoing and will be updated. If I can get some application programs, I will review these as part of this series.

Vi stands for "visual editor", and that is exactly what it is. Vi is just like a word processor, but for a multiuser system. This article will make you familiar with all of the command keys under vi, but the best way to learn vi is to just experiment.

To enter vi, just simply type "vi" then the filename of the file you want to create or edit. Remember the rules about filenames we discussed last time like having a maximum of 14 characters and not using "greater than" or "less than" signs. Once you start "vi" a blank screen will be displayed with tildes down the side indicating lines and the cursor will move to the top left corner of the screen. If the line numbering has been turned on, these will be displayed down the left side of the screen. This screen only uses 24 lines but other screens on terminals might use 43 or 50. Also, some terminals may use 132 columns. Vi uses the features of your terminals not only in screen size, but in arrow keys and special editing keys. The terminal information is provided to the editor from your login script.

There are two modes in vi, the command mode, and the writing mode. In the command mode, you can write, delete, save, or move around without modifying text.

The command mode is the default setting when you enter vi. In the writing mode you can insert, add, or edit text depending on what character you used to get into the mode.

In vi when you start a file or want to insert text, you use the insert text feature. This is done by using the letter "i". Insert mode moves all the text over after the cursor position, so when you type, nothing is overwritten. To return to the command mode, press the Escape key. Now if you typed something here, it would not be recorded and would be processed as command strokes.

This would be fine, but what if you want to append after a certain character? In this case you would use the "a" (append) command. This deletes or overwrites all text in the way.

For both of these commands, there is an uppercase version that does a different thing. For example, an uppercase "I" inserts characters at the beginning of the current line. Nothing else is changed from the small "i". For the "a" command, an uppercase "A" appends text at the end of the line. As you see, case does count!

The one last text insertion command is the "o" or open line command. Depending on the case, it opens a new line before or after the current line. If the "O" is capital, it inserts it before, and if the "o" is small, it inserts the new line after.

Now, in order to move around to edit a file, you must use the cursor movement keys. A complete list of cursor keys are presented in Table 1. Remember, to move the cursor you must be in a command mode. If you are in a writing mode, just press Escape. The first set of cursor movement keys only move you one character. On most terminals they are simply the arrow keys. If you want an alternative to arrow keys, use the "h" key for left, the "l" key for right, the "k" key for up, and the "j" key for down. To me, these keys seem very awkward and shouldn't be used. The only major advantage to using these is that you can press a number before them and the cursor will go that number of spaces in the specified direction.

There are four additional intraline cursor movement keys. Two are for moving a word to the right or left. These are a little easier to remember, for "w" goes forward one word, and "b" goes back one word. You can also use two non-numeric keys, the "0" (zero) and the dollar sign "\$" to move to the beginning or end of a line. The "0" moves to the beginning of the line and the "\$" goes to the end of the line.

back one screen, respectively. If you know what line number you want to go to, you can type the number of the line, then "G". Just pressing "G" takes you to the end of the file. If you don't know what line number you are on, you just have to type Control-G and the line number will be displayed at the bottom of the screen.

By now, you know enough to create your own file. Having created a file, you must save it, after all, what's the use in knowing how to create a file when you can't save it? To save the changes or the new file, and exit, just type "ZZ". There are many other characters that do the same thing, too. If you do not want to save your changes and quit, just type ":q!" (colon q exclamation). Other ways of saving will be discussed later.

There are just a few more basic editing commands, mostly shortcuts, that need to be explained before moving into advanced editing commands. The period "." will repeat the last command or the last insertion or addition. The "u" will undo the last command or insertion/addition. They can save you lots of time when working with large files.

One set of commands that is used by some writers and bad typers are the delete commands. These, like all other commands, are done out of the command mode. Remember, you must press {ESC} to return to the command mode from

deletion. The first and simplest is the small "x". This deletes the character where the cursor is positioned. Adding a number before the "x" will remove that amount of characters from the cursor to the right. For example, "17x" deletes the character over the cursor and 16 characters to the right. The upper case version of the "X" command does the exact opposite, it removes to the left. Used by itself, it deletes the character before the current character. Used with a number, it will remove however many previous characters.

The next scale of delete commands is intraline. These are used if you don't want to press "50x" or the "x" key 50 times or if you want to delete a line. The "dw" command, probably the easiest to understand of these four, deletes the current word, but if the cursor is in the middle, it deletes the rest of the word (to the right). The "dd" command, also simple, just deletes the current line. Now here's the hard part. The "d0" command deletes the first half and the "d\$" deletes the last half of a line. The way vi determines the half mark is it takes the line length and divides it in half. These aren't that hard to remember because they use the same keys as the cursor movement keys, but with a "d" in front.

That's all of the delete commands. If they made any more delete keys you might delete some text you don't want to, so now we proceed to pattern matching.

Vi includes a simple pattern matching/searching feature, but it is powerful. Once again, it is used in the command mode. To find some target text, first move to the beginning of the area you want to search. Then type "/" (slash) and the text you want to look for and press <RETURN>. The cursor will then move to the first occurrence of the target text. If you want to search again in the document, just press "n" (next). This will cause the cursor to go the next occurrence of the target in the text. You can also search backwards, using a "?" instead of a slash.

With the pattern matching commands you can also find and replace text in your file. For this command, use the ":" (colon) key, then the number of the starting line, then a comma, then the end of the place to search (usually a "\$" for end of file) and an "s" and a slash "/", then the text to find and another slash "/", and lastly the text to replace, then a "/g (slash g). For example, to look for "boy" and replace it with "man", you would type

Cursor Commands

h	Left one space
l	Right one space
k	Up one line
j	Down one line
(n) h,l,k,j	n characters in specified direction
w	Forward one word
b	Back one word
O	Beginning of line
\$	End of line
Ctrl-F	Forward one screen
Ctrl-B	Back one screen
(n) G	Go to line n
G	go to end-of-file
Ctrl-G	Display current line number

For larger movement in big files, you can jump screenfuls or all the way across the file in a couple of keystrokes. This is thanks to commands like Control-F and Control-B that go forward one screen and

insert mode. There are many degrees of the deletion commands, so there is probably a correct one for every purpose. Another good feature is if you accidentally delete something, you can (u)ndo the

":1,\$s/boy/man/g". This can also be undone with "u". This sounds hard but as you use Vi, it becomes easier.

Vi has some advanced features only found in expensive word processors too. If you want to execute a shell command, you can do it without leaving vi. Just type "!", then the file or command to execute. For example, to find out how many blocks are used on each disk from within a vi file, just type "!:du" and press <RETURN>. Vi will execute the file and prompt you to press return to return to your document.

Another advanced feature is line numbering. Line numbering is a toggle that is usually switched off. To turn it on, make sure you are in the command mode and type ":set number". This is one of a lot of ":set" options. To see a list of the options, type ":set all". All these ":set" options are associated with pattern matching.

A very advanced feature is not in vi, but in the command line. You can enter the document at many different places. Just typing vi and the document name puts you at the start, but "vi, +150", and the "document name" puts you at line 150 of the document. You can also enter at the first occurrence of a certain word. Just type vi, a plus sign, a slash, and the word, and the filename. For example, to start at the first occurrence of "person", type "vi +/person filename".

If you are working on a file and want to add another file into it, just two keystrokes and the name of the file will do it. The famous colon, then "r", then the filename will do it. For example, to read in the file "temp", just type ":r temp". This is another timesaver so you don't have to leave vi and use cat.

In a multiuser system, loading "vi" may take a lot of time. With a lot of documents, editing them, then quitting wastes time. You can specify more than one file on the command line, or use wildcards. For example, to edit all the "book" files, just type "vi book*". This time when you save a file, you must use the ":w" command so vi won't quit. To go to the next file, use ":n". You can edit files out of order though, by using the ":e" command. To edit "book4.1" out of order, type ":e book4.1" and vi will jump to that file. Remember to save your changes to the current file before using the ":e" command. You can return to the beginning of the list again, using ":rew". Also, if you forgot to include another file, then you can use the

":e" command and the full path and filename. Before using ":e", you must save the file you were working on! You can return to the file you were working on by typing ":e#".

That's a good start into the Vi editor in XENIX/UNIX. There are many other features in vi that I've never heard of before. Vi is a good word processor, except for the trouble memorizing the commands. It is worth the effort to learn if you plan to use UNIX/XENIX. The Vi created file can be printed using advance printer control functions available with the system, including a publishing capability. There are some commercial word processors currently available, and look for more ports as UNIX/XENIX develops a broader user base.

If you are interested in a good light book on UNIX that is easy enough to read through, try "UNIX for the People" by Birns, Brown, and Muster. It is published by Prentice-Hall, Inc. The book is instructional but the approach is different than most books, as the material is presented in a light, easy manner. Until the next, happy XENIX. *



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NU-413	Norton Utilities Adv.	\$150.00	\$ 99.00
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UCI Memory Upgrade Card We recommend this one highly. The board has sockets for up to 2 MEG of RAM. With no RAM installed \$288.00. Add \$35.00 for EasyDrive RAM Drive Software if desired. Either 64K or 256K RAM chips may be used to complete this kit.

UCI EASY-I/O S-100 board that provides IBM PC communications port compatibility with your EasyPC. Easy/I/O-1, One Serial Port \$91.00. Easy/I/O-2, Two Serial Ports, One Game Port, Clock- Calendar \$127.00

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How to Get the Most from a Zenith Laptop Computer

by Joseph Katz

Part 4. Here are some specific ways to improve battery operation of every Zenith laptop computer. All these things will cost at least a little money, but the payback can be really fast.

Prepare for your battery's impending failure. Unlike alkaline batteries (such as those used in a flashlight or, by some folks who haven't read this article, in a Zenith ZP-150 laptop computer), or lead-acid batteries (such as those used in a car), NiCad batteries such as those used in most Zenith laptop computers have a "steeply-declining power slope." In plain English, NiCads don't fade out like other batteries: they provide full power right up to almost the very end, then die suddenly and completely. Your computing comes to a full stop then until you recharge the NiCads or find some other source of power.

So when the "Low Power" indicator on your Zenith laptop computer comes on during a battery-powered computing session, you have only a few minutes—maybe five or ten minutes, depending on your computer, the way you've treated its batteries, and the way you work—to finish what you're doing and shut down in an orderly manner. The one thing you don't want to do, by the way, is let the computer die while you're trying to do just a few minutes more work than you can.

On the Z-171, Z-181, Z-183, and the sPort models you'll at least lose any data in RAM that you haven't saved to disk. With some

programs you might use on those machines, you also might lose the entire contents of any disk files you opened and left unclosed when the power ran out. On the ZP-150 you'll lose whatever you've done in a Microsoft Works program since the time you last exited that program: that's when Works closes the file. In every case, therefore, shut down the computer in an orderly manner before the power dies.

Traveling Software's Battery Watch

But how to know when that will happen? Sure, you'll know when the low power indicator pops on. That's just too late, however, when it pops on a few minutes into an hour's worth of work. Had you known there were only a few minutes of life remaining in the battery, you might have swapped in a freshly-charged battery, begun some less extensive computing task, or done something else until you reached an AC outlet.

If you use your Zenith laptop computer on battery power, you'll therefore want some way to at least estimate the time remaining on a charge. What you want is Traveling Software's Battery Watch, an inexpensive TSR ("Terminate and Stay Resident") program that not only monitors the battery

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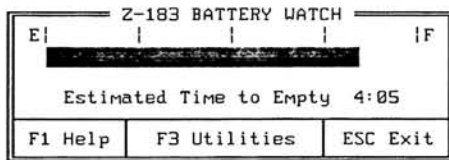


Figure 1. Battery Watch's elapsed time meter.

but also aids in maintaining it. Battery Watch is essential for laptop computing on the go.

Once it's properly installed for your computer and loaded in RAM ("Random Access Memory"), you can press the SHIFT, ALT, and B keys simultaneously to see an elapsed time meter (look at Figure 1) whenever you want to know the time remaining on the battery's current charge. The meter will suspend operation of your applications program: press the ESC key and the Battery Watch meter will disappear from the screen so you can continue what you were doing.

Of course you won't spend all your computing time being paranoid about the impending demise of your battery. Be a blithe spirit for a while after you insert a freshly-charged battery pack or set of batteries. Then, when you're beginning to feel a little weary, recognize that your battery might be feeling the same way. So press the Battery Watch hotkeys (SHIFT, ALT, B) and check the meter. Let its reading guide your timing for the next check. One feature I'd like added to Battery Watch is the ability for me to set an alarm or two that might alert me an hour or half an hour before the battery is exhausted, with an optional display of a warning message. Right now Battery Watch doesn't have such alarms. You have to remember to check. It's easy enough.

The very first thing you do with Battery Watch is install its one program, BW.COM, on your hard disk or a working floppy diskette with Battery Watch's Install program. Don't bother looking for BW.COM on the Battery Watch disk, though. It doesn't exist until you've finished running the Install program. Tucked away in a subdirectory of the Battery

Watch distribution disk is a number of different programs with names such as "Z181.COM" and "Z183.COM." Each is a version of the Battery Watch program for a different computer. When you tell Install just which computer you own, it selects the appropriate program and renames it "BW.COM."

I'm working with a prerelease copy of Battery Watch, which supports only the Z-181 and the Z-183 right now. But don't write off Battery Watch if you own any of the other Zenith laptop computers. Here's an example of the curious things that happen in the world of microcomputers. Mark Eppley, President of Traveling Software, gave me the advance copy on the very same day Zenith introduced its SupersPort, SupersPort 286, and TurbosPort 386 laptop

computers. Battery Watch was being introduced at a press conference that evening. So everyone looked at everyone else and sighed. It's hard to keep current in the fastpaced world of microcomputers.

Because Zenith's are among the leading laptop computers, and because Traveling Software specializes in products for laptop computers, it takes no psychic powers to predict that the sPorts and any future machines from Zenith will be supported in future versions of Battery Watch. They're probably supported right now. Maybe, if there's enough demand, the Z-171 will be supported too. But do check to see that Battery Watch supports your very own computer: the program is absolutely hardware specific. Should you tell Install that yours is a Z-183, for example, it gives you a copy of the battery watch program designed especially and only for the Z-183. Although that BW may seem to work on a different computer, it won't really. You'll get wrong information.

Install will ask you also to specify the drive and directory to which you want the program copied and whether you want your AUTOEXEC.BAT file modified to run BW.COM (the Battery Watch program) automatically each time you boot the computer. If your laptop computer is a Z-183 or another one that has a hard disk drive, you probably should have the program copied to "C,\" the root directory of drive C. If yours is a Z-181 or other floppy-only computer, you'll probably want the program copied to the system diskette from which you boot the computer. In both cases you probably should answer Y to that question about modifying the AUTOEXEC.BAT

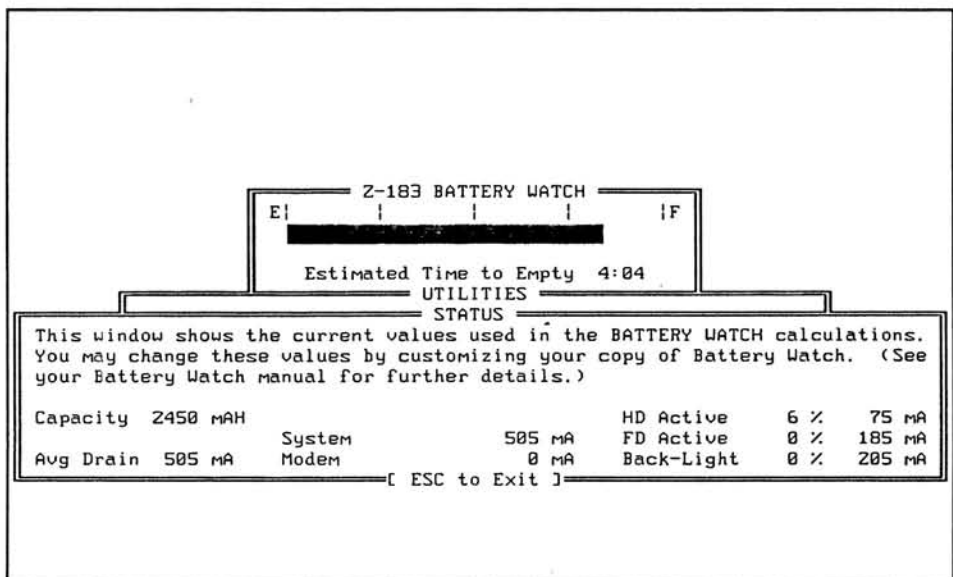


Figure 2. Subsystems watched by Battery Watch.

file so BW runs automatically on bootup. You want BW to run automatically on bootup whenever the computer is in a battery-powered session because Battery Watch must maintain its own internal record of the elapsed time on a battery charge.

It's important for to understand at least a little about how BW works so you know what Battery Watch does and doesn't do. Battery Watch doesn't actually measure the battery charge directly, the way a battery tester measures the strength of your car's battery. Because the NiCad batteries that power your computer have a steep power slope, there's probably no way to do that: the charge will read full right up to the end.

Battery Watch therefore works by indirection, mathematics, and assumptions. Those assumptions are reasonable because there are only limited possibilities for making your Z-183 different from mine. The program really is a specialized elapsed-time counter. When you boot the computer right after you've installed a freshly-charged battery, you press the F10 key to set the counter. It decrements quietly, in the background, while your computer is running. When it reaches zero, your battery should have reached the end of its charge.

But it's a much more sophisticated elapsed time counter than that simplified explanation might suggest. Battery Watch bases its maximum count on the rated power life of the standard batteries for your computer and the rated power consumption of each standard subsystem (modem, disk drives, and so on) in that computer. From time to time while it's running, the program samples the way you're actually using

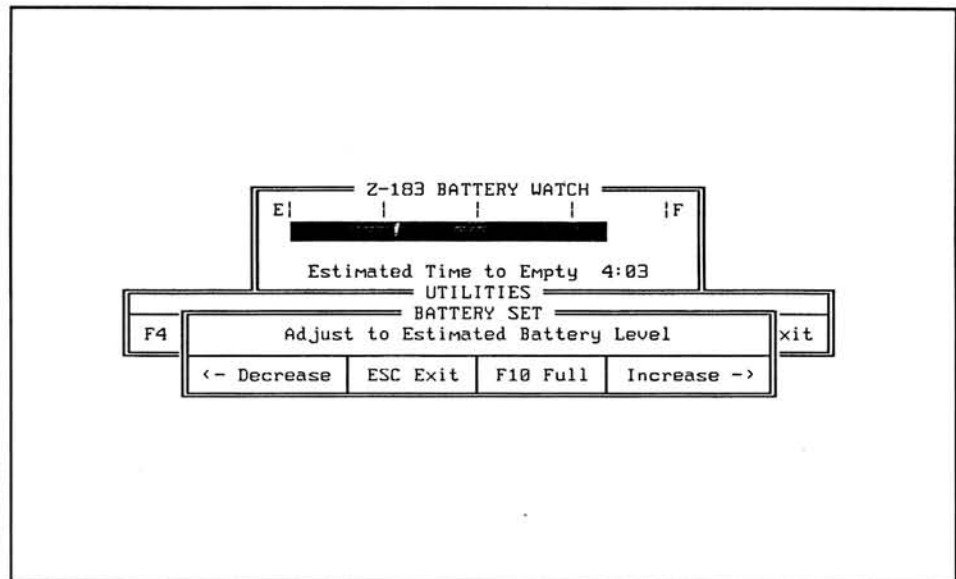


Figure 3. Manual adjustment of the countdown timer.

those subsystems (whether the internal modem is on, for example) and continuously recalculates the effect of all those factors on the ratings it knows. Knowing that much, you'll know how to use Battery Watch effectively.

First, make sure the Battery Watch meter is accurate by running BW with any command line "arguments" needed to adjust it for the subsystems in your computer. Arguments are codes you add to the command line when you run a program. BW's default for a Z-183, for example, assumes that the computer has Zenith's own internal modem. If your computer doesn't, the command you should use is `BWMO=0` to remove the 100 mA drain of Zenith's standard internal modem as a factor from the program's calculations. (I did it before

shooting the screen you see in Figure 2.) There are similar parameters to adjust for other situations, such as if you run a dual speed computer (like the Z-183 or Supers-Ports) at their low speed instead of their high speed or if you use other than the standard battery for the computer.

You'll have to know the power drains for each deviation from the BW defaults. To check the defaults, or the values for which BW presently is set, press the F5 key at the Utilities menu (see Figure 2). Next compare them with the ratings for the subsystems actually in your computer. In practice that's a more or less easy job. It's more easy if you're using an off-the-shelf Zenith laptop. All you'll probably need to check is the modem setting and, if you don't have an internal modem, zero out that factor just as I've explained in the preceding paragraph. Batteries are easy to check too: look at the power rating marked on their labels. For just about everything else you'll have to do what you dread most: read the manuals that came with your equipment. Look for a section marked "Requirements" or "Specifications" or something like that. Then look at the Battery Watch manual for any argument you must use in running BW to adjust for the differences between the BW defaults and your computer's real requirements.

Once you have BW running the right way for your computer, keep these next two points in mind. They're easy. First, you *should* reset BW each time the battery is freshly recharged: press the F10 key in response to the prompt displayed when BW loads (you have about three seconds before loading continues). Second, you *should not* reset BW each time the computer boots,

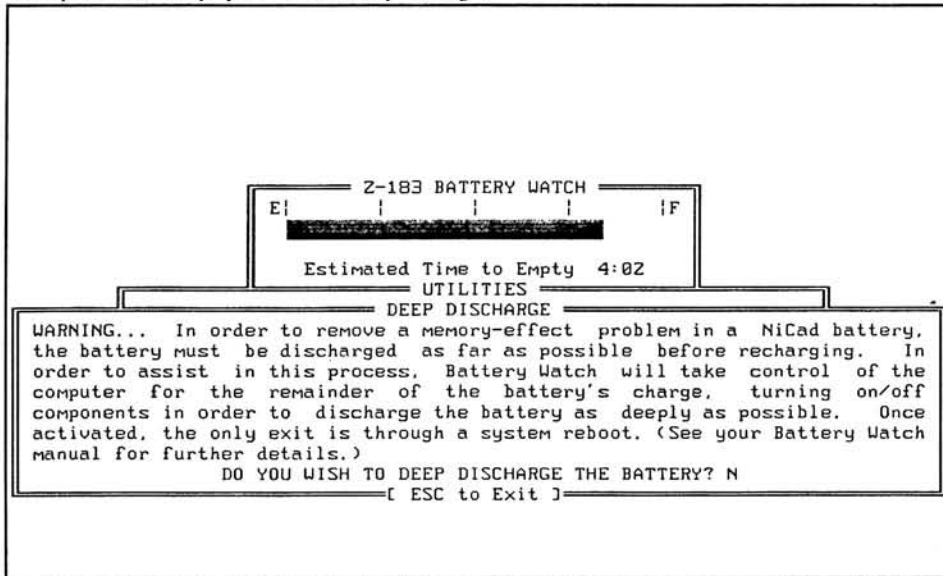


Figure 4. The deep discharge utility.

only the first time it boots after you've installed a freshly-charged battery. At all other times you should either outwait the prompt displayed when BW loads or press any key but the F10 key (the spacebar is good) to send it on its way. If you reset BW every time the computer boots, the meter will be wrong.

Although I'm amazed at the accuracy of Battery Watch much of the time, treat its meter as only a running estimate of time remaining. The program doesn't know when you've shifted from battery to external power, for example, so it will be inaccurate if you mix power sources before the battery is completely drained. There's a way to adjust the meter manually (press F3 for the Utilities menu, then press F6 for the Battery Set option shown in Figure 3, and then use the arrow keys to increase or decrease the setting) on such occasions, but I think it's too crude to be worth much. You need to guess at the effect of the external power source on the charge of the internal battery, and if you're that good at guessing you probably have no use for a battery monitor of any kind.

Battery Watch is really useful when your computing sessions are battery powered from the time the battery is freshly charged to the time it is completely discharged. Don't misunderstand. There can be any number of sessions on a single battery charge. But you'll throw off the estimate if you mix time on the AC adapter with time on the battery.

Another option at BW's Utilities menu allows you to do a Deep Discharge of the computer's NiCad battery pack (see Figure 4). You'll recall from Part 1 of this series that NiCad batteries remember the way they're used, quickly conform to that pattern, and soon lose their ability to accept a full charge if they're not fully discharged from time to time. BW's Deep Discharge option will drain the laptop's NiCad almost completely. Use it from time to time, especially when the Low Power indicator has come on, you've finished working, and you have both an external source of power and the time to use it for fully recharging the battery. You might come to think that the elegance of the Deep Discharge option in Battery Watch is worth the modest price of the program.

Battery Watch is \$39.95 from Traveling Software (1913 North Creek Parkway, Bothell, WA 98011-8006, 206/483-8088.

Low tech deep discharge

There's not much point to this old trick if you own Battery Watch, and since Battery

Watch costs so little you really should buy it. But if you own a Z-171 or some other NiCad powerable computer for which Battery Watch presently is unavailable, the old trick might come in handy.

A low tech way of deep discharging a NiCad is to connect it to a lantern bulb of the right voltage and wattage, then let it glow until it doesn't. That stint powering the light bulb squeezes the last drop of juice from the battery, which is what you want in a deep discharge. Be careful you get the polarity right when you make the connection, be sure the lantern bulb is right for your battery, and be sure the battery really is almost dead: what you're doing has the potential to zap things most unpleasantly. Battery Watch is neater and easier and much classier.

Use NiCads in your ZP-150

The temptation is to use alkaline batteries in a ZP-150 because they're relatively cheap. You'll save money in the long run, though, if you use NiCads instead. They're much more expensive initially, and they have less operating life between charges, but because they're rechargeable they're a bargain in the long run. Radio Shack's (Catalog 23-125) cost \$3.99 for a pack of two AA NiCads. You'll need five packs at a total cost of \$19.95.

(By the way, you can go half way with these things. You can mix NiCads and alkalines in a ZP-150 and sort of ease into the switchover.)

The ZP-150 won't charge those NiCads, though, so you'll also need a charger: Radio Shack's Catalog Number 23-134 will charge all ten AA NiCads at one time and costs \$29.95. Don't try recharging alkaline batteries. That's dangerous.

Get a spare battery pack

Sure they're costly. If you do much traveling, however, and really need to use your computer on battery power, a spare battery pack can save the day, or at least a few profitable hours of it.

For example, I recently was on Amtrak's Silver Star from New York to Columbia, South Carolina, when the train's electrical power for air conditioning and lights died a few minutes out of Grand Central Station. There are few prospects less appealing than that of spending the better part of fourteen hours in a sleeping car with nothing to do but perspire. What I did was work for a total of about six and one-half of those hours, thanks to a fully-charged battery in my Z-183 and a spare fully-charged battery in my carrying bag. When the first battery ran out,

I saved my work, turned off the computer, unscrewed the cover to the battery compartment, changed batteries, and went back to work. That spare battery paid for itself and my round trip train tickets in one fell swoop that trip.

For a ZP-150 you get 10 more of those NiCads I've already mentioned.

For a Z-171 you can use either a ZA-170-1 battery pack or a Power Pack that I'll describe later in this series.

For a Z-181 or Z-183 you can use any of these battery packs: ZA-180-40, ZA-180-45, or ZA-180-1. I've listed them in order of decreasing amperage, so prefer the earlier on that list unless you can save at least half its cost on the later. Think about it long enough and you'll figure out the point.

Get a battery recharger

Indeed you can keep swapping battery packs into your Z-171, Z-181, Z-183, and the sPorts to keep them charged. Those computers are designed so the batteries are charged when the AC adapter is plugged in and the computer is not running. What you'll save during the entire life of your Z-181 or Z-183, however, is a maximum of \$29—the price of its battery recharger. But if you have even one spare battery pack you'll find that swapping grows very old very soon. So will you. And what you're doing is turning an expensive laptop computer into a cheap battery charger just so you can save \$29. That makes no sense at all to me, especially should you need to take off with your computer before the battery pack in it is completely charged.

Owners of a Z-180 or Z-183 should spring for a Zenith ZA-180-35 external battery charger. It's a little cube, similar in size to the power adapters for portable calculators, weighs a bit less than 1 lb, and lists for so little that you ought to buy one when you buy your first spare battery pack. With it you can charge the spare external battery pack in your motel room while you take your laptop computer out on the town. The ZA-180-35 uses 25 watts of 120 volt AC input and outputs 600 mA of 16 volt DC. It takes 6-8 hours to fully charge a depleted battery pack. That timing is about right for you to work your computer on batteries three full shifts each day. You'll give up before it will.



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You've written software that plots analytical data. You have to give a dem-

onstration combining graphs, illustrations, and data created on the H/Z-100, IBM-PC, and Macintosh computers. Now what?

Use ShowOff for the H/Z-100 to incorporate H/Z-100, PC, and Macintosh graphics into a self-running slide show presentation on the H/Z-100.

These are more than just scenarios, they are three examples of how H/Z-100 users can use ShowOff to improve their image.

What Is ShowOff?

ShowOff is the high resolution graphics editor for the H/Z-100. It gives the H/Z-100 high resolution (640 × 480 pixels), 92 fill colors, 92 patterns, and 25 professional quality text styles.

In addition, as we've alluded to in the scenarios, ShowOff also serves as a graphics system integrator for the H/Z-100 . . . taking input from a variety of sources, creating high resolution, multi-color graphics, and converting them into formats usable by other computers, software, and output devices.

In The Beginning

ShowOff was written for our own use in advertising and graphics design. We had used other graphics editors, but the results were never good enough to produce copy to show to clients. Even with the H/Z-100's normal 640 × 225 resolution, lines were too jagged, circles were flattened, and text was of poor quality and difficult to produce.

