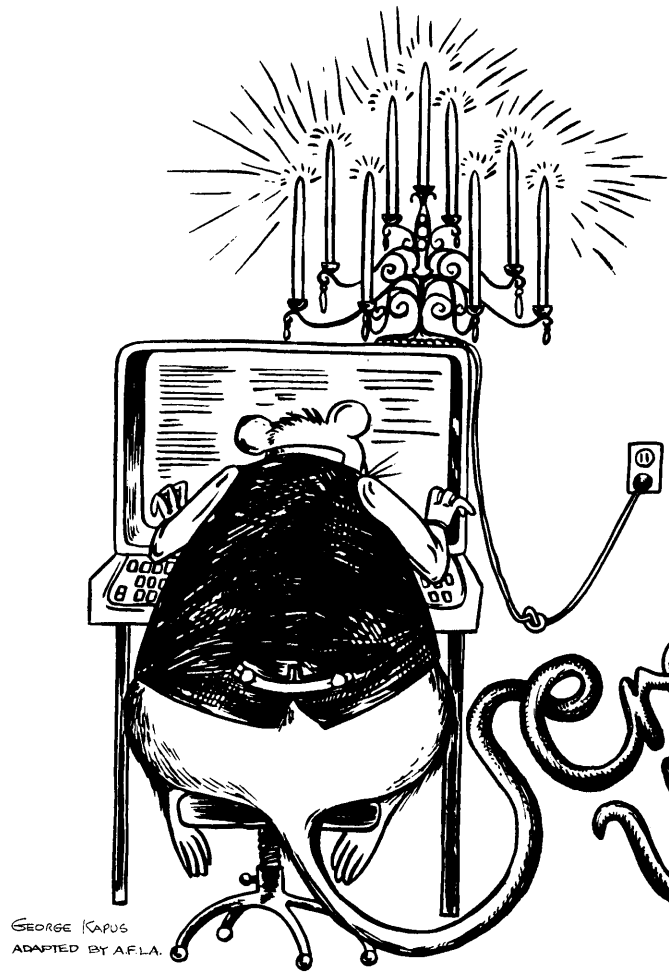
$3.00

# Morrow Owners' Review

VOLUME 2, NUMBER 6, DECEMBER 1985/JANUARY 1986




## Creative Uses and Games

- **Computing for the Handicapped**
- **The Dvorak Keyboard**
- **MS-DOS with Co-Processors**
- **Technical Manuals and Schematics**
- **What's Up with Dealers • Reviews and more . . .**

THE INTERNATIONAL MAGAZINE FOR USERS OF MORROW COMPUTERS
P.O. BOX 5487, BERKELEY, CA 94705 (415)644-2638

SAVE OVER 30% ON OUR GIFT PACKS!
60-DAY MONEY-BACK GUARANTEE

# How Borland's Three New Holiday Packs Will Fill Your Stocking Without Emptying Your Piggybank.

Three special packs with dazzling discounts that will help get you into a Holiday mood. You can get some of Turbo, most of Turbo, or all of Turbo—including the two newest members of the Turbo family, Turbo GameWorks™ and Turbo Editor Toolbox™. You also get our unmatched 60-day money-back guarantee, quality products that aren't copy-protected.

### *TURBO NEW PACK $95.00.*

You get the two exciting new members of the Turbo Pascal family,

- TURBO GAMEWORKS, Chess, Bridge, and Go-Moku, complete with source code and a 200-page manual.
- TURBO EDITOR TOOLBOX, all the building blocks to make your own editors and word processors, complete with source code and a 200-page manual.

### *TURBO HOLIDAY PACK $125.00.*

You get all three of the Turbo family classics for only $125.00 (about a 30% discount). Turbo Pascal 3.0 and Turbo Tutor and Turbo DataBase Toolbox—all for just $125.00.

- TURBO PASCAL combines the fastest Pascal compiler with an integrated development environment.
- TURBO TUTOR teaches you step-by-step how to use Turbo Pascal with commented source code for all program examples on diskette.
- TURBO DATABASE TOOLBOX offers three problem-solving modules for your Turbo Pascal programs: Turbo Access, Turbo Sort, and GINST, which generates a ready-to-run installation program that lets you forget about adapting your software to specific terminals.

### *TURBO HOLIDAY JUMBO PACK $245.00.*

This is it—the whole thing, the entire Turbo family including its two newest members. You get:

- Turbo Pascal
- Turbo Graphix Toolbox
- Turbo Tutor
- Turbo DataBase Toolbox
- Turbo GameWorks NEW!
- Turbo Editor Toolbox

and you pay only $245.00 for all six! Which means that you're getting everything at only about $40 a piece. Quite a holiday deal. (And if you already own one or several members of the Turbo family, be creative—nothing can stop you from buying the Jumbo Pack, picking out the ones you already have and giving the rest as holiday gifts to family and friends. At these prices you can afford to give to others and to yourself.) Speaking of Holidays, our offer lasts until March 31, 1986. (At Borland, we like to make the Holidays last.)

NEW! ***TURBO GAMEWORKS $69.95.***

Our new Turbo GameWorks offers games you can play and replay without Turbo Pascal or revise and rewrite with Turbo Pascal 3.0. We give you the source code, the manual, the diskettes and the competitive edge. Chess, Bridge and Go-Moku. State-of-the-art games that let you be player, referee, and rules committee all at once because you have the Turbo Pascal source code. Learn exactly how the games are made—so you can go off and make your own. And Turbo GameWorks is the only quality game you can buy that is not copy-protected. Sold separately, only $69.95. (Just $47.50 if you buy the Turbo New Pack.)

NEW! ***TURBO EDITOR TOOLBOX $69.95.***

Build your own word processor—for only $69.95! You get ready-to-compile source code, a full-featured word processor that looks and acts like WordStar™, and a 200-page manual that tells you how to integrate the editor procedures and functions into your programs. With Turbo Editor Toolbox you can have the best of all word processors. You can make WordStar behave like Multi-Mate. Support windows just like Microsoft's Word. And do it as fast as WordPerfect does it. Incorporate your new "hybrids" into your programs to achieve incredible control and power. Sold separately, only $69.95. (If you buy the Turbo New Pack, the price drops to just $47.50.)

H32

NOT COPY-PROTECTED

## Holiday Gift Packs, Turbo GameWorks™ & Turbo Editor Toolbox™

Available at better dealers nationwide. Call (800) 556-2283 for the dealer nearest you. To order by Credit Card call (800) 255-8008, CA (800) 742-1133.

| | | Quantity |
|---|---|---|
| *Turbo Holiday Jumbo Pack | $245.00 | |
| *Turbo Holiday Pack | $125.00 | |
| *Turbo New Pack | $95.00 | |
| Pascal | $69.95 | |
| Pascal w/8087 | $109.90 | |
| Pascal w/BCD | $109.90 | |
| Pascal w/8087 and BCD | $124.95 | |
| Turbo DataBase | $54.95 | |
| Turbo Graphix | $54.95 | |
| Turbo Tutor | $34.95 | |
| Turbo Editor | $69.95 | |
| Turbo GameWorks | $69.95 | |

These prices include shipping to all U.S. cities. All foreign orders add $10 per product ordered.

*Gift Pack Offers Last Until March 31, 1986

The holiday packs include an upgrade coupon for both options so you get BCD and 8087 support for $39.95 (regularly $55.00).

Carefully describe your computer system!

Mine is: — 8-bit — 16-bit
I use: — PC-DOS — MS-DOS
— CP/M-80 — CP/M-86

My computer's name and model is: _____

The disk size I use is: ☐ 3½" ☐ 5¼" ☐ 8"

Name: _____

Shipping Address: _____

City: _____

State: _____ Zip: _____

Telephone: _____

Amount: (CA add 6% tax) _____

Payment: VISA MC Check Bank Draft

Credit Card Expiration Date: ____ / ____

Card # _____

NOTE: Turbo Editor Toolbox and Turbo GameWorks are available for the IBM PC and true-compatibles using Turbo Pascal 3.0 ONLY.

COD's and Purchase Orders will not be accepted by Borland International. California residents: add 6% sales tax. Outside USA: add $10 and make payment by bank draft, payable in U.S. dollars drawn on a U.S. bank.

BORLAND INTERNATIONAL

4585 Scotts Valley Drive, Scotts Valley CA 95066
Phone (408) 438-8400 Telex 172373

Copyright 1985 Borland International BI-0107

Turbo Pascal and Turbo Editor Toolbox are trademarks and Turbo Database Toolbox, Turbo Graphix Toolbox, Turbo Tutor, Turbo GameWorks, Turbo Access, Turbo Sort, and GINST are trademarks of Borland International. WordStar is a trademark of MicroPro International Corporation. Multi-Mate is a trademark of Ashton-Tate Corporation. Microsoft Word is a trademark of Microsoft Corporation. WordPerfect is a trademark of WordPerfect Corporation.

# Morrow Owners' Review

P.O. Box 5487, Berkeley, CA 94705
MCI Mail: MREVIEW (ID 217-1566)
(415) 644-2638

**Editor and Publisher**
Sypko Andreae
**Managing Editor**
Shoshana Tembeck
**Administrative Assistant**
Dana Gaskin
**Graphics**
Augusta Lucas-Andreae
**Subscription Coordinator**
Margo DeMello
**Advertising and Layout**
Dana Gaskin
**Art Direction**
Shoshana Tembeck
**Editorial Council**
Andy Adler, Michael Conroy, Tim Evans, Bruce Gowens, Clarence Heier, Bill Lamp'l, Brian Leyton, Ted Silveira, Bill Steele, Lenore Weiss, Erik Westgard, Marilyn Umehara

**MORROW OWNERS' REVIEW** is published bi-monthly for $18 per year by Morrow Owners' Review, P.O. Box 5487, Berkeley, CA 94705. Application to mail at second-class postage rates is pending at Berkeley, CA. POSTMASTER: Send address changes to MORROW OWNER'S REVIEW, P.O. Box 5487, Berkeley, CA 94705.



Copyright ©1985, Morrow Owners' Review. All rights reserved. The opinions expressed by authors are not necessarily condoned by MOR, nor does MOR vouch for the technical accuracy of the articles. While MOR makes an effort to screen advertisers, MOR cannot be responsible for quality or delivery of merchandise advertised; nor does MOR verify the accuracy of claims made in ads. Investigate before buying. If problems arise, write to the advertiser explaining your complaint and send MOR a copy of your letter.


**SUBSCRIPTIONS:** Subscriptions cost $18 per year, $32 for two years. Add $8 per year for Canada and Mexico. For all other countries, add $7/year for Surface Mail and $16/year for Airmail. MOR is delivered by bulk mail in the USA; if you want the reliability and efficiency of **first class** mail, add $8 per year. MOR cannot be responsible for non-delivery of copies by bulk rate. If you have problems with getting MOR delivered to your home or office by bulk mail, please notify MOR, ATTN: Subscription Coordinator. **Back Issues** cost $3 each, postage paid in the U.S., Canada and Mexico.

MOR is published every other month, starting with February. We must receive your subscription application before the 15th of the preceding month in order to begin your subscription with the next published issue. To ensure continuity of your subscription, **Renew** at least one month prior to the expiration month noted in the upper right of your mailing label. The number preceding that date is your **Subscriber Number.** Use it in all correspondence. Please allow 2 months for a **Change of Address** to take effect.

**CLASSIFIED ADS** are available for both private parties and commercial enterprises. Private party ads cost $2 per line; commercial ads run $6 per line. **All** ads which sell something for profit are considered commercial. Guidelines for both types of ads are: maximum 50 characters per line; maximum of 6 lines per ad. Be sure to include name, address and phone number. Indicate which information should not be printed. Send an SASE if you want a copy of your ad.

For information on **DISPLAY ADS and MAILING LISTS RENTALS,** write and ask for rate schedule and information sheets.

**WRITERS' GUIDELINES:** Submit all contributions of more than 30 words in a WordStar file; ^OR = 55; ^OJ OFF; period followed by two spaces; one blank line between paragraphs; indent paragraphs 5 spaces; NO hard carriage returns in main text except at paragraph ends; NO hyphenation and NO .dot commands. Include your name, address & phone number at the top of the file and whether we can print these or give to callers. Include a **short** biographical note of 1-3 sentences. In your text, note which machine and which ROM (Rev.) you are referring to. REVIEWERS: Include all information for the review box (see previous reviews). Preferred file transfer: Upload to BAMDUA SBBS-RCP/M (415) 654-3882, call or write for instructions and password. You may also use MCI Mail: MREVIEW (ID 217-1566) or mail a 5¼" Morrow SS or DS format floppy with a printed (double-spaced) hardcopy of your prose. If you enclose sufficient first-class postage, your floppy will be returned. Published manuscripts of at least a 1000 words entitle the author to a single, non-cumulative one-year's subscription to MOR for each year.

# CONTENTS


EDITORIAL EXCHANGE

Editorial . . . . . 2
Letters to the Editor . . . . . 3

COLUMN

From The Mailbox . . . . . 18
Bill Steele

FEATURES

The Word from New York Dealers . . . . . 7
Marilyn Umehara
The Co-Processor Board Confusion . . . . . 8
Sypko Andreae
CO-POWER 88 for the MD3 . . . . . 9
Don DeMaio
Adding a Co-Processor Board to an MD11 . . . . . 11
Duane Kromm
The Dvorak Keyboard—Life After Qwerty . . . . . 13
John R. Riggenbach
Converting your Morrow Keyboard to Dvorak . . . . 16
John R. Riggenbach
Indexing with Correct-It . . . . . 22
Bill Steele
Geneology with Personal Pearl . . . . . 26
Joe Day, Jr.
Telecommunications: National and International . 31
Donald Jenner
Handicapped Users and the Morrow . . . . . 39
Hal Remmes
Software for the Visually Impaired . . . . . 41
Hal Remmes
New Software Announcements . . . . . 50
Humungus

GAMES AND SIMULATIONS

Block Letters for Toddlers . . . . . 12
Bob Lee
Conway's Game of Life . . . . . 23
Carson Wilson
The Animal Game . . . . . 30
Henrich Greve and Arent Greve
Labor Turnover and Career Mobility . . . . . 35
Arent Greve

REVIEWS

VersaLedger II . . . . . 43
Bill Roos
Accounting for Micros . . . . . 47
Marsha McGough

MISCELLANEOUS

Silicon Valley Surplus Reopens . . . . . 19
Upcoming Themes . . . . . 27
NSWEEP Revisited . . . . . 36
Any AV Out There? . . . . . 37
Author of the Bi-Month . . . . . 38
Special Credits . . . . . 49
Technical Manuals and Schematics . . . . . 51
MOR Public Domain Diskettes (FLOBs) . . . . . 52
Important Announcements . . . . . 53
Classifieds . . . . . 54
List of Advertisers . . . . . 54
Subscription Forms . . . . . 55
Back Issue Information . . . . . 56

# EDITORIAL

**Micro Decisions, end of the line?**

On September 30, 1985, Morrow sent out a press release announcing the termination of its Micro Decision dealer agreements by October 31. Putting all their eggs in one basket, Morrow decided that it needed to concentrate on the production of the PIVOT II, which was designed for large-volume corporate use and therefore did not fit well with the 'walk-in' retail-oriented network of the 500 existing dealers. Morrow will recruit about 100 new PIVOT dealers—each with their exclusive territory—mostly from the corps of 500 former Micro Decision dealers.

To qualify for such a dealership, each dealer will have to provide a letter of credit for about $30,000 against which Morrow can draw in exchange for deliveries. This supposedly will help Morrow get their cash a little faster, just in time to buy parts for the next batch of PIVOT's. The computer press calls this an "innovative" scheme; some dealers don't like it, a few don't mind. It will be interesting to see how many dealers Morrow will wind up with.

When I posted this news on the BAMDUA bulletin board, there was not much of a response. One caller joked: "Let's raid Morrow in the middle of the night and liberate all the CP/M left-overs!" Another added: "Let's invite George Morrow along for the raid, he would love it!" And that was it, nobody expressed much in the way of shock. Not surprising, really, because what difference does it make that no more Micro Decisions are being made? Tim Evans wrote: "If we already own 8-bit machines, why do we care whether anybody sells them anymore? Our machines are virtually indestructable, and CP/M's bugs are long since dealt with." Also, based on what others write to MOR, it seems unlikely that people will leave the MD community in droves. After investing a lot of learning effort and money in an installation that works well, why change computers every year or two? In addition, the Morrow owners are known in the industry as a group with strong feelings of loyalty for their brand of computer. These are some of the reasons why many people are going to hold on to their solid, bug-free 8-bit machines.

**MOR to play a stronger service role**

Now let's look at the support scene. Slowly but surely MOR is going to move towards offering more subscriber services. Our first pilot project, the Floppy of the Bi-Month, is a resounding success, but there will be some changes (see page 52). Technical manuals and schematics are next, and they will hopefully be available by early January (see page 51). MOR will do whatever it can to foster the forming of new MUGs (Morrow Users Groups) and supporting the ones in existence.

In a way the situation is not unlike that of FOG (First Osborne Group) when Osborne applied for protection under Chapter 11 and was virtually out of business for a while. Of course MOR could never satisfy the expectations users have had from Morrow, Inc. and dealers. Due to our limited subscriber base, we can only support a small staff, too small to be taking on additional work. So we hope to develop new subscriber services with a lot of help from MOR volunteers. There is lots we can do together. Write us with new ideas and how we might implement them (within our constraints).

**Faithful dealers, new manufacturers**

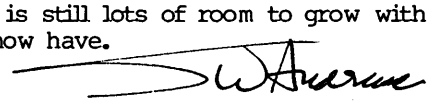
The San Francisco Bay Area will soon have only three Morrow dealers. In talking to them, I soon found out that all three are interested in maintaining the existing relationship with their MD clientele no matter how Morrow chooses to reorganize their dealer network. But what if you wanted to buy another 8-bit Morrow machine? There are several dealers who say there is still demand for MD11's and would like to sell them if they could only get them somewhere.

That brings us to another interesting rumor. Future production of Micro Decisions under licence from Morrow may be taken up by at least two manufacturers, one here in the USA and one overseas. In the near future this may be the only feasible way to acquire an additional—or a first—machine, especially in view of the current weak market in second-hand Morrows.

There is more on the horizon. Several manufacturers are planning to expand their lines of products that will help you enhance the power of your machine. Already you can buy hard-disks for Morrow floppy systems. New large RAM disks are going to come out in sizes of 512K and 1MB, enabling you to break SuperCalc2's spreadsheet size-barrier, imposed upon it by 64K memory address space limitation. The need for large spreadsheets used to be a major reason for "upward" migration to a 16-bit machine. Fret no more, you can soon have enormous spreadsheets on your MD2.

The new products not only offer greater size but also increased sophistication. One manufacturer offers a device which incorporates a RAM disk, a printer buffer and a hard-disk cache memory all in one, with easy allocation of space for all functions at your fingertips. Several manufacturers offer network devices for Morrows in case you need to tie several machines together or have them all share a large disk. These are all enhancements of great importance to many people with small but growing businesses. Where Morrow, Inc. left off, others are taking over.

Watch for future reviews in MOR about all these new products. MOR plans an entire issue dedicated to "Enhancing your Micro Decision" (see Upcoming Themes, page 27, on how to submit your articles). It all goes to say that there is still lots of room to grow with the equipment we now have.



# LETTERS TO THE EDITOR

## FLOOD OF KAMAS ORDERS

Dear Editor:

As you probably know by now, the MOR group purchase of KAMAS was a smashing success! So much so that Mike Faith (the purchase co-ordinator) got swamped with nationwide orders. And a lot of people who sent in their half-off checks for Kamas were waiting a long time for their KAMAS purchase to arrive.

What started as a local group purchase expanded to the international arena where a lot more work is involved. Like obtaining shipping cartons and packaging materials, generating shipping labels and even customs forms for orders going out of the country, packing up units, and paying the shipping charges to mention a few of the added tasks.

In the meantime, we at KAMASOFT were planning a holiday sale starting October 15 and offering KAMAS at half-price. (See our ad in this issue.)

Although we did not organize the group purchase, Mike's predicament became ours. It seemed to us that the burden faced by Mike was unnecessary in light of our upcoming holiday season promotion. Anyone could get KAMAS directly from us at the same half-off price. And not much time would be lost either. By the time the LA volunteers could place the order, receive the units, and then ship them out to all the purchasers, our sale would have been well underway.

So we told Mike about the upcoming sale and offered to send him coupons and order forms for all the people who had sent in checks for KAMAS. Mike decided he would still process his local purchases as a group purchase and would return the checks (with our half-off coupons) for all the non-local purchasers.

We hope that all those who joined the group purchase have received KAMAS by now for the half-off price that they so patiently sought.

Adam Trent, KAMASOFT, Aloha, OR

## ANOTHER TASTE OF PEARL

Dear Editor:

I found I.I. Butler's piece in MOR really off-target. ["Let's Get Rid of Personal Pearl," MOR Vol. 2, #5, Oct/Nov 85, p. 28] It was as if he'd never used Personal Pearl. I speak from experience when I report that PP tech support always proves forthcoming, even when installing on very non-standard unsupported machines (e. g., a Sanyo). And while little documentation is perfect, PP's is actually quite good, as these things go (though the Morrow reprint is less good than the one PearlSoft does itself). Every common error is covered, and most uncommon ones.

As to the matter of alternatives, for goodness sake! Personal Pearl will do flat file-management as easily (if not more so) as the low-end file-management programs, generally, while leaving the option open for greater complexity. It is sufficiently robust that it is really hard to break the system, or lose data. And it is infinitely more reliable than dBASEII, in my limited experience, though the comparison is not fair (the former is application-generation, the latter is a programming language).

What is especially objectionable in this pettifogger's remarks is his assumption that his judgment of taste could claim universality. Choosing a program from roughly equal alternatives is merely a matter of taste, and the rule de gustibus non disputandum holds. Oh, well, perhaps Mr. Butler does better in court. . . Perhaps. . .

Donald Jenner, New York, NY

## DRESSED DOWN MD11

Dear Editor:

I have an MD11 I bought in June of 84 and have used it a lot with no problem whatsoever. When I first bought the system I did nothing but write with it. Now I am busy trying to learn CP/M 3.0, the C programming language (via the BD Software compiler) and microprocessor technology in general. Someday I will get around to finding SuperCalc useful, I'm sure. Personal Pearl? Well, maybe.

Letter-writers in MOR mention heat problems with their hard disk Morrows, as do former Morrow repairmen here in the Maryland/D.C. area (power supplies fail because of heat). The problem was unknown to me when I bought the machine, but after a brief period of use I could see it coming. So I simply pulled the computer out of its case and have been running it happily unclothed ever since.

Robert W. Rowe, Annapolis, MD

[Well, I don't know. Better be sure nothing drops in from above. And how do you protect your inner-machine from dust? How about using a table-mounted umbrella? —Ed.]

## FROM UNDER THE OCEAN

Dear Editor:

I think the "Floppy of the Bi-Valve" is the best news in crustaceans since lobster!

William Rodarmor, Oakland, CA

## MOR SONG AND DANCE

Dear Editor:

I'm very pleasantly stunned, surprised, and in near gleeful hysterics that my back issues of MOR, plus the current issue, arrived in today's mail. It's been only 7 days since I requested them. That's 7 days, folks, from my request to the arrival of the MOR's. I don't know of another single place on the planet that responds that quickly. I didn't even know it was possible.

You must have sensed how desperate I was to receive them. Who but a MOR subscriber comes home from work, drools on the envelope, rips it open with their teeth, and dances through the house, singing, "The new MOR is here! The new MOR is here!"

Thank you for such fast service.

Sheila K. Hughes, Tucson, AZ

[Glad we pulled it off this time! —Ed.]

## DEVOTED TO BASICS

Dear Editor:

THANK-YOU!!!

I am very grateful to George Morrow for the product he has produced. The price was right on my MD11, and it has performed nicely for me. I also agree with the "warnings" of Stan Ahalt about the need for some type of commitment to long term support for CP/M systems. Because I am so ignorant of the computer world, I value greatly the ability to hear both sides of the issues that are discussed in MOR. PLEASE, keep at least a part of each issue devoted to the very basics of using the hardware, and the packaged software. I eagerly look forward to each issue of MOR, and read it cover to cover. That includes every word of every advertisement.

Thank-you, and keep up the good work of trying to meet the needs of both expert and novice.

Dennis Smith, Visalia, CA

## FASTER PRINTING WITH NEWWORD

Dear Editor:

The Mannesman Tally Spirit 80 is an MX-80 compatible printer. To get the most from NewWord on MX-80 compatible printers, use the MX-80 printer driver, and use the following commands to improve print speed:

The dot command **.uj off** turns off micro-justification, and will cause the printer to print smoothly across the page.

After any character width changes (**.cw, ^PA, ^PN**), reset the page offset (see **.po**), so the printer won't print uni-directionally (left to right only).

If I can be of any further assistance, please write or call. You can reach us Monday through Friday 8 AM to 5 PM Pacific Time. Our customer service number is (415) 932-2526.

Phil Carleton Newstar Software, Inc.
1601 Oak Park Boulevard, Pleasant Hill, CA 94523

## THREE HOLES FOR MOR

Dear Editor:

Just a short note to second the request for three-hole punching future issues of MOR. It's a great help. Very time consuming and $$ to do-it-yourself. I always end up reading past issues for more information, and keep them together for that purpose. Maybe you could develop a special MOR three ring binder for past issues? Thanks.

Madeleine Keyes, Oakland, CA

[As soon as we find the right punch for the right price, we'll get you the right holes. I like the idea of a binder —Ed.]

## BUG IN A DDT PATCH

Dear Editor:

The article by Derek Lee Beatty, "Toward A More Useful Micro Decision," (MOR Vol. 2, #1, Feb. 85, pp. 20-23) contained a typographical error on page 23. In the third column of hex numbers:

```
01                      01
D8    should be-->      58
58                      58
...                     ...
```

I noticed something was wrong when trying to make this system work, because attempts to access drive C caused the logical drive prompt to appear. Close scrutiny of the last patch area showed a possible discrepancy in the third column of numbers. Changing the D8 into a 58 solved the problem.

Daniel J. Payne, Santa Cruz, CA

## THE FUTURE IS ALREADY HERE

Dear Editor:

I do hope all Morrow owners band together behind MOR for I fear the demise of the Micro Decision even sooner than I originally expected. Tandy has lowered its Model 1000 price (less than $1500 when you include two disk drives and a monochrome monitor) and now there is the Leading Edge Model "D" for less than

$1500. Both are MS-DOS machines that are substantially IBM compatible. (Incidently, it was my Morrow dealer that introduced me to the latter computer—an excellent machine, by the way.) These low prices will almost certainly finish Morrow's continued production of the CP/M machines. I foresee a Morrow machine that is MS-DOS operated and bundled with software and 128K RAM. I think that time will come sooner than we think.

Wellington Lee, Chicago, IL

[What you presage has already come true. The times do move fast, don't they? —Ed.]

## LOVE IT OR LEAVE IT

Dear Editor:

OK, Folks! I've seen more than enough letters that just complain about Morrow, and the people who are trying very hard to keep things afloat out there. Instead of wasting our time and energy lamenting the shortcomings (real or imagined) of manufacturer or dealer, I think we should concentrate our efforts on forming a good strong, national users' group (that becomes the envy of all other users' groups!) and help each other learn to get the most out of our investment. We've got a good start in MOR. This magazine is a gold-mine of information and helpful hints for the Morrow user, and can only get better as more people write in asking questions or sharing their solutions to problems. Some people may think that Z-80 and CP/M are ancient symbols found only on a Rosetta Stone or in the Dead Sea Scrolls. But I disagree.

There is no such thing as a perfect computer or a piece of software that is exactly right for every user. The reason is quite simple: each user is an individual, and has a unique set of ideas about what is needed to get a particular collection of jobs done. At best, the selection of a computer or software represents a compromise blending what one would like, what is available, and what one is willing and/or able to pay.

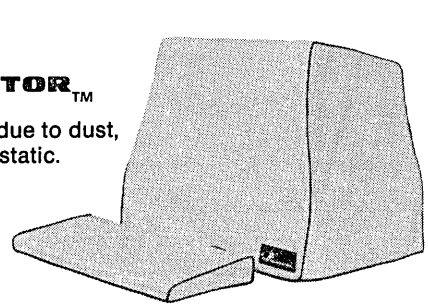
If any of you unhappy owners think that you can go out and buy a better computer for the same price that you paid for your Morrow, please do it. Put your Morrow up for sale so it can go to a good home where it will be truly appreciated and properly loved by its new owner.

Question: How can I get schematics for my MD3? I don't really need them right now, but I would like to have a copy for safekeeping against the inevitable day when one of Murphy's eggs hatches.

Betty Strohm, Austin, TX

[Quite. The answer to your question is on page 51, "Technical Manuals and Schematics." —Ed.]


# Protect Your Investment



THE PROTECTOR™

- Eliminates damage due to dust, smoke, liquids, and static.
- Prevents data loss
- Professional appearance
- Easy to use

The Protector™ is waterproof, yet it breathes. There is no moisture condensation problem.

The Protector is durable. It will never become brittle, crack, or tear.

Custom tailored for the Morrow, The Protector is the best cover you can buy. Fine cotton fabric and expert tailoring make the Protector the only cover appropriate for professional office or elegant home.

Morrow Protector $39.95. Printer Protector $19.95.

Credit card orders receive a $5.00 discount.
**To order call 1-800-232-1211. We guarantee satisfaction.**

Dealers inquire on your letterhead.
The Protector Corporation, 375 S. 41st Street, Boulder, CO 80303

## DOUBLE YOUR PLEASURE!

Your MD-2 Micro Decision computer is a good machine, but its old, slow, noisy single side disk drives just don't hold enough data for your increased data requirements. Don't scrap it, convert!

Civil Computing will convert your MD-2 into a more modern MD-3 by replacing your old MD-2 single side drives with new, fast, quiet double side drives, and making the necessary software changes.

Civil Computing has tried several brands of disk drive and we've chosen Qume drives for every reason except price. Qume drives aren't as cheap as some, but they're are fast (6 m.s.), and much quieter than the others, and made by ITT, a domestic company.

Here's how we transform your aging MD-2 into the equivalent of a modern, expensive MD-3 ...
. replace both drives with new Qume QT142 drives,
. convert your single side CP/M to double side.

Only $ 350.00 plus return shipping and applicable sales tax on parts portion. Visa & M/C accepted.

CIVIL COMPUTING CORPORATION
2111 RESEARCH DRIVE, SUITE I
LIVERMORE, CALIFORNIA 94550
(415) 455-8086

# WHO WOULD DIG THROUGH 300 DISKS OF MSDOS SOFTWARE TO FILL 14 DISKS FULL OF GEMS?

## $12.00 STOCKING STUFFERS YOU'LL USE ALL YEAR!

**DISK MS-1 ESSENTIAL UTILITIES**

SWEEP is a powerful replacement for COPY. LU86403 makes (and unmakes) library files from your programs. (Bulletin boards contain many library files.) DSKRTN is a fancy disk utility which hides files, recovers files, and lists first sector of an erased file. WHEREIS finds file in subdirectories. SQUEEZE and UNSQUEEZE squeeze and expand files for faster and cheaper modem transfer. Plus WASH and several other file manipulators.

