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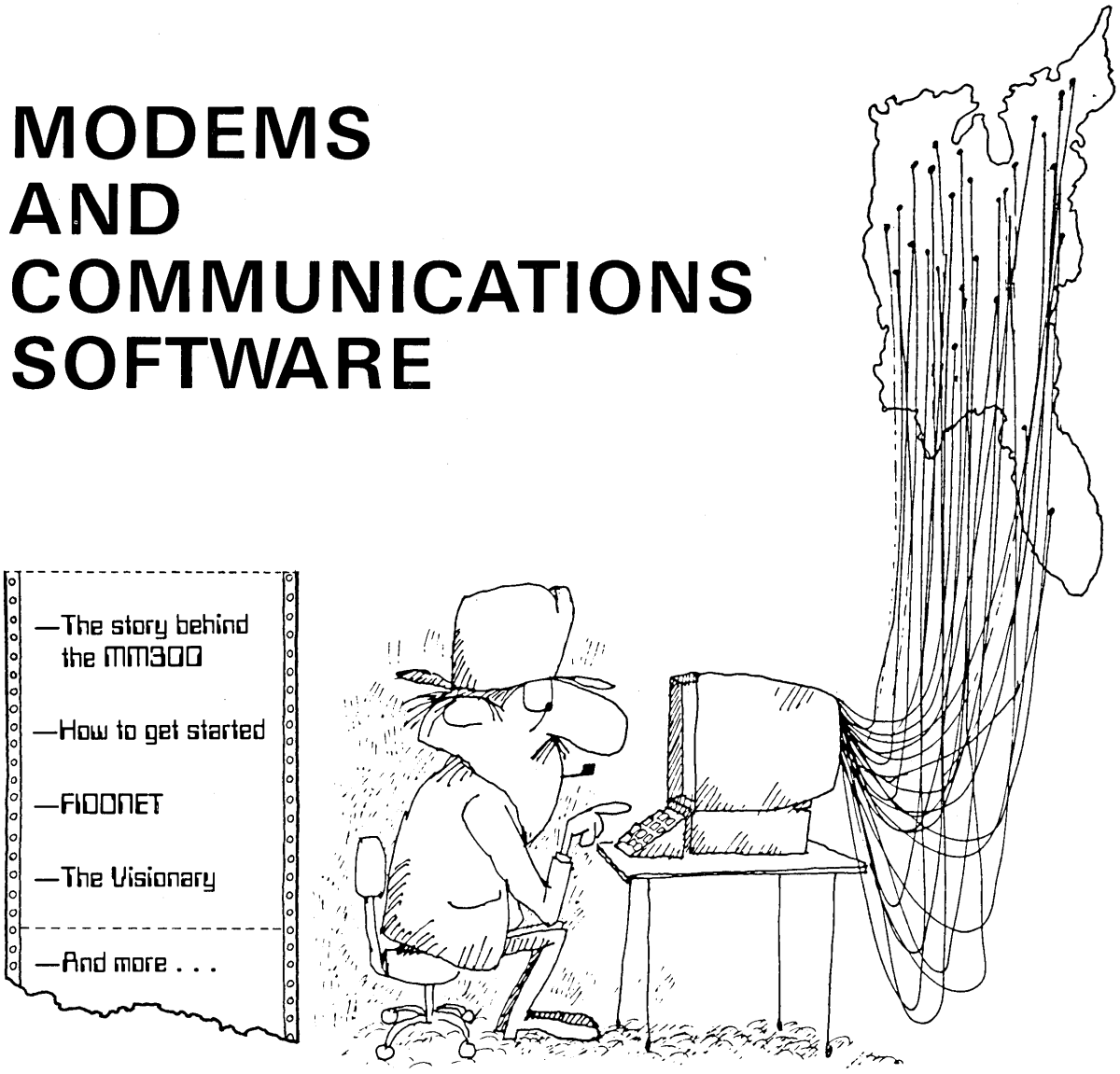
Morrow Owners' Review

VOLUME 2, NUMBER 3, JUNE/JULY 1985

MODEMS AND COMMUNICATIONS SOFTWARE



—The story behind the MM300

—How to get started

—FIDONET

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—And more . . .

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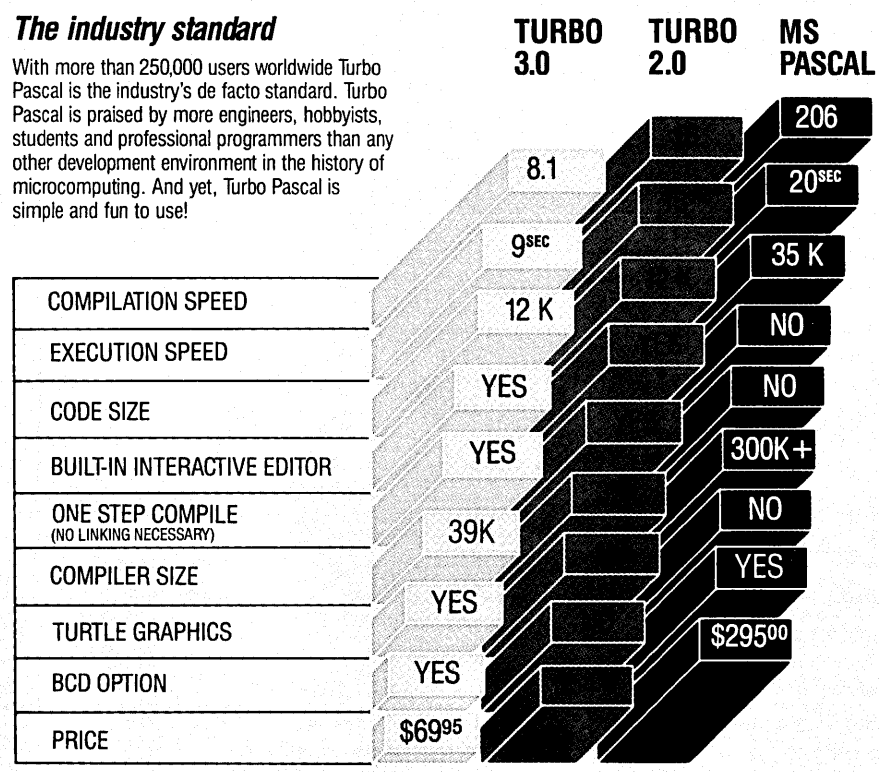

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(*) Benchmark run on an IBM PC using MS Pascal version 3.2 and the DOS linker version 2.6. The 179 line program used is the "Gauss-Seidel" program out of Alan R. Miller's book: *Pascal programs for scientists and engineers* (Sybex, page 128) with a 3 dimensional non-singular matrix and a relaxation coefficient of 1.0.

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Morrow Owners' Review

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Managing Editor: Shoshana Tembeck, Administrative Assistant: Dana Gaskin, Graphics: A. Lucas-Andreae
Advertising and Layout: Dana Gaskin, Design: Augusta Lucas-Andreae & Shoshana Tembeck
EDITORIAL COUNCIL: Andy Adler, Stan Ahalt, Michael Conroy, Tim Evans, Bruce Gowens,
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For December 85 issue: Friday, November 1, 1985, noon

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Front cover drawing	--	Bob Johnson
Cartoons on pages 17,28	--	Robert Johnson
Drawing on pages 46	--	Bob Johnson
Photo, page 42,33	--	Visionary Electronics
Morrow Liaison	--	John Seamster

EDITORIAL

by Sypko Andreae

MOR as a subscriber magazine

This is our first subscription issue. Ah, how good to write to people who really do want MOR. Yes, the readership is a much smaller group now, but we are also a much more dedicated one. Subscriptions have been coming in at a big handful each week. There must be thousands of potential subscribers out there. Well, MOR needs them all!

Thanks to all of you who sent in your subscriptions early and to the 15% of you who had enough faith in MOR to subscribe for two years. We dearly appreciate those of you who sent some extra money wrapped in wonderful little notes of support.

Meanwhile the debate about Morrow Inc.'s support rages on (see "Letters to the Editor"), and one wonders if it will ever end. Why don't we declare it water under the bridge and go on with our business of supporting each other? There is so much that needs to be done. Why not spend our energies on our own national support network?

Issue themes

From this point on, each issue of MOR will feature a particular theme. As you notice, this issue's theme is modems and communications software. We plan a "Wordprocessing and writers' tools" issue for August. The October issue will be all about business applications and data bases.

We have never had any lack of articles by our technically inclined readers, nor by the professional writers among us. But why is it that we get so few articles from our business readers? Are they too busy? From the questionnaire (MOR Vol. 1, #1, April 1984), we know that small businesses are a large part of our readership. We have received several requests for business-related articles, but no one has written anything. This is a users magazine so what you write is what you get, so to speak. Hence this call to the small business readers among us: Write for the October issue!

The communications craze

All over the country, Electronic Bulletin Board Systems (BBSs) are popping up like wildflowers. Apparently the number of microcomputer owners getting interested in communication is on the rise. Perhaps 1985 should be called the Year of the Modem.

BAMDUA (Bay Area Micro Decision Users Association) has had a BBS since August 1984. Difficulties with the software gave it a slow start, but when a better BBS program was installed in December 1984, its use sharply increased. Intended for BAMDUA members, this BBS soon became popular with a large number of Morrow owners outside the San Francisco Bay Area. At this point, it counts 220 registered users who together make some 1000 calls each month to exchange electronic mail, check the bulletin messages and swap public domain software.

It is interesting to watch the goings-on in those BBSs. Everyone seems to be on their best behavior, and there is an enormous willingness to help each other. It is not uncommon to see a cry for help one day followed by three offers of help the next. People seem to sometimes go out of their way to render assistance. No wonder BBSs grow so fast in popularity that they soon burst at their seams.

Some experts contend that commercial electronic mail systems like CompuServe, MCI and the like are overloaded when they have more than 50 regular callers per phone line. But BBSs--normally having only one phone line--commonly have 200 to 400 registered callers, which is why the popular ones are so hard to get into.

Another limit in operating a BBS is disk space. To serve so many callers you really need a hard-disk system. At first, the BAMDUA BBS used an MD3 that, with its fairly heavy use, required almost daily tending to clean up the message files and archive the contributed software when the floppies threatened to overflow. Soon the BAMDUAns decided to convert to hard-disk.

The recently available Public Domain BBS software is quite sophisticated. Some of it is beautifully engineered, often shines in comparison to similar software in the commercial E-Mail companies and is a pleasure to use. But it is not so easy to install. BAMDUA got its new BBS software adapted for hard disk from Paul Bartholomew in Illinois. One weekend Steve Wartofsky--a BAMDUA member--and I slaved away, trying to get the new BAMDUA hard-disk based system up and running. Soon enough we ran into snags and needed help. We got it long distance from Paul. We'd find a problem with one software component and contact Paul who would make some changes and transmit the results to us by modem. This went on all afternoon until we had things working.

Even after we had called it a day, our genie Paul would keep calling into the new system, testing this and that, making adjustments here and there, leaving little messages to us about what he had done, like a long distance repairman. Paul is an example of that breed of helpful geniuses who abound in the public domain software world. They behave like angels and almost seem to be in the same room when they're working with you long distance. Why do they do it? I have never gotten a straight answer from any of these people. All Paul said was: "You know, here in Freeport, Illinois nobody else knows about computers." Must be more to it than that.

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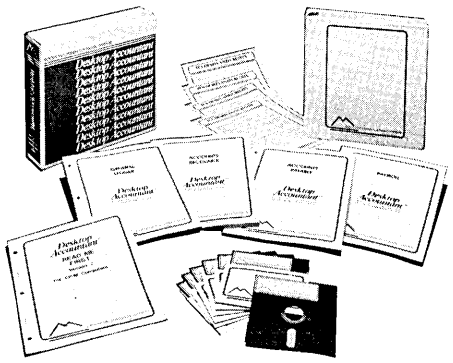

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LETTERS ON FILE

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LETTERS TO THE EDITOR

BOOT'R UP, LOSE YOUR DATA

Dear Editor:

I have already sent a check to enter my subscription to MOR--although for the life of me, I can't figure out why!! I have enjoyed receiving MOR, but must admit that there is rarely a word that I can understand in the whole darned thing.

I cannot believe I'm unique in this--there must be other MD3 owners out there who purchased their equipment without knowing a damned thing about computers. Mine was a Christmas present, so that I could more easily do my husband's business accounting--can you imagine trying to put your books on the Quest system without knowing anything beyond how to find the "on" switches? Without the help of Bob Carlson at Quest I'd be a certified lunatic by now. Can you also imagine the feeling of having lost 9 months of sales that you've just finished posting on the "red-eye" special time (9 pm--midnight, after a work day elsewhere)? Let me advise that nowhere in the instruction book does it say you cannot "reboot" in the middle of posting nor does it say you will lose your program if you do!!! Talk about panic...this would not happen except a week before the year end and sales taxes are due.

I have not attempted any of the rest of the software so far--pure cowardice. But aren't there ANY absolute novices like myself left? I'd like to ask someone why the pages won't center (equal space, top and bottom) and other idiotic questions. Does anyone else in Sonoma County own an MD3? Interested in a users group?

Adele Davis, Penngrove, CA

[We'll help you set one up, Adele. Call MOR Office. --Ed.]

WHERE ELSE IS THERE?

Dear Editor:

Yes! Yes! I think you are taking the right direction in going independent.

A friend called me the other day and again I was in the computer room. During the telephone conversation, Edwina asked, "Do you use the other rooms in your house?" Naturally every time she has been over we go into the computer room, and everytime she had called I have been in the same place. If I am not doing homework with the computer's help, then I am trying to figure out more things about my computer and the programs.

Dorthy L. Williams, Sacramento, CA

REINFORCED SINCERITY

Dear Editor:

Congratulations on your independence! The separation from Morrow, Inc. will greatly increase your credibility. Most articles seem to praise Morrow conditionally, but I believe it is sincere praise. I feel the same way. For the amount I originally paid for my MD3 one year ago it is hard to equal as much computer reliability and program power (and the current prices are $600 less). Nevertheless, the separation should reinforce editorial sincerity. After all, it is the Morrow **OWNERS'** Review.

Scott Shields, Houghton, MI

THE THREE-HOLE PUNCH

Dear Editor:

When MOR first started arriving, we were so busy with our business and in the middle of building a house that we were only able to give a passing glance at the issues and say what a great idea and save them to read later. Now I have started reading them from cover to cover as I can grab a few minutes to do so.

I have a suggestion: How about sending MOR punched for a three-hole binder so they can store together easier? I was feeling somewhat panicked when I couldn't find a back issue. So that's what I am doing with mine now.

Mae Beth Stephenson, Longmont, CO

CROCODILE TEARS!

Dear Editor:

It would seem that the path of the editor of what, up to now, has been a free publication is a tough one to tread. I for one have been grateful to George Morrow and to members of his staff for their contributions of money and helpful articles to assist in getting the Morrow Owners' Review underway. However, almost from the outset there began appearing letters about how you shouldn't sully your journalistic purity by "cuddling up too closely with George Morrow" (MOR, Vol. 1, No. 3, August 1984, p. 5) and how you must "take care to eliminate not only impropriety, but also the appearance of impropriety" etc., etc. (Vol. 1, No. 4, October 1984, p. 6). I doubt that many of the recipients of the publication were blind to the fact that the Morrow company, in lending its aid to the startup of MOR, was indulging in some public relations, as well as providing information as something of a substitute for the handholding that some purchasers

seemed to expect. They were, since they were seemingly unable to provide this and still have time to manufacture and sell the machine at the bargain prices they were asking.

Come now the cries of anguish and complaints of abandonment (letters in MOR, Vol. 2, No. 2, April 1985) from a reader and a member of the editorial council (who it seems to me ought to know better) now that MOR has decided to go "pure" and become an independent, paid-for, subscription-type magazine. Their sobs just break my heart! It seems to me that said editorial council member is crying before he's hurt very bad, although the switch to 16-bit machines is probably in the offing. In the meantime, he has had the use of a very usable and reliable machine for some time. It should continue to give good service for a long time to come, with much good software available, although admittedly there is a scarcity of new software being written for CP/M and even less attention given in the computer press to those programs being created.

There are few who surpass me in decrying the overbearing influence of Big Blue with its zillion dollar advertising budget for what I regard as a vastly overpriced machine with what appears to be mediocre capabilities, dollar-for-dollar. However, Morrow and others will undoubtedly have to succumb to the realities of IBM popularity and that of its clones, unjustified though it may be, or be placed in a position of tilting at windmills. In his appearance before the Seattle users group, of which I am a member, I gained the impression that George Morrow was not:
1) deceitful (as he has been accused of being by some),
2) behind the door when the brains were passed out, and
3) anxious to commit business suicide.

Lester O. Gallaher, Seattle, WA

A COMPUTER IS NOT A TOASTER

[The previous letter drew a response from Stan Ahalt:]

Dear Editor:

My name is Stan Ahalt, I am a member of the MOR Editorial Council, and I JUST DON'T SEEM TO KNOW BETTER! I bought one of the first MD2's off the assembly line, and I "published" a small newsletter of my own (out of my pocket) before I decided to join forces with the rest of the MOR folks. In short, I feel I am entitled to voice my complaints about Morrow.

Morrow apparently decided to support MOR in order to minimize the amount of direct support that they were providing. Fine. But now that MOR has gone "pure," is Morrow offering to provide a heightened level of support to all of the faithful buyers that enabled Morrow to grow to the size that they are now? No. Morrow is clearly going to concentrate all of its corporate strength behind it's MS/DOS machines, particularly the Pivot. (In fairness, I haven't been able to discern the corporate position on the Tricep, which I understand is an excellent machine.) From Morrow's point of view, this is a sound, sensible business decision. I agree with their decision. The world has gone MS/DOS crazy, and that's what it takes to sell computers.

The MD series is still a great bargain, representing an excellent price/performance ratio. I still recommend Morrows to friends and colleagues. But that is not the point.

If you bought a new car for $4000, and next year the company from which you bought the car decided to deemphasize the car line and concentrate on pickups, you would be justifiably distressed. Sure, the car was a bargain but where will you get parts? Will there be any dealers who could repair the car, or even have the ability to change the shock absorbers? You didn't buy the car thinking that it would only be used until it broke down the first time, and then be discarded.

I maintain that this is the situation we are now in, or will be in if we don't make our discomfort clear to Morrow. Not only are computers complex machines to repair, they can be complex to operate. In general, I want any computer company to recognize that they are, in most cases, selling a product that represents a very large capital outlay for the buyer and that it will require long term support and maintenance. To be honest, I am an Electrical Engineer, and I'm not worried since I can (I hope) fix anything that goes wrong with my MD2. But most MD purchasers are novices, and I am worried for them. I don't want computers to get a bad name.

I do not think that George Morrow is deceitful, stupid, or suicidal. Actually, I think he is one of the founders of the computer revolution, and I have always felt that he is one of the good-guys! I do believe that good business practices dictate long term support for any product that costs more than a toaster. And a computer is not a toaster. If MOR dies, at least part of the blame can be attatched to Morrow. The financial break between MOR and Morrow was abrupt and could have been handled with more business acumen.

Stan Ahalt, Clemson, NC

THE SECRET PROGRAMMERS UTILITY DISK

Dear Editor:

I have an MD2. I tried the "automatic log on to B:" customization in the article on "Wordstar Emergency Treatment." It was somewhat disconcerting when I punched up "DDT" on the CP/M disk and got a "?" in response. I went to the manual to find out if "DDT" really existed outside of toxic waste dumps: it did. Next I dug out my distribution diskette to see if there was a way DDT could have gotten left off when the working copy was made. Dead end. But I did notice a diskette I'd never noticed before called "programmers utility disk" (my dealer had made the working copies

for me). I stuck it in drive B and punched up a "DIR" command. Sure enough, there was DDT, along with a bunch of other stuff. I figured out that there just wasn't enough room on the single sided CP/M Disk for all those programs. I got "automatic B:" to work, but I searched in vain through the CP/M manual and the "Micro Decision User's Guide" for any reference to this "programmers utility disk." Its not mentioned on the "making working diskettes" part of the micro menus either. I wonder how many other M.O.'s (Morrow Owners) out there dutifully tried to follow the article's directions only to find that someone hadn't told them all the rules of the game.

Karl Bermann, Hampton, VA

SAVED BY MOR

Dear Editor:

Just a note to express thanks for your efforts. I just finished saving a long text file which was headed for the bit bucket. By quickly grabbing my copy of MOR Vol. 1, #5, (December 1984) and following the "Wordstar Emergency Treatment," stage three, I was able to save short months ago I couldn't even spell DDT.

Pete Romfh, Aurora, CO

* * *

Dear Dana:

Here's 18 bucks gladly spent. Tell Sypko he's the Mother Theresa of the CP/M world.

