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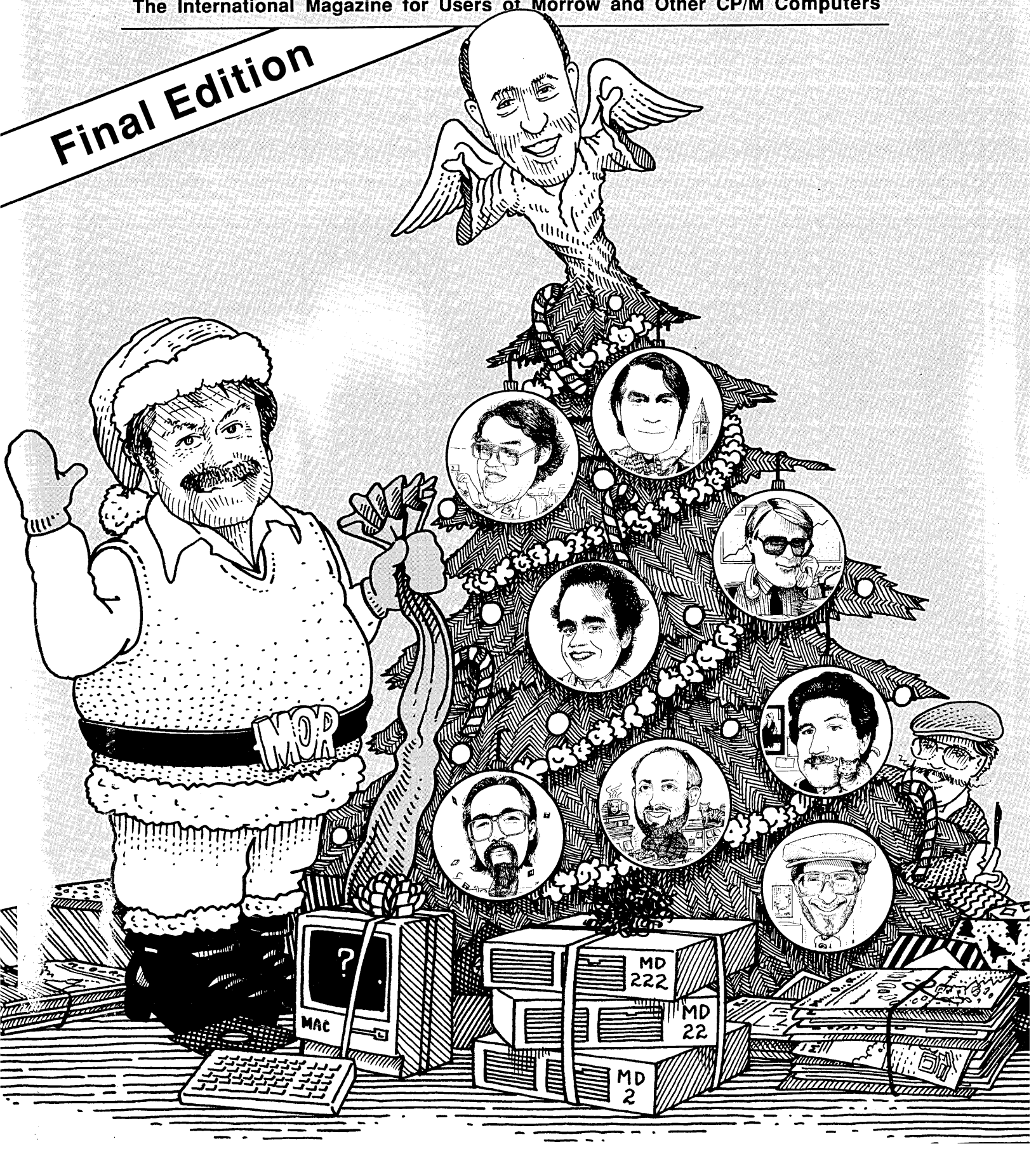
MORROW OWNERS' REVIEW

The International Magazine for Users of Morrow and Other CP/M Computers



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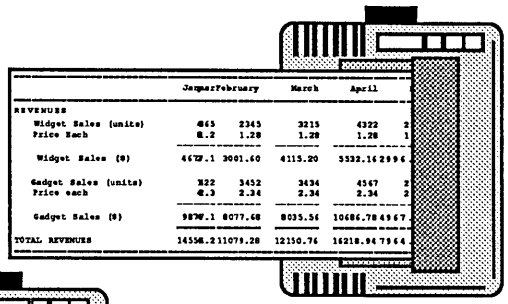

	January	February	March	April	
REVENUES					
Widget Sales (units)	465	2345	3215	4322	3
Price Each	6.2	1.28	1.28	1.28	1
Widget Sales ($)	4672.1	3001.60	4115.20	5532.16	2994
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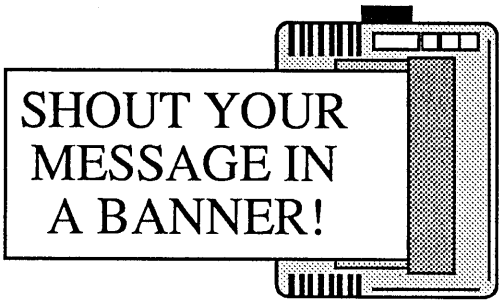
Price each	6.3	2.34	2.34	2.34	2
Gadget Sales ($)	9876.1	8077.68	8035.56	10686.78	4967
TOTAL REVENUES	14556.2	11079.28	12150.76	16218.94	7964



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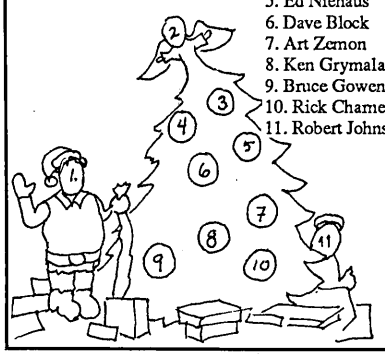

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Letters to the Editor

MDHD Revival Project

Sorry to read ("The Future of MOR," Oct/Nov '87, p.17) about your problems in keeping MOR going. The best support I could think of was to send you an order and check, herewith. I hope others do similarly.

You are providing a valuable service and we need you. Efforts like the MDHD Revival Project are particularly important. My wife and I are associated with a small, private elementary school. We have a MD3P for home and portable use, plus one MD11 and two MD16's at the school, for all administrative and financial work. Although we have as yet had no problems with our hard disks, the very existence of your MDHD Revival Project has given us the confidence to plan on keeping these machines going indefinitely. We hope you are able to continue the MOR.

Stephen Troy
Severna Park, MD

(MOR will stay in business and give support through MOR Mail order and MOR BBS. We just can't afford to publish and maintain an office with staff any longer. Check the Editorial, Important Announcements and the Product Pages for details.—Ed.)

A Big Hand for Greg

I am writing to bring to your attention the outstanding job Greg Smith of your staff has done in helping me with my problems. He has taken his own personal time to do extra research for me. Not too often do you run across such a hard worker.

Chris J. Terry
Elmhurst, NY

Future Format Conversions

I read in the Aug/Sept '87 MOR issue that many of your readers are having trouble obtaining CP/M software in the Morrow format. As a service to your readers, I would be glad to convert from any of 80-odd 5-1/4" and 8" CP/M80, and MS-DOS disk formats to the Morrow SSDD or DSDD format for a nominal fee of $5 for the first disk and $2 for each additional disk. I will supply the new floppies and return your old ones. If the disk you provide is in a format that I cannot read, then I will refund your money. Write to Future Communications, 128 Midway Road, Decatur, GA 30030, or call (404)373-4831.

Todd Merriman
Decatur, GA

Tune in to the MOR BBS

Very glad to see the new software available on the BBS. I had not signed on for awhile and was very pleasantly surprised to see all the new items. Keep up the good work!! This is beginning to look like a real, full-fledged top-of-the-heap BBS. I'm proud to be a member of this users' community!!!

Robert Dollins
Pulaski, TN

Well, it worked today! Maybe it's my lucky day. This BBS is just great. I do appreciate the help you offer, and had it not been for MOR and BAMDUA I would probably be working with a CLONE. Thanks again.

Bruce Colbert
San Francisco, CA

(Now that the MOR office is closed and the phones are pulled out, the MOR BBS (415/654-3798) is the only way to get quick help and post a urgent mail order. Get a modem and tune in.—Ed.)

Running CP/M on a Clone

The article "CP/M to DOS" in the MOR August/September 1987 issue (p.31) discusses software which allows you to run Z80 CP/M software on an IBM PC or compatible. In addition to the software-based emulations discussed in the article, a hardware emulation is available. For about $10 you van replace the Intel 8088 processor chip in your PC with a NEC V20 chip.

The V20 provides hardware emulation of both the 8088 and the Z80. A shareware program called V2080 accesses this Z80 mode and will allow you to run most of your Morrow CP/M software. The V20 processor is available from most the electronic mail order outfits. The V2080 is available on many BBSs or direct from U.S. Digital Corporation, 5687 S.E. International Way, Milwaukie, OR 97222.

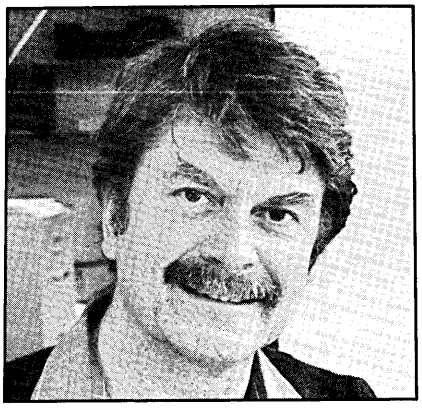
Scott Isensee
Pineville, NC

Glorious Backgrounder II

I just got Backgrounder II and am getting it going on my SB180. What an advanced-featured program it is for CP/M compatible computers! Take a look at it. Some good overview information is to be found in some recent "Z-NEWS" newsletters, which is a great reading source for MOR ZCPR users.

James Bottom
Salem, OR

Editorial



The Final Edition

Four years after MOR's inception we have come to the end of the line: This issue is the last in a series of twenty three. With resources and subscriptions running low, it is no longer possible to keep publishing. As sad as this may be, it doesn't mean the end of the community of Morrow users that grew up around MOR. You won't be abandoned, so don't panic as one gentleman did. He called the other day and said, "Send me all you've got!" Not only are we keeping MOR's mail order department open and its BBS on line, but we have developed an array of fulfillment choices for the remainder of your subscription (see p.21).

We think you will agree that MOR has been a great success over the years. Many thanks are in order for those who made it happen. George Morrow started the process by creating an honestly engineered computer. Ed Niehaus and John Seamster, both formerly of Morrow Designs, convinced us of the financial feasibility of a national magazine and followed up with strong support.

Within the users' community, we first wish to thank all the authors. They flooded MOR with a stream of articles of ever- increasing quality. MOR never lacked for copy, all written on a volunteer basis. We owe special thanks to the eight columnists who have served the magazine magnificently over the years. You'll recognize them on the cover of this issue.

Loud cheers of thanks are due our MOR staff for their enthusiastic and hard work. They must have loved their jobs because they weren't in it for the money. Each of the three managing editors — Shoshana Tembeck, Marilyn Werden and Serge Timacheff — made unique contributions that raised the quality of the magazine to its current level. Subscription coordinators Margo DeMello and Kirsten Andreae managed the data base and the growing mail order department with a minimum of confusion and great dedication. Every Tuesday Steve Wartofsky tackled an enormous number of technical problems. He provided the main drive behind the MOR BBS, the FLOBs and the MD222 project. We could not have done most of our cherished projects without him. Then there is Greg Smith, the only staff member who could do everyone else's job and stayed friendly under the most trying circumstances. Greg could handle any kind of phone call. He really understands what Service means.

We don't have enough space to thank all who have been involved with MOR, but we must mention three recently dissolved MUGs. By donating their left over cash to MOR, the Sacramento, Washington, D.C. and Diablo Valley MUGs made this final issue possible. Their gifts — about $1000 each from the first two and $400 from the third — paid the printing and mailing bills.

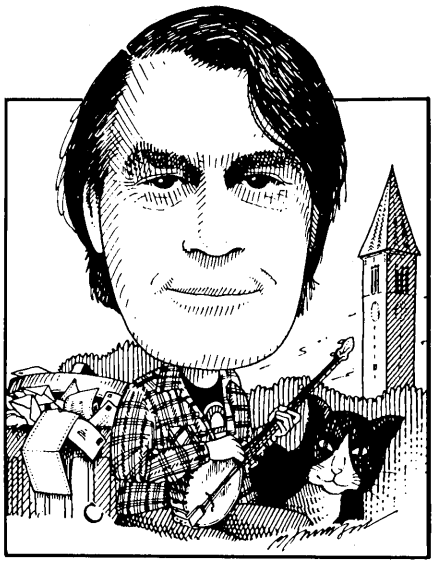
On a Personal Note

MOR has been a joyful challenge to me. I had no idea what I was starting, but soon realized it would be a marvelous adventure. There were many things to learn, everything from running a small business to managing a small staff so they would work happily together. Such a staff provides the key to success and the pathway to quality. Despite the long, hard hours of work, I found great satisfaction in watching MOR develop so beautifully.

Before founding MOR, I didn't know what publishers and various types of editors did. Now I do. As publisher, I always paid the staff and the bills on time, but I could never afford to pay myself. MOR's finances were always too marginal. While working fulltime at MOR, I also worked halftime at my original job as a software engineer so I could pay my personal bills. Only recently did I discover that hardly anybody in the MOR community knew this. As it turned out, it was far too big a load, especially recently when I had to return to fulltime work at my outside job.

I realize now how many things I had to let go to publish and edit MOR. I must admit that, with those duties over, I look forward to free weekends and evenings, more time with friends and close ones, reading and writing for myself, and maybe even flying. I used to do that a lot.

MOR often felt like a flying experience to me. It was always exciting, often beautiful, sometimes dangerous but always satisfying and a lot of fun. Now the flight of MOR is coming to its inevitable end. It's time to come in for a landing. Fasten your seatbelts, but rest assured, the touchdown will be so smooth. You'll nary feel a bump, and we'll slowly roll to a stop. I hope you had a good flight with MOR. Thank you one and all, and may you fare well.



From the Mailbox

by Bill Steele

AS you read this you probably know more about the exact future of MOR than I do as I write, about a month earlier. What I know for sure is that this will be the last MOR in its current form. My understanding is that we will still have a Mailbox column in the new, merged newsletter, and that I'll probably be in charge of it. So, if you have more questions or answers send them along just as before. If it turns out I'm not the person you ought to write to I'll forward everything to whoever it is. How's that for meeting uncertainty with confidence?

Speaking of uncertainty, a lot of the mail this time is about WordStar 4.0. I haven't got mine yet, so I am indebted to the tech support people at Micropro for helping with some of the answers.

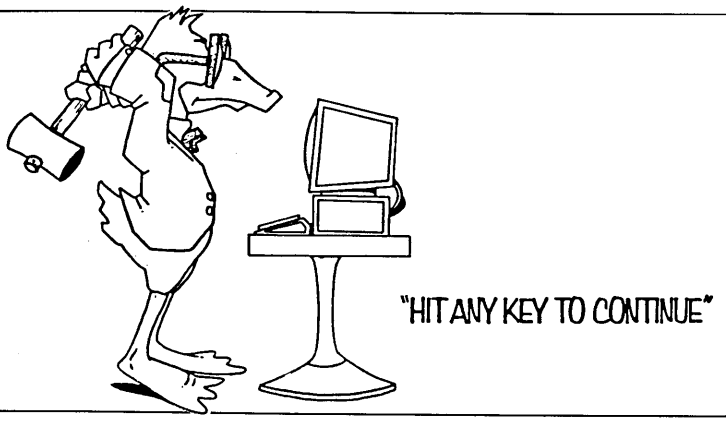
Jay C. Wood of Port Hueneme, CA ordered the Osborne SSDD version of the new WS, but when he attempted to use OSB.COM to copy the program disk onto a Morrow format disk, he got an error message from CP/M. Several, actually, after trying various approaches. He tried reading another Osborne-format disk with no problems. My guess is that somebody slipped the wrong disk in the sleeve, and you've actually got a Kaypro or Televideo version, or maybe even an MS/DOS disk. The question is moot, however, since Micropro is now supplying WordStar 4.0 in Morrow SSDD format, thanks to our collective gripes. They tell me they're really pleased that we are so interested in their product. It would be interesting to try out your disk with a copy of Uniform and see what format it really is, if any. **Bill Schlesinger of El Paso, TX** had no such problems, and says the upgrade is great! "But I can't figure out how to tell it to hear my function keys (F1 to F9 and the backslash). I had programmed them to work with Smartkey on NewWord, but WordStar 4 doesn't leave enough memory for Smartkey to work and still be able to print documents. I tried the patch routines in the PATCH.LST file, but there doesn't seem to be any correspondence between them and the Morrow keyboard." The function key feature of WS 4.0 works just like the one in NewWord; it creates a table listing the "burst" of characters sent by the function key, followed by the string of characters you want the key to represent. The only difference is that in the new WS you don't have to patch the strings in with DDT or the patcher; you get a menu that lets you program each function key separately. You still, however, have to enter the hex values of the characters. WS comes with the "burst" characters already entered in the format found on most terminals: a three character sequence (e.g., 01 40 0D) for unshifted F1). This is called "Televideo Mode." Morrow MDT60 and MT70 terminals are usually set to send a two-character sequence (1C 40 for unshifted F1). This is called "Morrow Mode." You have to do one of two things: either go through the table and enter the Morrow Mode burst sequence for each key or

We're more on our own than ever, so if you know a solution to a problem, don't assume someone else will write in; there are not so many of us that you can count on that. Whether you have questions or answers, keep them coming: ***Bill Steele****, P.O. Box 782, Ithaca, NY 14851, 607/273-2132; MCI: WSTEELE, 254-5833.*

change the dip switch setting on your terminal to Televideo Mode. You'll find the list of function key codes and info on the dip switch settings in your terminal manual. I would choose Morrow Mode myself, since the two-character sequence takes up less memory in the function key table area. Also, if the table they provide is similar to the NW table, it only goes up to shifted F10, so you'll need to enter additional bursts for the rest of the keys no matter which mode you use. I'm told you don't have to do anything to tell WS you're using two-character bursts instead of three-character ones, but read the instructions. (The backslash?)