**DISK MS-2 ASSEMBLER AND DISASSEMBLER**

CHASM is compatible with the IBM macroassembler. ASMGEN is a dis-assembler whose output is compatible with the IBM macroassembler (works in 64K). MEMBRAIN converts extra RAM into a RAM disk. UNWORDSTAR converts Wordstar files to ASCII and vice versa. FSPOOL is a printer output to file redirector and SDIR is a super directory program. (And more . . .)

**DISK MS-3 ADVENTURE**

This is the original text-style adventure game that has kept whole throngs of (otherwise) serious programmers glued to their screens. It's ready to run but we also include source in CII and notes about how to expand this adventure (or create your own). Great fun for all computer users.

**DISK MS-4 SINGLE USER RBBS**

Turn your PC (or compatible) into a bulletin board and get called by the world. Includes source.

**DISK MS-5 FILE AND DIRECTORY UTILITIES**

UTIL sorts directories, moves files between directories, redefines the keyboard, and views files. Z sorts files. VTYPE is an easier to use TYPE. ST pages backwards or forwards through files. PROTECT AND UNPROTECT prevents accidental (or purposeful) erasure of files or programs. PCWINDOW a resident multi-function routine that handles notepads, timing, ASCII translation etc. Very handy Sidekick-like program.

**DISK MS-6 FIG FORTH**

(Includes MS-7, FORTH Source)

**DISK MS-8 THREE GAMES**

CASTLE is a graphic and conversational adventure. TREKRUN is a startrek style game. BOUNCING BABY is a finger exercise that will enthrall a 10-year-old.

**DISK MS-9 PASCAL GAMES, PC MUSICIAN, CALCULATOR**

This is our educational disk. PC MUSICIAN lets you write songs right on the screen and test them as you go. "I amazed my friends when I sat down at my computer and played . . ." The PASCAL GAMES aren't all that exciting, but the source should give you a good start on creating your own. PROGRAMMER'S CALCULATOR shows you how the stack, memory, and CPU registers work, plus it's highly calculating.

**DISK MS-10 MODEM SOFTWARE**

If you want to talk to bulletin boards this is your spot. QMODEM is the fanciest of the MODEM7 packages we've seen. It's powerful but easy to use. KERMIT is the standard package for communicating with mainframe (there are versions of KERMIT for nearly all the mainframes).

**DISK MS-11 MULTI-USER RBBS 12.3 SYSTEM**

Another complete RBBS, this one allows more than one user at a time.

**DISK MS-12 SOURCE OF RBBS 12.3 SYSTEM**

**DISK MS-13 TEXT EDITOR & FORMATTER**

ROFF4 is UNIX-like text formatter, PC-Write is one of the most famous of the freeware editors.

**DISK MS-14 FORTH 84**

**For Super Fast Service Call 503-382-5060**

**MICRO CORNUCOPIA**
The Micro Technical Journal

**Disks $12.00 each Postpaid**

**MICRO CORNUCOPIA**
**P.O. BOX 223**
**BEND, OREGON 97709**

# THE WORD FROM NEW YORK DEALERS

**by Marilyn Umehara**

[Things change fast. Marilyn Umehara wrote this article before Morrow cancelled all their Micro Decision Dealer contracts, as explained in my editorial in this issue. Still, nearly everything Marilyn mentions is relevant today, because many dealers have chosen to have an ongoing relationship with Micro Decision users, no matter what Morrow does. —Ed.]

There is mixed news for Morrow Micro Decision users on the Northeast front: the good news is that dealers feel Morrow has the right stuff to survive and thrive in the current computer industry shakeout; the bad news is that the few dealers who still carry Morrow are promoting only the PIVOT system and feel consumer demand for CP/M is nil.

Dealers interviewed said that any order for a Micro Decision still could be filled, and that there is no problem in getting service. According to Gene Berlepsch, treasurer of BusinessBank, Inc.—the sole dealer for Morrow in Connecticut—there are about eight Super Service Centers working directly for dealers in the Northeast.

The average price of a Micro Decision has dropped about $500 in the past year, keeping it, theoretically, a competitive product with its bundled software, while the Morrow PIVOT has only a slight price advantage of about $50 over its IBM competitor.

Clearly, however, dealers are as politely disinterested in the Micro Decision—and its owners—as they would be in an elderly maiden aunt. While agreeing that the 8-bit CP/M is a perfectly fine operating system, they're openly lusting after the 16-bit, IBM-compatible PIVOT, looking for volume orders and complaining that Morrow is way behind on deliveries.

Fred Navi, Sales Manager of Fifth Avenue Computer in New York City, raved over the Morrow PIVOT, calling it "unique" and "without competition," and lamented that he had had to sell one of his five demo machines while awaiting delivery of back orders. "Morrow is slow, but they get the job done," Navi said resignedly.

Connecticut dealer Berlepsch said flatly, "Morrow's PIVOT will either make or break Morrow...I think it's going to put Morrow over the hump." Berlepsch claims to have back orders from at least six Blue Chip firms, and said his company had been promised orders of between 100-1,000 units from each of these firms once Morrow fills their initial orders.

But Mark Trachtenberg, an executive of IDS Systems in mid-town Manhattan, a firm which once heavily advertised Morrow, has dropped the Micro Decision line because of a "flat demand," and has no immediate plans to pick up Morrow's PIVOT.

Dealers, who reported receiving their last PIVOT shipments in June, are tolerating a hiatus in deliveries because they understand Morrow is still working out bugs in the machine. Said one dealer, "We realize Morrow is being very cautious in developing the PIVOT system. When one software package didn't work, they recalled the machines to change one chip. They're a small company being very careful, and we appreciate that because we're the same."

All dealers interviewed had stopped newspaper advertising of Morrow in favor of direct mailings to and presentations before corporations—in effect, abandoning the general consumer market. One said that the Morrow company itself advertises only in the Wall Street Journal, and another observed that Morrow seems to be relying mainly on word-of-mouth advertising.

Morrow, never able to throw millions into nationwide advertising to establish itself as a household name, apparently has made the only possible choice for survival in deciding to go after big business and local, state and federal government volume sales with the IBM-compatible PIVOT.

Where does that leave us who own Micro Decisions? Not really in all that bad shape. CP/M is a very satisfactory system, and as CP/M grows increasingly obsolete, the prices of many software packages may decline.

We know that change is the only constant in the fast-paced electronics industry, and it is unlikely that many of us will be willing or able to run out and trade in thousands of dollars worth of our existing equipment for an upgrade every two or three years, as buyers once did with their Caddies.

We Morrow MD owners seem to be delegated to the role of a cult club in the mold of old Thunderbird owners, Star Trekkies or Elvis worshippers. Hey, collector cults are chic. Let's relax and draw more fans into our movement. ■

[Copyright © 1985 by Marilyn Umehara. First-time North American Serial Rights Only]

**Marilyn Umehara**, a freelance writer and professional journalist, has worked in Japan and New York in advertising and publications. She currently uses her Morrow to put out a consumer advocacy newsletter in Westchester County, New York, and is a member of the MOR Editorial Council.

# THE CO-PROCESSOR BOARD CONFUSION

**by Sypko Andreae**

The existence of various versions of the Co-Processor Board can be confusing. In the following two articles, Don DeMaio and Duane Kromm have each explored different Co-Processor boards, which are descendents of the same original design. In this introductory article, I hope to clear up some of the confusion.

What is this Co-Processor Board? It is a small Printed Circuit board (PC board) that you can mount inside your Micro Decision by unplugging the Z80A computer chip, plugging the PC board in its place, then plugging the Z80A back into a socket provided for it on the PC board. It looks like any other Printed Circuit board and is loaded with Integrated Circuit chips. Among them, the 8088 chip enables you to use your MD as a 16-bit MS-DOS computer. The many RAM (Random Access Memory) chips provide at least 128K of memory when you run under MS-DOS. When running in CP/M, the RAM chips can be used as a RAM disk. (See p. 9 of DeMaio's article for more on the RAM disk.) Details on how to operate the Co-Processor board are in the following articles.

A couple of years ago, SWP, Inc., a company from Texas, contracted with Morrow to design the MD3 Co-Processor board. Morrow Inc. called it the MDCP88-128 or the MDCP88-256 Co-Processor board, depending on whether it had 128K or 256K of RAM. Morrow then did some further development on the board in an effort to make it run on all Micro Decisions, including the hard disk models. That got them into a lot of engineering problems. Rumor has it that the board never worked properly on Rev. 1.1 MD's. It seemed to run fine with the Rev. 2.2 MD's, but there were many problems with the hard disk MD's, such as overheating, and lack of sufficient power from some of the power supplies. Nevertheless, an unknown number of Co-Processor boards of this design were marketed anyway. The Co-Processor board Duane Kromm writes about (p. 11) is one of those MDCP88's that he (somehow) managed to install successfully on his MD11.

Last November, Morrow decided to ask SWP to take the whole product back and sell it themselves. Users found out that the MDCP-88 was no longer available through Morrow dealers but were left in the dark about what had happened and why. It's still not clear.

Anyhow, SWP set to work. When the magnitude of the problem of installing the Co-Processor board in a hard disk MD became clear, they decided to market the current design for the Rev. 2.0 MD3's only. This board was marketed under the name CO-POWER 88. This is the board Don DeMaio describes in his article on p. 9. As Don explains, SWP went on to develop the CO-POWER PLUS board with several new features and a RAM range from 256K to 1024K.

The CO-POWER 88 board, which SWP is phasing out, used to come bundled with MS-DOS. The new CO-POWER PLUS board no longer comes with MS-DOS.

What happened to the MS-DOS? SWP's MS-DOS license with MicroSoft (makers of MS-DOS) expired in August 1985. In order to renew it, they would have to meet MicroSoft's new license fee—four times what it was before! The consequence? No more MS-DOS. However, there's a way around it. If you purchase PC-DOS 2.1, then the software SWP provides with CO-POWER PLUS can be merged with it to create an MS-DOS disk. In effect, PC-DOS is converted to MS-DOS this way. But you have to purchase a copy of PC-DOS 2.1 yourself. Debbie Jenkins of SWP assured me that this new set-up with CO-POWER PLUS works the same way as the CO-POWER 88 system.

If you are interested in adding a Co-Processor board to your system, you'll want to take the following into account:

(1) Only MD3 owners—or MD2 owners with Rev. 2.0 boards—can profit from the currently available Co-Processor board from SWP.

(2) MD11 owners will have to take their chances when they hunt around for the old MDCP88 board.

(3) If your Z80A chip is soldered in, installation may pose a problem. You can easily ruin your motherboard if you don't have the skill to unsolder the chip and put a socket in yourself.

(4) Your power supply (the +5 Volt section) may not be adequate to carry the load, and you may need an additional power supply.

(5) There is a potential overheating problem. Your MD3 may need a fan, your MD11 may need a second fan, or you may install the Co-Processor externally.

(6) You no longer receive a complete bundle of software to run MS-DOS when you buy an SWP Co-Processor. You have to buy PC-DOS Vers. 2.1 and merge it with SWP supplied software.

As they say in Holland, "Een gewaarschuuwd man telt voor twee." ■

---

Born in windy Holland, **Sypko Andreae** grew up flying kites. Later he switched to sailplanes because they go higher, are untethered and take the pilot along. His various careers include that of flying instructor, engineer, therapist and programmer. Currently, he is flying high with MOR.

# CO-POWER 88 FOR THE MD3

**by Don DeMaio**

As the country turns more and more to 16-bit computers, one of the few options available to a Morrow owner, outside of trading the machine in, is to install a co-processor board. The basic elements of a co-processor board are an 8088 chip, 128K or 256K of RAM, and added logic circuitory to make it operate properly. There are not many such add-on boards available for the Morrow. One is manufactured by a company in Texas called SWP Microcomputer Products [1000 W. Fuller, Ft. Worth, TX 76115, (817) 924-7759] and is called CO-POWER 88. This board allows the user to operate the computer either as an 8-bit machine running CP/M or as a 16-bit machine running MS-DOS. Switching from one system to the other is easily done from the command prompt.

The board has been set up to be run simply, when you consider that the user is free to switch between two operating systems. You begin by powering up the machine and going right into CP/M. Then, if you wish to activate the 16-bit system, you type the command: **MSDOS.** This is a CP/M command that prepares the machine for the new system by changing the format of the disk drives. You now put the DOS disk in whatever drive you want and tell the computer which drive you've chosen. DOS is then loaded into memory and ready for the new software. In the event of a crash, the procedure has to be re-enacted.

**The Ramdisk**

One of the special features of the board is that it can be used as a Ramdisk. Ramdisk software which comes with the board "tricks" the computer into seeing the 256K of memory as an electronic disk drive. (I've designated the Ramdisk as disk drive D, since A and B on my MD3 are mechanical drives, and C is sometimes used by the Morrow as a "virtual" drive.) This gives you a third drive to work with. But, more importantly, all software and data on this "drive" can be accessed electronically. This means there is no need to go through the disk drive itself, and the computer will run quite a bit faster than normal, especially when using those programs that require extensive disk activity. The user can zip through data processing at the speed of electricity and is not tied down to the mechanical speed of the drive. To me, this makes computing much more pleasurable, and the whole process approaches the speed of a mainframe computer.

Although a Ramdisk can speed up operations and make you think you're working on a more powerful computer, it has two awkward limitations. First, all software and data files in use must first be transferred to the Ramdisk, using the PIP command. Second, since the new data files are entirely in memory, they will be lost as soon as the machine is turned off. This means that you will need to transfer any new data files back to the disk in drive A or B before closing the session.

Fortunately, the CO-POWER manual has clear instructions on how to automate the whole process using "batch" programs. In this way, the computer can be programmed to transfer all software and data files needed for the session to the Ramdisk when you first power up the computer. Later, when you finish the session, the batch program transfers all data files back to the original drive without you having to remember it.

I ran a few tests to find out how much the Ramdisk speeds up operations. It took me 11 seconds to load NewWord from one of the mechanical drives and go to the main menu; the Ramdisk took 3 seconds for the same operation. This means I can jump in and out of NewWord to run other programs without losing a whole lot of time. Also, I use Proofreader, a spelling checker which uses the disk drive extensively. It took Proofreader 2 minutes and 14 seconds to process this article on a mechanical drive and 1 minute and 13 seconds on the Ramdisk.

A new feature of the CO-POWER board which has just been added is a software program which translates a CP/M file into MS-DOS and vice versa. Other software can set one drive to CP/M and the other to MS-DOS, so that CP/M data files can be readily accessed by MS-DOS.

**Limitations**

I investigated this product fairly extensively while trying to decide whether to buy it. I could not find any Morrow owners who were already using it, and so called various computer professionals around the country. SWP itself recommended I contact a dealer in California named Priority One which sold and installed a large number of these boards on Osbornes, KayPro 2's and 4's, and Xerox 820's, as well as the Morrows. A spokesman there told me customers had been fairly satisfied with the board, in terms of mechanical performance. "I would just alert you that this is a plain vanilla MS-DOS board," he said. "It's not going to run Lotus or dBase III or any other program that runs on an IBM PC. With that in mind I would not hesitate to recommend it."

I had reservations about buying this board. In the summer of 1984, one of Morrow's engineers, Dave Block, announced in the Morrow Owners' Review (somewhat enthusiastically, it seemed to me) that Morrow would be

---

**Don DeMaio** uses his MD3 to write articles and operate a home typesetting business. If he can ever find the time, he plans to spend several years in a Tibetan monastery studying the C programming language.

marketing this board under its own name. Block indicated then that the Morrow's power supply had to be replaced before the machine could utilize the CO-POWER board. After a few months I noticed that Morrow had abruptly dropped the board. Dealers in my own geographical area also stopped selling the board. Later, I read in the MOR and another users' newsletter something about the CO-POWER board causing the hard-disk MD11 to overheat. There was an indication that Morrow was no longer recommending or endorsing the board.

When I asked Dave Block about this directly, he said there had been some problems initially with overheating until they started shipping the board with ceramic, rather than plastic, chips. As to why Morrow stopped handling the board, Block said, "We looked at this as a product which would give Morrow owners some 16-bit access," Block said. "But the demand was not enough to justify our continued involvement, especially when you consider the support and service that was required."

As to whether Morrow was no longer endorsing the board, Block said "All Morrows should run the board without any trouble, although I don't see it adding much productivity to a hard-disk system, since disk access on those systems is very quick to begin with." (Given Block's statement, there is still a question in my mind whether the board will work on an MD2. If you're using this model, call the manufacturer first.)

I did notice an increase in heat within the MD3 once the board is up and running. This increase, though, is relatively minor. More importantly, the board causes RF interference on my television set, getting me into trouble with my children when they're trying to watch cartoons being broadcast from a distant station.

According to Block, the biggest advantage Morrow saw in the board was its ability to handle spreadsheets and sort large databases. The 8-bit system is limited to addressing 64K of memory, but 16-bit systems can address up to 16 times that much. This means certain programs will naturally run better on the 16-bit system. "Spreadsheets are incredibly memory hungry," Block points out. "This board expands memory and allows you to use bigger databases. We thought that was a major advantage. That's why we bundled SuperCalc 2 with our boards."

I don't really use such programs, so I will rely on his expert opinion.

**Caveats**

Originally, SWP offered consumers a choice of 128K memory or 256K memory, with the larger-memory board being more expensive. Now, with memory-hungry software sprouting like weeds, SWP has phased out the smaller board and is in the process of closing out the 256K board. Soon, all SWP will offer is a unit it calls CO-POWER PLUS. This board comes with 256K of memory, is capable of handling 1024K, and is much more popular with customers.

Prices change constantly in the microcomputer world, but SWP's prices as of Nov. 15 were as follows: CO-POWER 88 with 128K of memory: $400; CO-POWER 88 with 256K: $500; CO-POWER PLUS with 256K of memory: $495. At $80 for each additional 256K of memory, you can get the complete board with 1024K for $735. Installation: $50 if done by SWP.

If you are considering buying this board, you should talk first with the manufacturer. I found SWP people to be helpful, but not especially open and frank. I had read in an Osborne newsletter a comment from a user that the board's installation required "moderate" technical skills. I consider myself to be in such a category. However, when the board arrived, there was an inconsistency between the installation instructions and my computer. The instructions said to remove the Z80 chip from its socket and replace it with SWP's chip. My Z80 chip was not in a socket: it was soldered in.

When I called SWP and asked what I was to do, salesman David Daniels told me, "Uh oh, you may have a model that needs its power supply replaced. That could be expensive." I asked how expensive. He said $250. I nearly fell over. It seemed inconceivable that, after all the prior conversations I had had with Daniels that he wouldn't have mentioned the possibility of a power supply swap. Daniels complained that Morrow hadn't given them the registration numbers of the machines which had the incompatible power supplies and that there was nothing SWP could do. I would only comment that they could alert their customers to this possibility in their advertisements or at least over the telephone. To me, the additional cost of a new power supply cannot be justified.

As it turned out, I took my unit to a dealer who did all the soldering and installing for me at a cost of $120. I would recommend checking your unit first to see if the Z80 chip (the largest chip on the main board) is in a socket. If so, you could probably install this yourself, but be prepared to invest about 90 minutes in the job.

I am enthusiastic about this board, especially its Ramdisk function, and have no problem recommending it. However, I'm going to follow Dave Block's advice and list several caveats. While it is true that the SWP co-processor will get you into 16-bit computering, potential buyers will have to evaluate, first, their own needs and, second, whether the board is worth the cost. MS-DOS alone will not make your life any happier. I run a small home word-processing and typesetting business, and I have not noticed any increase in my business or my ability to handle more orders.

I had read somewhere that the board would handle all MS-DOS programs and "most" IBM PC software. This is inflated. My judgement is that the first part of the

sentence is correct and the second is false. I tried 7 or 8 MS-DOS programs and three (WordStar, dBase II and PC-FILE III) worked fine.

Debbie Jenkins, SWP's marketing manager, says that any software program that runs off the IBM keyboard or the IBM screen will not run on CO-POWER. The IBM keyboard has little in common with the Zenith Z29-like keyboard on the Morrow, and the IBM screen has 25 lines, one more than the Morrow. (By the way, SWP has no plans for a board that would convert a Morrow into an IBM.) This pretty much takes care of 90 percent of the software now being sold for the IBM. [I'm not convinced that this percentage is correct. From talking with others in the industry, I get the idea that perhaps no one really knows. —Ed.]

In an interview, Dave Block summed it up better than I could, so I'll be content to let him evaluate the board:

DeMaio: If a Morrow owner asked for your advice, would you recommend he/she buy a CO-POWER board?
Block: Are you asking me to answer as an individual or as an employee of Morrow?
DeMaio: Both.
Block: I guess my answer would be the same, either way. Let me explain it this way. If you're asking 'Does this board work?' then the answer is, CO-POWER works fine on a Morrow. But what does it cost? $350? You can buy an IBM for $1500. You have to take that into consideration. You might want to save your money and buy an IBM.

The incremental power of the co-processor is not that much. Our experience was that a person who bought a co-processor board someday would want to run Lotus. You can't run Lotus on this board. You can run MS-DOS, but MS-DOS is not the standard: the standard is IBM. Therefore, the software was limited. Right now, 95 percent of the MD-DOS computers being sold are IBM's or clones.
DeMaio: So where does this leave Morrow owners?
Block: You know, there are a lot of people whose hearts and minds are with Morrow. They don't want an IBM; they wouldn't own one if you gave it to them. This might be for them. It would allow them to expand and upgrade and might be just what they wanted. But I would put in a caveat about software. ■

# ADDING A CO-PROCESSOR BOARD TO AN MD11

**by Duane Kromm**

In May, 1985 I received an ad from Silicon Valley Surplus, the scrap outlet for Morrow, offering a 256K Co-Processor board for $229. This, compared to Morrow's advertised price of $699 for the same package as an add-on to an MD11 or an MD3! I held my nose, closed my eyes and jumped. [The board Duane Kromm bought was originally designed by SWP Company in Texas. Morrow modified it for the MD11, see Sypko Andreae's "Co-Processor Board Confusion" on p. 8.]

The first kit I bought scared me no end with installation instructions warning of doom and destruction if soldering was not performed properly. Yes, you must solder in a header, which is either a 34 or 40 pin (depending on whether you have an MD3 or 11 kit) simple device used to transmit signals from your existing mother board to the expansion board. This was the only difficult part of the installation, as it not only entailed soldering, but the complete disassembly of my highly reliable and much beloved MD11. Soldering and reassembly were successful, but the system did not run MS-DOS! I was perplexed. My CP/M system ran just fine until I tried to install the MS-DOS operating system, then it locked up.

I had left the Co-Processor board outside my MD11 case to keep the heat down, since rumors had prevailed that excessive heat would shut down the system. I decided to take the whole system back down to Silicon Valley Surplus and try different boards to see if that would make any difference. Fortunately, Brian who runs the store goes by the philosophy: if it doesn't work, bring it back and try again or get your money back; no pressure, no hassle. The second new board I tried worked just fine.

Bundled with my Co-Processor board, I received the MS-DOS operating system version 2.11 and SuperCalc2, version 1 for MS-DOS. Reasonable installation instructions were included, along with two MS-DOS manuals, and a SuperCalc2 manual, all in paperback format. The MD11 does not let you use a Ramdisk under CP/M nor has an ANSI device driver been provided. An ANSI driver is needed to run certain DOS software, including the popular PC-FILE III program. Hard disk space is dynamically allocated between DOS and CP/M. You cannot transfer files directly between the two operating systems; a floppy disk must be used as a transfer medium. I have just received the UniForm program for my CP/M side to facilitate file transfers.

**Duane Kromm** is a self-employed CPA in Solano County, California. Working with smaller businesses and governments lets him play with a nice variety of microcomputer hardware and software.

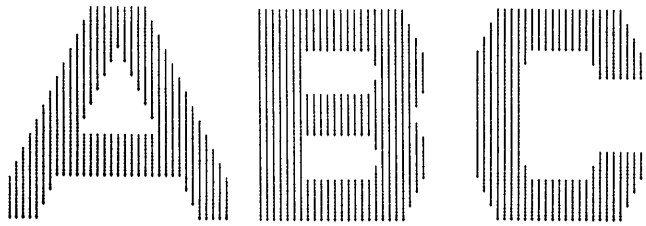
I now have 262,144 bytes of RAM available, 232,448 bytes free after loading DOS. Subdirectories are fully supported. Floppy disks are formatted in conventional IBM double-sided, DOS 2.x fashion with 362,496 bytes of total disk space.

Running MS-DOS does not mean that you can run all IBM software. Anything with graphics or that makes hardware calls will not run with a Co-Processor. So far, I've found out that **the following programs will not run: Lotus, SideKick, SuperCalc3, BasicA, GWBasic, Symphony.** I have run SuperCalc2, with 189K of available memory, Multiplan, Open Systems accounting packages, and a variety of public domain software (available from PC-SIG, 1030 E. Duane, Suite J, Sunnyvale, CA 94086 at $6.00 per disk). The public domain software I have used includes a Ramdisk and a file locator called Whereis, both from disk #273, plus Cweep13 and SDIR24—these two are very handy utilities that closely parallel NSWEEP and D in CP/M.

Disappointments. I do not have an ANSI driver nor do I yet have a BASIC interpreter. The SWP people whom I called for advice have been excellent to talk with and are sending me information on both the ANSI driver and on BASIC's that have been successfully run by other users. SWP also warned me that some people have reported problems when the DOS portion of a hard disk exceeds 50% of the disk size. I am not there yet and intend to be very careful as my DOS size increases.

Conclusions. I would buy the exact same setup again. Nowhere else is an MD11 Co-Processor available, and it generally does what I hoped for. I can play with the operating system to my heart's content and expect that I can work with my client's files as needed. My Co-Processor lives in a little perforated board box that I built and is cooled by a $2 fan from Silicon Valley Surplus. The current board has never failed, even through the extreme heat suffered by Northern California in June and early July 1985. And the price was exceptionally good. Buy one yourself if they still have them at Silicon Valley Surplus and if you are confident that you can solder with a light touch and steady hand. Have faith, I had never soldered any electronic components before this board. Get in touch with SWP if you want to buy through a regular supplier—they sound impressive to me. [Silicon Valley Surplus is temporarily out of business but plans to re-open soon in Oakland, CA. See Announcement on p. 19. It is always best to call SVS before visiting or ordering. For more information on SVS, see my article, "Day-Old Computers," MOR, Vol. 2, #4, Aug/Sept 1985, p. 26. —Ed.]

I will be glad to try to answer anyone's questions about my luck with the Co-Processor board, compatible programs and installation tips. You can call me at (707) 864-1960 or write to 1958 Rockville Rd., Suisun, CA 94585. All DOS public domain programs I discover that run on my Co-Processor, I will submit to MOR, and they will be available on SSDD floppies from MOR in the future. ■




## BLOCK LETTERS FOR TODDLERS
### by Bob Lee

This is a program I wrote for my two-year old toddler. The program asks to be given a letter and then creates a large block letter (capitals only) on the screen corresponding to the one pressed on the keyboard. It then asks for another letter. The keyboard will beep at you both before and after each block letter unfolds, and the unfolding of the letters on the screen has a dance like quality. My two-year old loves it, even though at this point she doesn't know which keys she is pressing. The program is designed so that if a key other than a letter is pressed, the screen is cleared and the program asks to be given another letter.

To enter the program, get to the CP/M **A>** prompt and type **ABC .**

To EXIT the program press the **ESC** key.

The program was written in Turbo Pascal 3.0 on my Morrow MD2 (Rev 2.5) with a MTD 60 terminal. I have included the source code (ABC.PAS) as well as the compiled code (ABC.COM). ENJOY!

[Bob Lee submitted three programs for the Floppy of the Bi-Month for this December issue (FLOB/DEC85—see p. 52). They create fancy characters on the screen or on the printer. Although he made it for his two-year old, I found I liked to play with ABC.COM myself, even though it was only for 30 seconds. The companion programs, ABCPRN.COM and ABCMSG.COM, print a fascimile of the screen display on an OKIDATA printer. I have not tried it on other printers. The latter program enables you to print a banner with letters 5 inches tall along the length of your printer paper. Great for getting someone's attention! Kids will love it and will spend all your printer paper in a few hours flat. One warning though: Having kids spend long hours in front of a terminal may do harm to their health if not to their brain. Same problem as with TV, I suppose; at least these games let the kid do something. —Ed.] ■

---

**Bob Lee** is a Gestalt therapist who specializes in working with couples and families. His love for computers, which dates back 20 years to when he was a graduate student in chemical engineering, has been rekindled since he bought an MD2 a year ago.

# THE DVORAK KEYBOARD
## Life After Qwerty

**by John R. Riggenbach**

Ours is the information age, it is said, and the personal computer is leading the way. The problem is that many of our managers and leaders find the prospect of taking to the keyboard themselves less than appealing and are resisting the chilly baptism of computer literacy. High on the "Why I hate computers" list is the Qwerty typewriter keyboard, a standard on English language computers.

The typewriter keyboard is a daunting item for the non-typist, especially a manager who has no wish to demonstrate ineptness in public. Typing has always been a skill that management "hired"; it does not fit the executive self-image for decision-makers to be seen typing. Keyboard related jobs, however, will continue to escalate, at all levels, for the forseeable future, so overcoming keyboard anxiety will be a necessity rather than an option on the fast track.

How did the typewriter keyboard, and especially the Qwerty keyboard, get married to computers? Like Mt. Everest, it was there; it existed ready and waiting to be used when it was needed, and nobody gave much thought to alternatives; not in time, at least. The Qwerty key arrangement was jury-rigged from its inception and had "greatness thrust upon it" through sheer happenstance and the shift key.

The idea of the typewriter has a long history beginning with a patent issued by Queen Anne to Henry Mill in 1714. The notion went through a number of designs that have resurfaced over the years, such as the daisywheel printer. The typewriter that eventually became the Remington Model 1 was developed by Christopher L. Sholes. The development of the prototype stretched from months into years, with success just tantalizingly out of reach and money constantly in short supply.

Pieces of the typewriter pie were sold to raise development money; Remington Arms bought a controlling interest in 1873, and for the first time machine tools and skilled machinists were able to take a crack at this complex machine. The Qwerty keyboard as we know it today, except for a few keys, was already in place—the result of trial and error development of a letter arrangement that jammed the least. The shift key, characteristic of the Remington, appeared first in 1878 on the Model 4 but was not universally accepted. Competing typewriters advocated separate keys for upper and lower case letters. Differences about operating systems, you see, are not a computer exclusive!

The Remington Model 1, a vastly improved version of Sholes typewriter, went on sale in 1874. Mark Twain bought one in that year and became the typewriter's leading celebrity enthusiast. He practiced "The Boy on the Burning Deck" assiduously but never could approach his hand-written production of 3,000 words a day. Twain claimed that Huckleberry Finn was the first book set from typescript, but historians say the honor belongs to Life On The Mississippi. Mark Twain's comment on that would be worth hearing!

Despite Twain's enthusiasm, it was not until the year best known for its ferocious blizzard, 1888, that the Remington typewriter and the Qwerty keyboard won out over stenographers and typewriters of other makes. Neither Remington nor Qwerty had a thing to do with it but the wild, wild West did.

The six gun was not the only mechanical toy that got as far as Salt Lake City in the 1880's; at least one Remington Typewriter got there, and it was owned by Frank E. McGurrin. Perhaps Frank was a lousy shot or just liked to write; whatever the reason, he took to the keyboard and fancied himself the fastest typewriter in the West (both the instrument and the operator were known as typewriters in those early years). When Frank heard that Louis Taub of Cincinnati was making similar claims, Frank issued a challenge which resulted in a widely publicized typeoff.