We knew that the H/Z-100 was capable of high resolution and the square aspect ratio that comes with 640 × 480, not to mention the color capabilities. But it wasn't until ZGRAPH and Flexigraph became available that we were given the tools to create a high resolution graphics editor that had all the features we needed. Many of the ShowOff functions use ZGRAPH and Flexigraph routines, the linkable graphics libraries from New Orleans General Data and MicroDoc.

Having seen how easily graphics could be created on the Macintosh, we wanted to use a mouse with ShowOff. When the Logitech C7 serial mouse came along, at a reasonable price, we jumped at it. Although it plugged right into the back of

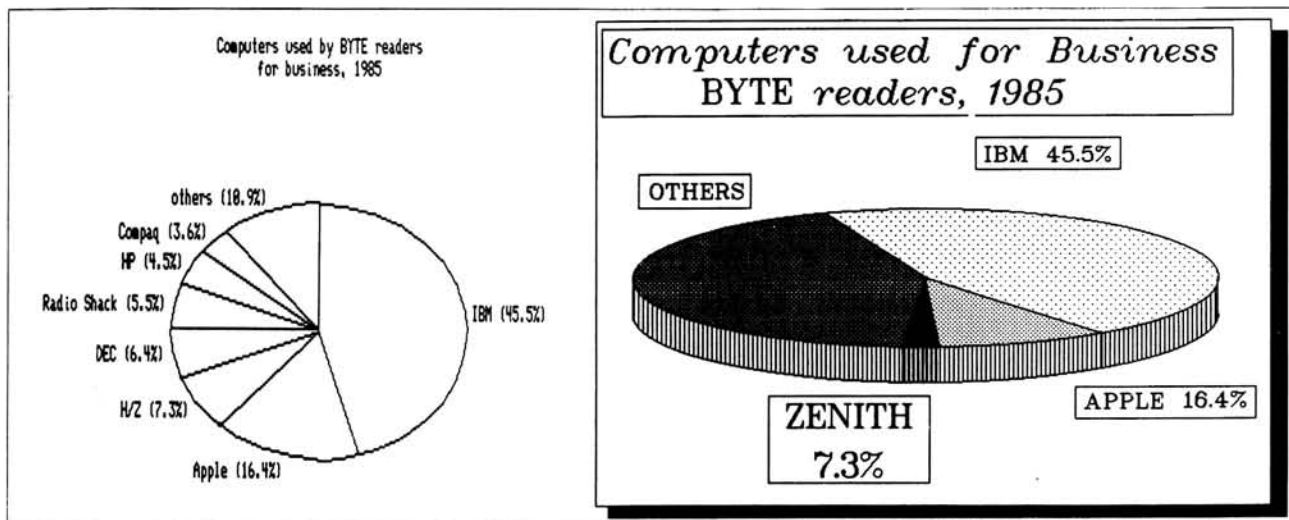


Figure 1
Before and After: A pie chart created with Lotus 1-2-3 captured and enhanced with ShowOff.

the H/Z-100, there was no mouse software then, so we had to write that, too.

The mouse driver is written in Assembly Language and is an integral part of the program. There is no need to load an external mouse driver before running ShowOff.

We tried to make ShowOff as fast and efficient as possible. We spent a lot of time optimizing and improving the performance of routines, especially disk, area, and copy functions. This is because we have used other programs and become frustrated with the slowness of seemingly trivial operations.

From the very beginning, we knew that compatibility with other H/Z-100 software was important, so we developed the screen capture utilities that saves the H/Z-100 screen so it can be retrieved in ShowOff for enhancement.

ShowOff And H/Z-100 Graphics

The ShowOff software includes utilities for capturing the H/Z-100 screen. The screen capture utility LOGRAB will allow you to capture your normal H/Z-100 screen (640 x 225). This is done by running LOGRAB before running the application program (such as Lotus, Enable, AutoCAD, BASIC, etc.). The LOGRAB program is a memory resident ShowOff utility that will save a normal H/Z-100 screen to a disk file whenever SHIFT BREAK is pressed.

LOGRAB keeps track of the pictures captured and saves them as PICTUR0, PICTUR1, PICTUR2 and so on. These pictures, whether they're Lotus graphs, BASIC screens, or CAD drawings can then be loaded into ShowOff. Figure 1 shows a Lotus pie chart, captured and enhanced with ShowOff.

LOGRAB will also capture graphics screens from software running on the H/Z-100 under ZPC, such as Generic CADD, or Newsroom Pro.

ShowOff And The Macintosh

ShowOff gives the H/Z-100 the same square aspect ratio as the Apple Macintosh, with similar on-screen resolution. This means that pictures created on a MAC can be displayed on the H/Z-100, and ShowOff pictures created on an H/Z-100 can be used by a Macintosh.

The MAC format is becoming a de facto standard for saving bit-mapped graphics. This format is used by PC's, as well as Macintosh systems, and leads to a broad source of graphics for use in ShowOff.

- Some PC-based graphics scanners can save pictures in the MAC format.
- Commercial clip art libraries (MSDOS) are becoming available in MAC format.
- Pictures saved in the MAC format are available on many bulletin boards (including Compuserve).

The MAC picture resolution is 576 x 720 pixels, and the ShowOff utility SHOWMAC displays a MAC picture, 480 lines at a time, by scrolling the picture up and down on the screen.

The ShowOff utility HIGRAB operates in the same way as LOGRAB, described above, and will save the displayed MAC pictures as ShowOff pictures.

Figure 2 shows ads created by ShowOff with captured clip art.

Desktop Publishing

Because of the popularity of the MAC format, many desktop publishing programs can read pictures stored in the MAC format and combine them with text in documents.

The ShowOff utility CONVERT, available on the optional Art/Utility Disk, converts a ShowOff picture file into a MAC picture file. This MAC file can then be used in several desktop publishing programs including:

- Ventura Publisher (Xerox Corp.)
- GEM Desktop Publisher (Digital Research Inc.)
- PageMaker (Aldus Corp.)
- Publisher (Logitech Inc.)
- First Publisher (Software Publishing)

In this way, ShowOff pictures can be combined with text in reports, newsletters, and brochures.

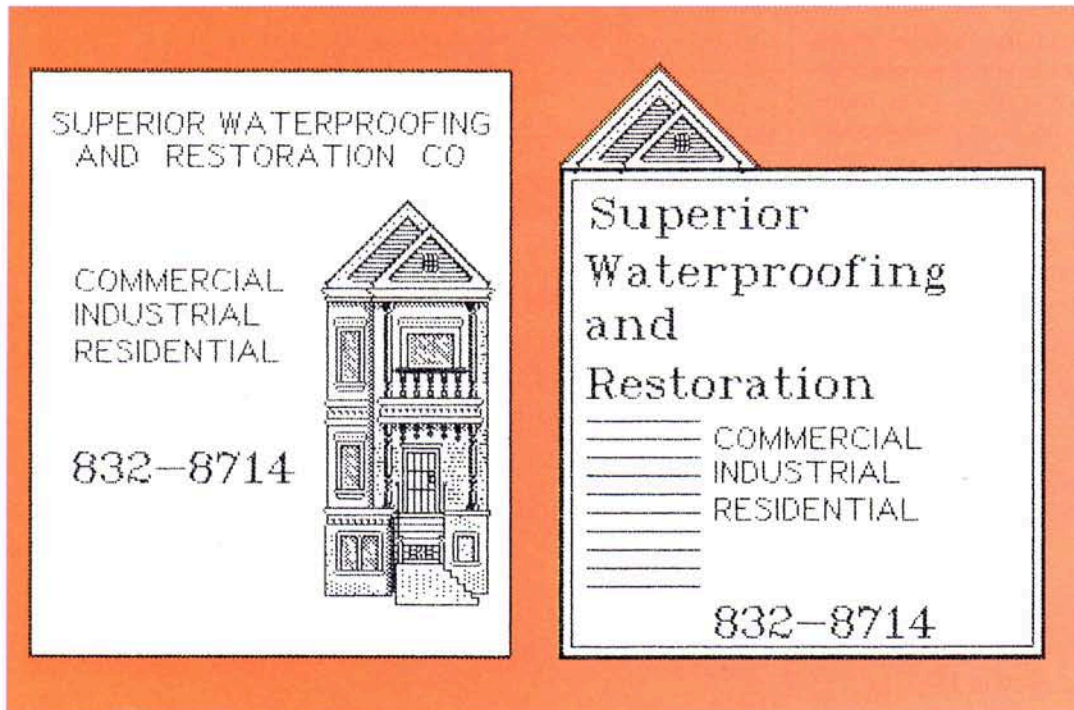
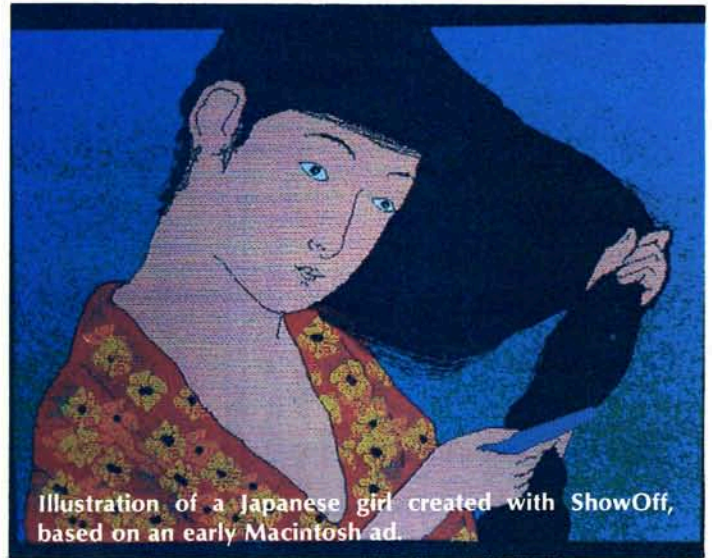
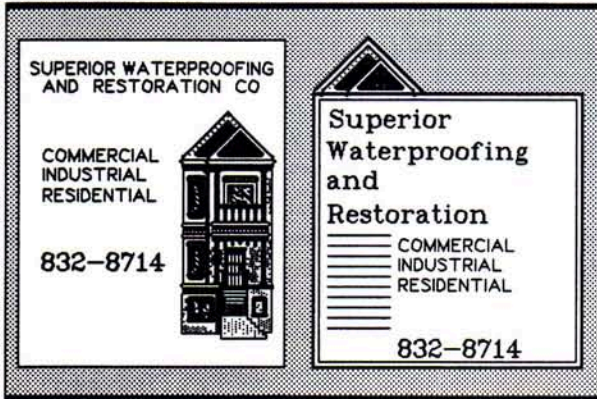


Figure 2
Advertisements created with ShowOff and commercial clip art.

ShowOff And PC Graphics

The PC/XT/AT compatibles and the PC-emulation boards for the H/Z-100 use the IBM Color Graphics Adaptor (CGA) standard for display of graphics. These graphics screens are either 640 × 200 in 2 colors, or 320 × 200 with 4 colors.

The ShowOff utility CGAGRAB, available on the optional Art/Utility Disk, operates in the same way as LOGRAB, described above, and will save the CGA graphics screens as picture files that can be loaded into ShowOff.

Using ShowOff

ShowOff was designed for use with the Logitech mouse. We selected this mouse because of its reasonable price and high performance. (Ours has been in daily use for over 2 years with no problems.)

A mouse is not required, but with ShowOff, there are over 307,000 pixels on the screen and a mouse makes it a lot easier to draw and move around the screen.

For the most part, the ShowOff commands are reasonable mnemonics, for ex-

ample: (B)ox, (A)rea, (T)ext. The function keys are used also, for example: F1 — fill an area, F2 — color menu, and F3 — design a pattern.

We avoided the use of menus because they occupy space on the screen that could otherwise be used for drawing and also they get in the way of all, but the novice user. If you forget a command, simply press HELP, and the list of commands appears.

Enhancing Captured Graphics

The simplest way to enhance graphics is to add color and text. The ShowOff fill color menu has 92 different colors from which to choose. To fill an outline, position the cursor within the outline and use the (F)ill command. Adding text anywhere on the screen is equally easy. Position the cursor at the text starting position and press "T" for the (T)ext command. You are able to enter the text, select the font to use (25 available), and the angle to write the text at (0-360 degrees). Subsequent text can be written using the same conditions with the (W)rite command.

Drop shadows are created instantly by using the transparent copy function. Shading patterns are selected from the fill pattern menu, 92 patterns are defined and you can also define more.

Free-hand drawing is easy with the mouse, just press a button and move the cursor. For a spray can effect, press another mouse button and move some more. The spray width may be adjusted to vary from just 1 dot to filling the entire screen. The spray can is great for creating gradual tints and special effects.

Combining Graphics From Different Systems

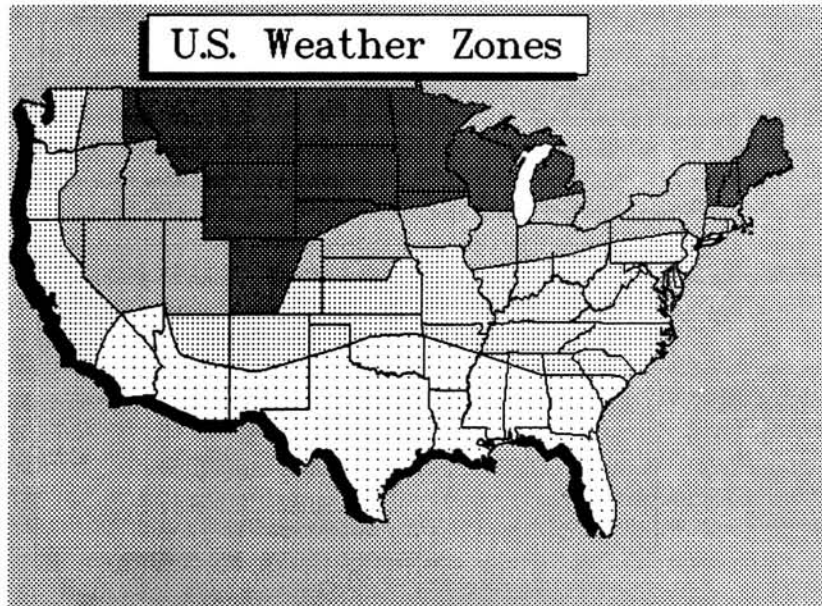
ShowOff has two active screens that you can work on at the same time, moving things back and forth between them. Generally, you create your picture on one screen and use the other to load graphics to be moved into your picture. In this way, there is no limit to the number of captured screens, pieces of clip art, or elements of your own graphics library that can be included in your picture.

Added Functionality With KEYMAC

The new HUG software KEYMAC (HUG part number 885-3046-37) by Pat Swayne brings added functionality to ShowOff. KEYMAC is a keyboard-macro definer, which means that you can redefine any key to send up to 100 keystrokes.

Using KEYMAC in ShowOff, I've redefined the keypad '6' to be 20 right arrows, so I can move exactly 20 pixels at a time.

I've also discovered that this gives ShowOff a new "playback" ability — by beginning a key definition and then using the commands to create a picture, I can recreate that picture any number of times any place on the screen, just by pressing



A weather map created with ShowOff, using the US map included with the program.

the defined key. This could be an extremely useful feature.

Showing Off: Creating Self-Running Demos And Displays

The ShowOff software includes programs and routines for displaying ShowOff pictures. The program SLIDE will display one ShowOff picture at a time and is quite useful in batch files. In a typical application, a demonstration of an educational program, pictures and text are shown in an alternating sequence and the batch file waits for user input before proceeding to the next screen.

The program SLIDESHOW will continually display a series of ShowOff pictures without requiring any user interaction. The list of ShowOff pictures is created in any text editor and saved as a file. SLIDESHOW will then read the list of picture names and display the pictures at user-specified intervals.

The routine LOADPII is for use in programming, to enable the programmer to include ShowOff pictures in his/her own software.

Laser Printers

ShowOff includes support for all popular printers — dot matrix, color, ink jet, and laser printers. In fact, our policy is that

every ShowOff customer deserves a printer driver. And if the customer provides the appropriate sections from the printer manual, we will write a driver.

All of the basic printer drivers are "screen dumps." The printer program is loaded into memory and remains resident. The user then runs ShowOff and when the picture is ready to be printed, presses SHIFT F12 for an immediate screen dump to the printer.

On the optional Art/Utility disk, are enhanced versions of printer programs for the Epson and Hewlett-Packard laser printers. These programs run on any MSDOS computer and allow printing ShowOff pictures from files. These programs can print pictures in different sizes and can print multiple pictures from a batch file.

Support

Because we use ShowOff daily, we KNOW the program and are always available to help you use ShowOff more effectively. Also, we continue to develop utilities and functions that give ShowOff and the H/Z-100 even more capabilities.

Available from HOGWARE:

ShowOff	\$ 79
ShowOff and Logitech Mouse	\$174
ShowOff Demo Disk	\$ 3
ShowOff Art/Utility Disk	\$ 15
Logitech Publisher	\$ 74 *

Z-100 DESKTOP PUBLISHING:

LOGITECH PUBLISHER

Earl R. Zimmerman Jr.

0169 Spinning Road
Dayton, OH 45431

Introduction

One of the newest rages in computing is desktop publishing. There are numerous desktop publishing programs available for IBM and Apple computers, however, nothing is available for Z-100 users — until now.

The program that will fill this gap is Logitech Publisher which is available from Hogware. Logitech Publisher is PFS: First Publisher packaged with a Logitech Mouse. It will allow you to combine up to four columns of text and graphics in a single document. It is ideal for creating short newsletters, flyers, announcements, cards, and forms. In addition, it can also use graphics created by other systems, but more about that later. Areas to be discussed in this article include: minimum system requirements and installation, documentation, major program features, and interfacing ShowOff with Logitech Publisher.

Minimum Requirements and Installation

Minimum Requirements. To use Logitech Publisher you should have as a minimum: a dual-floppy H/Z-100 with a 768K

of memory required by ZPC, MS-DOS 2.XX or greater, ZPC Version 2.0, and an 80 column monochrome or color monitor, plus a supported dot matrix or laser printer. A Logitech Mouse and a hard disk or memory board would enhance program performance. Also, 64K of color video memory is necessary if ShowOff is used in conjunction with Publisher.

Installation. Publisher is very easy to install and relatively easy to operate. First, make a working copy of the original disks. Make patch to the FP.EXE and SNAPSHOT.COM files. The patch can be found in ZPC Update #20 published in the December 1987 issue of REMark. If you use a Logitech Mouse with Paul F. Herman's Mousepack, you could create this batch file for easy program operation:

```
PCMOUSE XD2 YD5 XS20 YS20 LB151 MB141 RB160
```

This batch file sets the left button to F1, the middle button to Return, and the right button to F10. These are the most commonly used keys. After this is accomplished, use PRINTER.COM to select your printer. Before you enter ZPC load the mouse driver. Next, enter ZPC. If you are using a dual-floppy, insert the Program

Disk in drive A and the Font disk in drive B. Finally, type FP at the A prompt and you're ready to begin.

Documentation

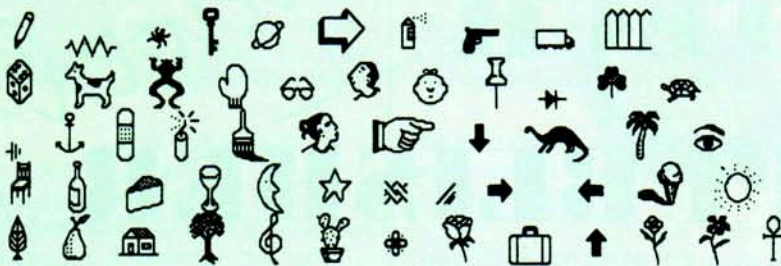
Publisher documentation is excellent. The first two chapters cover installation and provide an overview of the drawing screen. Chapter 3 is 42 pages long and is a "quick tour" tutorial on how to use the program. I highly recommend taking the quick tour before attempting to use the program. There are also additional chapters on preparing text, preparing graphics, laying out a publication, printing, using layouts and templates, and seven appendices.

The one difficulty you could experience is the difference in the ZPC keys and the standard IBM keys. Be sure to review your ZPC documentation if you don't use it often. A few important keys you need to remember are HELP, which is the IBM equivalent of ALT, and the numeric keypad 3 and numeric keypad 9 keys, which are the ZPC equivalents of Page Down and Page Up.

Major Program Features

Menu Bar/Side Tools/Elevator Bars. After entering Publisher a screen appears

Geneva Normal 12 pt.	Geneva Normal 14 pt.
Geneva Normal 9 pt.	Geneva Normal 10 pt.
Geneva Bold 9 pt.	Geneva Bold 10 pt.
Geneva Bold 12 pt	Geneva Bold 14 pt.
<i>Geneva Italic 9pt</i>	<i>Geneva Italic 10pt.</i>
<i>Geneva Italic 12 pt.</i>	<i>Geneva Italic 14 pt.</i>
courier Normal 10 pt.	Courier Normal 12 pt.
Courier Bold 10 pt.	Courier Bold 12 pt.
<i>Courier Italic 10 pt.</i>	<i>Courier Italic 12 pt.</i>



Above are Cairo 18 pt. Symbols. This font is Helvetica Normal 18 pt.

New York Bold 24 pt.

Figure 1
Publisher Fonts

that has a menu bar at the top and a side tool and elevator bar on the right. The menu bar lists seven menus and the associated function keys (F1-F7) that must be depressed to get the pull-down menus. The side tools are used to create or modify parts of a graph. The elevator bar simply tells you where you're at in your publication. A straight line cursor will also appear on the screen. The documentation states that if you are using a mouse, the cursor will look like a capital I with curled ends. Using ZPC, this is not the case. The cursor will still be a straight line.

The side tools include straight line drawing, box drawing, and pencil drawing. Four different widths can be used when drawing. The selection tool is used when cutting out graphics and copying them to a publication you are creating. The eraser tool is used to erase your work. Depressing the F9 key moves the cursor from one tool to another. HELP (ALT) F9 is used to select the drawing width.

Text Fonts and Style Menus. The standard text fonts are all contained in the

MASTER.FNT file. They include Courier, Geneva, Helvetica, and New York. These fonts can be printed in bold, italic, and normal styles with varying number of points. An appendix to the documentation shows what the various styles look like. Figure 1 is an example of some of the fonts that are available. However, you are not limited to these four fonts. You can select your own fonts and add to or delete from the MASTER.FNT. This is accomplished with the FONTMOVE command. You can add fonts from EXTRA.FNT on the Sampler Disk or the LASER.FNT on the Laser Support Disk. For instance, I copied the Cairo Normal 18 point file to MASTER.FNT from EXTRA.FNT. This font contains numerous graphics characters. See Figure 1. A few words of caution for the dual floppy user — Logitech Publisher needs at least 40K of disk space on the fonts disk. You must erase some files from MASTER.FNT if you wish to use different fonts. Additional fonts can also be purchased separately.

ASCII Text File Import Capability. A text file that is created with word processing

programs, such as Enable or WordStar, and saved in ASCII format can be imported for use in Publisher. The filename must have a .TXT extension. I have found this method of input to be much quicker than typing text with Publisher. If your text file fills up more than one page, Publisher automatically makes new pages for you and places the text there. All that is necessary is to depress the F3 Key and select the file you want. You can then insert, erase, edit, copy, and move text as if it were originally created with Publisher itself. Before getting the text file, select the font and style you want.

Art Enhancement. Publications can be enhanced using the various graphics features. Publisher can use its own graphics files or files created by other programs.

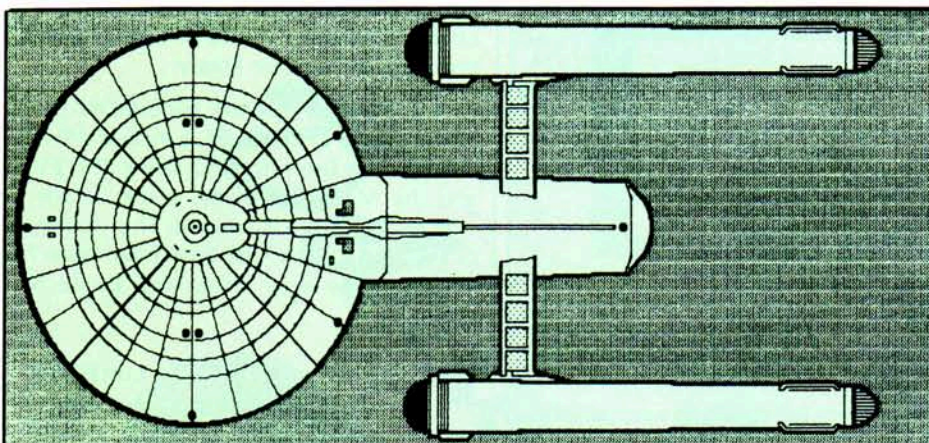
Own Graphics Features. Publisher comes with a Sampler Disk that contains art pages from various First Publisher disks. The disk includes samples from Holidays, Personal Graphics, Leisure and Lifestyles, Business Symbols, and Publications sets. The full set for each of these can be purchased at local software stores also. Each of the preceding samples is stored as a file with a .MAC extension. Numerous images are contained in each file.

Separate images can be clipped from the MAC files and saved as files with an .ART extension. These art files can be used to enhance your publication. These ART files can also be edited. For instance, images can be flipped horizontally or vertically, magnified, reduced, duplicated, or inverted.

You can also create limited images using the side tools. Publisher can draw straight lines at any angle, boxes, and rectangles. Freehand drawings can also be done with the pencil tool.

Files Created by Other Programs. The documentation states that Publisher can read files that were created by other programs. These programs include, PC Paint-Plus, PC Paintbrush, MS Windows Paint, LOGIPAIN, and Publishers Paintbrush. Images created with Macpaint can also be read as long as they are transferred to a disk formatted with your operating system.

While I can't test every one of the above programs, I can say that I have pulled a number of .MAC files off local bulletin boards and used them with Publisher. For instance, the spaceship in Figure 2 was a



PACK 110 SPACE DERBY

NOVEMBER 17, 1987

FAIRBORN UMC 7:30 P. M.

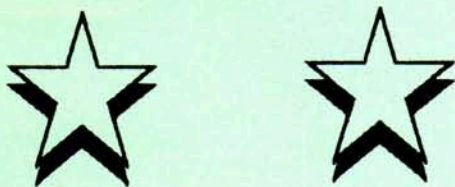


Figure 2
Poster Created by Publisher

.MAC file. To create this poster I used the .MAC spaceship file. I then clipped the star from the Personal Graphics art page on the Sampler Disk and then duplicated it. I then added the text with First Publisher.

Interfacing ShowOff and Logitech Publisher

If you're like me and only have a Z-100 and don't have any of the above programs, you can also use artwork created by Hogware's Z-100 ShowOff program. For an additional \$15.00 you can purchase the ShowOff Art Utility Disk. This disk contains the file CONVERT.COM which will convert a ShowOff file to a .MAC file. The .MAC file can be read by Publisher. The newsletter (Figure 3) is an example of how I used CONVERT.COM and Publisher together.

First, I created the banner using ShowOff. I then entered the command CONVERT CUBOGRAM <Return> and created a file

called CUBOGRAM.MAC. Using Publisher, I created a file called CUBOGRAM.PUB which was nothing more than this image. I then centered the image and enlarged it so it would look better in my publication. The next step was to type in the text. After typing the text, I cut out the picture of Santa driving his sleigh from the HOLIDAY.MAC file on the Sampler Disk. Next, I pasted it to the publication. Finally, I changed my font style and typed in MERRY XMAS.

ShowOff also has utilities called LOGRAB.COM and LOGRABM.COM which are used to capture low resolution images created by other graphics programs. LOGRAB is used if you aren't using a mouse, while LOGRABM is used with a mouse. I have found these programs to be very useful to enhance spreadsheet graphs — in particular those created by Enable.

To use one of these utilities with Enable you first enter the command LOGRAB (or LOGRABM) <Return>. When the pro-

gram is installed it will respond with a message and provide instructions for capturing the screen. You then enter Enable, create your graph, and save it in Enable format. Before saving, the graph should be reduced so it can be used by Publisher. Redisplay the saved graph on the screen. To capture the image, press the left button on the mouse or SHIFT/BREAK on the keyboard. This will create a file called PICTUR0.PIC. Exit Enable.

Next, enter ShowOff and load the PICTUR0.PIC file by depressing the (D)isk key and (L)oad key and the file name. You can now enhance the Enable graph with ShowOff. As a minimum, I recommend removing the double lines that are around the graph. After enhancing the graph, save it as a .PII file with a recognizable name. Exit ShowOff by depressing the (Q)uit key. Finally, convert the .PII file to a .MAC file using the procedures I previously described. You can then edit the file further using Publisher, e.g., resizing or magnifying. Figure 4 is a good example of how an Enable created graph would appear in Publisher.

In addition to capturing low resolution images, you can also capture high resolution images using the utility HIGRAB.COM. HIGRAB.COM and SHOWMAC.COM can be used to convert the clip art images on the Publisher Sampler Disk to files that can be read by ShowOff. SHOWMAC is used to load, display, and scroll a .MAC file.

For instance, to create the ShowOff chart in Figure 5, I installed HIGRAB by entering the command: HIGRAB <Return> and it responded with a message. To display the file LEISURE.MAC I entered the command: SHOWMAC LEISURE <Return>. I then used the UP and DOWN arrow keys to move around the picture. To capture the image I then depressed SHIFT/BREAK and the file PICTUR0.PII was created. I then edited the file with ShowOff and printed it out using the screen dump program for my printer. ZPC was not required for the above procedure.

Conclusion

Logitech Publisher opens a new avenue for Z-100 users and extends the usefulness of your Z-100. While it may not offer all the power of the high priced desktop publishing system, it is still suitable for home and small business use. The utility of Publisher can be increased with the purchase of ShowOff and ShowOff Art

CUBOGRAM

DEN 4 PACK 110

VOLUME 1

DECEMBER 8, 1987

We II, it certainly has been a busy year for our den. Our boys are doing real well in progressing through the ranks. Tim Everhart has earned his Bobcat Award. Tom Zimmerman has completed the requirements for his God and Me Award, earned his Summertime Award, and one progress bead toward his Bear Award. Kevin Player and Danny Decker have also earned progress beads toward their Bear. On the 24th of November Kevin was retired as Denner and Tom moved up to Denner. Danny became the new Assistant Denner.