Christopher Hunt, San Francisco, CA

[QUICK! Where is my Habit! Bless you, Chris... --Ed.]

WATCH THAT NUMBER

Dear Editor:

You and your associates have done a great job on MOR, both in building a fine, much-needed magazine for us and in lining up advertisers. Since its premiere issue, there has been a great increase in original (non-BAMDUA) articles that would surely be of interest to a large portion of individual Morrow owners. And the increase in ads, besides footing the bill, is a genuine service to us all in showing us what is available for the Morrow.

However (always the qualifier), let me suggest the importance of keeping a close eye on the total pages of editorial content. I realize the need of keeping costs down, but the drop from 56 pages in Vol. 1, #5 to 40 pages in Vol. 2, #1 was much too sharp.

Wendell Wood, San Jose, CA

[Your point is well taken. We had no choice though. The 40-page February 1985 issue was part of a support agreement with Morrow, subsequently withdrawn. In April we did not have the money to print more than 40 pages. Now we are back to 48 pages again. --Ed.]

FOR THE LIKES OF MOR

Dear Editor:

Thank you for a terrific and useful magazine!!! Keep up the good work.

I like:

* different color covers each month
* your close association with Morrow
* articles that help me use my MD3 and application software
* reviews of books and software as they relate to the MD3
* patches for WordStar and LogiCalc

R.W. Hahn, Victoria, B.C., Canada

MOR TO THE BILLABONG

Dear Editor:

I have now received from the local Morrow agents in Australia copies of the first two issues of the MOR. I note with some dismay the implication that regular distribution of this journal may not proceed outside of the US. This would be a considerable disappointment to the many Morrow owners over here and particularly to those here in Canberra.

R.J.H Deane, Chapman, Australia

[No need to be disappointed! MOR is mailed worldwide. All you need to do is subscribe. Please spread the word DownUnder. --Ed.]

AP-PARENT RESPONSE

Dear Editor:

The article on PILOT programs for children by Art Kazmerczak was excellent, and an excellent example of the sort of thing I hope to find in MOR. It filled a gap--there is not too much information about the application of the Morrow to education--without appealing to the computer owners' susceptibility to technical and commercial consumerism.

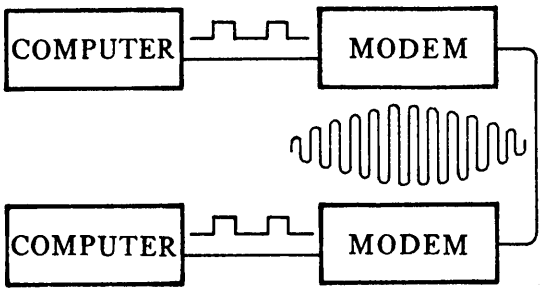
Josh Kaplan, South Bend, IN

[I quite agree with you. We get a good number of letters and calls asking about educational software. And judging by the number of responses we got to the article, apparently it's hard to come by. We intend to publish more in this area, and if there are others out there writing programs for children, write an article for MOR! --Ed.]

MODEMS: WHAT'S ALL THE FUSS ABOUT?

by Sypko Andreae

Every corner of a culture tends to develop its own jargon. The computer culture is no exception as we all know painfully well. The same of course is true for the modem sub-culture. This article introduces the theme articles in this issue by giving a little background on modems and communications software and explaining some of the terms used frequently.



What is a modem? It is a device that allows you to connect your computer to the telephone line. Why would you want to do that? Well, then you can use the telephone system as a communication device between your computer and another computer. That communication can be very useful and is often a lot of fun. How does a modem work? It changes the electrical (up/down) signals on your serial port into audio-frequency (high/low) signals. You see, the phone system was made to transmit voice. Modems have a "voice" too. It is a high pitched tone, called the carrier.

What does FULL DUPLEX mean? A full duplex system can transmit information in both directions at the same time. When you talk on the phone you can listen at the same time. While it may be a little confusing, you can do it. Modems put this full duplex capability to good use by a strategy called handshaking. This is a way for two communicating devices to stay in touch and decide how to go about their communication business, so they don't get ahead of each other. Computer hardware and communications software use handshaking too. (See Protocol below.) A LED is a Light Emitting Diode, often used as signal lights on modems. A Null modem is not a modem at all but a cable to connect your modem properly to your serial port.

Modems operate with certain speeds measured in baud rates. 300 baud means that information gets transferred at about 30 characters per second. 1200 baud is four times as fast. Both of these speeds are common for modems. Your terminal communicates with your computer at 9600 baud, and your (serial) printer may be running at 19200 baud. When you're used to the 9600 baud rate of your computer terminal port, the 300 baud modem can seem agonizingly slow. A 1200 baud modem is an enormous improvement but is a lot more expensive.

Modems come in "smart" and "dumb" and cost accordingly. A smart modem generally has at least two functions that a dumb modem does not have: It can answer the phone for you (auto-answer) and it can dial a phone number (auto-dial) under the guidance of your communications software. That is really convenient if you use a modem a lot, but you pay for that convenience. Dumb modems are fine as long as you are willing to do your own dialing when you want to connect to another computer and if you don't care whether or not your modem is capable of answering incoming modem calls.

A smart modem and a computer communicate with each other using what are called a command and status codes. For instance, you could enter a command code to the modem for a function such as "Dial that number," and the modem--after trying that number--might respond with a status code that means "Hey, they're busy." The communication program in your computer can then contemplate its next move. The command/status codes used by modems made by Hayes, Inc. have become an industry standard, and non-Hayes brand modems that use the same code are called Hayes-compatible. There are many other modems around that use different codes, the Morrow MM300 modem being one of them.

What specifically can you do with a modem? You can call a friend who also has a modem, "chat" with each other using your keyboards, or exchange files. You can call any of the commercially available information databases or E-Mail (Electronic Mail) systems, like MCI or CompuServe, to send your mail in a fast and inexpensive way. Or you can call any one of the more than 2000 Computerized Bulletin Board Systems (CBBS's) that are available in the country today.

Access to CBBS's is generally free of charge, but you pay your own phone bill, of course. Many CBBS's double as Remote CP/M systems (RCP/M's). You can operate an RCP/M remotely from the privacy of your home computer as if you were operating your own, within certain limitations. CBBS and RCP/M systems are operated by a SYSOP or Systems operator, who decides who gets access to the system and to what extent, keeps an eye out to make sure the system is used properly, and keeps the system up to date. Get to know him.

An RCP/M allows you to acquire Public Domain (free) software by means of a process called downloading, whereby you transfer text or program files from the RCP/M computer to your computer to be stored on your disk. A note of warning: Even though you can download a PC-DOS program successfully, do not expect it to run on your Morrow. However, most CP/M programs downloaded from and written for non-Morrow computers will run on your machine. Many RCP/Ms allow you to upload software or text files, meaning you can send files to the RCP/M.

To communicate with the outside world on your modem you need modem or communications software. The most famous public domain modem program is MODEM7 of which there are a thousand versions today. To read up on it, get a back issue of User's Guide, No. 11/12 and read their excellent tutorial "Using Modem7." One recent version of Modem7 is called MDM740 which can be adapted to many different computers by using overlay files. The documentation describes how you overlay an unmodified copy of MDM740 with a file containing specifications for your particular computer.

The two major operating modes of this modem program are Terminal Mode and File Transfer Mode. In Terminal Mode, you can chat with your friend or give CP/M commands to the RCP/M. In terminal mode you can also capture what you see on the screen, whether you typed it or it was sent to you via the modem. The captured information can then be stored in a file for later perusal. That is really handy when you want to collect your stack of mail and pile of public messages from some fascinating but distant CBBS, because it cuts down on your long distance phone bill.

File Transfer Mode is for downloading and uploading files. In this mode, you can transfer text files or program (binary) files--or any old file, really (love letters, new ideas, etc.). In Modem7 (and its thousand relatives), what is called an error checking Protocol is used to make that happen. One of the much-sung heros of the public domain software world, Ward Christensen of Chicago, pioneered the Modem7/Xmodem protocol for file transfer. It uses a strategem called Handshaking and one of two common error checking schemes. One is called Checksum--an nearly obsolete method--and the other is called Cyclic Reduncy Check or CRC, a much superior way to find transmission errors.

The whole protocol works something like the following. (MD is your Modem7 program, RC is the RCP/M on the other end.) **MD:** "Send me that file." **RC:** "Sure; are you ready?" **MD:** "No I'm not...No I'm not...Yes, now I am! Send me your first block of 128 bytes." **RC:** "Ok, here it comes: Prrrrrrrrrrrrr-zap. Did you get it okay?" **MD:** "Let's see now--(error checking)--Yah, fine. Get me the next block." **RC:** "OK, here it comes: Prrrrrrrr-zap. Did you get it OK?" **MC:** "Let's see now... No, darn it! There is an error in it! Send it again, please." **RC:** "Sure thing, here it comes again."

And so they carry on until all the work is done. Neat, eh? And you don't have to do anything but watch the process. If you want to convince yourself that all this error checking and correcting really works, then transfer a file to someone, pick up a phone set hooked up parallel to your modem and whistle in it loudly. Your whistle will interfere with the carrier tones of the modems and raise havoc. You can watch your communication program struggle to maintain the integrety of the data. It just won't give up--the whole process just slows down a bit.

This "talking" back and forth is one example of handshaking in which communications technology abounds--on more levels then you care to know about. Communications software (and hardware) is really quite complicated but also sophisticated in a way that makes the whole intricate process transparent to you. You just operate your MDM740 program on a simple level just like you drive a car, or use any well-behaved tool. Just the way you want a tool to be. So don't be afraid to get involved with modems and modem software. The champions among the designers of all this stuff have done a remarkably good job with you in mind. Relax, enjoy and reap the rewards. ■

MORE ON MODEMS
(not in this issue)

Software

"Using MODEM7 (MDM720)"- User's Guide, No. 11/12, Vol 2.5/2.6, p. 23, 1984. "The Newest Modem7 (MDM740)," p. 18 in the same issue. Back issues of User's Guide--the magazine for CP/M and MS-DOS computer users--can be ordered from User's Guide, Back Issues Dept., P.O. Box 5245, Redwood City, CA 94063.

"Preliminary Review of ReachOut," MOR Vol. 1, #2, p. 32, June 1984.
"Friendly Telecommunications (ReachOut)," MOR Vol. 1, #3, p. 22, August 1984.
"Review of Micro Link II Communications Software," MOR Vol. 1, #3, p. 25, August 1984.
"A Very Simple Modem Program," MOR Vol. 1, #3, p. 26, August 1984.
"MEX, A Great PD Modem Program," MOR Vol. 2, #2, p. 31, April 1985.

Modems

"Using the Hayes Smartmodem," MOR Vol. 1, #1, p. 30, April 1984.

Applications

"MCI Mail," MOR Vol. 1, #2, p. 34, June 1984.

The Serial Input/Output Port

"Serial Port Communications," MOR Vol. 1, #1, p. 28, April 1984.
"The 'Lo-Tech Electronics' RS-232 switch-box," MOR Vol. 1, #1, p. 29, April 1984.
"About Serial Communications," MOR Vol. 1, #2, p. 42, June 1984.
"How to Modify Output Ports," MOR Vol. 1, #4, p. 44, October 1984.
"The Morrow Toolbox," MOR Vol.2, #2, p. 35, April 1985

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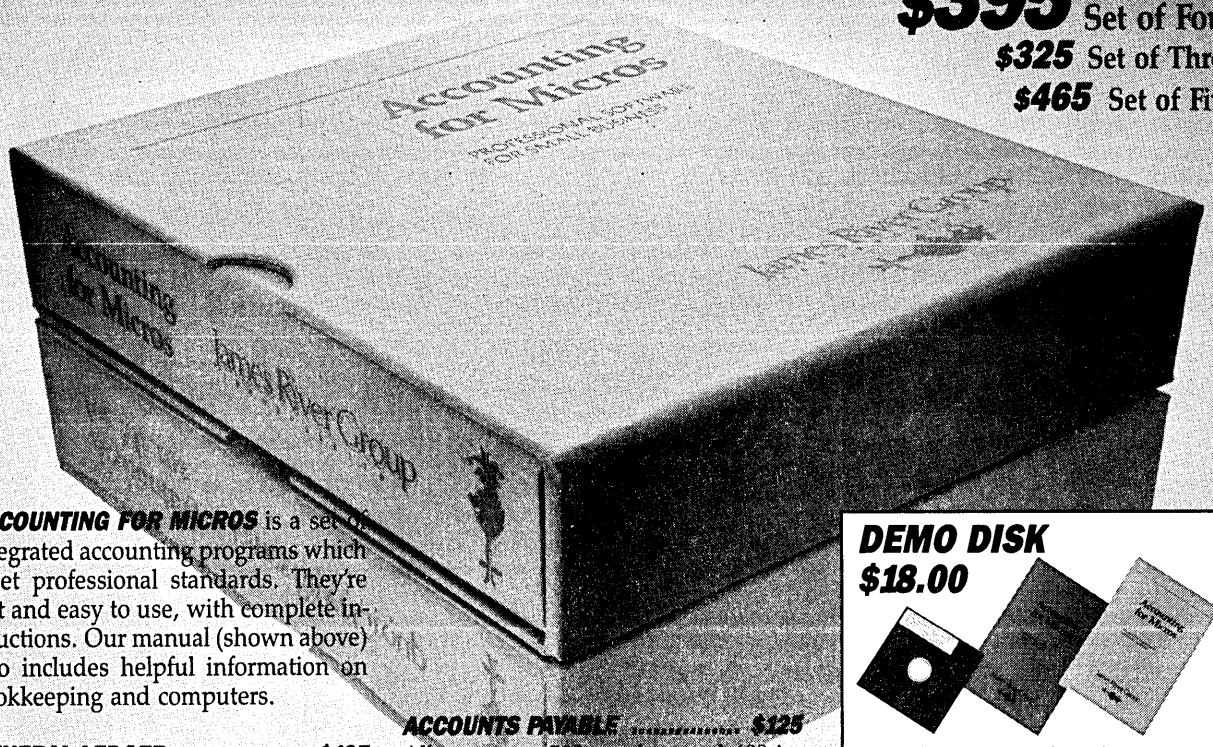

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MM300 MODEMS AND COMMUNICATIONS SOFTWARE

by I. I. Butler

In February, 1985, I attended a BAMDUA meeting and stopped in at the modem special interest group. During the discussion, I discovered considerable confusion about modems and available communications software. Later the picture became clear as I talked with a number of users and the manufacturers of the software and hardware that comprise the Morrow MM300 modem system. There were some aspects of the way Morrow presented the MM300 that confused users and dealers and discouraged them from getting involved. However, the current choices the user has in purchasing the MM300 have become attractive again. I hope this article will clear things up for users considering such a purchase.

First, you should understand the basics of legal interface, command/status codes and baud rates.

The Basics of Interfacing

The standard for modems in the U.S. is Bell 103 (zero to 300 baud) and Bell 212A (1200 baud, also containing the zero to 103 standard). This standard is a specification of what frequencies are used and how they are modulated to effect communications by telephone. It is not illegal to use these Bell specifications in Canada, but telephone devices used there must be registered with a government agency, much like FCC registration for telephone equipment here. Many U.S. modems are not registered, so users there should check with a local dealer and/or their phone company. There is a different standard in Europe.

The points to remember are: 1) modems made for the U.S. market are not legal for use all over the world; 2) you will not be able to communicate from the U.S. with a modem legal here to someone in a foreign country other than Canada with a modem legal there, because the frequencies of the legal systems are different, without the use of some system to translate; 3) if you take a U.S. modem to a foreign country, it may work to communicate back to the U.S., but it may be illegal to use it, and it may also be illegal to connect any device to a phone line yourself.

The command/status codes used with the Hayes brand "smart" modems have become a de facto standard with respect to user-program interface. These codes determine what happens when you strike what keys. Most telecommunications software, whether commercial or public domain, is made to use those codes. When other makers of modems say they are "Hayes-compatible," what they really mean is that at least to some extent their modems will work with the same software that works with the Hayes brand. (Not all features will necessarily work.)

There are still plenty of modems and programs that are not Hayes-compatible. Among others, Apple, DEC and Novation have offered telecommunications hardware and software that use different codes. Any brand of modem with software compatible with that modem using any codes can communicate with any other modem using the same or different codes, if they both can communicate at the same baud rate and they both use Bell standards. The difference is how they are put into communication mode.

All modems run at a speed measured in "baud" rates. The standard speeds (until the recently introduced very high-speed models) are 300 baud and 1200 baud, using the Bell standards. Generally speaking, the higher the speed, the higher the cost of purchase but the lower the cost of operation, both in telephone billing time and in computer-service billing time. 1200 baud runs four times faster than 300 baud, but computer services often bill somewhat higher for 1200 baud service. Also, whether a computer service bills for on-line sign-on and editing time depends on the type of service offered and the way its management has chosen to bill it. The point is: with somewhat higher billing rates for faster service and sometimes billing for on-line human response time, 1200 baud is still cheaper to operate, but not a full four-times cheaper.

The MM300 Modem

The history of the Morrow MM300 modem is that Morrow sought a vendor for a 300-baud modem, who could supply a quality, low-cost product in large volume. They ended up contracting with the Knights Division of CTS Corp. in Illinois to supply a modem meeting Morrow specifications, which later came to be called the MM300. Morrow also contracted with Applied Computer Techniques of San Rafael, California, to supply its excellent ReachOut (TM) software. In the interests of keeping their costs down, they chose a version of ReachOut which does not have auto-answer/host capabilities, even though the modem could support it. That is how this ReachOut version wound up being bundled with the Morrow machine with less than all of the features of its standard commercial package. The unit retail price for the modem/software package was approximately $300.

When the modem package was offered for sale, it was never well-explained to Morrow users--neither by Morrow, Inc. in the Micro Decision User's Guide nor by its dealers--that the MM300 modem is non-standard both as to the command/status codes, and also as to the way it obtains its power. Both variances from standards have practical consequences to the users.

The technical explanation is: Having non-standard command/status codes means the modem does not use the same codes as Hayes. Thus, it will not work automatically with most public-domain software, nor with over-

the-counter commercial software other than ReachOut, without special modification to take account of the different codes. It also means that the version of ReachOut supplied with the Morrow modem, which can be installed only for Morrow Micro Decision computers, will not work on other brands of computers or with other modems.

In the case of the power supply, the modem does not plug directly into a normal wall A/C outlet, nor is it supplied with an external transformer to plug into an A/C outlet as almost all other modems are. Instead, it gets its power from the serial connector marked "PRINTER/MODEM" on the back of the Morrow MD2 and MD3 computers (starting with Rev. 2). This approach reduced the cost of the modem, but it also runs the risk of having the modem become electrically damaged if it is plugged into or disconnected from the computer when the computer is on.

From a practical viewpoint, if you have a centronics parallel printer, there is no reason to plug and unplug the modem, because the printer and modem use different ports. If you have a serial printer, you must unplug the printer to plug in the modem and vice versa, or use a switching device, but computer power must be turned off. Most inexpensive switching devices may have the same effect as plugging and unplugging the modem. There exist special kinds of switches (known as "make-before-break") that allow you to switch with the computer power left on, but they are neither cheap nor common. The non-standard approach to powering the modem also means the MM300 will not work on non-Morrow computers without an external power source and, in some cases, some rather sophisticated knowledge about pin configuration and construction of a specially configured connecting cable, which is not recommended for amateurs.

In other words, disregarding all technical jargon, the net practical effect is: the version of ReachOut supplied by Morrow works only with the MM300 modem; the MM300 as supplied works only with Morrow computers; and you must be aware of the potential of damaging the modem and how to avoid it.

In addition, Morrow made some other choices which have been criticized. First, they chose to sell the package at a price which, although it was generally competitive, recovered a large multiplier of their costs--an approach which at least some people feel is justified only for products for which the seller incurs engineering, development and plant costs. Second, they supplied the modem to dealers at a wholesale discount no different than the discount on complete computer systems. This is less than the margin dealers usually get for other brands of modems, software and add-on accessories. Needless to say, given the low profit and very real disabilities of a non-standard, Morrow-specific modem, the dealers did not buy or sell a lot of modems.

Now let me make one thing absolutely clear: These are all matters of choice, and these are valid choices, which any seller of computers might make (and similar to choices that other sellers have made). The only problem is that the consumer was not informed of the practical consequences of those choices nor given the opportunity to make an informed choice as to whether the MM300 package was what he or she wanted.

Something else--other than lack of dealer interest and incomplete information to consumers about the MM300--also may have discouraged modem ownership among Morrow owners. The instructions in the Morrow User's Guide (at least as recently as the 1983 publication date, which was still being packaged with computers in early 1984) said nothing about the MM300 modem at all. It explained only that the user must change jumpers inside the computer to connect any modem (which was erroneous as to the MM300), and then the serial port would not work for printers. Later, the preliminary Micro Decision Questions and Answers Book indicated that one could buy or make a "null modem cable," but didn't give any indication of how to get one or how to make one without becoming an amateur electronics technician.