Micropro tech support also tells me that the PATCH.LST file (a disk equivalent of the old User Area Listing in the back of the manual) is a sort of "universal" listing that doesn't always correspond exactly to all versions of the program. Regarding the memory shortage, you are supposed to be able to streamline the print driver file; see the reviews in the previous MOR. Mr. Schlesinger also writes "My Pearl documentation says I can make a file compatible with SuperCalc 2, but the Pearl disks only work with LogiCalc. How can I get the two to work? Is there an update of Pearl that will do the job?" When Morrow switched from bundling LC to SC2, I assume they changed Pearl as well; sounds like you got the new manual and the old Pearl. I'll throw this one to the Pearl experts, because a lot of users upgraded to SC2. Is there a way to get the old Pearl to write a file that SC 2 can read?

Jack Curtin of West Chester, PA also has WS 4.0 and laments the fact that it doesn't display underlining on screen as NW did. Well, it's supposed to. You may not have installed it correctly for your terminal. More on this after I get my copy and try it. Mr. Curtin also has modem problems: he has both MITE and REACHOUT software, both of which work fine with his MM300 modem, and neither of which works with his SMARTTEAM modem. Now the MM300 has died. The MM300 has its own built-in cable. The MITE manual says that an MD uses a non-standard cable when connected to another modem. The MD manual implies that it uses a standard cable. Since all I've used is the MM300 I can't testify on this one. Also, however, to get a comm program to work with a particular modem you have to install the program by telling it the codes the modem expects to see for various activities, like tone dialing, pulse dialing, etc. The MM300 codes are not standard, so a program installed for the MM300 probably won't run any other modem without being reinstalled. This involves selecting the correct modem from a menu, and I don't think the SMARTTEAM is listed in the MITE installation menu; hopefully it emulates something else, and you can select that. There is nothing in the manual about patching specific codes into MITE. I don't know how REACHOUT installation works, but if it allows you to patch in specific codes you should be able to get it to run the SMARTTEAM modem; look in the SMARTTEAM manual for the codes you need. Again, if the SMARTTEAM emulates something, select that from the REACHOUT menu. This is assuming that the SMARTTEAM modem is physically O.K. One way to test it is with the "Simple Modem Program" in MOR Vol. 1, No. 3, Aug. 1984, which allows you to send characters directly to the modem from the keyboard. Try sending through the commands in the modem manual and see what happens--e.g., tell it to go online and pick up the phone and see if you hear a carrier. Tell it to tone dial a number and see if you hear tones. Meanwhile, last time I talked to CTS (about a year ago), they said they would repair and return an MM300 for a flat fee of $25. I sent them mine at that time and had it back in about a week. They also may have a few new ones left in stock. Finally, Mr. Curtin is looking for scriptwriting software for CP/M. *(See MOR Vol. 4, #5, Oct/Nov, 1987, p. 25, "Shakespeare Meets Morrow," by Roger Danchik. —Ed.)* I know two amateur playwrights who use Smartkey for this, as described in the last issue of MOR.



Glen Ellenbogen of New York, NY had trouble with BACKFIELD, and got the new version as we suggested. He now reports some problems. First "It informed me that there was 483K of space remaining on my disk and that I should subtract that number from 5000, then divide by 400 to determine how many floppies I needed. [Why didn't it tell me] to subtract from 11,000, since I have an 11MB hard disk?"

Then the monitor displayed "Backing up 1,434 directory entries...Memory constraint--duration extended." He asks "What's with this memory constraint stuff?" It's telling you it doesn't have enough memory to hold the whole directory at once so it will have to shuffle back and forth be-

tween memory and disk, with the result that the process will take longer.

Finally, "Everything stopped. No new tracks appeared on the screen and no prompt appeared saying the floppy was full... The screen showed a whole set of missing tracks. I would guess that the missing tracks mean there is something the matter with certain areas of the hard disk. Is this correct and what can I do about it?"

I defer to others on hard disk questions. (Note again my confidence that there will be more columns in which I can publish the answers!) I do know that Morrow's FORMAT program is supposed to lock out bad sectors so they won't be used to store data, and it may be that BACKFIELD ignores those lockouts — quite likely, since it works by tracks rather than by files. If so, how do we make BACKFIELD work on a disk with bad sectors? Note that you can't run FORMAT after there is data on your hard disk without destroying everything, and you don't want to do that until you have a for-sure backup. I am told that the public domain program FINDBAD will work on a hard disk to lock out bad sectors, but I won't suggest you use it until we have assurance from someone who knows that it won't also destroy existing files. It doesn't on a floppy, but in this business it's dangerous to reason by analogy. According to **Nina Seco of Seattle, WA**, her problems with Uniform described in our April/May column were hardware-based. "Some day I will learn to look there first," she says. Good advice. She passes on a plug for a program called HEADLINE ($35 from Micro-Cost, 22015 Marine View Drive South, Seattle 98198) which prints 24, 30 and 36 point upper and lower case letters on a daisy wheel printer, by assembling the letters out of periods. The samples she sent look a lot like Leroy lettering with slightly rough edges. **Les Oliver of Johnstown, PA** writes about **Richard Rose's** problem of garbage from his modem: "Years ago I was working with a terminal tied into a VAX about 200 miles away. We paid a large chunk of change for a 'data conditioned line.' 2400 baud made a good random character generator; 1200 was possible maybe two days out of three; 300 usually worked, but I could crank numbers on my pocket calculator faster. The only thing complaints to the phone company produced was getting to know their technicians by their first names." No help there, but confirmation of my suspicions. And on that cautionary note we sign off. If there is no future column, I'll be checking into the MOR BBS from time to time to throw in my two cents. We sure could use a BBS on the east coast, though. Anyone have an old hard disk machine to donate to the cause? ■

The Z System

By Echelon, Inc.

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Now you can get a complete, ready-to-go replacement for CP/M and your MD3 ... the ZCPR3 kit.

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Forever Z

By Rick Charnes

(Continued From October/ November)

All this activity is said to take place on the "shell stack" and '$x' is then called a "shell variable." PERFORM.COM places itself on this shell stack, just as do our more familiar "menu"—based shell utilities, VFILER, VMENU, and MENU. One easy way to see this visually is by simply adding the command 'SHOW' anywhere in the above line. When SHOW.COM loads choose the "S" option and you will be given a "real-time" view of what the shell stack looks like.

So now we're beginning to see what will happen. On the first loop through, our command line will have resolved to:

ECHO PROCESSING CHERHIL...;NW CHERHIL;CORRECT CHERHIL; << GMK
CHERHIL;FILTW CHERHIL;AC CHERHIL BACKUP: /A

This command line in itself will keep us busy for quite a while, but of course when it finishes it will move us automatically on to BOSTON and the rest, repeating the entire series. We may spend two or three hours inside of NewWord working on each file. All the while the above command sequence is sitting patiently in the command line buffer, waiting for us to exit. When we do, it is immediately ready and available to go to work for us with the next command.

This is really a very simple use of these tools, nor does it even require NEXT.COM. FOR can create a list not just of files but of all user areas, named directories, command lines, or simply integers up to a user-specified limit, all capable of being acted upon by PERFORM. This combination provides a very powerful command structure with which we can greatly automate many of our operations, and I am very grateful to Mr. Nielsen for his bountiful work.

While we're exploring the command line buffer this is a good time to make a quick digression into explaining it as one of the fundamental differences between ZCPR3 and CP/M. When a warm boot occurs in either CP/M or ZCPR3 a fresh and virgin copy of the command processor is loaded from disk. The significance of this is as follows: in CP/M the command line resides directly in the command processor. When a warm boot takes place, such as when a program exits, this therefore flushes (wipes out) the command line. This is why CP/M 2.2 cannot support multiple commands. With ZCPR2 and ZCPR3 the command line was **removed** from its location in the command processor and placed in a specially protected area of memory known as a buffer. This way the command line can maintain its integrity across warm boots and return as we like to do our bidding.

I'd also like here to pass on a tip that I have found very helpful in a

---

Rick Charnes bought his MD-2 many years ago when he thought of himself primarily as a writer. Now a self-admitted fledgling technical type, his computer has turned from tool to toy. His immense love affair with ZCPR3 leaves some occasional time for mundane things like work. He is president of BAMDUA.

number of circumstances in which I need to debug a command script I have written. It's ideal for aliases inside ALIAS.CMD, macro scripts in VFILER.CMD, MENU.VMN, etc. and as well with our PERFORM command line in case something had gone wrong. What we do is load the ZCPR3 program MU3 (Memory Utility) prior to anything else on the line. Once MU3 loads, we can then scan to the aforementioned special area in memory (the command line buffer) where our command line is kept, and simply view it. The beauty of this technique is that even though MU3 is the first command in the line, the command line will have already been built/generated by the time MU3 loads, and all the rest of commands have already been placed in the buffer and we are able to see the finished product. We see exactly what the command processor sees and therefore our job of debugging is made most easy.

In our customized Morrow Z-System configurations the MCLB (multiple command line buffer) is precisely at location FF04 in memory. So we precede our line with 'MU3 FF04' where 'FF04' is a parameter to MU3, and this takes us directly to where we wish to go. In aliases it should be placed as the very first item. In the above example and any example with shell variables, however, we want to see the buffer **after** PERFORM or whatever shell processor we are using has substituted its variables and transformed '$!' into ';', so we put it as the very first item in PERFORM's command line:

```
PERFORM MU3 FF04$!ECHO PROCESSING $X....
```

Note that positioned thusly PERFORM processes MU3 as one of its parameters, even though it's not a variable. The use of the command line separator '$!' ensures that it resolves all command line parameters in one pass, so MU3 is "resolved" along with the variables and we are allowed to peek into the fully expanded command line. The use of MU3 as a debugging tool has tremendous general applicability; in most circumstances we needn't concern ourselves with the above matters.

More new programs: Jay Sage, the author of ZCPR33, has developed ZFILER v.10f, a Z33-enhanced version of VFILER, our general daily interface with the command processor, that allows for "group macros." Until now we were limited to running our scripts on a single pointer file. With ZFILER10F we have the capacity to run a macro script on all tagged files. This is a tremendous enhancement and opens up all sorts of possibilities. ZFILER scripts are 95% compatible with your VFILER.CMD scripts with one major change: the '$' is used instead of '%' for the pointer file parameters.

Just to whet your appetite: suppose, for instance, you want to insert 6 different files on your disk into a single, already existing library. You write an easy macro in your VFILER.CMD; let's call it "I" for "Insert":

```
I nulu -O $"Name of library file
([DIR:]LIBNAME): " << -a $f -x;era $f
```

For those who haven't yet discovered V/ZFILER's $" symbol, it requests user input before anything else runs in the script. It then inserts the user's response into the final, expanded command line precisely at the location between the $" and the terminating " (double-quote mark). When this script runs the very first thing that happens is that we are queried for the name of the LBR. We respond, hit <CR> and the pointer file, represented by '$f', is inserted into the LBR.

As an example let's say we are pointing to LETTER.TXT and we want to insert it inside CORRESPO.LBR. We hit our macro lead-in key (default is <ESC>) and then "I." The string

```
Name of library ([DIR:]LIBNAME):
```

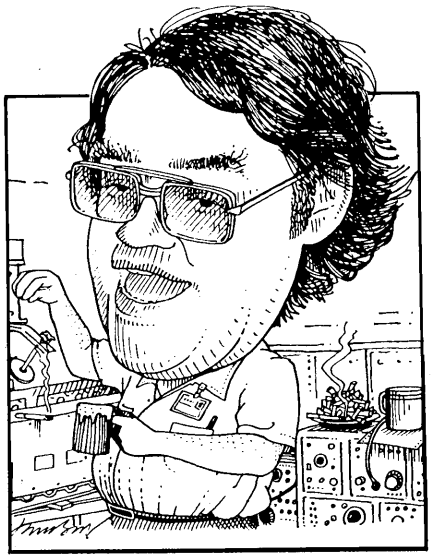
appears on the screen. We answer "CORRESPO" and the following command line is generated:

```
NULU -O CORRESPO -A
LETTER.TXT -X;ERA LETTER.TXT
```

NULU can accept all this on its command line, so it works beautifully. But, you ask, do you have to repeat the process six times for each of your files? With VFILER you do; with ZFILER you don't. Simply tag all your files, run the new "group macro" command, hit "I" again, and stand back and watch while one by one six command lines are generated and each file is inserted into CORRESPO.LBR.

There's more: Jay, in his usual brilliance, has thought of everything. The above technique is slowed considerably by time spent loading and re-loading NULU six times from disk. For those wanting to experiment with the resident GO command here is your opportunity. By preceding a command script with the symbol '$!' GO is substituted for the command verb (here 'NULU') on every run but the first. GO of course runs whatever is in TPA memory without having to pull it off the disk, so its speed is astonishing. The technique works flawlessly and is breathtaking to watch.

The latest on the Z280 front: I've had considerable contact with Zedux, Inc., the southern California manufacturer of the generic Z280 add-on board that I mentioned last time. They do in fact have a ready-to-run multi-tasking operating system called RP (Remote Partition) for their Accel 280, and I have arranged for them to come to San Francisco in mid-September to demonstrate their wares. They are urging attendees to bring whatever Z80 computers they use, and they promise to walk around the room and plug a board into the different machines so as many folks as possible can get the experience of a multi-tasking operating system running on their own computer. Promises to be quite a night. ■



Tools for Tyros

by Mike Allen

AS you can see from my new address I have just completed another move. I am a Field Engineer with a large electronics firm and moving comes with the job. I like the Southwest and I think that I'm going to like Las Cruces, a town of about 45,000. My biggest complaint is that PC-Pursuit is long distance from here,El Paso, TX. That will cut down on my MOR and BAMDUA BBS time a little.

I left Baltimore in mid-August and took a leisurely drive out here, stopping in Cocoa Beach, FL to visit my folks (they're doing fine, thank you. I'm going to their 50th wedding anniversary celebration in November.) and then on out here.

After finding a place to live and unpacking my MDs I started working on my promised column on NewWord and WordStar installation. I then received the disturbing news that this is to be the final issue of MOR. After recovering from the shock (although I had wondered how MOR could survive on so few subscribers) I filed away that half a column for future use and decided to use this column for some personal thoughts, prognostications and other strange stuff.

Right off the bat, I want to say that I've really enjoyed writing this column and even more the communications with you readers. (I must blush at this point-when packing up my stuff in Baltimore I found 3 letters that had slipped behind my desk and hadn't gotten answered. They will be, belatedly.) I have had some wonderful communications with the full range of Morrow users, from neophytes to obvious computer professionals, all of which were friendly, useful to the column and enjoyable.

What can I say about the demise of MOR. It, perhaps, was inevitable. There were only about 30,000 MDs sold and I'm sure many have been relegated to the basement, donated to charitable groups or just gone as Burnt Offerings to the Electron Gods. In spite of what Brian can do at Silicon Valley Surplus there just won't be that many "new" MDs arriving. MOR needed a certain number of subscribers to continue and when the decision was made to stop the number of subscribers was approaching half the survival number. Sypko, Serge and the whole staff, you did one hell of a job and I salute you. Thanks for the effort.

Well, where does that leave us, the dyed-in-the-wool MD user? All may not be lost. It seems that the remainder of the MOR subscription will be filled with another publication of a more general CP/M orientation. I don't have the full details, but I have volunteered to continue this column in the other publication if there is sufficient interest.

MOR will continue the MOR BBS and the MOR Mail Order business. That is a real plus. There are some really helpful people (George Borys and Rick Charnes to name a couple) who can be contacted there regularly and seem to be always ready to answer a question. I'll be checking in at least once a week. Morrow specific programs are available and a lot of technical information can be found both on the BBS and in the Mail Order items.

Is there a future for the MDs? I think so, at least for a while. These are very solid, utilitarian machines, something like the VW Bug. They "work fine last long time." They will do most anything you ask of them. No, they don't have color or fancy graphics and won't run those huge financial management programs, but how many of us use those things? Yah, I know, the color graphics is nice for playing games, but my reactions are too slow to do anything except get frustrated. (Besides, I have an Atari 800 for that!) But if I want to write or telecommunicate I'll stack my MD against the newer machines anytime. What if I want to program? C, Pascal, Fortran and Modula II compilers are available. Forth83 is in the Public Domain. There are versions of LISP and PROLOG around and of course the old fall back, BASIC, came with my machine as well as PILOT. As far as assembly language goes, ASM came with the floppy MDs and MAC/RMAC came with the MD-HDs.

There are HUGE numbers of mature, debugged, public domain programs available. None of this free/shareware stuff, but honest-to-goodness public domain programs. I still haven't seen anything to match the MEX and IMP modem programs on the commercial MS-DOS world.

PLOT33 allows you to make marvelous charts and graphs on most dot-matrix printers and is easy to use with Pascal, Fortran and BASIC programs. Public domain, of course.

Send your questions and comments to Mike Allen, 301 North Roadrunner Parkway, #109, Las Cruces, NM 88001.

BRADFORD and GEEFONT are two quite different programs that allow you to print text files in just about any imaginable font on a dot-matrix printer. It is hard to tell the difference between my MX-80 and an expensive letter quality daisy wheel printer using the "typewriter" font in either program. The "Old English" font in BRADFORD is lovely. GEEFONT allows fonts of different heights and widths. Underlining and bold is incorporated in both. Both programs allow you to design your own fonts. Both are public domain, although the guy who wrote BRADFORD wants $15 for a printed manual — it's worth it.

There is a massive bunch of general purpose utilities by Eric Gans in a file called EGUTIL51.LBR. I mean there is all sorts of stuff in there. There are many for text files such as a word counter, a find-and- replace utility that is much faster than the ^QA function in WordStar or NewWord. There is an index-maker for NewWord (and WordStar) files. Back-up and catalog utilities, file manipulation programs and on and on all written by Eric Gans. What this guy has done is taken his own personal "wish list" for CP/M, which isn't too much different from everyone else's, and implemented it. Then he gave it to the rest of us. Take a look at it. I'm sure you'll find at least a few things that you've been wishing you had.

There are "keyboard enhancers" to be had. What are they? Well, they allow you to redefine certain keys on your keyboard. What does this do for you? Well you could set up a function key to put your return address in a document. If you are a Pascal programmer you could set up keys to type those repetitive "begin" and "end" statements. Lots of uses. Of course if you have the latest rom and bios revisions you have KEY.COM supplied by Morrow which does some of those things.

There are utilities all of us should probably have. NULU, SQ/USQ and CRUNCH/UNCR are at the top of the list. SQ/USQ and CRUNCH/UNCR are file compactors and uncompactors. SQ/USQ (SQueeze and UNSQueeze) have been around for quite a while. SQ generates those files of the type "xxxxxxxx.yQy" while USQ puts it back to it's original form. CRUNCH generates the "xxxxxxxx.yZy" files and UNCR brings them back. CRUNCH/UNCR is newer and better but is only slowly gaining acceptance.