What Louis didn't know was that Frank had developed a secret weapon. Because of the compact Remington keyboard and the shift key, all of the alphabet, upper and lower case, could be reached from the second row of keys. If you memorized the keyboard, and Frank had, you could keep your eyes on the copy you were keying into the typewriter without constantly looking at the keyboard. Frank E. McGurrin had invented "touch typing" and walloped poor Louis so badly that the Remington Typewriter, the Qwerty keyboard and women in offices were firmly established on the American scene virtually overnight.

The idiocy of the Qwerty arrangement did not go unnoticed, however, and many an entrepreneur has lost his shirt and more trying to convince the world that he had a better idea and a more efficient key arrangement. The Dvorak Keyboard has had the best support and the most staying power, and there seems to be a ground swell building for this eminently sensible system. If you are just learning to type, Dvorak is the way to go; it is much easier to learn than Qwerty. The Dvorak keyboard (see Illustration, p. 16) is based on serious

---

**John R. Riggenbach** is a free lance photojournalist and artist who uses his MD3 for wordprocessing and switched from the Qwerty keyboard to the Dvorak layout to upgrade his typing skills. He is working on a book about efficient uses of the keyboard which will include his research on Dvorak.

studies of letter frequencies and letter combinations that are efficient and less tiring than Qwerty. If you let your fingers do the walking for an eight hour day on a Qwerty keyboard, you will cover about 16 miles but the same copy on a Dvorak keyboard will take you only about 1 mile.

The Dvorak "home key" row places all the vowels on the left side and the most frequently used consonants on the right. Just this row will handle 70% of all typing. The third row, the next easiest to key, accounts for 22% and the least used letters are on the bottom row where only 8% of the action takes place. With adequate tutorials, the average time for a skilled Qwerty typist to convert and attain the same speed with Dvorak is about three weeks of eight hour days; after that, all improvement is pure gravy.

The Dvorak Keyboard promises up to 80% and more in keying-productivity increases, with less fatigue, reduced stress and fewer lower back complaints. In actual use for six years in offices of Oregon's Public Employees Retirement System, the Dvorak keyboard showed impressive typing gains from 60% to 80% with improved morale, less employee turnover and lower absenteeism. Precisely what dollar figure just 60% would come to for all the typing done in the USA in one year, I have not the foggiest notion, but I would like to have 1/10 of 1% of it in the bank right now!

Oddly, stenography or shorthand was a highly developed skill before the typewriter became a practical office instrument. Electronic transmission of keyed-in data also preceded the typewriter. The telegraph was in use successfully for years before the typewriter became widely accepted. When the typewriter did finally arrive, there was an avalanche of activity; there were clubs, contests, magazines and a new machine introduced monthly. Sounds strangely familiar, doesn't it? By the early 1900's there were over 90 different brands on the market, without counting the foreign machines; by 1920 only a handful

Anyone who wishes to push on seriously with the Dvorak system would, of course, want to practice. August Dvorak developed a set of drills and lessons himself (available through Dvorak Dvelopments newsletter), but I have been creating my own, partly to make the tedious practice a little more stimulating. Lessons with a few off-color rhymes for each letter of the alphabet seemed to work! I'd like to see what other readers might come up with.

E is for Elsinore.
The stony castle at Elsinore,
Held grim secrets galore.
Mama dear's hanky panky,
The shade of Papa so clanky,
And Uncle's poisonous pour.

T is for Tautology.
Is a redundant tautology,
Really more than it ought to be?
Or does doing it twice-twice,
Make it all neat and nice?
It's very confusing to me!

In my drills, in addition to letter frequency and letter combinations, I stressed word frequency and much more repetition than typing lessons usually use. The 25 most-used words make up an astonishing 34% of our everyday vocabulary. If you practice these 25 words alone, you are more than half way towards becoming a proficient typist! In addition, the 13 most frequently used letters represent over 90% of total usage, so if you concentrate on these letters, you will get over the hump a good bit quicker than otherwise.

THE and AND account for 1 of every 16 words in everyday written and spoken English. Those combinations are used so often that the reflex response is very difficult to overcome if you've been a Qwerty typist. I made up word drills like the following:

KEY WORD DRILL (letters in these five words represent 85%+ of the letters in common usage)
the and is for could the and is for could the and is for could
the and is for could the and is for could the and is for could

COMMON WORD DRILL 1-25 (represents 34%+ of common usage, weighted for approximate frequency) Especially important for former Qwerty typists.
the the the the the and the and the and the and the a he and to
of the and a to of in he I it the and a to of in he I it you was
that on is the and a to if in hu I in you was that on is they his
for then with one she said all this my

1-25 most common words, not weighted.
the and a to of in he I it you was that on is they his for then
the and a to of in he I it you was that on is they his for then
with one she said all this my
with one she said all this my

Managers and executives may give Dvorak a try if they become convinced that they can learn to become skillful on the keyboard on their own without classrooms or instructors. If they succeed and learn that Dvorak is indeed more productive and efficient, the Dvorak revolution may finally get underway. In the meantime, it is a crime that kids using computers at early ages are absorbing a much less efficient system.

If you're interested in communicating further about Dvorak and how to get involved, please write to me at 6757 Blue Jay Lane, Melbourne Village, FL 32901.

—John Riggenbach

[Complete Versions of the Drills and Lessons excerpted here are on the FLOB/Dec 1985.—Ed.]

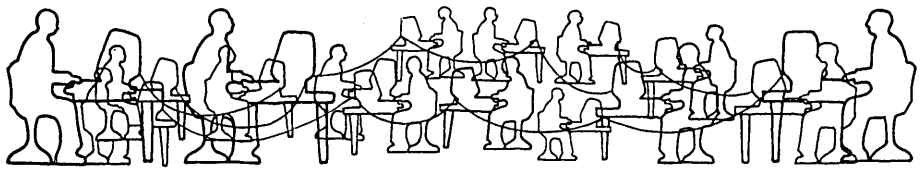
remained in business. Remington had an insurmountable lead, so they thought, and Underwood snuck in with a visible key strike area.

If you were touch typing, who needed to see the letters as they were typed? People who did not type very well, that's who—and there were lots more of them than there were of trained office typists. Remington obstinately stood its ground, and Underwood with their team of world class competition typists took the lead and sat on it, fat and happy, until Royal introduced innovative features and took over. Leadership seems to do strange things to US companies and Royal could see little need for an electric typewriter until IBM proved otherwise.

Anyone concerned about a one-product computer market need only look at the history of the typewriter. In each case, innovation won the day from an entrenched leader and held onto the market until hardening of the arteries set in. If you are playing electronic stocks, you might take this inevitable cycle into account and bet on the best looking improvements around.

It is that not everyone will agree at first on what an improvement is, as IBM learned when it fiddled with the Selectric keyboard for its PC computer. Some winners ride in unheralded on coattails. The Osborn transportable got the idea of the people's computer rolling, but it may be remembered for establishing the detached keyboard, a necessary part of the transportable design that proved so popular that it soon became standard on most other systems.

The Japanese already have a split keyboard ergonomically arranged (that is, fit to people rather than the other way around) and the best study of the Dvorak keyboard is Japanese; it concludes that the Qwerty is a disaster and the Dvorak keyboard should be adopted for keying-in English. Wouldn't it be the supreme irony if we had to import Dvorak keyboards for English from Japan. ■



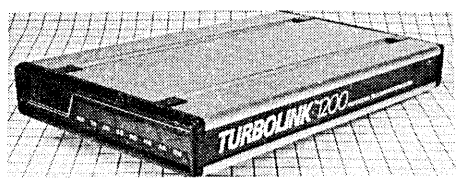

# TURBOLINK 1200™ Modem

**Read the Review in this Issue of MOR**

Look at these Features:
- 300/1200 Baud operation
- Fully Hayes compatible
- Auto-dial / Auto-answer
- All 8 LEDS
- Extruded Aluminum casing
- Two inch speaker with control
- Telephone cord.
- US warranted and serviced.
- Cable and software included.
- Special *'Easy Start'* Guide

**$100 Free Software**
Our price includes The MicroLink II. Retail price, $99. **Rated Excellent, Good, Excellent, Good** by InfoWorld, Sept. 4, 1983. Plus a custom serial cable (shielded of course) usually costing $40.00.

**100% Guaranteed 4 Ways!**
60 day return guarantee
Three year parts and labor warranty
Two year warranty extension for $50
Telephone troubleshooting for quick help




SPITE Software
4875 Southwest Nineteenth Drive
Portland, Oregon 97201
**Order Now Toll Free 24 Hour**
800/824-7888 (operator 311)
Technical Questions? 503/224-0137

Special Price $279.95
To MOR Readers Includes cable and software for any type Morrow. Modem alone. $249.95.

***Read the Review!***
*Sypko Andreae, Editor of the Morrow Owners Review, says: "The first thing I noticed was that this modem looks just like a Hayes Smartmodem 1200. Everything works fine.... (The Micro Link II Software) is a delight to use. The Turbolink 1200 Modem with Microlink II software seems a fine deal to me."* MOR Aug/Sept. 1985

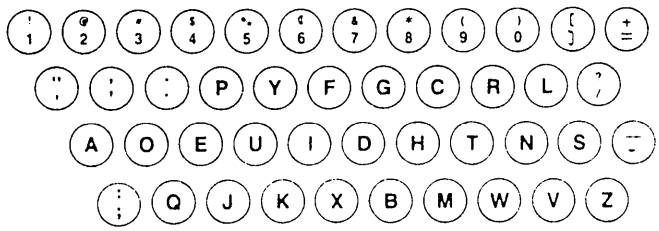
Send for our catalog. Over 100 great programs for your computer. We **support CP/M-80!** Dealer inquiries invited. Call us, we are the source.

*TURBOLINK 1200* is ™ of Worthington Babcock, Inc. Hayes is ™ of Hayes, Inc.

# CONVERTING YOUR MORROW KEYBOARD TO DVORAK

**by John R. Riggenbach**

You can teach yourself Dvorak touch typing. I did. Start by making a Dvorak reference keyboard out of heavy cardboard or colored cardstock about the size of your real keyboard or a bit larger. White self-adhesive squares can be laid out to simulate your keyboard and can be changed easily if necessary. You will be using this card instead of your keyboard to locate the position of keys and begin your Dvorak "touch" typing. Prop your mock keyboard above or below your screen where it is easy to see.




Conforms to American National Standard X4 22 1983

Thanks to Randy Cassingham of Dvorak Dvelopments

Once you convert your keyboard you will be forced to "touch-type"; looking at your real keyboard won't help. You may wish to put small Qwerty letters on your board, too, for when you need a cross reference.

Make backups of your SmartKey and WordStar distribution disks, SYSGEN both with your working CP/M disk in drive A and then PIP over PIP.COM to both disks. Put your WordStar disk in drive A and Smartkey in drive B. PIP both SMARTKEY.COM and DVORAK.DEF to WordStar. PIP A:=B:SMARTKEY.COM and PIP A:=B:DVORAK.DEF will get the job done. Hit the reset button with WordStar in drive A, and at the CP/M prompt A>, type in: **SMARTKEY DVORAK** [return]. SmartKey must be installed for WordStar or any other application to work in the background.

Once SmartKey is installed, use the key arrangement on your reference board. At the next CP/M prompt, type **WS**, using the Dvorak key positions. That will put you in WordStar. Open a file and systematically type out all the letters and characters on the four lower rows starting with **!1** in the upper left corner. Type the upper case symbols first with a space between characters, and then type the lower case symbols on the next line under them. Do all four rows with a space between rows, and then compare your screen with your reference board.

They must be the same. One of the anomalies of the SmartKey installation is that using the CAPS LOCK, with the Freedom 100 at least, you can have upper case or lower case for s, z, v, and w, but not both. According to the folks who sell SmartKey, there is no software fix. I use lower case, since you can get S, Z, V, and W in CAPS with the shift key. If your screen and Dvorak board do not agree, you can either change your tout board or redefine the keys until they do.

To redefine keys, you must establish your SETUP key, a simple procedure well-explained in the SmartKey II manual (I am using the SmartKey II manual with a 1983 copyright, issued by Morrow). I use the LINE FEED key on the Freedom 100 as the SETUP key. If you make changes, carefully note them on your tout board; you will need to save these changes using FIXKEY.COM as explained in the manual. You can PIP over FIXKEY to your WordStar disk and save the changes or make them in the Dvorak file on the SmartKey disk, save them with FIXKEY, and then send the new version of the Dvorak layout over to WordStar.

You must use the COM extension with SmartKey and the DEF extension with Dvorak when moving these programs. There are two situations that can be confusing. When you are changing key definitions, the SETUP key throws you back to the original Qwerty keyboard from Dvorak so you must be methodical; it does not take much to get things scrambled if you are making more than one or two changes at a time. Write

## SOME DVORAK RESOURCES

For a good, overall information-resource and clearinghouse:

Dvorak International Federation
Box 128
Brandon, VT 05733

● ● ●

Dvorak Dvelopments is an interesting quarterly newsletter. MOR readers can get a free copy of the special Fall 1985 issue, featuring an overview of the products available that support the keyboard, by sending a 6x9" self-addressed envelope with $0.39 postage. Editor Randy Cassingham says that if you mention MOR in your request, you'll also get an information sheet about the keyboard with notes on how to convert CP/M computers to Dvorak.

Dvorak Dvelopments
PO Box 717
Arcata, CA 95521

● ● ●

Those who like to get right to the source might enjoy Dvorak's own book (if you can find it):

Typewriting Behavior
August Dvorak, et al
American Book Co., 1936

your changes down and tag the keys on your reference board. The little Qwerty letters on your Dvorak board should help keep things straight.

Another bit of potential confusion is actually helpful if you have memorized most of the WordStar commands. WordStar control commands are set up only for the Qwerty keyboard, so despite your change to Dvorak, all commands remain in the same location. However, WordStar commands that are not preceded by ^ use the Dvorak keyboard. You use the Dvorak **P** from the NO-FILE menu to PRINT, but if you want to print without exiting a file, you use the Qwerty **^KP**. Confusing, but not a real problem once you are aware of what is happening.

Unless you are prepared to lug your own computer around or keyboard conversion disks in profusion, Dvorak can be a bit of a problem. The new 68000 computers do not have Dvorak programs yet, few portables can handle keyboard conversion, and typing tutorial programs that take a lot of the drudgery out of touch-typing practice are hard to come by for Dvorak. I know of none for CP/M.

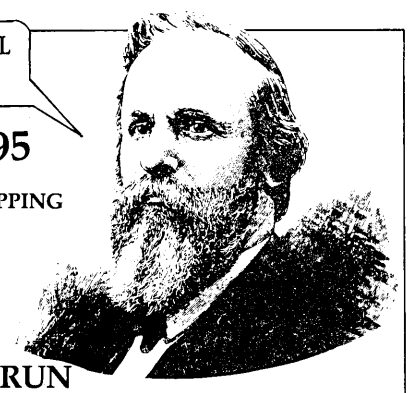
Why bother converting to Dvorak? Because this is the wave of the future, physically less tiring, more effective, more accurate and with a higher input limit than Qwerty. I am a lousy typist. I just do not have any aptitude for it, which is why I switched from Qwerty—and that was about as much fun as a couple of broken legs. But I am over the hump now and I can anticipate skills beyond anything that I could have accomplished on the Qwerty keyboard, but it took almost a year to get here!

Because so much of the keying is done on the home keys, the second row, this is an especially good system for children whose hands do not quite span the idiotic "one size fits all" computer keyboard and a distinct productivity edge for the future. If you are a hunt-and-peck typist, the automatic reflexes and motor paths that make it so difficult for the Qwerty touch-typist to switch to Dvorak probably will not operate against you. You can practice Dvorak until your skills are more productive than your hunt-and-peck typing and then switch permanently.

I made up my own Dvorak lessons because I could not find anything in the marketplace to help and I learned a good bit creating them. (See Sidebar on p. 14 for some examples of lessons and drills I have been working on.) It's not difficult to create effective lessons, just a bit time consuming. Fortunately, fingering techniques, correct posture and other basics are the same for both Qwerty and Dvorak, so you can use standard typing manuals for this information. Perhaps the most important thing to know is that you can learn to touch type on your own in the privacy of your home and that it is worth the effort: If you are going to make the effort, Dvorak is the only way to go. Good Luck!

I USE A POWERFUL DATABASE TO KEEP MY MAILING LIST . . . AND A CANNON TO KILL FLIES.

USE THE RIGHT TOOL FOR THE JOB.



**TMAN IS A MAILING LIST AND FILING SYSTEM**

$49.95
$4.00 SHIPPING

THAT IS EASY TO USE AND READY TO RUN

**LOOK WHAT IT DOES:**

- Up to 2500 names or subjects (4000 MSDOS).
- Up to 12 lines of notes with each name.
- Prints mailing labels (alphabetically or by zip).
- Prints Rolodex style cards.
- Prints a phone list.
- Puts names in a new file for use by Mailmerge.
- Prints any of the above, selected by name, state, zip, type, or date of entry.
- Searches names or notes for any word (for example: "July 4" or "John Brown" or "Mississippi").

**GREAT FOR:**

Sales Leads, Customer Inquiries, Club Records, Birthdays, Xmas Card List. Can be used as a Calendar or List of Things to Do. All of these can be mixed together but still retrieved by category. Or you can keep a separate list for each.

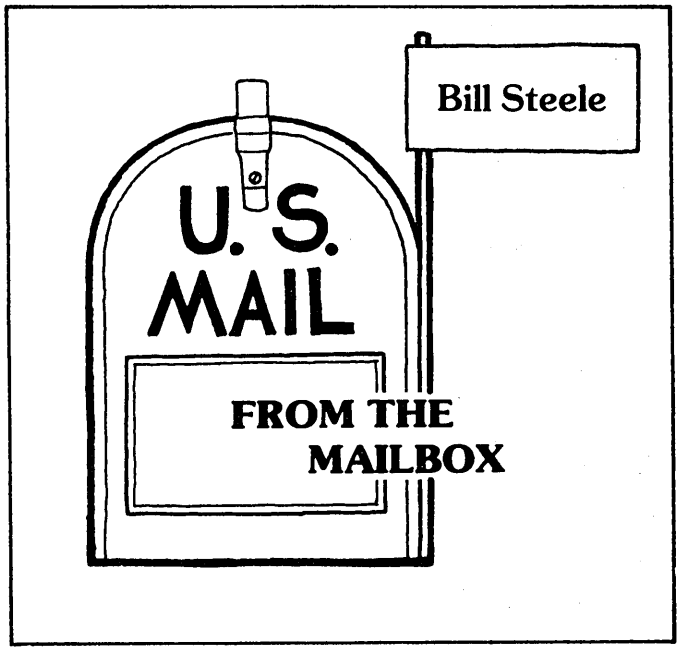
**RUNS ON:**

*Apple CPM, Columbia, Compaq, Corona, Eagle (all), Epson QX-10, IBM PC,XT, PC jr,AT, Kaypro (all), Morrow (all), Osborne (all), Panasonic, Radio Shack CPM, Sanyo (all), Tandy (all), TeleVideo, Zenith 100 & 150, 8" CPM, Other compatibles*

**Mail to:** James River Group, 125 N. First St., Mpls, MN 55401 *(612) 339-2521*

Name _____
Co. Name _____
Address _____
City/State/ZIP _____
Telephone _____
Computer Model _____
Disk Format (Circle One) SSSD SSDD DSDD
Price is $49.95 plus $4.00 shipping and handling. ($8.00 foreign)
☐ Paid by check (amount enclosed) _____
☐ or VISA or MC # _____
Exp. Date _____
☐ or Ship UPS COD (adds $2.50)

MN Residents add 6% Sales Tax.
All orders shipped within 24 hours. 30 day money back guarantee.




It was with great trepidation that I agreed to take over this column from Stan Ahalt. When I say, as he did, that I won't know a lot of the answers to your questions, I really mean it! But maybe that's a good thing. This column is not meant to be an oracle, but a meeting place where we share our knowledge, and our ignorance. So keep those cards, letters, disks and MCI messages coming in to: Bill Steele, Box 782, Ithaca, NY 14851. MCImail: WSTEELE, 254-5833. Ordinary paper is fine for mail, but if you have a question about a program or file, it might be handy to have an example, provided I can read it on my MD3. Please enclose return postage for disks or if you need a quick answer; MOR's budget is limited. This month we'll deal with some mail Stan had left over; apologies to those who've been waiting a long time for an answer.

More on the mysterious missing LogiCalc commands. Robert Tower of Ontario, CA found the sort on his Version E.01FP, though it wasn't mentioned in his manual, and he couldn't get it to work. I have the same version, and the sort is explained in an addendum in the front of my manual, along with some other interesting features, including a table look-up function, text search (type in the string followed by a tilde ~), and multiple and instant recalc. To use the sort, place the cursor in the column on which you want to sort and type **;N**. LC will ask if you want to sort in ascending (A) or descending (D) order, and the range of rows to sort. Everything in the column must be of the same type, i.e., numeric or string, and there must be no blanks in the column. If you have the same LC version and don't have those extra pages, I'll send you a copy in return for an SASE and 20 cents to feed the copy machine.

The consensus seems to be that no version of LC has the directory function; where did the idea that there was one get started anyway? Incidentally, Software Products International no longer sells LogiCalc, and says they don't support it.

From Ken Lorenz, Sun Valley, CA — "As to <CR> moving the cursor to the first column of the next line [from the far right end of a row], it doesn't work because it's not supposed to. The key to accomplish this is Control-Z." (Control-Z is on the command line as <ETX>. It will move the cursor from anywhere in a row to column A of the next row.)

When using Personal Pearl on his MD11, Jim Phelps of Bellevue, NE sometimes gets the message "Not Enough Work Space On Data Disk. Insert A Blank Disk In Drive A." Not easy, since Drive A is the hard disk. According to PearlSoft, versions earlier than 1.10 won't communicate properly with a hard disk, but Morrow sent some out anyway before they found out. PearlSoft says you can exchange through your dealer without paying an upgrade. If you already have Vers. 1.10, it may not be correctly installed. There should be two data files on your distribution disk named INSTALF and INSTALH, for floppy and hard disk installation, respectively; your dealer was supposed to rename the correct one to INSTALL.DAT and may not have done so. Failing that, you can patch INSTALL.DAT with your word processer, using the non-document mode: you'll find a line in the file that says "DISK=BBBAAAAA" for floppy installation. For a hard disk, it should be changed to "DISK=AAAAAAAA." That's eight A's. Again, this won't help if you don't have Vers. 1.10. PearlSoft does support end users, and cheerfully, at least in my experience. Their toll-free number is 800-652-0600; ask for Nyla.

Derek Lee Beatty's article on adding high-density drives to the MD2 (MOR Vol. 2, #1, Feb/Mar 1985) brought several letters from people wanting patch points, different from the ones in the article, for ROM revisions and versions of CP/M and FORMAT. Others have written about upgrading the MD2 to an MD3. A couple of companies that advertise in MOR will do that for you, or you can install new DS drives yourself, but again, you have to patch CP/M and FORMAT.COM to work with the new disk size. Can anyone supply a generic procedure for making the patches? Failing that, send us the patch points you've got, and maybe we can make up a table.

More disk space seems to be everybody's favorite thing. James Payne of Albuquerque, NM wants to know about adding a hard disk to an MD3. There are upgrade kits on the market, consisting of a board that plugs into your Z-80 socket; ask your dealer. Jim Koepke at Berkeley Computer Service, 1569 Solano Ave., Berkeley, CA 94707, has done the upgrade on MD's and Kaypro's, and says it would cost about $1200 with a 10-megabyte disk, more with a 20. As a (slightly) less expensive alternative, he suggests installing an MD11 board.

George Feigley of Huntingdon, PA wants the screen memory addresses for BASIC POKE/PEEK on his MD11

with MDT-60, and asks if he can address each pixel or only whole characters, and if the screen is bit mapped. Also, why will his Brother HR5 printer not accept BASIC's **LPRINT** command? I can answer the first part of that. The Morrow doesn't use memory mapping for the screen display, so BASIC POKE/PEEK won't work. For the uninitiated, some computers set aside a portion of RAM in which they store the contents of the screen, with one byte for each character position. By POKEing values into those memory locations, you can make characters appear on the screen. Our MD's let the terminal handle screen display: the computer tells the terminal what to print where, then forgets about it, leaving more memory for other tasks. The way to get graphics on a terminal from BASIC is to use the **PRINT CHR$** function to send codes to the terminal that position the cursor, turn on the graphics mode and send graphics characters; the codes are listed in your terminal manual.

Gordon Northrup of Lee, MA has obtained a public domain program, "LIFE for the VDM," written by Ward Christiansen, but it won't run, and he asks, "Is there any way I can reprogram it so it works on my machine?" Ward, are you listening? Gordon also suggests someone write an article on "What to do when public domain programs won't work on your machine." The public domain catalog of the Connecticut Micro Decision Users' Group (107 Valley St., New Haven 06515) lists LIFE.BAS for the Morrow on disk MOR/BAS.02A, and other groups probably have it. [It so happens that the FLOB/Dec '85 contains a working LIFE.BAS on it, as well as another version of LIFE called SUPERLIF.*. —Ed.]

Gordon also wrote a while ago asking for a way to reprogram the arrow keys on his MDT-60, but got no answers. The MDT-60 arrow keys are function keys, and should be programmable with SmartKey II, just like the others. Beat Streckeisen, CH-1141, Severy, Switzerland offers a patch to the CP/M BIOS that he used to reprogram the keypad keys on his VT52 terminal with WordStar Commands. "The advantage of doing it in the BIOS," he writes, "is that they are then active in all programs. In order to adjust my assembler listing...I must know the exact code or code sequence each key sends to the host. If I get a disk I will put the listing on it." Sounds like this method could be used to program all the function keys on the MDT-50 or 60, but it wouldn't work for the keypad keys on the 50, since they send the same codes as the other number keys. Dave Garland of Minneapolis, MN suggests using a key redefinition program like SmartKey, or patching WS internally, to change whatever control characters the arrow keys send into what you want. The catch, he points out, is that when you make such changes, those characters change on the keyboard as well. For instance, if your right arrow key sends Ctrl-L, and you change that to Ctrl-D, you also change the effect of pressing Ctrl-L on the keyboard, so you can't use it as the command for "Find and Replace Again," and you have to reprogram some other key to do that. This would apply to all the arrow keys on the MDT-50, which send single control characters. "Anyone who wants to get into heavy reprogramming of commands," Dave writes, "should get a list of WS addresses and patch locations. There is one in the CompuServe CP/M-SIG data library under the name WSPATC.DOC. (The same file is in several Morrow users' group libraries as well), and probably in the WordStar Customization Notes from MicroPro." If your terminal is an MDT-20 (ADM-20), Dave suggests getting a new keyboard chip set from Software Techniques, a regular MOR advertiser.

Alan Wiener of Missoula, MT enhanced WordStar with KeysPlease, but then had trouble patching the enhanced WS to boot on Drive B. If anyone has experience with this, I'll put you in touch with Alan. Meanwhile, you might try booting onto B: with a SUBMIT program as described in MOR Vol. 2, #2. An advantage of using SUBMIT is that if you don't want to bother putting a disk on Drive B, you can just wait for the error message and abort, and NW/WS will load anyway. The new version of NewWord can be installed to boot onto B!

Dale Creasy, Fair Oaks, CA has an MD5-E with Panasonic KX-P1092 Multi-Mode Printer, and would like to know if anyone has info on customizing NewWord and/or WordStar for this printer. (NewWord Vers. 2 comes with a custom driver for it.)

With two reviews so far of ShadowPrint, there have been questions about UNSPOOL.COM, a public domain program. UNSPOOL will print a file while you work some other program, but won't obey any of the NW/WS formatting commands. Dot commands are printed along with everything else, and page breaks are ignored. Fine for printing out program listings, and you could use it for one-page letters if you first send them through the print-to-disk option of WS or the new NW.

Ward Headstrom upgraded his MD11 to ROM Rev. 1.8, adding that the local Morrow dealer wasn't aware of a newer one (!), and wonders what the newer ROM's do. Roughly, machines with the 1.xx ROM's lack a Centronics port, but the 2.xx revisions can't be installed in the older machines—they won't even fit the socket. Revisions go up to 3.1, which was developed to allow SmartKey to work with the function keys on the MDT-70.

Douglas Baker of Wilton, CA has both an MD2, running CP/M 2.2, and an MD11, running CP/M 3.0, and would like an "emulator" to run 2.2 programs on the 11. According to Dave Block, there's supposed to be a file called CPM2.RSX on your MD11 system disk that can be loaded before running a 2.2 program and will allow "99% of the programs that didn't run to run." ■

### SILICON VALLEY SURPLUS REOPENS

From Brian Whittacker: **Silicon Valley Surplus** (SVS) will reopen early December at a new location: 4401 Oakport, Oakland, CA 94601, (415) 261-4662. SVS will be open 5 days/week from 12:00 Noon till 6:00 PM, Wednesdays through Sundays. No mail orders for the time being. (See MOR Vol. 2, #4, page 26.)

# 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.

**• Toll Free •**
Order Desk Only
800-533-8049 USA
800-624-5628 CA

Information Calls
(805) 524-4189

**CENTRAL COMPUTER PRODUCTS**
**330 Central Avenue • Fillmore, CA 93015**
© 1985 Central Computer Products

# Full Power Computing On Your Morrow

**T/Maker Integrated** is a highly acclaimed powerhouse program that can turn your CP/M Morrow into a computing workhorse. At last, you can enjoy productive computing like never before. Imagine doing full-featured word processing, relational database management, spreadsheet analysis, horizontal bar chart graphics, and checking your spelling all within the same program. No more switching back and forth between barely compatible programs to accomplish these simple tasks. *T/Maker Integrated* is universally acknowledged as a unique integrated software system that is just plain easy to learn. There is an alternative to doing things the hard way. *T/Maker* can put the hidden and largely untapped power of your Morrow at your command. *T/Maker Integrated* is regularly $450. Central is proud to offer this outstanding multi-function package for the low, low introductory price of **$179.** Yes, this includes the entire feature-packed T/Maker package, so please treat yourself to this excellent super productive software today. Experience the power of true software integration on your Morrow. Order T/Maker today. Get it fast.

# Prints Bright Pages

Wow! You'll be amazed at the compliments you'll get from using this program. No wonder. **FontStar** makes you look good. All you do is put a few *FontStar* commands in your letter, bulletin, invitation, or manuscript, and print. It's easy.

Don't let FontStar's low price fool you. It's a powerful program. Although it's not as versatile as *Fancy Font*, it really brightens up plain jane dot matrix printing and for much less too. Works with Epson FX, RX, MX, and LQ1500 printers. Also works with Gemini printers, and some other Epson compatibles too. The result is the same. Impressive. Good looking reports, letters, invitations, announcements, etc.

Bodoni
*Bodoni Italic*
*Light Italic*
**Helvitica Bold**
Microgramma Extended
***Flash Bold***
**Broadway**
**Old English**

Sample of some of FontStar's 16 Fonts.
Make Up Your Own Alphabet or Characters too.