The simple truth is that serially-connected modems and serially-connected printers may use the same kinds of male and female connectors, but they receive data from different pins in those connectors. This is not a problem peculiar to Morrow. However, if you had not yet bought a modem, you were left to figure out for yourself the fact that null modem cables are reasonably common pieces of hardware, readily available at discount, and also that the MM300 modem is wired to plug directly into the serial connector without having to change jumpers. What probably happened is that incomplete information gave a false impression that users had to deal with technically complicated do-it-yourself operations, and that may have turned many users off the idea of modems with the Morrow.

CTS MM300 Offer

In any case, MM300 modems did not sell at all well, and Morrow stopped offering them. After some renegotiation between CTS and Morrow, CTS decided to dispose of unsold modems itself, including some it took back from Morrow, some it had on hand, and others it was able to make from parts on hand or ordered. In order to encourage quick disposal, they are selling them for a price close to their costs. These are packaged with MITE (TM) instead of ReachOut and are now selling for $99.95, plus $6 for shipping and handling, a total of $105.

This modem works with nothing else needed on all machines designated as "Micro Decision Rev. 2," which are MD2's and 3's with a Revision 2 circuit board. You need the optional power supply for $30 only if you have a Rev. 1 MD2 or MD3. Rev. 1 MD2's are common, Rev. 1 MD3's are rare. Or you can do the do-it-yourself opening of the computer innards and soldering described in "The Morrow Toolbox" by David Mintie in Vol. 2, #2 (April 1985) of the Morrow Owners' Review. This modem also works on MD5's, 11's and 16's but does not work as supplied with the Morrow Decision I.

The current CTS MM300 offer is a terrific deal by itself. There are darn few places you can get a

"smart" modem with auto-dial and auto-answer and communications software that works for this price. Compare the $60-70 cost of something like a Volksmodem (TM), maybe $12 for a cable ($5 if you make it), and $5 for a public domain software disk. For about $20 more you can have a "smart" modem, with commercial software.

Morrow returns with modems.

Morrow recently announced that it is once again selling--through its dealers--MM300 modems with the same version of ReachOut originally supplied. The price is significantly lower than the original package. In addition, it is bundled with MICRO ezLNK communications software (see ad in MOR Vol. 2, #2, April 1985, page 29), useful for users of Western Union's EasyLink network. The cost is the same to all dealers, but the dealers have a choice on how to price it, so check with several to determine the lowest price.

What Software to Use

MITE software works, and you will find people who use it and like it. It has received many favorable reviews by independent publications. It is considered more user-friendly than many other telecommunications programs, but less so than ReachOut. It has a large user base. It is periodically upgraded at reasonable prices, but less frequently than ReachOut. It has some features that are considered technically desirable for those who need and know how to make use of them (e.g., the number of binary file transfer protocol options). As provided with the CTS MM300 modem, MITE supports auto-answer, which the Morrow dealer version of ReachOut does not.

CTS Knights Division reports that the version of MITE provided with the MM300 direct from CTS is not limited to that modem. It will work with any modem, so long as that modem can be connected to the Morrow serial port with a cable compatible with both the port and the modem, i.e., the null modem cable described in the preliminary Micro Decision Questions and Answers Book. Hayes is a menu choice. Therefore, the software will remain useful if you buy the MM300 now but a more expensive modem later.

Before I comment on MITE and ReachOut, I'd like to clarify that this article is not a comprehensive software review. I am not an expert, just someone passing along information. MITE has been reviewed extensively in commercial publications. ReachOut has had two rave reviews in the Morrow Owners' Review (Vol. 1, #2, June 1984 and Vol. 1, #3, August 1984). It appears from the reviews that MITE is broadly used and well liked, but the newer ReachOut has a greater number of features and the ability to execute certain command sequences with a minimum number of keystrokes. Applied Computer Techniques says it is significant that the 1983 MITE manual being shipped with version 2.7 as recently as January, 1985, said, "none of the 'auto login' features of currently available programs will work on all systems or even every time on a given system." In contrast, Applied Computer Techniques guarantees that ReachOut's automatic log-in will work.

Applied Computer Techniques also sells direct to Morrow users. From them, you can get any one of the following packages at the following prices:

1. For either $50 + Morrow registration, or $65 + trade-in of MITE disk and manual, you can get the latest ReachOut that works with the MM300 modem only, including both auto-answer/host capabilities, and also a new printer buffer that allows the use of printers at any speed and eliminates excessive line feeds and form ejects. In other words, if you buy the MM300 now from CTS for $105, plus ReachOut now for the trade-in price of $65, you get something better than the original MM300 package with software for slightly more than half the original price. If you already bought the MM300 under the Morrow label, this same deal is also available without requiring a trade-in, at a slightly lower price. ReachOut has changed enough over the past year that it comes with a supplement to the Morrow manual for those who bought from Morrow, and a revised manual for those who bought from CTS. The difference in price represents the true cost difference, including administrative overhead, between updating an existing manual and shipping the product with a new 200-page manual.

2. For $125, you can get the standard ReachOut with auto-answer/ host capabilities and printer buffer that works with all serial modems (not just Hayes-compatible) except the MM300 modem. The only thing lacking is installation capability for computers other than Morrow Micro Decisions. This is for persons with Morrow Micro Decision computers and most modems.

3. For $199, you can get the same software as the $125 version, but it installs for any 8-bit CP/M-operated computer.

Before leaving the subject of software, I'd like to say something about public domain software. It is common to meet someone at a user's group who will tell you that it is all you need. Don't let anyone tell you the public domain software is all that easy to learn. (Have you ever noticed that the people saying this usually have been telecommunicating for at least a year and, if pressed, admit they have spent days or weeks learning the software and related programming?) You get no manual and no number to call for help. On the other hand, people have done it and are satisfied with it.

Your Choices

So, what are your choices?

If you already bought a Morrow MM300 modem with ReachOut, you have an operable modem with excellent software, and there is capability to upgrade to a newer version of the software with more features. The fact that you paid more when you bought the modem package than what it costs now is just one of those things that happens in computer economics. (Your model of computer is also probably cheaper and better today than it used to be.)

(continued)

If you have already bought a Hayes or Hayes-compatible modem, you can acquire public-domain software free (except for the disk-reproduction and mailing charges). You can also buy ReachOut at $125 or $199, depending upon whether you want it in a version installable by menu for Morrow only or in a version installable by menu for any 8-bit CP/M computer. You can buy any other software you want.

If you own no modem and want to go as cheaply as possible, you can buy a dumb modem (which does not dial and does not answer) at a discount store, and learn the (almost-)free public domain software. You will need a null modem cable for most of these modems. Total cost $85-$95.

A step above that, and the choice I would recommend for most users, is an MM300 either through a Morrow dealer or direct by mail from CTS. The choice of which way to buy depends on two things. First, if all you want is a smart modem with software at the lowest price, the CTS offer is probably the cheapest, and you can still buy ReachOut at some later date if you are unhappy with MITE. However, if you can live with the fact that the MM300 version of ReachOut is limited by being specific to the Morrow Micro Decision/MM300, the MM300 with the new version of ReachOut is probably your "best buy." The arithmetic should be simple: If Morrow dealer price + $50 is less than or equal to CTS price ($105 or $135 with power source) + $65, buy from your Morrow dealer. If it is more, buy from CTS. Either way, the total cost is still less than the original MM300 package and priced competitively to the market.

For those who must have 1200-baud modems, I have heard that dumb versions are available as low as about $170 and smart versions as low as about $325 for Hayes-compatibles and even as low as $199 for non-compatibles.

I hope this article has given most readers enough information to make a choice now and start telecommunicating.

(This article was not originated or sponsored by CTS Knights Division, Applied Computer Techniques or Morrow Inc. It was sent to them in draft form for their comments, and many but not all comments received are now reflected. Mycroft Labs, Inc. of Florida, the company that markets MITE, was not contacted.)
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Micro Cornucopia

The Single Board Systems Journal

MORROW USERS DISKS

Micro Cornucopia is drawing rave reviews as the technical journal with style, but Micro C, as we like to call it, is more than just a magazine.

Micro C is also a central exchange of software that people have written or modified for their systems and from these contributions we have put together the following Morrow disks (186K format).

MICRO CORNUCOPIA

P.O. Box 223
Bend, OR 97709

VISA

(503) 382-8048

Morrow Users Disks

$12.00 each

The following are full disks of software assembled specifically for the Morrow. Each program has a .DOC (documentation) file and many come with source.

Morrow Disk M1
Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.
MMODEM: Morrow version of MODEM 795. You can change your baud rate inside the program. Includes source and library so you can customize it if you wish.
SMODEM: This is MODEM7 setup for SMARTMODEM compatible modems. Handles autodial and autoanswer.
SQ/USQ: Programs to squeeze and unsqueeze files for faster transfer.

Morrow Disk M2
Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your Morrow.
ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into . MAC files.
UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.
FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.
CAT2: This a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.
DUMPX, DU-77, COMPARE, FORMFEED, DIR-DUMP, . . . and all have documentation on disk.

Morrow Disk M3
Games

PACMAN.COM: Despite the Morrow's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.
ZCHESS.COM: Chess with a 1-6 level look ahead.
OTHELLO.COM: You learn it in minutes, master it in years.
BIO.COM: Generates custom graphic biorhythm.
MM.COM: Master Mind.
WUMPUS.COM: Classic wumpus hunting.
ADVENTURE.COM: This is the famous 550 point super version of Adventure. There isn't room on one disk for this program and all the data files (the cave is huge) so the data files are on Disk M4.

Morrow Disk M4
Adventure Data & Aliens

ADVT.DAT: This disk contains the data files for the 550 point Adventure (the latest, greatest, most cussed version ever devised by half-mortals). You must have both M3 and M4 to play Adventure.
ALIENS: This is the game that made arcades famous. Keep this one hidden from the younger set or you won't get to play Adventure.

Morrow Disk M5
MX-80 Graphics

A complete Epson MX-80 graphics printer package including example files. Same as M6 except for MX-80 (or compatible) printers.

Morrow Disk M6
Prowriter Graphics

This is a complete Prowriter printer graphics package written by the same Micro C subscriber who wrote the MX-80 graphics package. Plot points, lines, circles, boxes, and more. Examples, documentation, and more.

Morrow Disk M7
Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's Small C compiler. Version 2 has more expressions and larger library, true subset of Unix C. Disk contains compiler, documentation, and library —everything you need.

Morrow Disk M8
Small C Version 2 Source

This disk contains the source (written in Small C) of the Small C version 2 compiler. Get M8 if you want to try extending the compiler. (You must have M7.)

Morrow Disk M9
ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.
EX14: a super replacement for SUBMIT.

Morrow Disk M10
Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the Morrow (and every other Z80 machine).
CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.
LASM: This is a more powerful version of the ASM assembler you received with the Morrow. This will link multiple programs together at assembly time.
PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

Morrow Disk M11
Library & Checkbook Programs

CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.
LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.

Morrow Disk M12
Pascal Compiler

This is a real Pascal compiler. It supports only a subset of the language (no records, pointers, booleans, reals or complex) but it generates a real .COM file. Everything is on this disk: the compiler, its source, example programs and documentation.

Morrow Disk M13
Z80 Tools

This is for those of you who are into Z80 assembly language.
XLATE.COM: A very good 8080 to Z80 translation routine.
DASM.COM: An easier to use version of ZZSOURCE (the Z80 disassembler). This full disk includes source and documentation for both routines.

NEW!

Morrow Disk M14
Z80 Macro Assembler

This is a real Z80 macro assembler! Syntax closely follows RMACK and MAC. Also includes pseudo-ops to support conditional assembly, etc. No phase or relocatable code.

AGAIN !?

Are you wasting time again?

Haven't you wondered why the simple task of printing should lock up your computer, when you could be doing productive work? Shouldn't a computer be able to print and think at the same time? Of course it should – it's just plain common sense.

That's why we developed ShadowPrint, the high performance print buffer utility. When you start a printing job (from your word processor, for example), ShadowPrint will automatically store the listing on disk and immediately return control of your computer to you. It will then print the file from disk in the background, while you keep right on working on the machine.

Are you concerned about having to learn yet another new software product? Relax. ShadowPrint is simple to use.

You need only type "SPRINT" at the start of your work session. No further interaction with ShadowPrint is necessary; its operation is completely transparent. ShadowPrint will "spool" all your printer output to disk and print it in the background. You can even integrate ShadowPrint into the Morrow menu facility.

Are you thinking about a hardware print buffer? Think twice.

With ShadowPrint, you won't need to buy, install or learn any new equipment - all you'll need is your existing CP/M 2.2 system and printer. Should you ever require them, ShadowPrint also offers advanced features that are simply not available with hardware print buffers - for example, from your keyboard you can at any time monitor and control the queue of files being printed; you can even "tune" the performance of ShadowPrint to fit exactly with your system characteristics and particular habits and preferences.

Are you looking for efficient background printing that won't interfere with your foreground work? Look no further.

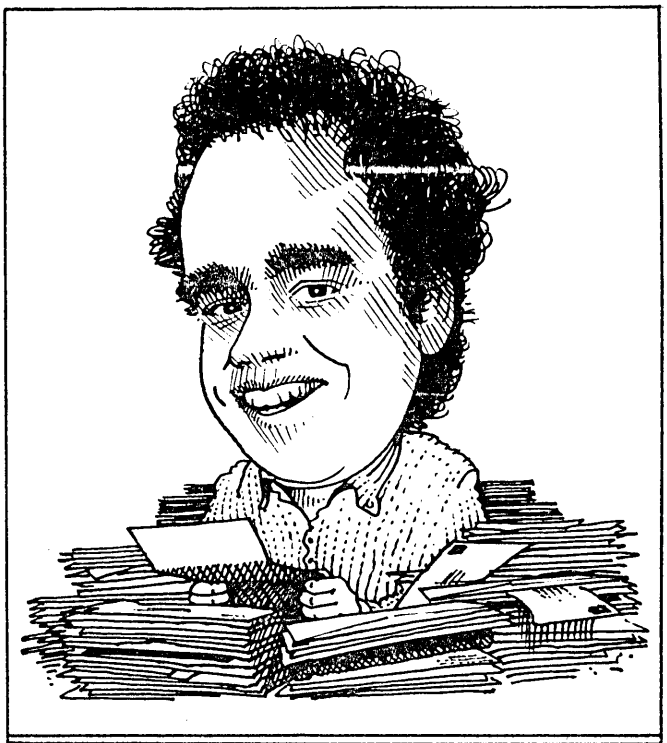
ShadowPrint uses computing cycles only if your foreground activity is waiting for an event to occur, such as terminal or disk I/O; if you're busy, ShadowPrint will not interrupt. In addition, when you're printing existing disk files, ShadowPrint can spool directly off of them.

Order ShadowPrint today. At $49.95, you can't afford the time not to.

ShadowPrint. A sensible product from

COMMON SENSE SYSTEMS ASSOCIATES
P.O. Box 563 • Winchester, MA 01890

- - - -



DAVID'S Q & A COLUMN

I was speaking to Morrow's Documentation Manager, John VanderWood, the other day. He asked me to mention that he NEEDS and ENJOYS feedback, even of the negative flavor. You can reach him in care of Morrow at 600 McCormick, San Leandro, California, 94577. One reminder: John had no control over the way many of the distributors' manuals were written (e.g., CP/M, SuperCalc). He appreciates reactions to those manuals nonetheless and offers his sympathy to those having problems with them. (Thanks a LOT, John.)

Dear David,

I'm always on the lookout for adventurous new MD3 software, but it always seems to want to know about my terminal codes. I'm not even sure what terminal codes are. Why do they matter, and what <u>are</u> they for the MDT60?

Not Into Manuals

Dear Not,

You tell software your terminal codes so it can figure out how to write on your screen correctly. Usually you just "install" a program for a certain model of terminal, without worrying about the details. With these (if Morrow's not listed), pick Lear Siegler ADM-31, Soroc IQ-120, or ADM3A, in declining order of preferability.

Other programs won't let you off that easy. Get a hold of MOR Vol. 1, #5 (Dec. 84) and read pages 27-31 for an easy-to- handle explanation of control codes and escape sequences.

# # #

Dear David,

Can I add other hard disks to my MD5? Will they format properly? Will badmapping work?

Out of Disk Space Already

Dear Outer Space,

Yes, yes, and yes, but this is for hackers only. The additional drive must have its own power supply. Daisy chain the control/status cable with the internal drive. The data cable has its own connector on the motherboard. You'll have to edit DRIVES.MAC for the drive's step rate, number of cylinders, etc., as well as adding the drive into the MD5's drive table. Then run BIOS.SUB to create a new CPM3.SYS.

# # #

Dear David,

There's a mistake in the MT-70 User's Guide! The codes given for the FA - FD keys are screwy.

All Keyed Up

Dear Keyed,

You are one of the unfortunate residents living in the twilight zone between ROM and manual updates. MT-70 ROM levels 2 and 3 have the codes shown in the original manual. ROM level 4 arrived before the updated manual went to print. Your codes should be: FA=5C, CTRL+FA=1C; FB=5D, CTRL+FB=1D; you can extrapolate the others.

Enter ESC # <CR> at the A> prompt to display your terminal's ROM level.

[There is even more to it than that. You may not have to install a terminal ROM Vers. 4 if you have version 2 or 3. First try the latest version of KEY.COM, Vers. 2.4 and your troubles may be over. When we get the whole story straight on matching version numbers for terminal ROMs and KEY.COMs we will print it in MOR. --Ed.]

# # #

Dear David,

What do you recommend for people who can't memorize thirty function key definitions for each of their programs? Maybe I'm just getting on in years, but a keyboard template for my MDT 60 would sure be handy.

Mnemonic Dis-Function

Dear Mnemo,

Boy, are you in luck. Larry Forhan, a Morrow dealer, tells me he has just what you want, hot off the press. Contact him in care of Abbey Consultants, 2222 Main St., Scott City MO 63780.

FREE

With Your Order For Any 2 Or More Items On These 2 Pages Get a

Free Book

The Compleat Morrow Micro Decision

Send for your free book today.
One Free Book Per Customer

The Compleat Morrow Micro Decision, A Guide to the MD 1, 2, 3, and 11 is published by the Computer Book Group of the Reston Publishing Company. This fully illustrated book takes you on a grand tour of the ins and outs of the operation of Morrow computers. It is the first serious book on the Morrow computer line released by a major publishing house. The more than 220 fact-filled pages of this book are jam packed with accurate information and technical advice that make it an invaluable tool for Morrow owners. If you want to learn more about your Morrow computer and how to get real computing power from it, put this book on your desk. It pulls no punches. Retail price of this book is $16.95. If you would rather purchase this unique book, Central's current low price is $12. Dealers and user's groups, please inquire about bulk purchases. Thank you.

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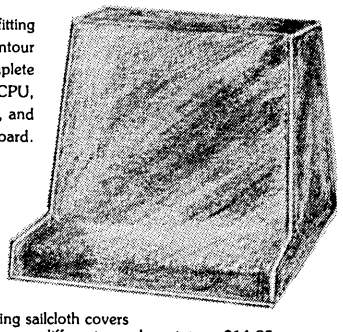
Introducing A Classic Form Fitting Morrow Cover



Our form-fitting cover follows contour of the complete Morrow CPU, monitor, and keyboard.

At last, the classic MD dust cover you'll be proud to own and use. This first rate computer cover is made from a premium, lint free, static free, washable, free breathing, and fade resistant sailcloth. It comes in a rich looking Navy blue or Sand. The Navy cover has a smart contrasting silver gray piping and trim that adds a superior finished look. Not to be outdone, the Sand cover is handsomely finished in a rich chocolate piping and trim.

Matching sailcloth covers for many different popular printers: $14.95. Indicate make and model.

For a limited time only, your price for this factory direct, custom made, one-piece sailcloth Quality Cover is $18.95. When ordering remember to indicate color preference. This special low price is subject to change. You must be completely satisfied with your purchase of this cover or we will refund your money immediately. Order today.

- Quality tailoring
- Easy care fabrics
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Richly tailored inside and out. Look inside any of our Quality Covers; see the ultimate finishing; we use machines that sew with 3 needles so that edges will not unravel or shed lint. We stress perfection because you deserve the best. Compare for long-lasting satisfaction.

FACTORY DIRECT

Money Management is the Price You Pay for Success

Computers crunch numbers. It's that simple. If you're not using your computer to manage your money, you're missing a chance to put pencil-sharp accounting skills at your fingertips. Chuck Atkinson's **Quick Check Money Manager** software program is a home and small business money manager so easy to use that if you can push a key it will help you computerize your checkbook.