One of the reasons CRUNCH/UNCR is so slow in driving SQ/USQ out is NULU. NULU stands for NU Library Utility. (So programmers can't spell. Shades of the old Chicago *Tribune*.) What NULU will do is take a bunch of related files and combine them into one library file. That file will be of the "xxxxxxxx.LBR" type. Because of the way CP/M organizes files on a disk, the library file will be appreciably smaller than the sum of all the files contained within it. Now NULU was written after the SQ/USQ utilities, but before the CRUNCH/UNCR utilities. It has the ability to view squeezed files and to unsqueeze them. It can't do the same for crunched files.

The all time favorite utility and one that no one should be without is NSWP. This stands for New SWeeP. What does it do? Well, damn near every file manipulation that you can think of. A true general purpose utility. Copy, erase and rename files. Set (or reset) them as Read Only or SYSTem files and many other things. It, too, can squeeze and unsqueeze files, but can't handle crunch or uncrunch. Another reason CRUNCH/UNCR is slow in taking off.

There are two utilities for working directly with files on the disks, DU and ZAP. Both allow you do look at files directly on the disk and to change them. They CAN get you into big problems if you aren't careful, but for some things, like recovering corrupted files, they are indispensible. Another useful, but possibly dangerous, utility is UNERA which stands for UNERAse. It allows you to recover files that you have accidentally erased under certain conditions.

One of the weakest resident commands that come with CP/M 2.2 was the DIR command. It really doesn't tell you much. Super Directory (SD) was one of the earliest utilities in the public domain and has kept evolving. The latest version is 12.4. It sorts the file names and displays them that way, and checks any and all user areas. It will tell you what files are within a library. It tells you the size of the files and how much room is left on the disk.

There is a super public domain word processor, called VDE261. It is small and fast. Small enough that you can have several copies lying around of various disks, where ever you might need a word processor. It can make and use WordStar files or pure ASCII text files. Truly a nice effort.

There are database programs showing up in the public domain. I haven't tried any of them so I hesitate to make any recommendations. But they are there and at least worth a look.

How about CP/M it self? It has long been known that there were lots of things that could have been done better. The problem is to improve CP/M and still not lose compatibility with "vanilla" CP/M. The first thing that people started improving was the Console Command Processor (CCP) part of CP/M. That is the part of CP/M that takes the commands that are typed on the console and executes them. The most successful of these is ZCPR which is now up to version 3.3. Things that can be done using ZCPR33 are truly astounding. I won't go into them since Rick Charnes has been telling you about ZCPR for several months. What I will say is that it will run circles around anything in the MS-DOS world with its versatility and ease of use. ZCPR has become a standard against which all other CCP replacements must be measured.

Once the CCP had been fine tuned, the other part of CP/M which was supplied by Digital Research, the Basic Disk Operating System, or BDOS, came under scrutiny. Those same peo-

ple who gave you ZCPR now gave you ZRDOS. What do we have now? A CP/M compatible system that has nothing left that was written by Digital Research! Truly amazing. ZCPR33 and ZRDOS are available from the MOR Mail Order for any MD-2 or 3.

C. B. Falconer also has a CCP/BDOS replacement out in the public domain. It is called DOS+25. It, too, does many things that CP/M 2.2 couldn't. I have played with it and quite often use it in place of my standard ZCPR1 and DRI BDOS combination.

There is a new BDOS replacement out by Morrow User Carson Wilson from Chicago. I haven't had a chance to try it, but the initial results reported by Rick Charnes sound good.

Both DOS+25 and Carson's BDOS will support time stamping of files, a feature long desired by CP/M 2.2 users. There are other ways of getting time stamping most notably DateStamper by Plu*Perfect Systems. Most of these systems of date stamping can work without a clock, by putting whatever date you set the system to as the date stamp, but they work best with a clock such as the MACK being offered by MOR for all rev. 2 floppy machines and all the MD-HDs.

These changes to the CP/M operating system apply only to the MD floppy machines that run CP/M 2.2. CP/M 3.0 (or CP/M+ as it is also known) handled many of the problems that these replacements for CP/M 2.2 were designed to correct. ZCPR is still better than the CCP in CP/M 3.0. There is a replacement for the CCP in CP/M 3.0 called CCP104. It does improve the CCP in CP/M 3.0, but still not up to ZCPR. (Whenever you check into the MOR BBS you are seeing CP/M 3.0 with CCP104.) There is hope for a ZCPR for CP/M 3.0, but I wouldn't hold my breath.

Speaking of hardware, what can we add to our MDs? Well there is, of course, the MACK for the MD-HDs and the rev. 2 floppy MDs if you want a clock. George Borys has done a super job of making it easy to add quad density 5-1/4" and 3-1/2" drives to the MDs. Over 780k per drive. Steve Wartofsky has made it simple to put inexpensive 20 and 40 meg hard drives into the MD-HDs. Thanks to Brian at Silicon Valley Surplus you can get a rev. 2 motherboard to update your rev. 1 floppy MDs for a very reasonable price.

Let us not forget the Minnie-Winnie Hard Drive add on for the floppy MDs. Another interesting possibility that I haven't seen investigated is the SCSI adapter made by AMPRO. It is supposed to plug into the Z80 socket and, with some rewrite of the BIOS, allow support of SCSI devices such as certain hard drives. There is also the possibility of networking using SCSI. Another fertile field for some enterprising soul.

Perhaps the most exciting hardware news to come along is the new generation of Z80 compatible chips, namely the HD64180 from Hitachi and the Z280 from Zilog. There have been rumors and blurbs about add-in boards to replace the Z80 in the MDs using one or other of these chips and giving us vastly increased speed, memory and capabilities and still maintaining compatibility with all out CP/M programs. I haven't seen anything concrete yet, but there are a lot of really good people out there who are enthusiastic about these chips. I expect to see something in the not-too-distant future.

So, as you can tell, I don't think that CP/M and our trusty Morrows are ready for the boneyard. There are lots of exciting possibilities on the horizon and I think that if you keep in touch with the community (via the MOR and BAMDUA BBS is probably easiest) you might be surprised what is happening.

Keep in touch with me. The MOR BBS is easiest but I am also on CompuServe (PPN 74146,2717) and, if worst comes to worst the, USPS. Keep the faith. ◘

Is PCP's Number Up?

Jim Bottom

Low cost telecommunications via home computer is, once again, being challenged by the Federal Communications Commission (FCC). They have proposed to increase carrier access charges, a move that will likely kill computer-based services like Telenet's PC Pursuit (PCP).

Early in 1987 a similar proposal was defeated, in part, by Telenet and PCP users through a massive mail campaign to the FCC. Now, Telenet is asking users to prepare for battle once again. In a recent letter to customers, the communications company indicated that access charges would require expensive hourly rates for PCP, which now costs a flat $25 monthly.

"PC Pursuit customers and other computer users would be particularly affected by these access charges," the letter said. "PC Pursuit's current 'flat-rate/unlimited usage' service would have to be repriced on a per-usage basis, incorporating a $7-9 per hour access charge. It is doubtful that the service could survive at this inflated rate."

Telenet promises to provide customers with details on the FCC proposal when the commission's official Notice of Proposed Rulemaking is published. At that time, addresses and other information will be made available for public comment. Until then, Telenet asks for user comments to be posted to FCC.ISSUES on the PC Pursuit bulletin board, "Net Exchange," reached through normal PCP sign-on procedures.

Stay tuned.

For Immediate Release...

New TV Scriptwriting Program

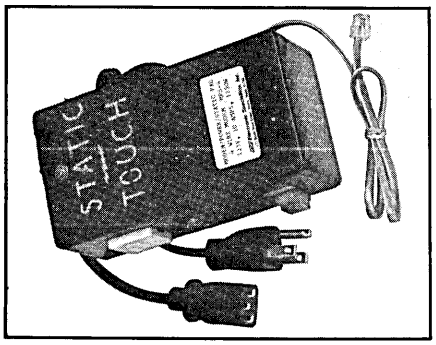
TVScript is a word processing aid, helping scriptwriters produce work more efficiently. The manufacturer claims that TVScript "increases your creativity by eliminating distracting formatting mechanics." The program allows two column television script entry in a "free-form," two-column format utilizing a few commands entered as the script is written. TVScript uses the editing power of word processors such as WordStar, NewWord or Perfect Writer to create the text.

For more information, contact (for CP/M-80) Comprehensive Video Supply Corporation, 148 Veterans Drive, Northvale, New Jersey 07647, (800) 526-0242. For IBM versions, contact SnowBird Software, 401 East College Avenue, Marquette, Michigan 49855, (906) 228-8705. The program costs $149 for CP/M versions and $89 for IBM.

Portable Computer Protection

Electronic Specialists has announced a new multi-threat protection device for portable computers. It counters AC power line spikes, electrical noise, modem line spikes and RFI plus static damage. Designed for the personal computer "on the go," the threats often encountered in hotels and motels are easily subdued. Providing both standard and CEE-22 electrical sockets, standard phone RJ-11 modular socket/plug and a static discharge plate, the model MPS(22)-2 costs $185.

Contact Electronic Specialists, Inc., 171 South Main Street, Natick, Massachusetts 01760, (800) 225-4876.



Good News for PC-Filers

KaftorWare Corporation has announced a contract signed with ButtonWare, Inc., to distribute a new CP/M version of PC-File, called PC-File 80, Version 9.1. It upgrades the original shareware eight bit CP/M PC-File Version 8.6 to include most of the facilities available in PC-FIle III MS-DOS Version 3.0. The program is a menu-driven, full screen input "flat" database program.

The program sells for $49.95, and registered PC-File users may upgrade to the new PC-File 80 software and documentation for $30. Contact KaftorWare Corporation, Box 1674, Chicago, Illinois 60690, (312) 965-8144.

MultiPath Offers 700 New Programs

MultiPath, Inc. has added 700 new programs to its library of public domain and user supported software. The collection now contains 3,000 of the latest CP/M, MS-DOS and PC-DOS programs, and is growing by about 1,200 titles per year. Program prices range from $1 to $9 depending on size. A directory with program descriptions is available for $6.

Contact MultiPath, Inc., Box 487, Montville, New Jersey 07045, (201) 575-5880.

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TOTAL	3,863	3,430

I certify that the statements made by me above are correct and complete.

Last Word With George

MANY of us have admired the honest, solid engineering from which our Morrow machines sprang. For this final MOR edition it seemed appropriate to have a last chat with George Morrow which happened on a recent Sunday afternoon.

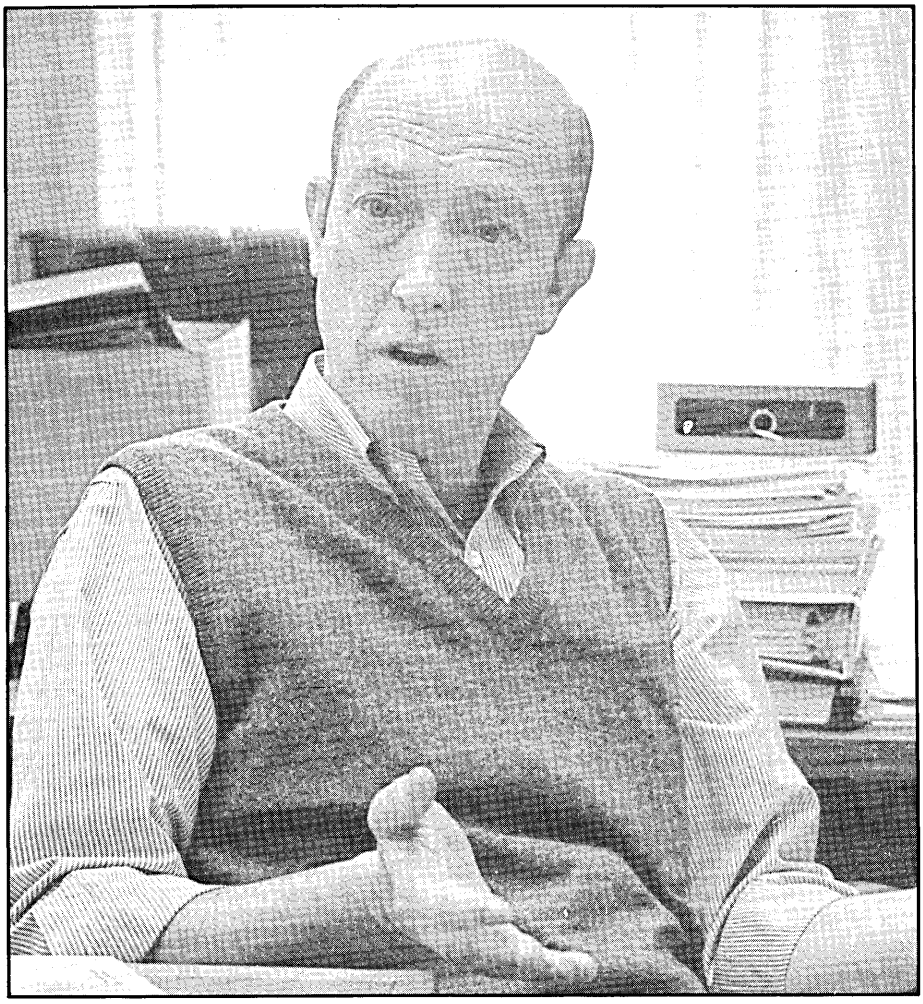
We found George in a relaxed mood, telling us what he had been up to the last years. First there was his new company, Intelligent Access, cofounded with Derrill Ticehurst, formerly of Quest. They were going to design and market fast disk controller cards, faster and much smarter than IBM s. But their company couldn't attract capital. Soon they were bought up by a larger Silicon Valley company, where George now is employed part time, for a limited period. He is keeping his options open.

What does he do with the rest of his time? Well, he did a computer TV show for a while, writes regular columns for *Computer Currents* and *Electronic Engineering Times*. There maybe a third column next year. He also does various kinds of consulting and is getting to know people in the legal field and venture capital world. Useful contacts, indeed.

Does he still use his old MD11? Oh, no, that was long ago. He has nothing against the MD11. Why, afterall, isn't it nicely designed? But he has this large record collection which he first catalogued on Personal Pearl. But when the database grew past 9000 records Personal Pearl got severe hickups. He then switched to dBase II, but after record 32768 it wrapped around on itself and destroyed records.

He transferred to a MS-DOS machine and repaired his precious data base using the famous Norton Utilities, something you don't have in CP/M. *(Wait a minute: We have SuperZap!–Ed.)* He really loves the interactive spelling checkers unavailable in CP/M. So the MD11 has been replaced with a covey of Compaqs, IBM clones and Zenith portables. Ah, the Zenith 183! Such a wonderful machine. A grandchild of the old Pivot, you know.

What does he like to work on most? Developing a product, that is really exciting stuff. Some day he may join or cofound a company and develop product again. It's got to be interesting; it always has been...



Zedux Makes a Z280 Board

The CP/M world is abuzz with the magical powers of the new Z280 chip. Scott and Peter Moore, a son and father team, founded Zedux Corporation to do something about it. They are developing a tiny card that replaces the Z80 and plugs right in the Z80 socket. Scott, all by himself, wrote a new Z280 operating system, so the Z280 becomes actually useful. The work is not finished yet, but soon will be. Stay tuned.

The Amstrad PC

Crossover CP/M - DOS Capability

Mike Allen

A while back I had been wandering through Sears, looking for shirts by Omar the Tent Maker, when I noticed in the computer section a machine that was being touted as a "Word Processor." What it turned out to be was a CP/M 3.0 computer. Unfortunately the instruction book for the demonstrator had been scarfed up by some unkind soul and I could learn very little about it. I was impressed by what little I could find out by "playing" and noted the manufacturer, AMSTRAD, in the back of my mind for future reference.

What I soon found out was that AMSTRAD was Europe's largest home computer manufacturer. They had recently picked up what was left of Sir Clive Sinclair's computer empire to consolidate their position. I also learned that CP/M is not dead in Europe.

Some time later Serge called me and wanted to know if I was interested in having an AMSTRAD to play with for a month so that I could write a review. I jumped at the offer. Then Serge told me that it was AMSTRAD's new entry into the IBM clone race, the PC-1512, that I would be reviewing. Well, I had already said yes and besides something to play with is better than nothing to play with.

I was completely prepared to hate this machine. I'm not much of an admirer of either IBM or MicroSoft. I had found the IBMs that I used at work less than satisfactory especially compared to my MD-5.

Finally two boxes arrived at my Baltimore hovel. I opened the first box, which said that it contained the computer, and stared. Boy was there a bunch of stuff in there including a mouse and 4 batteries. At the bottom of all this stuff I found the computer itself. It looked small and felt light compared to other clones I had used. Also I couldn't find a fan or an on/off switch. "Self" I said to myself "the time of last resort has arrived. Read the book!"

I rummaged around through both boxes and found one book. It was smaller than the Personal Pearl book than came with the Morrows. I sat down to read the book and find out exactly what I had. After reading the book, I still wasn't sure. The book left a great deal to be desired. More on that later.

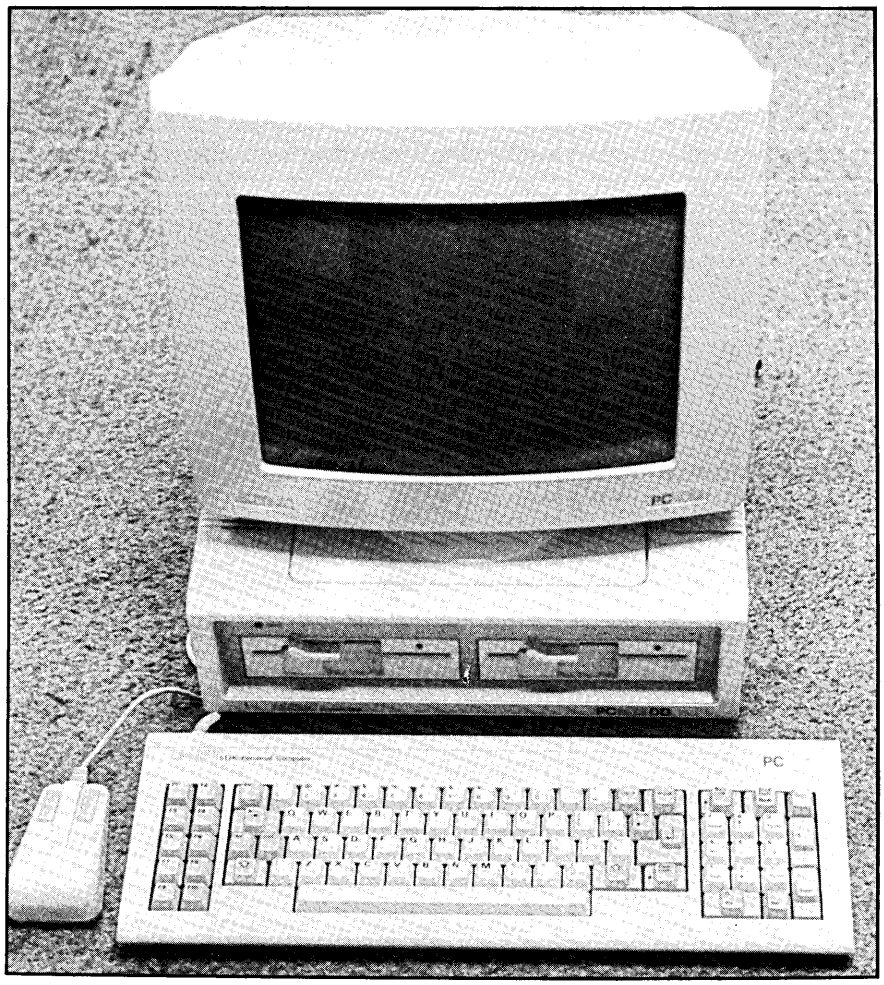
I finally figured it all out. This was a PC clone with 512k of memory, serial and parallel ports, battery backed clock, mouse, two 360k floppy drives, built in CGA and three expansion slots. I later found out that the 8088 processor was running at 8 MHz. Nothing about that in the book.