*FontStar* comes with 16 preprogrammed fonts, but it also lets you design your own fonts or character sets. *FontStar* doesn't require complex commands, or any tricks to operate. It makes typeset quality justification a snap, so everything you print looks super professional. Use as many fonts as you like in your documents. By the way, each font also comes with a complete set of foreign language characters, so printing in Spanish, French, or other European languages is a snap. No matter what you print out, *FontStar* will make it look better. *FontStar* is only $49. Order *FontStar* today. Get more from your dot matrix Epson or compatible than you every thought possible. Comes with complete manual.

**Attention:** Imagine dot matrix printing with a flair. That's what *FontStar* does. Makes a page look bright. *FontStar* works with any word processor that produces plain ASCII files including WordStar and NewWord. Order today to get FontStar-type printing fast.

# 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.

# Software in Review

**MTBasic.** Basic compiler. Write and compile in basic that allows you to program windows. Do multi-processing. All this on your CP/M Morrow. Rave reviews. Low Price. $47.

**Decision Analyst.** Helps you make decisions where from 2 to 12 alternatives exist. Can save a business or build one. Professional printed reports. Powerful helper. Use it to make difficult career decisions too. Decision Analyst makes complex decision making easier. Consultants charge hefty fees for doing what this program does automatically. Comes with complete manual and tutorial. $139.

**DateStamper.** Date and time stamp all your files. You'll know exactly when you last worked a file. Keeps the confusion down. Helps to organize your record keeping. DateStamper can help you prove to the IRS that you use your computer in business. $42.

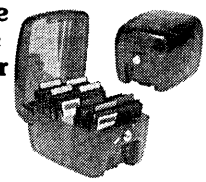
**Reading Professor.** Speed reading teacher. Teaches you to chop through text. Read at a glance and retain more too. Tested & proven effective. Great teacher. $57.

**Word Finder.** Puts 90,000 synonyms at your fingertips. Works from within WordStar. So, easy and helpful it's amazing. Imagine writing feverishly. Place your cursor on a word in your letter that you want a synonym for. Hit the escape key twice. A list of synonyms instantly appears along top of screen. Place the cursor on the word you want to see in your file. Hit the return key. The word in top of the screen automatically replaces the word in your file automatically. Right before your eyes. Incredible. Priced right too. $69.

**FileBase.** Easy to use database manager. Keeps records or makes mailings a snap. Sort and do all kinds of things to mailmerge records. Makes WordStar and Mailmerge a pleasure to use. $99.

**SmartBrain.** The easy to use CP/M outliner and idea processor. Super tool for all writers. $69.

## 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

NEW!

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.

# Toll Free Order Desk

**800-533-8049 USA**
**800-624-5628 CA**

| Product Description | | List | Central |
|---|---|---|---|
| **Morrow Software** | | | |
| **ATI TRAINING DISKS** | | | |
| CP/M | **Training Software.** | $ 39.95 | $ 34.00 |
| MBasic | **Speeds learning.** | $ 39.95 | $ 34.00 |
| SuperCalc | **Gives fast results.** | $ 75.00 | $ 52.00 |
| Wordstar | | $ 75.00 | $ 52.00 |
| — Call for other ATI Morrow training disks | | | |
| **BORLAND INTERNATIONAL** | | | |
| Turbo Pascal 3.0 | | $ 69.95 | $ 58.00 |
| Turbo Toolbox, Software Tools | | $ 49.95 | $ 44.00 |
| Turbo Tutor, Step by Step | | $ 34.95 | $ 29.00 |
| **CDE SOFTWARE** | | | |
| Checks & Balances | | $ 74.95 | $ 64.00 |
| **CHUCK ATKINSON PROGRAMS** | | | |
| Quick Check + AR | | $195.00 | $155.00 |
| Retail Inventory + Q Register | | $395.00 | $299.00 |
| **DIGITAL MARKETING** | | | |
| Bibliography | | $ 99.00 | $ 89.00 |
| Footnote and Pair * | | $ 99.00 | $ 79.00 |
| Grammatik * | | $ 75.00 | $ 69.00 |
| Hyper Typer, Typing Tutor | | $ 39.95 | $ 32.00 |
| Index * | | $ 99.00 | $ 87.00 |
| Milestone, Project Planner | | $ 99.00 | $ 89.00 |
| Writer's Pak — includes all * programs and RH spelling checker | | $250.00 | $199.00 |
| **EAGLE ENTERPRISES** | | | |
| Citation | | $185.00 | $155.00 |
| General Ledger | | $185.00 | $135.00 |
| — Easiest to use full-featured GL available | | | |
| **FYI, INC.** | | | |
| FYI 3000 | | $395.00 | $295.00 |
| SuperFile with Sort & Merge | | $195.00 | $145.00 |
| — Free form textual matter data base managers | | | |
| **INFOCOM** | | | |
| Zork I | | $ 39.95 | $ 37.00 |
| Zork II, & III each | | $ 44.95 | $ 42.00 |
| Deadline | | $ 49.95 | $ 46.00 |
| Witness | | $ 39.95 | $ 37.00 |
| — Call for prices on all other Infocom games | | | |
| **MENDOCINO SOFTWARE** | | | |
| Eureka, Disk Cataloger | | $ 50.00 | $ 45.00 |
| **MICROSOFT** | | | |
| MBasic Compiler | | $395.00 | $295.00 |
| MultiPlan | | $195.00 | $155.00 |
| **MICROSOLUTIONS** | | | |
| Uniform MD2 | | $ 69.95 | $ 49.95 |
| Reads and writes 31 + machine formats | | | |
| Uniform MD3, 5, 11 | | $ 69.95 | $ 49.95 |
| Reads and writes 75 + machine formats | | | |
| **MYCROFT LABS** | | | |
| Mite Communications | | $150.00 | $ 99.00 |
| **OASIS SYSTEMS** | | | |
| The Word Plus | | $150.00 | $105.00 |
| **QUIC-N-EASY PROD.** | | | |
| Q-Pro-4 | | $595.00 | $395.00 |
| Database manager with multikey file indexing | | | |
| **SAN FRANCISCO COMP** | | | |
| Power! | | $169.00 | $ 99.00 |
| DocuPower! | | $169.00 | $ 99.00 |
| **SOFTCRAFT** | | | |
| Fancy Font | | $180.00 | $149.00 |
| **SOFTWARE TOOLWORKS** | | | |
| MyChess | | $ 34.95 | $ 29.95 |
| Word Wiggle | | $ 29.95 | $ 27.00 |
| — Call for prices on all other Toolworks | | | |
| **SORCIM** | | | |
| SuperCalc 2 | | $295.00 | $235.00 |
| **Hardware** | | | |
| **CONSOLINK CORP** | | | |
| MicroSpooler 64k P-P Buffer | | $315.00 | $279.00 |
| **PANAMAX** | | | |
| PowerMax, 250 Watt UPS | | $459.00 | $399.00 |
| **SWP MICROCOMPUTER PROD** | | | |
| 256k Co-Power-88 Plus | | $495.00 | $399.00 |
| Expand to 1 meg. Ram disk. | | | |
| **Supplies** | | | |
| Dysan SSDD MD2 disks | 10/box | | $ 27.00 |
| Dysan DSDD MD3, 5, 11 disks | 10/box | | $ 37.00 |
| *Screen Smarts, Tamer's Guide* | | $ 15.95 | $ 9.95 |

Prices, specifications, and offers subject to change without notice.

# Do You Wish Writing Were Easier?

If you need to write, or want to write clearly, your Morrow and the software program **Punctuation and Style** can help you get there faster. It improves, clarifies, and enriches your writing by identifying sentences with misused, redundant, faulty, cliched, or erroneous phrases, and shows you how to improve them. It helps you rewrite and check your work by quickly marking and annotating your files for easy correction. In addition to computer-fast identification of awkward, muddy, pompous, and wordy sentence structure, it also finds missing or improper punctuation, unbalanced quotes, wrong abbreviations, faulty capitalizations, and much more. *Punctuation and Style* actually improves your writing by mercilessly pointing out grammatical errors. After a few weeks with Oasis System's *Punctuation and Style* your writing is bound to become more dynamic, expressive, and honest. In time, you'll stop worrying about grammar and work on projecting ideas instead. After all, that's what writing is about.

*Punctuation and Style* makes writing and rewriting much easier. The list price of *Punctuation and Style* is $125. Central's price is **$95**. Experience the power of this valuable "Punctuation Checking and Writing Improvement Software" yourself. Order today to get this program fast.

*Punctuation and Style* works on files created with Wordstar, New Word and other word processors. Comes with an easy to use, clearly written manual and an attractive binder. Join thousands who now write with more confidence, faster, and better.

# Text Filing Machine

Writers, doctors, researchers, lawyers, librarians, and students are among those who need a text filing machine. *SuperFile* is a powerful textual matter database manager unlike any other. It allows you to easily store and retrieve notes, letters, random thoughts, contracts, depositions, invoices, new product information, sales reports, reference articles, scripts, abstracts, bibliographies, customer profiles, photo or slide locations, and much more. *SuperFile* accepts as many as 65,000 entries per database; 512,000 keystrokes per record; allows 250 keywords per entry; and indexes information you've stored over as many as 255 diskettes per database. Powerful.

Input for a *SuperFile* database comes from your word processing program, so you can easily include information you already have into a database without having to re-key it. No fancy fields to define. This is a completely free-form database system. No programming language to learn. There's nothing difficult here. You can be up and running within minutes. *SuperFile* uses logical searching procedures to find your information fast. Tell *SuperFile* what information you want, and it searches from 60 to 400 entries per second. Save yourself the time and effort of filing and cross-filing information by hand or in overly structured data fields. The list price of *SuperFile* is $195. Central's current low price is $145. Get *SuperFile* fast. Order today.

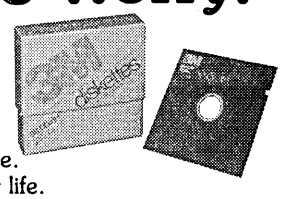
# SmartKey II Plus Combo

— Includes SmartPrint II Plus and Screen Smarts

Get ready for real computing power! *SmartKey II Plus* saves you thousands of keystrokes. This powerful utility was chosen by Morrow to be bundled with its computers. Why? Simple. It's the best product of its kind. It doesn't interfere with the regular function of your keyboard. Once you've tried it, computing will never be the same. Lets you save complex command codes, boilerplate paragraphs, inventory numbers, or whatever, and inject any of them into your work with one keystroke. In a review of SmartKey II, Stan Ahalt, MOR critic states, "This is probably the most useful software I have ever seen." Tens of thousands agree.

Central's super low priced $49 pak includes a free copy of *SmartPrint*, a program that enhances the operation of dot matrix printers, and a free copy of Paul Golding's $15.95 book, *Screen Smarts, The Computer Tamer's Guide*. This book tells how you can use *Smartkey II Plus* to turn your computer into a supercharged mean machine. Please don't delay, this offer may not be repeated. Save time and money. Order today to get this hard hitting software & book combination for $49.

# Save Money. Save Worry.



**3M** diskettes.
Certified
100% error-free.
Guaranteed for life.
Tested 327 ways.
They work like a charm on Morrows.

Factory sealed. Best data diskette made.
**3M** — *One less thing to worry about.*

**No minimums — No limits**

Box of 10 DS-DD MD 2 diskettes: **$18.**
Box of 10 DS-DD MD 3, 5, & 11 disks: **$23.**
3M Head Cleaning Kits for MDs: $21.
3M DeskTop 24"x 26" Anti-Static Mats: $44.

**CENTRAL COMPUTER PRODUCTS**
330 Central Avenue, Dept. MR3
Fillmore, California 93015
(805) 524-4189

Dear Central,

Please send me the items listed below. I want fast, friendly service. Remember to include my free Morrow book. I understand there is no charge for this book if I buy 2 or more items shown on these pages. Please include phone number if ordering software. My check, money order, or card number is enclosed. Thanks.

| Description | Price |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

Morrow Model _____ Sub Total _____

CA Resident 6% Tax _____

**FIRM MONEY BACK GUARANTEE ORDER WITH CONFIDENCE** Postage & Handling $ 3.00

Total $ _____

☐ Phone: ( ) _____

☐ Check enclosed ☐ Money Order enclosed

☐ Visa/Mastercard # _____

☐ American Express Card # _____

Exp. Date _____ Sig. _____

Name _____

Address _____

City _____ State _____ Zip _____

Credit Card phone orders accepted. **Call toll free.**
To order by mail use coupon, letter, or photo copy. Thank you.

© 1985 Central Computer Products

# INDEXING WITH CORRECT-IT
## And Other Tricks
### by Bill Steele

When I first read the Correct-It manual, I said to myself, "This thing makes sorted lists of words, and it lets you play around inside the dictionary. There must be other uses for it!" Here are a couple: a routine to make an index of a manuscript, and a brief description of how I used it to help determine a readability score for an article for children.

The indexing procedure is derived from one described by F. Sutherland "Suds" Macklem in the newsletter of the Connecticut Micro Decision Users Group (Vol. 2 #5, Aug.-Sept. 1984), combined with a similar but less elegant idea I had worked out before reading his article.

First, correct the file to be indexed in the normal way, being sure to teach Correct-It any words it doesn't know, so that if you run it again it should not find any unknown words. (If the file you want to index includes words you'd rather Correct-It didn't know, you can edit them out of AUXDICT.TXT later. Or, before you start, make a copy of the file AUXDICT.TXT and rename it to something else; when you're finished, delete the copy of AUXDICT.TXT you used in the indexing and rename the other copy back to AUXDICT.TXT.)

Next, make a copy of your file and edit it as follows. When you come to a word you want to include in the index, tag it with the letter "q" followed by a code for the page number. The simplest code is "a" for page 1, "b" for page 2, etc. Correct-It throws out numbers and symbols, so you must use a letter code. As an example, if the word "computer" appears on page 1 and you want it in the index, change it to "computerqa." On page 3, change it to "computerqc." Use a help level that displays page numbers on the status line.

Hint: in either WordStar or NewWord, at the beginning of the first page, type ^QA <space><cr> qa <space><cr><cr>. This tells your wordprocessor to find a space and replace it with "qa" followed by a space. Now put the cursor anywhere on a word you want to index and type ^L (find and replace again), and the word will be tagged automatically. At the beginning of each new page, you must type the find-and-replace command again, substituting the new letter code for that page number, e.g., "qb<space>" for page 2, "qc<space>" for page 3, etc.

If you want to index a phrase of more than one word, delete the space(s) between the words so Correct-It will treat them as one word. Correct-It also ignores hyphens and apostrophes, so these must also be deleted. Thus, "disk drive" becomes "diskdriveqa," "Correct-It" becomes "CorrectItqa," and "user's group" becomes "usersgroupqa." If you have a lot of this, you may want to substitute some unlikely letter combinations, such as "xx" or "jj" for the things you delete, so you can restore them later with search and replace. If there are only a few, it may be easier just to make the replacements by hand.

Now run Correct-It again. Since there are no words that end in "qa", "qb", etc., the program will flag all the words you've tagged and alphabetize them in a .BWD file. Now, you can open that file and use search and replace to change all the "qa's" to something like "..... 1," "qb" to "..... 2," etc., with the exact format depending on how you want your index laid out. Note the space before the page number; that allows you to right justify the numbers in a column with ^OJ turned on. Where a word appears on more than one page there will be duplicates, which you'll have to edit out.

The question of determining readability came up a while ago when I got an assignment to write an article for a fourth-grade reading text, and was told it should have a certain score on the "Harris-Jacobson Readability Formula." This formula involves the average length of sentences and the number of "hard" words in a piece, the latter being defined as any words that aren't on a standard list.

Correct-It made checking the word list much easier. I made a special Correct-It disk on which I deleted DICT.BIN and AUXDICT.TXT and renamed a copy of EMPTYDIC.BIN to DICT.BIN. When you run this version of Correct-It, you end up with a .BWD file containing all the words in the article, arranged in alphabetical order. It was then easy to check this list against the printed list of "easy" words supplied by the publisher.

I deleted all the "hard" words from the list, renamed the .BWD file to AUXDICT.TXT and then ran Correct-It again. This time it returned a list of only the "hard" words in the article. I selected the "WordStar Option," which tags all the unknown words in the file with "#." This guided me as I went through the article and changed some of these words into simpler ones, to bring the readability score down. That was a must for me, since the only other way to get an acceptable score is to write painfully short sentences, and even fourth graders deserve interesting sentence structure.

All this might have been easier if I'd had the Harris-Jacobson word list in a disk file. I may get around to typing it in eventually, but first I thought I'd ask if someone out there has already done it. I also counted sentence length by hand, resisting the temptation to write a program to do it, on the theory that there must already be one out there somewhere; anyone know where? ◘

---

**Bill Steele** works in Ithaca, New York as a freelance writer, specializing in science, medicine and technology. He is a member of the MOR editorial council and also writes the Mailbox column for MOR.

# CONWAY'S GAME OF LIFE

**by Carson Wilson**

Probably all of us have wondered at one time or another how life began. Was it the work of a divine creator, or just the product of some series of chance occurrences, or some combination of the two? Mathematicians seem the least likely of all people to be concerned with such issues. They are supposed to deal with equations and numbers, leaving philosophy to the philosophers. But many mathematicians have become interested in the origin of the universe, and quite a few have become fascinated with the implications of a game that seems capable of producing living beings on a computer screen.

The theory of reductionism says that all physical phenomena are the outcome of simple sets of physical laws. To test this theory, the mathematician John Conway developed a game in 1970 called "Life." Life is not a game in the ordinary sense of competition between opponents. Rather, it is a simulation, in the same way that "war games" are simulations. Conway wanted to see whether a simple set of rules could produce lifelike activity on a checkerboard. The "cells" in a game of Life were originally markers on the board. A cell was "born" or "died" as a result of the numbers of surrounding live and dead cells.

After many tries, Conway came up with the following set of rules:

1) Each cell has eight neighbors: one to its right and left, one above and below, and four more at its diagonals.

2) If a cell has less than two neighbors, it dies of loneliness.

3) If a cell has more than three neighbors, it dies of overcrowding.

4) Only cells with two or three neighbors survive.

5) Only empty squares adjacent to exactly three "neighbors" will be "born" in the next generation.

On a computer, the cells are positions on the video screen. A live cell is represented by the presence of a character, and a dead cell is represented by the presence of a different character at the same location.

---

**Carson Wilson** is a graduate student in political science at Loyola University in Chicago. He originally purchased his MD3 with the intention of writing his papers and dissertation and has ended up using it about 60% of the time for exploring capabilities of computers.

During a "game," the checkerboard or computer screen changes in ways that seem lifelike. Some sets of cells seem to travel around the board. Some bunch into groups and stay alive. Others gradually disappear after going through numerous convolutions. Still other groups oscillate between two states. For example, the patterns

```
                    0
000       and       0
                    0
```

alternate indefinitely. This is because of the rules of the game. The cells on either end of the first pattern have only one neighbor, so they die immediately. At the same time, the dead cells above and below the middle cell of the first pattern each have three neighbors, so they are born in the next generation. The cell in the middle has two neighbors, and thus stays alive. This results in the second pattern shown above. In the second pattern, the upper and lower cells now have only one neighbor each, so they die immediately. The cells to the left and right of the middle cell now have three neighbors, and so are born. This results in the pattern on the left once again.

The progress of a game of Life is determined entirely by the placement of the original pattern of living cells. Only one result can come of a given pattern of starting cells. Despite this, and despite the simplicity of the rules of the game, the progress of a "game" is usually unpredictable, and sometimes startling. This makes a computer simulation of Life enjoyable on many levels. It's fun just to set up a starting set of live cells and see what happens. The patterns produced are interesting, and sometimes even beautiful.

Rather than completely random results, most games of Life produce some patterns of cells that experienced players know by heart. Yet the patterns of cells are generally unique, and recognizable configurations are usually small. A game of Life will sometimes grow to immense proportions only to settle down to only a few small active areas several generations later. A seemingly innocent initial configuration, such as the "acorn," can grow for hundreds of generations.

```
                 0
Acorn -->          0
                00  000
```

Other configurations with many more initially live cells sometimes last only a few generations before dying. It is the unpredictability of the game that makes it lifelike. Though the rules are rigid, the

# $49
# MasterCom
FOR TELECOMMUNICATIONS

**MasterCom** is a full featured, smart terminal and file transfer utility for Morrow and other CP/M computers and all IBM PC-DOS compatible computers. It is easy to use for the beginner, yet has the features and speed for the advanced user. No long training is required. You will be communicating immediately using the descriptive pull down menus.

**We are so enthusiastic about MasterCom that we provide a 30 day money back guarantee. If you don't like it, return it!**

**MasterCom** can:

- Make your system a terminal to a HOST bulletin board or time sharing system (such as Dow Jones, Compuserv, WestLaw, etc.).
- Capture data onto your disk and/or printer from the HOST.
- Send text and program files to almost any type of computer.
- Exchange any type of file using error correcting protocol with another **MasterCom** or Xmodem Protocol equipped computer.

**MasterCom** includes the following features: auto-dial, auto-answer, host mode unattended operation, directory display, batch transfer, file viewing, file rename, file erase, wild card file specification, stored responses invoked by a single key stroke, filter or ASCII display option for received control characters, on-line selection and revision of communication parameters. **MasterCom** supports most file transfer protocols, including Christensen XModem, Xon/Xoff, line at a time (time delay or handshake) and speed throttle.

**MasterCom** is available in most disk formats. A single user license is $49. COD, prepaid, MasterCard, Visa and authorized purchase orders accepted. U.S. orders are shipped UPS surface ($5) or UPS air ($7). International orders shipped airmail ($10). Same day shipment on most orders. Call our software HOT LINE:

**906/228-7622**

The Software Store

706 Chippewa Square

Marquette MI 49855


complexity and variety with which each game proceeds seem to mimic the richness of a natural world.

This complexity and variety led mathematicians to wonder how far the analogy between Conway's Life and natural life could be extended. One of the most interesting questions they explored was whether a Life pattern could be self-replicating. This would seem to be the ultimate test of a living thing. This possibility has been verified theoretically but the task of implementing a self-replicating Life pattern has thus far proven too complex for anyone to accomplish.

Having solved this problem on at least a theoretical level, however, scientists are now studying another, deeper question: If a self-replicating Life pattern exists, what are the chances that such a pattern could arise spontaneously? One of the common techniques for studying the game of Life is to begin a computer simulation with a random set of live cells. Some feel that if a large enough random simulation were run for a long time, a self-replicating pattern of Life cells could evolve spontaneously.

The spontaneous production of a self-reproducing Life pattern has important philosophical and theological implications. If a self-replicating pattern could arise spontaneously, could we not infer that all of life as we know it evolved from a similar random occurrence? Of course, we would still have to account for the existence of the "rules of the game," both for the production of Life patterns and for the behavior of biological and physical phenomena. But the rules for a game of Life, like the laws of physics, are exceedingly simple when compared with what many believe are the reasons for human existence.

Much more than I can offer in this short article has been written about the game of Life. For an excellent source of Life patterns and names, as well as discussion of the implications and history of the game, see William Poundstone's book The Recursive Universe (1985; 252 pp. $16.95 postpaid from William Morrow and Co., 105 Madison Avenue, New York, NY 10016). Steven Levy discusses computer Life in his recent book Hackers (1984; 458 pp.; $17.95; Doubleday & Co., 501 Franklin Avenue, Garden City, NY 11530). Life is among the Whole Earth Software Catalog's list of recommended games, and there is even a quarterly journal entitled Lifelines for real enthusiasts.

[Copyright © 1985 Carson Wilson]

[See LIFE.BAS and LIFE.DOC on FLOB/DEC85 for a simple Life program that may be run with MicroSoft Basic. The files SUPERLIF.* contain a full fledged Life program. Use it with the LIF files in SUPERLIF.LBR to feed the program with interesting starting patterns. —Ed.]

# PEOPLETALK

## JUST RELEASED!

**MS-DOS EDITION**

**FREE SOFTWARE HANDBOOK $17.95**

The CP/M edition is in its third printing; the PC-DOS/MS-DOS volume took a year to research and write, but it's out in time for Christmas gift giving. Separate editions for CP/M & MS-DOS. Features top programs in public domain:

- What they are
- How to get them
- When they're useful
- How they work

(Handbook plus software disks **$62.95.** Disks only **$54.95.** Please specify machine & disk format.)

**78 Disks of CP/M and MS-DOS Public Domain Software!** See Christmas issue of our Quarterly or call for our P.D. Disk catalogue. Per disk: **$11.95**

**SALVO The Ultimate Database CP/M $99.95**
**MONEY-BACK GUARANTEE! MS-DOS $149.95**
Fully relational database, uses up to 16 files at one time, natural language interpreter -- talk to Salvo in English, powerful 4th generation language -- write whole programs in 2 or 3 lines.

**Checks & Balances™ CP/M or MS-DOS $64.95**
**Easy-to-use accounting package for personal and business use. MONEY-BACK GUARANTEE!**
"If anyone had told me that I would be balancing my checkbook and enjoying it, I would have suggested he was a candidate for a rubber room!" Dave Gerrold, Profiles Magazine

**NEW! SmartKey4™ for CP/M Kaypros $44.95**
**NEW! SmartKey5 for MS-DOS machines $54.95**
**SmartKey-II for Other CP/M Machines $44.95**
Customize your keyboard and turn your most-used commands into one keystroke. **A perfect gift!**

**SmartPrint** Take control of your printer! **$19.95**
**SmartKey with SmartPrint** (any format) **$59.95**

**NEW! SmartDisk Multi-format Utility $44.95**
Creates 112 disk formats on any MSDOS machine.

**RAMdisk with PC-DOS processing capability.** 256K (expandable to 1 Mb) RAMdisk **runs IBM's PCDOS** on CP/M Kaypro Osborne Xerox & Morrow.
**Co-Power 88 and 88 Plus From $324.95**

**Rembrandt™ - Charts, Graphs & Plots $59.95**
**Kaypro & Osborne CP/M** Demo disk **$6.00**

**TAXAN PRINTER BUFFER $239.00**
64K memory, comes pre-cabled for 1 parallel printer. Expandable to 256K & 2 printers. Expansions just plug in, no mechanical skill required.

**NEW! PrintMaster Super Graphics - Low Price**
The amazing PrintMaster lets you create -

- Pictures
- Stationary
- Signs
- Greeting Cards
- Posters
- Banners

**All art in this ad was created by PrintMaster!** Runs on **ANY** CP/M Kaypro or Morrow & most MSDOS machines. Uses Epson, Gemini, Okidata, or Toshiba Printers. Includes 111 predefined pictures. Creates millions of unique designs. Very Flexible and Easy To Use. **MONEY-BACK GUARANTEE!**
**PrintMaster $49.95**
**PrintMaster Demo Disk $6.00**
You've Never Seen Anything Like PrintMaster!

**NEW BOOK! - The Creative PrintMaster $13.95**

**DISKETTES!** **SPECIAL 25 DISK PREPACKS**

Single-Sided: **$1.20 each** **$30.00 Box**
Double-Sided: **$1.40 each** **$35.00 Box**
Includes warranty, envelopes & labels

**DISKETTE BREEDING CAGES**
Tubs and Library Boxes for Perpetual Disk Growth:

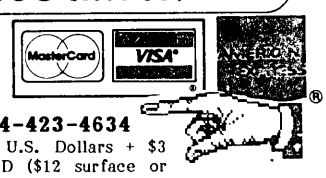
| | |
|---|---|
| 5 Library Boxes (10 disks each) | **$10.95** |
| Disk Tub (holds 25 disks) | **$15.95** |
| Disk Tub (holds 50 disks) | **$19.95** |
| Locking Disk Tub (50 disks) | **$22.95** |

**PHOENIX The Incredible Self Re-Inking ribbon!**
**Guaranteed** to outlast 12 mortal ribbons. Fits Okidata, Gemini & some C.Itohs. Pick one:

| | | | |
|---|---|---|---|
| Printaholic | **$15.95** | Heavy Abuser | **$15.95** |
| Daily Habit | **$15.95** | Occasional User | **$15.95** |

**Write or call for our complete catalogue.**
**Attention Programmers!** We publish software. Contact us for information.


**PEOPLETALK ASSOCIATES, INC.**
**P.O. Box 863652- E**
**Plano, TX 75086**
**1-800-PT BOOKS**
Inside Texas call: **1-214-423-4634**


Please include product price in U.S. Dollars + $3 shipping & handling, $7 for COD ($12 surface or $25 air mail outside U.S.) Texas residents add tax.

# GENEOLOGY WITH PERSONAL PEARL

by Joe Day, Jr.

As an enthusiastic family history researcher, I soon was confronted with the necessity of organizing the large amount of genealogical data that I had collected. I decided not to buy a commercial family tree program or to use WordStar to compile my research. Instead I chose to design my own system using Personal Pearl and MBasic.

Pearl reports can sort and manipulate data fields in many combinations and ranges. Reports can answer questions like "What transactions did Elijah Eckles make?" or "What records have I collected for Greene County, Tenn. in 1845?" However, Pearl cannot decide who my great-great-grandfather was or print out pedigree charts. It will prepare a report of the necessary data to do so and save it to the disk to be read by an MBasic program. Then programs in MBasic can be written to turn the Pearl data into family sheets, ancestor tables, pedigree charts, and the like. (For some tips on MBasic reading a Pearl report, see Art Zemon's "Insight" column in MOR, April 1985, Vol. 2, #2, p. 11.)

In doing geneological research, I have to derive information on ancestors from records of different types, such as census, church, military, probate, deed, marriage, birth, etc. If a field for all the types possible were to be included in the design of the Pearl form, the resulting template would be too awkward to use. I enter a record for every name found on every family document that I have collected. If a name is found on only one document, then most of the fields of a large form would not be used. What I wanted was a small form that would accept information from most document types.

Pearl permits data from multiple record types to be entered on the same form if various types have a similar structure. Each type must have input areas of like size and have the same characteristics—numeric or alphanumeric. A powerful attribute of Pearl is its ability to share data between forms. This attribute makes it possible to have variable instructions or prompts built into the same multiple type form. The form GNMASK contains the prompts. The sorting of records containing the most important information is simplified if those types have prompts of their own. The other types are lumped together. Therefore, GNMASK will have only three to five records or one for each of the types listed in the form design. The GNMASK records are accessed by the main form, GENPOST. When a new item of information is to be entered in GENPOST, the operator will input an access key which brings the correct prompt to GENPOST and it is displayed in the leftmost column.

**GNMASK Form**

GNMASK is created and installed first. The code contained in brackets in each field below describes the field name, its width, numeric (N) or alphanumeric (C), whether it is required or not, and if it is an unique (UI) or non-unique index (NUI). Since the DOCUMENT TYPE key field is only 1 space wide, its code is included here: [MI,1,C,RQ,NUI ].

```
      DOCUMENT TYPE: _ (B BIRTH, D DEATH, A ASSORTED)
   NAME AREA PROMPT:     [ MN,8, C ]
   YEAR AREA PROMPT:     [ MY,8, C ]
   ROLE AREA PROMPT:     [ MR,8, C ]
PRINCIPAL AREA PROMPT:   [MP,21, C ]
 LOCATION AREA PROMPT:   [ ML,8, C ]
```

**GENPOST FORM**

The access key (AK below) that GENPOST uses to access GNMASK is the first letter of the document type


**Monitor your Health & Fitness**
*with*
**Healthtrac's**
**"SAVE YOUR LIFE"**
**Computer Software**
*A New Comprehensive*
**PERSONALIZED**
**Health Management System**

- Reduce Risk of Heart Disease, High Blood Pressure, Obesity & Cancer
- Risk Factor Analysis
- Complete Nutritional Analysis
- Monitor Cholesterol Intake
- Weight Control System
- Shows Calories Burned by 20 Aerobic Activities
- Runs on Most MS-DOS, CP/M

Developed by **HEALTHTRAC**, a non-profit, medical research educational company.