Quick Check tells you exactly where your hard-earned money goes. *Quick Check* lets you set up your own expense and income codes, or use built-in codes, so you can start entering checks and deposits immediately. You don't have to know about accounting to use *Quick Check Money Manager*. This common sense program gives you instant fingertip access to a wide range of information about your income and expenses. Single keystroke commands help you pay bills, keep track of deductible and non-deductible items, correct mistakes, change dates, and reconcile your checkbook. This program even prints checks and addresses them automatically. *Quick Check* is written in CB80 native code. It is fast, accurate, and forgiving. No endless sorting.

Peter McWilliams, author of numerous computer books tells readers that Quick Check's author, Chuck Atkinson, is a dangerous man because he makes computing easy. It's true, home and small business accounting can't get any easier than this. Please don't spend another moment thinking about computerizing your checkbook. Get that checkbook into shape now. The list price of *Quick Check* is $95. Central's summer price is $69. Order today.

Attention: The rewards of using *Quick Check* include saving time, money, work, discomfort, and worry about your money. *Quick Check* is absolutely the easiest full-featured money manager, check printer, and budget organizer available. Bar none.

"Spikes and surges can be the greatest threat to your computer outside a 4 year old child with a jelly sandwich aimed for the disk drive slot."

PANAMAX SURGE SUPPRESSORS

Description	List	Price
2 outlets, D NF	$ 79.00	$ 59.00
4 outlets, LC S RB NF	$109.00	$ 89.00
6 outlets, LC S RB NF	$119.00	$ 99.00
UltraMax, LC S UA NF	$159.00	$129.00
TeleMax, D 1OL 2PJ NF	$ 89.00	$ 72.00

D: Connects direct to grounded wall jack.
LC: Includes 6 foot long heavy duty line cord.
S: Includes illuminated on/off switch.
NF: Includes EMI/RFI noise filter.
RB: Includes reset button.
OL: Includes outlet.
PJ: Includes 2 phone jack receptacles.
UA: Includes under voltage alarm/brown out protection.
All units include the added security of a 4 amp fuse.
Unique Panamax EMI/RFI noise filters provide protection in common and transverse mode. Essential for modem communications, multi-user stations, etc.
All Panamax units are factory guaranteed for 60 months.

Enemies of Morrow®... Spikes, Surges, and Noise

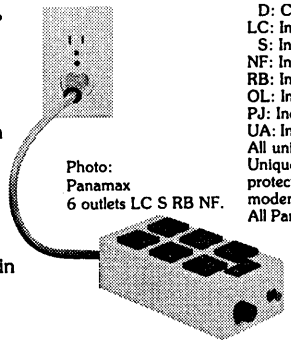


Photo: Panamax 6 outlets LC S RB NF.

The Morrow has enemies. But now you can protect it from the mish mash of electrical currents that race through your home or business. Powerful up-surges of current can actually blow out your machine. Less powerful, barely noticeable spikes, surges, and noise can silently degrade your system in time, ruining chips, destroying data, and causing expensive service calls.

The fact is: "Line filtering will protect your computer...from power surges or other undesirable occurrences from the power source." Surge protection will help your Morrow provide years of trouble-free service. Also, if you plan to use your Morrow to access information by modem, you must have a reliable high frequency noise (EMI/RFI) suppressor to insure against data loss and scrambling.

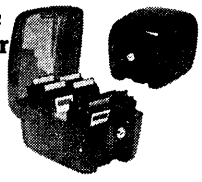
"Power line-associated problems are estimated to cause nearly 70 to 90 percent of the malfunctions in the IBM PC."

"Overvoltage can be fatal to both data and hardware alike."
P.C. Magazine, March 1983

There are many "toy" surge suppressors on the market. They are smartly colored, but beware. The performance difference is amazing. The best surge and noise suppressors on the market are made by Panamax. Our "Panamax Challenge Certificate" tells all. It is a startling comparison of Panamax quality with 11 other well-known brands. One aspect of this revealing report tells how Panamax responds to and cuts surges in 5 or less pico seconds, while most other suppressors respond at a comparatively slow 5 to 50 nanoseconds!

Check our regular low prices. Try the Panamax of your choice for 15 days. Receive the "Panamax Challenge Certificate" with your purchase. If not completely satisfied with your purchase, return for immediate full refund. Your Morrow deserves Panamax protection, the best there is. Order today.

Lockable Diskette Defender



Handsome, sturdy, smoke-tinted acrylic tray holds 70 MD-size diskettes. Flip-up lid keeps out dust, debris, and moisture, and locks securely to guard your important work. Comes with 7 dividers with index tabs for easy filing and to keep floppies upright to prevent bending, warping, and scratching. Tough and secure metal lock never comes in contact with diskettes because it is enclosed in a special plastic housing. Super value at $22.95 for one, or $20.95 each if you buy 2 or more. Keep prying eyes and sticky fingers away from your data. Order today.

Price Protection Policy

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Central Computer Products will meet or beat any price listed in this magazine on products also advertised in our ads. If you see a lower price, please tell us. We'll beat that price and pay shipping too. Try us for dependable lightning fast service today. Thank you.

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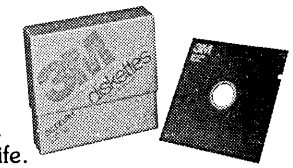

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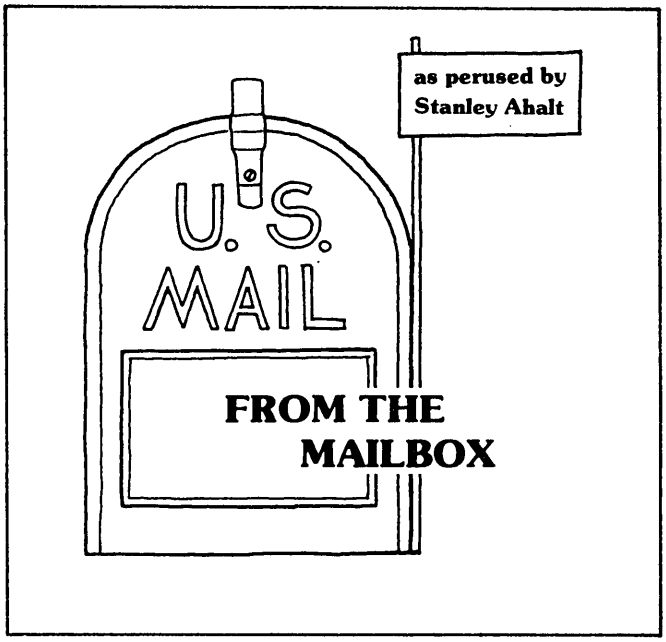


This column is an open forum for all Morrow users. If you have a question, answer, observation, or just a spicy tidbit of information, pass it along! If I can't answer the question, there is bound to be someone out in MORland who can. If you prefer, I'll be glad to forward your personal replies to the people who have submitted particular questions. You can mail directly to me at: 102B Victoria Lane Clemson, SC 29631 (803) 654-2748 MCI: SAHALT Preferred mode is via MCI, because that minimizes retyping.

Starting this month, I've decided to go ahead and use everyone's last name, so if you want to preserve your anonymity,be sure to make a note of that in your letters.

From Peter Mierau of NewStar Software, the folks who gave us NewWord (NW) - If you are using NW with a Gemini 10X printer and want to take advantage of most of the features that the printer provides, you can simply install the program for the MX 80 printer. The newer versions all come with a special Gemini driver, and the new driver will give you the ability to use all of the features of the Gemini. NewStar's upgrade policy is to send in your old master disk and $38 for the latest version. Thanks for the information, Peter. ##

From Larry Moore, Gualala, CA - Larry writes to say that many of the problems that he had with NW, version 1.13, have disappeared with versions 1.18 and 2.05. Now, does anyone have an updated version of Correct-It? The only version that Larry has is 1.01. ##

From Robert Wallace, Stuart, FL. - For those of you who have a PROWRITER B and NewWord, you can use Control-PY to toggle the machine in and out of its Greek character set, which contains many useful characters for formula writing and business uses. ##

From Rebeccah Prastein, Chicago, IL - If you are having problems with cursor addressing using a VT-100 and an MD2, you might be able to solve them by simply changing the TERMINAL.DAT file to show the VT-100 as a Level = 3 machine rather than Level = 2. ##

From Kent Waterman, Oakland, CA - Kent writes to tell us that he suspects the reason LogiCalc doesn't give a disk directory at ";U" is that the feature is simply not implemented on Rev. D.01 (1982 copyright) version of LC! Likewise, the SORT function was not included. My own suggestion is to try SuperCalc, which I like. ##

From Alan Wiener, Omega Consultants, Missoula, MT - Alan suggests that you can use one of the many SORTED DISK DIRECTORY programs which are available via Public Domain to do the sorts on your LogiCalc files, which he saves to FILES.LCF. ##

From Mr. and Mrs. Robert Cain, San Jose, CA - the Cains write in to tell us that LogiCalc seems to be very sensitive to terminal installation. If everything isn't just right, then LC, which is a screen-sensitive program, just doesn't perform correctly.

From Jeffery Leader, Syracuse, NY - Jeffery needs to know how to hook up his Okidata Microline 92 printer to the serial port on his MD3. Without further ado:

Pin Numbers:

```
Serial Port - MDx       Microline
      3 ---------------- 3
      7 ---------------- 7
     20 ---------------- 20
                        4 -|
                           | <- Jumper
                        5 -|

                        6 -|
                           | <- Jumper
                       11-|
```

From Aaron Goodman, Peralta, NM - If you are having trouble echoing files to the printer using Control-P, you might want to try the PIP command. Specifically, use:

pip lst:=d:filename.typ[Z]

The [Z] solves the problems associated with control codes generated by word-processing programs. Great Tip! ##

I continue to get numerous questions regarding co-processor boards, add-on hard disk drives, and extra-memory boards. If you have ANY experience with any type of these products or additional hardware, please take the time to write us, even if it is a brief note.

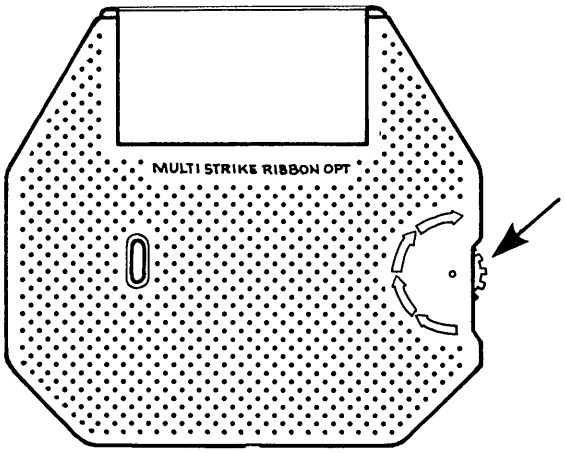
Until the next issue--A happy toMORrow to you (sung to appropriate tune). KEEP THOSE LETTERS COMING!

MORROW PRINTER RIBBONS

by Barry Bruch

I hear many people express disappointment on how fast printer ribbons for the MP-100, 200 and 300 printer are used up. Most of the time I discover they are using the wrong type of ribbon. Usually they're using Silver-Reed and Olivetti typewriter correctable ribbons or single strike ribbons. Although these are relatively inexpensive (from $4.00 to $5.00 each), they only provide for 80,000 strikes. This prints only about 45 pages of single-spaced text. Furthermore, the correctable ribbon produces a relatively faint impression on the paper and is susceptible to smearing.

The multistrike ribbon is recommended instead. While it costs about double the price of correctable or single strike ribbons, the multistrike has three times as many strikes (240,000 strikes or about 135 single-spaced pages). Also, the impression is as dark and as stable as the single strike.



Fabric ribbons are available for about the same price per cartridge as the multistrike ribbon. However, the printer manufacturers do not recommend them. They claim that with heavy use, particles from the ribbon tend to gum up the printer mechanism. They certainly do gum up the print wheel, and you frequently have to use a cleaning kit to avoid smeared images. Also, these ribbons do dry out. Thus, they are susceptible to shelf life and deteriorate with exposure time on the printer. Further, the print quality is inferior to the film ribbon.

Once you determine the type of ribbon you want, how do you make sure you're getting the right one? The "finger wheel" of the ribbon casing is color-coded. (See illustration.) Yellow is for "Correctable," Orange for "Single-Strike" and Blue for "Multistrike."

In summary, the blue-wheel, multistrike ribbon is the one recommended. It has the best image quality and shelf life. It is one-third cheaper to use than the lower unit cost yellow- or orange-wheel ribbons. Finally, it is much easier on your printer and print wheels than fabric ribbons.

[At MOR we use the blue-wheeled multistrike ribbons for our MP-200 printer. We mail-ordered ten ribbons from a friendly company in San Francisco called "American Ink." Nice thing about this family-run outfit is that you don't have to know the exact model-number order code. Ask for Ken and he will ask you a couple of questions and will get you exactly what you need. Since we use the printer a lot, we go through ribbons quite fast, but you can refill them. Once in a while we ship off a bundle of used ribbons to American Ink, and for less than half the original purchase price, they are returned ready to go with fresh ribbon. It is a small company, but they seem to have all the ribbons in the world. At our suggestion, they have begun taking charge card orders. American Ink, 527 Howard Street, San Francisco, CA 94105, (415) 982-0161. --Ed.] ◘

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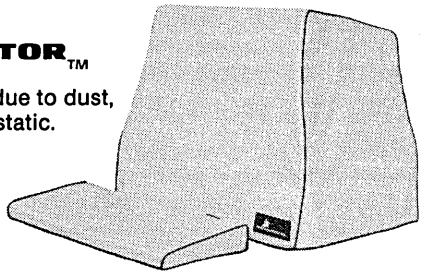

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THE CTS MM300 MODEM WITH MITE

by William Steele

When I got a flyer from CTS Technology offering their MM300 modem and Mycroft Labs' MITE communications program, both for $99.95, it was an offer I couldn't refuse. The MM300 is the same unit as the Morrow Modem which your dealer used to sell you, along with the ReachOut communications program for $300. (See p. 13 for some information on ReachOut and p. 10 for review references.) The MM300 is a 300-baud "smart" (i.e., auto-dial, auto-answer) modem designed specifically for use with Morrow computers. MITE, which lists separately for about $150, is a versatile program that accesses all the automatic features of the modem, allows communication with mainframe systems as well as other microcomputers, has a host mode that allows your computer to be operated from a remote terminal, and can even emulate a teletype terminal.

CTS has about 4000 of these modems left to sell. This modem is usable only with a Morrow. However, while the version of MITE in the package is tailored to the Morrow and the MM300, it can be adapted to other computers and modems.

The MM300 with MITE is an ideal package for a beginner, since it's practically self-installing. You may have been intimidated by articles about changing jumpers inside your computer or wiring a special cable. None of this is needed with the MM300, which is a gray plastic box about the size of a Walkman, with three inches of ribbon cable hanging out of one side, ending in an RS-232 plug. Installation consists of plugging this into the RS-232 port on the back of your computer and connecting a standard modular telephone cable to the modem.

The modem gets its power through the RS-232 port on all Revision 2 MD's; for earlier models (Rev. 1), CTS offers an optional external power supply. (Older models can be rewired to supply power; see "The Morrow Toolbox" by David Mintie in MOR, Vol.2, # 2, pp. 35-36, April 1985.) If you already have a printer plugged into the RS-232 port, you have three choices: you can switch plugs whenever you want to use the modem, buy an RS-232 switch for about $100 (or make one for a lot less), or change the printer over to the parallel port. A yellow LED on the modem lights up to show it's on. Unfortunately, the LED is facing the wall, but at least you can check it when things aren't working right.

Once the modem is plugged in you can forget about it and concentrate on the MITE software. This too is easy to install. First, of course, make a backup copy of the distribution disk and put the original away. When you run INSTALL, you're given a list of computer choices, one of which is "Morrow MD with CTS MM-103." What more could you ask? However, when I got to the choice of terminals, there was no listing for my MDT50 (Freedom 100). Since the Televideo 925 uses exactly the same terminal control codes, I selected that one--which turned out to be a mistake. Calling up the Macro Definition menu with the program installed that way started an endless loop, with the menu flashing on and off the screen like a neon sign. I reinstalled for the ADM-3A (which uses the same codes) and everything worked fine.

When you select your modem and computer from the menu, the INSTALL program patches in machine-specific *.HEX files from the distribution disk. Mine came with files for the MD3 and the MD11. If you later buy new hardware, Mycroft will sell you the installation files for $25 for any CP/M machine, or $50 for MS-DOS or MacIntosh versions. The assembly language source code for the patches is also supplied, so if you're a programmer you might be able to make your own adaptations.

After installation is complete you can delete all files except MITE.COM and MITE.HLP which are the only ones you need on the working disk. (Do this only on your working disk, of course.)

According to the manual, there are supposed to be some bonus files on the distribution disk: SQ.COM and USQ.COM (used to squeeze and unsqueeze program files for faster phone transfer), a line-numbered text editor for CP/M, a multiple file transfer utility, a program which translates .COM files to .HEX files, a TRSDOS to CP/M conversion utility (not to convert disk files, alas--just to make TRSDOS files readable after transmission), and a sample FORTRAN program for use with the TEXT protocol mentioned below. Only the .COM to .HEX program was on my disk. Mycroft Labs said this was because the installation files for the Morrow version took up too much room. If you want these utilities, they say, just send them a blank disk. They also said there was supposed to be a README file on the disk that explained all this, but I guess there wasn't room for that either.

MITE is so versatile that the beginner may be confused by all the options, and it seems the manual might only add to the confusion. It is organized like the program itself, with a chapter for each menu, and a paragraph for each option. Although it's clearly written, unfortunately options you won't use in a million years are explained in the same size type as the ones you'll use every day. (This is fair, I suppose, since different users will have different needs, but it's also typical of manuals in general: they tell you what the program can do, but not why you should care.) Some brief examples are offered, including a sample session with The Source.

Once you've made it through the manual, however, the program becomes very easy to use. There are only a

few basic things you want to do in computer communications, and there is a menu related to each of these. In a typical session you might do the following:

When you boot up, you will see the Main menu. Type "P" for Parameter. When the Parameter menu appears, enter the settings for the system you're going to call. Parameter settings default to 7 data bits, 1 stop bit and even parity, which is common for communicating with mainframes. But most likely this is not what you need since most microcomputer services use 8 data bits, 1 stop bit and no parity. (If you don't know what that means, don't worry about it; you just have to find out what the settings are for the system you're calling and enter them.)

On this menu, you also enter the phone number to be dialed. The number can include mixed tone and pulse dialing, including the characters # and *, with waits for secondary dial tones, so you can use alternative long distance systems or dial into or out of centrexes.

Now return to the main menu, and from there type "G" for Go, to start communications. The screen will display: "Now dialing...." If you're pulse dialing, you'll hear clicks from the modem. When a modem-to-modem connection is established, the screen will display "Carrier detected," and you'll be in terminal mode, where the text you send out and whatever the remote computer sends in will be displayed on your screen. In most cases, you hit a couple of carriage returns and the remote computer will start sending. One minor complaint: MITE displays "Carrier detected" when your modem detects a dial tone as well as when a carrier is emitted from the modem of the remote computer. If your dialing procedure involves waiting for a secondary dial tone, expect to see that phrase displayed twice before you actually get your connection. The modem sends several one-character signals to tell you what's going on--e.g., "R" for a ring. MITE doesn't translate them, so you'll want to keep the list of signals handy. I found that the modem interprets a voice answer--live or recorded--as a ring signal.

From terminal mode you can get back to the main menu by typing a Control-J, and then from there you can get to any other menu. If you want to save something the remote computer is sending, go to the Download menu and turn "Capture Mode" on. To send out something from one of your own disk files--maybe a message you've already written with NewWord to be posted by MCIMail--go to the Text File Upload menu. To send or receive a binary file (e.g., a .COM file or a program file) use the Binary File Transfer menu.

For binary file transfer, MITE defaults to the XMODEM protocol used on most bulletin boards, but also can work with CLINK, CROSSTALK, HAYES and IBM-PC protocols and its own MITE protocol. MITE also offers a protocol called TEXT for transferring text files to and from mainframes with error checking; to use this you must have a special program running on the mainframe. (A sample of such a program in FORTRAN is one of the files that's supposed to be on your distribution disk but isn't.)

In practice, this menu jumping goes a lot faster than it takes to tell it: the menus flash on and off the screen in less than a second. Of course you should not jump menus while the remote computer is sending something. Wait until it gives you a command prompt, or send it whatever character it recognizes as a command to stop scrolling (usually Control-S). One catch: when you come back to terminal mode, whatever was on the screen when you left will have been erased, including the command prompt. You must remember what command the remote computer was expecting to receive.

Once you understand what's going on, you can bypass the menus by using "Local" commands, which let you perform most major functions without leaving terminal mode. There are other menus which allow you to filter out unwanted characters sent by a remote computer (in case your system recognizes them as commands), change the control characters used by MITE (in case a remote system recognizes them as commands), and erase, rename, copy and examine files or get a directory.