The supplied software was also interesting. It came with MS-DOS 3.2 which was expected. What was more exciting is that it also came with DOSPLUS 1.2 from Digital Research. According to the book, DOSPLUS should be able to handle any applications designed for MS-DOS as well as CP/M-86. Even more interesting is that it can run up to 3 CP/M-86 tasks in the background while running either a MS-DOS or CP/M-86 task in the foreground. What does this mean? One of the utilities supplied with the machine was a "tickler" program. I could

Send your questions and comments to Mike Allen, 301 North Roadrunner Parkway, #109, Las Cruces, NM 88001.

load dates, times and messages into the "tickler" and then proceed to run some other program. When the date and time came up the "tickler" would send out a tone and put a message on the bottom of the screen. It turned out to be very useful in a work environment. It kept me from missing several meetings when I got engrossed in a program.

Also supplied was Digital Research's Graphics Environment Manager, or GEM. This is the same program that runs on the ATARI ST series with Icons, pull-down menus, etc. It will run under either MS-DOS or DOSPLUS but is best under DOSPLUS. Two more programs were included to run in conjunction with GEM, a very nice structured BASIC with windows and graphics and GEM Paint, a fancy graphics program.



Back to the hardware. After unpacking both the computer and the monitor I discovered why there was no fan and why the computer was light. The power supply is in the monitor. The monitor mounts on top of the computer, covering the battery compartment and swivels left and right, up and down. There are two large, multi-conductor cables that attach the monitor to the computer, one for video and the other for power. The AC cable and the off/on switch are on the monitor.

The keyboard and the mouse plug into the left side of the computer. Ok for the keyboard but lousy for the mouse if you are right handed. The keyboard had a nice feel, if a little mushy for my tastes. Much better than the standard IBM keyboards. There was also a plug on the keyboard for a joystick. I didn't have the opportunity to try it out. One more nice little feature was a master volume control for the speaker. This can be really important in a work environment where there are many PCs beeping and booping and in general being obnoxious.

I also liked the way the expansion slots were laid out. Instead of going front to back with the external connectors in the back, they went from left to right. A simple slide off cover on top gave access to the slots. There was also a slide off cover on the right side that would cover any connectors on the end of the expansion boards but with a cutout to allow cables to exit.

After playing around for a while I took it to work since I had some programming to do and was having a tough time getting access to a PC. I ended up using DOSPLUS most of the time, but not GEM. If I had had a hard drive I'm sure GEM would have stayed in, but there was just too much disk swapping otherwise. The color was beautiful and actually useful as I will explain later.

It generated quite a bit of interest at work and many people wanted to try their favorite program on it. The only programs that I found that wouldn't run under DOSPLUS were those which check for the DOS revision level. One way or the other, I never found a program that wouldn't run. Yes, I tried LOTUS 1-2-3 and PCWrite. No, I didn't have a copy of Flight Simulator to try.

Most of the work I was doing was "C" programming. I had the MIX "C" compiler, editor and tracer. I've been using the MIX "C" compiler on my Morrows, but I tell you, I wish the tracer was available for CP/M. The tracer was truly impressive on this machine. All sorts of color coded windows with various things shown in various ways. I had always thought that color was a gimmick but the MIX "C" tracer showed me how useful it could be if used right.

Later on during the project I got a Compaq with a 20 meg HD to use.

Even though the lack of a hard drive slowed it down the AMSTRAD would hold its own. On programs that were not disk intensive the AMSTRAD ran circles around the Compaq. And after using the color with the "C" tracer the mono-chrome monitor was difficult to adjust to.

Yup, I hate to admit it but I liked this machine. It was quiet, cool and fast. Yielding to my inquisitive nature, I opened it up. It was nicely built with shielding all over the place. A service man might have a little problem getting past the shielding to work on it. I don't know since I stopped with removing the cover.

On the negative side the keyboard and monitor connectors are non-IBM-standard. You have to use AMSTRAD's monitor. I don't know if you could plug an EGA card into it since the CGA is built-in. I mentioned before the positioning of the mouse connector. The mouse worked well, by the way, and it was fun to play with GEM and GEM Paint using it.

By far the worst part of an otherwise excellent machine was the documentation, or lack of it. The single manual gave absolutely no technical information. The only way that I knew the 8088 was running at 8 Mhz, other than the performance, was from the AMSTRAD ads.

Most of the book was devoted to MS-DOS and DOSPLUS. It was disorganized, incomplete and in some cases wrong. Its coverage of the BASIC and GEM Paint was almost non- existent. Only a couple of pages on GEM Paint. Almost nothing useful on the BASIC. The coverage of GEM was spotty and confusing at best. Then they have the gall to tell you where you can PURCHASE manuals for DOSPLUS, GEM, GEM Paint and BASIC.

One of the tests I was going to run was to take this machine over to a friend of mine whose wife is a computer neophyte and see if she could get the machine up and running from the book. I didn't even try. She looked at the book and couldn't even tell what they were talking about. And this is a sharp lady.

It is really a shame. This is a nice machine with a reasonable software package. The price is right with the dual floppy version with color coming in at a little over $1000. The color version with a 20 meg HD is about $1250. These are good prices for a machine with the capabilities of the PC-1512. People using the manual are likely to give the PC-1512 a bad name since they will have one hell of a time realizing its full potential.

Bottom line. If you know a little bit about computers and are willing to kick out a few extra bucks to get the manuals that should come with the machine it is a good deal and a fine machine. If you want to use GEM get the HD version, otherwise you'll go batty swapping disks. Nice machine, nice price, lousy documentation. ■

The MOR Questionnaire

We would like to thank all of you who responded to the MOR Questionnaire in the August/September issue. Your input provided us with valuable information used to serve you in a variety of ways.

Overall, about 300 people responded. The results of selected questionnaire items are listed below.

(Percentages represent *portions of respondents who answered each particular question,* not a portion of all returned questionnaires.)

- 52 percent own modems.
- 24 percent use the Morrow BBS.
- 40 percent would pay a fee to use it.
- 13 percent are changing from CP/M to another system.
- 19 percent plan to change in the near future.
- 45 percent say they do some programming.
- 92 percent have ordered something (products, FLOBS, etc.) from MOR.
- 85 percent would like MOR to carry more products.
- 27 percent say they own an MD2, 50 percent own an MD3/3P, and 21 percent own an MDHD.
- 87 percent are male.
- 23 percent claim to be technical, with two percent claiming to be a "Total Techno-Whiz."

We randomly chose five questionnaire respondents to receive the entire set of FLOBs from the October/November MOR. The winners are:

Victor Boutwell, Topeka, KS
Audrey Cole, Chico, CA
Jack Eckert, Port Washington, WI
Darlene Nills, Lake Arrowhead, CA
Lloyd Schwartz, Alexandria, VA

Congratulations!

Adventures of a C-Faring Programmer

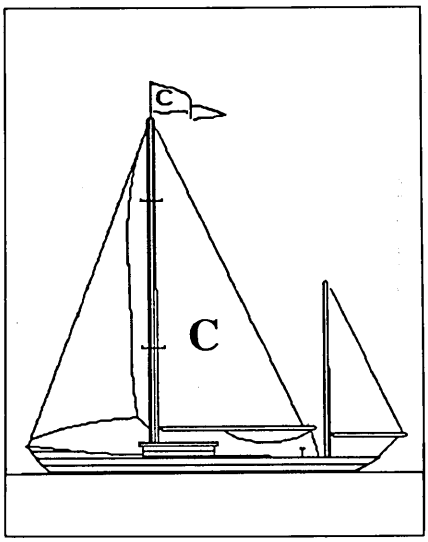
Learning To Love the C (Language)

Brian S. Vogt

IT all began during the fall of 1972. I was a junior in high school, and my math teacher decided to introduce the class to the computer. We were fortunate — our school had two teletypes hooked into a DEC PDP/8 time-sharing system. Imagine, a device that behaved like an IBM Selectric typewriter but was hooked into a computer! Remarkably, we had the patience to wait for that noisy device to slowly chatter out program output on those long rolls of pale yellow paper. Not surprisingly, we began programming in BASIC. The real power of computers dawned on me when one day I realized that I could save loads of repetitive manual calculations on my physics homework — I could have the computer calculate all those function points for me! In this fashion I was incurably addicted to programming. Much of my programming continued to be in BASIC. Even in graduate school, about nine years after that fateful introduction, I analyzed my laboratory data with multiple- linear regression programs written in BASIC on an IBM 4341 mainframe and a DEC VAX 11/780 minicomputer. My love of BASIC continued after graduate school, until one day during the summer of 1985 I read Stan Ahalt's review of TURBO Pascal in the very first issue of Morrow Owner's Review. I ordered it directly from Borland International and was hooked on it immediately.

Brian Vogt teaches university chemistry when he is not playing on his Morrow, which he has had since January, 1984. He lives in Greenville, South Carolina.

Life suddenly became sweeter. Pascal made structured programming a cinch. TURBO made it easy to develop code. The speed of the programs on my single-user Morrow blew the socks off everything I was accustomed to, with the possible exceptions of the big



systems I have used at night when there weren't many other people using them. It wasn't long until my programs became larger, more complex, and more powerful. I was in love with TURBO Pascal! To my great surprise, I found it rather distasteful to return to the formerly revered BASIC language. No matter, I had Pascal. I would be happy forever! My TURBO delirium would never cease! Little did I know that life and programming as I knew it were about to undergo a radical change. That same summer I got a summer job as a programmer and software engineer. I was supposed to start programming in a language called C on a minicomputer using an operating system called Unix. I sobered up quickly.

Some C statements, especially the looping statements, reminded me a great deal of Pascal. With a little imagination, even some of the syntax seems to be similar. After all, one just needs to remember that the left and right curly braces in C are used much like the "begin" and "end" statements in Pascal. It was no big deal to get used to the macro-processor called the C preprocessor. In spite of all this, my transition into C was terribly irritating. That inept C compiler would let me do things in my programs that Pascal would never let me do! All too often my programs would bomb. One time it would be a missing type conversion. Another time it would be using an "=" where a "==" belonged. Countless times a pointer would get messed up and my program would end up wandering aimlessly through all that wonderful Unix virtual memory. Stupid compiler! There were far too many things to remember. Why couldn't all programming be done in Pascal, especially TURBO Pascal? What's so great about C, anyway?

I have programmed full-time in C for two summers, and now love it. I do as much of my programming in C as is possible. The C language allows the programmer to get as close to the machine as he wishes. If you want to dig down into the guts of the machine and do neat things, C makes it easy. C syntax allows you to write very concise, streamlined code, thus eliminating much of the program fat necessary with other languages. C doesn't always force the programmer to follow strict rules. For example, you can switch back and forth between data types very easily in C. Pascal, however, is so

strongly typed that you will get "type mismatch" errors when you try to do some of the things that C allows. Herein lies one of the essential differences between C and Pascal: C is much more flexible. It is this flexibility that caused my initial difficulties with the language. I was accustomed to having the Pascal compiler check everything for me. A good friend of mine summarizes this succinctly when he states that "Pascal is C with training wheels." He is a professional C programmer, he works in the Unix environment, and he is NOT being derogatory. In fact, he likes Pascal. His statement is accurate, and it is akin to a statement in an old Spite Software catalog I have, in which the writer says that "Pascal assumes the programmer is usually wrong (requiring awkward constructs to get around the compiler) whereas C assumes the programmer is usually right and doesn't straitjacket you at all." Quite naturally, this flexibility allows you to do very bad things in memory. My experiences with messed-up pointers are but one example. Once you become used to not having the "training wheels" on your compiler, the power available to you more than makes up for the difficulty in learning the language.

Being able to link C object files together is another powerful advantage of C. With conventional Pascal compilers you always have the entire Pascal runtime library included in with your final executable file. For example, with TURBO Pascal version 2.0 on my Morrow, the minimum executable file size is 8k. The runtime library contains all the basic routines called by all of the functions and procedures referred to in the manual, even if the program doesn't use most of them. Different versions of TURBO Pascal on IBM compatible machines have larger minimum file sizes because the runtime library on those versions supports many functions that my machine doesn't have, like bit-mapped graphics and comparatively sophisticated sound capabilities. Unlike Pascal programs, executable programs written in conventional C can be constructed to support only those functions your program uses. C does this by linking object files together. After writing a program in C, the compiler converts the source code to assembler code. The assembler program then converts the assembler code to machine code, called object code. Another important point before we continue: C makes no distinction between functions and procedures. All routines in C are called functions. Some functions behave like Pascal procedures and others behave like Pascal functions. It depends entirely upon how your write them. Let's get back to the linker. I could easily code a function named "drawdash()" to draw a row of dashes across my terminal screen and put the code in a file named "drawdash.c." When I compile the program, an assembler file ("drawdash.asm") is produced, which is then assembled to produce my object code, "drawdash.o." Suppose I have a program called "junk.c" that for some reason needs to draw a line of dashes across the screen. I can then use the "drawdash()" function in the program, but the source code for the function is NOT included in it. The compiler doesn't yell at me, either. After my main program is compiled and assembled, the "junk.o" code is linked to "drawdash.o" by the C linker. Fundamental IO routines and other basic routines are found in what is called the C library. The C library comes with the compiler and is a group of object files that have been put together in one file by some type of object-file librarian utility. The user can also create his own libraries of functions. For example, I have a library named "mdt50.lib," which contains functions to switch video attributes, clear the screen, position the cursor, and so forth. I have another library named "draw.lib" that contains functions to, among other things, draw lines and boxes on the screen. When I invoke the C linker on "junk.o," I must specify which object files and libraries the linker is to search. At that time the linker goes through all of the specified object files and libraries, extracts only those functions needed, and links them together into an executable file named "junk.com." Once again, only needed functions are put into the final ".com" file. If the linker doesn't find all the necessary functions, it is either because I goofed when writing the source code or I forgot to link the proper files together. The linker approach to building executable files provides the programmer with two primary advantages over languages that don't work this way. First, if your functions are well-written, your compiler and assembler are efficient, and your C library was well-written, your code can be reasonably short and fast. Second, and to me more important, you only have to compile commonly used functions once. For example, if another program uses "drawdash()" I don't have to recompile it: all I do is link "drawdash.o" to my main program code. This advantage is particularly important when you start working with large programs. Although TURBO Pascal is an exceedingly fast compiler, it still gets in the way of program development when you have bunches of "include" files because every time you make even a teensy change in your code the whole program must be recompiled, including all of the "include" files! With C you can write and debug one function at a time. This means that if you have a program that uses fifteen functions and only one of them isn't working properly, all you have to do is modify that one function, recompile it, reassemble it, and relink it to all the others that have already been compiled and assembled. Once you get accustomed to the power of this arrangement you won't want to give it up!

Finally, I have a confession to make: I learned C not only on that wonderful Unix minicomputer, but also on my good old reliable Morrow. It's a great way to learn! Try it, you might like it. ■

MOR Products

Original ***User's Manuals*** published by Morrow.

Prod #	Description	Price
601	Correct-It User's Manual	8.00
602	CP/M 2.2 User's Guide (for MD2 & MD3)	12.00
603	CP/M Plus Guides (for hard disk MDs; 5 books)	35.00
604	MBASIC User's Guide	12.00
605	MD Companion Guide (for everyone who isn't compatible with CP/M)	12.00
606	MD User's Guide (for MD2 & MD3)	12.00
607	MD Hard Disk User's Guide	12.00
608	Morrow Software Sourcebook (1983 edition)	8.00
609	NewWord User's Guide	12.00
610	Pilot User's Guide	12.00
611	SmartKey User's Guide	8.00
612	SuperCalc User's Guide	12.00

Service Manuals to help repair or enhance your machine. (Even if you don't do the repair yourself, your repairman probably will need them.)

Prod #	Description	Price
700	Complete manual set (701-710)	80.00
701	Micro Decision Service Guide w/ schematics for Rev. 1.1 & 2.0 (for MD2 & MD3)	25.00
703	Hard Disk MD Service Guide w/ schematics	25.00
704	SA 200 Shugart Mini Floppy Drive Preliminary OEM Manual (for SS drives)	15.00
705	SA 455/465 Shugart Mini Floppy Drive Service Guide w/ schematics (for DS drives)	15.00
706	MDT20 Terminal Reference Guide	10.00
707	MDT20 Service Manual	12.00
708	MDT50 Video Terminal Service Manual	10.00
709	MDT60 Video Terminal Service Manual w/ MT70 Video Terminal Supplement	15.00
710	David Block's original MD Q&A book	6.00

ZCPR3 is a Morrow-bootable CP/M 2.2 replacement by Echelon for MD2s and MD3s. Complete with two disks and manual, the ZCPR3 kit provides an operating system superior to CP/M 3.0. For more information on the ZCPR3, see article in MOR Vol. 3, #5, page 34. Please indicate your ROM Rev. and your disk format (double-sided or single-sided) on the order form.

† For more information on any of the **Z Supplement** disks (Prod. 803, 806 & 807) send a SASE to MOR, attn: ZCPR3 Dir.

Prod #	Description	Price
801	ZCPR3–including: Z-System, 85 utilities, help disk and *The Z-System User's Guide.*	59.50
803 †	ZCPR3 Utilities source. Five disks with the source code to some of the latest Z-System utilities.	35.00
804	ZCPR3: The Manual	20.00
805	Out-Think–Outline processor	45.00
806 †	Z-System source code. Four disks with source code to some of the system segments and BIOS.	25.00
807 †	ZRDOS. Assembled ZRDOS without ZCPR3 plus HLP files.	40.00
808	SuperCalc 2 — Disk and manual. Ideal for Morrow owners who want to up grade from LogiCalc.	39.00
809	MDHD Revival Kit — Three replace ment CP/M distribution disks for ad ding other hard disks to your MDHD. (See MOR, Vol. 4, #5 p.23) Contact the office for further ordering instructions.	24.00

ROM Upgrade Kits contain instructions, ROM chips and software—everything you need to bring your machine up to date with Morrow Design's last ROM release. (Some software that won't run on older machines *will run* with an upgrade.)