**$69.95** plus tax
*Call or Write Today:*
724 Fickle Hill Road, Arcata, CA 95521
(707) 822-5716 • (415) 5-HEALTH



**Joe Day, Jr.** is a retired elementary school art teacher who uses his computer to run an income tax bookkeeping service from his home to supplement his retirement pension. He loves his MD3 and wishes he had time to do the geneology projects he's interested in. (Rt. 5 Box #101, Greenville, Texas 75401)

in the instruction list. When designing GENPOST, the prompts are defined as data from another form for display only.

```
     PERSON ID NUMBER:    [ ID,6, N, RQ, NUI ]
       DOCUMENT TYPE : AK (B BIRTH,D DEATH,A ASSORTED)
[ MN,8, C ]     NAME :    [ JNAM,26, C, RQ, NUI ]
[ MY,8, C ]     YEAR :    [ JYR,4, N, RQ ]
[ MR,8, C ]     ROLE :    [ JROLE,10, C, RQ ]
[ MP,21,C ]          :    [ JPRIN,36, C, RQ, NUI ]
[ ML,8, C ] LOCATION :    [ JLOC,15, C, RQ ]
               MEMO :     [ JMEMO,36, C ]
     DOCUMENT SOURCE :    [ JSRC,22, C, RQ ]
```

As an example, I will use a birth record found in an old Bible to demonstrate how a GENPOST form looks when its fields are filled with data. Since it is a birth record, "B" is input as the DOCUMENT TYPE. GENPOST accesses GNMASK and whatever birth record prompts the form designer wants are displayed on the GENPOST form.

```
  PERSON ID NUMBER: 100014
    DOCUMENT TYPE : B (B BIRTH, D DEATH, A ASSORTED)
       BIRTH NAME : Day          ,Belle Dora
       BIRTH YEAR : 1871
       BIRTH ROLE : Born
ENTER PARENT NAME: Malone        ,Nancy Jane    (000009)M
    BIRTH LOCATION: Greene Co.,Tenn
              MEMO:
  DOCUMENT SOURCE: I.N. Day Family Bible
```

After the forms have been designed and installed then whatever Pearl report forms are needed should be designed and installed. Since substrings will be extracted using LEFT$, MID$, and RIGHT$ statements, care must be taken in the NAME and PRINCIPAL fields of GENPOST to insure that information be entered at precise positions.

I must enter my research into GENPOST with my one fingered typing, but once it is there, then Pearl and MBasic will do the rest. That is still a miracle to me. (If any one else out there is doing geneological research on the Morrow, I'd be interested in communicating with you. Please get in touch.

### OCTAL/DECIMAL CONFUSION

Of course, you know what the decimal system is all about. You know, because you have ten fingers, so what could be more fitting then a numbering system based on ten different digits? But have you heard of the octal system? It is based on 8 digits (0-7) and is popular with people working with 12-bit or 18-bit computers, compared with CP/M's 8 bits. Counting in the octal (OCT) system from 1 to the decimal (DEC) value 12 goes like this: 1-2-3-4-5-6-7-10-11-12-13-14. No kidding! At least they don't have to fake it with A's and F's like the hexadecimal crowd.

Now let's see whether you have grasped all the above: Why do Octal Programmers confuse Christmas with Halloween? Because OCT 31 = DEC 25. Get it? If not, write to Brian Leyton. I got it from him.

--Sypko Andreae

## UPCOMING THEMES

We hope these upcoming themes inspire you to contribute articles and reviews. Of course, material of general interest is also always welcome.

FEB/MAR '86 **Public Domain Software**
We have a central article on The Top 10 PD Programs according to Tim Evans, but we need in-depth reviews on your favorites as well. PD utilities, databases, writer's tools, etc. By the time you read this, production of the February issue will be underway. So phone immediately if you want to contribute an article.

APR/MAY '86 **Educational Software**
Good educational software for CP/M machines seems hard to come by. Do you know of any worthy of a review? Do you use computers specifically for education in schools, at home, or in your business? If you write educational software—for anyone from toddlers to technicians—write an article about it.

JUN/JUL '86 **Repair and Maintenance**
Where to go for repairs, especially if your dealer gives out. Where to get spare parts. How to do simple repairs and maintenance yourself. How to make good use of the MOR Manual (see p. 51) and where to get additional information. How to deal with consultants.

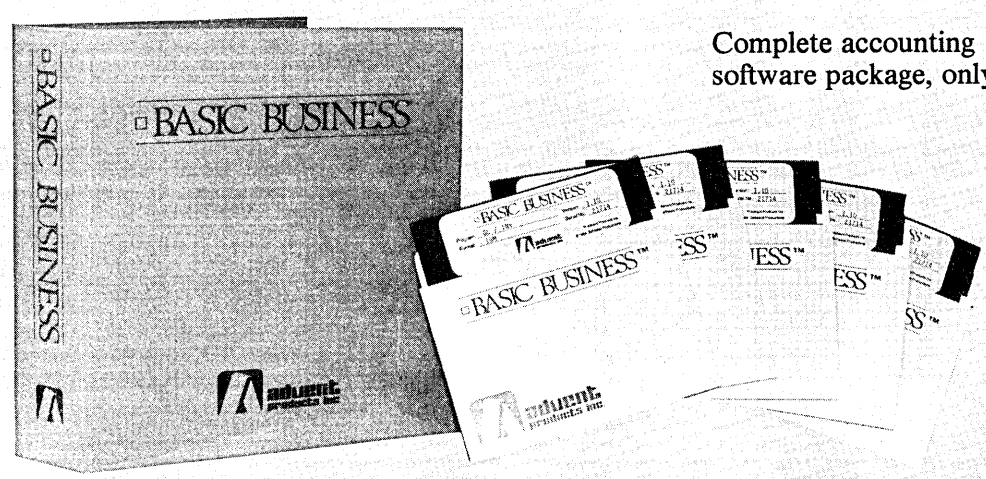
AUG/SEP '86 **Enhancements and Add-on's**
An issue dedicated to commercially available and homemade enhancements for your Morrow-workhorse to make it more powerful—hard disk add-ons for floppy and hard disk MD's, co-processors, RAM disks, networks and extra serial ports to name a few.

ALL WRITERS NOTE: If you are interested in writing for any of these issues, please submit a proposal of one to two paragraphs, indicating how you will approach your topic and your related experience.

If you are reviewing software, indicate the need or concept addressed by the program and how well it meets that objective in your estimation. If available, please include a sample of your (published or unpublished) writing. Please follow the **Writer's Guidelines** on page 2. Direct your correspondence about articles Attn: Managing Editor.

EVERYONE is most welcome to contribute programs to the Floppy of the Bi-Month for all these issues. One cannot live by the printed word alone! Send Attn: Editor.

# TIMELY REPORTS, ACCURATE RECORDS, RELIABLE INFORMATION.....




Complete accounting software package, only **$89.95**

## .....this is □BASIC BUSINESS

Price is nice - and so is a long list of features - but when you choose a software package to automate your accounting, don't lose sight of the basics of good business record keeping. Basic Business, an all-in-one accounting software package consisting of General Ledger, Accounts Receivable, Accounts Payable, Payroll, Inventory Control, Sales Order Processing, and Purchase Order Processing. It offers an excellent price and extensive feature list without sacrificing these basic business principles:

**Full Audit Trails** - to give you complete confidence in the accuracy of your data and provide crucial backup information when you need it. And double entry accounting keeps your books in balance.

**Complete Integration** - provides efficient processing for all your business transactions, updating all of your accounting records instantaneously. You only enter the transaction once, and all supporting modules are updated automatically.

**Flexibility** - Basic Business can be adapted to your way of doing business, including balance forward or open item accounts receivable, departmental or consolidated general ledger, variable aging periods and easy entry of manually written checks and voids.

**Extensive Reporting** - each accounting module provides complete reports, including master lists, transactions, journals, statements and forms. In addition, all data files are compatible with Ashton-Tate's dBase II and dBase III, for the ultimate in custom reporting capability.

With some accounting software, even packages costing hundreds of dollars more, you must make detailed estimates and complex calculations for the maximum number of customers, transactions, inventory items, etc., before using the system. Then, when your business grows to exceed these original estimates, you must repeat this process.

Not with Basic Business! All data files are automatically initialized when you install the system on your computer. Files can grow dynamically as your business increases and are usually limited only by the amount of you exceed your original estimates.

**FORMS ARE NO PROBLEM!** Basic Business uses standard forms for invoices, statements, checks, purchase orders, etc., which may be ordered with your company name, adddress and logo imprinted.

Basic Business is one of a family of accounting and business software packages, and has sold previously for several hundred dollars per module. It has been improved, updated andre-packaged to sell at a market-busting $89.95 for all seven modules. A Point-of-Purchase module, which controls an electronic cash drawer and allows direct entry of transactions from your sales counter is available. Also a dBase file format program is available for importing Basic Business data files into dBase II/III for custom report generation or other special uses.

### SOURCE CODE AVAILABLE

Do you have a distinct accounting problem that off-the-shelf software won't handle? Special forms or statements? Don't write your own accounting system from the ground up - start with Basic Business. Call (714) 630-0446 for all the details on source code licensing.

Basic Business can go to work for you today and is available for most popular MS-DOS (IBM and compatibles) and CP/M-80 personal computers. Compare our price, features and attention to detail. There is only one choice... it's Basic Business.

| | |
|---|---|
| **Basic Business** | **$89.95** |
| **Point-of-Purchase module** | **.$99.95** |
| **dBase II/III file formats** | **.$19.95** |

Minimum hardware Required for MS-DOS: 128K memory, two 360K floppy drives (hard disk recommended for Sales and Purchase Order Processing), 132 column printer, MS-DOS (or PC-DOS) version 2.0 or later.

Minimum Hardware Required for CP/M-80 computers: 80 x 24 character display terminal, 64K memory, two 360K disk drives (hard disk recommended for Sales and Purchase Order Processing), 132 column printer.

## CHRISTMAS SPECIAL

**Chocolate Diskette:** The ideal gift for all computer owners who love chocolate! This diskette is 4.8 ounces of delicious milk chocolate in the shape of a 5 1/4" diskette. It comes in a vinyl case that will hold 3 real diskettes.
Chocolate Diskette ..... $9.95

## SOFTWARE UTILITIES

**Autodiff:** File difference detector. This program finds insertions, deletions, and changes between any two files. Autodiff can mark the file, display, or print the differences, and more!
**Autodiff** ..... **$29.95**

**CP/M DateStamper:** Automatically stamp your files with the date it is created, last read, or modified. Works without a Real Time Clock , with the clock in the newer Kaypros or with the Advent Clock/Calendar. Utilities are included to allow copying, erasing, or renaming files based on time and date. A time logging utility is included to record computer usage for business/tax purposes.
**DateStamper** ..... **$49.95**

**SmartKey II:** New Release! Same great time saver as the original, allows compiling of definitions you set up with your word-processor! Makes every software program you use easier. Can reduce keystrokes by more than 50% by redefining any key on your keyboard to be any combination of characters or commands that you desire.
**SmartKey II** ..... **$49.95**

**SmartPrint:** A powerful add-on to SmartKey, SmartPrint is a vesatile writing tool designed to give you full access to your printer's features such as wide, bold, condensed, underlined, subscript, superscript, and more. Works great with programs like WordStar and others.
**SmartPrint** ..... **$29.95**

**Uniform:** Now your MD2 or 3 can read and write 80 popular single and double sided disk formats including MS-DOS and PC-DOS.
**Uniform** ..... **$69.95**

## PROGRAMMING CORNER

**C/80 Ver 3.1:** Full featured C compiler and runtime library. One of the fastest on the market.
**C/80 Ver. 3.1** ..... **$49.95**

**C/80 Mathpak:** Add true 32 bit floating point and signed integers to C/80 for fast assembly arithmetic.
**C/80 Mathpak** ..... **$29.95**

**Turbo Pascal:** Borland version 3.0. The best Pascal compiler on the market.
**Turbo Pascal** ..... **$69.95**

**Turbo Toolbox:** Set of 3 utilities for use with Turbo Pascal.
**Turbo Toolbox** ..... **$54.95**

**Turbo Tutor:** Step-by-step instructions on how to use Turbo Pascal.
**Turbo Tutor** ..... **$34.95**

## GAME ROOM

**Adventure:** Explore the dangerous Colossal Cave for treasures. Endure mystical spells and overcome adversaries. The only original uncut version.
**Adventure** ..... **$19.95**

**Airport:** You are an air traffic controller and your radar screen is filled with aircraft under your guidance. See how long you can last without cracking. Tougher than the real thing!
**Airport** ..... **$19.95**

**Eliza:** The pioneering artificial intelligence program, Eliza is a psychiatrist that carries on a conversation in plain English about anything you wish. Great to play alone or in a group.
**Eliza** ..... **$24.95**

**MyChess:** This award-winning world class chess program features nine skill levels with over 850 opening moves. Prints moves and saves game in progress.
**MyChess** ..... **$34.95**

**Word Wiggle:** Scrambled letter game for building vocabulary skills of young and old. Eleven skill levels containing 40,000 word dictionary. Fast paced, fun, and educational.
**Word Wiggle** ..... **$29.95**

## COOK'S CORNER

**Computer Chef - #1 in the Series:** The computerized cookbook for food lovers. Contains a database of almost 100 recipes with space to add your own. Auto scale ingredient quantities, find recipes by key words or type of ingredients you want to use, then display or print your selection.
**Computer Chef** ..... **$29.95**

**What's for Dinner - #2 in the Series:** 200 main dish and dessert recipes. Requires Computer Chef program (not included).
**What's for Dinner** ..... **$19.95**

**The Best of Wok Talk - #3 in the Series:** Exotic Chinese cooking. Over 100 recipes from China. Includes Computer Chef program.
**The Best of Wok Talk** ..... **$29.95**

Trademarks: MD-2, MD-3 - Morrow Designs; CP/M - DRI; MS-DOS - MicroSoft; PC-DOS - IBM Corp.; dBaseII, dBase III - Ashtom-Tate; DAC - DAC Software, Inc.; Basic Business, Basic Office - Advent Products Inc.

## HOME & BUSINESS CENTER

**Basic Office:** Time & Billing program designed to automate the special needs of the professional office. Provides personal calendars, client timekeeping, account billing, receivables tracking, Trust & Deposits accounting, and flexable management reprots. Specific versions are available for Lawyers, Accountants & Professionals.
**Basic Office** ..... **$299.95**

**Checks & Balances version 3.6:** A complete personal checking program or business register. 3.6 is completely rewritten and includes check writer and data base. It is easy to learn and use with new features including more types of reports. Complete with new 180 page manual. An excellent money manager!
**Checks & Balances** ..... **$74.95**

## WRITER'S WORKSHOP

**Punctuation & Style:** Improves your writing by catching unbalanced quotes, parentheses and brackets, improper abbreviations, capitalization, sentence structure, much more. It's like having your own copy editor!
**Punctuation & Style** ..... **$125.00**

**Spell:** Powerful spelling chdecker with over 50,000 words. Works great with WordStar or Perfect Writer files. Faster than other spelling checkdrs used on the Morrow.
**Spell** ..... **$49.95**

**Thesaurus:** This powerful 90,000 word Thesaurus allows you to select the best word for the application. Works inside WordStar for greater ease of use. Instantly searches its dictionary, then displays synonyms, and automatically deletes the "wrong" word and replaces it with the "right" word. Requires 380K disk storage.
**Word Finder** ..... **$79.95**

**Wordpatch:** Print files with tiny, compressed, wide, or wide compressed type faces, 5 sizes of italic, real superscripts and controls to learn. Supports most popular dot matrix printers. A must for WordStar users!
**Wordpatch** ..... **$49.95**

**The Word Plus:** The ultimate spelling checker. Not only finds misspelled words but shows you correct spelling options, shows the word in context. Allows adding new words to the dictionary, and much more.
**The Word Plus** ..... **$150.00**

## SCHOOL HOUSE

**Math Tutors:** RSI Software - Improve your skills in basic thru advanced math. Learning thru multiple-choice problems with help and hint functions provided. Grades 8-College.
**Algebra** ..... **$34.95** **Calculus** ..... **$34.95**
**Geometry** ..... **$34.95** **Trigonometry** ..... **$34.95**

**SAT score builder:** RSI Software - This program is designed to help students prepare for the Scholastic Aptitude Test required by most colleges and universities. Includes Help function.
**College Board Score Builder** ..... **$34.95**

**Reading Professor:** Now you can use your computer to boost your reading speed while increasing comprehension and retention! Self paced lessons show immediate improvement and feedback. Includes several different practice exercises. Developed by skilled educators, this program tracks user's progress and monitors reading rates up to 2500 wpm. Additional reading libraries available.
**Reading Professor** ..... **$59.95**
**Additional Libraries (each)** ..... **$15.95**

## HARDWARE & SUPPLIES

**Printer Cables:** High quality serial and parallel cables designed to work specifically with the Morrow computers.
**RS-232 serial** ..... **6ft. - $17.95** ..... **12ft. - $22.95**
**Modem** ..... **2ft. - $19.95** ..... **4ft. - $24.95**
**Centronics parallel** ..... **6ft. - $24.95** ..... **10ft. - $28.95**

**Diskettes, Double Density:**

| Maxell 10 pack with storage box: | | 3M box of 10: | |
|---|---|---|---|
| **Single Sided** ..... | **$19.95** | **Single Sided** ..... | **$22.95** |
| **Double Sided** ..... | **$23.95** | **Double Sided** ..... | **$26.95** |

**Economy Diskettes:** package of 25 including tyvek sleeves:
**Single Sided** ..... **$29.50**
**Double Sided** ..... **$31.25**

**Call or write for our FREE catalog.**

All items are warranteed for 90 days. 30 day money back guarantee if not completely satisfied. Money back guarantee for software applies only if diskette seal is intact. VISA and MasterCard are welcome. Please add $2.00 freight per total order (additional freight on monitors & carrying cases) and $2.00 for COD orders. California residents please add 6% sales tax. Prices, availability and specifications subject to change without notice.

**CALL TODAY** **National** **(800) 821-8778**
**California** **(800) 521-7182**
Hours: Mon - Fri 8 am - 5 pm PDT

**DEALER INQUIRIES WELCOME.**

**advent products inc.**

3154-F E. La Palma Ave.
Anaheim, CA 92806
(714) 630-0446

# THE ANIMAL GAME

**by Henrich Greve and Arent Greve**

Common computer games prompt users for input so that they can test their skills or intellectual abilities. The Animal Game is different. It is a game where the computer tries to guess what animal you are thinking of. When you first start the game, your computer knows only one animal (a dog), but each time the machine makes a mistake, it asks the question: "What should I ask to distinguish between (the animal you thought of) and (the animal the computer guessed)." As you play the game the program gets smarter; however, it will never get smarter than its user, because your input determines the knowledge of the program.

The concept of this game is old. It has been used in programming contests in computer journals. Computer science courses at the University of California at Berkeley, refer to it during discussions of data structures. Doug Cooper mentions the problem in his book Oh! Pascal! The main problem when writing a program for this game is to define a simple data structure that leads the user through a series of yes/no questions to an answer. When the data structure has been defined, the remainder of the program is trivial. When you play the Animal Game, it looks like an artificial intelligence program, but it is really a database manager.


## FRIENDLY TELECOMMUNICATIONS

**ReachOut** is a menu-driven telecommunications program **that works with any modem**, including the CTS MM-300 Modem System. The current version includes a super-simple auto-logon capability that is **guaranteed to work every time**, a printer buffer that permits printing while on-line **without loss of characters** (regardless of printer speed), and a comprehensive auto-answer/host mode. Installation is accomplished with as little as three keystrokes. Make first call, with logging, typically in less than ten minutes. The manual is written in easy-to-use, easy-to-understand, style and includes an index and glosary. Full end-user telephone support is provided by the manufacturer. No *"MODEM 7"* limitations, commands to remember, or other problems. **ReachOut** is reviewed in Morrow Owners' Review #2 & #3. A special version is available for all Micro-Decision computers at a price 40% less than the standard version. Send $125.00; $132.50 if shipped to California address. Includes shipping by U.P.S. ground. For trade-in on MITE, send disk, manual, and $65.00 only.

**Applied Computer Techniques**
**21 Cottonwood Drive, San Rafael, CA 94901**
**(415) 459-3212**
• **30-day, money-back, guarantee** •


While we had heard of the Animal Game, we had not seen a workable solution to it. After discussions with his Pascal instructor, Doug Kitter, Henrich was able to find a solution. The first solution was made on the Berkeley UNIX system (VAX) and was used by students for fun. (They soon discovered that the game could be played using characters of people, so that the computer could guess "Whom are you thinking of now?")

To translate ANIMALS from Berkeley Pascal to Turbo Pascal was a trivial job. Turbo even has some capabilities, which are not standard, making the program simpler on the Morrow than on the UNIX system. We purchased Turbo because we needed a flexible compiler at a reasonable price.

When we came home to Norway, Henrich discovered that a version of the Animal Game already existed on the mainframe at the Norwegian School of Economics and Business Administration, a DEC 2060 system. It operates in the same way as his solution.

Before we left Berkeley, we bought the "Free Software Catalogue and Directory." In this book there are two versions of ANIMALS. One is a Basic version, and the other is written by Roy P. Allen in Pascal/Z. The larger size of the files indicates a different solution. Henrich's version of ANIMALS is one *.PAS file of 12K, compared to Allen's version at 39K, and our *.COM file requires only 12K, compared to 20K of the other version. Additionally, Henrich's version comes without a data file for the game. However, this may say more about the compiler than the quality of the algorithms. Turbo Pascal generates very little code compared to other Pascal compilers.

As you play the game, you add more animals and build an ANIMALS.DAT file. Our file has reached 18K, and our MD3 does not object. However, at some point there will not be enough RAM to add more animals to the data file. This will happen long before the file reaches 64K. So, it is a good idea to regularly back up your ANIMAL files.

The animal game has some advantages over traditional computer games, because it is influenced by the players. As you use your imagination, the fun increases for yourself, and other people might enjoy your version of the game. The fun lies in making good questions and using exotic animals.

[ANIMALS is available on the FLOB/DEC85. See p. 52. —Ed.]

---


**Henrich Greve** is currently studying Business Administration in Bergen, Norway. His father, **Arent Greve,** is a research professor at the Norwegian School of Economics and Business Administration. Both spent the 1984/85 academic year at the University of California at Berkeley.

# TELECOMMUNICATIONS: NATIONAL AND INTERNATIONAL

**by Donald Jenner**

One can use the computer as merely a personal extension. But couple the personal computer to the telephone system, and it becomes the best of all possible communication devices. Descriptions of modems and modem software abound elsewhere; here we want to take a brief look at some of the more interesting ways to use that facility.

Everything discussed here is open to the user of a Morrow MD-series machine, except where otherwise noted. Our cheap, solid machines (mine's an MD2) do the communications job as well as more popular machines.

**Using the Networks**

Basic data communications is expensive, especially if the computer you wish to link with is in California and you are in New York. It'd be nice if you could use a local system, especially for the long-distance transfers. Or, you may wish to exchange documents or data with someone in Europe or East Asia. Here not only cost is a problem, but different communications conventions obtain in foreign parts, and very likely your computer can't exchange directly with the overseas destination. Networks exist to serve just these needs.

Networks fall into two general categories: There are private systems, which may be available at no cost if you are affiliated with the sponsoring organization. Public networks offer their connection for a fee. Some of these networks offer direct connection in real time to the remote system. TYMNET or UNINET offer the convenience of a local telephone hookup to a distant computer, such as Dialog, for an hourly charge added into the bill for connection time to the remote system. The system leases the dedicated line; you access it locally, at a pay-as-you-go price.

Other networks—the kind discussed here—involve using a local computer as a storage point; at a set time, the local computer forwards the stored messages to other nodes in the system to which it is connected. The message is thus passed from originating node to destination node step-by-step. While this takes more time, the store-and-forward system is generally more sophisticated in its message-handling.

**A Typical Public-Access System**

Perhaps the most sophisticated of public data communications networks is the ITT Dialcom system. At present, Dialcom represents as close to an international standard in data communications networks as there might be. Dialcom goes under other names in other places; in Canada, it's InfoTex, in Germany it's called Telebox and in Australia it's Minerva. But the basic system is pretty much the same.

(By way of illustration, while the Australian system was being set up, all Minerva business was processed through the Dialcom computers in Silver Springs, MD. If an Australian user initiated a message across the office using Minerva, it was routed through the U. S. This was a temporary situation, to be sure, but it gives one pause....)

Calling into Dialcom, the user is given access to a number of services centered around the electronic mail service. Tied to that is a fairly powerful wordprocessing capability (including an online spelling checker), a file-transfer capability, and access to other communications media, including telex and teletex (the latter where available). Utilities include a personal diary, news services, and bulletin board services. Gateway connections are provided to most frequently used information services such as the Source. You can achieve access over dedicated lines at high speed, or over regular telephone lines, or (especially interesting for terminal users) you can lease a port on the Dialcom computer and run your machine remotely.

ITT Dialcom is not cheap, as these things go. The most recent quotation I have for U. S. service is a minimum usage-fee of $100 a month. This is a service designed principally for businesses who need a full-service electronic mail/telex/database-access facility, and presupposes more than one user on an account. On the other hand, a relatively small business, relying on close communications between the main office and traveling representatives, might find Dialcom a reasonable expense. For those with more rudimentary needs, a system such as MCI Mail might do the job; depending on the level of service, the annual fee may be as low as $18 (based on MCI's last quotation to me) plus a fee per use.

How would you use Dialcom? Most obviously, it is an electronic mail system of great power. Suppose you have a document to send to Germany. Germany does not use the same communications protocols as those prevailing in the U. S. (This will change as 2400 baud communications become more prevalent, because the 2400 baud modems that will be used will operate under international protocols.) But ITT is an international record carrier (IRC); it has a gateway through which it connects to the similar service run under the auspices of the Bundespost. Simply route your message to Germany; Dialcom does all the work of transmitting according to the correct protocol, routing according to the most efficient path, and so on.

---

**Donald Jenner** is a university teacher of philosophy in the Greater New York area, an avid computerist who occasionally consults on the use of microcomputers in small business and not-for-profit organizations, and does applications programming for MIS.

This is something you could not legally do directly; Bundespost regulations, if nothing else, would keep your correspondent from hooking up a modem capable of talking to the average U. S. system over the phone lines. Moreover, the quality of most satellite links, or transatlantic telephony (TAT) cable links, would not support easy communications. (This last restriction will probably improve to some extent when TAT8 comes on line; TAT8 will use fibre-optic technology with much improved signal clarity. On the other hand, modem communications require greater bandwidth than do normal voice communications, and that will be available to a limited extent on the new cable.) Using the network makes sending data of any kind that can be rendered in the standard ASCII character set as easy as sending a letter.

**Various Different Private-Access Systems**

Private-access data communications networks are frequently extensions of mainframe or minicomputer systems with multiuser environments. Academic computing networks—with which I have some familiarity—offer a good example of these.

BITNET is a private network using leased lines; it is available to faculty and staff of universities who have net-membership, dependent on local university academic-computing policies. Generally, it has been my experience that the the rules governing access are inclusive rather than exclusive; e. g., graduate students, and even advanced undergraduates, may have access to the network to a greater or lesser extent. Faculty and staff normally have only the limit of their funny-money account. BITNET links about 250 university computing systems in the U. S. and another 100 abroad.

One of the real problems academics have is exchanging work in progress or new ideas still in the formative stage. One would like to share the ideas, discuss them in a conference-like situation, but conferences happen infrequently, and are generally places for finished work. An online conference, where one can not only exchange messages but also ship associated data and program files for assessment, is particularly convenient. Using BITNET, sending a document to a colleague in Germany may be as easy as a direct pc-to-pc link-up, and the cost will definitely be less.

CSNET is usually open only to those in the computer-science community, as ARPANET tends to be available only to those whose work is in some way connected to military research.

The UNIX network, using UUCP (UNIX-to-UNIX-Copy-Program) is perhaps the most open of the networks; if one's local UNIX node is "known" to the various administrative nodes in the system, in nine cases out of ten it will be accessible to any other UNIX node known to the network. All of these systems are international in scope; all have either gateway service, direct linkage or both to overseas locations of similar type. Most of these ties are to points in Europe, though some connection is available to Japan.

All of these networks interact to some extent. For example, if you have access to a UNIX system known to the UUCP network, and you mail a message through UUCP to an addressee on an entirely different network, the message will very likely get through. In fact, the easiest route to a lot of places is through various UNIX systems. Some persistence is required in learning the peculiarities of addressing across networks, and sometimes the route selected by the network mailers is simply weird. (As a test, I once sent a message from my UNIX address to my BITNET address, through Penn State's PSUVAX — which is supposed to be a direct link to BITNET. Somehow one of the intermediate administrative nodes did a switch, and sent the message from UUCP to UCBVAX on CSNET, which shifted it over to ARPANET, sending it through the University of Wisconsin's WISCVM to BITNET. This message thus originated in New York went to New Jersey, California and Wisconsin, to get to the CUNY computer in New York. It was still faster than the Postal Service....)

**Some Possible Futures**

Networked data communications is still very much in its infancy. The data to be transmitted is pretty much limited to what can be rendered in ASCII characters. However, by the end of the century, that may change dramatically. In the first place, while U. S. institutions and individuals will undoubtedly remain the dominant user group in telecommunications networks, the relative positions of European and East Asian (especially Japanese and Australian) user groups is bound to wax tremendously. Clearly the new digital systems (where British and Japanese technology have been particularly competitive), installed in territories not nearly so vast as that of the U. S., will allow these technologically-oriented societies to succeed in the catch-up game. These societies are defining new needs in data communications. For example, Japanese-language data communications requires sophisticated character displays beyond what is available to those of us using the Latin alphabet; the Japanese have an incentive to developing videotext technology not operative in Western culture, and they've risen strongly to that challenge.

The most exciting possibility I know of in the data communications field comes from the phone company—the real one, AT&T. The new AT&T Mail system is a completely binary network. That is, every signal passed to it is in digital form—that includes voice, video, and standard computer-type data. In principle, any of those data types might be stored in an AT&T Mail mailbox. Any data could be retrieved by any suitable equipment (with limitations, of course). For example, suppose I send a message to a colleague on the system, enter my calendar, and store a series of frames illustrating a new book (entered through a video camera, and digitized using a combination of hardware

and software costing around $2000 presently for a single unit). I might retrieve my calendar at the airport on a standard telephone; the system uses voice-synthesis to convert standard text into sound. When I reached my destination, I might call up the video images of the book illustrations, perhaps in a screen window, and enter comments about them in the margins. My colleague would get my message just as through a regular e-mail system, or he might get it over the phone (supposing him to be recalcitrant about getting a microcomputer).