The boys have also been participating in numerous Den and Pack activities. On the 7th of November the Pack held its first Space Derby, in October the boys had a good time at the Pack Meeting shucking corn. This month the Pack Meeting will be centered around Christmas. Our boys will have the opening ceremony. We've been real busy during the Den Meetings also. For instance, the boys have made assorted neckerchief slides, popsicle stick churches, and are currently working on Christmas tree decorations to hang on the tree for the upcoming Pack Meeting. There has also been two field trips. The boys have gone fossil hunting and visited a public television station. On January 12th we will visit a radio station in place of our normal Den Meeting.

Speaking of upcoming events, please dress your scout in a Christmas type costume for the pack meeting. You can also wear one if you like. Dave and I would like to take this chance to thank you for the support you have provided these past few months. It makes our job easier, but most important is that the boys get to have fun and learn while they are doing it.



MERRY XMAS !

Figure 3
Newsletter Created by Publisher

XYZ COMPANY FY 87 SALES (AS OF 1 DEC 87)

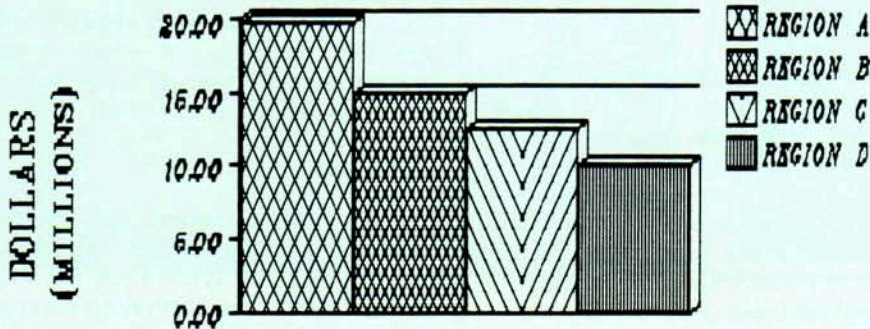


Figure 4
Enable Spreadsheet Graph Printed with Publisher

Utility Disks. If you already have ShowOff, Logitech Publisher would be a good addition to your software library.

Paul F. Herman recently announced the availability of ZPCMOUSE, a mouse driver designed for use with ZPC. Using ZPC 2.0 and the MAKEZPC utility, a special version of ZPC.COM is created. This version of ZPC and ZPCMOUSE have been tested and found to work nicely with Logitech Publisher.

There are several benefits to purchasing ZPCMOUSE. First, it's no longer necessary to program the Logitech mouse buttons. Commands can be performed by simply pointing the cursor (arrow) and clicking a mouse button. ZPCMOUSE also works with the Microsoft mouse. Secondly, you can now pull down menus and select sidebar tools with the mouse. Previously, you had to depress the appropriate function key. In addition, you don't have to remember to load the mouse driver before ZPC. Finally, the cursor appears as a capital I with a tail on it, just as the documentation states. Previously, it appeared as a vertical line.

As of February 1988, Paul F. Herman is offering Publisher and ZPCMOUSE package for \$119.00. There is no option to purchase ZPCMOUSE separately. The reason is that there will undoubtedly be more enhancements as the company discovers more ways to make it compatible with other mouse operated programs.

Products Discussed

ShowOff	\$ 79.00
ShowOff with Logitech Mouse	174.00
Logitech Mouse	95.00
Logitech Publisher	74.00
ShowOff Art Utility Disk	15.00
Hogware Company	
470 Belleview	
St Louis, MO 63119	

Continued on Page 80



HUG NEW PRODUCTS



- 10 - Very Good
- 9 - Good
- 8 - Average

TABLE C Product Rating

Rating values 8-10 are based on the ease of use, the programming technique used, and the efficiency of the product.

- 7 - Hardware limitations (memory, disk storage, etc.)
- 6 - Requires special programming technique
- 5 - Requires additional or special hardware
- 4 - Requires a printer
- 3 - Uses the Special Function Keys (f1, f2, f3, etc.)
- 2 - Program runs in *Real Time**
- 1 - Single-keystroke input
- 0 - Uses the H19 (H/Z-89) escape codes (graphics, reverse video)

Real Time — A program that does not require interactivity with the user. This term usually refers to games that continue to execute with or without the input of the player (e.g., 885-1103 or 885-1211[-37] SEA BATTLE.

ORDERING INFORMATION

For VISA and MasterCard phone; telephone Heath/Zenith Users' Group directly at (616) 982-3838. Have the part number(s), description, and quantity ready for quick processing. VISA and MasterCard require minimum \$10.00 order. By mail, send your order, plus 10% postage/handling (\$1.00 minimum, \$5.00 maximum) to: Heath/Zenith Users' Group, P.O. Box 217, Benton Harbor, MI 49022-0217. Orders may be placed, by mail only, using your Heath Revolving Charge account. Purchase orders are also accepted by phone or mail. No C.O.D.s accepted.

Questions or problems regarding HUG software or REMark magazine should be directed to HUG at (616) 982-3463.

NOTES

The [-37] means the product is available in hard-sector or soft-sector. Remember, when ordering the soft-sectored format, you must include the "-37" after the part number (e.g., 885-1223-37).

All special update offers announced in REMark (i.e., ZPC II update) must be paid by check or money order, payable to the Heath Users' Group. **NO CREDIT CARDS ACCEPTED.** ZPC II contains only one disk. It is a combination of ZPC I and the ZPC Support disk, plus added improvements. Thank you.

HUG P/N 885-1249-[37] MagBase CP/M Magazine Database System . . . \$25.00

MagBase is a database system designed specifically for keeping track of magazine articles. It was produced to create a database of REMark articles, but it can be used for any magazine. MagBase allows you to keep track of each article by title, author, date, volume and issue numbers, and up to 64 classifications. The title can be up to 80 characters, so you can include a brief description for articles that have cryptic titles. You can search for articles by title (or any portion of a title), author, date, or classification. When you search by classification, you can search for more than one. (For example, you can search for Review articles about word processors.) You can sort the articles found in a search by title, author, or date, and you can view them on the screen or print them out.

MagBase comes with a database of the year 1987 of REMark magazine. All articles, including non-trivial "Buggin' HUG" letters, are included in the database.

COMING SOON!! We are planning to create a database of all REMark articles from day 1. This database will be available as a separate HUG product.

Requirements: MagBase will run on an H/Z-89/90 or H-8/H19 computer and CP/M version 2.2 or higher. (The source code can be assembled for use on non H19-compatible systems.) It requires 40K of free TPA memory, and can be used with only one disk drive. It will support a database file up to 8 megabytes or the

size of your disk, whichever is smaller. Each article entry occupies 128 bytes, which means that 2400 articles will fit in 300k of disk space.

MagBase is supplied on one disk in the soft-sector format, or on two disks in the hard-sector format, with all files except MAGBASE.ASM on the first disk. Here are the files on the MagBase disk(s).

```
README .DOC
MAGBASE .DOC
MAGBASE .COM
MAGBASE .ASM
REMARK .CLS
REMARK .DAT
```

MAGBASE.DOC — This file contains the instructions for using MagBase. Instructions specific to the REMark database, and instructions for creating your own magazine database are included.

MAGBASE.COM — This is the MagBase magazine database program.

MAGBASE.ASM —% the Assembly source code for MagBase. MagBase was coded in efficient Assembly Language for maximum speed in searching for articles. It contains a Shell-Metzner sort routine for extremely fast sorts.

REMARK.CLS — This file contains the classifications used in the REMark database. The classifications are stored bitwise in the actual database file (64 classifications in 8 bytes), and the text for each classification is stored in this file.

REMARK.DAT — This is the database containing information on all articles from the 1987 issues of REMark.

Continued on Page 64

The following HUG Price List contains a list of all products in the HUG Software Catalog and Software Catalog Update #1. For a detailed abstract of these products, refer to the HUG Software Catalog, Software Catalog Update #1, or previous issues of REMark.

HUG Price List

PRODUCT NAME	PART NUMBER	OPERATING	DESCRIPTION	PRICE
		SYSTEM		
H8 — H/Z-89/90				
ACCOUNTING SYSTEM	885-8047-37	CPM	BUSINESS	20.00
ACTION GAMES	885-1220-37	CPM	GAME	20.00
ADVENTURE	885-1010	HDOS	GAME	10.00
ASCIRITY	885-1238-37	CPM	AMATEUR RADIO	20.00
AUTOFIL (Z80 ONLY)	885-1110	HDOS	DBMS	30.00
BHBASIC SUPPORT PACKAGE	885-1119-37	HDOS	UTILITY	20.00
CASTLE	885-8032-37	HDOS	ENTERTAINMENT	20.00
CHEAPCALC	885-1131-37	HDOS	SPREADSHEET	20.00
CHECKOFF	885-8010	HDOS	CHECKBOOK SOFTWARE	25.00
DEVICE DRIVERS	885-1105	HDOS	UTILITY	20.00
DISK UTILITIES	885-1213-37	CPM	UTILITY	20.00
DUNGEONS & DRAGONS	885-1093-37	HDOS	GAME	20.00
FLOATING POINT PACKAGE	885-1063	HDOS	UTILITY	18.00
GALACTIC WARRIORS	885-8009-37	HDOS	GAME	20.00
GALACTIC WARRIORS	885-8009-37	CPM	GAME	20.00
GAMES 1	885-1029-37	HDOS	GAMES	18.00
HARD SECTOR SUPPORT PACKAGE	885-1121	HDOS	UTILITY	30.00
HDOS PROGRAMMERS HELPER	885-8017	HDOS	UTILITY	16.00
HOME FINANCE	885-1070	HDOS	BUSINESS	18.00
HUG DISK DUPLICATION UTILITIES	885-1217-37	CPM	UTILITY	20.00
HUG SOFTWARE CATALOG	885-4500	VARIOUS	PRODUCTS THRU 1982	9.75
HUGMAN & MOVIE ANIMATION	885-1124	HDOS	ENTERTAINMENT	20.00
INFO. SYSTEM AND TEL. & MAIL SYSTEM	885-1108-37	HDOS	DBMS	30.00
LOGBOOK	885-1107-37	HDOS	AMATEUR RADIO	30.00
MAPLE	885-8005	HDOS	COMMUNICATION	35.00
MAPLE	885-8012-37	CPM	COMMUNICATION	35.00
MICRONET CONNECTION	885-1122-37	HDOS	COMMUNICATION	20.00
MISCELLANEOUS UTILITIES	885-1089-37	HDOS	UTILITY	20.00
MORSE CODE TRANSCIVER	885-8016	HDOS	AMATEUR RADIO	20.00
MORSE CODE TRANSCIVER	885-8031-37	CPM	AMATEUR RADIO	20.00
PAGE EDITOR	885-1079-37	HDOS	UTILITY	25.00
PROGRAMS FOR PRINTERS	885-1082	HDOS	UTILITY	20.00
REMARK VOL 1 ISSUES 1-13	885-4001	N/A	1978 TO DECEMBER 1980	20.00
RUNOFF	885-1025	HDOS	TEXT PROCESSOR	35.00
SCICALC	885-8027	HDOS	UTILITY	20.00
SMALL BUSINESS PACKAGE	885-1071-37	HDOS	BUSINESS	75.00
SMALL-C COMPILER	885-1134	HDOS	LANGUAGE	30.00
SOFT SECTOR SUPPORT PACKAGE	885-1127-37	HDOS	UTILITY	20.00
STUDENT'S STATISTICS PACKAGE	885-8021	HDOS	EDUCATION	20.00
SUBMIT (Z80 ONLY)	885-8006	HDOS	UTILITY	20.00
TERM & HTOC	885-1207-37	CPM	COMMUNICATION & UTILITY	20.00
TINY BASIC COMPILER	885-1132-37	HDOS	LANGUAGE	25.00
TINY PASCAL	885-1086-37	HDOS	LANGUAGE	20.00
UDUMP	885-8004	HDOS	UTILITY	35.00
UTILITIES	885-1212-37	CPM	UTILITY	20.00
UTILITIES BY PS	885-1126	HDOS	UTILITY	20.00
VARIETY PACKAGE	885-1135-37	HDOS	UTILITY & GAMES	20.00
VOLUME I	885-1008	N/A	SOFTWARE LISTINGS	9.00
VOLUME II			SOFTWARE LISTINGS	12.00
VOLUME III			SOFTWARE LISTINGS	9.00
VOLUME IV			SOFTWARE LISTINGS	12.00
WATZMAN ROM SOURCE & DOC	885-1221-37	CPM	H19 FIRMWARE	30.00
WATZMAN ROM	885-4600	N/A	H19 FIRMWARE	45.00
WHEW UTILITIES	885-1120-37	HDOS	UTILITY	20.00
XMET ROBOT X-ASSEMBLER	885-1229-37	CPM	UTILITY	20.00
Z80 ASSEMBLER	885-1078-37	HDOS	UTILITY	25.00
Z80 DEBUGGING TOOL (ALDT)	885-1116	HDOS	UTILITY	20.00
SOLD OUT				
H8 — H/Z-89/90 — H/Z-100 (Not PC)				
ADVENTURE	885-1222-37	CPM	GAME	10.00
BASIC-E	885-1215-37	CPM	LANGUAGE	20.00
CASSINO GAMES	885-1227-37	CPM	GAME	20.00
CHEAPCALC	885-1233-37	CPM	SPREADSHEET	20.00
CHECKOFF	885-8011-37	CPM	CHECKBOOK SOFTWARE	25.00
COPYDOS	885-1235-37	CPM	UTILITY	20.00
DISK DUMP & EDIT UTILITY	885-1225-37	CPM	UTILITY	30.00
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FAST ACTION GAMES	885-1228-37	CPM	GAME	20.00
FUN DISK I	885-1236-37	CPM	GAMES	20.00
FUN DISK II	885-1248-37	CPM	GAMES	35.00
GAMES DISK	885-1206-37	CPM	GAMES	20.00
GRADE	885-8036-37	CPM	GRADE BOOK	20.00
HRUN	885-1223-37	CPM	HDOS EMULATOR	40.00
HUG FILE MANAGER & UTILITIES	885-1246-37	CPM	UTILITY	20.00
HUG SOFTWARE CATALOG UPDATE #1	885-4501	VARIOUS	PRODUCTS 1983 THRU 1985	9.75
KEYMAP CPM-80	885-1230-37	CPM	UTILITY	20.00
MBASIC PAYROLL	885-1218-37	CPM	BUSINESS	60.00
MICRONET CONNECTION	885-1224-37	CPM	COMMUNICATION	16.00
NAVPROGSEVEN	885-1219-37	CPM	FLIGHT UTILITY	20.00
REMARK VOL 3 ISSUES 24-35	885-4003	N/A	1982	20.00
REMARK VOL 4 ISSUES 36-47	885-4004	N/A	1983	20.00
REMARK VOL 5 ISSUES 48-59	885-4005	N/A	1984	25.00
REMARK VOL 6 ISSUES 60-71	885-4006	N/A	1985	25.00
REMARK VOL 7 ISSUES 72-83	885-4007	N/A	1986	25.00

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Can't remember how to use the MS-DOS 'COPY' command? Forget the exact command line format for 'ASGNPART'. Too far to go for the MS-DOS manuals on the shelf on the other side of the room? Why not just type 'HELP' on the keyboard? You say it comes back with "Bad command or file name"? It wouldn't if you had HUG's HELP program. With HELP installed on your hard disk, all you need to do is type 'HELP' for a complete list of MS-DOS commands and transients along with a brief explanation of how each command works, as well as the format for its use. HELP, HUG P/N 885-8040-37, works on ALL Heath/Zenith computers that run MS-DOS!

PRODUCT NAME	PART NUMBER	OPERATING SYSTEM	DESCRIPTION	PRICE
SEA BATTLE	885-1211-37	CPM	GAME	20.00
UTILITIES BY PS	885-1226-37	CPM	UTILITY	20.00
UTILITIES	885-1237-37	CPM	UTILITY	20.00
X-REFERENCE UTILITIES FOR MBASIC	885-1231-37	CPM	UTILITY	20.00
ZTERM	885-3003-37	CPM	COMMUNICATION	20.00

H/Z-100 (Not PC) Only

ACCOUNTING SYSTEM	885-8048-37	MSDOS	BUSINESS	20.00
CALC	885-8043-37	MSDOS	UTILITY	20.00
CARDCAT	885-3021-37	MSDOS	BUSINESS	20.00
CHEAPCALC	885-3006-37	MSDOS	SPREADSHEET	20.00
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CP/EMULATOR	885-3007-37	MSDOS	CPM EMULATOR	20.00
DBZ	885-8034-37	MSDOS	DBMS	25.00
ETCHDUMP	885-3005-37	MSDOS	UTILITY	20.00
EZPLOT II	885-3049-37	MSDOS	PRINTER PLOTTING UTILITY	25.00
GAMES CONTEST PACKAGE	885-3017-37	MSDOS	GAMES	25.00
GAMES PACKAGE II	885-3044-37	MSDOS	GAMES	25.00
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KEYMAP	885-3010-37	MSDOS	UTILITY	20.00
KEYMAP CPM-85	885-1245-37	CPM	UTILITY	20.00
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ORBITS	885-8041-37	MSDOS	EDUCATION	25.00
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TREE-ID	885-3036-37	MSDOS	TREE IDENTIFIER	20.00
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UTILITIES	885-3008-37	MSDOS	UTILITY	20.00
Z100 WORDSTAR CONNECTION	885-3047-37	MSDOS	UTILITY	20.00
ZBASIC DUNGEONS & DRAGONS	885-3009-37	MSDOS	GAME	20.00
ZBASIC GRAPHIC GAMES	885-3004-37	MSDOS	GAMES	20.00
ZBASIC GAMES	885-3011-37	MSDOS	GAMES	20.00
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ZPC UPGRADE DISK	885-3042-37	MSDOS	UTILITY	20.00

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BOTH SIDES PRINTER UTILITY	885-3048-37	MSDOS	UTILITY	20.00
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HUG SOFTWARE CATALOG UPDATE #1	885-4501	VARIOUS	PROD 1983 THRU 1985	9.75
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MATT	885-8045-37	MSDOS	MATRIX UTILITY	20.00
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REMARK VOL 5 ISSUES 48-59	885-4005	N/A	1984	25.00
REMARK VOL 6 ISSUES 60-71	885-4006	N/A	1985	25.00
REMARK VOL 7 ISSUES 72-83	885-4007	N/A	1986	25.00
REMARK VOL 8 ISSUES 84-95	885-4008	N/A	1987	25.00
SCREEN DUMP	885-3043-37	MSDOS	UTILITY	30.00
UTILITIES II	885-3014-37	MSDOS	UTILITY	20.00

PC Compatibles

ACCOUNTING SYSTEM	885-8049-37	MSDOS	BUSINESS	20.00
CARDCAT	885-6006-37	MSDOS	CATALOGING SYSTEM	20.00
CHEAPCALC	885-6004-37	MSDOS	SPREADSHEET	20.00
CP/EMULATOR II & ZEMULATOR	885-6002-37	MSDOS	CPM & Z100 EMULATORS	20.00
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Want to keep your H/Z-100? Want to run a lot of that good PC compatible software out there? Don't want to buy a PC compatible though? Then get **ZPC II**, **HUG P/N 885-3037-37**, and the **ZPC II upgrade disk**, **HUG P/N 885-3042-37**.

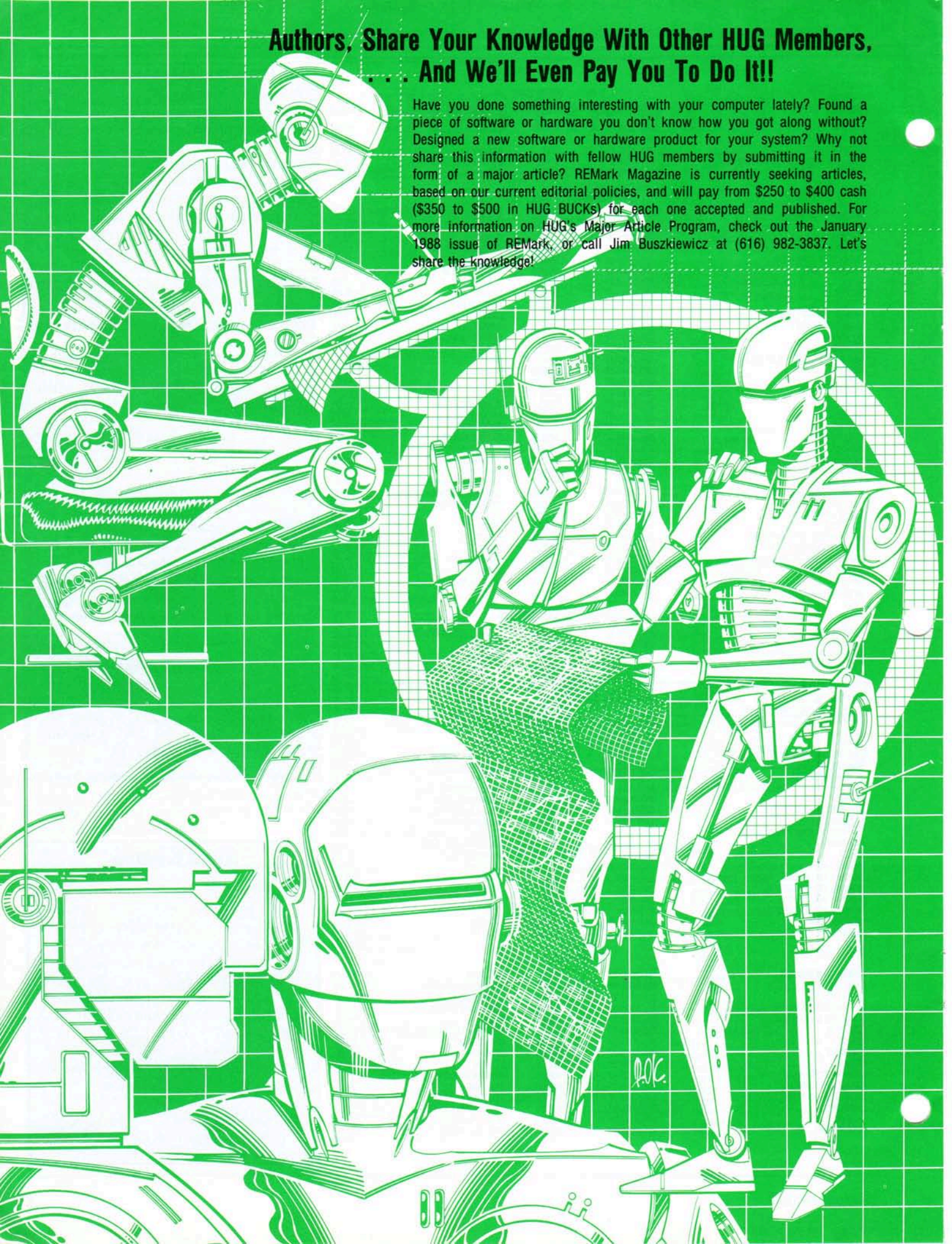
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For VISA and MasterCard phone orders, telephone the Heath Users' Group directly at (616) 982-3838. Have the part number(s), descriptions, and quantity ready for quick processing. By mail, send your order, plus 10% postage and handling (\$1.00 minimum charge, up to a maximum of \$5.00) to: Heath Users' Group, P.O. Box 217, Benton Harbor, MI 49022-0217. VISA and MasterCard require minimum \$10.00 order. No C.O.D.s accepted.

Questions regarding your subscription? Call Margaret Bacon at (616)982-3463.

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Deluxe Paint II

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In this article, I will present a review and tutorial of Electronic Arts' mouse drawing program, "Deluxe Paint II". This program has many very interesting and useful features, like custom brushes and gradient fill, which I will attempt to show you through pictures taken off of the ZCM-1490 in 640x480 VGA mode. This program requires a Microsoft compatible mouse, and you must have loaded your mouse driver before you begin.

Deluxe Paint II is contained on two five inch disks or one three inch. Both disks are included in the package. To install just type INSTALL, then the hard drive name. For example, type "INSTALL C:" to install Deluxe Paint II on drive C. Actually, the program is only on disk 1 and the examples are on 2.

To load Deluxe Paint II, change the directory to DPAIN2 on your hard disk or insert your copy of disk 1 into drive A, and press DP. A screen asking you to define your video board and resolution comes up.

In this screen, you have thirteen choices for display cards and resolutions. A list of the display cards is shown in Figure 1.

Figure 1
Display Cards and Resolutions

- a CGA 320x200, 4 colors
- b CGA 640x200, B&W
- c EGA 320x200, 16 colors
- d EGA 640x200, 16 colors
- e EGA 640x350, 16 colors
- f MCGA 320x200, 256 colors
- g MCGA 640x480, 2 colors
- h VGA 320x200, 16 colors
- i VGA 640x200, 16 colors
- j VGA 640x350, 16 colors
- k VGA 640x480, 16 colors
- l Hercules 720x348, NO COLOR
- m Tandy 320x200, 16 colors

You can use the arrow keys or type the letter here. Then Deluxe Paint II loads the overlay and displays the main screen. One way to bypass this selection is by typing the letter (a-m) on the command line after DP.

On the main screen, there are 3 areas. They are the menu bar, the graphics tools bar, and the drawing area. The menu bar is located on top, and this is used for changing options, loading and saving, and changing the palette. The graphics tools

bar is on the right-hand side of the screen, and is used to define brushes, change colors, and change graphics type. The rest of the screen is graphics area. The menu and tools bar may be toggled on and off for taking pictures by touching F10.

Our first exploration of the program will be of the graphics tools bar. At the very top are the built-in brushes. These are the brushes you use to normally draw with. They include 4 round brushes, ranging from a dot to a 5 pixel circle. Under that are 4 square brushes, from a small square to a large square. Below that are 2 painting brushes, used with the airbrush, but they can be used with the freehand or other tools. You may also change the size of a built-in brush by clicking on a brush with the right mouse button. Then move the mouse in or out while holding the button to change the size.

Below the brushes on the first line are the dotted and solid freehand tools. The dotted freehand tools make a series of dots while you hold the mouse down, and depending on the speed of the mouse, you can make almost a solid line or a very sparse line. The solid freehand makes the line solid no matter how fast



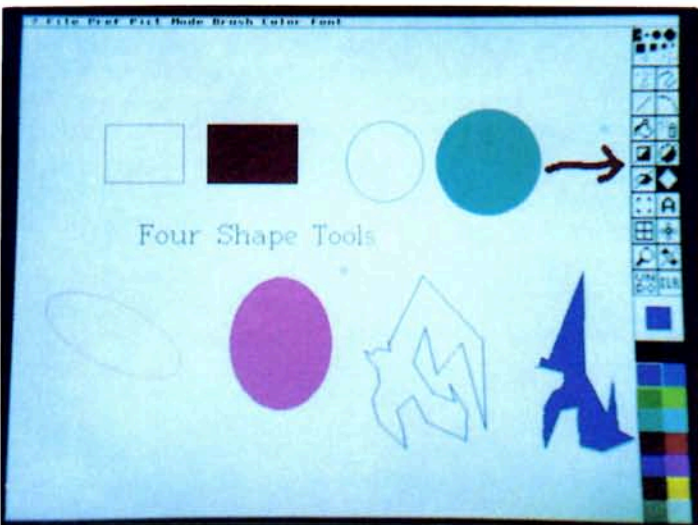
Picture 1
Blank Deluxe Paint Screen

you move the mouse, but if you go too fast on a big brush, CPII will lose part of what you're drawing.

Below that are the line tools. The icon on the left draws a straight line. Just click the mouse at the starting point and while holding the button down, drag it to where you want the line to end. The right icon, curved line, is just like the solid line, but after you have defined the solid line, by moving the mouse up and down at almost a ninety degree angle to the line, you can change the curve.

Below that are two separate drawing tools. On the left is the paint can, which can paint areas with solid, patterned with brush, or a great gradient fill, which fills areas from left to right, up to down, or around the shape with a series of colors. To select the gradient fill, just click the right mouse button and select gradient. See Picture 2 for examples.

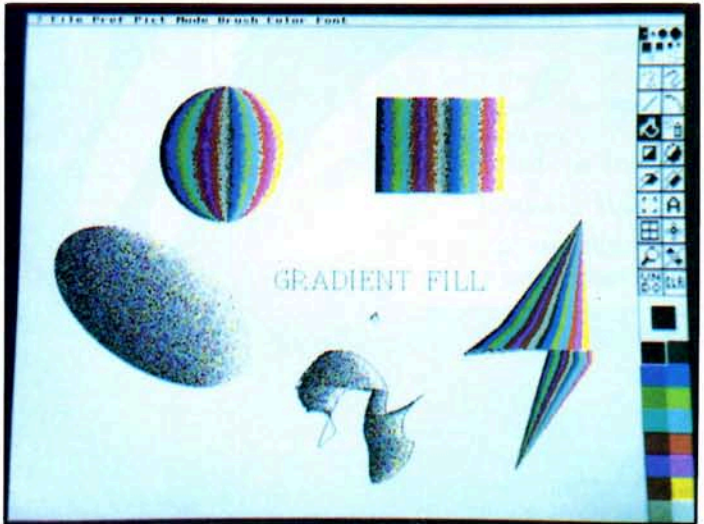
On the right is the airbrush, which spreads a fine spray of whichever brush you have selected. The two button brushes cover big



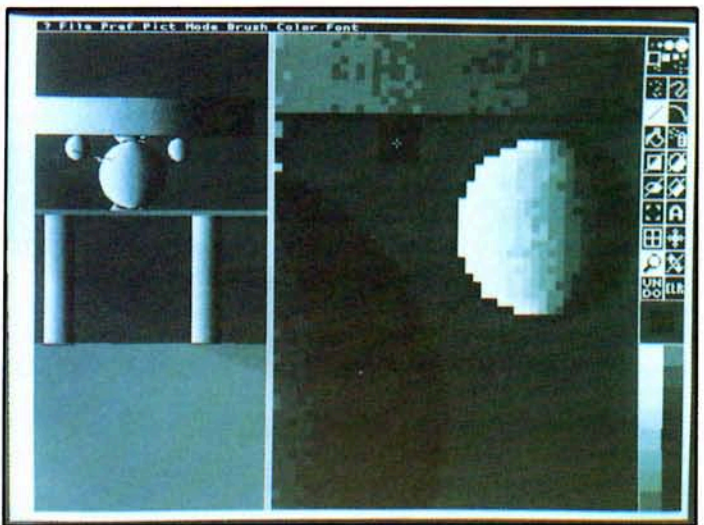
Picture 3
The Four Shape Tools

areas, while the top ones can be used to cover smaller areas with bigger spray blobs.