Prod #	Description	Price
901	ROM Upgrade Kit for MD3 (Rev. 3.1)	35.00
902	ROM Upgrade Kit for MD Hard Disks (ROM Rev. 1.9, BIOS Rev. 2.0)	45.00
903	Mike Allens' Clock Kit (MACK).	64.00

Floppies of the Bimonth

With every issue of ***MOR,*** we compile floppies that contain public domain programs, short articles and other interesting tidbits. Each **Floppy of the Bimonth (FLOB)** costs $8.00. Listed here are the **FLOBs** for this issue. A list of all **FLOBs** to date is available upon request.

A Note on Using FLOBs

Some of the files on **FLOBs** have been compacted to allow us to put more on a **FLOB**. When you receive your **FLOB**, you will need to return these compacted files to their original form. The last three letters in a filename (known as the extension), will indicate how the file has been processed. To aid in determining how the varous files have been processed, symbols preceding the filename indicate what you will need to return the files to their original form. A list of the symbols follows:

✓ Indicates that a file has been squeezed. NSweep (on FLOB #2401), UNSQ, and a host of other programs will unsqueeze files for you.

✙ Indicates that a file has been crunched. UNCR (on FLOB #4601) or LT (a library utility on FLOB #4507) will uncrunch files for you.

◊ Indicates that files necessary to this program are in a "LBR" or library file. You will need to extract the files before using them. Additionally, files within a library file are often squeezed or crunched. NULU (on FLOB #3301), LU, and LT (on FLOB #4507), are a few of the programs that can extract the files for you. (LT has a built-in uncrunching facility).

For your convenience, each October '87 disk contains LT.COM, UNCR.COM and UNARC.COM, if needed. For complete documentation of these utilities, please purchase the appropriate FLOB (see notes above).

Prod #4601 — December '87 Disk #1

Included in the library file CRUNCH24.LBR, is UNCR.COM in its ready-to-run form. UNCR.COM will allow you to uncruch any of the other files that you may need in that library.

◊ ARTIST.LBR	Graphics design for Kaypro computers
◊✙CRUNCH24.LBR	Latest update of Crunch utility
◊✙FANFLD11.LBR	File formatter; radically reduces the amount of white space in a file, saves printer paper.

Prod #4602 — December '87 Disk #2

◊✙FILECRD46.LBR	Filecard free-form database system
✙PDFT1087.LZT	Short list of Public Domain File Transfer systems as of 10/87

Prod #4603 — December '87 Disk #3

◊✙FIRE12.LBR	Update to RESTORE; works on both CP/M 2.2 and CP/M 3.0
◊✙RCPM0987.LBR	Remote CP/M Systems list as of 9/87, including some utilities and extra information
◊ SETDEFLT.LBR	Utility for changing CPM3.SYS without re-compiling system software

Prod #4604 — December '87 Disk #4

✙RCPM1087.LZT	Complete Remote CP/M Systems list as of 10/87
◊✙SD124.LBR	Latest (last?) update of Super-Directory.
◊✙VDE261.LBR	Latest (last?) update of VDE, fixes bugs and adds features

Prod #4605 — December '87 Disk #5

◊ WEATHER.LBR	Weather forecaster in MBASIC. Surprisingly sophisticated
◊✙WSTIPS.LBR	Tips on using WS4 (written for the OBM release, but most apply in the CP/M version. Also includes useful templates for invoices, memos, etc.
◊✙Z80DOS10.LBR	BDOS replacement combining features of DOS+25 and SUPRDOS2

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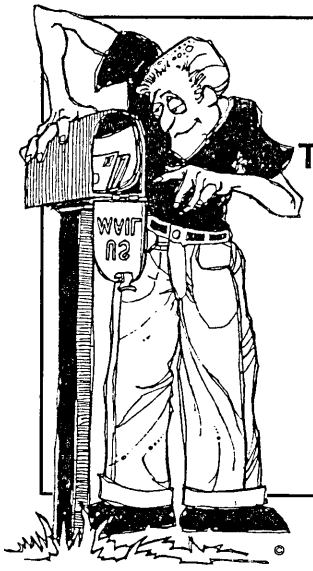

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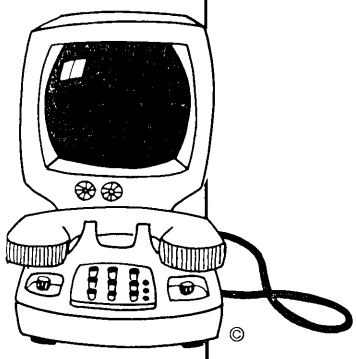

Is There Life After MOR?

The Morrow Owners' Review has recently suffered a sudden large decline in subscription renewals. Additionally, the MOR mailorder department doesn't generate income the way it used to. Display advertising has slowly ebbed away over the months. Now we are at a point where MOR can't afford an office and a staff anymore, and that is why this very issue is MOR's last.

This doesn't mean, you faithful, die-hard Morrow user, that you will be abandoned. The MOR mail order department and the MOR BBS will keep operating indefinitely.

But what about your subscription?You have several choices.

One: You are generous, you are going to switch computers anyway, or you lost interest in MOR already. But since MOR did a nice job while you enjoyed it, you'll forgive MOR the remainder of your subscription. This will enable MOR to pay the remaining bills and keep the BBS going. We say farewell and we go different ways. This is the default choice: If we do not receive your response to this by January 1st, 1988, we'll assume that this is the option of your choice, and we thank you.

Two: You intend to keep using your Morrow and you'd like to have a CP/M newsletter, preferrably a Morrow user dominated one. The remainder of your subscription will in 1988 be fulfilled with a new publication, produced jointly by BAMDUA and BAKUP (a Bay Area Kaypro group). This newsletter will be published on a bimonthly basis (six issues per year), just like MOR. It will look very much like the current BAMDUA newsletter, using a booklet format of 8.5" by 5.5". When your MOR subscription runs out, you can join BAMDUA to keep receiving this newsletter.

Three: You would like to receive the MOR-ATLANTA Newsletter, instead of the BAMDUA/BAKUP newsletter. Other than that same deal as number Two. The Atlantans publish a very well done 8.5" by 11", 12 page monthly newsletter. The remainder of your subscription will, in 1988, be fulfilled with this newsletter on a bimonthly basis. If you want the issues inbetween then contact MOR-ATLANTA Users' Group for a special arrangement. They will welcome you warmly under the easiest conditions. When your MOR subscription runs out, you can join the MOR-ATLANTA Users' Group to keep receiving this newsletter.

Four: You would like to receive *MicroCornucopia* magazine for the remainder of your MOR subscription. Published bimonthly by David Thompson in Bend, Oregon, *MicroCornucopia* is a bit more technical than MOR was and covers mostly MS-DOS oriented machines in addition to a bit of CP/M. A good choice if you go MS-DOS, while holding on to your Morrow at the same time. The *MicrCornucopia* folks are very friendly and competent, and would love to have you join them. When your MOR subscription runs out they will invite you to renew with them.

Five: Several large magazines have expressed an interest in fulfilling MOR subscriptions for those of you who are interested. But, because they are so large, they take a long time to decide to go ahead with it. Considering MOR fulfillment are: *Dr. Dobbs Journal, PC World, Macworld, Computer Shopper, PC Magazine* and maybe some others. If this interests you, indicate your choice below and MOR will get in touch with you in January '88 or earlier to tell you what is available. If none of these publications comes through you'll get the newsletter under option Two, and MOR will inform you.

Six: You would like a bundle of back issues of MOR, still missing in your collection. If you don't have 23 MOR issues, you don't have them all. If you select this option you'll receive as many back issues as your remaining subscription allows. Look at your label: If it says JUN88 in the upper right corner, you can claim three back issues; if it says DEC88 you can claim six. Get it? Don't forget to tell us which back issues you'd like. If you do forget we'll send you our selection (surprise, surprise!).

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- ❑ 4. I'd like to receive *MicroCornucopia* magazine.
- ❑ 5. I'd like to receive one of the large magazines; if these deals don't materialize, I'll receive the BAMDUA/BAKUP joint newsletter.
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- ❑ 7. I'd like a bundle of FLOBs (specify which ones in the space provided).

CP/M as a Business Tool

Still Effective in the Office

Ken Grymala

IN the last couple of years, especially since Morrow disappeared, the question of whether CP/M lives has been debated many times. Instead, shouldn't we be asking whether there is still a place in small business for CP/M computers?

I don't really believe that CP/M can die at least not for many many years. I liken CP/M computers to the small Ford farm tractors that were built over thirty years ago. There are still many thousands of them working hard for their owners. Most of them have had several owners in their long lifetimes. These tractors were extremely good utility tractors that were easy to run and easy to fix. Even after all these years, parts are still available for them. For the small farmer, these old tractors will do just as good a job at plowing, grading, mowing, spraying, or pulling as any of the shiny new tractors.

The good quality CP/M computers should have long and similar lives in small business. And like the tractors, these computers probably will, and should, have several owners over their lifetimes. Word- processing, spread sheet calculations, and data manipulation are really no different on a CP/M computer than they are on the newest of computers meant for small business.

If we examine what most small businesses use their computers for, it probably breaks down to just a very short list. Most of the applications can very easily be handled on a CP/M computer. Word-processing usually tops the list, followed with spread sheet calculations, data bases, and book keeping. Most small businesses, whether they are farms, churches, small insurance agencies, or service type businesses have needs for few other functions. For other applications, there were thousands of CP/M software programs written, and many are still available through dealers.

For word processors, it is still hard to beat Wordstar. And every Morrow owner is entitled to an $89.00 upgrade, directly from Micropro, for the latest version. The latest version is better than ever.

Lotus 1-2-3 may be the rage in the IBM PC world. Nevertheless, my favorite spreadsheet is still Multiplan, and that's what we have on the Morrow. Supercalc, which came with most of the Morrows is also an extremely good spreadsheet program. Lotus permits fancy graphics and very large and complex spreadsheets. But how many small businesses really need either of these features? We sure don't need these features in our small business.

Just about the only data base I use is PC-File, a public domain program. We use the CP/M and MS-DOS versions. We have others, such as Personal Pearl, dBase II and dBase III. However, all we really need to do is work with are simple data files that can be sorted, matched, arithmetically manipulated. For larger applications, there have been thousands of dBase II application "templates" written for CP/M. These cover nearly every business you can think of. Many of them are in the public domain.

All of our book keeping is still on the MD-11. We use James River accounting software. It too is very adequate for a small business and it is still available.

In our small office we have an MD-2, an MD-11, a PC/XT clone, and a Toshiba 1100 Plus laptop computer. Up until a couple of months ago, the clone and the laptop were used to do almost exactly what the MD-2 and the MD-11 had been doing for a long time. Because I must work with many outside companies, I needed program compatibility with my clients. And recently I began to do all of my drafting on the PC. Now I'm even doing desktop publishing on the PC.

I'm watching my clients go through the same thing that we have been going through. The CP/M Televideos, CompuPros, Zeniths, Tandys etc., are still working hard every day, but they are slowly losing their places to newer

Ken Grymala is a former columnist for MOR. He lives in Virginia.

computers. In the past couple of years there have been a lot of used CP/M computers hitting the market. We're going to see a lot more in the next couple of years as corporations start to liquidate these computers in large quantities. They will be sold for next to nothing.

This may sound like CP/M is quickly dying. However, I don't think that is the case. I truly believe there is a place for CP/M computers in small business. Now is the time for businesses that need basic computers to get setup for a very low price. For those businesses that find CP/M adequate are going to be able to expand their computer base for very little cash outlay.

If you feel that you've outgrown your CP/M computer, feel satisfied that you have gotten excellent service and an excellent education from it. You may not get much money for it, but also feel satisfied that it can provide thousands of hours of satisfaction to an aspiring young writer, a rising entrepreneur, or a struggling volunteer agency.

If you give up your Morrow, help make the new owner feel comfortable by sending all of your back issues of MOR with the computer, and any newsletters that you may have. Most of all, remember to bundle up all of the manuals and all of the software you have with your computer. The computer can have a great second life with a new owner.

Good-Bye and Happy Computing!

Morrow Laser Printing

They Said I Couldn't. But I Did.

Lester Schonbrun

I use NewWord on a Morrow to do legal word processing. Some briefs are over 200 pages, and heavily footnoted. Until December, 1986, we used a Silver Reed printer with an output of one page every two to three minutes, which added up to eight or so hours of pure printing time for one complete letter quality draft of lengthy appeal.

With a deadline approaching, we shopped for a laser printer. I was told bluntly by personnel in more than one store that I couldn't hook a laser printer to a CP/M machine. It just wasn't done. Other stores said we could, but how did I know who was right?

Encouraged by the NewWord "Install" menu, which has an HP Laserjet option, a software technician from the NewWord developers and the assurances of the MicroAge salesman, we bought an HP Laserjet.

MicroAge made us a new printer cable, and then I brought the 50 pound machine back to the office, inserted the toner (much like a copier) and fumbled with the switches. After a few tense moments, paper seemed to come flying out. The change from one-half page to eight pages per minute was exhilarating. *But wait — there was something wrong.* My laboriously formatted brief was now breaking pages at all the wrong places, in the middle of footnotes, etc. *What the ----?* After a search in the manual, I learned that the HP assumes a 60 line page length. Well, that's fine for new files, but what about all my old files that were based on 66 lines? The HP manual deals with this, but not in any way I could translate into English. It gives a bunch of control characters that change the assumed page length to 66, but doesn't explain clearly how to transmit these codes to the printer.

After hours of trying to input the control codes, a bright idea occurred to me. Change the default margins in my installed NewWord! The normal convention is a 66 line page with eight spaces at the top and three at the bottom set aside for margins. That meant 55 lines of actual printing per page (66 minus 11 lines of margin). Since the HP assumed a 60 line page, I changed the top margin to three and the bottom margin to two, just using ordinary dot commands, and *damned if it didn't work.*

I can now print a 200 page brief in half an hour. It feeds single sheets just like a copier, and it is like the copier also in that there is no typewriter sound — instead, just a very loud fan. However, I don't mind waiting a minute for it to warm up when I want to use it, so I avoid the fan noise by shutting it off when not printing.

Investing with Your Computer

Identifying Market "Swings" with Your Morrow

Jules Brenner

ON April 21st, 1987, newspapers heralded a 61 point rise in the market, as though fears of interest rate hikes and budget deficits were over. Would anything *less* warrant front-page placement?

The following day, the market retreated 55 points. The news, this time, was relegated to business sections.

This phenomenon of magnifying market movements out of all proportion to their true significance is of no value to anyone except the media — who all too often make news simply by reporting it as they do. Their thirst for something to report exceeds their ability or desire to properly analyze — particularly in areas where editorial training is limited. Unfortunately, the blind may be led by the blind. The novice investor might make a very wrong trading decision based on such media magnification.

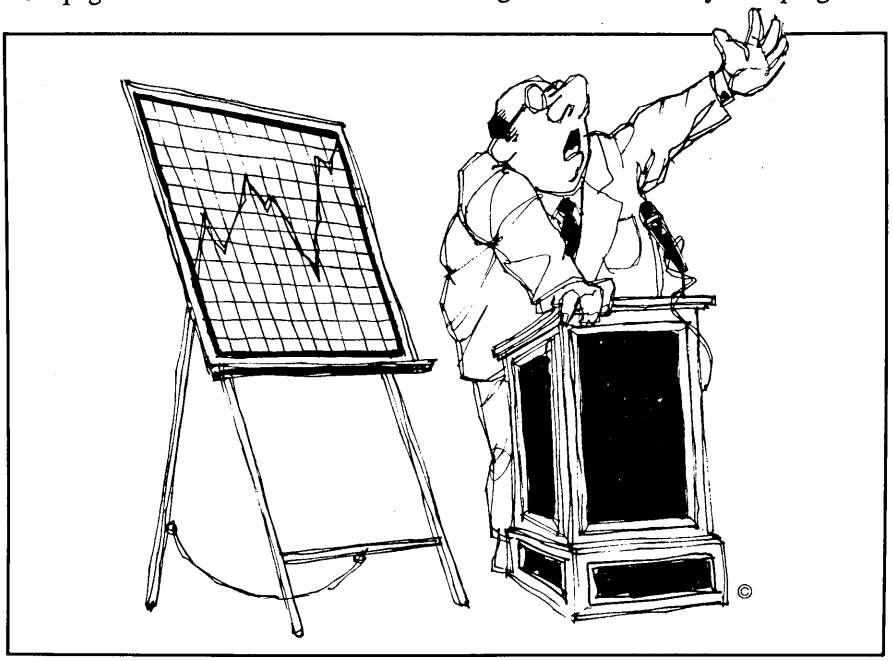
If you are an investor who has been perplexed in the past by such hype, if you have a Morrow, and if you want to weed out the truth with actual knowledge of the marketplace (with the help of available and appropriate software), this information is particularly for you. First, let's see what an investor *should* look for.

If one were to look only at the market's closing prices, the 61 point move would appear sizable (see Chart 1: the third "+" sign from the right to the second one). On the other hand, if you consider the high/low range day-by-day, the significance is buried in the typical daily fluctuation. While closing price is undoubtedly of particular significance, complete perspective of a market's status requires the full day's trading.

A brief analysis of Chart 2 reveals that closings occur at or near the top, bottom and mid-range randomly. What occurred on April 21st was a closing at the high following a closing near the low. The *apparent* move, in these times of fiscal uneasiness, made it appear to the City Desk as though something portentous was happening. The subsequent trade range on the 22nd shows how foolish it was to make a front page issue of the matter. There is a lesson in this.

It's not only a matter of not listening to the boy crying wolf. As we all know, the real wolf may yet arrive. Perhaps the inference should be that you should always evaluate who's doing the crying. Better than that, though, is being able to do your own evaluation, with ready availability of market data and a means with which to regularly chart that data.

Charts that can reveal what's really going on in the markets should be composed of high/low/close bars and at least one more critical component of analysis — volume. As a measurement of trend, the relationship between these data values opens up a broad array of powerful technical tools with which to look for patterns and emerging trends that allow you to prognosti-



Jules Brenner is a market analyst living in Hollywood, California. He has written articles for **Skin Diver** *magazine and also works as a cinematographer in the film industry.*

cate and trade with an increasing success rate.