This sort of all-digital system requires some important and expensive upgrades in both end-user and central office equipment before it can be put in place for general consumer service. Those upgrades are already underway both here and abroad. In Great Britain, both telephone companies (British Telecom, the successor to the post-office system, and Mercury, an off-shoot of the Cable & Wireless company, in turn a former Treasury subsidiary) are installing all-digital exchanges and fibre-optic cabling at a break-neck pace. Germany, the most conservative of government-monopoly communications systems, expects to have a completely operational integrated services digital network (ISDN) by the mid-'90's. Movement toward that sort of system is moving forward in this country, too, though perhaps more slowly due to the fragmentization of the telecommunications industry under divestiture, and the enormous capital investment the present analogue system represents. With a digital system, since all signals —voice, data, video—are alike and are treated more or less as similar files, it is simply a matter of which file can be retrieved by what kinds of equipment.

This facility is already operative at limited levels; AT&T has sold this service to a number of large organizations, including one of the Lutheran sects and General Motors. The full-blown system awaits only the imagination to use it effectively. I confess, it taxes my creativity to think of an effective use for all that. I suspect it'll be a younger generation, not so text-oriented and solipsistic as us older folk, who'll see possibilities for communication using the new general purpose tool the microcomputer represents.

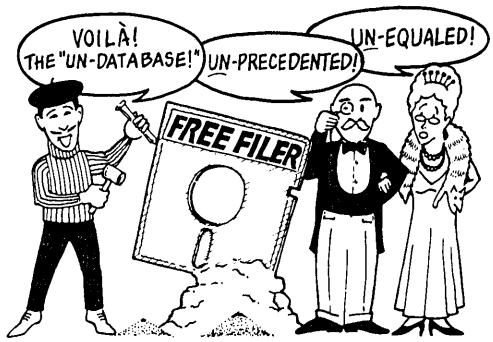
**In Summary**

Intriguingly, this is not an easy subject to research. There's not a lot of information on data communications readily available. Most of the standard "computer books" on the subject are woefully inadequate, focussing largely on the RBBS kind of service. Information on BITNET can be had from the BITNET Information Center (BITNIC) in Princeton, NJ; it is generally available only to people connected with member institutions and is shipped as files to be despooled locally. Information on the international aspects of data communications regulation and capabilities are most easily obtained from the appropriate governments — try the consular offices, and be nice but insistent. UNIX's UUCP, while the most open of the private systems, is the least documented; one's best hope here is a friendly guru.


Version 4.0 with Exciting New Features!

# Free Filer

## The "Un-Database" from Telion Software




Database programs make you organize information into a form. That's fine for an address list where every entry contains the same old boring things. But how do you "database" your free-form text files, like novels, business letters, screenplays, annotated bibliographies, personal correspondence or client case histories? With a database program you're just plain out of luck!

**Now Free Filer lets you keep track of your words like you do your lists. That's why we call Free Filer the "un-database."**

**How does FREE FILER do it?** Free Filer divides your diskette into parcels of information, much like index cards. It will segment your text files into paragraph parcels automatically. Or you can specify other data parcels yourself.

You can search, alphabetically sort, and print each parcel effortlessly. You can even combine parcels to create a new card. Free Filer can search all or some of your files on disk, going through them one by one. And if you have lots of files, that can save you a bundle of time.

**And it's fast.** Free Filer can blitz through a 55K file in less than 25 seconds.

"I am taken at the program's speed and simplicity. I would recommend it for everyone – it's another tool to make your computer more powerful and you more efficient." – Peter A McWilliams, author of *The Personal Computer Book.*

"Free Filer is one of those wonderful little general-purpose text utilities that simplify life with computers. Recommended." – Jerry Pournelle, *Byte Magazine.*

Free Filer is directly available from Telion Software for **$49.95** (cash price) in all popular CP/M and MS-DOS formats.

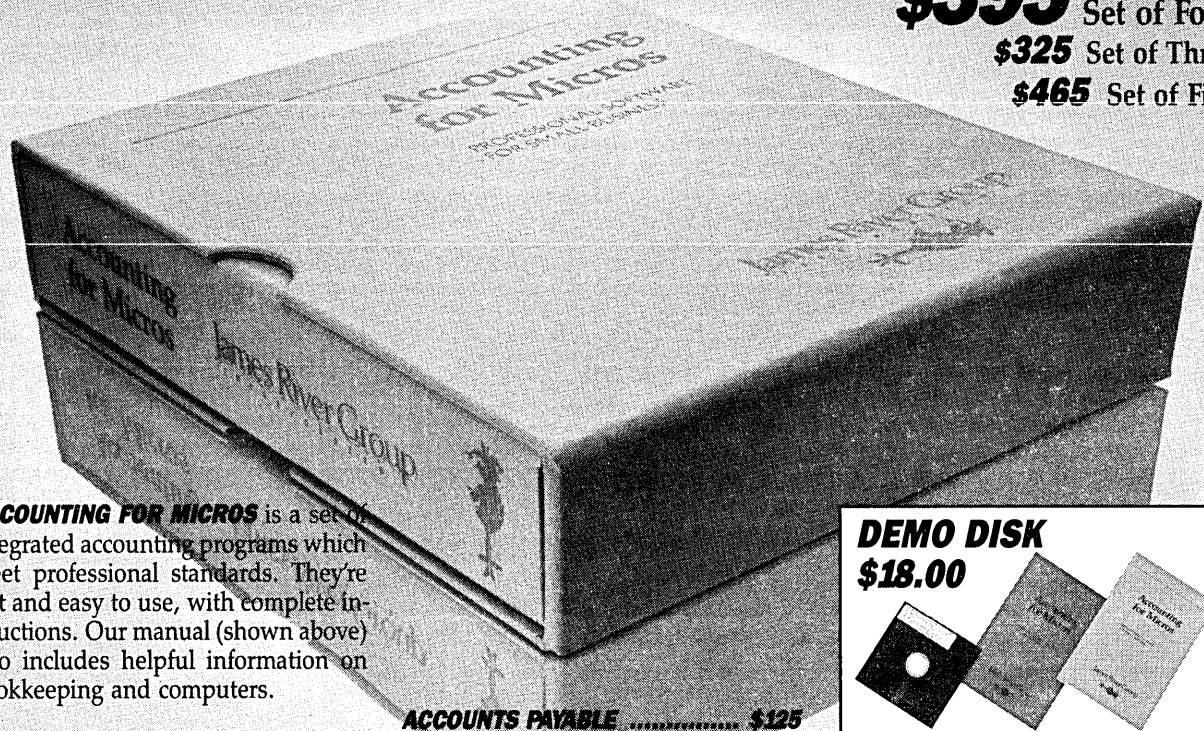
**Now shipping 4.0 with "AND," "OR," and "NOT," (boolean) searching with even *faster* searching and sorting performance.** Calif. residents add 6%. Include $3.00 S/H. Modem Users: order by 24-hr. bulletin board 213-944-2551.

**TELION software**

P.O. Box 1464
La Mirada, CA 90637-1464
Phone 213-946-1015

# ACCOUNTING FOR MICROS

**$395** Set of Four
**$325** Set of Three
**$465** Set of Five




***ACCOUNTING FOR MICROS*** is a set of integrated accounting programs which meet professional standards. They're fast and easy to use, with complete instructions. Our manual (shown above) also includes helpful information on bookkeeping and computers.

***GENERAL LEDGER ..... $125***
Allows up to 1,000 accounts & 1,000 transactions/month. Retains mo/end balances for Last year, This Year and Forecast. Includes Cash Disbursements, Cash Receipts and General Journals. Reports include Balance Sheet, Income Statement, Annual Summaries and Journal Reports.

***ACCOUNTS RECEIVABLE ..... $125***
Allows up to 2,500 customers and 1,000 invoices per month. Invoicing can access Inventory Module. Keeps customer names and addresses. Invoice prints on plain paper or any pre-printed form. Statements can be printed at any time.

***INVENTORY ..... $125***
Allows up to 4,000 parts. Keeps 3 month history of unit sales as well as year to date. With AR, can be used as point of sale system (prints invoices, handles cash). Reports include Inventory Value and Stock Report, Internal and Customer Price List.

***ACCOUNTS PAYABLE ..... $125***
Allows up to 500 vendors and 600 invoices/mo. Records invoices and handwritten checks. Prints computer checks on any pre-printed form. Keeps vendor names and addresses.

***PAYROLL ..... $125***
Will handle up to 100 employees with six deductions per employee. Deductions may be determined as fixed dollar amounts or percentages, or referred to a table for automatic look-up. Tax tables are easily entered, or purchased separately.

***SET OF FIVE ..... $465***
***SET OF FOUR ..... $395***
***SET OF THREE ..... $325***

***RUN ON MOST CPM AND MSDOS***

| | | |
|---|---|---|
| *Apple CPM* | *IBM PC,XT,PC jr,AT* | *Sanyo (all)* |
| *Columbia* | *Kaypro (all)* | *Tandy (all)* |
| *Compaq* | *Morrow (all)* | *TeleVideo* |
| *Corona* | *Osborne (all)* | *Zenith 100 & 150* |
| *Eagle (all)* | *Panasonic* | *8" CPM* |
| *Epson QX-10* | *Radio Shack CPM* | *Other compatibles* |

***DEMO DISK $18.00***



***Try all 5 programs above (GL, AR, AP, IN, PR). Order our DEMO DISK for $18.00 (includes shipping). Condensed versions of the programs give you the "feel" of data entry and access. Includes sample reports and instructions. Specify machine.***

***TRASHMAN (NEW) ..... $145***
The "Catch-All" program. Files any type of information for quick access. Name or subject oriented with 15 lines of notes per name. Use TMAN as a mailing list, filing system, notebook, etc. Can be used alone or with data from our other programs.
Try ***TRASHMAN (only) DEMO ..... $16***

***HOW TO ORDER:*** Please specify machine and disk format. You can pay by check, by VISA or MasterCard (we need your expiration date and card number), or by UPS COD (add $2.50 COD charge). Our price includes shipping. Minnesota residents, add 6% sales tax). We ship most orders the same day.
or ***ORDER BY PHONE: 612-339-2521***

James River Group
INCORPORATED

(612) 339-2521

125 North First Street
Minneapolis, MN 55401

# LABOR TURNOVER AND CAREER MOBILITY
## Two Simulation Programs

by Arent Greve

[The following article is excerpted from a longer description of the simulation programs Arent Greve developed. Besides being an interesting bit of sociology, they can be useful to large corporations as well as to individuals who might want to assess their own chances of success in a given organization! The model might also inspire you to venture out into new applications of your Morrow.

For those of you interested in further exploring these programs, the complete text, including tables, is available on the FLOB/DEC85 in SIMULA.TXT, which includes examples and tables. Also available on the FLOB are files of instructions, source codes and .COM files for both Turnover and Mobility. —Ed.]

I purchased my MD3 mainly for word processing, but having this versatile machine, I thought that constructing simulation programs might be a good idea. During the academic year 1984/85 I was a visiting scholar at the Business School, the University of California, Berkeley. The major research project during may stay was a study of labor turnover and career mobility, which involved the use of empirical data as well as theoretical models. The latter includes everything from verbal explanations of relations to mathematical formulations of mobility processes.

Simulations of dynamic processes (where time is an important variable) have some advantages over conventional uses of mathematical models. One advantage is that we may have output of what happens during each time period. This makes it possible to find out, for example, how long a time it takes a process to reach a stable state.

I have developed two different simulation programs. As I am not a programmer, but an experienced user, I have specified the mathematical operations, the format of the input, and the required output. My son, Henrich, did the programming in Turbo Pascal, and I helped in the debugging process. [See Footnote.] As I constructed the mathematical models that were used in the simulations, I am sensitive to any errors that might occur. During the debugging process the programs were tested with input that would make the computations break down if there were logical errors, as well as input which yield predictable results.

**Arent Greve** is a photographer/cinematographer, who switched to Business Administration. He holds a Licentiate degree in Organization theory from the Norwegian School of Economics and Business Administration, Bergen, Norway, where he is currently employed as a research professor. During the academic year 1984/85, Arent Greve was a visiting scholar at the University of California, Berkeley. He is writing a book on Turnover and Career Mobility.

### TURNOVER: Labor turnover simulation

The first program, Turnover, simulates labor turnover in firms. Empirical data from both the USA and Norway, shows that labor turnover is age dependent. Younger workers have higher probability of changing jobs than older workers, and the probability decreases with increasing age. Age groups between 35 and 50 years have low turnover rates, probably less than one per cent quit their jobs during a year. From the age of about 50 years, quitting rates increase steadily (some people die, get ill etc.), until they reach retirement age, when of course 100% of them leave.

We also know that when organizations have vacant positions, managers tend to prefer hiring younger people, which means that the hiring process is age dependent. It can be described as a probability of hiring people of certain age groups.

**Growth and decline.** In demographic terms, quitting (turnover) is a death process, and hiring is a birth process. As opposed to natural populations, in organizations these processes are controlled by some authority. When more employees are needed, the organization tries to hire them. When more people are hired than quit, the size of the firm grows. The simulation model includes a growth parameter that may be changed at any time during the simulation run.

The simulation program has a routine that takes care of decline in the size of a firm—when organizations do not need the number of employees they have. If the decline is lower than or equal to the

**Footnote:** Turbo Pascal is an inexpensive and efficient programming tool. The simulations do not require more precision than the compiler offers, which is considerable. Pascal is logical and simple, it takes only a minimum of training before you have working programs. As it has a WordStar (and NewWord) compatible editor, editing is fast. We wrote the first version in NewWord nondocument mode because it has more editing features than the Pascal editor, and then we used the Pascal editor during debugging.

The main advantage of Turbo Pascal is its ability to do interactive debugging during compilation of the program. It is faster than MBasic because it is a compiler and not an interpreter; it also requires less disk space, and the *.COM files can be run on any CP/M computer, with single or double sided disks. You do not need Turbo Pascal to run the programs.

# EUREKA!®

In Greek it means "I found it". In CP/M it means you'll never lose it again! **Eureka!** is the premier CP/M disk cataloger. It puts the critical information about your library of disks and files in one place and allows you to quickly and easily retrieve any of the information. Never again will you have to wonder what disk that letter SMITH37.LTR. is on - or what it is for...**Eureka!** can tell you in a snap. Lawyers, writers, programmers and many others save time with **Eureka!**. Haven't you suffered long enough without it ???

*"We finally chose EUREKA! ... largely because it has the ability to read comments directly from a file .... EUREKA! is easy to learn and use, has more access and report choices, finds files by many different ways, and has an attractive price."*
T. Bove & C. Rhodes, USER'S GUIDE No. 11

**EUREKA!**, the popular CP/M® disk cataloger

| | |
|---|---|
| **Unprotected version** | **$75** |
| Protected version | $50 |
| Additional Licenses | $15 |

MENDOCINO SOFTWARE COMPANY, INC.
Dept. MR-5
P.O. Box 1564
Willits, CA 95490
**(707) 459-9130**

add $2.50 shipping
Calif. residents add 6% sales tax
VISA & MasterCard accepted

A EUREKA! package is designed to run on only a single system.

EUREKA! is a trademark of Mendocino Software Company, Inc
CP/M is a registered trademark of Digital Research, Inc


## NSWEEP REVISITED

In my NWSWEEP article—MOR Vol. 2, #4, Aug/Sept 1985, page 54—I mentioned setting the file status tags to display at half intensity characters on the file.typ tail. I recently spoke with a reader who was trying to find the installation instructions in NSWEEP.DOC, as I indicated that was the place to find them. Well, I was wrong for the first time in my life. I had actually seen the instructions in another publication. The patch is as follows. (This was for the Osborne, but it works fine on my MD3 and MD11):

104h to 108h: 04 1B 29 1B 6C highlighting on
10Bh to 10Fh: 04 1B 28 1B 6D highlighting off

On the Osborne, this is supposed to underscore the character as well which is nice if there is no tail, but it doesn't on the Morrow terminals (MDT 50 & 60). If anyone knows the correct patch (instead of 6C & 6D), feel free to send it in to MOR, Attn: NSWEEP. The patch can of course be made with DDT, or more simply with EDFILE.COM, a public domain editor useful for editing binary files.

—Peter Campbell

number of employees that quit, the program reduces the hiring instead of laying off people. This is a nice strategy, but not all firms are so nice. If the organization has to lay-off more people than the normal turnover rate, the lay-off routine of the simulation operates through the hiring function. This means that it starts laying off the most recently hired employees. It starts at the lowest age groups, and moves up to the next. (This rule reflects the standard agreements in Norway between employers' and employees' organizations. This is also a nice strategy, as people with good chances to get a new job are laid off first.)

**Inner and outer parameters.** In addition to demographic processes, labor turnover is influenced by external labor market conditions and the absenteeism rate of the firm. These two parameters are taken into account in the program, and change the effects of age-dependent turnover rates.

Absenteeism rates operate as an indication of withdrawal symptoms within firms. The labor market parameter reflects conditions external to the firm. The parameters are multiplied by the exit rates. If you set the parameters of external labor markets and absenteeism at 1.0, they have no effect; if you set them lower (or higher) than one, they will decrease (increase) turnover rates. A labor market parameter higher than one, e.g., 1.5, means that there is a high demand for labor, and more people quit their jobs and find other employers.

**What is the point of using the TURNOVER program?** What questions can the program answer? The output shows the turnover rate for each year, and you can ask for a printout of the age distribution at any time. The results show that the age distribution of the employees in a firm determines the turnover rate of the firm. It also shows that growth and decline of a company have long term effects on turnover rates. Changes in labor market conditions or absenteeism have immediate but short term effects on turnover rates.

**How can you use the program?** The program shows that demographic factors are important. If you know the age distribution of the employees within a firm, the age dependent quitting rates, and the hiring function, it is possible to calculate turnover rates, the development of the age distribution over time, and the effect of growth, stabilization, and decline. Large corporations may use it as a model to plan personnel changes, to calculate the development of turnover rates during establishment of new plants, or to calculate the long term effects of lay-off's. It is important to remember that the program cannot help in making individual hiring or firing decisions. It operates with demographic data at the firm level, and it says nothing about individual behavior. The input parameters may be estimated from empirical data; the example on the FLOB/DEC85 disk gives an approximation.

Input may be given interactively through the terminal, and you may ask the program to save the age dependent exit rates and hiring rates on an input file to be used for later simulations. Output may go to the printer or to the terminal. It is also possible to write the results to a file. (If you choose this option, check that you have enough disk space. The program writes a disk file of more than 100K in a remarkably short time.)

**MOBILITY: Simulation of career mobility in hierarchical organizations**

Many "white-collar" workers begin in the lower levels of hierarchical organizations and are promoted as they gain experience, competence, etc. Some organizations fill a high percentage of higher-level job vacancies by promoting employees from lower levels; other firms hire skilled people from other organizations to fill such positions. The chance of promotions in two different organizations depends upon the promotion and hiring practices of each.

**Chain reaction of promotions.** If vacancies of higher level jobs are filled by internal promotion, there is a chain effect. Each promotion creates a vacant job to be filled by another promotion. The number of hierarchical levels determines the number of people promoted. The shape of the hierarchy, defined as grade ratios (the number of employees at level j divided by the number of employees at the lower level i), determines the promotional chances at each level. However, as promotions are done in a chain, upper level probabilities will have an effect on lower level probabilities. This effect is called a "multiple grade ratio." The program, MOBILITY, calculates the effects of higher level promotions on lower level promotions.

The mathematics of the simulation program are based on work by White (1970), Keyfitz (1977), and Stewman and Konda (1983); the latter models have been somewhat modified to fit into the simulation procedure.

**Input and output.** The program works interactively. To run it you are first asked to give the number of hierarchical levels of the organization, then the growth rate and allocation of growth to each level. The allocation coefficient operates on the growth rate, enabling you to give each level a different growth rate. You are also prompted to give the exit rate and the fraction of external hirings at each level. The exit rate is the percentage of people at each level who quit their jobs, retire, or die.

The output of the program is a table that includes the number of levels in the organization, the number of employees at each level, and the number of new positions if there is a positive growth rate. During decline, the program subtracts the reduction in number of employees from the input or the last simulation. The number of newly hired employees at each level is


**Turn on Your MDT-20 Arrow Keys**

Tired of hunting for the correct Wordstar control key to press when typing? This ADM-20 (alias MDT-20) Upgrade Kit enables your arrow keys to send the correct control key and defines F1 thru F7, CHAR INS/DEL and LINE INS/DEL as useful control keys. Check out these added features:

- 19 Programmable function keys (Smartkey II compatible).
- 37 Graphic shapes available via ESCape sequences.
- 48 Character type-ahead buffer. (Requires 8 wire RS-232 cable)
- Screen Saver protects your terminal by blanking the screen after 10 min. of inactivity (Serial No. > 25110000 only).

The Upgrade Kit is $40, plus $14 for an 8 wire RS-232 cable (when ordered with Kit). Prices include shipping/handling. Arizona residents add 6% sales tax. Sorry, no COD or credit card orders. Please specify terminal serial # with order.

**SOFTWARE TECHNIQUES**
3537 West Charleston Avenue
Glendale, Arizona 85308
(Reviewed in MOR #4, Oct. 84).


## ANY AV OUT THERE?

Bruce Gowens will soon be beta testing a program that will be of interest to audio visual, multi-image, film and TV producers and production houses. His 20-year background as a New York advertising photographer plus 10 years as a multi-image and AV producer have contributed to creating a practical and useful program.

Bruce would like to offer MOR readers who are also in these creative/commercial arts, pre-release "beta test" copies of the program in exchange for their feedback. Some other "goodies" are included in his offer, he says (especially for AMI and ITVA members who are MOR subscribers).

Selection of beta testers will be made on the basis of professional status, number of testers needed in that media, and so forth. To obtain an application, send request on letterhead or with a credits list to Bruce Gowens, ISSB, 2501 Dobern Avenue, San Jose, CA 95116.

listed, as is the number of promotions from each level. The last column gives the probability of being promoted during the simulation period (usually a year, if all rates are given as yearly rates).

The program is both instructive and useful, as well as being fun to play with. Instructive, because you can put in the relevant data from your own organization. Or you can invent an organization and study the fate of the Yuppies! It is amazing to see how many careers are determined by chance and necessity. Because of aging and exits at higher levels, a certain percentage of employees at lower levels must be promoted. So, for example, in an organization with a high percentage of older people in higher positions (high exit rates at higher levels), with management that practices promotions instead of external hirings to fill vacant positions, it can be easy to reach the top!

The program is also useful for researchers and personnel planners. The former may study the combined effect of aging, exits, and the structure of organizations on career mobility. The results from the program also show the consequences of growth or decline, and the effects of external hiring on promotion probabilities. The number of promotions may be compared to the actual number of personnel transfers within organizations. ■

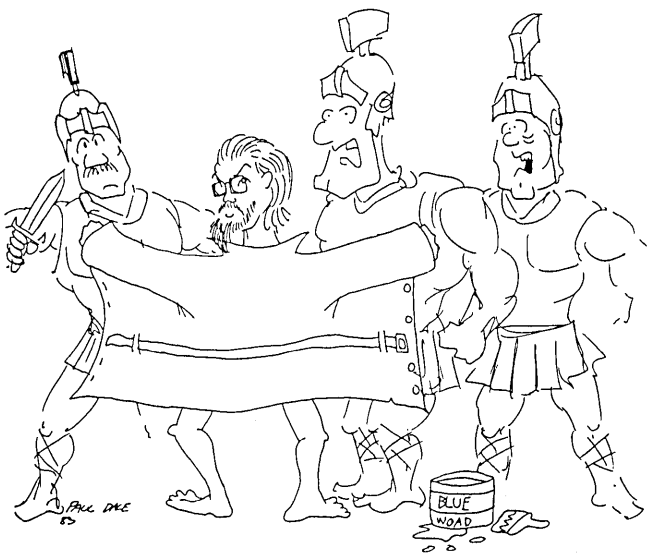
**REFERENCES.**


Keyfitz, N.,
1977 Applied Mathematical Demography. New York: Wiley.

Stewman, Shelby and Suresh L. Konda,
1983 Careers and organizational labor markets: Demographic models of organizational behavior. American Journal of Sociology, 88: 637-685.

White, Harrison C.,
1970 Chains of Opportunity: System Models of Mobility in Organizations. Cambridge, MA: Harvard University Press.


Copyright © 1985 by Arent Greve.




## AUTHOR OF THE BI-MONTH

**Bruce Gowens** is not really a computer person, he keeps insisting. He thinks of himself as something else, something grander. As an Advertising Photographer in New York City. As a Multi-Image Producer in California. As an artist, a genius, occasional poet, and a great philosopher. And not too shabby an Electrician.

Having tried and succeeded at all of the above, he is not attempting to be a great writer. That, he says, is a given, as soon as he finds a theme grand enough.

His especial expertise with Pearl, he says, is the outgrowth of a natural sense of logic ("Some people got rhythm, I got logic."), and the inability to speak anything but English and a high Appalachian dialect which may or may not be English. The strange and weird uses he claims, in his more sober moments, to have put Pearl to have attracted the attention of the FBI, CIA, IRS, IRA, WPA and vice squads of many nations.

In his more modest moods he may admit to playing around with Turbo Pascal, "but only for the money."

Any resemblance to the Historical Bruce Gowens (Hero of Grandiddle, 47 AD, who struck fear into Roman hearts by painting his body blue with woad) is purely coincidental, except through heredity, where he is a direct descendant on all five sides of his rather strange family.

He is on MOR's editorial council, where his opinions of submissions are invariably at variance with everyone else's (except, he says, those with good taste). He is hoping to be hooked by Starkissed. ■

Bruce Gowens will be writing a column devoted to Personal Pearl in coming issues of MOR. Send in your questions. [Authors! We invite you to send in your own eminent biography and photo, so that you , too, can be the Author of the Bi-Month. —Ed.]

# HANDICAPPED USERS AND THE MORROW

**by Hal Remmes**

Computers can often provide the severely disabled person with the ability to perform tasks which the able-bodied take for granted. Controlling the environment, for instance. Turning on lights, T.V., morning coffee, unlocking doors to admit visitors are simple tasks for a computer. Of course the computer needs external peripherals to do these tasks but, with the proper external devices, the computer can go a long way towards making the severely disabled person much more independent.

Computers can provide the means for the handicapped user to work from home. They can provide access to the office environment via telephone lines so that the mobility-impaired need not leave home to earn a decent living. Computers are "the great equalizer" for the handicapped.

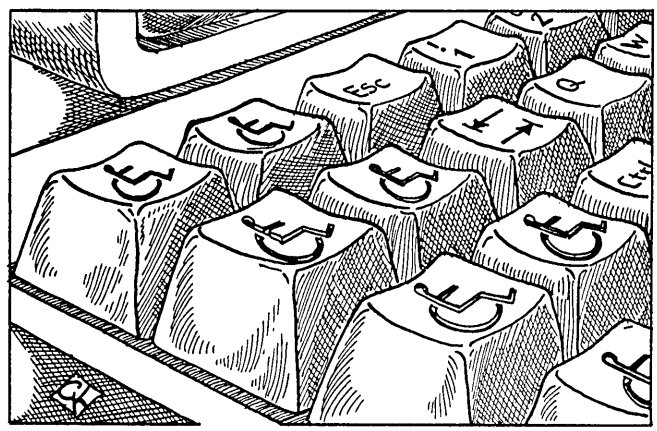
Is the Morrow a good choice for the handicapped user? Like anybody considering using a computer, the handicapped person must first ask to what purpose the computer will be put. But handicapped users must also take into consideration such things as whether or not they have the manual dexterity, visual acuity or even intellectual capacity to operate such a complex machine. If one is looking for exotic graphic displays to play arcade games for entertainment for the handicapped person, then Morrow is not a good choice. If, on the other hand, one just needs a good tool for writing and handling text, Morrow can be an excellent choice. Also, for a computer to be used as a means of allowing one to work from home via a modem, Morrow once again is a strong choice. For those with visual impairments, Morrow can be used with some programs, but many of the really "specialized" programs for those with visual problems have been written for other machines.

Another factor which the handicapped user must consider is ease of use. Many disabled persons must use up so much energy performing simple tasks that they are forced into doing tasks with the least possible expenditure of energy. Here again, Morrow comes through. The detachable keyboard with easily depressed keys, adjustable CRT, and ease of disk insertion make it a viable instrument for those with limited stamina.

Unlike using a typewriter, a computer program often requires multiple simultaneous keystrokes to accomplish a task. In other words, often two keys must be depressed at the same time. Sometimes these keys are at opposite ends of the keyboard, presenting a barrier to the one-handed user. Programs such as SmartKey II or Xtrakey allow one to re-program keys to perform multiple keystrokes, call up often used phrases with a single keystroke, re-assign most used keys to a more appropriate placement on the keyboard, and do many energy saving tasks. A keyboard enhancer is essential to those who have the use of only one hand and who want to use a sophisticated word processing program such as WordStar or NewWord. This is especially true of Morrow's least expensive machines since the function keys are not programmable.

Many disabled users have severe coordination problems which make it difficult to strike a single key. A keyguard is a device designed for this purpose. It is a piece of plastic or metal which is fastened over the keyboard. A hole is cut over each key making it necessary to insert a finger or pencil through the hole to depress a key. This prevents accidental striking of the wrong key. While they are not commercially available for most computers, there are groups which provide such adaptations at a nominal fee.

For those with more limited dexterity, there are vendors who will design special switches to replace keyboards, software, and controls. (We'll provide a sampling of these at the end of this article.)




Limited coordination and dexterity often go hand in hand with problems of speech. This is often true of those with cerebral palsy and other similar impairments. The Morrow works with many speech synthesizers, making it a marvelous tool for the speech impaired user.

Another consideration for the physically impaired user whose primary work for his computer will be word

---

**Hal Remmes** is the author of Computers: New Opportunities for the Disabled. He is a retired social worker and consumer advocate for the handicapped. His machine is a Morrow MD2.

## MORROW SOFTWARE

**MBACOUNT/$89.00:** Small business double entry accounting. Up to 40 asset, 40 liabilities, 40 income, 80 expense & 20 capital accounts user assignable. Prints checks, P & L, balance sheet, chart of accounts, single account details, check ledger, etc. Generates a printable detail journal for audit trail.

**A/R, A/P, PAYROLL INVENTORY:** These programs are available as either stand alone software or MBACOUNT integrated modules. Stand alone **$79.00 ea.** Integrated **$50.00 ea.**

**PROFBILL/$149.00:** Time keeping and billing for all professional people who bill at various hourly rates. Handles 400 clients, 10 partners/employees. Prints billings, statements, aged billings, partner/employee hours, etc. May be used stand alone or integrated with MBACOUNT.

**SBACOUNT/$79.00:** Small business single entry system. Up to 99 income and 99 expense categories, user assignable. Prints checks, P & L (month, quarter, YTD), single account details, check ledger. Generates a printable income/expense journal for audit trail.

**MAILLIST/$89.00:** Mailing list/filing program. 10 fields per record and up to 900 records per file, files limited only by disk space. Sort/print all or partial list by most fields on 1, 2, or 3 across labels on 80 col. printer. Search, add to, delete or edit by most fields.

**MBADATA/$89.00:** A data/base-filing system usable without learning any special language or control codes. Up to 253 characters, 24 fields, 900 records per file. Sort, print, display any fields in any location in any order desired. Menu driven with step by step prompts!

**STANFORM/$79.00:** Need to fill out pre-printed forms? Then this program was made for you! Generates programs for printing data in the proper location on any pre-printed form that will fit into your printer. Each form need be generated only once as it is saved on disk.

**$FINANCE/$79.00:** Personal finance, prints checks, posts to as many as 120 user assignable expense categories, posts checks & deposits, reconciles multiple checking accounts, etc. Similar program for up to 9 charge cards. Extracts/prints listings for various categories.