The most fun is the Macro Definition menu, which lets you predefine up to 10 strings of commands which you can then send to the remote system with just two keystrokes. These strings can include pauses and waits for the remote system's prompts, and can invoke local commands. (This latter function isn't mentioned in the manual. The way to do it is to enter Control-K, followed by the command, into the macro string). String number 9 is sent automatically when a connection is established, so you can use it for automatic log on. For example, my log-on string for MCImail is:

^M..@W^M..@T:WSTEELE^M..@T:XXXXXXXX^M,

which means "Send two carriage returns, with a one-second delay between them, wait for the remote system to send a colon, type my user name, wait for another colon and type my password." Each macro can be up to 62 characters long, and you can link them.

If you want to be even fancier, there is a USE command which tells MITE to follow a series of prepared commands in a disk file as if they were being typed in at the console. In effect, the USE file is a macro of unlimited length. You can call macros from a USE file, and you can call a USE file from a macro by entering Control-KUSE. (Again, this isn't in the manual.) This means that you can call a USE file from the automatic log on string, and do just about anything imaginable automatically on bootup. In reviewing ReachOut, (MOR, Vol. 1, #3 August 1984) Stan Ahalt pointed out that it could be set up to call and log on to a stock reporting service and check several accounts all with one keystroke. You could certainly do that with MITE as well. Mycroft offers an even more spectacular example in their manual of a dealer calling 100 clients and transmitting files to them, while keeping a record of which calls got through.

(continued)

MITE allows you to save all these functions to "parameter files" so you don't have to enter all the details each time you call. It isn't entirely clear from the manual, but a "parameter file" contains not just the settings of the Parameter menu, but also a set of macro strings, a file transfer protocol, a set of filter characters, and so on. For instance, if I boot up CP/M and type "MITE MCI" (a parameter file I wrote for my own use), the program comes up with the phone number and all the other details set for MCIMail, including the automatic log-on string. All I have to do is hit "G" to start the call. Better yet, I can type "MITE MCI G" from the CP/M A> prompt and bypass the opening menu. After that call is finished, I can load a different parameter file and be ready to call and log on to, say, Compuserve.

I found only one apparent bug in the program: once or twice I loaded a parameter file, typed "G" and nothing happened. When I saved the parameters under a new name and reloaded, everything worked fine. I suppose this could have been due to some sort of disk error.

I also had a problem which was not exactly MITE's fault. When you turn the Capture function on, MITE saves text to a 4000 character buffer in RAM; when the buffer is full, you must transfer the buffer to disk or you start losing text. One way to do this is to exit to the Download menu every so often, and tell it to do a save (or use the equivalent local command). Another is to use "Flow Control." With Flow Control on, MITE automatically writes the buffer to disk every so often. Before it actually does the write operation, it sends a Control-S to the remote computer to tell it to stop sending; when the write is completed, it sends a Control-Q as a signal to resume sending.

What I did wrong was to turn Flow Control on when calling a computer club bulletin board which didn't recognize Control-S and Control-Q as commands. I started scrolling through a long list of messages with MITE happily writing everything to its buffer. After a while I got bored and typed the bulletin board's command to exit from the message area; it ignored me and kept scrolling. I think I was on about message number 55 out of a list of 200 or so. Long distance. I suppose I could just have turned off the computer and hung up, but that didn't seem polite. After about sixteen tries, MITE finally accepted my Control-J, and for some reason it occurred to me to do a Save. Then I returned to Terminal mode and found that the commands all worked. What apparently had happened was that MITE had been so busy trying to send Control-S's to the remote computer that it wouldn't let me get a character in edgewise. (I now know from reading the manual that you can change the characters MITE sends out when using automatic Flow Control to match what the remote system expects. I also know you don't have to be so bloody polite to other people's computers since nearly all RBBSs will recycle properly and automatically get ready for the next customer when you just break the carrier.)

In summary, the package being offered by CTS Technology is an economical way to get online with a highly sophisticated and flexible system. I had no problems I needed help with; and when I called for information for this article, I got genial and knowledgeable phone support, especially from Howard Alm at CTS and Judith Thompson, Director of Technical Services at Mycroft Labs, who likes to explain things in English. For what it's worth, I'll be happy to share my small knowledge with anyone out there, on your nickel. Bill Steele, Box 782, Ithaca, NY 14851 (607) 273-2132 MCImail: WSTEELE 254-5833.

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QUESTION OF THE BI-MONTH

The Arab philosopher Al-Ghazzali said that one of the meanings of the word "passion" is the inclination of the human heart to things familiar to it. Oil companies have discovered that it takes a minimum of forty years to change the primary energy source for any basic use (light, heat, cooking, transportation). Aren't computer manufacturers violating the inherent inertia of the human passions in introducing technological changes faster than we can accomodate ourselves to them?

Asked at BAMDUA meeting by I.I. Butler

A SHORT INTRODUCTION TO FIDONET

by Erik Westgard and Warren Kinninger

Fido is the name of a dog--and incidentally it's also the name of a popular CBBS with networking capabilities. Fido runs under MS-DOS 2.0 on IBM PC's, Digital Equipment Corporation Rainbow computers, the Otrona Attache and the Sanyo. Fido provides extensive security and system management features, and uses named DOS directories to maintain libraries for public domain software (MS-DOS, CP/M 80 and 86) that callers can access and download. Since CP/M 80 is what is used in Morrows, a great deal of that software is useful to Morrow owners.

Fidonet is a unique public domain personal computer network. Every night several hundred Fido systems around the world relay mail through their automated networking capability.

Fido was developed as a PC-based electronic mail and file routing system to eliminate some of the problems with computer-to-computer communications in the non-commercial world. Before Fido, transferring a file between distant personal computers (other than by MCI Mail, Compuserve or similar systems) meant users had to synchronize with each other, set up their machines in communications mode, and then make phone contact--with the likelihood of busy signals, line problems, and misunderstandings. With Fido, a store-and-forward system, you deliver your message to your local Fido node and Fido will transfer your message automatically to the appropriate node. And it does this during the wee hours when long distance rates are lowest.

As documented in the file FIDOHIST.TXT, found on most Fido systems, Fido was first implemented in early 1984 and ran between Tom Jennings (Fido #1) in San Francisco and John Madill (Fido #2) in Baltimore. The software package took messages, bundled them into packets, and placed a call to each system that had a packet addressed to it. Tom mentions that he invented and tested Fido "just to see if it could be done"--in the spirit of the ham radio and telephone pioneers. Needless to say, these experiments succeeded, and the number of Fido systems has grown rapidly.

As the number of Fido systems--called "nodes" or "Fido nodes"--climbed past twenty, call and message routing became complicated. What had been a simple system now required almost daily tending. Several members of the St. Louis Digital Equipment user's group, DECUS, offered to help out. They founded Fido #51, which now handles routing and node list maintenance for much of the network, including updating the many changes as new systems are added and others drop off.

The mail distribution itself is generally a three stage process. First, Fido systems in each geographic area call a designated "host" Fido system to deposit any outgoing mail. This host system is unattended and is set to run automatically from 2:30 AM to 3:00 AM Central Standard time. At 3:00 AM, these host nodes start calling each other to deliver the national mail. After 4:00 AM, the local systems then call back the hosts to see if any mail has been received. Users and individual systems are automatically billed for the cost of long distance calls. Since the calls are only from one node to the next nearest, and are placed during low rate hours, everyone ends up paying a fraction of what it would cost to make direct long distance modem calls from point of origin to final destiny.

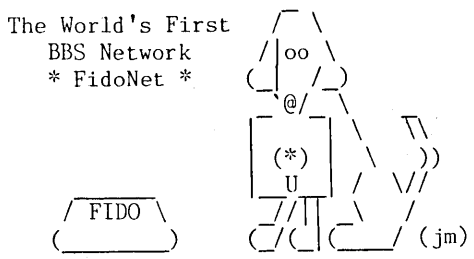
Fido systems are set up with many different levels of dial-in access. Some are public or semi-public, others are private and have unlisted phone numbers. Still others are owned by computer stores and users groups. Commercial Fido networks are also in place and being used by companies like Dupont and the IRS. Most Fido systems support modem speeds of 300 and 1200 baud, with some systems installing 2400 baud modems.

On the public and semi-public systems, at sign-on you are prompted for your name. You are encouraged to use your "real" name instead of a "handle." This is to help prevent abuse of the systems and to facilitate the use of the mail facilities. Once signed-on, Fido usually draws a picture of Fido himself, with a floppy disk in his mouth, and then lists any news items on the systems, etc. Fido then provides you with a witty quotation, selected for each log on at random from a large file. And then you are given the main menu, an example of which is below.

```
MAIN Commands:
M)sg-Section F)ile-Section G)oodbye
S)tatistics A)ns-Questionaire B)ulletin
Y)ell C)hange U)ser-List E)ditorial
V)ersion
Main: M F G S A B Y C U E V or ? for help: ?
```

M A I N S E C T I O N

```
+-------------------------------------+
| M ... Enter the MESSAGE SECTION     |
| F ... Enter the FILES SECTION       |
| B ... Read the Bulletin             |
| E ... Read the Editorial            |
| G ... Goodbye (Logoff)              |
| S ... Statistics (time left, etc)   |
| A ... Answer Questionaire           |
| Y ... Yell at the Sysop             |
| C ... Change Help Level, Name, Nulls|
| U ... List of Users                 |
| V ... Fido Version                  |
+-------------------------------------+
```



To check for mail, you enter "M" for the message section. Most Fido systems have several areas in the message section. Entering "A" will list them. These tend to follow the pattern of: local mail, Fido mail, messages to/from the SYSOP, etc. When first signing on, you should check for mail--messages sent to you--in each area you are interested in.

If you want to switch from the Message Section to another area, you enter "A", a space, and the desired section command. Typing an "M" from the messages area will take you back to the main menu. An "F" will take you to the files section. Like the more conventional bulletin board systems, some Fido systems have a number (up to 99) of file areas with public domain software, documentation files, etc. One or more of the file areas usually contain information on Fido, Fido software and other materials for browsing. (Use the "T" type command to browse .DOC and .TXT files.) Entering "A" from the Files Section will give you a list of the file areas. Systems tend to have mostly IBM PC, CP/M 80 and CP/M 86 software available.

Once in a desired file area, you can (if allowed) download files using the "D" command. Depending upon your computer and software, you can use ASCII, XMODEM, KERMIT and other file transfer protocols. Systems may have an area reserved for users to upload files to the Fido system, using the "U" command. You can run the "S" command from the main menu to find out how much time you have left, since there tends to be a per session and daily time limit per user on the system. A "G" from the main menu will log you off.

Fido seems to have something for everyone. For many computer users, the nodes are a source of public domain software, both CP/M and MS-DOS. The MS-DOS user can download Fido and set up their own bulletin board. (Sorry, Morrow users.) If all you have is a terminal and a modem, you can use the local and national network to send messages and mail almost anywhere. Exchanging local messages costs nothing, but if you want to use the national network you have to set up an account with your local SYSOP.

There are Fido nodes in most major cities. Local bulletin boards usually include Fido systems in their lists. Or you can call one of the master systems and look at or download the current node list, updated about weekly.

Here are some major Fido routing nodes, copied from the end of the nodelist for March 29, 1985:

Fido #1	CA	(415)-864-1418
Fido #27	MA	(617)-632-1861
Fido #36	CA	(213)-204-2996
Fido #50	TX	(512)-263-5805
Fido #51	MO	(314)-432-4129
Fido #56	CO	(303)-973-9338
Fido #60	TX	(713)-870-8803
Fido #61	MN	(507)-289-8452
Fido #69	MI	(313)-887-7429
Fido #79	NY	(212)-535-8924
Fido #85	OH	(513)-579-2587
Fido #115	DC	(202)-332-9512
Fido #207	CT	(203)-865-1794
Fido #344	FL	(904)-721-3804
Fido #347	HI	(808)-486-0407
Fido #393	IL	(312)-759-5402
Fido #400	TN	(615)-242-4369
Fido #442	AL	(205)-830-2334

The master nodelist is called "fidolist.xxx", where xxx is the list number. It is updated weekly, and is available on Fido #51 and other boards in the FIDO TXT file area.

[Unlike many commercially available E-Mail systems (e.g., MCI, CompuServe, The Source), Fidonet doesn't depend on one central computer for message switching, which eliminates the vulnerability centralized systems are prone to. The decentralized nodes of Fidonet are distributed all over the nation. When one node is out of commission, there are many others to take up the slack, allowing for what is called "graceful degradation" in case of node failures. This is the wave of the future. It is heartening to see important developments like this taking hold first in the public domain sector of our computer culture, created by talented individuals rather than commercial companies, and supported by volunteer labors of love rather than financial incentives. --Ed.]

GET THAT ARTICLE IN ON TIME

The theme for the August 1985 issue of MOR will be Wordprocessors and Writers' Tools. Most selections for this theme have already been made. But don't be discouraged! There's still room for articles in the October 1985 issue on the theme of Business Applications and Data Bases. Getting your manuscripts in by July 15, 1985, will give you a good chance of publication. (Be sure to read the Writers' Guidelines in the Information Box on page 2.) We'd also like to hear your suggestions for future themes--especially when accompanied by drafts of or proposals for articles.

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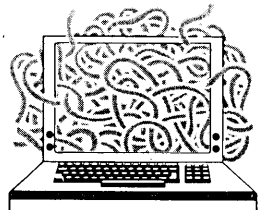

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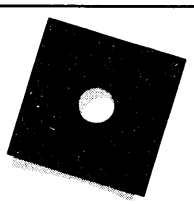
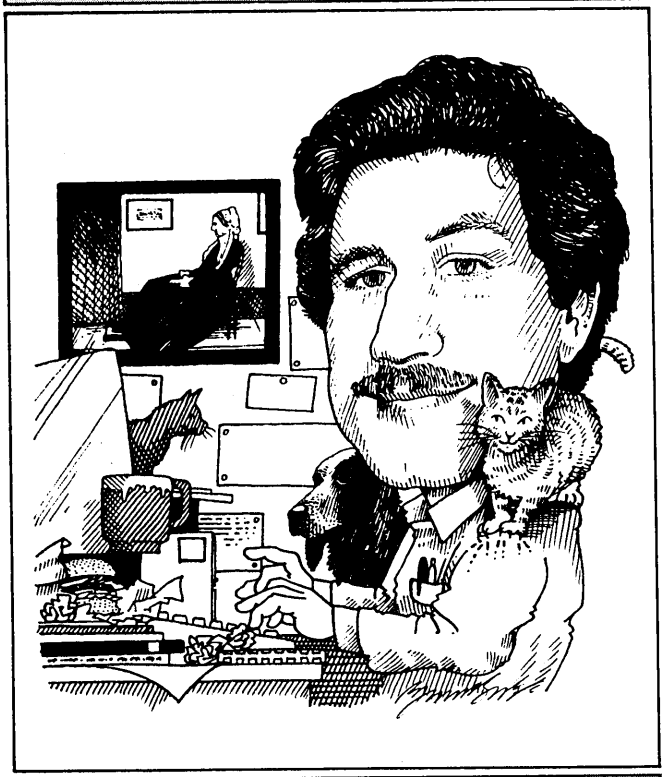


ALIST PLUS is also available in MS-DOS format.

Computerese even a mother would love



INSIGHT

by Art Zemon

PROBLEM SOLVING WITH MBASIC

Have you ever had a numerical problem that you just could not quite solve with LogiCalc or SuperCalc? If so then MBASIC could be just the solution you have been looking for.

Now don't stop reading just because you don't know how to program. As a matter of fact, that is the only time in this article that I will mention the word.

A Little Background

MBASIC is MicroSoft's BASIC language interpreter. It interprets complex phrases like:

```
PRINT "Hello"
```

and does just what you would expect. It prints, "Hello". It will also understand much more complicated things like this:

```
PRINT (6 + 15) * 2
```

to mean that it should perform the necessary arithmetic and print "42".

The MBASIC which came with your Morrow is virtually identical to the one which comes with a number of other computers, including such prestigious machines as the IBM PC (and clones) and Radio Shack's Tandy Color Computer and Model 100. MBASIC is similar to the Basic which comes with most of the other computers on the market, e.g., Apple, Commodore and Atari. The examples given here should work on any of those computers.

A Beginning

Probably the best way to see what MBASIC can do for you is to try an example. Imagine you have a credit card with $500 charged on it. You want to know how long it will take to pay it off if you send $35 per month. The interest rate is 18% per year.

You do not need to remember any complicated formulas. The only ones you need to know are that the interest rate per month is the yearly interest divided by twelve and that the balance at the end of a month is the balance at the beginning of the month, minus your payment, plus the interest. Written a little more concisely, here they are:

```
MI = YI / 12
EB = BB - PAY + IC
```

where

```
MI is the monthly interest
YI is the yearly interest
EB is the ending balance for a month
BB is the beginning balance for a month
PAY is your payment
IC is the interest charged for the month.
```

The only even slightly complicated item here is IC. The interest charged is the monthly interest rate times the ending balance:

```
IC = MI * EB
```

This changes the second formula into three lines:

```
EB = BB - PAY
IC = MI * EB
EB = EB + IC
```

OK, so now what? You have a bunch of mathematical formulas sitting on a page and you still do not even know the balance at the end of the month! A fair enough complaint. Fire up MBASIC by putting the appropriate disk in your Morrow and typing:

```
MBASIC
```

If you are using the menu system, then select the appropriate choice from there. Once MBASIC is through telling you about its copyrights, you can solve your problem. In the following instructions, the things you should type are preceded by "->". Do not type the arrow; it is just a pointer to show you what to type. My comments will be interspersed.

Start by telling MBASIC to remember the yearly interest rate.

```
-> YI = 0.18
```

Then let MBASIC calculate the monthly interest rate from the yearly one.

```
-> MI = YI / 12
```

You may have noticed that MBASIC did not bother to tell you what the monthly interest rate is. You have to ask. To do so, just type:

```
-> PRINT MI
```

and you should see MBASIC print ".015" (1.5%). Now you can tell MBASIC the beginning balance and the payment.

```
-> BB = 500
-> PAY = 35
```

Next you can tell MBASIC to calculate the ending balance for you. Just type in the formulas from above:

```
-> EB = BB - PAY
-> IC = MI * EB
-> EB = EB + IC
```

Finally, make MBASIC tell you what the ending balance is:

```
-> PRINT EB
```

to which MBASIC should respond, "471.975". Four hundred seventy-one dollars ninety-seven and a HALF cents?! Well, MBASIC does not know that you are dealing with money. It "assumes" that you want as precise an answer as possible and performs calculations accordingly. For now, treat MBASIC as a problem solving tool and not as something with which you intend to arrive at penny perfect solutions. With a problem such as this (determining how long it takes to pay off a credit card) the number of months is unlikely to change if the pennies are not rounded correctly.

There are ways to tell MBASIC to compute pennies exactly but they are beyond the scope of this article. Similarly, if your problems need solutions which are exact to the penny, then your needs are beyond the scope of this article.

Back to the Problem

Up to this point you have told MBASIC that you have a credit card with a $500 balance with 18% per year interest. After paying $35 on the credit card, MBASIC told you that your balance will be $471.98.

We are getting closer to the answer to the original question of how many months will it take to pay off the bill. All that is now necessary is to make the beginning balance $471.98 (the current ending balance) and compute a new ending balance. You keep doing this until the ending balance is zero (or less).

To effect this you need to type the formulas into MBASIC in such a way that they will be remembered and can be re-evaluated for each month. All you need to do is type the same lines with numbers on the beginnings. Just like this:

```
-> 10 YI = 0.18
-> 20 MI = YI / 12
-> 30 PRINT MI
-> 40 BB = 500
-> 50 PAY = 35
-> 60 EB = BB - PAY
-> 70 IC = MI * EB
-> 80 EB = EB + IC
-> 90 PRINT EB
```

You may be wondering why I numbered the lines by tens starting at ten. The numbers are arbitrary as long as they keep increasing. By numbering the way I did, I have allowed room to insert more lines of code at a later time.

You can verify that you typed the lines correctly by typing:

```
RUN
```

after which MBASIC should again print the monthly interest rate and the balance at the end of the first month.

Now that MBASIC remembers the formulas, you need to tell it to continue making payments until the balance is zero or less. There are three additional steps which MBASIC must perform.

1) Check if the balance is zero (or less). If it is, then stop.

2) Make the ending balance of one month the beginning balance of the next.

3) Go back and do the calculations again.