Under that are the four shape tools. The first, on the upper left, is the rectangle tool. This can be used for both filled and unfilled rectangles. To get a filled rectangle, click the lower right area of the icon, and to get an unfilled rectangle, click the upper left area. The line in the middle separates the two modes. This works for all four of the shapes. With the rectangle tool, you select one corner, then drag the mouse with the left button down to the other corner. With the circle tool, select the middle, then drag the mouse to the radius. With the ellipse, you start by selecting the middle, then dragging the mouse, define the other corner. Next, you must define the shape by moving around and clicking when the ellipse looks right. Then you can define the rotation. Last is the polygon tool, which you click the first point, then drag to the next point, click, drag to the next point, etc. One thing with this, though, is it will not quit until you match the last and



Picture 2
The Gradient Fill Tool in Deluxe Paint



Picture 4
Here is an example of magnify. The magnified picture on the right can be zoomed in or out with the two arrows right of the magnifying glass.

first points exactly. You can look at all four of these tools in Picture 3.

The next tool under the four shapes is the brush selection tool. With this tool, you can select parts of your drawing to be made into a brush. The important part of this capability is that brushes can be copied, manipulated, put into perspective, and saved/loaded separately. The four corner brush selector, which is normally shown, allows you to define a square brush, but if you want a brush whose outline is not square because of other graphics close by, click the brush selector icon twice, which brings up a diamond shape, which works like the polygon tool. More about brushes later.

To the right of the brush selector is the text feature. When you select this, you can move anywhere in the drawing and type text. Many fonts and attributes are selectable, and will be reviewed later.

Below that are two very advanced options which I haven't got quite the hang of yet. They are the grid and symmetry options, which respectively put a brush into a grid of many copies, and copies one part of what you draw into a selectable number of copies around one point. I know that's a vague explanation, but they are too advanced to really talk about and don't serve any major purpose.

Under those two advanced tools are the magnify and zoom tools. They are both related, for zoom will only work under magnify. When you select magnify and move into the drawing area, a box will appear. Move that box to the area you want magnified, and it will grow bigger to the point where every single pixel can be seen and changed. When in magnify, click the upper left corner of the Zoom box to zoom in, and click the lower right corner of the Zoom box to zoom out. An example of magnify is shown in Picture 4.

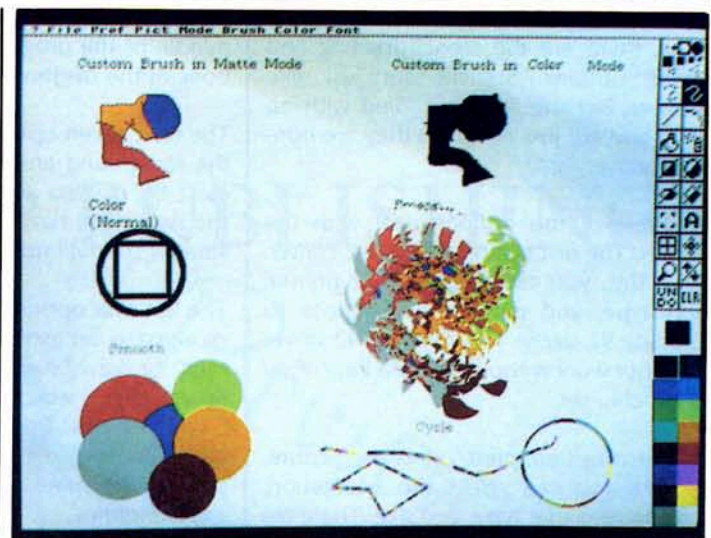
Lastly, are two of the most important tools, which are the Undo, an oops button, and Clear, an erase button. Undo deletes the last change to the graphics area, and clear erases the entire drawing. That's all that these do, but they are important functions.

Below that is a box which isn't a tool, but an indicator. The box inside is the current foreground (drawing) color, and the outer box is the current background color. Below that are the colors in the palette. To select the current foreground color, click the left button on the color selected, and to change the current background color, click the right button.

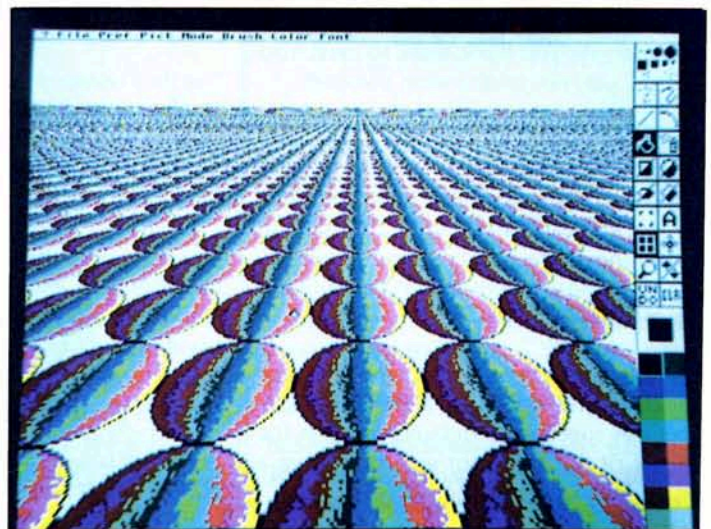
That concludes our discussion of the graphics tools bar, so now we move on to the menu bar, the bar on the top of the screen. The menus work like any other mouse-oriented pulldown menus.

The first selection on the menu is the "?" menu which just gives you the serial numbers and copyright information.

The first important selection is the File menu, from which you do disk and printer operations. The first two operations load and save an entire picture. Inside the load and save window, you can change the drive by clicking the drive letter at the top of the window. You can also change the directory by opening file names that begin with a folder icon. The icon defines that name as a directory. The next two load and save a brush. When a brush is loaded it automatically is selected as the current brush.



Picture 5
Five of the Modes Available



Picture 6
Brush in the Perspective Mode



Picture 7
The Fonts Available with the Attributes

After the brush loading and saving selections, there are the stencil loading and saving options. Stencils are just like brushes, but the areas are filled with no color and are just holes, so they are non-destructive.

The rest of the options deal with the printer. The first option is Choose Printer. With this, you can choose your printer, port type, and paper type. A note to Okidata 92 users: The Okidata 92 driver does not work without the IBM Plug'nPlay ROM chip set.

The next option, print, prints the picture. In this, you can select the orientation, alignment, paper type, and size. There are many selections and custom input boxes for these.

The last option, quit, quits to DOS. If you haven't saved something, it pops up a box and asks you if you want to save. You can say yes, no, or abandon the quit.

The next main menu selection is the "pref menu", for preferences. You can change the selections to what you like. In the first option, you can turn on or off the info bar, which shows the painting mode, color fill box, coordinates, axis rotation, and memory availability.

The next option is brush handle, which specifies how you hold a custom brush. You can specify the default, which is the center of the brush, or you can move a brush by a corner.

The next option, which is also a brush option, is only used with grid. It is named "Excl Brush", which if selected, excludes the bottom 1 pixel and right 1 pixel.

In all screens, the aspect ratio isn't the same. Sometimes the squares and circles may seem elongated. If you select Square Aspect, the last of the pref menu options, DPII squares all of the built-in brushes.

In the Pict menu, which is the next main menu option, this deals with the page. This has options which deal with page size, stencils, and other pages. The first option is Page Size where you can make the page larger or smaller than the physical screen. By using the arrow keys, you can scroll around the page. Another option, show page, shows the entire page in reduced size.

The option between the two on top is Screen Format. You can use this if you

want to change the screen format in the middle of the program. It has all the options of the beginning screen.

The next seven options deal with locking the foreground and background so they can't be cleared and stenciled. In all of the drawings I have made I haven't used stencils so I will not talk about them.

The last four options have to do with the spare page, an extra workplace to experiment or draw brushes. The first option is Spare page, which displays the spare page. The next option is Copy to Spare, which copies your drawing from the main page to the spare page. This is useful for experimenting, so you won't mess up your main drawing in the primary page.

The next option deletes the current page on the screen. The only need for this is to save memory.

The final option in the Pict menu is Spare Options, which allows you to save a spare page to disk to save memory. You can select Spare Options when you want DPII to save the spare page and also the drive.

The next main menu option is the Mode menu, which deals with different brush modes. The first and third, matte and replace, are only used in custom brush. Matte uses any brush in whatever color it was created with and the background color is transparent. Color uses the custom brushes shape and the current foreground color to fill it. The third option, used only with custom brushes, is the same as matte except the background color isn't transparent.

The other mode options are smear, shade, cycle, smooth, and multi-cycle. Smear just smears together any colors on the graphics page by just going over them with a brush. This doesn't add any new colors, though, so if the page is blank there will be no effect.

The next option, Shade, uses ranges, which I will talk about later.

The sixth option cycle, cycles through the colors as you move your brush. This makes like a rainbow effect. This can be used with any brush.

The last main option is smooth. Smooth blends neighboring colors together to avoid sharp breaks between areas. This will not work at all with 4 colors, and very

little with 16 colors, but will work great with 256 colors. A look at these interesting modes is in Picture 5.

The last option on the Mode menu is a toggle switch used with cycle. When it is selected, and a multi-color brush is used, the colors in the brush cycle independently from the other colors. This can make more color combinations in a multi-colored brush.

I said that DPII had a great custom brush capability for copying and moving, but also manipulating and putting into perspective. The brush menu lets you manipulate the brush many ways and put it into perspective. The first eleven options allow you to manipulate the custom brush and the last puts it into perspective.

The first two options flip the brush horizontally and vertically. This doesn't change the size, but just the direction.

The next two double the size of your custom brush both horizontally and vertically. There are some limitations, like you can't make the brush larger than the screen, and this takes a long time. Also, if your computer is low on memory, the brush will be displayed as a rectangle until you actually paint it.

Rotate, the next option, rotates the number any amount of degrees. You do this by holding down the button and dragging the mouse to different areas.

Stretch lets you stretch your brush to any size, as long as it's smaller than the screen and there's enough memory. You just drag the mouse until satisfied.

The next two, halve and double, either reduces the size of the brush by 50% or doubles the size of the brush. Notice this does it for two dimensions, not only one.

The second to the last brush operation is shear, and this is used to distort the brush. The last operation, perspective, is an interesting and fun feature of Deluxe Paint II. When you select Perspective, the center, which looks like large crosshairs, a 4 rectangled brush outline is shown. Then you should turn on the info bar by pressing F9 so you can see the rotation. The second thing you need to do is set the perspective center by pressing 8. Then the cursor changes to the large crosshairs and you can move it. When satisfied, click.

Then you must rotate the brush using the 1, 2, 3, and 4 keys. The one and two keys

move the X axis back and forth, and the 3 and 4 control the Y. To rotate the axes in 90 degree steps, hold the Shift key down when pressing the number. You can control the Z axis using the ; and ' keys, but this just moves the brush along the Z axis. That is about all you need to do simple perspective, but there is a lot more about this, and due to space constraints, I will not talk about it. The manual has a very detailed explanation of this. I have an example in Picture 6.

There is only one thing I will talk about in the color menu, which is palette. This brings up a small window showing the colors, and depending on what graphics card you have, the red, green, blue, hue, saturation, and value. All six of these can be controlled from VGA, since it has a palette of 262 thousand colors, but in EGA, there is just red, green, and blue, with four steps each.

In this palette selection menu, you can also define ranges. Ranges, which is like a subset of the large set of colors, are used for many things like color cycling and the gradient fill. To define a range, click one of the 4 circles numbered 1 to 4 with the right mouse button, then click the right strip just right of the colors and drag until the desired range. Ranges are used for different color cycling effects, which can be selected in palette menu, gradient fill which only uses the colors in the range, and the Shade mode, which replaces a color with the next color in the range.

The last menu, font, lets you add the bold, underline, and italic attributes to fonts, change the size of fonts, and change the font type. The font sizes range from 8 point to 24 point text. Only some of the fonts are available for different sizes. The last option lets you change the font. A look at all the fonts is in Picture 7.

That is the end of the review (and partial tutorial) of DeluxePaint II. I enjoy the program very much and have fun working with it. Also, there is a convert program which you can convert to and from other popular paint files like PC Paintbrush, Windows Paint, and Mac Paint. There is also a camera utility for capturing screen. All in all, this is a great program, except it will not work with our Okidata 92 printer. Even with this problem, it still is a great paint program and I recommend it. *



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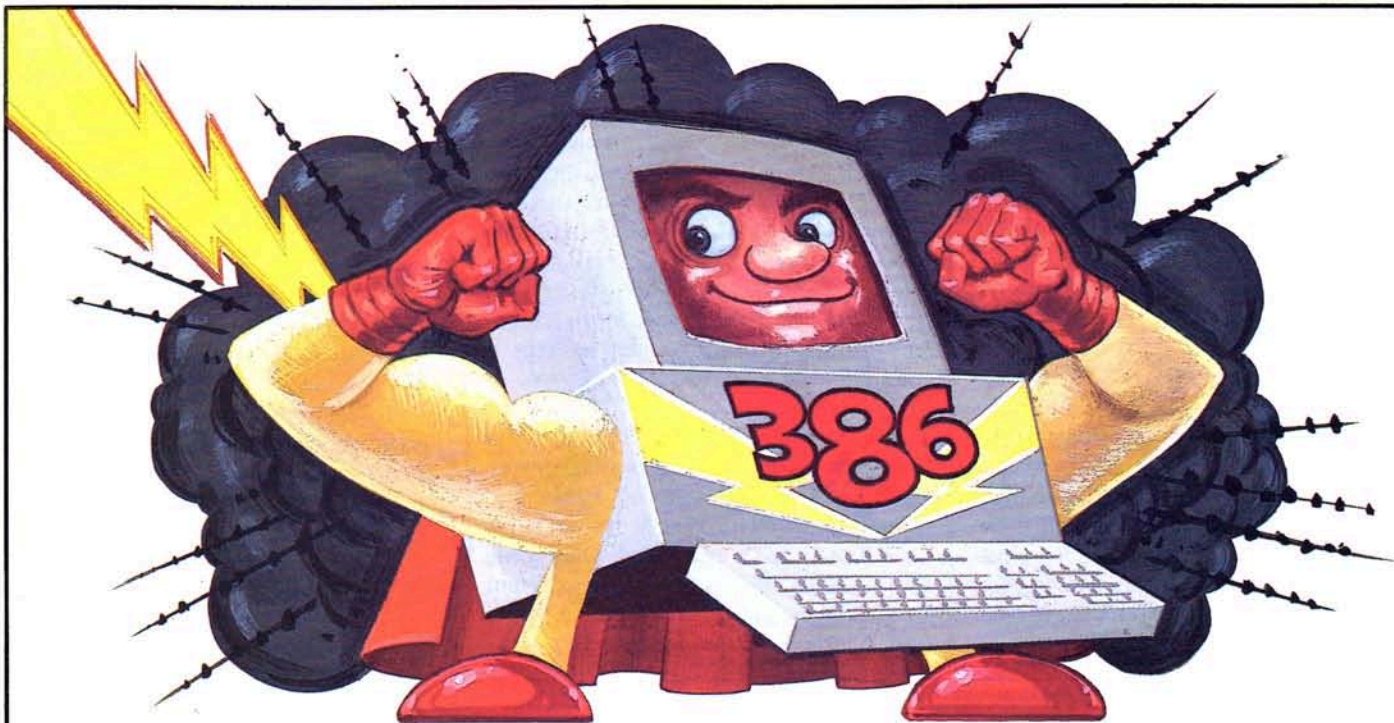
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Lotus 1-2-3

Lotus 1-2-3 is one of those programs called "industry standard." It's earned that title by being one of the biggest selling spreadsheet programs in the World, and one that's spawn numerous auxiliary programs and clones.

It is also one that has found its way into corporate and educational America. In fact, you'd be hard pressed to find a college or university that doesn't teach the program. My own school, Holy Family College, can't offer enough seminars on how to use Lotus, both introductory and advanced.

What's all the fuss about? Perhaps its because it was the spreadsheet program (one called Visicalc, by the way) that grabbed the attention of executives when microcomputers were just seen as playthings for hobbyists and long haired college students. But probably it's also because Lotus 1-2-3, and other spreadsheet programs, are just so darn useful.

At the most simplistic level, spreadsheets are electronic versions of accounting journals, those ruled pages of lines and columns. Any application that requires keeping records in rows and columns — in a table format — can be performed on a spreadsheet. But because spreadsheets use the processing power of the computer, they provide dimensions that far exceed this simple analogy.

Lotus 1-2-3 can help solve problems, analyze data, create charts and graphics,

project, predict, and plan. It has some database and word processing capabilities, and can perform statistical and financial functions. In this article, you'll learn the fundamentals of using Lotus 1-2-3. There have been several versions of Lotus released, but I'll be using version 1A for this article. All the instructions here will also work with the newest release, 2.0.

A Look at Lotus

Before getting started, take a look at Figure 1, an illustration of the Lotus screen. Across the top are the column letters, down the side are the row numbers. Each intersection of a row and column is called a cell, an area where you make an entry. Each cell is identified by its column and row number. So the cell that's highlighted now, termed the active cell, is cell A1 — column A and row 1. Notice that A1 appears on the top left of the screen, in an area called the control panel. This means that cell A1 is active, or ready to accept your entry.

You move around the spreadsheet using the arrow keys, just like you'd move around a word processing document. When you make a cell active, its row and column address appears on the control panel followed by the entry in that cell. Nothing appears next to A1 now because the cell is empty.

While you can only see a few rows and columns on the screen at one time, your spreadsheet can be much bigger. The

number of rows and columns you can use depend on the amount of memory your computer has and how much is in your spreadsheet. On my Compaq computer with 640K, I can access 2048 rows and 252 columns, from A to IV.

I have to assume that you have a copy of Lotus and that it has been installed for your computer. Unfortunately, giving instructions for installing the program would take at least one article in itself. Lotus is a copy protected program that comes with a program called Install. This sets up the program for your hardware — the type of disks, display card, and monitor you have.

You can use Lotus from floppy disks or a hard drive. Either way the process for starting it is similar. If you have a hard disk, you can run the program entirely from it or by placing the Lotus master disk in drive A. To run it directly from a hard disk you must use a program supplied with Lotus, usually called Copyon, that transfers the protection scheme to the hard disk itself.

But enough talk, let's see what so many people find wonderful about this program.

Starting Lotus

1. Start your computer. For floppy disk systems, if you installed DOS on your Lotus disk, use that as the boot disk. Otherwise, boot from a DOS disk, then insert Lotus in drive A. Lotus may automatically begin when you boot from the disk.

If you have a hard disk, start your computer and log onto the directory holding Lotus.

2. Type LOTUS, then press Return. If you did not install Lotus on your hard disk, just copied the program, you'll have to insert your Lotus master in drive A.

The Lotus Access Menu appears on the screen giving a copyright message, a list of options across the top, and the date and time in the center of the screen. The option 1-2-3, which is the spreadsheet part of the program, is selected (appears in reverse).

3. Press Return to accept the 1-2-3 option. Another screen appears with the Lotus copyright message and the prompt (Press Any Key to Continue).
4. Press Return to begin using the spreadsheet and display the Lotus screen. Cell A1 is active and shown in the control panel, with the blinking cursor below indicating where you type your entries.

Now let's set up a small budget. Granted this won't be a very complete budget, just something for those of us with simple needs. But you can use the principles you're about to learn for even the most sophisticated spreadsheets.

Phase 1

The first task of completing a spreadsheet is to add the labels that identify what each row and column represent. Doing this first makes it easier to identify cells later on. Let's do this now.

1. Press the right arrow key to select or highlight cell B1. We're leaving the first column, A, empty right now to hold the budget categories.
2. Type JAN. It appears at the cursor location below the control panel. If you make a mistake while typing an entry, press the backspace key to erase and start over. If you notice a mistake after you press Return or moved off of the cell, select the cell and just retype the entry correctly.

(You can also get on-line help by pressing F3. Lotus will display a menu of options. Press the arrow key to se-

lect the option desired, then press Return.)

3. Press Return. Your entry now appears in cell B1 and 'JAN appears next to B1 in the control panel. What you type is not actually entered in the cell until you press the Return or an arrow key.

You just entered a label, one of the types of entries possible with Lotus. Labels are words that are used to identify the purpose of a row or column. In this case, column B will hold the budget data for January.

Notice that JAN starts to the left of the cell. If you want your label to start at the left, and it begins with a letter, just type it. The apostrophe in front of the label in the control panel is called a prefix. In this case, it means that the label is aligned on the left side of the cell. Later I'll show you other ways to enter labels.

4. Press the right arrow key to select cell C1.
5. Type FEB, then press the right arrow key instead of Return. The cursor moves to select cell D1 and your entry in C1 is complete.
6. Type MAR, then press the right arrow key to select cell E1.
7. Type '1st, then press Return. Be sure to start the label (which stands for the first quarter) with an apostrophe. You need this because your label starts with a number instead of a letter.
8. Press the arrow keys to select cell A3.
9. Type "Rent, then press the down arrow key. The quotation mark prefix made the label align on the right side of the cell. Don't type quotation marks at the end of the entry. (Beginning a label with the caret (^) will center the label in the cell.)
10. Type "Food, then press the down arrow key.
11. Type "Other, then press the down arrow key. Cell A6 is selected.
12. Type "Total, then press the down arrow key twice to select cell A8.
13. Type "Income, then press the down arrow.

14. Type "Savings, then press Return. So far, your spreadsheet looks like this this:

	A	B	C	D	E
1		JAN	FEB	MAR	1ST
2					
3		RENT			
4		FOOD			
5		OTHER			
6		TOTAL			
7					
8		INCOME			
9		SAVINGS			

Columns B, C, and D represent your expenses and income for those three months. Row 3 will be your rental expenses, row 4 food, and row 5 all others. (I did say this was for a person of simple needs!). Row 6 will contain the total of your expenses and row 8 your income. The last row (9) will show what's left over.

Phase 2

Now that the spreadsheet is labeled, the next task is to add the formulas (don't let that word scare you) that will compute the total expenses and savings. This will complete the template, a basic framework in which you can finally make entries and take a good look at your finances.

Some Lotus users prefer to enter the numbers first, then the formulas. That's quite alright.

1. Select cell B6.
2. Type +B3+B4+B5, then press Return. This formula means "place in cell B6 the sum of whatever is in B3, B4 and B5."

Look at what appears in the cell and compare it with what's shown next to B6 in the control panel. The cell shows 0, while the control panel is

B6: +B3+B4+B5

The spreadsheet shows the results of the calculation, while the control panel shows the contents. What's really stored with your spreadsheet when you save it? The formula — the actual contents of the cell. The sum is just displayed on the screen.

You had to start the entry with a plus sign, by the way, because the first character of the formula was a letter, not a number.

What would Lotus do if you didn't use the plus sign? It would think your entry was a label and treat it just like another word. The cell would contain the characters +B3+B4+B5, not the sum of the three cells.

3. Select cell B9.
4. Type +B8-B6, then press Return. This formula means "subtract the amount in cell B6, total expenses, from whatever is in cell B8, my income." Again, 0 appears in the cell, but the formula shows as the contents.

So far we've only entered formulas for cells B6 and B9. But we haven't totalled the expenses for February and March, calculated the savings for these months, or calculated the total amounts in each row for the first quarter.

Rather than type the formulas for cells C6, D6, E6, C9, D9, and E9, we'll use the copy command. Hold on, do we really want to copy the formula in cell B6 to C6, D6, and E6? Do we want +B3+B4+B5 in these cells as well?

We sure don't. Cell C6 should be the sum of C3, C4, and C5 — not B3, B4, and B5. But the copy command will take care of that for us.

5. Select cell B6, which contains the formula we want to copy.
6. Press / (the slash-question mark key).

Under the control panel, you'll see a two line command menu, with the command Worksheet selected. The top row lists all of the primary commands, the bottom row shows the functions available for the one selected. In this case, the bottom row shows all of the Worksheet functions.

7. Press the right arrow key to select the word Copy. Notice that as you highlight other primary commands, the bottom row changes to show its functions.
8. Press Return to select the copy command.

You can select commands in two ways. You can select the command with the arrow keys then press Return, or you can type the first letter of the command. So from now on, I'll show the instructions in their shortest form. For example, the

keystrokes just performed will be given as Press /C.

The command line shows the prompt

Enter range to copy FROM: B6..B6

9. Press Return since this is the cell you want to copy. The command line shows

Enter range to copy TO: B6

10. Type C6, press the period key, then type E6. The prompt will appear like this when you're done

Enter range to copy TO: C6.E6

11. Press Return. Zeros now appear in each of the three cells. But let's take a look at their actual contents.

12. Select cell C6. The control panel shows us the contents is +C3+C4+C5. When you copy a formula, Lotus automatically converts the cell rows and columns for you. This way, whenever you have a formula that must be repeated, enter it just once and copy it to the entire range.

13. Now use the same techniques to copy the formula in cell B9 to cells C9, D9, and E9.
 - a. Select cell B9.
 - b. Press /C for the copy command.
 - c. Press Return to accept the range B9..B9 to copy.
 - d. Type C9.E9.
 - e. Press Return.

We now have the formulas that compute total expenses and what's left over from your income. We still have to compute the first quarter's total in column E.

14. Select cell E3. We'll use another method here to show you Lotus' special functions.

15. Type @SUM(. Do not press Return. The @ sign (shift 2) informs Lotus that you're using a built-in function. In this case, the function is called SUM and it calculates the total of the cells that we'll add to the range.

16. Type B3.D3). The complete formula is

@SUM(B3..D3)

17. Press Return. You can use the @SUM function whenever you need a total

of either rows or columns. You could have used it, for example, in row 9. Likewise, you could have entered +B3+C3+D3 in cell E3 instead of the @SUM function.

18. Copy the formula to the other cells in that column. E3 should still be active.

- a. Press /C.
- b. Press Return.
- e. Type E4.E8
- f. Press Return.

19. Notice that a zero appears in cell E7 even though this is just part of the blank line between expenses and income. Let's delete that zero.

- a. Select cell E7.
- b. Press /R to select the range command.
- c. Press E for the erase command. You'll see the prompt
Enter Range to Erase: E7..E7
- d. Press Return to erase the cell.

The spreadsheet now appears like

	JAN	FEB	MAR	1ST
RENT				0
FOOD				0
OTHER				0
TOTAL	0	0	0	0
INCOME				0
SAVINGS	0	0	0	0

We still have some last formulas to enter. Let's assume that our expenses are constant over the quarter, that is, that we spend the same thing for rent, food, and "other" each month, and that we have a steady income. This might not always be the case, but it will serve to show you the power of "What If?" simulations later on.

We'll be entering these amounts in the cells in column B. But since they will be repeated for the other months, let's use a simple formula instead.

20. Type the entries in the cells shown below.

In Cell	Type
C3	+B3
D3	+C3
C4	+B4
D4	+C4
C5	+B5
D5	+C5
C8	+B8
D8	+C8

You now know three types of entries that can be typed into a cell — labels, formulas, and functions.

Phase 3

The template is now complete, with labels, formulas, and functions. Now it's time to add the actual budget figures.

1. Select cell B3.
2. Type 100, then press Return.

As soon as you pressed Return after typing a number, the row and column totals, as well as the amount in the Saving row immediately changed. That's because these cells actually contain formulas that reference other cells.

For instance, as soon as you entered 100 in cell B3, any cell that contains a formula referencing B3 will automatically recalculate. So cell B6 became 100 because +B3+B4+B5 was calculated as 100+0+0. You didn't enter any income in yet, so the savings for that column became -100 (B8-B6, or 0-100). Since the other month's rent changed to 100, the first quarter total in cell E3 changed to 300, and the savings amount for the quarter in cell E9 became -300.

	JAN	FEB	MAR	1ST
RENT	100	100	100	300
FOOD		0	0	0
OTHER		0	0	0
TOTAL	100	100	100	300
INCOME		0	0	0
SAVINGS	-100	-100	-100	-300

3. Use the arrow keys to select each of the cells below, and type the corresponding numbers shown. As you do, watch recalculation take effect in the cells using formulas.

In Cell	Type
B4	80
B5	120
B8	800

As soon as you press Return or an arrow key after typing the number, the other cells automatically recalculate.

Your complete spreadsheet should look like this:

	JAN	FEB	MAR	1ST
RENT	100	100	100	300
FOOD	80	80	80	240

OTHER	120	120	120	120
TOTAL	300	300	300	900

INCOME	800	800	800	2400
SAVINGS	500	500	500	1500

Printing Spreadsheets

Now let's print your spreadsheet. Since the current worksheet is small, it will fit on standard 8 1/2 by 11 inch paper. Later I'll explain how to handle larger spreadsheet.

You have to first set the range of cells to print.

1. Press the Home key. This selects cell A1.
2. Press /PPR (Print Printer Range).
3. Press ., the period key.
4. Now use the arrow keys to select cell E9. The worksheet becomes selected.