**TOUCHTYP/$49.00:** Parallels high school/college level touchtyping course. Displays typos, final score. Timed speed drill mode. Electronic typewriter mode converts your printer to a one line memory electronic typewriter with settable margins, tabs, line spacing, etc.

**MSBCHART/$49.00:** Prints alphabetized list of all variables & line numbers referenced in any program written in basic cross referenced to the line number where used. A godsend when writing or modifying basic programs.

Place your order or request **FREE** catalog by mail or if using COD or credit card, telephone anytime of the night or day. Add $3.00 shipping & $3.00 additional for COD. Shipment will be no later than next working day by 1st class mail. Californians must add 6% tax to prices.

**MAP Micro-Art Programmers**
173 Birch Avenue, Cayucos, CA 93430 Phone: (805) 995-2329



**Get the Proportional Printing Program which**

**REALLY WORKS!**

**PropStar** gives type-set quality true proportional spaced printing from unmodified NewWord and WordStar document files. Prints on daisy-wheel printers with ps type-wheels, including Diablo, Qume, NEC, Brother, C-Itoh, Juki, Silver-Reed & others.

**PropStar** is a stand-alone program, not a patch to your W.S. program, gives higher quality print than modified WordStar. **PropStar** follows the rules for typesetting, maintains correct spacing between letters, never crowds text in short lines or lines with many caps, offers continuous underline, and increases letter spacing in "bold" text to avoid run-together letters. **PropStar** doesn't move text from one line to another, so you get what you see on your w.p. screen, supports most W.S. and N.W. print features.

Available on more than 40 CP/M 8" & 5" formats including MD-2/3/11. MS-DOS version comes on 5" PC media. Only $ 79.95, Visa & M/C accepted, or send check with order and we pay postage. Comes fully pre-installed so specify computer and printer models.

CIVIL COMPUTING CORPORATION
2111 RESEARCH DRIVE, SUITE I
LIVERMORE, CALIFORNIA 94550
(415) 455-8086


processing is the number of disk drives. Of course the ideal solution would be a machine with a hard disk. Cost of such a machine by the average person is somewhat prohibitive. While the hard disk would probably be required in an office setting, for the home user a two disk drive is both affordable and sufficient. Having dual disk drives eliminates a great deal of disk swapping when running programs.

Programs such as spelling checkers, Random House Electronic Thesaurus, word count, etc. are available and can save the disabled user from looking through heavy books—a great saving in energy. Many of these programs have been written for CP/M and work well on the Morrow.

In assessing the value of the Morrow for the handicapped user, a few other points must be made.

Reliability is especially vital to the disabled user. Those handicapped who produce work from home, whether they work independently or for an employer, cannot afford to lose the income generated by their computer. In this respect the Morrow stands up to any computer on the market. Down time is minimized because the machine is well constructed. I've used mine for two and one half years and have not yet encountered a problem.

Ergonomics is another vital consideration. Placement of the various components so that they are most accessible can often determine whether or not a computer can be used by one with severe physical limitations. Morrow with its detachable keyboard, easily operated disk drive lock handles, adjustable CRT angle, and accessible contrast and reset controls makes it easy to configure one's setup to the most comfortable position. A negative factor is that the ON/OFF switches are located in the rear of all units. This is easily overcome by plugging all units into a power strip so that one switch controls everything.

Ease of use is yet another consideration which is doubly important to anyone with limitations. For some persons, turning the wrist is impossible. This means that opening and locking disk drives (on any computer) is a real problem. The handles of the Morrow disk drives can be modified simply by attaching a clothespin (the kind with the spring which keeps it closed) to the latch of the drive. Not only does this give added leverage, it gives a larger area to grasp for those with poor manual dexterity.

The keyboard for the Morrow is responsive and requires very little strength to operate. With sufficient space between keys it is ideally suited for those with limited hand use. The separate numeric keypad is a plus for handicapped and able-bodied alike.

The display of Morrow's CRT is clear and distinct and is usable by anyone with normal or near normal eyesight.

Availability of "specialized programs for the handicapped" forces us to take a long, hard look at the Morrow. While there are many programs written for CP/M machines, most of those designed specifically for the impaired user have been written for machines using other disk operating systems. Looking objectively at Morrow, we are forced to draw certain conclusions: 1) Not as many Morrows have been mass marketed as many less expensive machines. 2) Since there are more of the less expensive models in the marketplace, more specialized programs have been designed for these mass marketed products. 3) Yet, despite these facts, there are a significant number of Morrow compatible programs available to meet most needs of the professional or semi-professional handicapped user.

For the casual handicapped user or the severely disabled person who requires very specialized programs and adaptations to use a computer, Morrow is probably not the best machine. However, for the handicapped user who wants to do serious word processing, programming, environmental control, Morrow offers a fine computer at a competitive price.

As a freelance writer who has the use of only one hand I have found my Morrow to be a fine and reliable machine. I can spend 12 to 14 hours each day working with it without any undue fatigue or eyestrain. The programs I use save me many hours of what otherwise would be difficult work.

**RESOURCES**

There are some outstanding resources for handicapped persons who want to be a part of the world of computers.

**Coph-2,** 2030 West Irving Park Road, Chicago, IL 60618

Their staff of volunteers will work out problems such as adaptation of a keyboard, etc. A very nominal Annual Membership which entitles you to their crammed-full-of-information bulletin costs $8.00.

**Digital Equipment Corp.,** 146 Main Street, Maynard, MA 01754

Offers DECtalk: Text-to-speech synthesizer with voice inflection determined by punctuation. Very sophisticated and may be connected to most computers with a serial port. Cost: $4,000.00. That's a lot of money but it could give speech to the non-vocal user.

**Executive Distributors of America,** 15055 32 Mile Road, Romeo, MI 48065

TASH: Technical Aids and Systems for the Handicapped. Offers a wide variety of software, switches, controls, etc. for the handicapped user. Prices are moderate ranging from $160.00 to $250.00. Write for free catalog.

(continued on p. 42)

## SOFTWARE FOR THE VISUALLY IMPAIRED

Most persons familiar with computers would consider it essentially a visual medium. The display must be read, printouts must be read. While one could understand and accept the fact that accurate input could be done by a visually impaired touch typist, few would consider today's computer as an ideal instrument for the blind or those with limited vision. However, modern technology has developed hardware and software which allow the visually impaired user to do tasks which, only a few years ago, would have been thought to be impossible.

For those who have limited vision but who may not require elaborate technology, there is software to enlarge the letters on the CRT so that several large letters (or even one large letter) at a time fill the display. One such program is available for as little as $20.00.

Voice synthesizers make it possible to hear the data which appears on the screen. Some of these synthesizers are so sophisticated that voice inflection is determined by punctuation. This is neat since it makes what would otherwise be a monotone voice more interesting to listen to and gives the machine a more "human" quality. At present this kind of equipment is expensive (about $4000.00), but when measured against the productivity which it allows from a non-sighted person, the cost is a small consideration.

Electronic scanners make it possible for the blind individual to read a printed page and enter it into the computer. The information can then be read and synthesized just as if someone were reading the material to the operator.

Printers that can produce copy in braille are also now available, so that the blind person can "read" the copy independently. While such printers are not cheap, they are affordable and provide a real opportunity to allow the blind equal opportunity in the marketplace.

Many people mistakenly equate a physical handicap with some sort of intellectual inferiority, so options in the choice of career have been limited. Now, the computer with specialized peripherals can give those with vision impairments equal status with their sighted peers in the marketplace. No longer will blind persons be restricted to learning watch making or darkroom technology. Those responsible for counseling the blind or designing rehabilitation programs can encourage their clients to go into fields formerly closed to them, such as the sciences, accounting, teaching, programming, and hundreds of other fields.

If you know about a vision impaired person and want to know what is available in terms of specialized equipment, either write to the various manufacturers or contact Trace Center International Software/Hardware Registry at the University of Wisconsin. (See address and phone number on page 42.)

—Hal Remmes

# STILL WASTING TIME?

## With ShadowPrint, you could PRINT and do useful WORK, both at the SAME TIME.

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 (spooler). When you print something, from your word processor for example, ShadowPrint will quickly (and automatically) place your listing on disk and give control of your computer right back to you. You can then keep working on the machine (editing, for example), while the listing prints from disk in the background.

Are you looking for efficient background printing that won't slow your computer down? . . . Here it is !

ShadowPrint uses your computer heavily only during moments when your foreground work is idle, waiting for terminal or disk I/O. That means that when you're busy, ShadowPrint won't interfere. In addition, when you're printing off a file that's already on your disk, ShadowPrint can spool directly off of it.

Are you thinking about a hardware print buffer? . . . Why?

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 concerned about having to learn yet another new software product? Don't be. 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.

## Order ShadowPrint today, for just $49.95.

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

- - - -

## SOFTWARE REVIEW

| | |
|---|---|
| **PROGRAM:** | **VersaLedger II**<br>**VersaPayroll**<br>**VersaPayables**<br>**VersaReceivables**<br>**VersaInventory** |
| **VERSION TESTED:** | The CP/M Version for all Morrow Computers |
| **MANUFACTURER:** | H & E Computronics, Inc.<br>50 North Pascack Road<br>Spring Valley, NY 10977<br>(914) 425-1535 |
| **DISK SPACE:** | 64K |
| **PRICE:** | VersaLedger II $149<br>All others $99 |

**by Bill Roos**

Not too long ago I started looking for some type of bookkeeping system that was adaptable to several types of businesses. I am treasurer of my church, and church bookkeeping does not follow the usual types of small businesses. In addition, I do several different types of books as District Manager of H & R Block. One of the main criteria was versatility and low cost. It also had to be in CP/M for my Morrow MD3.

I was evaluating one real nice system until I was told it cost $595 per module, and that ended that. A couple of other systems didn't work out that well for the variety I needed. Then I tried VersaLedger II. This is the check register and general ledger program for CP/M computers by H & E Computronics, Inc.

All of their programs are written in MBasic and are run interpretively using MBASIC.COM. This came in handy when I booted up the program for the first time. Line 40 said to open "GLDATE.DAT"—except that this file wasn't on drive A. Once I edited line 40 to add "B:" before the file name, the program booted right up. Someone sharp in basic programming can easily adapt any of the Versa series programs to their own special needs.

A note of caution before you start. Bookkeeping programs such as this one assume that you have some basic accounting knowledge. You have to set up your own balance sheets and income statements and know double entry bookkeeping. While the Versa series has good menus and documentation, you should know general accounting to get maximum utilization of the programs. It is also handy when tracking down imbalances or entry errors.

**Bill Roos** is district manager for H & R Block in Missoula, Montana. He uses his MD3 extensivley for keeping church book as well as all kinds of data and wordprocessing for H & R Block and his wife's business as a realtor.

### VersaLedger II

VersaLedger II consists of two programs: a check register and the general ledger. You initialize the check register program by setting up the account number files, opening the current month's file and entering the current balance of the checkbook. Entering checks, deposits, etc. is very easy, and you can post checks to as many different accounts as you want. When you are satisfied that everything for that check is correct, it can be printed or written to the file without being printed. At the end of the month, you indicate which checks are outstanding to get the bank balance, and you can print an outstanding check report. It is possible to sort the check file five different ways, including by account number. This would give you total expenses paid in each account if you were not going to post to the GL. You can also keep a file of names and addresses which can be called up to address the check by just entering the vendor number.

The general ledger takes a while to get set up and functional. You have to set up all your accounts which must be the same as the check register accounts if you are going to post from it to the GL. Next you have to format the income statement and balance sheets. One of the parts I liked was that you can set these up any way you want. It is possible to have up to 99 departments on the income statement or balance sheet. This gives great flexibility in reporting but would take some time and experimenting in doing the formatting. You should print out the complete balance sheet, income statement and formatting files from the sample files that come with the program. This will help you understand the formatting process better. My recommendation would be to format a section and after running it either make corrections or add the next section. Then you don't have to wait so long in testing. Of course this needs some data entered, and you could enter some simple data that can used for testing.

After reports are formatted and files are set up, you can begin entering data. I used the double entry option where the system will not allow you to exit with an unbalanced entry. If you make an entry error and have an unbalanced journal entry, the only thing to do is to make an entry to balance the journal entry and then go back to find the error. When you find it, then make a correcting journal entry. I tried to edit a entry only to find out that the edited entry didn't print on the transaction register.

Be careful that you don't run out of memory in making journal entries. This can happen if you make each JE separately. It is best to lump them together, such as one credit to cash and the expenses debits on the other side. With a 64K RAM, there is only 26K after loading MBasic and the program.

Entries are quick and easy with VersaLedger II and it is no problem to edit accounts. While editing the

account balances does not leave an audit trail, it is handy to correct simple entry errors or to make direct entries for doing a quick balance sheet or "what-if" problems.

For $149, VersaLedger II is a good buy and is readily adaptable to all kinds of businesses.

**VersaPayroll**

Out of the five in the Versa series, the payroll program is the most fun to run and is the easiest to use. A church payroll really gives a system a good test and VersaPayroll passes with flying colors except in one area. There is no provision for items to be included in the paycheck that are not subject to withholding. After trying various ways, I think the best way would be to issue a separate check for reimbursements, etc.

Set up is really easy. This was the only payroll program I tested that had both the current federal and state withholding tables already entered. (Yes, all states! I could run a payroll for another state if necessary.) You would only need to set up any local tables. Employee files can be set up quickly and if you start in the middle of the year, you will need to enter the YTD data. Once payroll time comes, you have several options. You can do payrolls for various pay periods such as management checks on a semi-monthly basis. The payroll can be run automatically if everyone's data is the same each pay period, or you can edit each person's data to enter changeable items such as hours worked. As you complete each employee, the data is printed and you have the option of changing anything necessary and printing another report. Once you are satisfied, the checks can be printed.

One of the nice features is that you can use the same checks that are used in the check register program. Thus two types of checks are not necessary. You can also issue single checks if, for example, you needed to pay someone special. It is also possible to process the payroll without actually issuing the checks.

Once the payroll is processed, you can print a variety of reports. One of the small things I liked was that the payroll check list report fitted five employees per page. Most of the other programs I tested took a whole page per employee.

**VersaPayables**

The payables program is designed to keep track of invoices (called vouchers) and to permit you to pay specific invoices. As you set up the vendor file, you can select those vendors who are paid the same every month for automatic payment. At the end of the month, you generate a voucher for each of these vendors.


# THE 10-MINUTE 1040

## TAXWORKS™ Your Fastest, Easiest Tax Preparation Program

**GOODBYE TO SERVICE BUREAUS**
You'll save money if you're now using a service bureau. And instead of waiting for pickups and deliveries, you can run a return in 10 minutes at any time of day . . . or night. If you now prepare returns manually, TAXWORKS will turn out more returns in less time, with greater accuracy . . . and a lot less aggravation!

**EQUIPMENT REQUIRED**
Morrow Micro Decision,
MS-DOS or CP/M-80
Computers. 80
Column Printer

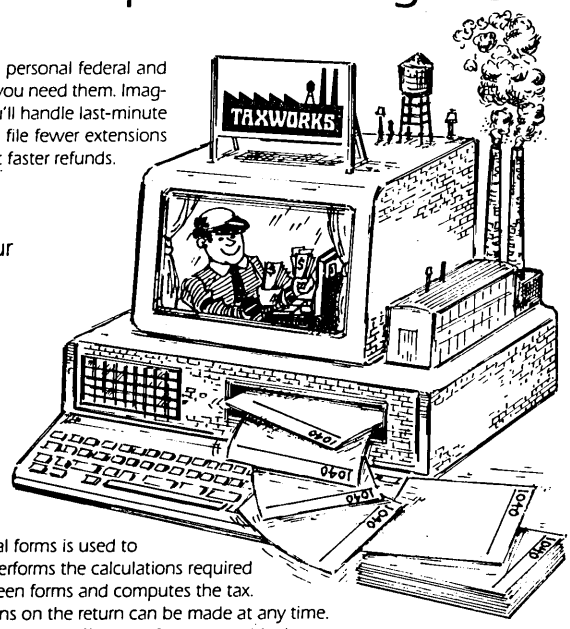
| | |
|---|---|
| **PROFESSIONAL** FEDERAL & CALIF. __ | $500. |
| **PROFESSIONAL** FEDERAL ONLY __ | $400. |

FEDERAL: 1040, A, B, C, D, E, G, W, SE, ES, 2106, 2210, 2441, 3903, 3468, 4562, 4797, 6251.

CALIFORNIA: 540, A, B, CEF, D-1, D-2, G, H, ES, 3805X, 3885, 5805.

**NO TURNAROUND TIME**
TAXWORKS gives you fast, accurate personal federal and California returns when and where you need them. Imagine what this will mean in April: you'll handle last-minute returns and changes on-time. You'll file fewer extensions and corrections. Your clients will get faster refunds.

- Complete Returns on Your Own Personal Computer — No Waiting Time!
- 10-Minute Entry 'Calculation, Print Out




**SIMPLE TO OPERATE**
A screen format similar to the official forms is used to enter tax data. The program then performs the calculations required on each form, transfers totals between forms and computes the tax. Corrections and last minute additions on the return can be made at any time. The completed tax return can be printed on official tax forms or on blank paper for xeroxing with plastic overlays included with the program.

FOR MORE INFORMATION, IN CALIF. CALL:
**1-800-232-"1040"**

TAXWORKS
**HOLLINGSWORTH**
**BUSINESS SERVICES**
881 Alma Real Dr. Suite T-2 Pacific Palisades, CA 90272
(213) 459-2746

After completing the vendor file, you would enter the invoices and/or credits according to the due date. When the end of the month comes, you can automatically select all vouchers to be paid according to the date due. This would also include the vouchers for those vendors selected for automatic payment. There is opportunity to change any of the vouchers selected or to add any outside of the selected dates.

You can also select vouchers manually. This is best done after printing an open voucher report which lists the open vouchers for each vendor and gives you the total cash required to pay all of them. After either automatic or manual voucher selection, you can then print the checks to pay them. I loaded up the same checks I used in the check register and payroll programs and discovered they would not work in the payables program. The manual called for the Rapidforms check #2847 which is what works in the other two programs. However, the instructions on the screen called for another check. The stub headings were printed over the preprinted data on check #2847. All the rest fit in the proper places. It would be nice if the same check worked in all the programs.

If you want to interface with VersaLedger II program, you would establish up to 50 accounts that you have in the GL program. When the check was printed, you would enter which accounts the check was to be posted to. When you ran the Post Payables selection, the expenses are posted to the GL accounts and the total is debited to accounts payable.

One of the unusual aspects (at least to me) is that the Aged Payables Report is aged forward rather than backward. In my September report where I had listed invoices from July, August and September, the printout shows the invoices with September due dates in the 1-30 column and all the older ones as being current. My accounting books don't mention this method, and a CPA I called wasn't familiar with it either. It will be interesting to see what happens as I continue aging in the next few months.

**VersaReceivables**

This is another easy program to work and can be updated in relatively short time. When setting up the customer file, you can specify a monthly charge, discount rate and tax rate. Once each customer is entered, you can begin entering data for purchases, etc. One of the nice features is that if you forget their account number, you can search the file using a key word. Believe me, this can be very handy. In setting up vendors in VersaPayable, I misspelled a vendor's name; since the vendors are called up by name rather than number, I couldn't get them out of the file. Payables doesn't have a vendor list per se unless you run the Vendor Data and Transaction Report. This is a rather lengthy report just to find a missing vendor. In receivables, you can run an Account Number List which gives you customer name and number, but you possibly won't want to run that every time you add a new customer or two.

VersaReceivables will print standard invoices and will interface with VersaInventory. Upon the completion of this procedure, VersaReceivables will automatically ""look up" an item number, fill in the selling price, extend the line total, deduct the items sold from the inventory and adjust the period-to-date and year-to-date sales totals. It will also interface with VersaLedger II, posting to three income accounts and seven other accounts that you specify.

When you set up the customer file, you can specify a standard monthly charge. If, for example, you have a service business where each month you bill a group of customers for "July Pool Cleaning," you can do this automatically by selecting the automatic billing procedure. You will enter the invoice description that will go on all the invoices and it will then print all the invoices. After all invoices, credits, adjustments, etc. are entered, you can then print statements for each customer.

There are numerous reports that you can run, including transaction reports, single and multi-line aging reports and mailing labels. You can run the Reconcile Customers Open Credits menu, and it will match all customers debits against their credits and delete any transactions that cancel each other out. This will free up additional disk space.

The only problem with VersaReceivables was that the version on the disk was somewhat newer than the instruction book, and there were several options on some of the menus that I didn't have instructions for. If one has time to play with the program to see what they will do, you can learn it that way. But I don't buy programs to experiment with them, and I feel instructions should match what is on the screen.

**VersaInventory**

This is a rather extensive inventory program and may be a little more detailed than necessary for a small retail business. Each inventory item has 23 items to be entered; it would be nice if you could delete some of them, such as location, weight and last delivery date. These might be fine for a bigger business but aren't necessary for a small sole proprietorship.

There is an invoicing menu which will let you prepare an invoice for a cash sale. You could also use it if you were invoicing a customer, providing you weren't using VersaReceivables. There are the usual functions you would find in an inventory program, such as entering non-invoiced sales, shipments of inventory items received, returned items, etc. Reports include Master Inventory Listing, Physical Inventory Report, Inventory Price List, Inventory Value Report, Items below reorder level and end of period reports.

**Overview**

In general, I feel that the Versa series programs are a good value for the price. It is a powerful

program that has the capacity of handling large businesses such as corporations but is versatile enough to be used on a small one person business. For the most part, the documentation is good and gives sufficient instructions to understand how it works. My one overall criticism would be that it would be nice if all the writers used the same format. For example, VersaPayables and VersaReceivables do not require the enter key to be hit when making selections from the menus or answering yes/no questions. In my mind, this makes them easier and faster to run. Why couldn't the others be the same? With the possible exception of the inventory program, none of the series required excessive entry data to set up the vendors, customers, employees, etc.

Setting up a business to run in this series and to get the maximum utilization from all the programs requires a lot of time. I had already been using VersaLedger II when I was asked to review the whole package. I had about 6 weeks. I used my church books to test the VersaLedger, payroll and payables and a new retail business on VersaLedger, receivables and inventory. Due to the short time, I was not able to get the retail business fully set up and to test all the interfacing between programs. To start any accounting package like this, you need to boot up the programs and run with some simple test data just to see what happens under various situations. This also tells you things you can and can't do that don't always show up in the instructions.

Then you need to develop the accounts, formats and data for your business. All the instruction books tell you to operate in a dual mode for about two months. I highly recommend this, but I also know that we aren't always going to have the time to do two sets of books. I was able to start the retail shop on the Versa series without keeping a paper set, but I can guarantee you that I spent some time learning.

If you are running all or some of the series for more than one business, you need to develop checklists of what to do and a space to enter when you did it. With both the church books and the retail business going together, I was having trouble remembering if and when I ran the end-of-period function for each of the programs. Because I was double checking everything by running reports and then verifying the data, it was sometimes one to two weeks before I would complete this process, and then I had trouble remembering if I closed the books for that period. I also spent a lot of time in the instruction books rereading the sequence of when to do the various steps. A simple checklist showing the sequence of what to do each period and a place to check that you did it would be very helpful. You might even place a page number of where to find that topic in the instruction book.

Happy bookkeeping with the Versa Series! ◘


# LOANTRK© AND TIMETRK©

## GO "HAND AND HAND" WITH YOUR SYSTEM

*LOANTRK©*
***MENU DRIVEN, NEW, FAST, the help you need to deal with loans, leases, and almost any question about borrowing or the value of money. Computes: APR, Payments, length of loan, amount of loan, future value of money and will print a loan repayment schedule. Whether you are a professional money manager, accountant, realtor or just someone who needs financial information – you need LOANTRK. $49.95 + $3.05 shipping & handling.***

*TIMETRK©*
***The law may change from time-to-time, but the IRS will always be there, AND they will want to see your records to substantiate your deductions. USE TIMETRK to keep a record of your computer usage. Provides total use, business use, both as totals and business use as a percentage of total. $29.95 + $3.05 shipping & handling.***

**FINANCIAL TRACK SYSTEMS INC.**
**9208 GUTIERREZ NE**
**ALBUQUERQUE, NM 87111**

**(505) 243-8975**
**7 DAY/24 HOUR ANSWERING SERVICE**

VISA AND MASTERCHARGE, CHECKS, MONEY ORDERS
DEALER INQUIRIES WELCOME

*BARGAIN CORNER*
*Get both*
*LOANTRK & TIMETRK*
*FOR*
**$69.95**
PLUS $3.05 shipping.

## SOFTWARE REVIEW

| | |
|---|---|
| **PACKAGE:** | **Accounting for Micros** |
| **PROGRAMS TESTED:** | Accounts Payable and Payroll for Morrow MD |
| **AUTHORS:** | James River Group, Inc. |
| **MANUFACTURER:** | James River Group, Inc.<br>125 N. First St.<br>Minneapolis, MN 55401<br>(612) 339-2521 |
| **DISK SPACE:** | Accounts Payable:<br>Program Disk 130K<br>Payroll:<br>Program Disk 172K |
| **PRICE:** | $125 each |

**by Marsha McGough**

When I first decided it was time to switch the bookkeeping for my husband's and my general contracting business over from paper to computer, I was amazed and discouraged at the lack of information available about low-budget accounting packages that would work on my Morrow MD2. Everyone seemed to know about VersaLedger (which wasn't suited to my needs), and that was it. Dealers told me there just was nothing else for the Morrow. Nearly everyone I talked to dismissed the idea of trying to do business accounting on an MD2 at all. "You really have to have a hard disk," was the consensus. Financially, that was not an option for me, and I refused to believe there was no way to do it on my MD2.

The one package I saw advertised that looked as though it might be satisfactory was James River Group's ACCOUNTING FOR MICROS. After learning that they offered a 30-day moneyback guarantee, I decided to take the plunge and purchased three modules (General Ledger, Accounts Payable and Payroll) for $325.00.

Since ACCOUNTING FOR MICROS' General Ledger module was reviewed in the last issue of MOR (Oct/Nov 1985, Vol. 2, #5, p. 49) I will deal only with Accounts Payable and Payroll. I would only note that I have been happy with the General Ledger module.

I have now been using ACCOUNTING FOR MICROS for all of our business accounting for six months. On the whole, I am very satisfied with the package and am pleasantly surprised at its capabilities. However, I have had some complaints, ranging from the petty to the truly aggravating.

---

**Marsha McGough** uses an MD2 with WordStar, LogiCalc and "Accounting for Micros" in her general contracting business. She also loves to play with her computer and is Vice-Chair of the Seattle Morrow Users' Group. She is the mother of two small boys [one of them born while Marsha was working on this article! —Ed.].

Jim Hillegass of James River Group read my first draft of this review. ["She nailed us in all the right places," Jim told MOR. —Ed.] While the article was in its final stages, I began receiving updated versions of the programs and manual, correcting some of my former complaints. Those of you who have purchased ACCOUNTING FOR MICROS before November 1985 will find value in my criticisms, and I've noted the areas that have been corrected in later versions. If you are considering purchasing the package, I'd recommend that you be sure to get hold of the most recent version. In my review, references to the new Version 2 are underlined to distinguish them from comments on the Version 1 originally worked with.

### Overview

I found the version of the manual I was using clear and easy to follow, with a few exceptions. The revised edition seems to take care of those problems. Interaction between modules (posting) is simple and efficient, but the old manual completely overlooked telling you how to do it. The revised manual now has a detailed section on interaction.

Each module offers a choice of several reports; you may choose to have reports unsorted, sorted by account number, sorted by date or employee (Payroll only) or sorted by reference number.

The reference number is one of the better features of this package. It allows you to label transactions with a job number, employee number, store number, etc. With a Journal Report sorted by reference number, you can see the expenses and income generated by each of these. However, of the three modules I use, only General Ledger allows a single transaction to be split between several reference numbers. Payroll and Accounts Payable allow entry of only one reference number per transaction. (Note: the use of the reference number here should not be confused with the account number. You are allowed to split a transaction between any number of accounts in all modules.)

### Accounts Payable

ACCOUNTING FOR MICROS' Accounts Payable module has four main sections: Invoice Entry, Computer Check Entry, Hand Check Entry, and Check and Report Printing. Invoices are entered when received. You may then pay invoices either by computer check or by hand written check, entering your payment under the appropriate section. Then you switch to the check printing section and give instructions for printing the checks.

Reports available under Accounts Payable include a Vendor Report, listing all invoices and payments made to vendors during the month; a Check Register, listing checks paid; and a Journal Report of all Accounts Payable entries, sorted either by account number or reference number. Version 2 adds a Due Date Report.

Accounts Payable allows you to enter vendor information (name, address, etc.) once and thereafter

to call up information about that vendor by entering just the first five letter of the vendor's name. It allows the entry of a discount available if an invoice is paid by a certain date, then automatically deducts that discount from the check if the invoice is paid by the due date, or ignores it if the invoice is paid on a later date.

The Accounts Payable module I've been working with is the weakest of the three modules I purchased. The first version I received had several serious problems, but recent updates have corrected many of these. The following list of first-version complaints also notes which items have been improved.

- There are no invoice due dates on Vendor Reports. When entering an invoice, you are asked for the due date, but this information is used only in determining whether you are entitled to a discount when the invoice is paid. In no place, either on screen or in the report, does that due date appear again. This oversight continues to amaze me. The latest revision addresses this problem with a new "Due Date Report." Payables are listed for any period you specify, with daily and period totals. I still would like to see the due date onscreen as well, but the "Due Date Report" is a satisfactory compromise.

- Entering multiple invoices from one vendor is awkward. After a single invoice is entered, you are automatically returned to vendor selection. You must hit "Return" to call up the vendor again, and approve the vendor information before continuing. This is fine when entering invoices singly but is less convenient when entering in batches. Worse, this method of hitting "Return" is never mentioned in the manual. For months I entered the vendor's name over and over again, until a complaint to James River Group brought the answer: "Just hit Return." They agreed this should be covered in the manual.

- Entering, paying and printing one check is time-consuming. Each function is done under a different program, and switching from one to the next is slow. The new version has a "Quick Invoice Entry and Payment" section that solves this problem.

- Negative invoice amount (credit) treated as a zero. The credit is not subtracted from the total amount owed the vendor. To make a payment for several invoices, less the credit amount, you must deduct the credit amount from one of the other invoices. Then the program thinks that that invoice has never been fully paid, so it continues to appear on your vendor reports indefinitely. (In the new version, identical positive and negative amounts cancel each other at the end of the month.)

- There is no printer pause or check reprint feature. When printing checks, you are given only one chance to correct alignment of checks in the printer. After that, all checks are printed, without pause. You must use your printer on-line switch to stop the printer for adjustments. If the checks still do not come out as you like, your only recourse is to write them out by hand. The program will not allow you to reprint them.

- Checks lined up perfectly for Accounts Payable are not quite right for payroll.

- Space for "Invoice Number" is too small. The program won't accomodate invoice numbers longer than 9 characters, but it doesn't tell you that. It will accept whatever you enter, then just chops it off when printing the invoice number on the check.

- There is no way to scan vendors to see what is owed. You must print a Vendor report or call up each vendor individually on screen. An onscreen list of payables, either by vendor or by due date, would be nice.

- Checks cannot be split between two or more reference numbers. A new Job Costing module now available from James River Group will allow this breakdown.