In MBASIC you should type the following lines:

```
-> 100 IF EB <= 0 THEN END
-> 110 BB = EB
-> 120 GO TO 60
```

Now go ahead and type "RUN" and watch what happens. MBASIC will start by printing the monthly interest rate. For each month it then prints the balance at the end of the month. You should see a column of numbers like this:

```
 .015
 471.975
 443.53
 ...
 67.003
 32.4831
-2.55468
```

Note that in the last month you will only need to make a payment of $32.48. If you send in a full $35 then you will overpay by $2.55.

(continued)

You finally have the answer to the original question. All you have to do is count the number of months in the display--or have the computer do it for you! To make MBASIC do the hard work just add a month counter (named MO). Be careful here of the difference between "oh" and "zero."

```
-> 25 MO = 0
-> 85 MO = MO + 1
-> 90 PRINT MO, EB
```

Now when you type "RUN" you should see two columns of numbers, months on the left and balances on the right. And the answer is right in front of you, 16 months.

Why Bother?

Virtually all spreadsheet calculators can give you the same answer with less bother and less typing. So why bother using MBASIC? There are two reasons. The first is a matter of memory, yours and not the computer's. The second is a matter of flexibility.

If you are like me, you can remember the formula for computing the balance on your credit card at the end of the month. You cannot, however, remember the much more complicated formula to directly calculate the number of months necessary to pay off a loan of present value PV, interest rate IR, and payment amount PMT.

As for flexibility, try this simple extension to the problem if you are using a spreadsheet. It is now June. You know that in October, November, and December you will be spending an additional amount on the credit card for holiday gifts. How will that affect the time to pay off the loan?

Most credit card companies only charge you interest on old balances. That is, the charges from new purchases do not earn interest during the month when the purchase was made. Therefore, you should add any additional purchases into the ending balance after all else is said and done. Furthermore, you need to make MBASIC ask you how much in additional purchases should be added. To do this, type the following pair of lines into MBASIC:

```
-> 75 INPUT "ADDITIONAL PURCHASES"; AP
-> 80 EB = EB + IC + AP
```

That simple change will make MBASIC query you for any additional purchases for every month in the cycle. If you plan to make the first payment in July and spend an additional $50 in October, November and December (months four, five and six), then just answer 50 for those months and 0 for all the rest. MBASIC quickly tells you that those three months of spending extend the payment cycle by six months.

Another Example

Have you ever needed to produce a set of sign-up sheets for some project? Were you just a bit dismayed at the prospect of carefully typing out a master with a list of fifty numbers down the left side? Again, MBASIC can be a real savior. The following program might be just what you were looking for:

```
10 LPRINT "NAME", "ADDRESS", "PAID?"
20 N = 1
30 LPRINT N
40 N = N + 1
50 IF N <= 50 THEN GO TO 30
60 END
```

Note that this example will try to print on your printer. Do not run it unless your printer is turned on. If the printer is either unplugged or turned off, then MBASIC will silently wait forever for the printer to become available.

An additional advantage arises if you do not have access to a free photocopying machine. You can just type "RUN" multiple times instead of paying for the copies.

A Bit of Perspective

I certainly do not mean to belittle spreadsheet calculators or any of the other tools which you acquired along with your computer. To the contrary, I hope that I have shown how MBASIC can be useful at times when the other tools are not. You certainly do not need to be a programmer to use MBASIC.

I also have not bothered to use the more "advanced" features of MBASIC in these examples. While they may add something in the way of elegance to the programs, I think that they are more difficult to master when you are just beginning. In future articles, if interest merits, I may discuss the more advanced concepts.

I hope this has piqued your interest. There are very few numeric or data intensive problems which your Morrow cannot help you solve. The trick is in finding a way for your Micro Decision to assist you and save you time in the bargain. If your first attempted solution seems to be taking longer than a manual solution, then perhaps you are using the wrong tool.

Questions?

If you have further questions, just write to me at one of the following addresses: 4743 Matney Avenue, Long Beach, CA 90807; MCI: AZEMON; CompuServe: 72406,3275

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LOCKED OUT OF LOGICALC?

by Richard Anderson

Can't get at a LogiCalc file because you've forgotten the password you assigned? Perhaps you mislaid that little slip of paper you had it written on? Well, you can actually help yourself out of this dilemma.

Start by reading the LogiCalc file into memory so you can inspect the first several bytes. There you'll find a coded version of your errant password, which LogiCalc has encrypted with a simple scheme, as a bit of translation will reveal.

You can use either DDT or Ward Christensen's wonderful public domain utility--DU, the most recent version of which is available on BAMDUA Library Volume 15. (Send $8.00 for each volume to BAMDUA, Bay Area Micro Decision Users Association, PO Box 5152, Berkeley, CA 94705.) While DDT is also effective, I'm concentrating in this article on DU and hope you'll be encouraged to try it, for it's a clever, facile creature, and easy to use, once you play around with it a bit. DU gives you the power to write anything, anywhere on your disks, so be sure to work with a backup.

In the case I'm now going to describe, DU is in drive A and a disc with the very same LogiCalc file under three different names is in drive B. One file has no password. One has an odd password. One has a halfway regular sort of password. I think you'll be able to tell which is which.

Bring up DU on drive A, and a colon will appear as a prompt. Type LB after the colon and hit return to log onto drive B. Enter "G0" (G, zero) at the next colon, to direct DU to the start of the directory. Then enter "D" at the next colon to dump the current sector of the disc. Your screen will now look like this:

```
:LB

:G0
G=00:00, T=2, S=1, PS=1

:D
00  004E4F50 41535752  444C4346 0000005E  *.NOPASWRDLCF...^*
10  02030405 06070000  00000000 00000000  *................*
20  004F4444 50535752  444C4346 0000005E  *.ODDPSWRDLCF...^*
30  08090A0B 0C0D0000  00000000 00000000  *................*
40  00504153 53574F52  444C4346 0000005E  *.PASSWORDLCF...^*
50  0E0F1011 12130000  00000000 00000000  *................*
60  E5E5E5E5 E5E5E5E5  E5E5E5E5 E5E5E5E5  *eeeeeeeeeeeeeeee*
70  E5E5E5E5 E5E5E5E5  E5E5E5E5 E5E5E5E5  *eeeeeeeeeeeeeeee*
```

Hold on, it's sixteen-finger time again. Those are hexadecimal numbers up there, but they're not rowdy and you'll find them well mannered once you massage them with an ASCII table for hex conversion which you can find in books like Alan R. Miller's Mastering CP/M (Appendix A, p. 316). Each line shows sixteen bytes. The characters to the right, which are enclosed by asterisks, are the ASCII representation of the hex numbers to the left. The two digit hex numbers are grouped into four sets of four. Those hex numbers which do not represent printable characters are displayed as periods. This swarm of numbers is the beginning of the CP/M disc directory. (Miller's book explains the whole works.) For our purposes we only need to note a couple items.

Each file gets two lines. The first 00 byte in the first line of a file's entry announces an active file. Look in your ASCII-Hex table and you'll see that the next sequence in the first line (4E4F50 41535752 444C4346) spells out the name of the NOPASWRD.LCF file. You will notice that there is no period between the filename (NOPASWRD) and file type (LCF). That period shows up in directories to make it easier for you to read. CP/M doesn't need it.

The numbers on the second line of a file's entry list the blocks where the file is actually stored on the disc. Note how the first byte on line 10 is 02. That's where NOPASWRD.LCF starts. Let's go there with the command G02 (G zero 2). Then we'll display the first sector of this block with the command D, which is the very beginning of NOPASWRD.LCF. This will dump another eight lines on your screen, but since we're only interested in the password area, we'll save space in this article by showing only two of the 8 lines displayed by DU. After that we'll do the same with the other two files. This is what you'll see, except for the file names in parenthesis:

```
:G02
G=02:00, T=2, S=33, PS=17                          (NOPASWRD.LCF)

:D
00  0C010000 00000028  64D60EE7 E5001400  *.......(dV.ge...*
10  8DC80766 C80166A1  EA2C64FD 89EA2764  *.H.fH.f!j,d).j'd*
                    ...

:G08:00
G=08:00, T=5, S=9, PS=25                           (ODDPSWRD.LCF)

:D
00  0C010000 0000031B  7D280EE7 E5001400  *........)(.ge...*
01  8DC80766 C80166A1  EA2C64FD 89EA2764  *.H.fH.f!j,d).j'd*
                    ...

:G0E
G=0E:00, T=7, S=25, PS=33                          (PASSWORD.LCF)

:D
00  0C010000 00000F42  43444546 4748494A  *.......BCDEFGHIJ*
10  4B4C4D4E 4F5066A1  EA2C64FD 89EA2764  *KLMNOPf!j,d).j'd*
                    ...
```

Now for the fun part. NOPASWRD.LCF has no password! ODDPSWRD.LCF has the wierd password ^Z{%, the ^Z being a single character. PASSWORD.LCF has the password AAAAAAAAAAAAAAA. If you look at the numbers above you might figure out the code right now.

See how on line 00 at the start of each file, the first group of four bytes (0C 01 00 00) and the first two of the second group (00 00) are always the same. That's how LogiCalc knows it has a hold of one of its own files. The next byte, the seventh one in from the left, is where the files diverge. That is the where the password begins.

In NOPASWRD.LCF, this seventh byte is 00, which means that there is no password. In ODDPSWRD.LCF, this byte is 03, meaning there is a three character password assigned to the file. In PASSWORD.LCF the 0F in this seventh position indicates a fifteen character password follows, since the hex number 0F is 15 decimal.

Look again at the ASCII text for PASSWORD.LCF. There you can see that it's password AAAAAAAAAAAAAAA has become BCDEFGHIJKLMNOP. That's how LogiCalc encrypts your password. The ASCII value of A is 41, for B it is 42, etc. The first character A (41) is transformed into B (42) by adding 1 to it; the second character A (41) is transformed into C (43), the third character A (41) is transformed into D (44). The fourth character A (41) becomes E (45), because 41 + 4 = 45! And so on.

LogiCalc only allows a fifteen character password. In fact, if you try to enter more than fifteen characters at the password prompt, LogiCalc will flash an error message and immediately drop you out of the program back to CP/M. If you enter fewer than fifteen characters, LogiCalc fills in the field with its own characters. Trace out the transformation of the ODDPSWRD.LCF password--^Z{% (1A 7B 25)--into 1B 7D 28, and then look at how the rest of the characters in its password field are identical to what LogiCalc wrote for that part of the NOPASWRD.LCF password field.

The odd password of ODDPSWRD.LCF is a token of the fact that you can use just about any key on the keyboard for a LogiCalc password, except ^M because that sends the same signal as the Return key. You might even try function keys, though nasty situations could easily crop up.

At this point it's a mild exercise to do the reverse engineering needed to read your long lost password. Look for the seventh byte on line 00 to get to the beginning of PASSWORD. (Of course, the computer thinks of this as byte six because it likes to start counting at zero.) See above how on line 00 of PASSWORD.LCF this byte is 0F. The hex number 0F translates to decimal 15. It means that fifteen characters of password follow. In this case all the bytes of the coded password will print as ASCII characters, so you can simply subtract one from the first character of the password to get A. Subtract two from the second password character to get another A and so on. If the coded bytes of your password don't happen to wind up as printable characters, just follow this same process working with the hex numbers themselves. Your ASCII-Hex table shall guide you. Remember that case is important, so there's a big difference between Q and q.

Should you encounter difficulties while using DU, type "?" at the colon prompt and you'll get a help menu. An X at the prompt will get you back out to CP/M.

If you wish to use DDT to inspect a LogiCalc file that's in, let's say, drive B, enter "DDT B:filename.LCF" at the A> prompt and hit Return. When the file is loaded, there'll appear a "-" prompt. Enter "D100" and the beginning of the file will be displayed. The format will be somewhat different from DU, since DU strips the eighth (high) bit off each 8-bit ASCII character and DDT doesn't, but the necessary information will be there. DDT will work fine for this, but if you wish to inspect several files DU is superior because you don't need to load them one at a time.

You can easily use DU to change the password that is encrypted in your file by writing in a new one right on your disc. (In fact, you could use DU to rewrite your entire spreadsheet, but that's another topic.) In any case, armed with this procedure and DU or DDT, no known memory fault of your own can keep you from your LogiCalc files. ■

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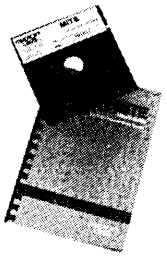

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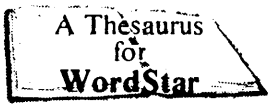

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GETTING STARTED WITH MODEM PROGRAMS

by Mike Allen

[There are many ways to get started in the use of modems and modem software. The easy way is to go to your local users group and check out a copy of MDM740 or MEX, two examples of excellent public domain communications software. You have to be careful to get a copy that is tailored to your particular Morrow machine and you have to remember that hard-disk MDs are not the same as MD2's and MD3's in this respect. By all means surround yourself with a bevy of experienced advisors to help you install the software and to show you how to run it. Suppose you live far from any users group, have no access to experts and, in short, are completely on your own. Rather than write to some distant users group for a copy of MEX or MDM740, you prefer the experience of pulling yourself up by your bootstraps into modem-land. Then you can follow the path mapped out by Mike Allen in this article. Some of the editorial board felt that if we printed this article it would give the impression, especially to beginners, that it is a whole lot of trouble to get your computer to communicate over the phonelines. There are easier ways. But if you are up for a journey of adventurous experimentation, try Mike's extensive recipe; you are bound to learn a lot in the process. And think of all the satisfaction you'll have when it finally works! --Ed.]

Well, folks, you just dished out X bucks for a fancy new modem and now you've discovered that you can't do anything with it. Don't feel like the Lone Ranger.

What you need is a program that will allow your computer (a Morrow, of course) to talk and listen to the modem. Once this is done, the modem should seem transparent and it will seem like your computer is talking to whatever you called on the phone lines.

There are many commercial modem programs available. Your modem might even have come with one. It has been my experience that none of the commercial programs measure up to either of two public domain programs: MDM740 by Irv Hoff or MEX by Ron Fowler. "Public Domain"? That's fancy lawyer talk for "free." These guys have spent hours upon hours developing these modem programs and then are giving them away. Nice people. Good programmers, too.

MDM740 is a very easy to use and easy to install program. It has two "overlays" for the Morrow MD1, 2 or 3. M7MD-1 is for the Rev. 1 boards and M7MD-2 is for the Rev. 2 boards. Overlays are files with specific information pertaining to one particular computer. They enable you to suit a program like MDM740 to your machine. Since I'm not familiar with the Hard Disk versions of the MD's, I shan't address them. [There are MD11 versions available using the aux. port. --Ed.]

MEX (the latest version I know of is 1.12) is more versatile but more difficult to install. (For a good look at this program, see "MEX, A Great PD Modem Program" by Dee Pourciau in MOR, Vol. 2, #2, April 1985.) MEX does have the advantage of being able to run the CompuServe "A" protocol.

Now, after having waxed enthusiastic about these programs, I shall say no more about them. Instead, I'll explain how you can get these programs using that newly acquired modem of yours.

Introducing PIPMODEM

Most public domain programs reside in RCP/M's. ("RCP/M's? Here comes the smut, Martha!") Well, these are Remote CP/M computers that some altruistic soul has hooked to a modem so that poor folk, like you and me, can benefit from all the neat programs and information that has been gathered around the nation. BUT, now comes the "Catch-22." To get the modem program, you need a modem program. "Oh no," I hear you say. "So much for the free software." Not so, gentle reader. Peruse on.

Getting your modem program running will actually require two intermediate steps. First, you will have to modify an existing program that was supplied with your Morrow. (Don't worry, we'll actually make a modified copy. We won't touch the original program.) This program will be called "PIPMODEM." It is a modification by P.L. Kelly of the "PIP" program supplied with your Morrow. What this will do is allow you to "capture" ASCII files. "Good God," I hear you say, "What's all this jargon?" Put simply, it means that you can take whatever is displayed on your terminal and have it saved in a disk file. Capturing is okay for files that are text, but won't work for actual programs.

We will use PIPMODEM to "capture" a file from an RCP/M called "MBOOT3.ASM." You will have to do a little work to convert "MBOOT3.ASM" to "MBOOT3.COM" so that you can run it, but not much.

So what does MBOOT3 buy us? Well, some pretty Smart Fellers have done a lot of thinking about transferring programs by modem and making sure that one end got what the other end sent. In the CP/M community, a protocol (an agreed upon method for computers to talk to one another and let each other know what is going on) has pretty much been accepted. It is called the "Christensen Protocol," named after one of those Smart Fellers, Ward Christensen. MBOOT3 will allow you to get programs using this protocol. You will use MBOOT3 to get MEX, MDM740 and a lot of other neat stuff. I used an MD3 in this process. (With some changes you can also do it with an MD1 or MD2.)

Well, let's press on. If you're using an MD2 or MD3, the process will be simple. If you have only one disk drive, it will be a little more complicated. I shall assume you have two drives. Those of you with one drive probably know more about getting around that problem than I do.

How to Create PIPMODEM

First, leave the Co-Pilot menu and escape <esc> to CP/M. Then format and sysgen a fresh disk and stick it in drive B. We'll call this disk our PIPMODEM disk. Now put your NewWord (or WordStar) working disk into drive A, and call it up. Log on to drive B, using the "L" command. Now create a NON-document file (use "N" instead of "D") called "PIPMODEM.ASM." Then type in the following lines exactly as shown:

```
MDAT    EQU     0FEH
MSTAT   EQU     0FFH
RCV     EQU     2
RCVT    EQU     RCV
OLDSTRT EQU     04CEH
CTLO    EQU     0FH
CTLZ    EQU     1AH
NOPAR   EQU     7FH
        ORG     100H
        JMP     NEWSTRT
        JMP     KSTAT
        DS      3
BYTE    DB      0
KSTAT   CALL    $-$
        ORA     A
        JZ      MODIN
KEYIN   CALL    $-$
        CPI     CTLO
        JNZ     NOO
        STA     OFLAG
        JMP     KSTAT
NOO     CPI     CTLZ
        JNZ     MODOUT
        STA     BYTE
        RET
MODOUT  OUT     MDAT
MODIN   IN      MSTAT
        ANI     RCV
        CPI     RCVT
        JNZ     KSTAT
        IN      MDAT
        ANI     NOPAR
        STA     BYTE
        MOV     C,A
CONOUT  CALL    $-$
        LDA     OFLAG
        ORA     A
        JZ      KSTAT
        RET
OFLAG   DB      0
NEWSTRT LHLD    1
        LXI     D,3
        DAD     D
        SHLD    KSTAT+1
        DAD     D
        SHLD    KEYIN+1
        DAD     D
        SHLD    CONOUT+1
        JMP     OLDSTRT
        END
```

Note that the program is organized in three columns. Use TAB's between each column. No extraneous spaces. To check yourself when you are done, see that the program starts with 8 EQU statements, an ORG statement, 40 lines of code and an END statement. The EQU, ORG and END statements can be found in column 2.

Now save the file and exit NewWord.

Exchange your NewWord diskette in drive A with the CP/M working diskette that you have made and hit Control-C. You should come up with the A> prompt. [If you see the B> prompt, type "A:<cr>" to get the A> prompt.]

To make sure you have everything you need, type "dir<cr>" and make sure that the files PIP.COM, DDT.COM, ASM.COM and LOAD.COM are listed on the A disk directory. You'll need them all.

From now on, follow the "Script" exactly. All characters in lower case are typed in by you. Everything else should be spit out by the computer.

Script	My Comments
A>asm pipmodem.baz<cr>	(Note: if you are using a MD1, type instead: "asm pipmodem.aaz")
CP/M ASSEMBLER - VER 2.0	
015C	
000H USE FACTOR	
END OF ASSEMBLY	
A>ddt pip.com<cr>	
NEXT PC	
1E00 0100	
-ipipmodem.hex<cr>	(Note: You don't type the "-". That is a "prompt" from the DDT program saying that it is ready for you to do something)
-r<cr>	
NEXT PC	
1E00 0000	
-g0<cr>	(Note: This is g "zero" not "oh.")
A>save 29 b:pipmodem.com<cr>	(Note: If you are using an MD1, omit the "b:")
A>era pipmodem.hex	
A>	

Okay, if everything went as expected, you now have a program on your B drive called "PIPMODEM.COM." This is your first stage modem program. You are now ready to get the next stage.

Using PIPMODEM to Capture MBOOT3

By this point, you should have your Morrow and the modem hooked up properly. You will also have to set the baud rate prior to calling up the PIPMODEM program. If you have a Rev. 1 board (no parallel printer port), either set the switches to 300 baud or use the "SETBAUD" program to set up for 300 baud. (Rev. 2 board owners should use the "SETUP" program to do the same thing.) I do not suggest using 1200 baud for ASCII capture. I have seen too many errors due to bad phone lines at 1200 baud.