Of course, it's not simply a matter of generating a chart on your screen. The principles of interpretation are an integral part of success and must be learned. But it doesn't take a Master's degree in statistics to learn these principles. It's largely a matter of making the effort, and a little money in the market does wonders in providing the motivation to make that effort.

Looking at the high/low/close bar chart of the Dow Jones Industrials as of April 22nd, what do we see? Going back to January, there was a steep rise followed by moderating ups and downs in a still ascending pattern. The truly steep drop on March 23rd was the first real sign of trouble, even though its range and steepness might have been partially caused by programmed trading. The price returned to the high level of before, but a higher high *was not made*. Notice that during the rally (upward) phase of this market through January and February, corrections downs were *always* followed by higher highs. This time was different, and this difference is what analysts (and editors) should be looking at. Is the market running out of steam? Are we in for a drastic correction or, worse, the beginning of a bear market? Let's look for more evidence before we panic.

The next event of particular significance is the mid-April low. The fact that it is *lower* than the March 23rd low supports the caution raised by the "double top." Now, rebounding off that low, we seem to be in a corrective rally upward, but caution remains in place until we get a higher high. The pattern being described would portend that the high of April 22nd could be the last of the highs for a while. In fact, if I owned an option on a market index, I would have taken as much as I could have gotten for it on the 22nd. The downward-looking progression is too much to sustain any objective hope — headlines about one-day up moves notwithstanding.

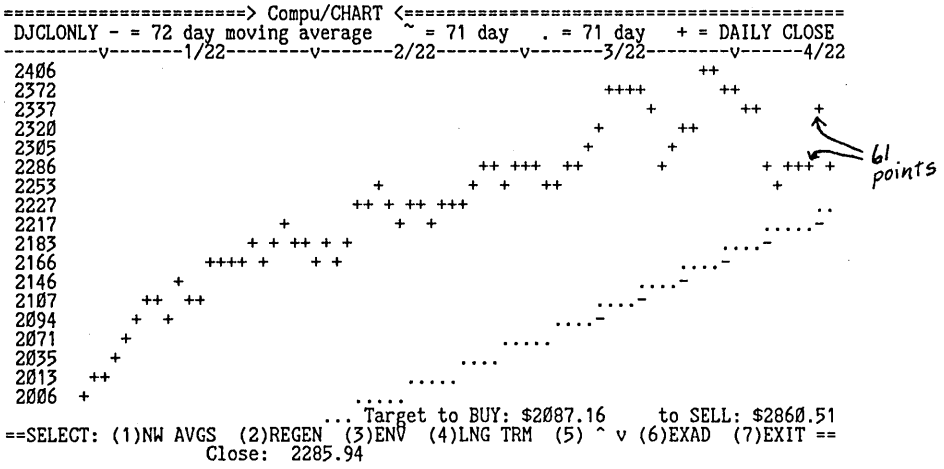
Before making my move to sell, mind you, I'd want to see whether volume patterns support this interpretation. If, while price was going down, the volume was creeping up (accumulation), I would not be so hasty to sell. If volume was descending with price (distribution) I would know that others interpreted the market as I did and were taking whatever profits they had.

The isolated phenomenon of a one-day 61 point rise in closing price can be seen in this more complete context for what it is, and what it isn't. People who read the headline and jumped in to buy are now licking their wounds. On the other hand, those who invest and who also own Morrows or other computers can put themselves in a position to immediately distinguish between the *phantom* of a buying opportunity and the real thing.

jerk reaction to an *apparent* 61 point move, it isn't, by itself, enough.

Minute-by-minute, markets are in flux; they are among the most dynamic environments on earth. To get a handle on the probabilities for the future so that you can capitalize on it, you need to look further than the headlines. Surely you need to look at more than a few days' closing prices to identify that crucial event known as market "swing." What's even more necessary to identify: IN WHICH DIRECTION!

To do so correctly, even once, could be profitable enough to pay for the software and send your child to college.

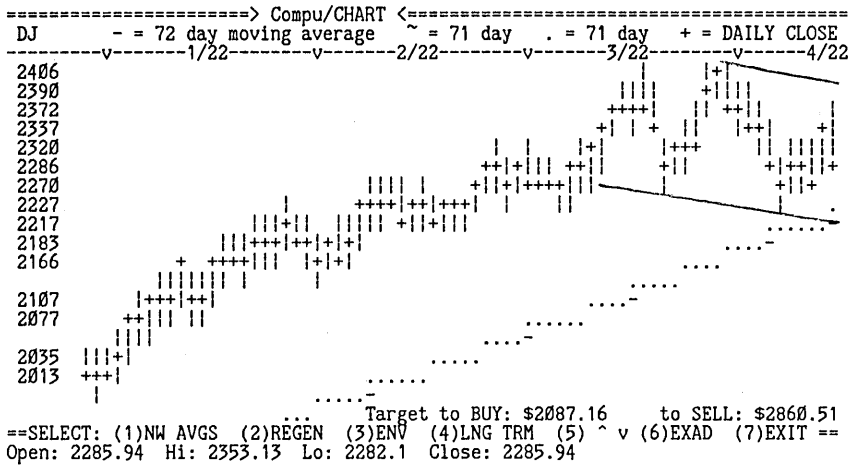


Nothing is better suited for this purpose than the computer. The creation of analytic tools is a matter of number crunching with tested, predefined formulae — a task for which the computer is eminently well-suited.

Pattern recognition is at the heart of defining market trends, be they indices such as the Dow Jones Industrials, individual stocks, commodities, funds, bonds, T-bills, M1, your business receipts or whatever. The path of closing prices is one of many patterns to watch. As we've seen from the knee-

Interpretation of Charts

Chart 1 is a closing-price only chart of the Dow Jones Industrials covering the 3 1/2-month period from early January to April 22nd, 1987 on a daily basis. The symbol used for closing price is the "+" sign. The last (rightmost) symbol occurred on the last day of that period; the one before, the preceding trade day, and so on. The chart is generated by proportioning each price value (high, low and closing price) onto its appropriate line, taking the full range into consideration. The prices in the left column are the last actual prices for the value on that particular line, so may not be evenly incremented. Within the range assigned to each line, however, they appear in



correct relative terms. The dots and dashes below the price line describe on of the moving averages (not discussed here).

Chart 2 covers the identical period, but with the addition of high and low prices for each trading day. The vertical bar is the symbol for the non-close values within each trading day. Note that the prices in the left column, as well as the placement of the closing price symbols, may proportion themselves somewhat differently than when only closing price is considered. The idea is that whatever range of prices must be encompassed will be proportioned within the space of your CRT. The line drawn between the two most recent lows shows support level and a change in trend direction from the pattern which persisted earlier. The line paralleling it above is the resistance line which, if penetrated, would signal a resumption in the bull market. Until that occurs, we should expect to remain in a corrective phase, and be sensitive to the possibility of a long term correction or a new bear market. The fundamental key to this may we reside in the dollar decline and the deficit. The author's expectation is that these negative influences will *not* bring on a bear market in the near term. It's interesting to note that the pattern indicated by the high/low/close chart is essentially repeated in the purely closing price trail. Nevertheless, the full price range provides the more complete and objective picture between the two. ■

Charts generated by the Morrow version of Compu/CHART 3.

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StarJet

A Printer driver That Just Might Answer Your Problems

Ben Cohen

StarJet
Control-C Software, Inc., 9205 Southwest Gemini Dr., Suite A, Beaverton, Oregon 97005
Send Inquiries to: Control-C Software, Ltd., 55 Peach St., Wokingham, Berkshire, UK RG11 2DW
Telephone 734-780019

The Problem

The Hewlett Packard LaserJet was the first moderately priced laser printer on market. The LaserJet, with a list price of $3,495.00, brought laser printing to the masses. Soon the street price was $2,700 and today it's under $2,100. As a lawyer, I sometimes print long contracts or court briefs. I jumped on the LaserJet at almost the first chance. Instead of a page in a minute and a quarter on my daisy wheel printer, I thought I'd be able to get eight pages a minute!

WordStar is not up to LaserJet speed ... it sends text to the printer at four pages a minute. There is no printer driver for CP/M versions of WordStar, so utilizing the many fonts and capabilities of the LaserJet is next to impossible. A public domain program, ANYCODE, allows the embedding of the long ESCape sequences required by the LaserJet, but neither WordStar nor NewWord recognizes these as embedded commands and it is necessary to remove them before revising and reformatting, and then put them back in ... not my idea of fun.

NewWord, the WordStar clone bundled with many Morrows has a LaserJet printer driver, AND it sends most text to the printer at a rate of eight pages a minute. It supports most of the features of the LaserJet and its various font cartridges, including proportional spacing (PS). NewWord, however, can't justify proportionally spaced text.

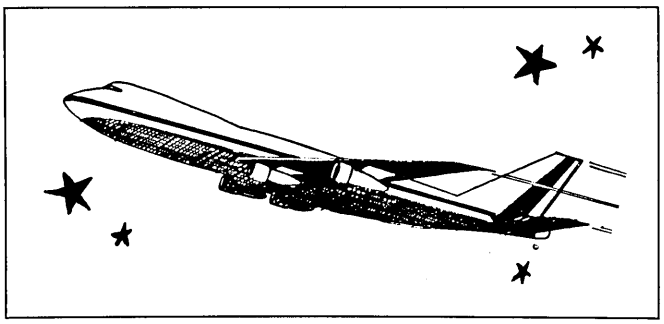
Ben Cohen is an attorney practicing in Chicago.

StarJet: A Solution

I kept watching INFOWORLD for LaserJet printer drivers ... all were for MS-DOS computers. Finally came an announcement of a program, StarJet, for CP/M (as well as MS-DOS) computers. StarJet prints justified proportionally spaced text and does boxes, horizontal lines and vertical lines. You can combine graphics with text. I'm using it on an Osborne Executive, which has CP/M 3.0, and a friend is using it on a Morrow MD-3, with CP/M 2.2.

StarJet prints on each line what you see on the screen on that line, neatly justified and proportionally spaced. It achieves a near-typeset look and you can tell just how many lines your text will be before printing.

You still have to be careful about a few things. Large blocks of text in all caps will be all crunched together, or in extreme cases will extend beyond the end of the expected line length. But with boldface and italics available, use of all caps text is hardly necessary.



Using StarJet

StarJet is a post-processor for WordStar files. The term means what it says: a separate program that processes files after you have created them with WordStar. It works equally well with NewWord files. From the CP/M prompt, simply enter "StarJet <filename.typ><cr>". StarJet confirms that any required font cartridge is in fact installed, and then pro-

ceeds to print the file.

StarJet isn't as fast as NewWord, or even WordStar, but it's doing much more to justify the text. Depending on the amount of text on a page and whether or not you've used graphics, it may take as long as 90 seconds to print a single page.

Creating Files to Print with StarJet

StarJet recognizes most WordStar/ NewWord dot commands and embedded print controls. Merge print dot commands are not recognized. To merge print files with StarJet you first merge print the file to a disk file, then print the disk file with StarJet.

StarJet also adds its own special "dot-star" commands, similar to "dot commands," utilizing a dot and an asterisk or "star." The dot-star commands are listed below (for simplicity's sake I have omitted the optional parameters).

.*AF select all fonts
.*BF select bold font
.*EF emphasis font
.*FF footer font
.*HF header font
.*TF text font

. *BX draw a box
.*SH draw a shaded box
.*HL horizontal line
.*VL vertical line
.*RD set raster density

.*CE center lines
.*CL print as multiple columns
.*TW set text width
.*RD set raster density
.*RJ right justify

.*EP end page when printing
.*SP start page when printing
.*NC print multiple copies in page order
.*SC print multiple copies of each page

.*LC load paper from the cassette
.*LE load an envelope
.*LP load paper manually

.*CC concatenate files when printing
.*DM display a message
.*OF output formatted text to a file
.*PC print a character non-proportionally
.*US continuous underline on or off
.*WT wait for carriage return
.*** send characters sent to printer to screen

There is a special commands for columnar text, which can be a problem with PS since characters vary in width. Extended symbol sets provided by some LaserJet fonts are accessible. Sub- and super-scripts, strike-outs, non-break space, overstrike character, overstrike line and underscore all work as with WordStar/ NewWord.

Selecting Fonts

The dot-star commands that control font selection refer to numbers listed in the manual for each font and the resident LaserJet fonts. I use the LaserJet's "B" font cartridge, which, together with the resident fonts, gives me these choices:

No. Font Description
5 HelvBold 14.4 point
6 Tms Rmn 10 point
7 Tms Rmn 10 point bold
8 Tms Rmn 10 point italic
9 Tms Rmn 8 point
0 Courier
1 Courier, Landscape
10 Line Printer, Landscape

I can have three fonts readily available at any one time, the "text" font, the bold font and the emphasis font, in addition to separate fonts for headers and footers. I can change each font at any time with a dot-star command. This makes it easy to prepare documents for StarJet printing, since there is little new to learn.

Controlling Line Height

Line height is controlled with the ".LH" command, in increments of 1/48th of an inch. Setting line height to 7/48ths of an inch (.cw 7) leaves line height control to StarJet. If you mix HelvBold into your Tms Rmn 10 point text, or Tms Rmn 10 point in Tms Rmn 8 point text, StarJet will automatically adjust the line height to accommodate the intermixed font. You can, of course, adjust line height to your own liking to add white space for easier reading or to fill allocated space.

Lines and Boxes

A box is made with ".*BX"; a vertical line with ".*VL"; a horizontal line with ".*HL". Parameters select the thickness of the lines (in increments as fine as 1/150th of an inch from 1/150th to one half inch), the length of the line or dimensions of the box, the column where the line or box will be, and fine tuning adjustments up or down and left or right.

Boxes can be as small as a letter or as large as the printable page. As editor of a user group newsletter I created a logo consisting of a box about 1 x 8 inches with a series of

horizontal and vertical lines inside, all enclosing and setting off the name of the newsletter in HelvBold (repeated three times for emphasis since it's only 1/5th of an inch high), the name of the group, the date, the volume, the issue number and the whole number of the issue. The LaserJet's memory limits me to one of these on a single page.

For each page of the newsletter I generate a large box with a line down the center, adding the group's name, the newsletter's name, and the page number at the bottom. The text is printed with StarJet, trimmed, waxed, and laid in place the old fashioned way. For the back page I have two boxes, one for the upper half (into which meeting information and a map are laid) and one for the bottom half which holds the mailing label, a notice about changes of address, a return address, a bulk mail indicium (in its own box) and the standard running footer.

Creating boxes, especially combined with text, requires a bit of planning. It's not like using MacDraw, where you can see the lines on the page and type the text in the middle of them. Instead, you have to measure and calculate. Even then you'll probably find that when you print you need to do a bit of fine tuning, unless you use it for these purposes every day. On the other hand, once I laid out my boxes for the newsletter it takes no great effort to make the necessary changes in text each month.

The Manual

The 104 page StarJet manual is a fine example of StarJet's capabilities. The only deficiency I noted in the Version 1.5 manual was its failure to note that text justified with WordStar or NewWord will be printed justified. Version 2.0 has the same omission, but adds a dot-star command to justify, so text need not be justified before printing. An index makes it easy to find whatever information you need.

After you've used StarJet a while you'll find everything you want quickly in the pocket size quick reference manual.

Problems and Limitations

I've noted only two problems with StarJet. The character table for the letter "f" results in too much space to the right of the character in most instances. Words with two "f"s look especially odd. Too many capital letters in a single line can make the text crunch together or even run beyond the width of the rest of the lines. For the latter the solution is to avoid all caps -- use italics or bold. For the former there doesn't seem to be any solution within StarJet.

Another user reported to me some problems with pagination on long documents, something of which I haven't done much. The report indicated that in some instances pagination on the printed page varied from what was seen on the screen earlier.

StarJet can't do bold italics (NewWord does). It doesn't do "true" proportional spacing, but sticks with the WordStar version of "WYSIWYG" (What You See Is What You Get), simply justifying on a line the text that's on that line.

"True" Proportional Spacing?

Dale Alan Clark explained proportional spacing well in the Apr/May 1986 issue of MOR, and I won't repeat that. But neither the undocumented proportional spacing feature in WordStar, the LaserJet support from NewWord, StarJet nor PropStar do "true" proportional spacing. They all adjust the spacing according to a proportional spacing table, but do not adjust the number of characters on a line according to how wide the characters on the line are.

With "true" PS the printer counts character units until it fills up a line, regardless of how many characters there are on a "line" in the file, then prints that line. True PS then continues with the next line, counting character units until it fills the line, and prints that line. You would almost never get the same number of characters on the printed page that you have on a line on the screen. True PS gets more characters on a line in most instances.

The advantages of true PS include denser print in general and no problems generated by too many capitals in one line. This gives a typeset appearance, because real typesetting utilizes true PS. The disadvantage is that unless you have a computer screen that shows you the text on the screen proportionally spaced, what you see on the screen will not be what you get on the printed page. That means you will often have to adjust the text after the first printout, especially if you are trying to fit within or to fill out a particular space.

There is only one program I know of for CP/M computers that does true proportional spacing, Magic Series (a version of which was reviewed in the Apr/May 1986 issue of MOR). Text printed on the LaserJet with Magic Series looks better in general, prints words with the letter "f" better and allows you to overcome PS table problems with kerning, the ability to adjust the amount of space between individual characters, in increments of 1/720th of an inch. On the other hand, Magic Series is more difficult to learn, to create files for and to debug defective files.

Conclusions

StarJet is a generally successful post-processor for WordStar, NewWord or ASCII files that have been justified with WordStar or NewWord, providing justified proportionally spaced text with a pleasing appearance. It's not typeset, or "true" proportional spacing, but it is easy to learn and use. When the text doesn't come out the way you wanted it, it's easy to "debug" the source file.

To obtain a copy of StarJet, you must contact the British office of Control-C Software. The Oregon office won't even give out prices. If the overseas office tells you that they don't have your disk format or that they have only 8" disks for CP/M (as they did with one friend of mine) be insistent. They have provided it in both Osborne and Morrow formats. ■

Backgrounder II

Lets You Run Two Programs Simultaneously

Rick Charnes

Backgrounder II
$75, from Plu*Perfect Systems, P.O. Box 1494, Idyllwild, California 92349
(714) 659-4432

In thinking about writing this review, I realized early on that I was going to need to wax a bit philosophical, because it is only in that state of mind that one can begin to appreciate what this program is all about. Backgrounder II is a "task-switching" utility for Z80 (CP/M- compatible) computers. Fundamentally this means that a user can "swap" back and forth between two running programs **without leaving either of them.** The first application stays suspended while you go to the second, and when you return it is there exactly how you left it. Switching back and forth between the two is as easy as a single command or even a single keystroke.