Instead of entering the range, you used the arrow keys to "point" to the range of cells. Whenever you need to enter a range, you can either type the starting and ending cells, or point to them as you did here when you set the printing range. In most instances, as when you set the printing range, select the first cell of the range, press period, then select the last cell in the range.

5. Press Return then G (Go).
6. After the worksheet is printed, press ESC three times to clear the control panel.

Now that the range is selected, you can print the worksheet by pressing /PPG.

If your spreadsheet won't fit across your page, it will be divided into sections. As many rows as possible will print across, the remainder printing underneath.

There are several steps you can take to print a large spreadsheet in one part. Some special programs are available that print long spreadsheets sideways, down the long side of your paper. But if you have a dot matrix printer, you can also use its condensed mode. Because the characters are smaller, more columns will fit on the page. However, you have to turn on the compress mode, and tell Lotus to

print more characters on each line by changing the right margin setting.

Let's try this now. I'll be using ASCII code 15 as the printer command for compressed printing. This is a common code used in many dot matrix printers. If it doesn't work for you, check your printer manual.

You'll be entering a number of keystrokes in the section. If you get lost, or end up on a command line that doesn't appear right, keep pressing ESC until all of the command lines disappear, then start over.

1. Press /PP (Print Printer).
2. Press OS (Options Setup). The prompt will change to

Enter Setup String:

3. Type \015, or the command your own computer uses for condensed print. Be sure to use the backslash (\) here.
4. Press Return. Now set the right margin.
5. Press MR (Margins Right) to see the prompt

Enter Right Margin (0..240): 76
6. Type 128, then press Return.
7. Press Q (Quit) to return to the previous command line.
8. Press G (Go) to print the spreadsheet in the condensed mode.
9. Press ESC until all of the command lines disappear.

If you turn your printer off, it will revert back to the normal character size, but Lotus will still think you have 128 columns to print. In this case, you'll have to reset the margin back to 76. You can do this by pressing /PPOMR, and typing 76 to reset the margins. Or you can use the clear command to return all printing features back to their default. Do this by pressing /PPCA (Print Printer Clear All). Keep this command in mind if you have other problems when printing spreadsheets. For example, only certain rows or columns print, or extra blank rows and columns. Just reset the range before you try to print another worksheet.

Formatting

So far you've entered and printed a spreadsheet. Now let's try to format the cells. There are a large number of format options available and they can act either Globally (on the entire spreadsheet) or on a specific Range. Let's try both.

1. Press \WGF (Worksheet Global Format). This is the command that allows you to adjust the format of all of the cells in the worksheet.

The options on the command line represent the possible formats:

Fixed: Entries will have a specific number of decimal places.

Scientific: Entries will be in exponential format.

Currency: All numbers will have a dollar sign.

, (comma): Thousands will be separated by commas.

General: Numbers appear just as you've entered them, zeros at the end of decimals will be deleted — 6.70 will be displayed as 6.7.

+/- : Numbers are replaced by asterisks displaying a chart.

Percent: Entries will be displayed as percentages — .07 will display as 7%, 5 will be displayed as 500%.

Date: Numbers will be converted to date format. You will be given three formats to select from.

Text: The contents of the cells will be displayed (formulas and functions, for example) instead of their computed values.

2. Press C (for currency format). You're prompted

Enter number of decimal places (0..15):
2.

3. Press Return to accept the default 2. All of the numeric entries adjust, except cells E8 and E9 are filled with asterisks!

That's because the entries in these cells now are too large to fit in the default 9 character column width. Let's widen that column.

5. Select cell E1.
6. Press /WC (Worksheet Column-width) to see the prompt

Set Reset

7. Press S to see the prompt

Enter Column-width (1..72): 9

8. Type 12, then press Return. Column E is now 12 characters wide so the entire numbers appear.

13. Press Return. All of the labels in that row are now centered in the column.

	JAN	FEB	MAR	1ST
RENT	\$100.00	\$100.00	\$100.00	\$300.00
FOOD	\$80.00	\$80.00	\$80.00	\$240.00
OTHER	\$120.00	\$120.00	\$120.00	\$360.00
TOTAL	\$300.00	\$300.00	\$300.00	\$900.00
INCOME	\$800.00	\$800.00	\$800.00	\$2400.00
SAVINGS	\$500.00	\$500.00	\$500.00	\$1500.00

What If?

The real power of spreadsheets lies in their ability to recalculate. This way you

	JAN	FEB	MAR	1ST
RENT	\$100.00	\$100.00	\$100.00	\$300.00
FOOD	\$80.00	\$80.00	\$80.00	\$240.00
OTHER	\$120.00	\$120.00	\$120.00	\$360.00
TOTAL	\$300.00	\$300.00	\$300.00	\$900.00
INCOME	\$800.00	\$800.00	\$800.00	\$2400.00
SAVINGS	\$500.00	\$500.00	\$500.00	\$1500.00

The one problem still remaining is the format of the labels in row 1. Left aligned, they just don't appear properly in the column. Rather than retype them with the " or ^ prefixes, let's format them.

9. Press Home to select cell A1.
10. Press /RL (Ranger Label-prefix) to see the prompt

Left Right Center

11. Press C to select center. You'll see the prompt

Enter range of labels: A1..A1

12. Press the right arrow key four times to select the entire row.

can visualize the effect that a change in one cell has on the entire worksheet — called a What If simulation.

For example, in the first quarter we are able to save \$1500.00. But what if your rent is increased to \$400? Let's see how easy this is using Lotus.

1. Select cell B3, the cell containing the rent for January.
2. Type 400, then press Return.

The spreadsheet automatically recalculated letting us know that if rent is \$400, our savings is only \$600.

That's the reason we entered formulas — actually just a single cell reference — in the other categories for February and March. If you had entered the number, then you'd have to type the new rent in all three columns.

On your own, try changing the amount for food, other expenses, and income in column B. Watch the effect these changes have on the other cells.

Saving Spreadsheets and Quitting Lotus

You now have a solid introduction to using spreadsheet programs. You entered la-

	JAN	FEB	MAR	1ST
RENT	\$100.00	\$100.00	\$100.00	\$300.00
FOOD	\$80.00	\$80.00	\$80.00	\$240.00
OTHER	\$120.00	\$120.00	\$120.00	\$360.00
TOTAL	\$300.00	\$300.00	\$300.00	\$900.00
INCOME	\$800.00	\$800.00	\$800.00	*****
SAVINGS	\$500.00	\$500.00	\$500.00	*****

bels, formulas, and numbers. You formatted cells and widened columns. You printed the worksheet and performed a What If calculation.

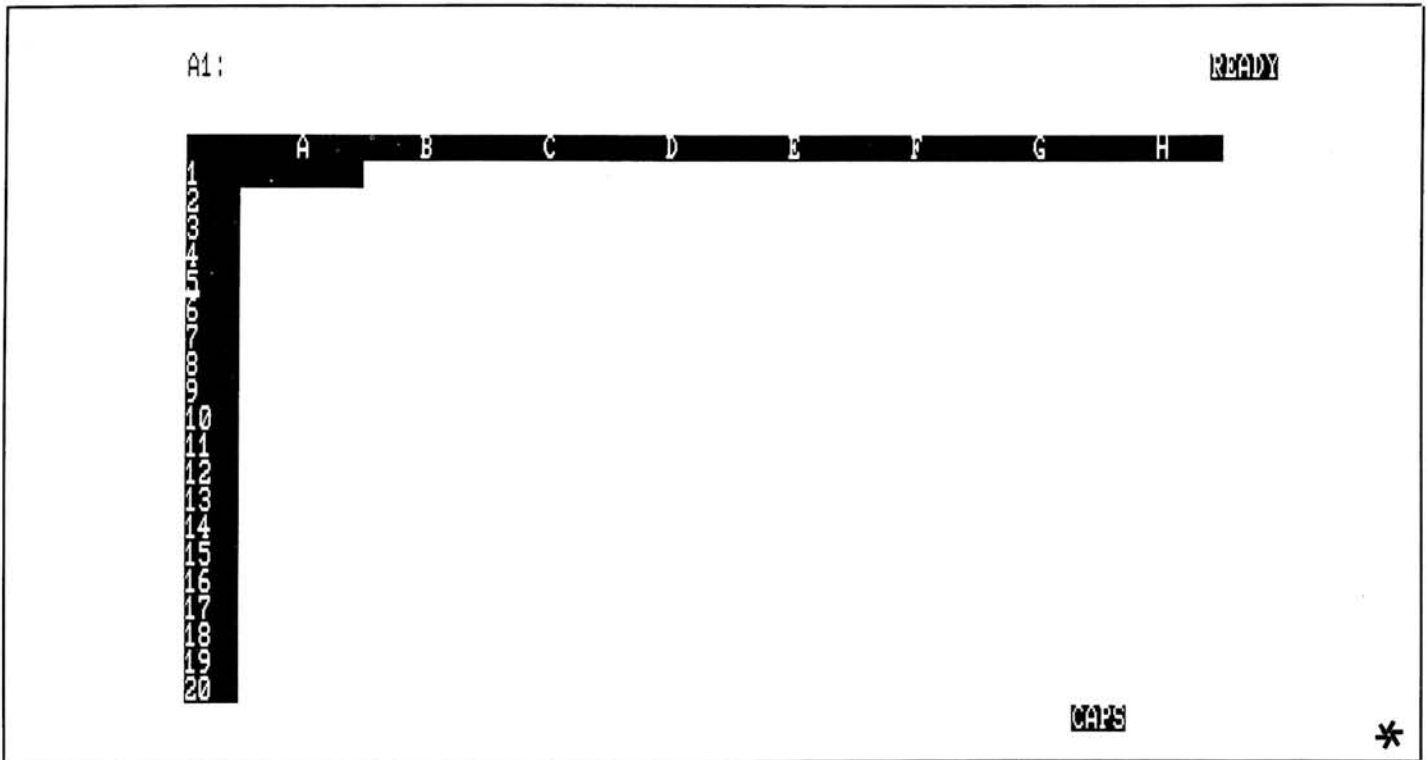
Now save your worksheet and exit Lotus.

1. Press /FS (File Save).
2. Type Budget then press Return.
3. Press /QY (Quit Yes). The Lotus Access Menu appears.
4. Press EY (Exit Yes).

As your skills increase with Lotus, you'll be able to create more sophisticated spreadsheets. Lotus is a complex program with features well beyond the scope of a Getting Started With . . . article. You can

	JAN	FEB	MAR	1ST
RENT	\$400.00	\$400.00	\$400.00	\$1200.00
FOOD	\$80.00	\$80.00	\$80.00	\$240.00
OTHER	\$120.00	\$120.00	\$120.00	\$360.00
TOTAL	\$600.00	\$600.00	\$600.00	\$1800.00
INCOME	\$800.00	\$800.00	\$800.00	\$2400.00
SAVINGS	\$200.00	\$200.00	\$200.00	\$600.00

create charts and graphics from your worksheet data, perform some database management functions, even run a small business. If you work with numbers, you'll find a spreadsheet program an invaluable assistant.



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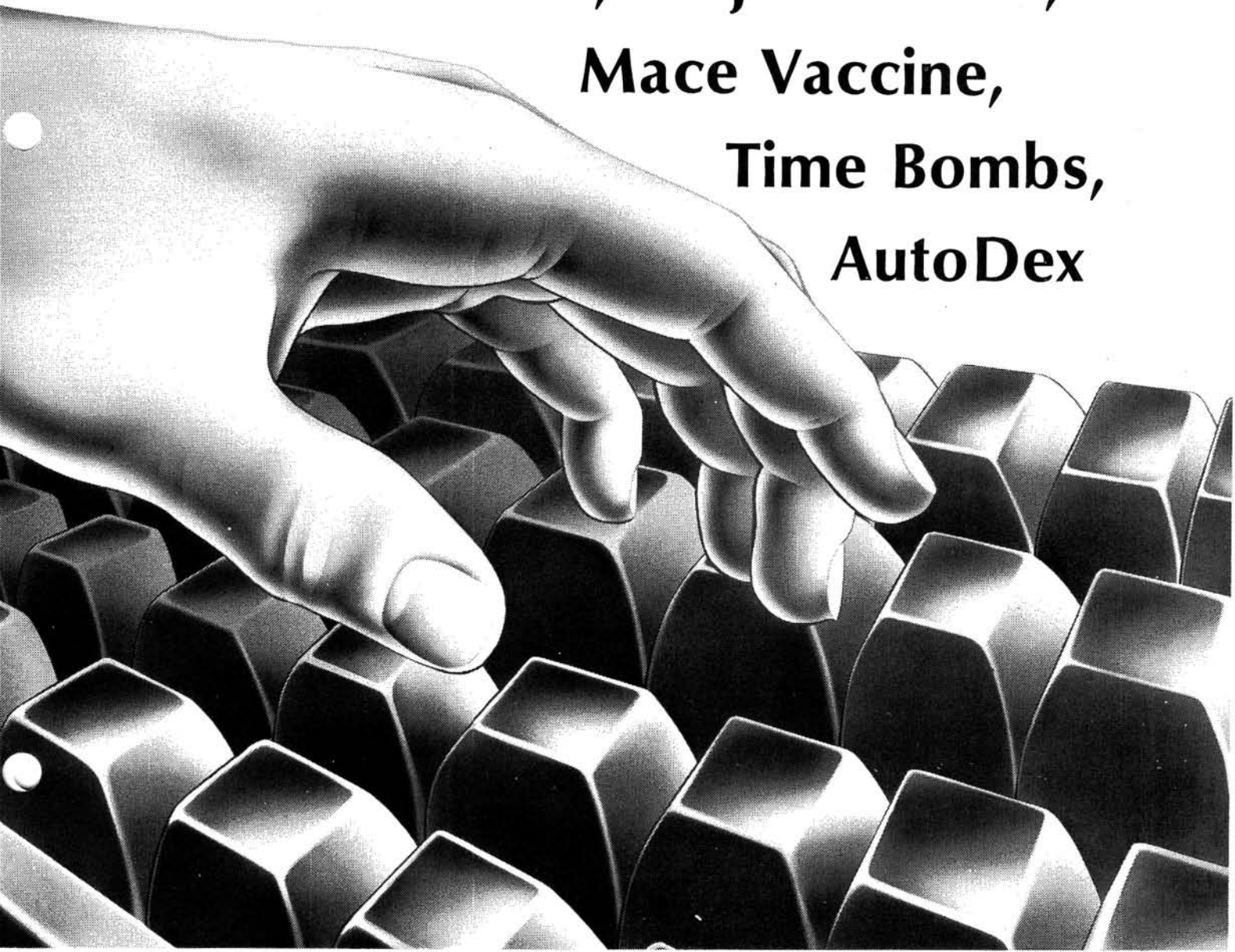
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**Shell and File Manager Programs,
Viruses, Trojan Horses,
Mace Vaccine,
Time Bombs,
AutoDex**



In the last column, we looked at some of the ways that you can use to detect a virus in your system. Unfortunately, there are other kinds of "gotcha's" that can be picked up which can do significant damage to your files, and it is useful to understand the different kinds of things that can happen. There are at least three unique names for dangerous categories of programs that can damage your files: trojan horses, time bombs, and viruses. And while each can cause the same result (e.g., destroying the directory or the File Allocation Table), the difference is how (or when) they do it. Let's examine each type to see how they generally do the damage.

Trojan Horses

As you might expect, a *Trojan Horse* program looks like it does one thing, but it really does something else, like destroy a disk directory or scramble the disk's FATs. I seem to recall reading about one trojan horse program a few years ago that displayed a Christmas tree, then it scrambled the FATs with a message like: "Arf, Arf, I got you!" A similar situation occurred when someone changed the popular shareware PC-WRITE word processing program to perform a similar kind of destruction and placed it on a bulletin board. The author of PC-WRITE was so outraged (as well he might be) that he offered a reward for information leading to the identification of the culprit.

The significant point about the Trojan Horse program is that it ALWAYS does its vandalism EVERY time it is run. Like the Trojan Horse of yore, it masquerades as looking like one thing, but that disguise does not last long. It may be any kind of COM or EXE file that purports to display graphics, list a directory, unerase files or just about anything else.

The trojan horse program may perform a wide variety of destructive things ranging from the erasure of files on a disk to the invocation of the system's FORMAT program. If the files are only erased, they can generally be recovered by an "unerase" utility. If the FORMAT program is invoked, the ability to recover depends on the type of system. In general, you cannot recover files from a formatted floppy disk because most FORMAT versions actually overwrite everything on a floppy. On a hard disk, you can generally recover most files (except for the root directory) by using an "unformat" utility. For example, the Mace Utilities package includes both "unerase" and hard disk "unformat" utilities that can

be used to recover from problems and mistakes.

The potential threat of a Trojan Horse program is fairly easy to counter. All you need to do is copy the suspect program to a new floppy disk (created with the FORMAT command using the /S switch), reboot the system, and run the suspect program from that disk. The critical point is to make sure that the suspect program is the only critical file on that bootable disk and there are no other disks in other drives. Execute the program. This is the first check-out, and everything MAY be okay. There is more, but let's take a look at precautions if you have a hard disk.

If you have a hard disk system, the process is not quite as easy, but the objective is to isolate the suspect program as before. First, you create a bootable disk using the FORMAT with the /S switch as before. Next, make a complete BACKUP of all files on your hard disk. Then, turn off the power, open up the system cabinet and disconnect the two cables from the hard disk to the hard disk controller. You can also disconnect the power to the hard disk if you want, but that is not a requirement. The important thing is to make sure that the computer cannot read or write to the hard disk(s) in your system. Now you can power-up the system, boot from the floppy, and run the suspect program to see if it causes a problem.

At this point, you are relatively safe because nothing has apparently happened to the bootable disk in drive A. Now it's time to check out the other drives because some Trojan Horse programs only destroy other drives. Use DISKCOPY to create a test disk for drive B. Depending on the nature of the suspect program, you will have to determine how to check it out for other drives. For example, if the program is purported to be a directory listing program, use it to list the directory on drive B. If the program appears to perform as you expect, it is probably safe to use in your system, but there is one additional step if you have a hard disk system.

I have heard of at least one Trojan Horse program that only wipes out hard disks (i.e., drive C), so it is critical to have a complete backup at this point. Power-off the system, and reconnect the two cables to the hard disk system. At this point, you can also put the cabinet back together too. Power-on the system, and it will boot from the hard disk as usual. Here again, the nature of the suspect program will de-

termine how you test it. The first test is to use the hard disk as the default drive and run the program from the A drive so that you enter a command like the following:

```
C:\>A:TESTIT
```

Of course, you will have to substitute the actual program name for "TESTIT" in the above. If the program still seems to be okay, it is time for the real smoke test. COPY the program to your hard disk and run it again. If the program performs as advertised, it is probably safe to use in your system.

Even after all of this testing, there is no absolute guarantee that the program is safe, but if you have followed all of these steps, it probably is. Be aware that the underlying assumption in all of this testing is that the suspect program will perform its vandalism EVERY time it is executed given the proper conditions, such as a data disk in drive B or a hard disk. Since it is relatively easy to detect a Trojan Horse using these steps, computer vandals have figured out a way around this.

Time Bombs

The *Time Bomb* program uses a more insidious approach: it can perform the same kinds of computer vandalism that a Trojan Horse can, but it usually does so by checking the system date and executing its destructive code on or after a programmed date.

As you might guess, the Time Bomb program is more difficult to detect and identify because it may work correctly for a long time — at least until the system date reaches the "bomb date". Unfortunately, you may not know you have a Time Bomb until it is too late and your data has been destroyed.

One possible way to detect a Time Bomb program is to use the DEBUG Dump (D) subcommand to look at the ASCII contents of a program file. If you see a date in the standard DOS form of mm/dd/yy that is sometime in the future, be suspicious. But be aware that many programmers, including me, usually include a date that the program was written in the source code, so you may see a perfectly valid date that is not used for anything but information. In this case of course, the date will have already passed by the time you see the program, so you will find there are no problems with it. Because the DEBUG Dump (D) subcommand is a useful fea-

ture to know for a lot of reasons, we'll take a more detailed look at it in a minute. Now let's take a look at what a virus is and does.

Viruses

A Virus program may contain destructive code like the Trojan Horse or the Time Bomb, but it has one added feature; it is capable of reproducing itself and usually does so by "attaching" program code to a file or files in the computer system. As a result, it is extremely difficult to "kill" a virus once it is in your system, since it usually requires a lot of detailed examination of ALL files to be sure. You can't easily "delete" one suspected file because EVERYTHING may be infected. Many of today's virus programs seem to like to pick the system files such as the BIOS (e.g., IBMBIO.COM) or the Command Interpreter (COMMAND.COM), and they do so because nearly all of today's popular computer systems have the identical file names. But a virus program can also attach itself to just about any file in your system, so there is no guarantee about anything.

At this point, you are left with only detecting and preventing a virus or other destructive program from infecting your system. Let's take a look at them.

Detecting a Destructive Program

Using the DEBUG Dump (D) subcommand to look at a suspect file is one possible way to identify a destructive program. It is easier than you might suspect, and all you need to do is enter the DEBUG command followed by the name of the file. Then you can look through the file (e.g., COMMAND.COM) using the Dump (d) subcommand as shown in Figure 1.

This example shows what you can expect to see if you use the Dump subcommand. The important thing to know is that the right side of the screen displays the contents of the file in ASCII characters. You can use this technique to scan through just about any file in your system, except for the hidden or system files that are not accessible through any DOS command.

What are you looking for? Since most of these computer vandals seem to have a perverted sense of humor, you are looking for some kind of "strange" message like "Arf, Arf, I got you". You can also look for dates in the future (e.g., 10/23/88) that may indicate a time bomb.

C:\DEBUG COMMAND.COM

-d

```
3118:0100 E9 BD 0C BA A0 0A 3D 05-00 74 1B BA 85 0A 3D 02 .....=.t...=.
3118:0110 00 74 13 BA 4B 0A 3D 08-00 74 0B BA 37 0A 3D 0B .t..K...t...7.=.
3118:0120 00 74 03 BA 28 0A 0E 1F-E8 AC 05 EB 0C CD 21 72 .t..(.....!r
3118:0130 D2 B4 4D CD 21 2E A3 CE-0B E9 4C 01 2E F6 06 2F ..M!.....L.../
3118:0140 0C 01 74 0C 2E F6 06 2F-0C 02 74 03 E9 32 12 CF ..t.../..t..2..
3118:0150 2E F6 06 2F 0C 04 74 11-80 FC 01 72 F2 80 FC 0C .../..t...r...
3118:0160 77 ED 83 C4 06 F9 CA 02-00 2E 80 0E 2F 0C 04 FB w...../...
3118:0170 0E 1F A1 D5 0B 0B C0 75-06 50 B4 0D CD 21 58 F7 .....u.P...!X.
```

-d

```
3118:0180 06 7B 0B FF FF 74 21 0B-C0 75 1D E8 35 02 E8 3A .{...t!..u..5...
3118:0190 03 73 12 8E 06 7B 0B B4-49 CD 21 C7 06 7B 0B 00 .s...[...I!..[.
3118:01A0 00 D0 2E D0 0B E8 40 02-33 C0 8B E8 A2 DA 0B A2 .....@.3.....
3118:01B0 DB 0B E8 1C 00 39 06 D5-0B 74 06 C7 06 D5 0B FF .....9.....t...
3118:01C0 FF 80 26 2F 0C FB 38 06-CD 0B 75 03 E9 25 01 F9 ..&/..8...u..8..
3118:01D0 CB 50 33 C0 2E 86 06 30-0C 0A C0 74 05 2E D0 2E .P3...0...t...
3118:01E0 D0 0B 58 C3 BA B0 0A 0E-1F E8 EB 04 80 3E D4 0B ..X.....>...
3118:01F0 00 74 10 83 3E D5 0B 00-75 09 BA CB 0A E8 D7 04 .t..>...u.....
```

-d

```
3118:0200 FB EB FE BA F0 0A E8 CE-04 80 3E D4 0B 00 75 1A .....>...u.
3118:0210 A1 70 0B 2E A3 16 00 A1-72 0B 2E A3 0A 00 A1 74 .p.....r.....t
3118:0220 0B 2E A3 0C 00 B8 00 4C-CD 21 0E 1F C7 06 D5 0B .....L!.....t
3118:0230 00 00 8E 06 F9 0C B4 49-CD 21 8B 1E 6E 0B B4 50 .....I!.....P
3118:0240 CD 21 A1 CE 0B 80 3E CD-0B 00 75 02 33 C0 C6 06 .!.....>...u..3...
3118:0250 CD 0B 01 FF 2E 6A 0B 2E-8F 06 6A 0B 2E 8F 06 6C .....j...j...!
3118:0260 0B 58 0E 07 BF 80 00 B9-40 00 F3 A5 B4 51 CD 21 .X.....@...Q..
3118:0270 2E 89 1E 6E 0B B4 50 8C-CB CD 21 2E C7 06 D5 0B .....n..P...!....
```

-q

Figure 1
DEBUG Dump of COMMAND.COM

Another way to generally detect a virus is to use the technique that was described by Pat Swayne in the June 1988 REMark on page 7 about "Keeping Your System Healthy" using the Zenith FC command.

Prevention is usually the best cure for these kinds of problems, and there are quite a few products on the market that can help prevent problems. I recently received a new program that seems to have a good way to protect your system.

Mace Vaccine

The Mace Vaccine program is a memory-resident program that takes about 4K of memory, and Mace recommends that it be placed first in the AUTOEXEC.BAT file. It has two levels of protection.

Default Level 1 is used to write-protect a drive against "unauthorized" access to vital areas — such as directories, subdirectories, File Allocation Tables (FATs) — and system files like the BIOS and Command Interpreter. You must give permission before any of these vital areas or system files can be modified. This level of protection is installed by entering the command VACCINE.

Level 2 includes all of the Level 1 protection and also prevents attempts at direct access that are required by FORMAT, CHKDSK/F, DEBUG, and some utilities. There are quite a few utilities that require direct disk access, and these include virtually all disk optimizers (e.g., Mace UN-

FRAG), as well as disk editors such as HUG's HADES. Again, you must give permission before any direct access to the disk will be allowed. Since various forms of copy-protection still use direct disk access, I suppose that this program will probably intercept those attempts as well. After the VACCINE program is installed, you can add this level of protection by entering the command VACCINE 2.

After VACCINE is installed, you can turn it off with the VACCINE OFF command, but that does not remove it from memory. That allows you to reactivate it by simply entering the command VACCINE ON.

But the real question is: Does it work? More importantly: How can you test VACCINE to be sure that it really does intercept writes to vital disk areas and files? Fortunately, that is easy if you have a current version (e.g., 3.21) of Zenith MS-DOS that has the DSKSETUP command. Let's see what happens when you try to run DSKSETUP and change something in the Boot Record. By the way, the Boot Record is a special area on a hard disk (not to be confused with the Boot Sector) on a PC compatible that contains critical information about the partition(s) among other things. Let's see what happens.

I started the VACCINE program, and then ran DSKSETUP to attempt to change the Format Protection on my hard disk as shown in Figure 2.

Since DSKSETUP bypasses DOS to write directly to the hard disk in the reserved

Boot Sector, VACCINE intercepts that attempt and asks for permission to proceed. No problem. We expected that this would happen, and it is comforting to know that VACCINE will intercept this kind of access even with a unique program supplied with Zenith MS-DOS. Now let's see what happens when DSKSETUP attempts to update the BIOS (i.e., IBMBIO.COM) system file that is normally hidden from the DIR command.

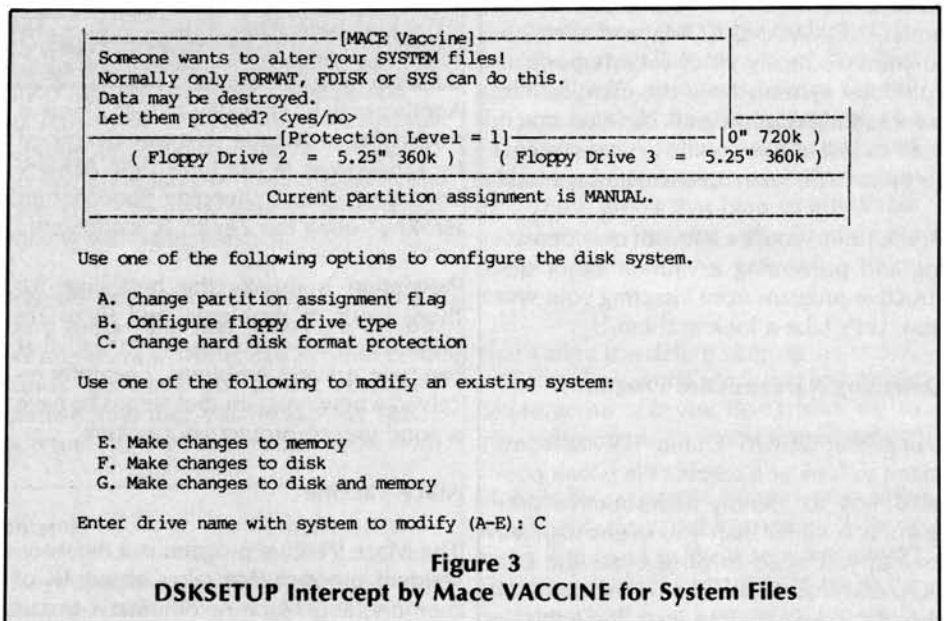
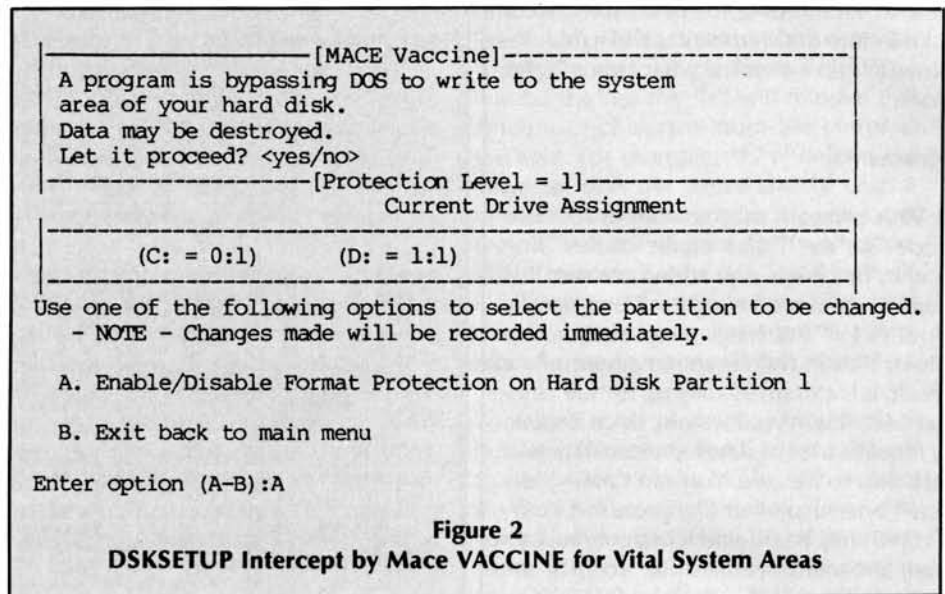
I rebooted the system, started the VACCINE program, and then ran DSKSETUP to attempt to change the Partition Assignment from Automatic to Manual in Figure 3.