And now it's time for the acid test. Log on to the disk that has PIPMODEM.COM on it ("b:<cr>"), then type:

"pipmodem mboot3.asm=inp:<cr>"

You now should be able to talk (type?) to your local RCP/M. Dial it up, using whatever procedure your modem calls for. (Note that at this point your MD should be talking to the modem, so if your modem can accept commands, you can type them in now. Example: If you are using a Hayes SmartModem, you could type in "ATD 123-4567" to dial an RCP/M whose phone number is 123-4567.) Several Morrow BBS's (Bulletin Board System) and RCP/M's are listed in MOR (Vol. 1, #5, December 1984, p. 54). By the way, a BBS may well also be an RCP/M and vice versa. These are not exclusive functions.

Once the phone connection is made, you may have to type several <cr>'s before the RCP/M talks back to you. It will probably start out asking how many NULL's you need. Answer 0. You will then probably get a bunch of bulletins telling you whom you have contacted and how neat they are. It will then ask you some questions such as your name and city. If you aren't willing to supply this basic information, then forget about RCP/M's.

It wasn't always this way, but because of the abuse of the systems by certain twirps, it has become necessary for the System Operators (SYSOP's) who have put much time, effort and money into these systems to check out callers--not only to protect themselves but to make sure that legitimate users aren't locked out by the aforementioned twirps.

So, it may take a few days before you are allowed full access to whatever RCP/M you have called. That is unfortunate, but that's the way things are nowadays. You will probably be allowed to at least read messages on the BBS-part of the system. By all means do so. If nothing else, you will become familiar with the usage of a BBS and may find something of interest on the BBS. Most BBS systems will give you help anytime at any level by typing an "H" or a "?" depending on the system.

The main thing to remember when on a BBS or RCP/M is courtesy. There are other people who use the system. Don't leave abusive or obscene messages! Limit your time to what you actually need and in no case more than one hour per day. If you have something that you think is of general interest, by all means leave a message to "ALL" on the BBS.

Now, you have looked around at the messages on the BBS and figure it's time for someone else to use the system. What do you do? First, sign off the BBS. It will probably be a command like "G" for goodby. Type an "H" or a "?" to find out. Most BBS's will recover if you just hang up, but the SYSOP's appreciate a "graceful" exit. Once the BBS has hung up on you, just type a Control-Z and you will exit PIPMODEM.

You will now have a file on the same disk as PIPMODEM.COM called "MBOOT3.ASM." It will contain nothing, so erase it. The file is empty since we did not give PIPMODEM the Control-O command to "capture" whatever came across the screen.

Ok, you've waited patiently, checking into the BBS of your choice daily or so, and finally you get a message from the SYSOP saying that you have access to the RCP/M. Oh boy, here we go. You give the proper command (probably a "C" for CP/M), and you get a bunch more messages, telling you the rules for the RCP/M. READ THEM! If they are going by too fast, a Control-S will stop them until you've been able to read them. A Control-Q should allow the RCP/M to proceed.

After all the rules and instructions, you should get the old familiar A> prompt or some minor variation. You are now operating someone else's CP/M system from your Morrow. He will have taken precautions (such as removing the ERA command) so that the system can't be ruined, but by and large it operates just like your Morrow.

Type "dir<cr>." You'll see a directory of what is on the particular disk and user area you have logged on to. In general, anything that has a "Q" in the second letter of the file extension (e.g. MORROW.DQC) is a "squeezed" file, anything with an extension of LBR (e.g., MDM740.LBR) is a "library" file, and anything with a OBJ (e.g., SD.OBJ) is really a renamed COM file. (We'll get to these later.)

What you are looking for is a file named "MBOOT3.ASM." You may find a file called MBOOT3.AQM or MBOOT3.LBR. The "3" may be missing. If you find either the .ASM or .AQM files, the operation is simple. First, you type a Control-O. This tells PIPMODEM that you are ready to actually capture a file. Then, depending on which file you found, type:

type mboot3.asm<cr>

-or-

type mboot3.aqm<cr>

If the file doesn't have a "3" in it, omit the "3" when you give the TYPE command. Most RCP/M's have a TYPE program that will unsqueeze squeezed files while "typing" them.

Now you should see line after line of arcane gobbledy-gook fly by on your screen. Don't let it bother you. It's all going to a disk file, and you don't have to understand it to use it. When this is done, you'll get the old familiar CP/M prompt. Now that you have gotten the file, leave the RCP/M by typing "bye<cr>." After the RCP/M has hung up, hit the Control-Z.

MBOOT3 Hiding in MBOOT.LBR

If you don't find the .ASM or .AQM file in the RCP/M but do find MBOOT.LBR, say, there are two possible routes to take to get your file. First, try typing "ldir mboot<cr>" (assuming MBOOT.LBR was the file you found.) If the RCP/M recognizes the "LDIR" command, you should get a directory of files contained in the .LBR file. One of those files should be either the .ASM or .AQM file we were looking for. Hit the Control-O and type:

ltype mboot mboot3.asm<cr>

(This assumes that the .LBR file you found was MBOOT.LBR and that MBOOT3.ASM was found inside the library. The command is ltype (the letter "L", not the number "1") with the filename of the .LBR file without the .LBR and then the full name of the file within the particular .LBR file you wanted.)

From then on, things are as described before, and the actions you take should be the same.

Now, if the LDIR command didn't work, the RCP/M probably uses a utility called "LUX" to access .LBR files. Type "lux mboot<cr>" (again assuming you found MBOOT.LBR). You should get some kind of message and a prompt indicating that you have accessed the library. It may also give you a directory of what's in the library. If it doesn't, just type "dir<cr>" and you should get the directory. Find the .ASM or .AQM file that you want. Type Control-O and then "type mboot3.aqm<cr>" (if you found MBOOT3.AQM in the library), and again things will fly on by.

When you are done, you have to exit the LUX utility. This is done by typing Control-C. You should then get the CP/M prompt and you can say bye<cr> and Control-Z to exit PIPMODEM.

No matter which route you took, you should have a file on your MODEM disk (the one with PIPMODEM.COM) called MBOOT3.ASM.

Cleaning up MBOOT3.ASM

Now call up NewWord and log on to drive B and get ready to edit MBOOT3.ASM, using the NON-document mode.

First, you must delete all the extra junk that you and the RCP/M typed. Delete all lines at the beginning of the file until you reach a line that starts with a ";". Now go to the end of the file (Control-QC) and delete all lines after the line that says "END." Then go back to the beginning (Control-QR).

In your cleaned up file, you will see a whole bunch of stuff that probably means nothing to you. Don't worry. Most of this is like taking a true/false test in school except I'm going to give you a crib sheet. Here is what you should see:

```
STDCPM     EQU     TRUE
ALTCPM     EQU     FALSE
EXITCHR    EQU     05H
ESC        EQU     1BH
FASTCLK    EQU     TRUE
PMMI       EQU     FALSE
DCH        EQU     FALSE
INITREQ    EQU     FALSE
MODCTLP    EQU     0FFH
MODSNDB    EQU     1
MODSNDR    EQU     1
MODRCVB    EQU     2
MODRCVR    EQU     2
MODDATP    EQU     0FEH
```

Depending on where you get MBOOT3.ASM, these lines may look slightly different. If that is the case you'll have to make changes so your MBOOT3.ASM will look exactly like the above. The first line might read, for example:

```
STDCPM EQU TRUE ;TRUE, IS THE STANDARD CP/M
```

The semicolon indicates that everything that follows it on that line is a comment. The comment has absolutely nothing to do with the program itself, but just explains what that particular line is doing. You only change what is immediately to the right of the word "EQU" and to the left of the ";" if there is one. Make sure you delete all of what was originally there if you change it. Overtyping FALSE with TRUE can end up with TRUEE which ain't right. Just be careful and you shouldn't have any problems. When you are done, save the file and exit NewWord.

Now we go back to CP/M. As before, be sure you have your CP/M working disk in the A drive. Log on to the B drive which should still have your MODEM disk in it. Now for more Script. Same rules as before.

Script

```
B>a:asm mboot3.bbz<cr>

CP/M ASSEMBLER - VER 2.0

0537
005H USE FACTOR
END OF ASSEMBLY
B>a:load mboot3<cr>

FIRST ADDRESS 0100
LAST  ADDRESS 04F8
BYTES READ    03F9
RECORDS WRITTEN 08

B>era mboot3.hex<cr>
```

WOW. You're done. You now have a program called "MBOOT3.COM" on your MODEM disk. See how simple that was? Keith Petersen, who wrote MBOOT3 sure made it easy for us.

Downloading Programs with MBOOT3

OK, sez you, now that I have it, what do I do with it? Well, the first thing I suggest is that you get some utilities that you'll need.

Remember that earlier I referred to "squeezed" files and "library" files? Well the time has come to explain them.

There is a primary law of cybernetics that says that you'll always need more disk space than you have. Some of those Smart Fellers I mentioned earlier have found a couple of ways of using less disk space for a given file or group of files.

The first method is "squeezing" a file. I don't pretend to understand how it works, but I do know that a "squeezed" file can save up to 70% disk space compared to an unsqueezed file. As a result many files, especially text files, on RCP/M's are squeezed. You need to be able to unsqueeze them.

Now we're going to call back the same RCP/M, this time using MBOOT3. Assume that we are going to look for "USQ.OBJ." (Remember that a .OBJ extension on an RCP/M is really a .COM file. So what we really want to rename the .COM files as .OBJ files is to keep them from being remotely run on the RCP/M. Again, the twirps have made the SYSOP's life a little more difficult!) Like PIPMODEM, MBOOT3 assumes that you have already set up the baud rate that you wish to use. Since MBOOT3 uses the Christensen Protocol, which does error-checking while transferring files, you can safely use a higher baud rate than with PIPMODEM. If you kicked the cash for a 1200 baud modem, by all means use 1200 baud. It will take only 1/4 the time to transfer a given file, and if you've had to use long distance to find a RCP/M, it will make a difference on the phone bill. Use the same procedure to set the baud rate that you did with PIPMODEM.

Type"mboot3 usq.com." while you are still logged on to your PIPMODEM disk. MBOOT3 will be ready to receive a file sent in the Christensen protocol. This time you won't see stuff flying by on the screen nor will you have to edit the extra stuff out of the finished file.

You go ahead and log on to your RCP/M the same way you did using PIPMODEM. You then look for USQ.OBJ. It might be called USQxxx.OBJ where xxx refers to the revision number. The latest revision I know of is 1.20 so USQ120.OBJ would be the latest version of USQ. If you decide to quit before receiving a file, just log off the RCP/M and then type Control-E. If you find the file you want, then you must tell the RCP/M to send it. We will take the easiest case where the file is not in a library. I will assume that you are going to get USQ120.OBJ. Remember, no matter what the file is called on the RCP/M it will be named whatever you called it when you entered MBOOT3--in this case, USQ.COM (mboot3 usq.com<cr> --remember?).

Controlling XMODEM Remotely

To tell the RCP/M to send the file, you type: "xmodem s usq120.obj<cr>". You will get a message from the RCP/M telling you how long the file is and how long it takes to send it. After this message, hit the ESC key. The file will come flying across.

We now come to an unfortunate feature of MBOOT3. When the file transfer is done, it exits to CP/M. Depending on your modem and how it is wired, it could hang up the phone which is not what you want at this point. As I said before, most RCP/M's will recover from a disconnect, but a clean exit is preferred. If the modem does not disconnect, just call MBOOT3 back up with a different file name and continue where you were.

Getting files from libraries again depends on whether or not the particular RCP/M you are calling uses LUX or not. If it doesn't use LUX, then a file from a library is sent by typing:

xmodem l libname file.ext<cr>"

(again, where "L" is the letter, not the number 1). For instance, USQ120.OBJ may be in a library called SQ/USQ.LBR. You would then type the following:

"xmodem l sq/usq usq120.obj<cr>"

(You can, by the way, send the whole library by typing:

xmodem s sq/usq.lbr<cr>.)

Later, you would then need a utility in your machine to extract files from the library. [NULU11 is a good one. --Ed.] Now if the RCP/M uses LUX, it's just about as simple. Get into the library by typing:

lux sq/usq<cr>

Once LUX has responded, just type:

send usq120.obj<cr>

Again, as you did in getting a non-library file, type ESC when you are ready to receive the file.

Now, you ask, what is the library jazz and what good is it?? Well, if you've ever checked the file sizes on your disk ("stat *.*<cr>"), you've probably noticed that all the files are a multiple of 2K (at least with my MD3.) [It is 4k for MD5, 11, 16. --Ed.] The way CP/M works, it doesn't care whether there is one byte or a full 2K, it will still use 2K of disk space. This also means that if you have a file that is 1 byte over 2K, 4K of disk space will be used. Hence quite a bit of disk space can be wasted.

Well, some of those Smart Fellers figured that if they could put a bunch of files together and tell CP/M that they were really one file, they could save some disk space. It works. It also makes a convenient way to organize your back-up disks. (You DO back everything up!)

Going After Those Neat Utilities

Ok--bottom line. You probably want to get the following utilities from your RCP/M before starting on MEX or MDM740:

SQ.COM	Squeezer latest vers 1.12
USQ.COM	Unsqueezer latest vers 1.20
NULU.COM	Library utility. Does everything you ever need to do with a library. [Get version 1.1 or later. --Ed.]
SD.COM	SuperDirectory - you'll never use "dir" again.

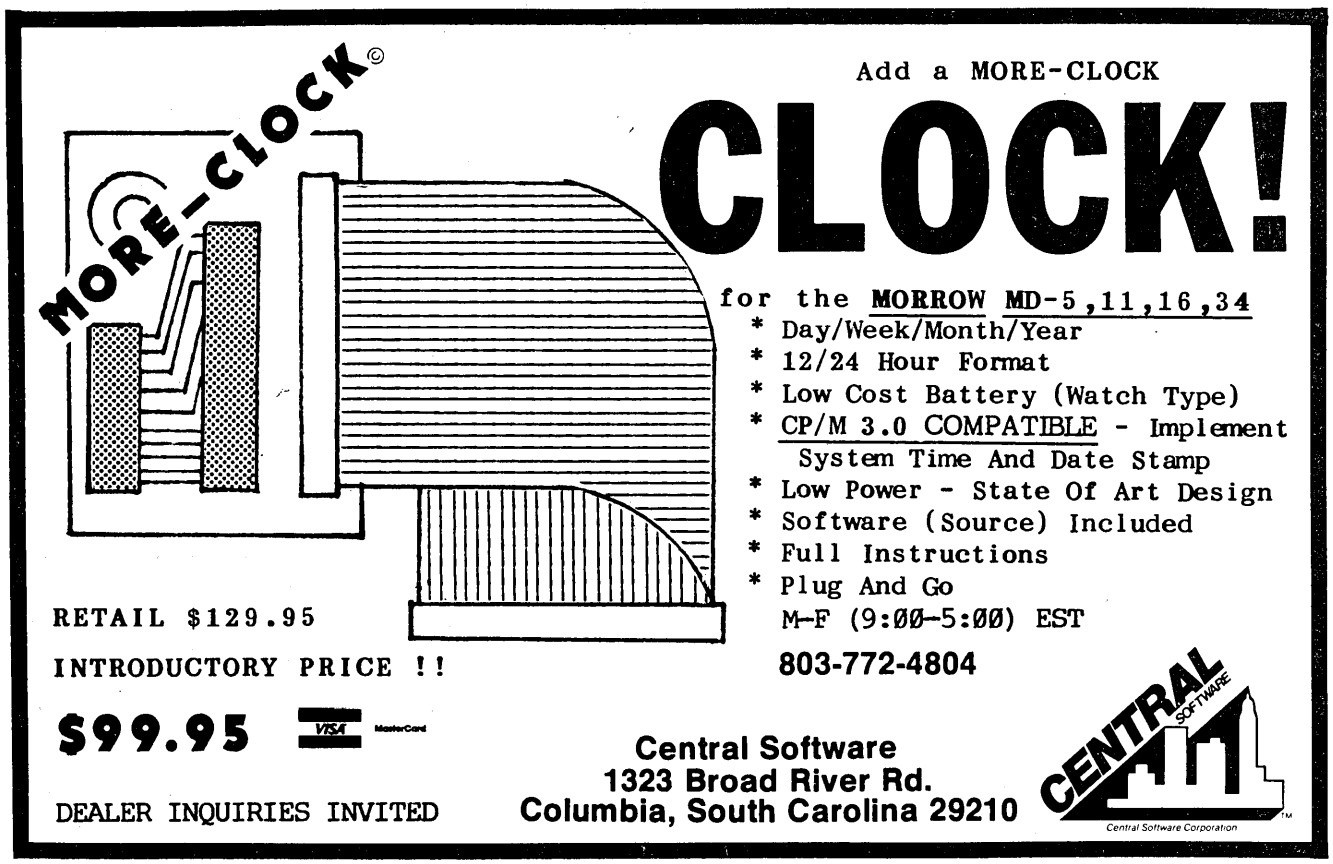
Remember, these files will be named .OBJ instead of .COM on the RCP/M's but they need to be named .COM on your MD in order to run. They may also have their revision numbers stuck in the name. Don't worry. Just call them by their generic name. It makes for less typing when you call them up.

There may also be .DOC or .DQC files of the same name. These are the documentation that goes with the program. By all means, get the DOC files too.

One caveat. While a lot of the public domain stuff is quite good (in the case of modem programs, I feel that they are better than the commercial stuff), some programs have just not been properly debugged. I've noticed that BASIC programs (in .BAS files) seem to be big offenders in this respect. There is at least one not-so-funny practical joker out there. There is a program called VERDIR.OBJ (.COM to run) which will trash the disk that it is run on and then display a message to the effect that you've been screwed. NOT FUNNY!

You'll soon learn to recognize the reputable authors of good software and start looking forward to their latest effort.

Now you can go and get MDM740 or MEX using MBOOT3. I suggest that you get the DOC, INF or NOT (or their squeezed equivalents; DQC, IQF or NQT) files first and read them before deciding which program you want. If you have any questions about this, feel free to write to me (send a SASE): Mike Allen, 1006 Grandview Ave., Ojai, CA 93023. Happy modeming. ■



THE SMARTEST MODEM OF ALL

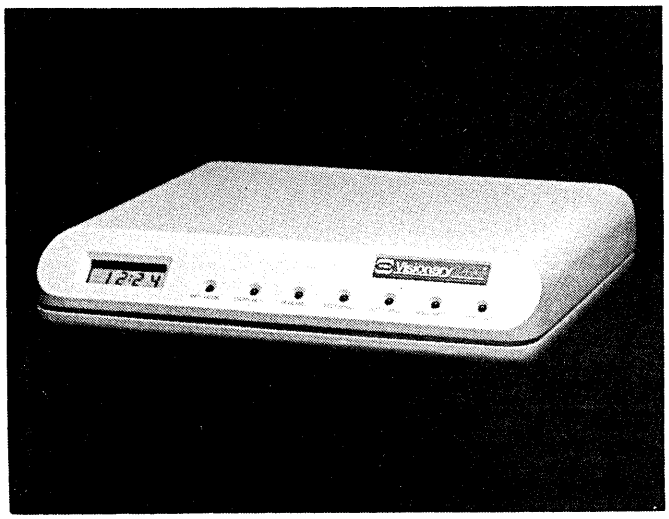
by Daniel Drasin

You may not believe this, but I don't own a Morrow. I'm a card-carrying telecomputing junkie with a wheezy old Kaypro II and a cute little Radio Shack Model 100. But I've written this review because 1) I'm a friend of the MOR crew, and 2) I recently discovered an unusually "smart" communications package that works with both of my mutually incompatible computers. It will also work with your Morrow, and whatever else you happen to have lying around. It's also expensive. But depending on your needs, it could save you money in the long run.

The Visionary 100 (300 baud) and 1200 (300/1200 baud) should be thought of not strictly as modems but as complete communications systems that seem to equal or outperform most conventional hardware-software packages in terms of features, convenience, and automation above and beyond the call.

For example, using nothing but a simple "dumb" terminal program on your microcomputer, you can easily program the Visionary to auto-dial, auto-log-on, capture and transmit text and binary files to and from its own nicad-protected internal memory (expandable up to 48K), check and correct transmission errors, and automatically reset its parameters for compatibility with different remote systems. Once programmed, the Visionary can be disconnected from its local terminal (your microcomputer) and will perform many of its functions completely unattended. This leaves your computer free to perform other tasks, or (Pivot owners, take note) to leave the premises!

For example, say your business leans heavily on electronic information exchange systems that make you drop what you and your microcomputer are doing to dial up and log on several times a day, just to find out whether you've got mail or other information waiting. With the Visionary on-line, you can have your mail delivered (or sent) without disruption or distraction. You can program it to access your information or conferencing systems at strategic hours or intervals (perhaps timed for lowest rates, time-zone compatibility, etc.) and upload and download information as needed. If it has captured something for you hot off the wire, a blinking light announces "mail waiting." If not, it sits quietly and leaves you alone.