With Backgrounder, for instance, there is no longer any need to exit NewWord if you need to do some file manipulations with NewSweep or get some information from dBase. If you have a HELP file for a program you don't have to leave the program to view it! Or you can, if you have a screen driver, transfer calculations between SuperCalc and the report you're writing in NewWord. But before I give away all the applications, let me muse a little bit as promised.

Rick Charnes is president of BAMDUA and is an MOR columnist. He lives in the San Francisco Bay area and can be reached on the MOR BBS or at (415) 826-9448 or 821-4345.

I've been using Backgrounder II (or BGii as it's affectionately called) for about six months now on my 20 meg Mini Winnie-equipped MD3. It's interesting for me to think back to the days before I added BGii to my personal computing system, because it makes me realize how much I've since come to take for granted; it's always hard to keep a "beginner's mind." I can easily remember, however, the initial motivating factor for my interest in BGii. Sitting at my desk is and always has been an "in/out" box hugely full of papers. Through the course of any week,as I work with my computer and experiment with various new techniques and programs,I am constantly taking notes and writing things down: questions to ask others, ideas to try at a later date, etc. I very often have questions or comments on ZCPR3 programs I am using and later upload these to Z-Node BBS's in order to share these with others.

I remember very distinctly one day being particularly puzzled by one program I was working with and frantically writing down my experiences with it on a piece of paper to be ultimately sent as questions to its author. As I became more and more involved with taking these notes it suddenly hit me: here I was using this advanced and sophisticated piece of technology and yet I was writing the results of it all on this piece of paper! The funniest thing is that I would always later transfer everything from paper to computer disk; it was my first intimation of the possibility of eliminating the middle man.

Running BGii on your system gives you a curious sensation of having two computers. It's a delightful feeling. Right now I'm writing this in NewWord. Let's suppose that I temporarily forgot some arcane technical point of BGii and remembered that someone left a message about exactly that on a BBS halfway across the country. Without even needing to ^KD to save my work I hit a single key called the

<SUSPEND> key and I'm immediately placed at the BGii system prompt. Note that I cannot yet access a CP/M or ZCPR3 program as I have not yet issued the swap command. I am now, however, placed in a position where I have access to the second and additional major feature of BGii: THIRTY-SEVEN (37!) memory-resident commands that are available without leaving an application program. When I run the command that displays these 37 commands and scan through them I still feel somewhat unbelieving that I have all this power within my 64k memory (and I'm doing it with a full Z-System and 2k taken out for a hard disk driver!), but it's true. Here's what displays on my screen when I type "BG":

Cmds: low Foreground d03:CP/M label
bg calc cls cut date dir echo era feed find forms
flip go get help jot jump keys list ndr note ocp
peek poke printr ren reset save screen shift spool swap time
type user whl whlq
bghist bgerrh cp e

If you haven't guessed by now, in order to get the above display printed in my text I didn't need to leave NewWord. BGii helped me take a picture of itself. In any case I have access to all of the above commands, and they are all memory-resident and therefore load almost instantaneously.

But this isn't what I wanted to do; I was going to do some roaming of the electronic ether. I'm now at what BG calls the "foreground prompt" which looks very much like an ordinary CP/M or ZCPR3 prompt, and I type "SWAP;MEX". Here is where BG really goes to work. There exists on my A0: drive a 102k file called !!BG.SWP. [Again: just now I forgot its exact name and was able to issue a "DIR A0:" command to display it without leaving my text!] This is the file that contains a **disk-based** image of what the computer's **memory** looks like when NewWord has loaded this text. Everything that exists in memory is transferred over to this disk file, which is called the swap file. When I later give the <SUSPEND> command again to return to my text, the disk-based swap file will empty itself out back into memory and the screen and rewrite everything precisely how it appeared down to the exact cursor location.

After I issue "SWAP;MEX" I am then presented with a different prompt (the drive letter is in lower case) that reminds me I am in my "lower task," MEX. I am free to climb aboard my modem and make that call to the BBS on which I can get the information I need. After reading it and logging off the BBS, I don't have to exit from MEX in order to return to NewWord. After all, I may need to do it again; why waste time reloading programs? I simply hit my <SUSPEND> key again (default is "^^" which on my Qume 102a terminal is a single key) and I'm taken to the background prompt again. It takes a while to get used to the different prompts as there are four of them – upper task background and foreground and lower task background and foreground – but once you do they are a great help in reminding you where you are. The upper task prompts have the drive letter in upper case and with the lower tasks it is in lower case, while the background prompt uses the "}" instead of the normal foreground ">" as in ordinary CP/M.

In any case, from the background prompt I simply issue the command "SWAP" again and I'm taken back into NewWord, precisely where I was when I left off. It's all quite amazing to see. I should emphasize that there are at least two distinct components to this BGii environment, the task-switching (or "context-switching," as it's often called) and the memory-resident background commands. While much has rightfully been made of the former, the latter are also extremely impressive and their variety and power are awesome.

One application I just used: I wanted to have a printout of the 37 commands in order to write about them. Since I am using NewWord and not WordStar I have no "print block" (^KP) command which I could ordinarily use to print them out from my text above. Solution: I had them on a disk file and simply hit my <SUSPEND> key to get to the background prompt. I then used the memory-resident LIST command to print them out and was back to my text in a split-second.

The resident CALC feature is extremely useful for those working with figures. It provides addition, subtraction, multiplication and division of decimal and hexadecimal numbers and three memory storage registers. One of the nice touches here, and something it incidentally has in common with WordStar 4.0, is the ability to insert the result of an equation into any text you're working on, via a two-key sequence.

This ability to take output from one program and translate it into input to another is something I find extremely useful with BGii. For instance, one feature I really find very nifty – especially as until now it's been one of the things I've envied about the MS-DOS world – is the ability to strike a two-key sequence and watch today's date appear on screen. This requires running DateStamper along with it. These two programs go together like hand in glove. Writing a letter to a friend but can't remember the date to put in the header? Just strike "\d" and you've got the date. When we all get our Mike Allen Clock Kits, "\t" will spit out the time. By the way, with only DateStamper by itself there's no way to do this.

BGii has a built-in print spooler with its resident SPOOL and Q commands. I haven't needed to use them as I have a hardware buffer but for those without a buffer these are indispensable. Printer output from any number of text files is redirected into a spool file which can later be printed while you simultaneously work on something entirely unrelated.

For those running Z-System on a Mini-Winnie hard disk I would say BGii is worth the cost if only for a single reason: its key redefinition capability. It has full-featured key

defining at no extra use of TPA. It even has a feature not found in other key redefiners I've worked with, the ability to "attach" a set of definitions that are automatically loaded along with a specified application program. Since the above configuration tends to be "scrimpy" on TPA as far as being able to load the standard Morrow programs such as Smartkey or XtraKey that many of us have, the cost that we might spend on a new, less TPA-intensive program is better saved by spending a bit extra and getting BGii with its task-switching and print spooling thrown in for just a bit more!

I must address the always-critical issue of TPA here. I have a program called TPA.COM written by the esteemed Bruce Morgen of the Z-System SIG, that has been indispensable in my testing of various configurations. I have DateStamper loaded in the only place it can properly run while BGii is active as well, in the location formerly taken up by the ZCPR3 IOP at EB80. This means no IOP while running BGii. Of the three Input/Output packages that can run here however, BGii duplicates the functions of two — NUKEY (key redefinition) and BPRINT (print spooling). I do, however, miss having the capability of the third, RECORDER, which provides a function that BG does not have, that of recording console display to a disk file. The public domain program I/O-CAP is a good substitute here for low-TPA projects.

BGii uses 4.75k of memory, 2k of which replaces the standard command processor. The user's manual says that when run on ZCPR3 systems this is reduced to 2.25k by loading part of it, as I do, into buffers whose functions are duplicated by BGii.

I have no independent confirmation of the TPA sizes I am about to provide here other than TPA.COM, so I cannot vouch for their precise accuracy. Furthermore, bear in mind that in my system 2k is eaten up by my hard disk driver. With DateStamper loaded at EB80h but no BGii I have exactly 50.25k. With DateStamper loaded at EB80h, and BG running, I have 47.5k TPA remaining for programs, a difference of 2.75k, just a tad more than mentioned in the BG documentation. This is adequate for virtually all of my applications. The only work I can not do in this environment is when I am experimenting with the large Turbo Modula-2 programs I am writing with a series of public domain windows and graphics routines. MexPlus, a much larger memory hog than its public domain counterpart, runs fine and is able to load a 12k script file on top of itself. NewWord, dBASE II, ZCPR3's ZEX all work fine. My guess is that when WordStar 4.0 comes out I will not be able to run BGii and simultaneously take advantage of WS's calculator and block math functions, which require 50k. (By the way, MicroPro has been trying to get the word out that their earlier figure of 54k is not correct; 50k will suffice.) I will simply turn BG off when I want to use these functions of WS40. BG can be turned on and off easily and quickly with the LOADBG and BG OFF commands.

Of BGii's two major features, task-switching is only feasible on hard or ram disk systems. When the swap command is given, it takes some time for the screen/memory image to be written to the 100k swap file. On my Mini-Winnie hard disk system it takes 8-10 seconds to swap from one application to another. In the BGii documentation it mentions that average swap time on a Kaypro 10 hard disk with TurboROM is four seconds. I was puzzled and a bit disappointed in this and spoke with the author Bridger Mitchell about it. He mentioned that the swap time is heavily dependent on the quality of the BIOS and the TurboROM addition to the Kaypro BIOS was specifically designed to "optimize" and streamline it. He has suggested that the Morrow BIOS may be one of those guilty of "buffer thrashing." My knowledge of this subject is quite limited, but Bridger's description of some specific behaviors of some BIOSes that would definitely slow the swap time down is confirmed as an adequate representation of the Morrow BIOS by our resident BAMDUA BIOS expert in the San Francisco area. Since I don't quite understand it, I think the best thing for me to do is quote Bridger:

The BGii swap algorithm is, roughly: copy TPA "sector" to buffer; read 1 sector to TPA; write buffer to same disk sector; increment sector number; repeat.

If the physical sector is greater than 128 bytes (most are now, e.g. all double density, all hard disks), then [an optimized] BIOS will recognize that the second sector (i.e. the next 128 bytes) is still in the same PHYSICAL sector. It will neither read nor write the disk for that information, but rather just its "host buffer," which is one physical sector large. This continues until the physical sector is exhausted, and then a write/read is needed. But -- some BIOS's (Big Board I is one) read and write EVERY time; the technical term is "buffer thrashing."

This scenario sounds plausible to me, especially as I have a report that swap time on an MD3 with a SWP Co-Processor RAMdisk is 3.5 seconds which can be compared with 2 seconds on a Kaypro with an Advent Products RAMdisk or 1 second on a 6MHz SB180. In conversation with the aforementioned BIOS expert I am given to understand that the difference in the ways various BIOSes do their disk reads and writes is simply a difference in computer philosophy; one way can be a asset in some situations and a disadvantage in others. While I do find the 10 seconds on the slow side, it generally does not get in the way of my overall enjoyment of the program.

From what I have been able to determine, Backgrounder is unfortunately incompatible with the WestWind Drive C2: RAMdisk. The two programs simply are competing for the same memory space and most importantly each wants the other to be loaded first. The SWP RAMdisk seems to be a little more flexible in this regard. I am not 100% sure about the situation with the WestWind software and had only a friend's Drive C2: and some limited technical help; I would

encourage anyone with this RAMdisk to call WestWind and speak with the technical support staff about it.

How feasible is it to run BGii on Morrow floppy disk machines? As I mentioned previously having access to the 37 resident commands is very valuable in itself even without task-switching. MD2 and MD3 users would gain a considerable advantage over what they have now in terms of number of resident commands, key redefinition, print spooling and several other features. To be more precise I should explain more completely that BGii is a command processor. It is a command processor in the same manner that the CP/M CCP is, or ZCPR3. As a matter of fact, BGii *is* a ZCPR3-based command processor. BGii IS ZCPR3, or more accurately it is actually ZCPR33! Jay Sage, the author of ZCPR33, collaborated very heavily in the final writing of BGii and included most of its features in it. In other words, when you are running Backgrounder you are running ZCPR33 without having to install or purchase it separately. So without the task-switching it still has quite a bit to offer floppy disk users.

Now for one caveat: BGii will not work under CP/M 3.0. It just won't and that's that; there's no way around it. That eliminates all the Morrow built-in hard disk machines from the picture. It's most unfortunate that Digital Research abandoned support of CP/M 3.0 so early in the game. The irony of seeing all the good enhancements coming out to support only the older CP/M 2.2 has not escaped many of us.

BGii has four or five advanced resident commands that depend heavily on its ability to communicate with one's terminal hardware. They are very exciting to use and I will describe them below. They require the installation of something called a screen driver. A screen driver is a piece of software that allows BGii to interface completely and exactly with one's terminal hardware and software functions. I ran BGii for about a month before I realized I could use one of the already-existing screen drivers. After loading the driver it increased my enjoyment of the program tremendously. These screen functions are one of those things that you don't miss when they're not there because you don't expect them, but when you see them in action -- WOW!!! Absolutely incredible.

For instance, I never thought I'd see the day that I did a full CUT and PASTE from one program to another on my little vintage 1984 Morrow computer. When you see it it's quite beautiful. It works the way you'd expect it to: you highlight the text to be CUT with your cursor keys and hit ^X to exit. Then go to your second task and position the cursor where you wish your CUT text to appear. Press <SUSPEND>, and when you are returned to the prompt type PASTE. Now sit back and watch while BGii magically inserts your text in your second program. After years of being told CP/M machines have no video capabilities to speak of I must admit I have allowed myself a certain healthy dose of good old- fashioned self-righteousness.

The counterpart to all this cutting and pasting is the SCREEN command, which sends the exact image of what is on the screen to the printer. This has been a joy to use. It has come especially handy when I am logged on to bulletin boards and there is no easy way to repeat the message I have just read. I just send it to the printer and I'm on my merry way.

The FLIP command is quite extraordinary; this allows you to "flip" back and forth between one running task and the screen/memory image of the second. You cannot actually WORK IN the second task but only view it; it is not saved to the swap file. Consequently the flips are instantaneous. Switching lightly and quickly from one task to the other in a repeated manner is truly a sight to behold and a most pleasant experience.

Last but certainly not least in this pantheon of CP/M memory- resident video adventures is the JOT command, and it is perhaps this that I use most. In a way I suppose JOT takes me full circle to where I began when I originally felt the need for BGii. This command does exactly what it says: it allows you to write to a JOTPAD while in the midst of any other program. It is similar to the same function in programs such as Write Hand Man et al., but at a much lower TPA penalty. The principle difference between this and using the SWAP command to switch to a memory-based editor such as VDE to jot down a quick thought is that no task-switching is involved; we're not actually swapping to another program but simply using a memory-resident command to write into a file. Hence, again, it's practically instantaneous.

These four advanced commands will not run without a screen driver. A terminal's most crucial component for BGii's purposes is the ability to send an image of itself to the host computer, have the computer store it while the terminal is otherwise occupied (with another task) and then send it back when requested. My Qume 102a does it beautifully, and I have been able to use the Televideo 950 driver released by Plu*Perfect. Those with Wyse terminals also have screen drivers already written for them.

I believe the ADM20 terminal, especially those with the upgrade kit installed, would be able to support these extra screen features and a screen driver could be written for it. That job remains to be done; there is sample source code available.

I was not able to fully test the standard Morrow MDT60 and MDT70 terminals, which are inferior to the ADM20, Qume, Televideo 950 and Wyse in this regard, for support of BGii's advanced screen functions. I tried loading the same Televideo screen driver I use with my Qume on an MDT60 with poor results; the JOT, CUT and PASTE, etc. commands definitely did not work. It was then suggested to me, however, that plugged into the computer's*modem port* a MDT60 or 70 might very well work with the Televideo screen driver. I was unable to test this.

There is an easy solution for these concerns, however;

anyone interested in experimenting in this regard may simply obtain the free, public domain demonstration version of Backgrounder. It is available from MOR on a FLOB. It works exactly like the full version but will not allow you to access any drive other than A:. I would be most interested in hearing from anyone experimenting with these video functions on any of the Morrow terminals.

If you have a floppy-based Morrow then with an advanced terminal such as a Qume or Wyse or any of the others that have the ability to save a screen image and cursor positioning, I would unhesitatingly recommend your purchase of BGii and that you simply do not use the task-switching component. Not only will you be running a full ZCPR33 system but these video and screen commands will bring you many hours of delight.

As a final caveat it must be mentioned that use of one's function keys becomes problematic. There exist function key drivers that work with keyboards whose function keys can send out characters above 7Fh. The Televideo 950 can do this, along with a number of other keyboards; mine can't and I don't believe the MDT series can. Other than that, as far as I know one is left with one's terminal hardware. My Qume, for instance, can be programmed in hardware to send out 8 characters per function key. Since BGii provides extensive key redefinition for the rest of the keyboard one scarcely misses having full function key redefinition. I don't know how the Morrow KEY.COM program would work; I simply have been unable to test it.

It should be pointed out, especially with the issue of screen drivers, that BGii does all it can with the extraordinary plethora of CP/M hardware presented to it. If some terminals such as the MDT60/70 series are lacking in certain functions that others have that BGii requires for its advanced features, I think it is only fair to acknowledge a situation of a great difference in grades and sophistication of hardware. My Qume 102a can do gorgeous windows and graphics with the Modula-2 package I mentioned previously; the MDT series can do nothing at all with it. They just do not have the same kind of screen-save-and- restore-cursor feature that is necessary.

One recently released feature of BGii bears some explanation. An Overlay Command Processor is an absolute miracle of programming and I could scarcely believe it when I first came to understand the concept. A series of OCP's began coming out a few weeks after I first began using BGii. I had a full complement of resident commands already and was amazed that so much could be packed into 2.75k of memory. Then various OCP versions started coming out on the BBS circuit that now provided command line recall and editing (BGHIST), an error handler (BGERRH), a resident copy command that supports date-stamping, and an echo command with extra code in it to display lower case letters --- all at no loss of TPA! Bruce Morgen of ZSIG explained:

An Overlay Command Processor is a command package similar in form to the familiar ZCPR3 Resident Command Package. It can be as long as 4k and runs in the middle of the TPA, at 4000h. It takes up no TPA because it is loaded by the BGii command processor (from the swap file) only when needed. Just before loading the OCP and running the appropriate routine, BGii saves the 4k of memory starting at 4000h to the swap file, restoring it as needed when the OCP code is not running. Pretty simple, eh? Such is the simple stuff of genius...

I should emphasize, by the way, that BGii is by no means something that is meant to run only on ZCPR3 systems. It runs on any CP/M 2.2 system, but will definitely turn your system into ZCPR33.