In this test, DSKSETUP was attempting to update the BIOS in order to change the Partition Assignment Flag, and VACCINE intercepted that attempt. From this limited amount of testing, it appears that VACCINE functions as intended. If you are concerned about the possibility of a virus in your system, VACCINE is recommended as an excellent way to prevent problems before they occur.

Although it is mentioned on the information card provided with VACCINE, I believe one point that should be stressed is that VACCINE (or any similar program) should be the absolute FIRST line in the AUTOEXEC.BAT file. The reason for that is simple: Viral code can be activated by just about any command, including the usual TIME and DATE commands. I have heard of one instance where viral code is activated by the DIR command and spread to other disk drives by DIR B: and so on.

I have talked to Paul Mace about a number of things, and I have a lot of respect for his software, organization, and thoughts about computers. He has written a few paragraphs on the general subject of viruses and his VACCINE program that are particularly appropriate, and I will quote them directly:

"A computer virus or flu is not a natural disease; it is the product of a sick mind, a malignant piece of computer code attached to an otherwise normal program. When you run an infected application, the viral code takes control and searches the disk for new files to attach itself to, the DOS system files being favorite targets. Periodically, the viral code takes command and destroys information on your disk, sometimes a little bit at a time, sometimes all at once.



Mace Vaccine is designed to warn you when unusual attempts are made to access vital disk areas and system files, not just by a computer flu or virus, but by any application that has no business modifying these vital areas of your disk. You can also raise the protection level to prevent any unauthorized access outside of DOS. This will stop any current virus or flu before it stops you.

Understand, the people who make these things are clever, and we haven't seen their worst. We're clever too, and will keep improving the vaccine. We can only hope they will tire of this malicious nonsense before we do."

I agree. It's deplorable that we have to resort to spending our money and using this kind of program to protect ourselves

against a malicious nuisance. As adults, we must not only worry about diseases that threaten our personal health, we must also consider the use of a computerized condom to protect our computer systems too. Although there are lots of ways to keep track of your system files, I have mentioned before that one of the ways that you can detect a virus is to note that a system file has changed in size and/or date. There is another way to keep track of these things that I use every day.

What I Need Is . . .

I have used a program called Autodex for many years now (starting back when I had my H-89), and its basic function is to help manage files on a disk. In today's popular terminology, it would be called a shell

and file manager since it also provides some single keystroke commands that allow you to copy, rename, delete, and print files. To give you a more specific idea of what I am looking for, I will mention some of the neat features that were part of my review of AutoDex that appeared in the May 1984 issue of REMark on page 19.

What I particularly like about AutoDex is that the program is more than a shell or a file manager — it includes a “mini-database” that allows you to add up to a 40 character ASCII description of files. When the program is started, it starts with a screen like Figure 3.

```

* A U T O D E X (1.0) *
* DISK AREA *      Sort Mult  >Current: C  Backup: A   Date: 061388
Disk Left:17584K  Exit  Flst
File: 1 of 54
* FILE AREA *
-----
CMD Name Type | Size | ChgDte | Description
-----
=> --WSTAR4 DID | 3K   | 061388 | \WS4 subdirectory
AX          BAT | 1K   | 061388 |
AXX         EXE | 32K  | 082887 | AutoDex program
COMMAND     COM | 24K  | 090487 |
DTCINFO     COM | 34K  | 020488 | DTC printer info
FF          COM | 1K   | 12178  | Formfeed for printer
FINETUNE    EXE | 24K  | 010180 | AutoDex config program
FUNTBL     PAT | 5K   | 011488 |
FX80       PAT | 4K   | 011488 | Special patches for C. Itoh -- FX-80 mode
INTERNAL    DCT | 25K  | 123086 |
KEYPADX     PAT | 5K   | 011488 | Patches for keypad changes
MAIN        DCT | 271K | 123086 |
PATCH      COM | 94K  | 011488 | Patch documentation for WS4
PERSONAL    DCT | 4K   | 071388 | WS4 user dictionary
PINIT       EXE | 10K  | 011288 |
PLINE       COM | 1K   | 010688 | Printer test file
PRINT       EP  | 21K  | 010688 | C. Itoh printer information test
PRINT       TST | 6K   | 080587 | WS4 printer test file

```

All of the comments in the “Description” area are mine, and this particular display is obviously for my WordStar directory. The DID (Disk ID) file type contains all of these descriptions and is essentially a mini-database as I mentioned earlier.

The default is to sort the names in alphabetical order as shown, although this can be changed. You can “page” through a list of the files by using the PgDn and PgUp keys. You can “jump” back and forth from the File Area by simply pressing the ESC key.

AutoDex has a variety of commands used for the disk and individual files that are best summarized by showing the help screen which is activated by typing a question mark (?), as shown in Figure 4.

The Disk Area commands allow you to do a number of things that affect multiple files, changing to a different drive, and changing the backup drive. Single letter

commands typed in the file area allow you to perform a number of different operations on individual files. That makes it extremely easy to backup files to another disk drive (such as floppy drive A), and this program is probably the reason that I did not lose any files when my 40 MB hard disk went into the CBD mode as I discussed in the July issue. As soon as I returned to AutoDex from my editing session, I simply typed a B in front of the file (with a backup drive of A) so that the file was copied to the backup drive. It is so easy to keep a current backup this way that I regularly keep a floppy disk in drive A for that purpose. But there is one other feature that is particularly nice about

>WSC WSD Other” shown in the Description area. The eExecute feature allows you to type an X in front of the file name, and in this example, AutoDex creates a DOS command line of “WSC DTCINFO” which starts a special version of WordStar that I use. In other words, all I do is scan or page down the list of files that I want to edit, type an X, and press RETURN to start WordStar for that file. In case you are wondering, WSC is for my C. Itoh printer and WSD is for my DTC StyleWriter. Both of these are COM files as usual, and AutoDex can be customized to add up to five “commands” like this.

One of the other things I particularly like about AutoDex is that it is not memory resident and does not interfere with anything else that I do. It uses the old “dummy” batch file trick so that, when you exit the application program, the AutoDex program is restarted so you are returned to the same file name where you started. Well, if this program is so great, you may wonder why I am looking for another one.

One of the things that may be conspicuous by its absence on these screens is the subdirectory, and that is the problem. This particular version was written for version 1 which was a long time ago, and subdirectories were not available in DOS. Although the AutoDex people told me that they were working on a version that included subdirectories, I tried to contact them subsequent to that. My letters were returned with “no forwarding address” and their phone lines were disconnected. Because this program was designed for a floppy disk system, I have to use the SUBST command to tell it that my WordStar subdirectory is on drive A which is another problem with this old program.

AutoDex — the capability to eExecute a program against a file, as shown in Figure 5.

Notice the line with the file name of DTCINFO shows a prompt of “>> To:

```

* A U T O D E X (1.0) *
* DISK AREA *      Sort Mult  >Current: C  Backup: A   Date: 061388
Disk Left:17584K  Exit  Flst
File: 5 of 54
* FILE AREA *
-----
CMD Name Type | Size | ChgDte | Description
-----
--WSTAR4 DID | 3K   |          |
AX          BAT | 1K   |          |
AXX         EXE | 32K  |          | ** DISK Commands **
COMMAND     COM | 24K  |          | Sort = Sort Filenames
DTCINFO     COM | 34K  |          | Mult = Bkup, List, Erase
FF          COM | 1K   |          | Current = Current Drive
FINETUNE    EXE | 24K  |          | Backup = Backup Drive
FUNTBL     PAT | 5K   |          | Date = Today's Date
FX80       PAT | 4K   |          | Exit = Exit AUTODEX
INTERNAL    DCT | 25K  |          | Flst = List File Info.
KEYPADX     PAT | 5K   |          | Id = Identify Disk
MAIN        DCT | 271K |          |
PATCH      COM | 94K  |          | ** MISC Commands **
PERSONAL    DCT | 4K   |          | <ESC> = Escape from action,
PINIT       EXE | 10K  |          | or where you are
PLINE       COM | 1K   |          |
PRINT       EP  | 21K  |          |
PRINT       TST | 6K   |          |

```

** FILE CMD's **
? = Display File CMD's
B = Backup file
C = Copy file
E = Erase file
G = Goto file
L = List file
M = Mark file for Mult
N = Next screen
P = Previous screen
R = Rename file
T = Make this top row
V = View file
X = eExecute program

Figure 4
AutoDex Help Screen

The program still works great after some fooling around (with SUBST, etc.), but I think there must be another shell program out there somewhere that has similar features. Has anyone heard of or seen something like this? Although I have looked at lots of shell programs and file managers, I have not found anything that is as easy to use and functional as AutoDex.

From an operational perspective, it is interesting to note that I have never had a problem with a software conflict because the program is not memory resident. And I consider that significant because many similar programs are memory resident, and I suspect that at least some of them would have problems with my WordStar memory-resident thesaurus and Super-Key. Of course, AutoDex does not require any additional system memory because it uses the dummy batch file trick, and I believe that is also a significant advantage. But I think that perhaps the most truly amazing fact is that this particular program, which was originally written for CP/M and ported over to DOS version 1, still works correctly (with some subtleties) in DOS version 3.21. Why?

Simply because the original programmer followed ALL of the DOS standards. That is the primary reason I have been a strong advocate of doing things in a standard way for 20 years in data processing. Programs that take over keyboards, video displays, and other system hardware are just asking for problems when either the hardware or system software (e.g., ROMs) are changed. Some forms of copy-protection can cause similar problems.

Perhaps you are thinking that programming standards should also stifle innovation and creativity. Not at all. Properly established standards simply enforce consistent compatibility and functionality, and do not (and should not) prevent a programmer from doing the job. While this sounds fine in theory, programmers often have extreme difficulty in following some standards (such as always using DOS function calls, for example) because DOS is notoriously slow which obviously slows down a program. In some cases, it is admittedly not possible to do things in a standard way simply because DOS and/or the system hardware may not have been originally designed to support a feature. The incredible variety of PC compatible video cards (and "standards") is one example of this — CGA, MDA, Hercules, EGA, PEGA, and VGA.

* DISK AREA *		* A U T O D E X (1.0) *		Date: 061388	
Disk Left:17584K		Sort	Mult	>Current: C	Backup: A
File: 5 of 54		Exit	PLst	Id: WSTAR4	
* FILE AREA *					
CMD	Name	Type	Size	ChgDte	Description
--WSTAR4	DID		3K	061388	\WS4 subdirectory
AX	BAT		1K	061388	
AXX	EXE		32K	082887	AutoDex program
COMMAND	COM		24K	090487	
DTCINFO			34K	020488	>> To: >WSC WSD Other
FF	COM		1K	12178	Formfeed for printer
FINETUNE	EXE		24K	010180	AutoDex config program
FUNTBL	PAT		5K	011488	
FX80	PAT		4K	011488	Special patches for C. Itoh — FX-80 mode
INTERNAL	DCT		25K	123086	
KEYPADX	PAT		5K	011488	Patches for keypad changes
MAIN	DCT		271K	123086	
PATCH			94K	011488	Patch documentation for WS4
PERSONAL	DCT		4K	071388	WS4 user dictionary
PINIT	EXE		10K	011288	
PLINE			1K	010688	Printer test file
PRINT	EP		21K	010688	C. Itoh printer information test
PRINT	TST		6K	080587	WS4 printer test file

Figure 5
Using the AutoDex eExecute Feature

In any case, I would appreciate your letting me know about ANY shell or file manager program that basically provides the features I have mentioned. I suppose that it will be nearly impossible to find a program of this type that is not memory resident, so I would like to know your ideas on this too. If you have a favorite shell or file manager program, let me know how you use it (i.e., with what software), what DOS version you are using, what type of system you are running it on, and your specific likes and dislikes about the program. No program is perfect, and I would like to know your thoughts on it. As you can tell, I would like to do a "user survey" on the various programs, and you can help with this.

My plan is to discuss these programs with your comments in a future article. Based on the survey results, I plan to get copies of the "best" program or programs and write about my experiences with each. I am looking forward to your help in making this project a success for all of us.

In the HUG Mail

I was talking to Jim Buszkiewicz the other day, and he read a few sentences from a letter written by a former HUG member who did not renew his membership. The letter was vaguely disconcerting. I say vaguely disconcerting because the letter was vague. Basically, this individual mentioned that he had a '248 (and there were others in his office too), and he (and other people in his office) found nothing in REMark that would help him in using his

computer. Therefore, he was not going to renew his membership.

While the entire HUG staff (including me) recognizes that a membership may not be for all users of Heath and Zenith computers, I would like to think that all of us do try to respond to the needs of our membership — both new and long-time members. That is the reason that Jim has started a new "group" of articles related to learning about computers and software. But we need to know what your needs are.

Unfortunately, we cannot begin to respond to this particular user's needs because we don't have any idea what they are. When Jim read the letter to me, one could infer that this user did not find any articles on the '248 computers. That is obviously not true since Joe Katz and I regularly mention the fact that we are using '248 systems in our articles. In fact, nearly everyone on the HUG staff has a '248 system, and some of us even have a '386 too.

In an attempt to keep up with your interests, I usually talk to Jim at least a couple of times a month to get an idea of your current interests from the letters you write to HUG. And for those of you who write to me, I regularly mention your names in recognition for giving me an idea for an article that is of specific interest to you. For example, many of you have written with questions about hard disks, and that was the primary reason that I wrote so much about them.

So, if you have a question, comment, suggestion, criticism, or want to solve some kind of problem, be sure to let us know about it. And when you do, be as specific as possible so that we can respond appropriately to help you. For example, Dick Bidwell (Huddleston, VA) recently wrote me about a problem with GEM running on his '151 system with an unusual hardware configuration. Lynda Tom (Oakland, CA) wrote a letter to HUG asking about hardware compatibility with the '151. And Frank Gaenger (Prescott, AZ) wrote to me about a problem with an Omti hard disk controller on his '158. My next article will answer these questions in detail since there is a single common denominator for all (hardware).

Powering Down

We will take a look at all these items and more in my next column. If you have any suggestions that would make your HUG

membership and REMark more valuable to you, be sure to let one of us know. And if you have a favorite shell or file manager program, I would especially appreciate your letting me know about it.

If you have any questions about anything in this column, or about Heath/Zenith systems in general, be sure to include a self-addressed, stamped envelope (business size preferred) if you would like a personal reply to your question, suggestion or comment.

Items Discussed

Letters should be addressed to:
Mr. Jim Buszkiewicz
Editor, REMark Magazine
Heath/Zenith Users' Group
P.O. Box 217
Benton Harbor, MI 49022-0217

Software

MS-DOS Version 3.2	
5.25" drives (OS-64-61)	\$149.00
3.50" drives (OS-64-63)	149.00

Heath/Zenith Computer Centers
Heath Company Parts Department
Hilltop Road
St. Joseph, MI 49085
(800) 253-7057

(Heath Catalog orders only)

VACCINE	\$20.00
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Ashland, OR 97520
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"SEE, I TOLD YOU NOT TO PRESS THAT KEY!"



Continued from Page 41

Program Author:

Patrick Swayne, HUG Software Engineer

TABLE C Rating: 10.

HUG P/N 885-3051-37
CXREF \$17.00

Introduction: CXREF is a C language cross reference utility. Unlike other cross reference utilities, CXREF allows complete control over what is being cross referenced. For instance, you can cross reference only the variables in your program, or just the library function. The output from CXREF can be redirected to any valid device or file on your system, yet error messages and status information is always displayed on the screen. Library functions are held in a special file which is read in during program loading. This allows the library cross reference list to grow with your own library. No more listing of library functions that you have added, unless YOU want them!

Requirements: CXREF will work on any H/Z-100, or PC-Compatible computer running MS-DOS version 2.0 or greater. A minimum of 128k of RAM is required.

Program Author: Wojtek Bok

The files included on the CXREF disk are:

CXREF.EXE — The executable module
CXREF.C — The source code for this program
README.DOC — Program documentation

Program Content: The usage for CXREF is:

`CXREF 'filename' [switches] [>redirection]`

Filename refers to the C program that is being cross referenced. The full filename must include any extensions. Several switches are available:

/R — cross reference reserved words
/L — cross reference library functions
/F — cross reference user functions
/V — cross reference user variables
/N[:name] — produce a number listing. The filename is optional.
/W[:name] — set the width of the cross reference listing
/? — produces a help screen

CXREF will default to /F /V if no switches are specified.

Comments: none



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Pat Swayne
HUG Software Engineer

SPEED x
ECONOMY

A Review of FASTBACK PLUS A Hard Disk Backup System

If you have ever experienced a hard disk crash, a massive accidental erasure (DEL *.*), or a "run away" program that destroyed several files, then you know the importance of backing up your computer's stored information. The question is not whether to back up, but how to do it. There are probably as many different ways to back up a hard disk as there are articles in this issue of REMark.

There are tape systems, VCR tape systems, and removable high capacity disk systems, including Bernoulli disks and removable hard disks. This group of solutions involves adding additional hardware to your system, which could be expensive in terms of cost and/or slot space.

There are also back up methods that use ordinary floppy disks, and you may al-

ready be using one of these methods. There are the BACKUP and RESTORE programs supplied with MS-DOS, but in my opinion, these programs are not even worth considering, and you would be better off deleting them from your disk to gain additional space. If you have a program like the HUG File Manager, XTREE, or Window DOS, that can mark several files and then copy them with a single command, you have a program that can be used to back up your hard disk, and it will probably do a faster job than BACKUP. However, it will not be as efficient in the use of floppy disk space.

When FASTBACK was first introduced by Fifth Generation Systems, Inc., it represented the first hard disk-to-floppy backup system that made proper use of a PC-compatible computer's hardware to

achieve maximum performance. The floppy and hard disk systems on a PC-compatible computer use DMA (Direct Memory Access) for data transfers. What this means is that the CPU can command the disk controller to perform a data transfer, and then can accomplish other tasks while the transfer is being done. A program like FASTBACK uses DMA to allow operation of the floppy and hard disks at the same time, resulting in a much faster data transfer.

Other companies have entered the hard disk-to-floppy backup market, and there are probably over a dozen programs available now competing with FASTBACK. Fifth Generation Systems has constantly upgraded their product to keep up, and their latest offering is FASTBACK PLUS, which adds file compression to high

speed backup, so that you can not only back up your disks fast, but you do not have to use as many of them as with other backup programs (up to 50% fewer disks). FASTBACK PLUS also supports pop-down menu operation, options too numerous to mention here, and a macro command language that allows you to automate your back up procedures.

One of the best things about FASTBACK PLUS is the way it manages the things it has to do while it works. It uses every microsecond of processor time between commanding the disk controllers for compressing (or uncompressing in the restore mode) data, so that it is even faster than the old FASTBACK. It can work with two floppy drives, but if you are using it with only one drive, it even continues to work at reading from or writing to the hard disk and compressing or uncompressing data while you are changing disks. I found that it could restore the data from a 1.2 megabyte high density floppy in as little as 30 seconds.

Another "plus" about FASTBACK PLUS is its rock solid error correction capability. You may have seen their ads in various computer magazines which show a floppy disk with a bullet hole in it, along with the claim that the data can still be recovered. I decided to put this claim to the test, so I backed up one of my subdirectories (containing 1.7 megabytes of valuable data) onto a 1.2 megabyte floppy disk (it all fit, by the way). Then I punched a hole in the disk using a paper hole punch, and bravely erased all files from the backed up subdirectory. FASTBACK PLUS passed the test — it was able to restore the data from the damaged disk. It took over two minutes to read the damaged disk, compared to 30 seconds to read a good one, but it was successful. (I had another undamaged backup disk available . . . just in case.)

WARNING — I strongly suggest that you do not try this test yourself. There is the possibility that the hole in the floppy disk could catch on one of the read/write heads in your drive and tear it right off. The drive I used for the test had rounded heads less likely to catch, but some drives have heads with sharp edges. And I tried the test on my office computer, so the only thing I had to worry about was a possibly disturbed boss, not my strained home computer budget.

FASTBACK PLUS not only is able to recover data from damaged disks, but it

tests your disks while it is writing to them. It will tell you if a disk is bad, prompt you for a new one, and start over with the data it had attempted to store on the bad disk. Although Fifth Generation Systems does not recommend it, the testing during writing plus the excellent error recovery make it possible to back up using ordinary 360k floppy disks in a 1.2 megabyte drive and still feel confident about your data. In fact, I used a 360k disk for the "bullet hole" test. I also was able to back up nearly 10 megabytes onto 5 inexpensive disks this way. It actually took 6 disks, because one was reported as bad by FASTBACK, but 6 360k disks are still cheaper than 5 1.2 megabyte disks.

With FASTBACK PLUS, you are not restricted to using floppy disks as your backup medium. It can use an MS-DOS path rather than direct access of the floppy controller for backup. This means that you can back up to a removable hard disk or Bernoulli disk, making that type of medium more useful. You will be able to store more data since compression is used, and FASTBACK PLUS will accomplish the task faster and more easily than any other tool you might use.

When you restore data that was backed up to a path, you must enter the "Backup Set Name" in an appropriate box after you enter the drive and path for the "Restore Source". After you enter the path, press the Tab key to select the "Backup Set Name" box, and then enter the name. Use the name that FASTBACK created when you backed up the data, less the extension. I could not find this information anywhere in the users manual, and had to figure it out myself.

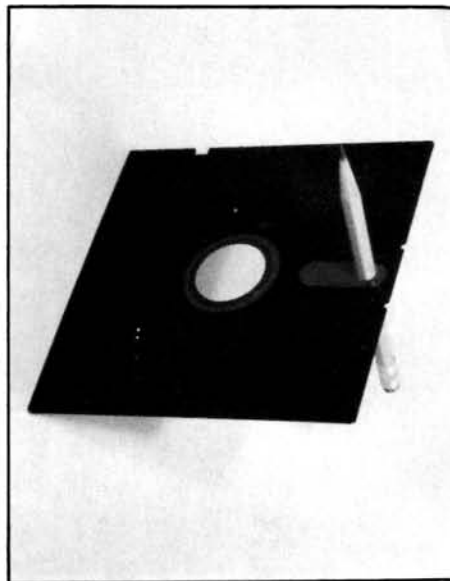
Because FASTBACK PLUS can write using an MS-DOS path, it can be run under ZPC on a Z-100 with a Scottie board, or under mode 7 without one. All you have to do is specify "None" as the disk drive type for both drives A: and B: during the installation procedure, and then specify the actual destination path when you run FASTBACK. You can use any kind of disk, but it must be formatted before you can back up onto it. FASTBACK does not run anywhere near as fast this way as on a real PC, but it does work, and the use of file compression makes it more efficient in the use of disk space than BACKUP and RESTORE.

FASTBACK PLUS, which retails for \$189 is a bit expensive compared to some other utilities of this type, but it could pay

for the difference in the use of fewer floppy disks and perhaps in the use of cheaper disks. And you really cannot put a price on the confidence it gives you in your backed up data. FASTBACK PLUS is available from:

Fifth Generation Systems, Inc.
11200 Insustriplex Boulevard
Baton Rouge, LA 70809
(800) 225-2775
(714) 553-0111

*



The problem with this disk is "clearly" visible, but FASTBACK was able to recover the data from it!

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Robert W. Rasch
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Passing information to a program from the command line is a common technique used to invoke the special features of a program. In C, this is done by means of "argc" and "argv" when they are declared from main(argc, argv).

ARGCount is the number of arguments that are on the command line and ARGV holds the memory addresses for those variables. Having the addresses for the arguments allows you to use them as switches to tell the program what to do or to tell the program what file(s) to open.

The details of how this worked was difficult for me to visualize until I wrote the following simple routine.

I called my program argc.c and this resulted in argc.com (with the Software Toolworks C).

The command:

```
argc<return>
```

will result in the following screen display: <return> indicates depressing the return key.

```
*****Screen1.*****
This is a demonstration of the command line
arguments in C.
Type the program name and then follow with
whatever you would like to experiment with.
```

```
This is argc==>1
This is argv[0]*
*****
```

will result in this screen display:

```
*****Screen2.*****
This is a demonstration of the command line
arguments in C.
Type the program name and then follow with
whatever you would like to experiment with.
```

```
This is argc==>4
This is argv[0]*
This is argv[1]FIRST
This is argv[2]SECOND
This is argv[3]THIRD
*****
```

C looks at the command line and picks out the strings, separated by spaces, and puts them into memory as separate strings while providing their addresses to you via the ARGVariables.

C allows you to point to these variables and use them in your program. Note that the CP/M operating system shifts the characters to upper case, MSDOS does not.

FIRST might represent a file name that you want to open; or it might represent a switch that tells the program, for example, that it should start at the first module of the program.

What is to be done is up to you the programmer. C just makes it easy to provide information to the program.

The argv[0] really represents the program name and displays no useful information. With the Software Toolworks compiler it shows "", with some others it displays a blank field. Argv[0], the first string in an

```
***** Listing 1. *****
/* The Software Toolworks version of the "C" command line
arguments - there are some minor differences in syntax
that may vary with the compiler used. */
#include "printf.c"
/* ECO-C88 would have #include <stdio.h> instead of the above */
main(argc, argv)
int argc;
char **argv;
{
int i;
printf("This is a demonstration of the command line arguments in C. \n");
printf("Type the program name and then follow with whatever you would like\n");
printf("to experiment with.\n\n");
printf("This is argc==>%d\n", argc);
for (i=0; i < argc; ++i)
printf("This is argv[%d]s\n", i, argv[i]);
}
*****
```

If you type this program with your editor and then compile and assemble it; you will get a neat visual picture of the functions of argc and argv.

The command:

```
argc first second third<return>
```

```

***** Listing 2. *****
#include <stdio.h> /* ECO-C88 COMPILER */
#define HI_S147 /* control S with hi bit set by Word Star */
main(argc, argv)
char *argv[];
{
    int a, c;
    FILE *fp, *fopen();
    cls();
    if (argc != 2)
    {
        printf("please enter a filename. \n");
        printf("program uses UNIX output file if you desire it. \n\n");
        printf("usage = MUNDER d:infile.ext [ >d:newfile.ext ]\n");
        printf("IF UNIX USED, you will have to hit a couple of <CR>s. \n");
        printf("Because nothing will appear on the screen. \n");
        exit(-1);
    }
    if ((fp = fopen(argv[1], "r")) == NULL)
    {
        printf("Can't open %s", argv[1]);
        exit(-1);
    }
    printf("version (7.31.87) MUNDER \n\n");
    printf("Robert W. Rasch (615 928 6885)\n");
    printf("Some versions of Word Star will not let you search for a ^S, when\n");
    printf("they are not matched, this is a problem. \n\n");
    printf("This program will scan a Word Star file looking for the underline\n");
    printf("characters. When it finds one it will enter a ^ at that ");
    printf("location. \n");
    printf("The ^ can be searched for with Word Star and it can be replaced ");
    printf("with the Search and Replace command. \n\n ");
    printf("I have a CP/M version of this program if anyone is interested. \n\n");
    printf("Depress any key to continue. \n\n");
    a=getch();

    /* All of the above is just an explanation to the user about
    opening the files. Below is the real working of the program and
    it is mostly in two lines */

    do {
        c=getc(fp);
        putchar(c); /* The two lines below, do all of the work */
        if ( c == ('S'-'@') || (c == HI_S) ) /* control S */
            putchar('^');
    }
    while( c != EOF);

    fclose(fp);

    void cls()
    {
        putchar(27);putchar(69);
    }
}
*****

```

There are some differences in how things are done with different compilers.

```

***** Listing 3. *****
#include "printf.c" /* Software Toolworks version */
#define EOF -1
#define NULL 0
#define HI_S147 /* control S with hi bit set */
main(argc, argv)
int argc;
char *argv[];
{
    static int a, c, fp;
    cls();
    if (argc != 2)
    {
        printf("please enter a filename. \n");
        printf("program uses UNIX output file if you desire it. \n\n");
        printf("usage = MUNDER d:infile.ext [ >d:newfile.ext ]\n");
        printf("IF UNIX USED, you will have to hit a couple of <CR>s. \n");
        printf("Because nothing will appear on the screen. \n");
        exit(-1);
    }
    if ((fp = fopen(argv[1], "r")) == NULL)
    {
        printf("Can't open %s", argv[1]);
        exit(-1);
    }
    printf("version (7.31.87) MUNDER \n\n");
    printf("Robert W. Rasch (615 928 6885)\n");
    printf("Some versions of Word Star will not let you search for a ^S, when\n");
    printf("they are not matched, this is a problem. \n\n");
    printf("This program will scan a Word Star file looking for the underline\n");
    printf("characters. When it finds one it will enter a ^ at that ");
    printf("location. \n");
    printf("The ^ can be searched for with Word Star and it can be replaced ");
    printf("with the Search and Replace command. \n\n ");
    printf("Depress any key to continue. \n\n");
    a=getch();

    do {
        c=getc(fp);
        putchar(c);
        if ( c == ('S'-'@') )
            putchar('^');
        if ( c == HI_S )
            putchar('^');
    }
    while( c != EOF);

    fclose(fp);

    /* clear the screen of the H19 terminal */

    cls()
    {
        putchar(27);putchar(69);
    }

    getch()
    {
        #asm

```



```
DIR:  MVI E,0FFH
      MVI C,006H
      CALL 5
      CPI 0
      JZ DIR
```

```
#endasm
}
```

.....

array of strings supplies no useful information.