The Visionary can also auto-answer and store incoming messages transmitted from individual remote computers, other Visionary systems, and Telex networks such as Graphnet while your microcomputer system is otherwise engaged. All incoming messages are date-and-time "stamped" by the unit's built in digital clock/calendar. And the Visionary can execute these and other functions even while you perform off-line operations such as programming it, creating and erasing files in its memory, or reading previous messages.

The Visionary has a complex personality, but I was able to master its commonsense operating scheme without a great deal of difficulty. According to the manufacturer (I haven't tested this), the Visionary is already Hayes-compatible. If you type MONITOR on its local terminal, it turns into a dumb modem you can use immediately with no further instruction, just as you would any other dumb modem. But by typing a few simple commands, you can take it into more interesting dimensions.

After you've done some simple programming on the unit, you can really "boogie." Following the MONITOR command, type in, say, DIAL COMPUSERVE, and the Visionary will oblige. A couple of Control-C's will take you back to command level, where you can tell the Visionary to SEND a previously stored file, or CAPTURE incoming information, or, when it is finished, simply Control-D(isconnect the call). At the command level, any number of other self-evident commands may be entered manually or stored as program files to accomplish a variety of automated or semi-automated operations.

How to create and store a file in the Visionary? Type any word followed by a colon. This creates a filename and cues the Visionary to load your following text into its memory. If that text consists only of numbers, it automatically becomes an auto-dial "number" file. If the text begins and ends with quotation marks or other non-alphanumeric "delimiters," it is stored as a "text" file. Otherwise, it is interpreted as a "program" or "custom command" file which you can activate at any time by just typing its name.

To see a directory of files in memory (including received messages), type LIST. To view the contents of any file, type, e.g., PRINT THISFILE. To delete a file, type ERASE THATFILE, and so forth.

Since I'm not much of a programmer, I appreciate the Visionary's plain-English programming language. Here's one "custom command" I wrote: a program I've named GETMAIL, which automatically dials up and logs on to my MCI Mail "advanced" account every afternoon and downloads any waiting mail into a text file called NEWMAIL. Note the few "special" commands such as "^M", which means Carriage Return. "LOOP" means "send carriage returns until the remote system responds."

```
GETMAIL:
AT 3:30 PM EVERY 1 DAY
EVERY 2 MIN IF BUSY EVERY 2 MIN IF NOANS
DIAL MCI
LOOP
AWAIT "User Name:" SEND "MYNAME^M"
AWAIT "Password:" SEND "MYPASSWORD^M"
AWAIT "INBOX has" SEND "PRINT INBOX^M"
CAPTURE NEWMAIL.
```

(I've also successfully programmed the Visionary to log on to CompuServe and several conferencing systems--CONFER and NOTEPAD. According to the manufacturer, the latest versions of the Visionary can be programmed to recognize "ambiguous" or "wildcard" system prompts, further insuring successful log-on's to a greater variety of on-line services.)

Some other typical command strings you might use are: MEMORY (display amount of free memory left), SEND THATFILE (transmit a text file named THATFILE), SET DU=F (switch to full duplex transmission), SET DI=T (change from pulse to tone dialing), or STAT (display transmission parameters and status of pending outgoing messages, i.e., sent, busy, no answer, transmission error, etc.).

I found the Visionary's documentation thorough and easy to read, but since the Visionary is a new kind of device, I took pains to read the owner's manual very carefully and systematically. I also found some of the terminology confusing: for example, the user's local computer or terminal is called the "host"--a term usually applied to the remote system (most often a large mainframe computer located in a distant city).

On the down side, I should also add that earlier developmental versions of the Visionary I tried had some bugs in their text editors, and sometimes dropped whole files from memory--a serious "bug" indeed. But the operating system has since been completely rewritten and simplified, and such "accidents" do not seem likely to happen in current production units.

Used as a "dumb," semi-automated, or Hayes-compatible modem, the Visionary allows you to use all the features of ordinary commercial or public domain communications software, including the XMODEM error checking file transfer protocol. That's fortunate, because you wouldn't want to use the Visionary's built-in error checking system to download binary files; it works by transmitting one byte or character and waiting for full-duplex feedback from the remote system. If an error is indicated, it sends a back-space and re-sends the byte. This simple technique works perfectly between two Visionaries or when uploading to any full-duplex host system, but for guaranteed downloads, stick to XMODEM.

It's also necessary to keep an eye on the amount of free memory available in your Visionary: When it runs out of memory, the unit will abort any incoming downloads and echo asterisks back to the sender to indicate "memory full." This could be confusing to the uninitiated or to the remote system. On the receiving end, a blinking "memory full" light warns the user that the last incoming message may not be complete, but this, too, could be ambiguous--for example, if the message had been aborted precisely at the end of a paragraph.

The Visionary units retail for a hefty $595 to $1095, depending on maximum baud rate and installed memory capacity. But, depending upon your needs, it might be worth it. To summarize, the Visionary is not "just a modem," but plays a variety of roles:

-- A friendly and exceptionally versatile piece of communications software, compatible with any microcomputer running a simple terminal program.

(continued)

PRODUCT:	VISIONARY 100 (300 baud) and VISIONARY 1200 (300/1200 baud)
MANUFACTURER:	Visionary Electronics, Inc. 141 Parker Avenue San Francisco, CA 94118 (415) 751-8811
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ERROR-CHECKING PROTOCOL:	Proprietary. Checks and re-sends data based on full-duplex feedback from remote system.
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WARRANTY:	120-day limited warranty..

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For most readers of MOR, a good Hayes-compatible 300- or 1200-baud unit coupled to your microcomputer will fill the bill splendidly at half the cost or less--and modem prices do seem to tumbling these days. On the other hand, if time, equipment allocation, and convenient electronic communication are important considerations to you, the Visionary mega-modem might just be for you. [Copyright © 1985 by Daniel Drasin. All Rights Reserved.]

THE "ME DECADE" AWARD

A few of you have indeed gladdened the heart of a dear friend in need of Morrow user support by taking advantage of the Gift Subscription rate advertised in the last issue of MOR. BUT a number of others appear to have given that reduced-rate subscription to themselves, no doubt in the fine tradition of the seventies when some of us learned so well how to do ourselves a good turn. To acknowledge your skill and aptitude in this self-pleasing endeavor, we present those who gift-subscribed themselves with THE MOR "ME DECADE" AWARD (and discretely refrain from herein listing your names), upholding that ancient tradition expressed in the maxim:

"'Tis better to give and receive".

Enjoy yourselves.

ADDING THE Z-CLOCK TO AN MD3

by John Williams

I'm a tyro. I admit it. I don't know BASIC or PASCAL or C or COBOL or Assembly Language or.. .well, you get the picture. But I did survive adding a clock to my Rev. 1.3 MD2 (now MD3)--and the machine did too, by the way. A computer clock is a little device that you can add to your MD to enable programs to set the date and time and read them back again.

How I got to add my own clock is a bit of a story. About 8 months ago I decided to start a bulletin board system for my bicycling magazine using my Morrow MD2. I started looking for software but found nothing in the commercial realm that would work. Rave software reviews sent me after Ebert's Bread Board System (TBBS) but, alas, there was no Morrow version.

However, when I called Ebert's Personal Computers in Colorado, the people there assured me that it would be easy to put together the drivers for my machine. Sure. I hardly knew what drivers were, let alone how I could put them together.

When I started getting MOR, I began calling Morrow bulletin board systems and one thing led to another. I liked the BAMDUA BBS software so I left a message for the Sysop, Sypko Andrea (MOR Editor). He told me the program came from Tom Chambers, Sysop of the Seattle Morrow group's bulletin board. I called Tom and he gave me some advice.

"First," he said, "upgrade to an MD3. You need more storage than you get with single-sided disk drives. Meanwhile, I'll compile your BBS program for you if you send me a disk." With an offer like that I couldn't refuse! Off went the disk to Tom, and off went my MD2 to the dealer for two new half-height, double-sided disk drives.

Getting used to having one drive above the other--standard in MD3's--was novel for this MD2 user. With the keyboard shoved up near the computer, I found it was hard to get a disk in the lower drive. I almost wished for my old set-up back. . .almost. That 384k per drive was awfully nice!

When the BBS software arrived, I noticed it included a clock function, but when I asked Tom about it, he said it was written for a machine with two serial ports: one for the modem and one for the Hayes chronograph. My Rev. 1 MD2 (now 3) has only one serial port.

Meanwhile I'd still been looking at that literature about Ebert's Bread Board System and had noticed something called the "Z-Clock." This nifty little gadget to keep track of time and date looked like a little circuit board and had a tiny built-in battery to keep the clock running. Installation looked simple enough--the Z-Clock plugs into the socket of the Z-80 microprocessor chip on the motherboard of the computer. I called the Ebert's BBS and asked the Sysop Dave if he thought the Z-Clock would work in my Morrow. He thought so. But the main requirement was that the Z-80 chip had to be "socketed." All early Morrow's had this socket; later versions have the Z-80 soldered in. Also, there would have to be enough clearance between the motherboard and the disk drives inside the computer box, because the Z-Clock board plugs in where the Z-80 normally does, and then the Z-80 has to plug in on top of that.

To find out if I had a socketed Z-80, I turned off my machine, pulled the cover off the computer, pulled the cables and power supply wires off the disk drives and then removed the drives, being careful to label the cables/power cords (A or B). The Z-80 is right below them.

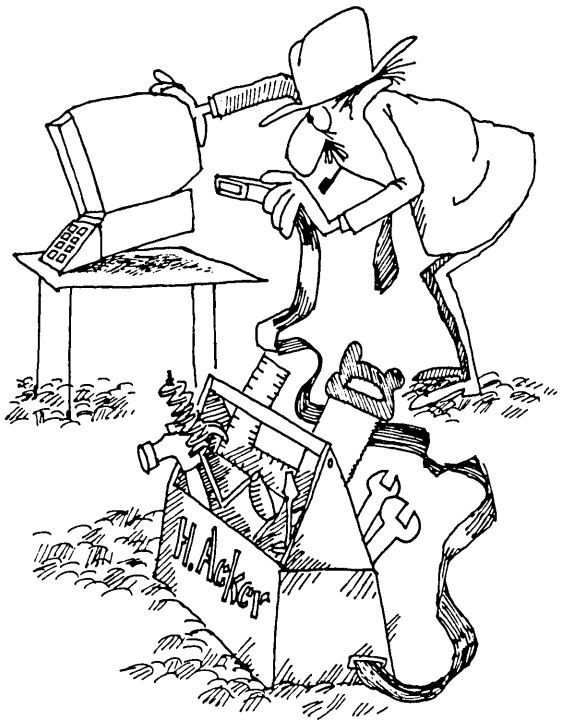
The good news was that the Z-80 was socketed. The bad news was that there was evidence of an overheating problem. The clearance already seemed a bit close for installing the Z-Clock, yet more ventilation space was needed. So I decided to try mounting the drives side-by-side, like in the MD2. I wanted to put them up high so there'd be lots of clearance for both the Z-Clock and some air circulation to cool things down a bit.

Meanwhile, I had ordered the Z-Clock ($89.95 + postage from Ebert's Personal Computers, 4100 S Parker Rd, #305, Aurora CO 80014). I went off shopping for the brackets I'd need to mount the disk drives as I planned. Maybe in some communities there are lots of neat computer "nuts 'n bolts" hardware stores but not in Missoula, Montana. I ended up at Coast-to-Coast Hardware, wandering the aisles.

Pipe hangers looked like they'd work. I mashed these little maleable steel goodies into the right shape (L bracket) with a bit of effort and a hammer. Then, with an electric drill, I put the mounting holes where needed. A friend, Bob Perrier, and I set to work with small machine screws and the home-brew brackets.

With a bit of bending, we were able to get the brackets to hold the drives pretty level. We plugged them in (remembering to get the cables and power supply cords right) and--presto!--they worked fine.

Next, we took the little plastic front cover that normally goes to the right of the drives and cut it in two (horizontally); one half fit below each drive. There's a little gap between the drive and the cover which I filled with some black tape. Not elegant but functional.



A few days later the Z-Clock came, packed in lots of styrofoam. I took it home and, again with Bob's help, was able to take out the Z-80 chip (which I did very carefully with a small screwdriver), plug it in on top of the Z-Clock and plug the whole works back in the socket where the microprocessor had been.

Looking over the clock's documentation, we found two MBASIC programs. One set the clock to the proper time and date, and the other read it back. We keyed both progams in--neither of us understanding what we were doing--and called up MBASIC to execute them.

It seemed to work! We set the time and date using the first program. It asked the year, month, day, hour, minute, second, whether it was a leap year and whether we wanted a 24-hour or 12-hour clock.

Then we ran the second program to check the time. The clock worked like a charm. Still does--whether the computer is turned on or off. We had a power outage a few weeks back, and I reset all the clocks in the house using my little Ebert's Z-Clock!

[Editorial note: Dave Ebert runs a public bulletin board (303-690-4566) and two companies. One is Ebert Personal Computers (a retail store in Aurora, Colorado, 303-693-8400) and the other is E-SOFT which, among other things, manufactures and distributes the Z-CLOCK. In a long conversation with Dave, I found out that the current version of the Z-Clock has a problem--it is not compatible with all Z-80 based computers. John Williams was just lucky that he tried it out on an MD3 and not on an MD11.

If a computer uses either the Z-80 Interrupt 0 or Interrupt 2, the Z-CLOCK is likely to lock up the system when it detects an interrupt. (Dave mentioned that the MD11, for one, has this problem; there may be others as well.) Since the Z-Clock itself does not use interrupts at all, the Z-CLOCK board is being redesigned to eliminate interference with the interrupts. The new version will work with all Z-80 based computers.

The Z-CLOCK board is about 3" by 3". Some computers have a space problem, so the new Z-CLOCK board will come with a short (4" - 6" long) cable to plug into the Z-80 socket and a supply of double-sided sticky tape so that you can attach the board wherever there is room inside the computer.

But what if you already have a "piggy back" board plugged into your Z-80 socket--say, for an additional hard-disk or RAM disk or Co-processor board? Can you plug the Z-CLOCK right on top of that? Yes, Dave tells me, if there is sufficient clearance to accomodate all the plug-in boards (and if you have enough power, and if things don't get too hot). However, you may have to get a stronger power supply for your Morrow--as well as a fan or a small refrigerator unit. . .just kidding.

Luckily, all hard-disk Morrows have a socketed Z-80. But many floppy-based Morrows (MD1, MD2 or MD3) have the Z-80 soldered in. The only way to find out is to open up the box, remove the drives and look. The Revision number (1 or 2) of your integrated circuit board does not give you a clue whether your Z-80 is socketed or not. If it is labeled "Assembled in Korea," then you can be reasonably sure it has a Z-80 socket, but if it is a Kohjinsha board made in Japan, you are most likely out of luck. However, you can have your Z-80 removed and replaced by a socket, but leave that kind of surgery to a qualified technician who has appropriate tools.

Speaking of tools, John Williams did manage to remove his Z-80 with a small screw driver--and a great deal of care--but this is a risky method because the chip is easily damaged. However, as Stan Young reminds us, Z-80's are easily obtained. Be sure to get the 4 mHz part (Z80A), not the cheaper 2.5 mHz part (Z80). A 6 or 8 mHz part can also be used, though they will still run at 4 mHz. Still, the best approach is to do it properly from the beginning--and use a chip puller.

The Z-CLOCK runs on a tiny lithium battery that will probably outlast your computer, unless you have a Morrow, of course. This means that the clock keeps running with the computer power off.

Nearly all CP/M-based software is ignorant of clocks. Therefore your Z-CLOCK is useful only if you write your own software capable of reading it. Watch the ads--something useful may come on the market. --Ed.]

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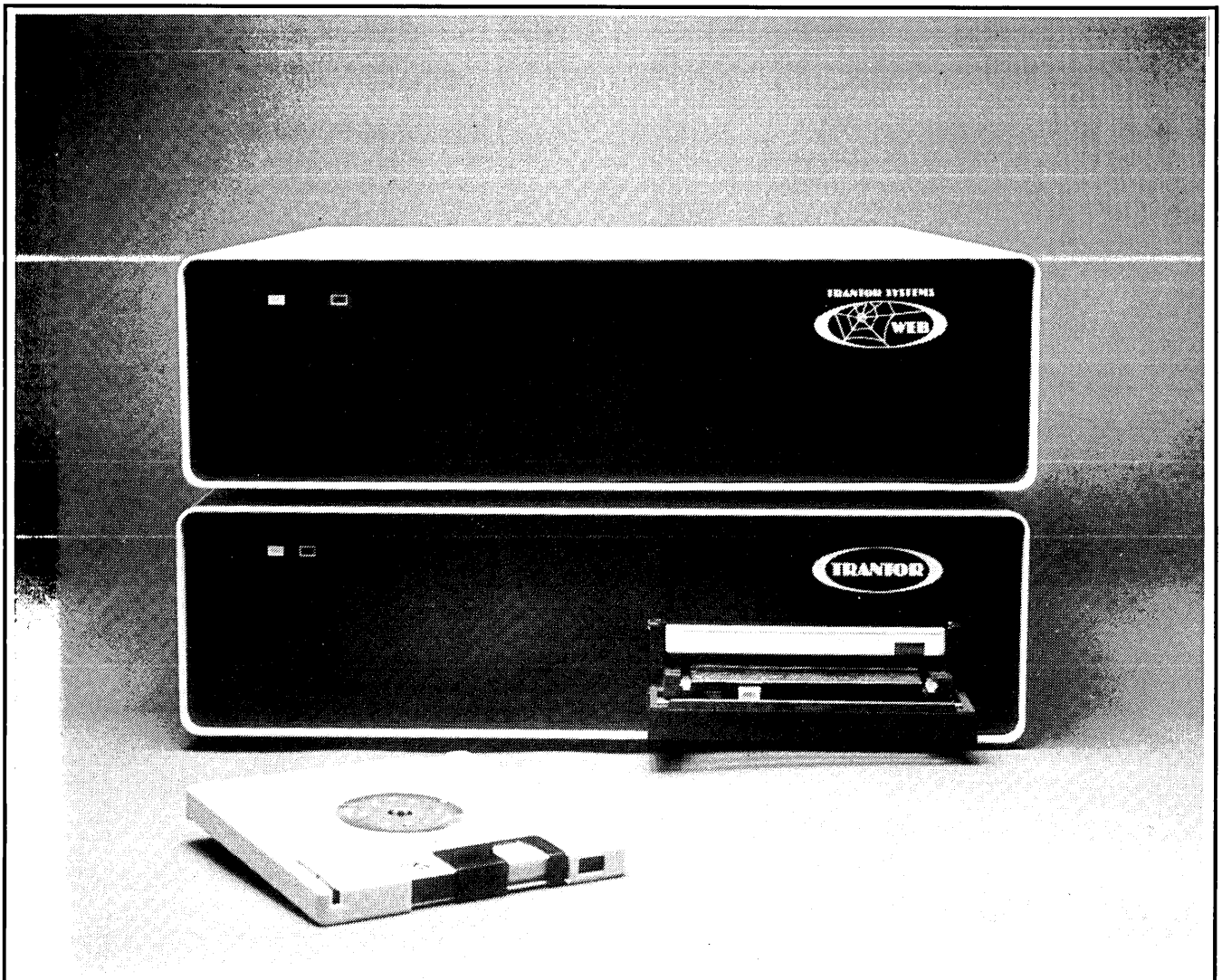

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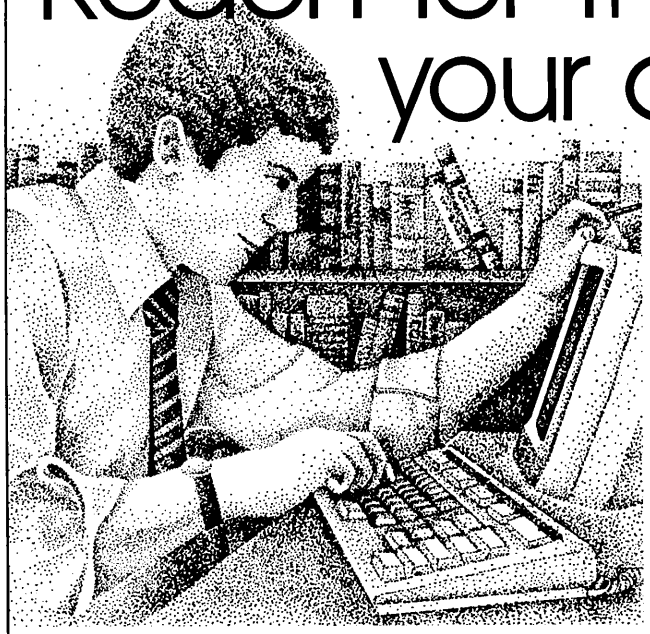

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