BGii's swap feature is not true "multi-tasking." Its print spooling/queueing function is, however; two programs are executing simultaneously. We've all been hearing so much about multi-tasking from the MS-DOS world with their 80386 microprocessor and its operating system for which everyone is waiting (and waiting, and waiting...) that not enough people have stopped to realize that they don't really need such a feature. For a very large number of people, especially the writers among us, BGii's extraordinary ability to temporarily allow you to leave your word processor and the text you're working on and enter any other program from which you might need some important information, and then gracefully return, is just enough of what we need.

All in all I am very pleased with this program and its great number of features. It does give one the feeling of having a large new world opened up; one that seemed previously to exist only in the IBM-compatible world. Jay Sage, author of ZCPR33 and Director of the Boston Computer Society's CP/M Computers Group, writes that BGii is "the most impressive and exciting piece of software ever introduced for CP/M (Z80-compatible) computers." I have seen similar sentiments expressed many times elsewhere. The first time you see a full task-swapping happen on your machine is a very special and quite exhilarating feeling. On the Mini-Winnie or the SWP RAMdisk it is ideal. For floppy disk owners wanting to get a taste of what it's like to have extra resident commands available without leaving a loaded program -- especially those users with the more sophisticated terminals -- or even those simply wanting to see what ZCPR33 is all about but unsure if they are ready to buy the Morrow Z-System disk, I would encourage you to try the free demonstration disk.

BGii's main author Bridger Mitchell is an active and generous participant in the 8-bit user community. I have seen his courtesy and friendliness in helping people with questions about his products, providing support to an extent far greater than that of many other software companies I have had contact with. This is an excellent product, brilliant in its originality and design, and one that makes a very important addition to our still-expanding repertoire of 8-bit, CP/M-compatible software. ■

Borland's Turbo Tutor

Bruce Gowens

Turbo Pascal Tutor, Version 2.0
$69.95 ($19.95 plus shipping, if upgrading from lower version), Borland International, 4585 Scotts Valley Drive, Scotts Valley, California 95066
(408) 438-8400

In my article "The Reluctant Programmer" (MOR, Vol. 4, #1, Feb/Mar 1987, p. 29), I recommended Turbo Tutor version 1.0 for its useful disk of program examples while at the same time I suggested other texts to learn the language. With the introduction of Turbo Pascal Tutor version 2.0 I have to do a pure 180.

The program examples are still there, 4 disks worth (SS/DD - 186K), but this is obviously a "start- from-scratch-and-do-it-right" revision. And now it is the best text I have seen on Pascal.

The "jokey" nature of version 1.0 (which I enjoyed) is gone. I especially miss the "About The Author" page which was a classic case of in-group foolishness (my bios are not so classic). Instead there are 398 pages plus index (version 1.0 manual is about 260 pages) of clear concise instruction that somehow manages to teach the beginner while offering hints and possibilities to the experienced Pascal programmer. And it's easy to read and understand. (A major accomplishment in computer literature — let me give a bow to the uncredited author who should have his/her name on this. I wish I could write like that.) Of course, this is adult literature. I've been using Turbo Pascal for a number of years and I thought I understood the language. I guess even old dogs can learn.

Bruce Gowens is a Pascal and Pearl afficionado. He can be contacted at P.O. Box 5367, Berkeley, California, 94705.

The reason the new version has "Pascal" in its name is that Borland is now offering other "Turbo" languages in the MS-DOS world, and is preparing to offer "Turbo C Tutor" and "Turbo Basic Tutor" and "Turbo Prolog Tutor" and the rest of it.

One of the disks includes TUTOR, a program that uses example source files (that fill a second disk) to demonstrate principles. You chose from a menu and can see the example run on the top of the screen while you examine the source code below it. It's not really very flashy - you page through the source code and run it to see what happens as you figure it out. It's a neat idea that needs better execution. But the examples are in source code that you can print out and examine to see exactly how it is done.

Unfortunately TUTOR is buggy. Mine has fallen in love with one of the examples, no matter which I select. Before this hot affair started I tried a number of them and felt they were targeted at the raw beginner. I'll try again when the affair is over -- affairs never last, you know.

The other two disks are examples from the text, plus a much expanded listing program (the original compiled to 10K, this compiles to 28K).

The README file is bigger than usual - covering lots of typos. I suggest you print it out, cut it up, and tape it in the appropriate pages of the book before reading. Most of the typos are obvious and minor to a programmer, but could be very confusing to a beginner. A number of them look like the fine hand of an editor (human, non-programmer type) at work.

If you already have Turbo Tutor the upgrade is a steal at $10.00 (you can pay more than $2.50 for raw disks without the great book). Even if you are not upgrading, this is now the text I recommend -- and the runnable source code examples make it better than anything I know of in a college bookstore.

A winner. ◘

Review

StatPac

A Statistical Software Package for the Morrow

Georgia Babladelis

StatPac
$495, Walonick Associates, 6500 Nicollet Avenue South, Minneapolis, Minnesota 55423
(800) 328-4907 or (612) 866-9022
•Special 20 percent discount to MOR subscribers available upon request

I have been pleasantly surprised to find powerful statistical analysis programs for CP/M. **StatPac** is a well-planned, powerful statistical package that runs beautifully on my 64k RAM MD3 dual disk drive system. (The company has other CP/M compatible programs that address even more powerful statistical and data management problems. An even more powerful system is available for DOS machines.) StatPac can be installed for a hard disk, but does not require one.

The programs use about one megabyte of disk space, so some disk swapping is inevitable unless you are using a hard disk. The data file limits of StatPac are 5,000 records, 254 variables and a maximum of 254 bytes of information per record. Only one- and two-way designs for analysis of variance (ANOVA) are permitted and some nice features are missing, such as interactive prediction capabilities for regression analyses.

StatPac runs in the batch mode, requiring you to specify a series of analyses to perform and then submit them for processing. As you can see, this makes it ideal for survey and marketing analyses when you need to crunch lots of data and perform several analyses in the same run. There is a minimum of user interaction, so it is not a simple procedure to use the same data, change the parameters and run it again. StatPac contains low-resolution character graphics so you can print out your data charts, such as frequency distributions and correlation plots.

The programs are on three disks, accompanied by a handsomely-bound manual in a three-ring notebook. The manual is superbly organized and very clear, with appropriate examples throughout. Truly, it lives up to the claims of being easy to learn. The three program disks comprising the package are called: Main System Disk (286k, 24 files); Execution Disk (322k, 26 files); Utility Disk (84k, 10 files). Obviously, with a hard disk you can copy all the files to your hard disk, but with two double density floppy drives some swapping is necessary. Fortunately, the program is good about prompting you for swaps and minimizes the stress of disk changing. By copying selected programs, you can create one double-sided disk as a minimum StatPac program disk so that no swapping is necessary. You can run the program with a single disk drive, but it is not advisable.

The Main System Disk contains all the file management programs. There is a main system menu available on this disk which allows you to choose all the functions you will perform. it is the programs on this disk which permit you to enter and edit your data, create and edit the codebook for the data, create and edit a control file for the analysis of your data, and to print any of those that you want to print.

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The Execution Disk contains all the analysis modules. There is a control program for all the analyses. The choice to evoke the execution control program is made from the menu on the Main System Disk. The analyses you may perform include: frequency distribution, descriptive statistics, a breakdown of the data, crosstabs and chi-square, banner crosstabs, correlation and linear regression, matched pairs and independent groups T-test, stepwise multiple regression (with a graphics option for the stepwise regression), probit regression, principal components analysis, one-way analysis of variance for repeated measures or for independent groups, two-way analysis of variance, multiple variable response by variable labels or by value labels, and a procedure to sort or to list cases. Error trapping is good, and you can chain back to the main system menu after an abort.

As that's not enough, the Utility Disk provides you with a menu of programs which enhance your ability to manipulate data. The utilities let you restructure or merge code-

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books and data files, check the integrity of a codebook and data files, create an aggregate data file, generate sample size or random numbers, concatenate records downloaded from a mainframe, select cases by record number range, create a weighted data file, and change the format of a codebook and data file.

I have run all of the statistical analyses available and all of the utilities except for one (downloads from a mainframe) and found every program to work smoothly and speedily. I was impressed with the "extra" analyses provided; for example, when running a descriptive statistical analysis, you not only get the usual information about range, all measures of central tendency, and all measures of variance (e.g., standard deviation and standard error of the mean), but also unbiased estimates of the population, the distribution of coefficients (e.g., skewness and kurtosis) and the Kolmogorov-Smirnov statistic for normality. When running a correlation, you get all the information about the mean and standard deviation of the sample variables, degrees of freedom, slope of the regression line, the correlation coefficient and the Spearman rank-order correlation coefficient (and a graphic printout, if you want it). A T-test of differences between two samples not only gives you the T statistic, but information about the means and standard deviations of your samples, standard error of the mean, the probability of a one-tailed and of a two-tailed test, the correlation coefficient, and the Wilcoxon test statistic. I trust that those examples give you and idea of the wealth of information about your data that is available quickly and easily with StatPac. I might add that I found it a nice bonus to be able to generate random numbers and compute sample sizes at will.

There are several steps in preparing your data for statistical manipulation. First, you must create a codebook, which contains a description of the data file format and all the labels to be used on a printout. The program for creating and maintaining it is on the Main System Disk. Next, you create a database of information to be analyzed. This raw data can include test scores, questionnaire responses, etc. The Data Management Programs, which enable you to create and maintain data files, are on the Main System Disk. You are given a choice of three data entry formats so that you may choose that which is most comfortable. The easiest is a format that that queries you for each data item. I found using the one that emulates keypunch data entry the quickest for me to use. I never mastered the third choice, which involved creating a screen template, but I think it is because I lost interest. A good step-by-step example would have helped tremendously. Finally, you must create a Task Control File. With this, you describe all the different analyses you want and then submit them to be processed sequentially. Recall that StatPac is designed primarily for *batch* processing. The programs to create and maintain a control file are on the Main System Disk also.

The files described above (codebook, data file, task control file) ***must*** be created before you can run an analysis. These three separate files must be given different file names when created and can be stored on the B drive in a two drive system. The master program, "Execute," controls the sequencing of tasks and performs any requested options; the actual analyses are carried out by the individual statistics modules on the Execution Disk. All StatPac files are stored in sequential ASCII format, so you will be able to use data created by other programs and/or to use data downloaded from a mainframe to your computer if it is stored in sequential ASCII format.

To recapitulate, there are four steps required to run an analysis with StatPac:

- Create a codebook
- Create a data file
- Create a task control file
- Execute (submit) the task control file for processing

I did every step and used every analysis and utility (except downloading). Everything works well and fast. Examples are plentiful. There is even a nice section at the end of the manual about types of data and other important information for persons engaged in doing statistics. An informative appendix gives you sources for formulae, critical values for many of the tests used and a good list of BASIC error messages. There is also a summary of editing functions and of analysis options. All in all, it is a well assembled and informative manual.

I did find a few things I didn't like. For example, there is no provision for a higher order ANOVA, such as a three- or four-way test. This is mentioned in the package description.

I could not find out a way to choose a screen display only (no hardcopy).

You must *always* set up a control file. You can't opt to run just one analysis. This is also mentioned in the description, but it annoyed me not to be able to just "ask for" an analysis of variance (or whatever) of some data file.

I could find no simple way to use the same control file for a different set of data and codebook. For example, if you have a series of analyses you want to run on all data, there is no easy way to do it, such as merely inserting the name of the new codebook and new data file when instructing the control file. I found that an irritating and unnecessary drawback, even given the limitations of this package as described. I am assured that it can be done by naming the new data file you want to analyze the same as the data file that was specified during the creation of the control file; that doesn't quite meet my needs.

Many of these problems are person-specific. If your needs for statistical analysis center around a lot of data crunching particularly suited to batch analyses, then most of my gripes will not be yours.

MOR subscribers are eligible for a 20 percent discount on StatPac, bringing the cost to $396 plus shipping. Mention MOR to qualify.

SL-Micro — Effective Number Crunching

Robert D. Athey Jr.

SL-Micro
$250, from Questionnaire Service Co., P.O. Box 778, East Lansing, Michigan 48826 (517) 641-4428

For more sophisticated statistical data treatment, you can write your own programs, rather than using a spreadsheet. While there are several in the public domain, I've tested some and found them wanting, so be careful.

About two years ago, I ran across a program called SL-Micro that met and surpassed all my expectations for CP/M statistical programs. It is a modular collection of programs that run a massive data matrix — up to 3024 numbers in a rectangular array. It has modules that do analysis of variance (automatically checking linear and cross terms), regressions, correlation matrices and other goodies for the statistically sophisticated. Alice and Ray Kalush wrote the package for use by social scientists, and were surprised that "hard science" uses were possible when I reviewed it for *MicroTimes* some time ago. They provide phone support, but it pays to know statistics well enough to knot be wasting money on the phone bill when you should be reading the manual.

SL-Micro is easy to use. You make up your data set into an ASCII file of a rectangular array of rows and columns. each row can be one experiment, and each column is either a control parameter or a measured result. My technique for using SL-Micro has developed over the past two years into a search for the best mathematical model for a process I'm studying by doing several runs of the data through the program. You control each run with a prewritten command list in a special ASCII file made up according to the Kalush format guidelines. The program requires you to give it the name of the file with the commands, and then it crunches away reading the command file a line at at time — performing that command, reading the next, and going on through making up a new file called SLM.PRN, which contains the results. You can print the results by using VDO or NewSweep (I prefer VDO in case I want to edit).

Tips on Using SL-Micro

1. Use a spreadsheet to make up the data files, so formatting is made easy (x values always in spaces 4 to 10 in a column, for instance). Do remember to turn off the calculation mode of the spreadsheet to make input faster.
2. Print the data spreadsheet to file (that makes it ASCII).
3. Use VDO to make up the command file.
4. Run the analysis of variance (ANOVA) mode of SL-Micro as the first trial, so you can choose the important variables for the regression model equations. I was amazed to find that a model we'd been happy with in two paint journal publications was improved upon by inclusion of cross terms by SL-Micro.

Bob Athey has more than 20 years of experience working on computers and runs his own company on chemical consulting and contract research. He can be reached at (415) 526-3541.

This article originally ran as a part of "Real Science on CP/M Computers" in MicroTimes, May, 1987, p. 124, by Robert D. Athey, Jr.

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Important Announcements

WordStar 4 in Morrow Format

WordStar Release 4, CP/M Edition, is now also available in the SSDD Morrow Format. If you want to exchange your current WS 4 diskettes for a set in Morrow format, call MicroPro at (800) 227-5609. They will mail you the Morrow floppies right quick. The infamous underline bug that rears its ugly little head when — on installation — you select MDT60/MT70, is included at no extra charge. But here is the simple correction patch, using WSCHANGE:

Address	Was	Should Be
3CD	DB	D9
3D4	E1	DF
3D7	E3	E1
3DD	E3	E1
3E5	EA	E8

The New MDHD Revival Kit

The MDHD Revival Kit (MOR, Oct/Nov '87, p. 23) comes in seven flavors, called "standard configurations," using 22 MB ST225 and 44MB ST251 disks from Seagate. Each kit costs $24. It is quite all right if you desire a special configuration, but then you will have to pay extra. The standard configurations are:

Machine	A:disk	C:disk	Machine	A:disk	C:disk
MD5+22	5Mb	22Mb	MD22	22Mb	
MD11+22	11Mb	22Mb	MD222	22Mb	22Mb
MD16+22	16Mb	22Mb	MD224	22Mb	44Mb
MD34+22	34Mb	22Mb			

News About MOR Products

The MACK (Mike Allen Clock Kit, MOR #903) is now a fully assembled unit, easy to install in your MD3 or MD-HD. The first batch will have been shipped by the time you read this. SuperCalc2 (MOR #808) is now available through MOR for a very low price. It's recommended to LogiCalc users who need a little more space and a more powerful command set. ROMs from the ROM Upgrade Kits (#901 & #902) are now separately available for $15 and $20, respectively.

Also, check out the MOR Classifieds for the sale MOR is having on back issues, surplus office equipment and supplies.

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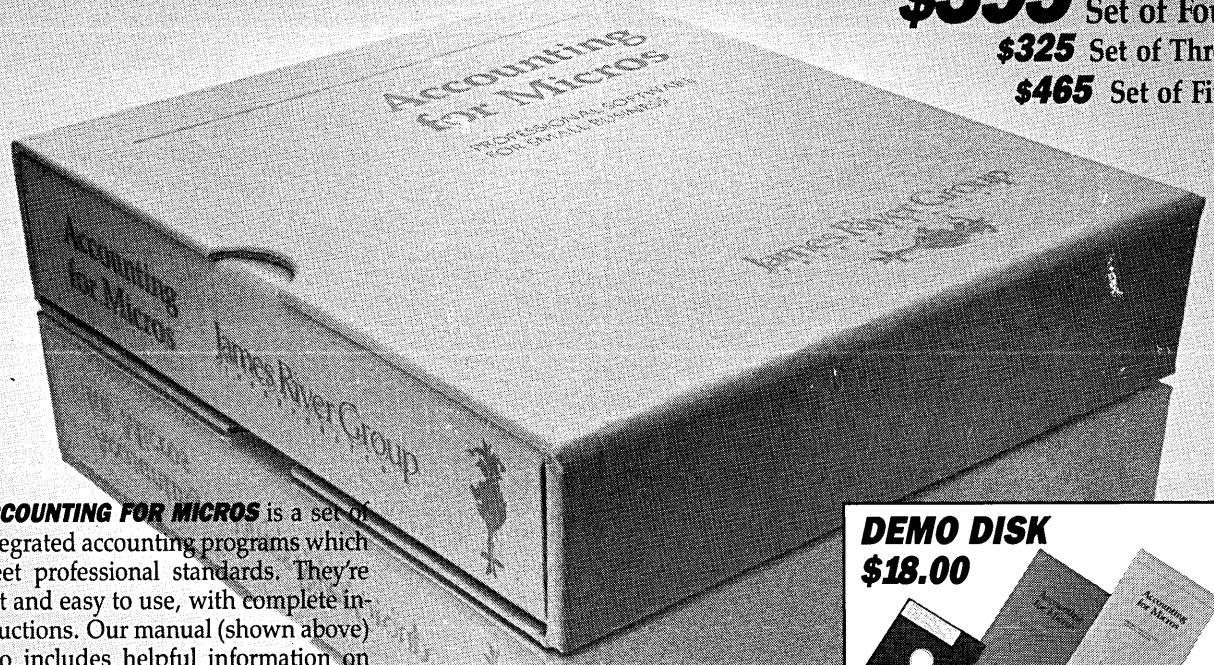

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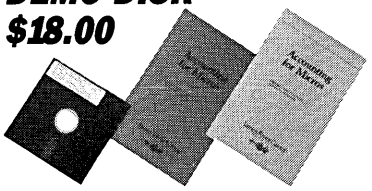

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