There are a special set of switches in C that were inherited from the Unix operating system and they allow redirection of input and output. These are the ">" and "<" characters. They will open and close a file for you through the standard input and output.

Therefore if you command:

```
argc first second third >temp.txt<return>
```

C will open the file temp.txt and insert your program's screen output into it. The file a user names will contain the screen display.

In some cases you may have to hit a few <return>s to move the program through requests for input from the keyboard. You will not see the program prompts; they are going into the disk file instead of to the screen.

The most common use of argc is to tell the program if the user made any entries after entering the program name.

Thus if we program:

```
if (argc != 2 ) {
printf("You need to enter a file name.\n\n");
printf("USAGE PROGRAM D:INPUT.EXT [ >D:OUTPUT.EXT ]\n");
}
exit(-1);
```

*

The program tells the user how to use the program.

Use argc and argv to make your C programming more user friendly.

Use C to carry out very complex operations on text files by monitoring the bit stream as it pours from a file. C shines doing this. In the following program, C monitors the bit stream within a file, locates a control character and marks it with a visible character. Note the smooth flow of the program after the file is opened. Do-While is a great operator in C.

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A PRINTER THAT TALKS BACK

COMMUNICATING WITH A DEDICATED WORD PROCESSOR

Daveed Shachar
P.O. Box 835
Dimona, Israel

Both from talking to acquaintances and from reading articles in certain magazines dedicated to Zenith's Big Blue competitor, I have begun to realize that I am not alone with my hardware/software problem. Simply stated, the problem is how to transfer files from a dedicated wordprocessor to a computer.

I am a translator/editor. It occurred to me very early on that a typewriter, however modern, would be unsuitable for my purposes. Recent technology has made the retyping of only a few years ago totally antiquated. About a year ago I purchased what I still consider to be an excellent machine for many purposes, the Brother WP600, also called the TC-600. This is an electronic typewriter which can be used as a dot-matrix (non-graphic) printer, as a communications terminal, and as a dedicated wordprocessor. I also discovered to my surprise, that it can be used as a keyboard for a computer! It holds 16k of text in its internal memory, and can save text files to 3.5" floppies, using the Brother FB100 disk drive. Since the whole thing weighs about 2.9 kilos with the batteries, it was really perfect for working anywhere. The only Brother machine sold in the U.S. which has basically the same features is the Brother WordProcessor 500, which weighs four times as much, but which uses daisywheels and has a built-in speller. Other companies make similar ma-

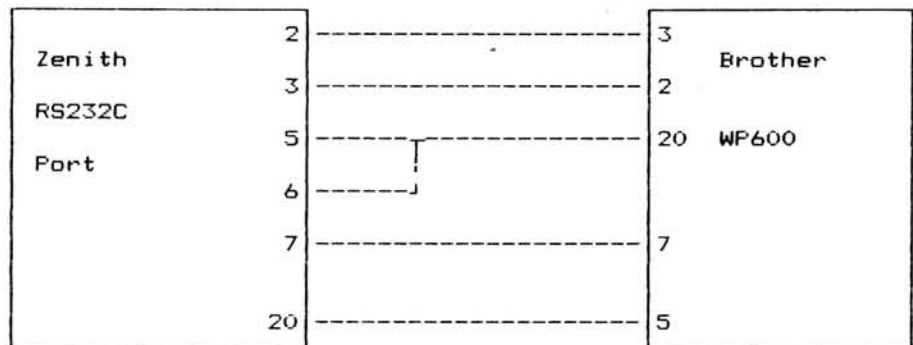
chines with removable memory packs instead of disks, so I assume that there are lots of other people out there with files locked up in hardware, waiting to be transferred to a computer.

A few months ago I finally got a portable computer, the Zenith-171 laptop portable, which uses 5," diskettes. I was now faced with three problems: Finding out how to use the Brother 600 as a printer, transferring my files from the Brother's 3.5" floppies which are formatted with an unnamed operating system, and sending files from the Zenith to the Brother for backup storage on the more durable 3.5" floppies. It was while solving these three problems that I discovered how to use the Brother as a keyboard for the Zenith.

The first problem was getting the correct cable. Luckily, the Zenith and Brother

both have an RS232C serial port. This would probably have been close to impossible if I hadn't been able to get hold of a supplementary booklet to the WP 600 instruction manual, called the "Connecting Applications Guide Book". This manual shows how to hook the Brother up to a number of different computers. Unfortunately, it didn't come with the Brother, but the Head of Empisal's Sales Division (which handles Brother here) in Tel Aviv was kind enough to provide me with a photostatic copy after I asked him for it. This was especially kind of him, considering that I didn't purchase the machine from Empisal.

The connection shown in the manual is so unusual that experts assured me it would never work. So much for the "experts".



The next problem was how to tell the Brother to print a file sent to it by the Zenith. The first step in this process is to configure both the Zenith and the Brother so that they will communicate with each other through the cable shown above.

When the Brother is set to Terminal mode, the cryptic message SET-UP: 4DN1E1 appears on its screen. This is the default if it receives no power for over an hour, either from its own batteries or from the mains. This should be reset by typing in the following: 6DN8E2 <Return>. It will then ask you to set the margin, which if you set it for other than 0, will give an additional margin to whatever you send it. It then asks: Echo-Y/N? This only has to do with whether or not you want to see the files being sent, on the Brother's screen. The Brother is now ready to print a file sent from the Zenith.

The set-up mentioned above has the following meaning, from left to right:

Control Signal Code Setting - 8. This sets all DR, CS and CD signals at invalid.

Handshake Control - E. This turns ER on and off, depending on the status of the memory buffer.

Automatic Line Feed Setting - 2. This causes a carrier return with CR + LF codes.

Communication Mode Setting - 6. This stands for 1200 Baud. The instruction book for the Brother recommends a setting of "4", for 300 baud, but both the Brother and Zenith are happy with 1200 baud, which is four times as fast.

Code Setting - D. This sets the International Character Set of the Brother, which includes most of the extended ASCII character set, including many characters not supported by the Brother keyboard, but which it can type out when receiving them from the Zenith.

Parity Setting - N. This stands for NONE Parity (Parity bit is always 1). The Connecting Applications Guide Book recommends Z for Zero Parity, but it turns out that this won't work if the Code Setting is set for the international (and more complete) keyboard.

The next thing is to set up the Zenith for communication with the Brother. The easiest way to do this is to add two commands to the batch file used to boot your wordprocessor. As my Zenith-171 has two floppy disk drives, I've added these two lines to the autoexec.bat file on the boot disk containing the wordprocessor:

```
mode com1: 1200,N,8,1,P
mode lpt1: =com1
```

For these commands to work, the MODE.COM file from DOS must be on the same disk as the batch file. If they work correctly, the screen of the Zenith will look as follows:

```
A> MODE COM1: 1200,N,8,1,P
Resident portion of MODE loaded
COM1: 1200,N,8,1,P
A> MODE LPT1: =COM1
LPT1: REDIRECTED TO COM1:
A>
```

These cryptic numbers after the words Mode Com1: stand for:

Baud - 1200, same as for the Brother.

Parity - N, for NONE, same as for the Brother.

Databits - 8. This sets the number of data bits.

Stopbits - 1. This sets the number of stop bits.

For continuous retries on timeout errors - P. If the Brother isn't ready, this will lock up the Zenith, but Ctrl-Break will solve this.

I learned the hard way that if the Brother is connected to the mains and there is a power outage, the batteries will not take over. The only way to ensure that all the settings remain the same is to unplug the electric cable from the Brother each time you finish using it. This will allow the Brother's batteries to operate.

Now, each time you wish to use the Brother as a printer, simply push the select switch to Terminal and press the Cont (Continue) button. The set up you entered previously remains resident in the memory and doesn't have to be re-entered.

The next problem was how to store a file written on the Zenith, in the Brother. This serves two purposes. The Brother is much lighter and compact than the Zenith, so a long file can be stored in the Brother, taken to a client, corrected and reprinted without having to access the Zenith again. Secondly, once a file is transferred to the Brother, it can be stored on the Brother's 3.5" floppy disk drive.

Set the Brother up to act like a printer. Now press the Ins (Insert) key. The Brother asks you for the number and name you wish to give to the file you're about to send it. The Brother is now ready to re-

ceive a file sent from the Zenith the normal way any file is sent to a printer. However, instead of printing it, the Brother will store the file in its internal memory, ready for downloading onto its diskettes, or ready for printing out at a later time. If you try to send something directly, with a COPY CON PRN command, don't forget the <Ctrl Z> command at the end.

So far, I got the Brother to accept information from the Zenith. The big question now, was whether I could get the Zenith to accept information from the Brother. It would be sort of like having a talking printer. More importantly, it would mean that any files I altered on the Brother could be reinstalled on the Zenith. It also meant that I could get a year's work out of the Brother and into the Zenith. First, I tried to see what I could do from the Zenith keyboard.

The easiest way to set the Zenith up for communication is to boot the wordprocessor already set up with the proper autoexec.bat commands. Another way is simply to type them both in at the DOS prompt, again making sure that MODE.COM is on the disk in the default drive.

Set up the Brother to act like a terminal, as explained above.

- Hit the Cont (continue) key.
- Hit the Print key. The prompt on the Brother screen is "Transmit File No?"
- At the DOS prompt on the Zenith, type in "Copy Com1 b:filename"<Return>
- On the Brother, type in the number of the file you want to transmit.
- When transmission is completed, absolutely nothing will happen. Now it's time to do something the instruction book doesn't mention at all:
- On the Brother, type <CODE> Z. This tells the Zenith that the Brother has reached the end of the file. The Zenith will now store that file in whatever filename you gave it, on the diskette in the B disk drive.

I won't go into storing and retrieving files from the Brother disk drive, because anyone who owns it probably knows how to use it, and that's not really in the scope of this article. I hope that the instructions I've given help anyone who is faced with a similar interface problem between the Zenith and whatever electronic typewriter he happens to own.

While I was discovering everything I've been writing about above, I came across a little known DOS command called CTTY. This allows you to use an external keyboard to issue DOS commands. Since I happen to have one on the Brother, I decided to give it a try.

Again, make sure that the two devices (in this case the Zenith and Brother) are set up for communication. The Brother should be set up as a printer (don't press the INS button). At the DOS prompt on the Zenith, type in CTTY COM1. The DOS prompt will now appear on the Brother screen. You can now type in any DOS command from the Brother, and the Zenith will act as if those commands are coming from its own keyboard. To return to the Zenith keyboard, simply type, on the Brother, CTTY CON:.

I'd love to hear from fellow Huggies concerning an idea I've been toying around with. Does anybody know a way to connect the Brother FB100 disk drive directly to a Zenith 171? The FB100 has its own power supply (external or batteries), so at least that wouldn't be a problem. A third disk drive, especially one for the 3.5" disks, would really be a nice addition. Meanwhile, the procedure I've described above for downloading files to the Brother's disks is really much easier than it looks on paper. *

Continued from Page 8

telligence from the more knowledgeable folks who publish and/or read about and/or advertise these fine things in REMark.

In truth, as we've had experience with upgrading the old H/Z-100, there wasn't much confusion on its account. The questions have to do with the '148s and '150/160 machines. In the case of the former, for example, does one end up with 704k of fully useful RAM instead of 640k? Or is the upper 64k available as a virtual drive or print spooler only? In any event, will available chips offer an extended memory capability ala LOTUS? Etc., etc., etc.?

We'd surely appreciate any and all counsel.

Ray Isenson
Santa Maria HUG
4168 Glenview Drive
Santa Maria, CA 93455

SEBHC JOURNAL

Dear HUG:

The SEBHC JOURNAL regrets that increased production costs, plus the recent postage-rate hike makes it necessary for us to raise our one-year subscription price from U.S. \$15 to \$17.50 as of 1 August, 1988. All future issues of the JOURNAL are to be enclosed in polyethylene mailers as soon as possible, because so many subscribers have complained of not receiving copies or getting them in mutilated condition. The mailers should eliminate most of these two problems. There is no change in the single-edition price of the SEBHC JOURNAL (\$2.50/copy).

You might also like to inform your readers that the JOURNAL has recently revised its HDOS 2.0 "Programmer's CARE Package" Disk #0, and has introduced a new HDOS 2.0 GAME DISK #1. These 5-1/4" disks are available at U.S. \$3.00 each in ssdd H/Z soft-sector, and at U.S. \$3.66 each in sssd H/Z hard-sector versions. The SEBHC JOURNAL for March 1988 carries a complete disk directory of both these disks, and our CP/M GAMES DISK #0. Additionally, the same issue includes a complete table of contents — plus a brief description — of each issue starting with Volume I, No. 1, ending with Volume II, No. 6. We shall update this cumulative table of contents in the last issue of each publication year henceforth.

Sincerely,

Leonard E. Geisler
Editor/Publisher
Journal of the Society of
Eight Bit Heath Computerists
895 Starwick Drive
Ann Arbor, MI 48105

PRESTO PLUS! For The H/Z-89/90

Dear HUG:

I was very excited to see Kenneth Owens' article "New Tool for the H/Z-89/90" until I found it to be about Spectre Technologies' PRESTO PLUS! Now, I'm not a complainer about the lack of articles for the old '89. Mine does me very well for home use; however, I have "used" PRESTO PLUS!, and so far I am very disappointed with it.

There are three pieces of software that I use most: Magic Wand, Multiplan, and Software Toolworks' Checkpro. When PRESTO PLUS! is evoked from Magic Wand, it works fine until I return to Magic Wand. Then I get several errors in my text. The manual addenda says "This is to be expected."

I always have to turn PRESTO off when I go to Multiplan to avoid "insufficient memory" messages; therefore, it is of no use to me in the program I use most of the time.

Checkpro uses graphics for its windows. PRESTO doesn't; consequently, all lower-case letters in PRESTO come out graphics. Try using a calculator function when you can't even read it on the screen. What is worse, when I return to Checkpro from PRESTO, I get double spaced lines and, frequently, the 25th line messages end up in my check files.

I'm sure that if it would work for me, it would truly be a "class act", but so far it is a flop. Just thought other 89/90 owners would like to know this before they paid the nominal price of \$39.95, plus shipping and handling.

Sincerely,

Rodney A. Palanca
412 E. Russell
Carlsbad, NM 88220

Lerch's Letter of April

Dear HUG:

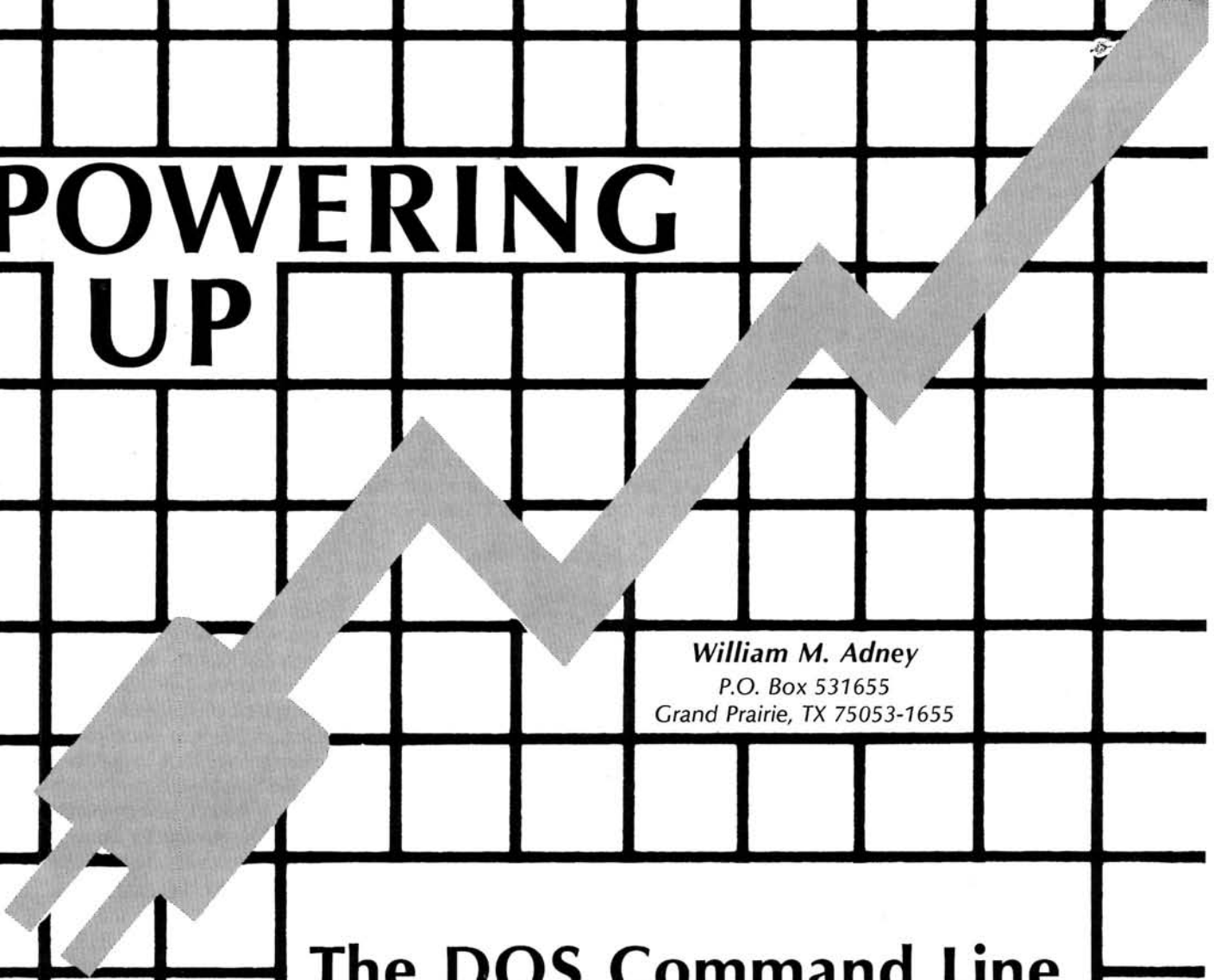
Reference Mr. Kevin Lerch's letter in the April '88 issue of REMark page 8: I think he has missed the point all of us whiners are trying to make about keyboard design. I have a compaq Deskpro 286 with the 101 keyboard and I like it just fine. But my wife has a Z-151 which I use quite often and I have an AT&T PC-6300 at work that I use everyday. Each has a different keyboard and that does not make for efficient typing. I don't think there is any one keyboard design that is the best, but it is kind of frustrating to try and keep up with the annual design changes. Enjoy your keyboard while you can Mr. Lerch, IBM will probably change it again next year!

Sincerely,

Rod Hallen
Box 55
APO, NY 09675

*

POWERING UP



William M. Adney
P.O. Box 531655
Grand Prairie, TX 75053-1655

The DOS Command Line

Understanding the DOS command line and how it is used is critical to successfully operating a computer system. It takes only a moment of thought to realize that the command line is important because it is the way that you direct your computer to perform various computer operations. Even with the use of new and improved programs (e.g. Microsoft Windows) that allow you to perform operations sometimes represented by pictures (called icons), you still need to know about the command line. But if you don't understand how to use the DOS command line, you will quickly become frustrated with your computer because, in the final analysis, you will not be able to tell your computer what to do in terms that it understands.

In this article, you will learn about the DOS command line -- its general form and format, how your system looks at it, and how to do some keystroke-saving tricks with the function keys on it. You will also see how to use the PATH command as a second labor-saving trick too. But before we get too involved in the command line itself, let's quickly review the types and categories of DOS commands that were originally presented in the second and third articles in this series published in the July and August 1988 issues.

DOS and Commands

There are two major categories of commands: internal and external. INTERNAL commands are contained within the DOS

programs that are loaded when the operating system is booted. You can use any internal DOS command regardless of your currently logged disk drive or directory. Internal commands also execute much faster because they are already resident in memory. And because the "program" containing the command is already in memory (in the Command Interpreter, COMMAND.COM), DOS first checks to see if that command is internal.

If DOS does not find a match for the internal command, it begins looking for an EXTERNAL command that resides on a disk drive. Although you can tell DOS to look in other "places" (e.g. by preceding the command with a drive and/or path specification), DOS will otherwise begin

the search for an external command on the current drive in the current subdirectory as you learned last time.

DOS begins the search by looking for *filename.COM* where *filename* is the name of the command that you typed on the command line. If DOS doesn't find the COM file, it looks for *filename.EXE*. And if it doesn't find that, DOS looks for *filename.BAT*.

In summary, DOS always looks for commands in the following order: internal, then external. To be more specific, DOS searches for internal commands first; then for the COM, EXE, and BAT file types in exactly that order. Although DOS will usually search the current drive and directory first for all external commands, you can change that by preceding a command with an optional drive and/or path specification.

Locating External Commands

If you know an external command is not in the current directory on the current drive, you can always precede an external command by an optional drive and/or path specification. In the most general form, this could be shown as:

```
[d:][\path)command other-parameters
```

The "command" is any valid command, and "other-parameters" may include drive letters and file names. In the syntax shown above, the brackets [] indicate that both the drive and path specification are optional. For example, let's say that we had a system with a hard disk (drive C:), and we were currently logged on to drive A. The objective is to FORMAT a disk in drive B, and the FORMAT program (FORMAT.COM) is located on the hard disk in the \DOS subdirectory. The following command line would do what we want:

```
A:\ =>C:\DOS\FORMAT B:
```

Even though we are logged on to drive A in the root directory, this command line tells DOS to find the FORMAT program on drive C in the \DOS subdirectory. Alternatively, you could also just log on to the C drive and change to the \DOS subdirectory so that you could enter a shorter command of:

```
C:\DOS =>FORMAT B:
```

In both examples, I have shown the

prompt which was established using the PROMPT command that was discussed last time. Is there a "best" way of doing this? Not really. Both techniques accomplish the same result, and it is more a matter of personal preference as to which one you like best. There is also an easier way to accomplish this same result without having to go through all of these keystrokes that uses the PATH command discussed later in this article.

There is at least one more way to run this command direct from the command line. All you need to do in this case is log on to drive C and change to the root directory so that you can enter the command:

```
C:\ =>\DOS\FORMAT B:
```

In this example, you are already logged on to the correct drive, so all you need to do is precede the command by the subdirectory name of \DOS. If you take a few minutes to study these examples, you will see how and why they work. But what happens if DOS cannot find the program?

Errors in the Command Line

One of the most common DOS error messages that virtually all new computer users (and old-timers too) frequently see is: "Invalid command or file name". That particular error message is one of the worst in DOS because it is not specific, and it also has several meanings. In the context of this article however, we will assume that DOS has a problem with the command line that could be like the following:

```
A:\ =>C:\DOS\FIRMAT B: (FORMAT misspelled)
A:\ =>C:\DIS\FORMAT B: (subdirectory \DOS misspelled)
A:\ =>\DOS\FORMAT B: (\DOS not found on drive A)
A:\ =>C:FORMAT B: (\DOS subdirectory omitted)
A:\ =>B:\DOS\FORMAT B: (Wrong drive letter)
A:\ =>FORMAT B: (FORMAT not on this drive/directory)
```

When you see the "Invalid command or file name" error message (and you will), you should carefully check the command line for typographical or syntax errors like the ones shown above. This error message really means that DOS could not find the program as specified, and it doesn't discriminate for typos, an omitted disk drive letter, or an invalid/non-existent path. In the last example, DOS could not find the FORMAT program in the root directory on the A drive.

Now you have seen how any valid external command can be preceded by an optional drive letter and/or path specifica-

tion. This technique works with all of the programs supplied with DOS, and although it is valid for application programs too (e.g. word processors, spreadsheets, etc.), it frequently does not work. I have found that many users run into this problem because, even though they know how to use drive and path specifications, there is something else that you MUST know.

Application Program Errors

Most of the widely used and popular application programs used for word processing, spreadsheets, and other things are so large that the actual "program" is split into several parts. These parts are usually called overlays and can be easily identified by the file type of OVR or OVL. For example, WordStar version 4.0 has four such files: WSMMSG.OVR, WSPRINT.OVR, WSSHORT.OVR, and WSPELL.OVR in addition to the main WordStar program of WS.COM. The important point to understand is that, in order for WordStar to function correctly, it must be able to "find" all of these OVR files. If it can't, you may get an error message like "Invalid or missing overlay file" when you try to use WordStar by entering a command like:

```
A:\ =>C:\WORDSTAR\WS
```

When you install most of today's application programs, like WordStar 4.0, you will be asked to enter the drive and path specifications for various files such as these overlays, the dictionary, and so on.

If you do that correctly, most of the programs you find today work fine, but older versions, such as WordStar version 3 will not. And you can get some really odd error messages when this happens like "Help not available" even though you know the file is in the same path you typed when you entered the command.

The problem is that none of these application programs have the remotest idea where the necessary files are. And since the old version 3 WordStar could not cope with subdirectories, it was difficult to get around this problem.

If you run across the problem where an application gives a strange error message when it is trying to find one of its files, the first thing you should do is check the install procedure to be sure you did not make an error in the installation. That is pretty easy to do, and I usually plan to install new programs twice on my system: the first time to become familiar with the installation process, and the second time to actually install it for testing and use.

If the installation was performed correctly, then be sure that the program understands subdirectories because some programs (like WordStar version 3) were designed long before the concept of subdirectories was available in DOS. If you still find that you cannot run the program successfully by entering the optional drive and/or path specification at this point, there is a fairly easy solution.

First, log on to the drive and change to the subdirectory that contains the application. Start the program, and use its internal commands to change the logged disk drive and/or directory as you need to. This trick will usually allow a finicky program to keep track of its "home" drive and directory. Now it's time to get back to the main discussion of the DOS command line.

Command Parameters

With the understanding that any external command may be preceded with an optional drive and/or path specification, let's forget about that for now and take a look at the rest of the command line using the previous general form of:

command other-parameters

Notice that the preceding "[d:][\path]" specification has been omitted here for clarity. As before, the "command" may be any internal or external command, but what is a parameter? In general, a PARAMETER is any valid specification that can be included for that particular command. In this sense, a parameter may be a drive letter, a path specification, a file name or a switch (usually preceded with a slash /). Consider the following command line:

```
A:\ =>FORMAT B:
```

Here, the drive specification B: is a parameter. We can add another valid parameter to this command line such as:

```
A:\ =>FORMAT B:/S
```

Now there are two parameters -- the drive specification B: and the /S switch which tells the program to transfer the System files to the disk after formatting.

Some programs, such as the CONFIGUR and DSKSETUP utilities included with Zenith MS-DOS don't require any other parameters because they are menu-driven. Sometimes parameters are optional, such as the drive specification for FORMAT, and you need not enter them on the command line because the program will usually prompt you for them if you don't. By the way, I recommend you develop the habit of ALWAYS entering a drive letter for the FORMAT program in particular because some DOS versions will FORMAT the current drive if you are not careful.

And some programs, such as the SYS command, require a parameter in order to function which would be entered like:

```
A:\ =>SYS B:
```

The drive specification is a REQUIRED parameter, and you must enter it so that the SYS program can transfer the system files to the specified drive.

Parameters may be simple or complex, or required or optional, depending on the specific command. You can really do a number of interesting things with the COPY command such as:

```
C:\ =>COPY A:\MYDIR\MYFILE.DAT B:\YOURDIR\YOURFILE.CAT/V
```

For this command, notice that it can also be written in the general form of:

```
COPY from-location to-location
```

This command contains a three distinct parameters in the "from-location" (A:\MYDIR\MYFILE.DAT) -- the drive, directory, and unambiguous file name. It also contains those same general parameters in the "to-location" (B:\YOURDIR\YOURFILE.CAT). And the /V (Verify) switch (another parameter) is used to verify that the file is copied correctly.

Invalid Parameter

By now you are probably wondering why I have spent so much time and space with a description and some examples of what a parameter is. After doing some checking, I find that there are some 26 DOS

programs supplied with Zenith MS-DOS that display the incredibly vague error message: Invalid parameter. This unspecific error message can indicate all kinds of errors because it seems to be used as a catch-all for things that these programs could, but don't, check more specifically. Depending on the program, it might be something as simple as forgetting the colon (:) that must follow a drive specification. Or there might be something wrong with the path or file name specification. Or something could be wrong with a switch parameter. Or you may have entered two switch values that conflict in some way. Or perhaps it means that a required parameter was not entered. Or it might be some combination of all of these.

When you see this error message, the first thing to do is to check the command line for typos in the parameters. Then, take a look at the documentation to see what the correct command line format is and what parameters are required (if any). Be sure to double-check what you entered to verify that everything is valid for that particular command. It is easy to forget things about a command if you do not use it very often.

Command Line Uses and Limitations

When you enter a command in DOS, it may consist of up to three general parts: the optional drive and/or path specifica-

tion, the command itself, and other parameters that are valid for that specific command. This is the general form that we have discussed so far:

```
[d:][\path]command other-parameters
```

As you have seen from some of the examples, command lines can get very long. Even though they are not really as complicated as they may look at first (only three parts remember), there is a very real limit as to how long they can be. You might suspect that the command line length is limited to 80 characters or so because that is the width of the usual screen display, but it isn't. In DOS, that limit is actually 127 characters (including spaces) which includes everything shown in the general form above. And that limit does NOT include any of the characters in the default command prompt or any changes you made to it with the PROMPT com-

mand. It only includes what you actually type on the CRT display.

When you type a command line, nothing happens until you press the RETURN key which causes whatever you typed to be "sent" to your system. In reality, the command line is sent to a special reserved memory area so that it can be "examined" (called "parsing" in technical circles) by the Command Interpreter. Although this memory area is actually 128 bytes (equivalent to characters here) long, the first byte is a count of the actual number of characters received. That is the reason why DOS cannot process more than 127 characters on a single command line. If you enter a valid command that has more than 127 characters, you will probably get some kind of error message from the program because DOS will truncate (cut off) the remainder and therefore ignore anything after 127 characters.

One of the interesting DOS features is that you can actually access and edit this particular reserved memory area that is 127 characters long. Why is this of any interest to you? Perhaps the best reason is that, by using the function keys on your keyboard, you can display and edit the last command line you entered. That allows you to quickly perform repetitive tasks without having to retype everything on the command line. And you can easily correct errors without having to retype everything on a command line. This makes the operation of your computer system a lot easier and faster, and it is far more accurate than retyping each command line for repetitive tasks. Let's see how to do it.

Editing the Command Line

Virtually all of the existing DOS documentation is quite vague on some of the ways that function keys can be used to edit a command line. From a user perspective, the first important fact to know is that you can use function keys to help edit a DOS command line, a DEBUG command line or an EDLIN command line.

Figure 1 contains a list of the Editing Function Keys that are the same for nearly every PC compatible computer available today. You might find it helpful to make a photocopy of this "cheat sheet" so you will have it handy any time you use your computer.

You might also find it helpful to power up

For EDITING a Template		
Function		Key
-----		---
Copy one character		F1
Copy up to character <u>c</u>		F2 <u>c</u>
Copy remaining characters		F3
Skip to character <u>c</u>		F4 <u>c</u>
Skip one character		DEL
Insert mode		
Enter		INS
Exit		INS
Backspace Key	<-	(Erase CRT input only)
For CHANGING a Template		
Define new template	F5	(Store displayed value)
Erase template (Void)	ESC	(Clear template buffer)
Execute command	RETURN	(Store and send to DOS)
End of file character	F6	

Figure 1 -- Editing Function Keys

your system and try these examples as you read. I have found that many people learn faster by actually following these steps and seeing the results as they appear on the system. I will use some examples that can DESTROY files on your system, but it is ALWAYS wise to make backup copies just in case something else happens. Let's start with an extremely practical example using the F1 and F3 functions.

The Dreaded DEL *.* Command

I suspect that more people have lost more data because of a mistake related to the DEL *.* command that will erase all files in the current directory of your current drive. You can help prevent that kind of problem by adding one extra step to the erase process, and it is really easy when you use the function keys to edit the command line. All we are going to do is check the file specification with the DIR command BEFORE we use the DEL command to erase them.

Let's assume you want to use a wildcard specification to erase all of the YUK (a goofy name) files in the current directory on your disk. First, enter the following command:

```
A:\ =>DIR *.YUK
```

Since you will probably not have any files which have the YUK file type on your disk, you will see a "File not found" message that can be ignored. In a normal situ-

ation, you would normally see a list of files matching that wildcard specification, and you should take the time to scan that list to make sure you really want to erase them. Assuming that is the case, now press the F1 key once, and you will see the following:

```
A:\ =>D
```

The F1 key copied a single character from that reserved memory area to the CRT. Now type the letters EL, and press the F3 key once. If you followed these instructions exactly, you should see:

```
A:\ =>DEL *.YUK
```

All you have done is copied the first character from the reserved memory area to the CRT with F1, overwritten the "IR" characters by typing "EL", and pressed F3 to copy the remaining characters. To delete those YUK files, all you need to do is press RETURN to execute the command. I hope you checked the DIR listing to be sure you don't have any YUK files.

If you use this technique to erase files with a wildcard specification, and you really force yourself to look at the directory listing of files when they are displayed, you can save yourself a lot of time and trouble.

The Copy Function Keys

You will probably find that the F1 and F3 keys are the most used when you are

working on command lines. And you could also have used the F1 key to copy each character, but the F3 key was faster since there were no other changes to be made.

There is at least one other way we could have done this too. We could have also used the F2 key to "Copy up to character c". Here's how that works, but first re-type the DIR example of:

```
A:\ =>DIR *.YUK
```

Press RETURN to "store" those characters, and remember that you will see a "File not found" message which is no problem. Now press F2 and type an "I" on the keyboard. Notice that only the D appears as follows:

```
A:\ =>D
```

That is how the "Copy up to character c" function key works: first you press F2, and then type the FIRST (i.e. up to) character you do NOT want to copy. Now you can type the "EL" and press F3 to copy the remaining characters so that you have:

```
A:\ =>DEL *.YUK
```

Press RETURN to execute the command as usual. Now that you are an expert on using the function keys to copy characters from the reserved memory area, it is helpful to know a little about what is going on.

What is a Template

At this point, let's take a moment to see what is happening inside the computer. Every time you press RETURN, DOS stores the command line characters in this special memory location (sometimes called the command line buffer) reserved for that purpose. That is the specific reason you had to press RETURN in this example -- to store the "command line" (e.g. DIR *.YUK) in the reserved memory location.

Now that you know what the command line buffer is, we will change the name to conform to the terminology used in most DOS manuals. Instead of calling this reserved memory the "command line buffer", we will call it a TEMPLATE. I am sure you recognize why we did that -- the obvious purpose is to confuse anyone who is not familiar with our terminology, particularly new computer users. Actually though, you will see the term TEMPLATE in most of the DOS manuals. In any case,

you have been using (i.e. editing) the template with these function keys.

More Command Line Editing

There are other function keys that can edit the template in one way or another, but you may have some difficulty remembering the syntax of the last command if it is not displayed on the screen. That can happen if you use a command like:

```
C:\ =>COPY A:\MYDIR\*.DAT B:\YOURDIR\*.CAT/V
```

When you COPY a file or files, the command will list all of the copied files on the screen, and the actual command line will scroll off the top of the CRT. The trick is to redisplay the previous command line without sending it to DOS for execution. In other words, display the template's current contents so you can see and edit it without sending it to DOS. All you need to do is press F3 to copy all characters from the template to the screen, then press F5 (Define new template), and you will see:

```
C:\ =>COPY A:\MYDIR\*.DAT B:\YOURDIR\*.CAT/V@
                                     (Cursor position)
```

Notice that an "at sign" (@) follows the command line, and this is a visual indication that you pressed the F5 key. The F5 key copies whatever is displayed on the screen to the template, but it does not send the command to DOS. It is like pressing the RETURN key, but the command is not executed; it is just stored. Also notice that the cursor is positioned directly under the first character in the command, not the prompt, for ease of editing. When I use the function keys to edit a line like this, I find it is usually easier to copy a single character at a time with the F1 key and do the "overtyping" necessary to change the command from its current form to the desired form such as:

```
C:\ =>COPY A:\MYDIR\*.DAT B:\YOURDIR\*.CAT/V@
COPY A:\MYDIR\*.COM B:\YOURDIR\*.BOM/V
```

You can press the F5 key as many times as necessary, and each time, the characters displayed on the screen will be stored in the template and not sent to DOS. And remember the "at sign" at the end of the line is a reminder of the value stored in the template and is almost equivalent to pressing the RETURN key.

The Backspace key can also be used when editing a template displayed on the

screen, but it is important to remember that it does not erase any character in the stored template -- it only erases the previous character from the screen display. Nothing happens to the stored template until you press RETURN to execute the command or use the F5 key to store the displayed value.

Skipping Around

When you are typing a command line, it is

amazing how computer gremlins can sneak in and add extra characters that you KNOW you did not type such as in:

```
C:\ =>FIORMAT X:/S
```

Except for the extra "I" in FORMAT, the command is otherwise okay, and that line is easy to edit too. Since you don't want to send that line to DOS, press F5 to store it as a template. Then press F1 to copy the first character (F), press the DEL key once to "Skip (i.e. not copy) one character" (I),

and press F3 to copy the remainder of the command line; and you will see:

```
C:\ =>FIORMAT X:/S@
      FORMAT X:/S
```

Instead of retyping the entire command with 11 keystrokes, you were able to edit it with 4. At this point, the command is valid, and RETURN will execute the command as usual.

You can also skip more than one character by using the F4 key which will "Skip to character c". Let's say that a gremlin introduced an extra character in the command line so that your typed command looked

like:

```
C:\ =>GFORMAT X:
```

You can use the F4 key to skip (i.e. not copy) the first character. Since you noticed that the command was wrong to begin with, you press the F5 key to store the template for editing. Now press F4 followed by F, and notice that nothing happens. Press F3 to copy the rest of the

command line, and then press RETURN to execute the command so that you will see:

```
C:\ =>GFORMAT X:␣  
      FORMAT X:
```

As a practical matter, I do not personally use the F4 key because I have found it is much easier to skip a single character using the DEL key. The primary reason is that there are sometimes duplicate letters in a command line, and the F1/DEL keys are generally more useful as well as being easier to use. Still, there are occasions when the F4 key is helpful too.

Using the Insert Mode

If you have ever forgotten to enter a drive letter and colon in the middle of a long and complicated DOS command, you will appreciate the convenience of the Insert mode. When you use the Insert mode, the INS key acts as a "toggle" that turns this mode on and off like a light switch.

The Insert mode can be used to correct a problem in a command line like:

```
C:\ =>FRMAT X:
```

You can easily correct that command line by pressing F5 to store that template, then press F1 to copy the first character, press the INS key to enter the Insert mode, type an O; and then press F3 to copy the remaining characters.

```
C:\ =>FRMAT X:␣  
      FORMAT X:
```

Now you can press RETURN to execute the command as usual.

One note about the Insert mode -- you automatically exit the insert mode when you press any other editing key such as the F3 key in this example. You can also exit the Insert mode by pressing INS again if you want to perform additional editing on the command line. In this example, you did not have to press INS to copy the remaining characters on the line. Even if you had, the process would be the same, but why use an extra keystroke?

The Last Template Function

Sometimes you will type a command, and for one reason or another, you decide that it is better to start completely from scratch. Perhaps it was not the command

you wanted or possibly the command line is so messed up that it is just easier to begin again. In either case, you can either retype a new command or completely erase the template in memory with the ESC key.

The "Erase template" or "Void" function is activated by the ESC key. No matter where you are in the template, the ESC key will completely erase the contents of the template in memory so you can start over. To demonstrate how this works, assume you have typed the following command:

```
C:\ =>FORMAT C:/S
```

Since you know it is not a good idea to FORMAT your hard disk, you then decide to FORMAT a disk in drive B, so you start editing the line by pressing the F5 key to save that template, and repeatedly pressing the F1 key so that you have:

```
C:\ =>FORMAT C:/S␣      (F5 key)  
      FORMAT B\        (ESC key)  
      -                (Cursor is repositioned)
```

At this point, you decide that you don't want to FORMAT any disk, so you press the ESC key. In the above example, notice that the ESC key causes a backslash (\) to be displayed, and the cursor is repositioned on the following line for new input. If you want to be sure that the template is actually erased, you can press the F3 key to copy all characters to the CRT, and you will find that nothing happens because the template is "empty". Now you can press RETURN, and you will simply be returned to the DOS command prompt.

Using the Function Keys

Most of the so-called power users know how to use a few of these function keys to quickly edit a command line, and you are on the way to becoming a power user. This is one of those details that is not explained very well in DOS manuals, and you will probably find it much easier and more accurate to edit an existing command line than to retype it.

For the most part, I generally use only F1, F3, F5 plus the INS and DEL keys to do nearly all of my command line editing. I think you will find that these are your most-used functions too. Although the F2, F4, and ESC key functions have their uses, I do not use them very often.

As you begin to learn some of these tricks, don't be frustrated if it seems to take you longer to use some of the function keys than it would to retype the command. This is one of those things that you have to work with in order to become comfortable with the technique, and one does not usually remember everything after reading a single article and spending 20 minutes using it on a computer. If you force yourself to initially spend the extra time learning and using a few of these functions, you can save a lot of time in the long run. Even though I can type at 80 words per minute or so with reasonable accuracy, I have found that it is still much faster to use the function keys for editing than to retype the line, particularly a complicated one that includes a lot of colons, backslashes, and other non-alphabetic characters.

If you look at Figure 1, you will notice that we did not discuss the "End of File" func-

tion using the F6 key. It is only included to make the list complete because this key generates an ASCII "End of File" character that can also be duplicated with a CTRL-Z. The F6 key is not normally used in command line editing, but we will take a look at how to use it when we look at the COPY command in the next article. The last thing we want to look at in this article is the PATH command -- another important labor-saving trick.

The PATH Command

The basic assumption for the most effective use of the PATH command is that you have set up your system to use the SYSTEM DISK and DATA DISK concept from a previous article. If you have a floppy disk system, this means that your program or system disk will always be in drive A, and all programs will be in the root directory on that drive. If you have a hard disk system, the assumption is that all programs are on a single partition (in subdirectories), hard disk (i.e. drive C) or in defined subdirectories that only contain the software (not data files) -- other subdirectories have been established for data as described in the last article on subdirectories.

Since you know that DOS always searches for commands in exactly the internal,

COM, EXE, and BAT file order; there is a way to extend this search. Remember that DOS will only search the current directory on the current drive for a command unless you know how to tell DOS to extend that search. Although you can extend that search with the PATH command, it is also important to remember that DOS will ALWAYS search the current drive and directory FIRST if it does not find a match for an internal command. As you might expect, this means that the PATH command can extend the DOS search for COM, EXE, and BAT files in the usual (and exact) order.

Before we jump into the syntax of the PATH command, it is important to review two facts you have already learned. In the last article on subdirectories, you learned that a single path specification could not exceed 63 characters. In this article, you have seen why a DOS command line is limited to 127 characters including spaces. These facts are especially important for the PATH command. Since PATH is an internal command, you don't have to worry about your current drive and directory in order to use it. The basic syntax for the PATH command is shown in Figure 2.

```
PATH [d1: ]\path1[ ; ][d2: ][\path2][ ; ][d3: ][\path3] . . .
```

Figure 2 -- PATH Command Syntax

The PATH command is used to tell DOS to search additional paths (including both a drive and directory specification) when it is looking for COM, EXE, and BAT files. Again, it is important to remember that DOS searches the current drive/directory FIRST for those three file types before it begins to search those specified with the PATH command. And note that the PATH command is no help for DOS in locating overlay (e.g. OVR and OVL file types) as mentioned earlier in this article.

If you have a system with two floppy disk drives, you might want to enter the following:

```
A: \ =>PATH A: \
```

In this example, you have told DOS to always look at the root directory on the A drive if the command is not found in the current drive/directory. Even if you are logged on to the B drive, DOS will also look at the A drive's root directory to find a program because of this command.

If you have a hard disk system, you might want to use a command like the following:

```
C: \ =>PATH C: \ ; C: \DOS
```

When you use this command, DOS will not only look for the external command on the current drive/directory, it will also look at the root directory on drive C (C:\); and if the command is not found, the \DOS subdirectory on drive C (C:\DOS) will also be searched for the external command. DOS looks for an external command match for all possibilities (i.e. COM, EXE, and BAT files) before it begins a search in the next "location". And when more than one "location" is specified in the PATH command, notice that a semicolon (;) is required to separate each one as shown in the above example.

To illustrate how this search works for this example, let's review how DOS would look for the UNKNOWN.COM file when you are logged on to drive D (Yes, that can be a valid drive). First, you would type the command on the command line as follows:

```
D: \ =>UNKNOWN
```

Press the RETURN key, and DOS will start looking at the current drive/directory (the root directory on drive D) for a matching COM, EXE or BAT file in that order. Finding no match there, DOS will then look at the root directory (the C:\ specification in the PATH command above) on drive C for a matching COM, EXE or BAT file. Since there is still no match, DOS continues the search by looking at the \DOS subdirectory (C:\DOS) on drive C for a matching COM, EXE or BAT file and finds no match. Since DOS does not know where else to look for the command, it gives up and displays the "Invalid command or file name" error message that was mentioned earlier.

Now that you see how the PATH command works, let's take a minute to look at an important detail about the command that can be confusing. First, note that the PATH command requires five (PATH and a separating space) of the available 127 characters on the command line which leaves 122 characters that you can use for

the command. Second, remember that each path specification (e.g. \path1, \path2, ... in the syntax) CANNOT exceed 63 characters. If you use long, complicated, multi-level path names; you might only be able to specify two of them (126 characters) in the PATH command. In addition, complex path names can also slow down your system considerably which is another reason I don't recommend more than two subdirectory levels on any disk.

The PATH command is most valuable when you have set up your software with the system and data disk concept. It works with both floppy and hard disk systems, but it is most effective when you have a hard disk with multiple subdirectories.

Next Time

In the next article, we will take a look at "Important DOS Commands You Must Know" and this specifically includes the FORMAT, COPY, CHKDSK, and DISKCOPY commands. A brief discussion of some other useful commands will also help you use your system more effectively.

One other thing I should mention as we proceed into more details of these commands is that I won't discuss all possible ways to use the command. Many commands have so many options that an entire article could be written on each. In addition, different DOS versions have different or enhanced command features, such as switches, and I will only discuss and illustrate the most common ones. You should also refer to your DOS manual for additional features and descriptions of commands.

If you are interested in the practical uses of the various commands, you might want to consider getting my MS-DOS FlipFast book from HUG. For example, I have shown 10 examples on how to use the COPY command on page 97. A description of how the each command works is included for each example that is quite helpful to both beginners and experts. And there is an "Error Messages" section for each command that explains in non-technical terms what each error message means and a way to recover from it. This book contains 544 pages of the most complete and comprehensive information available about MS-DOS for the Heath and Zenith computer systems.

If you have specific questions about anything in this column, be sure to include a self-addressed, stamped envelope (business size preferred) if you would like a personal reply to your question, suggestion or comment.

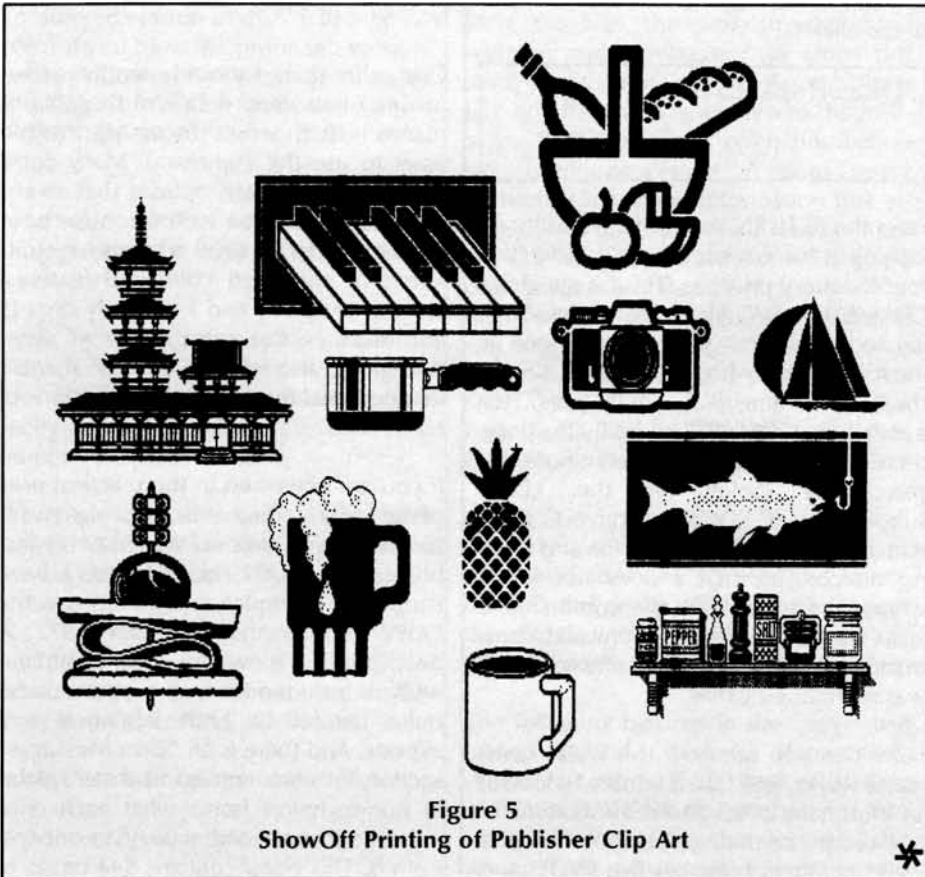
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"YOU CALL THAT A PROPER GROUND?"

Classified Ads

REACH THOUSANDS OF DEDICATED HEATH/ZENITH COMPUTER OWNERS!!

Classified Ad Rates

There is a minimum of \$5.00 for 10 words or less. Each additional word is \$.40. Payment for all classified advertising must be in advance.

Display Classified is available at \$35.00 per column-inch. Minimum one inch. Display Classified is commissionable to recognized agencies.

How To Count Words

Count one word each for initials, standard abbreviations, whole numbers, name, address, city, state, zip, area code and telephone number. Dimensions (such as 6 X 9) are counted as one word. Box or department numbers are counted as one word each. All classified ads (not display) are set in the same size type. The first several words, depending on the ad, are set in all caps.

Continuity Discounts

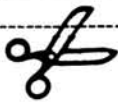
Run your ad at least 3 times during the year; and receive a discount off the regular price.

Run 3 insertions — 3% off, 4 insertions — 4% off, 5 insertions — 5% off, . . . 12 insertions — 12% off.

Issue & Closing Date

Issue Date	Closing Date	Issue Date	Closing Date
January	November 15	July	May 15
February	December 15	August	June 15
March	January 15	September	July 15
April	February 15	October	August 15
May	March 15	November	September 15
June	April 15	December	October 15

REMark Magazine has the right to refuse any ad for any reason.



Classified Order Blank

First	10	words	at	a
cost	of	\$5.00	each	insertion.
11-\$5.40	12-\$5.80	13-\$6.20	14-\$6.60	15-\$7.00
16-\$7.40	17-\$7.80	18-\$8.20	19-\$8.60	20-\$9.00
21-\$9.40	22-\$9.80	23-\$10.20	24-\$10.60	25-\$11.00
26-\$11.40	27-\$11.80	28-\$12.20	29-\$12.60	30-\$13.00
31-\$13.40	32-\$13.80	33-\$14.20	34-\$14.60	35-\$15.00
36-\$15.40	37-\$15.80	38-\$16.20	39-\$16.60	40-\$17.00
41-\$17.40	42-\$17.80	43-\$18.20	44-\$18.60	45-\$19.00
46-\$19.40	47-\$19.80	48-\$20.20	49-\$20.60	50-\$21.00

Enclosed is a check or money order of \$_____ for _____ words.

(Minimum order: 10 words for \$5.00. Each additional word \$.40.)

Please insert this advertisement in the _____ issue.

Signature _____

(Please type or print)

Name _____ Phone _____

Company _____

Address _____

City _____ State _____ Zip _____

MAILING ADDRESS: Make check or money order payable to: Rupley's Advertising Service, Dept. — REM, 240 Ward Avenue, P.O. Box 348, St. Joseph, MI 49085, (616) 983-4550.

NEW HEATH SL-5410 convenient entry way motion sensor light control. These units retail for \$44.95. Now buy them for \$15 each! Call (616) 982-3838 EST.

ONE COMPLETE SET of REMark magazines. From issue #1 to present: \$70. Call (616) 982-3838 EST.

USED, BUT CHECKED and verified good, HS-218, Syquest, 10-meg cartridges. Original cost, \$99.95. Order yours today for only \$25 each. Call (616) 982-3838 EST.

THIS COULD BE YOUR AD! For as low as \$5.00, you could advertise personal items in this space. And for as low as \$35.00, you could advertise commercial items. People read these ads, you did!

Announcement!

HUG MEMBERS ONLY!!

The HUG-386 and HUG-386-C upgrade kits will be available shortly. Wheelin' Dealin' Jim has managed a super-fantastic deal on these two products for Heath Users' Group members who originally purchased an H-241 or H-248; **one-thousand two-hundred dollars** off the regular purchase price! That's right! If you originally purchased an H-241 or H-248, and you're a HUG member, you can get \$1200.00 off the regular retail price of either of these two upgrade kits!

The HUG-386 and HUG-386-C are upgrade kits that let you upgrade your H-241 or H-248 series computers up to a full H-386. Now, how do you determine which upgrade kit to buy? The H-386-C includes a dual winchester/floppy controller, while the H-386 does not include any disk controller. Since the old H-241 controller is not '386 compatible, you'll probably want the "C" model if you're upgrading a '241. If you're upgrading a '248, your decision will depend on whether you need a new dual controller or not.

Here are the three ways you can order your upgrade:

Write-In Orders

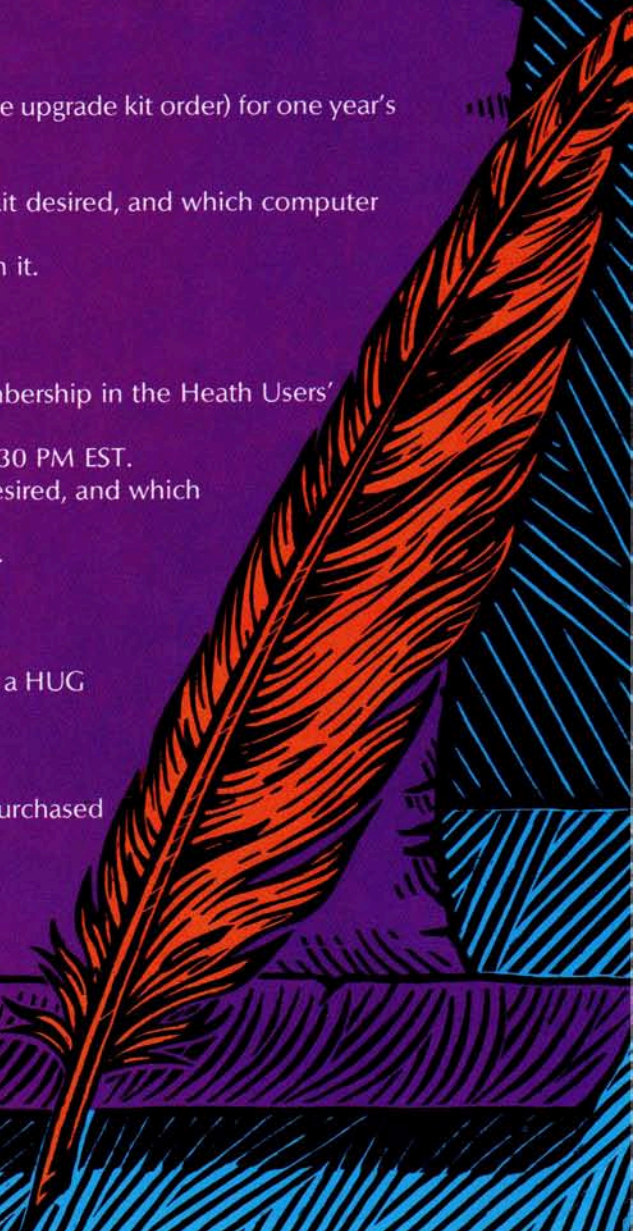
- Non-HUG members **can** order by including payment (with the upgrade kit order) for one year's membership in the Heath Users' Group.
- All orders should be submitted to the Heath Users' Group.
- Each order must indicate the model number of the upgrade kit desired, and which computer kit it was purchased for.
- Each order must have the persons HUG ID number written on it.

Phone-In Orders

- Non-HUG members **can** order by first ordering a one year's membership in the Heath Users' Group.
- All orders must be phoned in to (616) 982-3838 from 8 AM to 4:30 PM EST.
- Each order must indicate the model number of the upgrade kit desired, and which computer kit it was purchased for.
- The person ordering must supply his/her current HUG ID number.

Heath/Zenith Computer Store Sales

- Non-HUG members **can** purchase an upgrade kit by first purchasing a HUG membership from the store.
- Orders for the upgrade kit can be taken in the normal fashion.
- Each order must have the buyer's HUG ID number on it.
- Each order should indicate which computer kit the upgrade was purchased for.



We Just Made Your Zenith 248 Faster!

You thought you made a very wise choice when you purchased your Zenith 248 System. But lately you're having your doubts. New systems seem to be faster and have more memory.

You now have the opportunity to make another wise decision. Don't scrap the system you have... Upgrade it!

INTRODUCING THE NEW AMI ZX-386

With the New AMI ZX-386, you can easily upgrade your Zenith 248 yourself, and the process takes less than 15 minutes. Just remove 3 old boards and plug in the new ZX-386.

You now have more speed, (Choose 16 MHz or 20 MHz). You now have more memory, (1 megabyte upgradable to 8 megabytes). The new AMI ZX-386 now allows you to run all your old programs as well as new programs like: "Lotus 3.0," "Windows/386," and a lot more. In addition, you can move into the world of multi-tasking and run several different programs at the same time under OS/2.

We include 2 serial ports and one parallel port, allowing you to run your printer, modem and a serial mouse without using up valuable expansion slots.

The new AMI ZX-386 runs at 0 wait states, using 100 ns chips. To further improve the speed of your system, the ZX-386 allows you to put your video ROM and ROM BIOS into a high speed cache. An optional Intel 80387 Numeric coprocessor provides blazing speed to your CAD/CAM and other math-dependent programs.

Now that you have the facts... you should get the boards... and congratulations on making another very wise choice.



18005 Sky Park Circle, Suite A
Irvine, California 92714

Lotus 3.0 is a registered T.M. of Lotus Development Corp.
Windows 386 is a registered T.M. of Microsoft Corp.

**For More Information
Call AMI
(714) 261-0693**



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