- Vendor Reports lists only those invoices entered under "Invoice Entry." It ignores invoices entered directly under "Computer/Hand Check Entry." Invoices entered under the new "Quick Invoice Entry and Payment" are included in the Vendor Report.


**QUICK CHECK from Chuck Atkinson!**

The greatest checkbook and money management program in the world for individuals, small businesses, and professional people!

Prices Start at **$49.95!**

**Visit us at Comdex, Nov. 20-24**

*"Chuck Atkinson has this habit of designing software for people instead of computers. His **QUICK CHECK** lets anyone become an almost-accountant, even with no experience in computers or accountancy."*

Peter McWilliams, author and syndicated columnist.

| | |
|---|---|
| **QUICK CHECK** makes checkbook management easy | **$ 49.95** |
| **QUICK CHECK** with accounts payable | **$ 95.00** |
| **QUICK CHECK PLUS** with accounts payable and accounts receivable | **$195.00** |

Buy **QUICK CHECK** at fine computer and software stores.
Call for the name of your nearest dealer.

**CHUCK ATKINSON PROGRAMS**
Lake Benbrook Drive
Fort Worth, TX 76126-9990
**(817) 249-0166**

- Promotional material boasts an "Onscreen Journal Report" which in reality does not exist.

- Vendor names with the same first five letters are handled awkwardly. They are filed under the same code, and when you enter those five letters you are asked to approve or disapprove of whichever vendor name appears on the screen. This can be very time consuming. An option to allow you to code your vendors as you wish would be a better solution.

- Manual does not explain how to post to General Ledger. It is automatically done when you end the month, but it took me awhile to figure this out! The manual for Version 2 does explain this thoroughly.

- There seem to be a few bugs in the program. Once it refused to print a check, behaving as though it had already printed it. Several times it "forgot" part of what it had been told in the installation, such as starting check number or specifications for interaction with other modules.

In view of these problems with my first version of Accounts Payable, I hesitate slightly to recommend that module on its own merits. However, it works well with the other modules and the total package is quite satisfactory, especially considering the price. Again, I would recommend that anyone buying the package be sure to get Version 2.

**Payroll**

ACCOUNTING FOR MICROS' Payroll module is a joy to use. The initial setup takes time, but once that is done, Payroll is amazingly easy!

The initial Payroll setup includes the entering of employee information such as name, address, Social Security number, marital status, unit of payment (hour, month, etc.) and rate. Then you must enter payroll deductions and other payroll taxes. These are categorized as "Active" and "Passive" deductions, with active deductions being those that are withheld from the employee's paycheck, and passive deductions being those that the employer incurs from the payroll. The active deductions are automatically deducted from the paychecks, then posted to the appropriate liability account. The passive deductions are neither withheld nor posted, but are tallied and printed under their appropriate headings on the employee reports.

It is also necessary to provide the computer with the information it needs to make its calculations; i.e., whether the deduction or tax will be a certain percentage of the employee's gross pay, a dollar amount per employee hour, a percentage of some other deduction, or an amount taken from a table, as in the case of Federal Withholding. The Withholding tables may be entered by hand or they may be purchased from James River Group for $25.00.

Once the above information has been entered for each employee, all you need do at payday is to enter the first five letters of the employee's name and the number of units (hours, weeks, etc.) worked. The computer does the rest. Taxes are figured and withheld and the checks (with stubs) are printed. I would estimate that this takes one to two minutes per employee. What a breeze!

In contrast to Accounts Payable, Payroll pauses several times for printer adjustments, and allows the reprinting of checks that have been improperly printed.

At any time it is easy to print a complete employee report showing wages paid and taxes incurred and withheld during any period specified.

The few problems I see with my version of Payroll follow. Again, some of these have been corrected in the latest version.

- Checks cannot be split between two reference numbers. This will be possible with the new Job Costing module.

- No maximum taxable amount is allowed for deductions other than FICA. The new version allows maximum amounts for all deductions.

- Wages paid may be categorized as "Taxable" or "Nontaxable," but no other categorizations are possible.

- Only two decimal points are displayed in deduction amounts. I discovered that the program actually stores and uses more than two decimal points, but it threw me off when it would display only two.

- State, locality and employee type are alluded to, but never fully explained. These are explained in the manual for Version 2.

In conclusion, while James River Group's Accounts Payable module has had some problems, I still feel that their ACCOUNTING FOR MICROS package is a good value. At $325.00 for three modules ($465.00 for all five modules—Accounts Receivable and Inventory are also available), this package does everything a small business like ours needs. It proves that those people who still insist "you've got to have a hard disk to do accounting" are wrong! I'm very pleased with the accounting I can do with my Morrow MD2 and $325.00 worth of software from James River Group. ■


**SPECIAL CREDITS**

| | |
|---|---|
| Front cover illustration | — George Kapus |
| adapted for design | — Augusta Lucas-Andreae |
| Front cover design | — Augusta Lucas-Andreae |
| Cartoon on page 38 | — Paul Dale |
| Drawing on page 39 | — George Kapus |
| Morrow Liaison | — John Seamster |
| Special Editorial Assistance | — Carolyn Shaffer |

# NEW SOFTWARE ANNOUNCEMENTS

**by Humungus**

(We have not yet had time to test and review the following products, but we print this list in case any of our readers have an immediate need that might be satisfied by it. The descriptions are those of the software publisher or manufacturer, edited only to save space, and MOR makes no representation as to their accuracy or the utility of the products. In all cases we note that the publishers and manufacturers say the same thing.)

**TURBO BASIC** ver. 1.0 by QuickAndDirty Software, Mike's Pass, MA 02936 $15.00 (plus disk @ $30.00).

TURBO BASIC is not only the fastest Basic ever released, it is the quickest to learn, requires less memory than any other BASIC and at $15.00 is the cheapest BASIC ever sold. TURBO BASIC gained its incredible speed and low memory requirements by stripping BASIC down to the basic essential: GOTO commands. GOTO commands are not only easy to learn, TURBO BASIC can GOTO any line!

Soon to be released will be version 1.1, which will permit entering line numbers and, for expert users, version 1.2 which will also include the ability to use "=". Planned for future release is TURBO BASIC 2000, which will include "if..then" statements.

**INLINE** by Functional Utilities, Inc., Scotts Retreat, AZ 77893 $250.00.

INLINE is a text file formatter that finally gets rid of "left hand mess" by reading a file and deleting all spaces and tabs between the left hand margin and the text. It is particularly effective for outlines and Pascal source code.

**MAINFRAME EMULATOR** and **FRONT PANEL EMULATOR** by Nostalgia Computing, Armonk, NY 10198 $899.99 each.

Nostalgia Computing has just announced two new programs for microcomputers that bring back the excitement and thrill of the pioneering days of data processing.

MAINFRAME EMULATOR turns your micro into an imitation mainframe computer. Just like the large mainframes of yesterday, your micro can now refuse to do anything except batch process, read punch cards (reader extra), and deliver results in a week. For the joy of the past, when the computer was king and the data manager had real power, you need Mainframe Emulator! (20 x 10 ft front panel mock-up optional.)

FRONT PANEL EMULATOR (not a mock-up) turns your ordinary CRT into a simulated computer front panel. Each blinking pixel on your screen is a genuine representation of the front panel LED's of a real computer at work, just like the good old days before CRT's when programmers could really program and high level sissy languages weren't needed. FRONT PANEL EMULATOR also does away with the frilly letters on the keyboard, turning them into real toggle switches so that you can direct programs the way the machine wants you to. Now you can put real programming skills to work again and forget all those young upstarts out there who don't really know anything.

**SEER,** an optical character reader from Merlin's Closit, Marin Mill Vale, CA 95876 $6.00.

SEER is an optical character reader that can interpret palms, bumps on the head (provided that the head is shaven) or cards (either standard or Tarot deck) and provide a very flattering analysis of your character. Instructions for making the simple hardware from common everyday items found around the house are included with the software.

The secret algorithm for Seer has been handed down through the ages from before even the ancient Egyptians and has for the first time been incorporated in a computer program.

Group licenses can be arranged for discount sales by publications such as this one.

**HUMUNGUS** by the Joe Hack One-Line Factory.

HUMUNGUS, which apparently gets its name from combining the words "humor" and "fungus," is the first semi-intelligent writing program. The JHOLF has taken a new departure in software marketing, choosing not to market the software itself (of which there is only one copy, which is copy protected with a scheme that destroys the program if copying is attempted; there are no backups), but rather to market the results of the program.

As a matter of fact, Humungus wrote this entire column. ■

---

[Humungus will respond to any mail addressed to him c/o MOR. —Ed.]

# TECHNICAL MANUALS AND SCHEMATICS

## The MOR Manual

**by Sypko Andreae**

To help you get proper repair and maintenance support in the future, MOR will soon publish the **MOR Manuals,** a set of technical manuals and schematics for the Micro Decision series. Buying the MOR Manuals is like buying insurance for that unlucky day when you need your computer repaired and you have no factory-organized network of dealers to call on.

Since we mentioned in a previous issue of MOR that such manuals might become available, we have received scores of questions from readers. Here are a few answers.

(1) The MOR Manuals are meant for all, not just for the technically adept willing and able to repair their own MDs. If you are a non-technical Morrow user with no Morrow-oriented technical support nearby, you can use these manuals to arrange repair of your machine at your local electronic repair shop. It would help if the shop specialized in personal computers.

(2) The set of manuals will be available around the first of the year and, yes, you can order now. Copy the order form on the next page and mail it to us with your check, payable to MOR, or your VISA or MasterCharge number with expiration date and signature. Sorry, there is no "bill me later" option available.

(3) The set of MOR Manuals currently consists of nine separate sections. More sections will become available later. You can order sections singly or purchase, at a much-reduced price, the complete set. Because the contents of the MOR Manuals are copyrighted, you may not copy any part of the set by any means. All prices include shipping and handling.

| | |
|---|---|
| 1. Micro Decision Service Guide with 11x15" schematics: | |
| - MD Rev. 1.1 | |
| - MD Rev. 2.0 KOREA Board | |
| - MD Rev. 2.0 KOHJINSHA Board | |
| - MD Rev 2.0 Technical Information Supplement | $25 |
| 2. Diagnostic II User's Manual, and diagnostic floppies, for floppy and hard disk system | $25 |
| 3. Hard Disk MD Service Guide (+ schematics) | $25 |
| 4. SA 200 Shugart Mini Floppy Drive Service Manual | $15 |
| 5. SA 455/465 Shugart Mini Floppy Drive Service Manual and schematics with parts list | $15 |
| 6. MDT20 Terminal Reference Guide | $10 |
| 7. MDT50 Video Terminal Service Manual | $10 |
| 8. MDT60 Video Terminal Service Manual with MDT70 Video Terminal Drawings Supplement | $15 |
| 9. David Block's MD Q & A book, unrevised | $ 6 |

(4) The MOR Manuals will be printed on sturdy, three-holed paper so they can be stored in a 3-ring binder (not included). They will be shipped looseleaf, possibly in shrink wrap. The complete set of MOR Manuals will contain about 400 pages of information and will cost $80.

(5) The first print run will be a limited one. If you order now, you are likely to get your copy by mid-January. If you wait too long, you will not receive your order until after the second printing.

(6) Just because we publish the MOR Manuals does not mean we can answer your technical questions. Most of the MOR staff have only the dimmest idea of what the manuals mean. Please do not call with such questions. We can only answer queries regarding orders.

(7) We are still working with Morrow, Inc. to obtain parts lists for the Micro Decisions and source listings of the latest versions of ROMs and BIOS for each model. We are looking into making available kits that would enable you to update your machine yourself with the latest version ROM chip.

If you want to add extra peripherals or use software that has been recently written, you should first update the ROM and BIOS—that's part of CP/M—of your machine. A future MOR Manual will include instructions for doing this.

We know lots of you are confused by Revision (Rev.) numbers. They exist not only for the ROM and the BIOS but also for the printed circuit board inside your computer—variously called a PC board or a mother board. To find this number, you may have to open your machine. But before ripping into it, read Brian Leyton's article "How to tell what MD you have" in MOR, Vol. 1, #4, October 1984, p. 26.

You can check the Rev. number of your ROM by resetting your machine and watching the first line. To find out the Rev. number of your BIOS, look down a couple of lines to the one reading: "CP/M Vers. 2.2 — Rev. x.x." That "x.x" could be 1.5, 2.3, etc.

Here are the latest ROM and BIOS revisions by machine:

| Computer/PC Board | ROM Rev. | BIOS Rev. |
|---|---|---|
| Rev. 1.1 any MD | 1.3 | 1.6 |
| Rev. 2.0 MD2 | 2.5 | 2.3 |
| Rev. 2.0 MD3 | 3.1 | 3.1 |
| Any hard-disk MD | 1.9 | 2.0 |

Many thanks to Tony Adams, Howard Fullmer, Stephanie Owen and John Seamster—all of Morrow, Inc.—for digging out and making available to us this vital body of information.

✂ Please cut on the dotted line. ✂

ORDER FORM FOR MOR PUBLIC DOMAIN DISKETTES

NAME: _____

PHONE: (_____) _____ - _____ ID #: _____ *

ADDRESS: _____

CITY: _____ ZIP: _____

Please send me the following MOR-PD diskettes:

FLOB/AUG85
- ☐ Disk 1 (CHECKWS.COM -> NSWP207.COM)
- ☐ Disk 2 (OUTLINE.DOC -> WSENV.LBR)

FLOB/OCT85
- ☐ Disk 1 (-DBASCMD.DOC -> DELETE.CMD, INVEN.CMD -> ORDERS.FMT, PHONE.CMD -> REPEAT.CMD)
- ☐ Disk 2 ( DU-V86.DOC -> FBAD57.NOT, PCEXPORT.COM -> PCSORT.COM, UNERA.COM -> XDIR.NOT)

FLOB/DEC85
- ☐ Disk 1 (see next column)
- ☐ Disk 2 (see next column)

☐ I enclose a check or money order for a total of $_____ (U.S.) for _____ disks at $8.00 each.

To: MOR, PO Box 5487, Berkeley, CA 94705, Attn: MORPD

* ID # precedes expiration date on your mailing label.

ORDER FORM FOR MOR MANUALS

NAME: _____

PHONE: (_____) _____ - _____ ID #: _____ *

ADDRESS: _____

CITY: _____ ZIP: _____

☐ Please send me the complete MOR Manual for $80.00.

☐ Please send me the MOR Manual sections circled below.

CIRCLE TO ORDER: 1 2 3 4 5 6 7 8 9

(For prices and other details see page 51.)

I want _____ manual sections for a total of $_____

Total amount: $_____(U.S.)

☐ Check or Money Order ☐ MasterCard ☐ Visa

Account # _____

Exp. date _____ Signature _____

To: MOR, PO Box 5487, Berkeley, CA 94705, Attn: Manual

* ID # precedes expiration date on your mailing label.

# MOR PUBLIC DOMAIN DISKETTES

### by Sypko Andreae

Our "Floppy of the Bi-Month," a diskette containing programs and other files loosely associated with the contents of the current MOR issue, has proved an overwhelming success. But we have learned that our original ordering procedure—which entailed sending a blank floppy along with the request—just didn't work. Blank floppies spilled out of our P.O. box, and overseas readers loudly complained about having to go through customs to get the floppies to us! So, we've changed the procedure.

**PLEASE DO NOT SEND ANY MORE FLOPPIES!!**

Instead, use the order form on this page and include a check for the total amount ordered ($8.00 per floppy). MOR now provides floppies, mailers and postage. All floppies will be single sided so everybody can read them.

Many have requested public domain software not included on the FLOBs. To bring you this, we've instituted the **MOR PUBLIC DOMAIN DISKETTES** (MOR-PD). These include all currently available FLOBs—six so far—as well as many other PD diskettes. To obtain a directory of what's available, send a self-addressed, stamped envelope (SASE) to MOR, attn: MOR-PD. ■

### FLOB/DEC85: Creative Uses and Games

```
---------- FLOB/DEC85 DISK #1 ----------
ABC      .COM  See BLOCK LETTERS FOR TODDLERS by Bob Lee p. 12
ABC      .DOC  Documentation for above
ABCMSG   .COM  Variant to ABC program: Block letters on printer
ABCPRN   .COM  Another ABC variant: Print banners on printer
ANIMAL2  .COM  Arent Greve's Animal game; see p. 30
ANIMAL2  .PAS  Turbo Pascal source code for the above
ANIMALS  .DAT  Collection of animals for above (like a zoo)
ANIMALS  .DOC  Instructions about how to run ANIMAL2
BASGAMES.DOC  Read this first for all .BAS files, except LIFE.BAS
BOMBER   .BAS  MBASIC game file to be used with GAMENU.BAS
BUG      .BAS  MBASIC game file to be used with GAMENU.BAS
CHASE    .BAS  MBASIC game file to be used with GAMENU.BAS
CRAPS    .BAS  MBASIC game file to be used with GAMENU.BAS
CUBE     .BAS  MBASIC game file to be used with GAMENU.BAS
DVDRILL  .TXT  DVORAK keyboard drill.  See DVORAK articles
DVLESSON.TXT  More DVORAK keyboard lessons
FISHING  .BAS  MBASIC game file to be used with GAMENU.BAS
GAMENU   .BAS  This is the .BAS to call the other MBASIC games with
KING     .BAS  MBASIC game file to be used with GAMENU.BAS
LUNAR    .BAS  MBASIC game file to be used with GAMENU.BAS
POKER    .BAS  MBASIC game file to be used with GAMENU.BAS

---------- FLOB/DEC85  DISK #2 ----------
MOBILITY.COM  See "Simulating Labor Turnover..." by Arent Greve p. 35
MOBILITY.DOC  Documentation and instructions for the above
MOBILITY.PAS  Turbo Pascal source code for the above
SIMULA1  .AP1  Appendix to "Simulating Labor Turnover..." on p. 25
SIMULA2  .AP2  Appendix to "Simulating Labor Turnover..." on p. 25
LIFE     .BAS  See "Conway's game of life" by Carlson Wilson on p. 23
LIFE     .DOC  Documentation and instructions for the above
SUPERLIF.000  Overlay file belonging to the next file:
SUPERLIF.COM  Full fledged Game of Life, Carson Wilson, p. 48
SUPERLIF.DOC  Documentation and instructions for the above
SUPERLIF.LBR  Library of data files for the above (use NULU)
TURNOVER.COM  Game from "Simulating Labor Turnover..." on p. 25
TURNOVER.DOC  Documentation and instructions for the above
TURNOVER.INN  Input file for the above program
TURNOVER.PAS  Turbo Pascal source code for the above
```

# IMPORTANT ANNOUNCEMENTS

### List of Morrow Users' Groups

The listing of MUGs planned for this issue has been postponed to the next because of lack of information. Perhaps the mail delays gave most of you too little time to get your information in. Thanks to all who responded. If you have not sent in your MUG listing, please do so by January 1 for inclusion in the February/March 1986 issue of MOR. We need:

—Name of MUG
—Address with Zipcode
—Phone number
—Name of contact person.

### Micro Decision Q & A book to be revised

This 61-page booklet of questions and answers, written by Dave Block in January 1984, is available in its original, unrevised version for $5.00, as part of the MOR Manuals. (See page 51.)

MOR is looking for technically adept readers willing to help revise this dated but valuable book. We'd like you to research and rewrite several sections. If you are interested, order this booklet and send MOR a letter, attention: Q&A REVISION, describing your qualifications. If you make a substantial and valuable contribution to the revised edition, your reward will be your choice of any one section of the MOR manual for free.

Floppies of the Bi-Month (FLOBs) will, from now on, be distributed as part of the MOR Public Domain (PD) diskettes (see page 52). If you have programs or other interesting files to contribute, please put them on a floppy, with a letter detailing the contents, and send to MOR, attention: MOR-PD. Only documented programs will be accepted. Use the customary .DOC file. If your contribution is substantial, original and judged worthy of inclusion, we will reward you with a free MOR-PD diskette of your choice, and we'll keep the floppy you sent us. Otherwise, we will return your floppy within a month. Fair enough?

### QUEST, anyone?

In the October/November issue of MOR (Vol. 2, #5), we printed a phone number you could call for help with QUEST. Commercial Software Associates no longer provides such user support. For a registration fee of $37.50, however, the firm will provide the code you need to unlock the full capabilities of QUEST. This is all they are prepared to do. Write them at: 30 Professional Center Pkwy., San Rafael, CA 94903; or, P.O. Box 2458, Novato, CA 94948.

As far as MOR knows, no firm provides support for users of the CP/M version of QUEST at this time. If you know of any support for QUEST, please drop us a note. If you are interested in starting a QUEST Special Interest Group, we will help as much as we can. Write MOR, attention: QUEST.

### Morrow-oriented BBS listing

We announced in the October/November MOR, (Vol. 2, #5 p. 32) that Cliff Henthorne planned to compile a list of Morrow-oriented Electronic Bulletin Board Systems (BBSs). We've since lost contact with Cliff and found all his listed phone numbers disconnected. Are you okay, Cliff?

If you know about a Morrow-oriented BBS, please mail all the information you have on it to MOR, PO Box 5487, Berkeley, CA 94705, attention: BBS LIST.

### Typing programs to be reviewed

We have three touch-type self-teaching programs ready to be reviewed. We figure that the best approach would be a comparative review—but once you've learned to touch-type even slightly, you're not a valid tester for another program. So, potential reviewers of these programs must satisfy the following criteria: (1) able to write well but unable to touch-type, (2) willing to learn to touch-type using one of the programs, (3) part of a family or group of friends with at least two other members of equivalent intelligence also lacking in touch-type skills and willing to learn to touch-type using different programs, (4) committed to writing a review that compares all three touch-type teaching programs. If you qualify, write us (don't type), attention: TOUCH-TYPE. Please include a sample of your written work (published or unpublished). Readable longhand is okay.

### Changes in the MOR Council

Due to an overwhelming workload, Art Zemon, the celebrated writer of our INSIGHT column, had to resign from the MOR Council and discontinue his column. Art's beginner-oriented column helped many a novice over the first obstacles to computer bliss. Thank you, Art, for a splendid job. We will sorely miss you. And a big welcome to Bill Steele, the Council's newest member, who is taking over the Mailbox Column.

### We need a column for beginners

Although our readers' community counts fewer and fewer beginners, we still have many among us. If you feel moved to write a beginners' column, please send us a proposal and a sample of your writing. Write MOR, attention: Managing Editor.

### New office hours for Subscription Coordinator

With the Semester change at UC Berkeley, the office hours of our Subscription Coordinator Margo DeMello have also been changed. As of January 1986, Margo can be reached during these hours:

**MWF 11:30am-5:30pm (PST)**

**JACOBS COMPUTER SERVICES CLASSIFIEDS**

P.O. Box 415
Pinole, CA 94564
(415) 724-2446

Morrow S100, DECISION 1, and CP/M advice and hardware repair.

MORROW MDT 20/LEAR SIEGLER ADM 20: New terminals for sale $275 each. Used $125. Repairs. 115 and 220 volt models available. Calif. res. add $17.87 tax.

Speed up CP/M! MICRONIX too slow? We have RAM DISK SOFTWARE for your Decision 1. For single user CP/M only. Hardware remains able to run Micronix later. (Ram disk and Micronix won't run at same time.) $200. Demo $3 Calif. res. add 6.5% tax.

FOR SALE S100 Boards, Drives, etc.

SPECIAL: used dual 8" single sided double density drives in cabinet, $250.

## LIST OF ADVERTISERS

by Sypko Andreae
with help from
Ludwig Von Beethoven


Advent Products . . . . . 28
Applied Computer Techniques . . . . . 30
Borland International . . inside front cover
Central Computer Products . . . . . 20
Chuck Atkinson Programs . . . . . 48
Civil Computing . . . . . 5,40
Common Sense Systems Associates . . . . . 42
Financial Track Systems . . . . . 46
Healthtrac . . . . . 26
Hollingsworth Business Services . . . . . 44
Jacobs Computer Services . . . . . 54
James River Group . . . . . .17,34
KAMASOFT . . . . . back cover
Mendocino Software Company, Inc. . . . . 36
Micro Art Programmers . . . . . 40
Micro Cornucopia . . . . . 6
PeopleTalk Associates . . . . . 25
Software Techniques . . . . . 37
Spite Software . . . . . 15
Telion Software . . . . . 33
The Protector Corporation . . . . . 5
The Software Store . . . . . 24
Westwind Computer . . . . inside back cover


# CLASSIFIEDS

OLIVETTI INK JET PRINTER, parallel, very quiet, $175. INTEC 300 SMARTMODEM, 300 Bd, cable, COMTEC MD3 program, 87 p. manual, $100.00. PROMETHEUS 1200, 1200 Bd smartmodem with Morrow cable, manual, MDM730 (MD3 or MD11) software $240. Sypko Andreae (415) 658-0152, leave msg with phone/adrs.

---

Micro Decision II - Dual disk, 64K, Terminal, keyboard, cables & software (CP/M, WordStar, MBasic, LogiCalc, Correct-It, CrossTalk, The Accounting Partner) Original cost was $2755 - SELL FOR $695. Less than 150 hours use. (916) 393-8063. Might also be used for back-up or parts.

---

MD11 COOLING FAN KIT. Direct replacement high velocity 12-volt DC fans. If your floppies are coming out hot, you should have one. See MOR AUG/SEPT 85, page 5. $39.95 includes shipping and hardware. VA Res., add 4%. GC Technologies, Inc. P.O. Box 2540, Manassas, VA 22110

MORROW MD-1E (same as MD-3E except had only one DD disk drive), complete with MT-70 terminal. Brand new in cartons. Most of guarantee remains. $765. Additional disk drive (I will install), $125. Liberty 100 terminal, (used) $295. G. Schacter 9369 Dorothy Ave. S. Gate, CA 90280 (213)566-3556

---

MORROW MD2 w/MDT 60; Bundled Software and More! Perfect condition. Very light use. $1050 ppd. Call Steve 919-383-8909 after 5 pm EST

---

SCRIPTWRITERS: Put the power of your Morrow and WordStar/NewWord to work. Script formatting and SmartKey tricks, more, let you create while your Micro Decision does the drudge work. $8 (disk). Tim Evans, 8530 Dogwood Road, Baltimore, MD 21207

---

SACRIFICE: MORROW MD11, 10MB W/128K CP/M VER. 3.0 BACKFIELD, NEWWORD, CORRECT-IT, SUPERCALC, PERSONAL PEARL, QUEST ACCT. ALL BRAND NEW IN BOX W/FACTORY WARRANTY. FOR $1,250., MDT-60 TERMINAL $225. MP-100 FOR $325. WAYNE (415) 431-7891 LEAVING MESSAGE.

# Morrow Owners' Review

Box 5487 Berkeley, CA 94705
(415) 644-2638

# SUBSCRIBE • RENEW • ORDER BACK ISSUES

☐ 1 year **MOR** (6 issues) $18 ☐ 2 years **MOR** (12 issues) $32

☐ All Canada & Mexico residents, add $8 US per year

☐ All other countries:
☐ Add $7 US for each year for Surface Mail
☐ Add $16 US for each year for Airmail

☐ Please leave my name off your mailing list rentals.

☐ Please **RENEW** my subscription to **MOR.**

**MOR** is published bi-monthly, starting in February. We must receive your subscription application before the 15th of the month preceding publication in order to begin your subscription with the next issue.

**BACK ISSUES** cost $3 each, postage paid in the U.S., Canada, and Mexico. For all other countries, $4.50 each, airmail postage paid.

Please send me the following issues:

VOL. 1: ☐#1APR84 ☐#2JUN84 ☐#3AUG84 ☐#4OCT84 ☐#5DEC84
VOL. 2: ☐#1FEB85 ☐#2APR85 ☐#3JUN85 ☐#4AUG85 ☐#5OCT85 ☐#6DEC85
VOL. 3: ☐#1FEB86 ☐#2APR86 ☐#3JUN86 ☐#4AUG86 ☐#5OCT86 ☐#6DEC86

Name _____

Subscriber No.* _____

Phone _____

Address _____

City _____ State _____ Zip _____

* Applies to current subscribers only. This number is in the upper right corner of your mailing label, preceding your expiration date.

Total amount enclosed $ _____ for Subscription ☐ and/or Back Issues ☐

☐ MasterCard ☐ VISA ☐ Check or Money Order

Account # _____ Exp. Date _____

Signature _____ MOR2685

# MOR GIFT SUBSCRIPTIONS!

**FROM:**

Name _____

Subscriber No. _____

Phone _____

Address _____

City _____ State _____ Zip _____

Total amount enclosed for $ _____

☐ MasterCard ☐ VISA ☐ Check or Money Order

Account # _____ Exp. Date _____

Signature _____

**GIFT TO:**

Name _____

Address _____

Phone _____

City _____ State _____ Zip _____

☐ 1 year **MOR** (6 issues) $18 ☐ 2 years **MOR** (12 issues) $32

☐ All Canada & Mexico residents, add $8 US per year

☐ All other countries:
☐ Add $7 US for each year for Surface Mail
☐ Add $16 US for each year for Airmail

☐ Please leave name off your mailing list.

MOR2685

# CHANGE OF ADDRESS

**Allow six weeks for your Change of Address to take effect.**

**OLD ADDRESS:** (Paste your mailing label here)

Name _____

Subscriber No. _____

Address _____

City _____ State _____ Zip _____

**NEW ADDRESS:**

Name _____

Address _____

Phone _____

City _____ State _____ Zip _____

MOR2685

Morrow Owners' Review

# BACK ISSUES

## A resource to help you make your Morrow really useful

**VOL 1, #1 APRIL 84**

Technical and Foreign Language Text with WordStar + NewWord vs. Wordstar + Meet the Disk Drives in your Morrow + Adding Disk Drives to your Morrow + Serial Port Communications + The "Lo-Tech Electronics" RS-232 Switchbox + Using the Hayes Smartmodem + Quieting down your Morrow MD3 + Inexpensive PASCAL

**VOL 1, #2 JUNE 84**

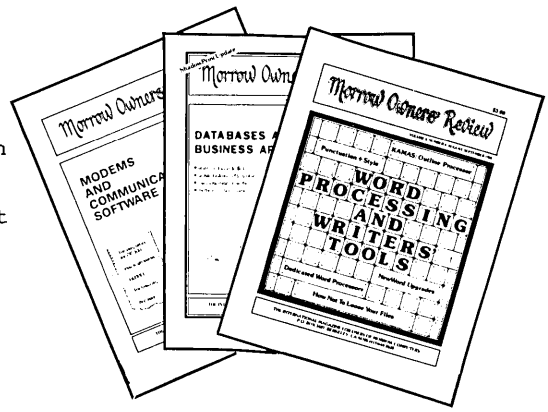
Concurrent Editing and Printing with WordStar + Installing WordStar For Dot Matrix Printers + Customizing NewWord + Preliminary Review of Reachout + MCI Mail + Trouble Shooting Your Micro Decision + Experience with the E-Systems "Piggybank"Ramdisk + About Serial Communications + Diskettes Deteriorate

**VOL 1, #3 AUG 84**

Graphics Package for the Morrow + Friendly Telecommunications + Review of Micro Link II Communications Software + A Very Simple Modem Program + Connecting Your MD to a Radio Shack + Connecting Your MD to an Epson HX-20 + Proportional Spacing with WordStar + Patching WordStar for an Epson Printer + Installing WordStar 3.0 for the MP100 + WordStar Patches for the Okidata Printer + Using Basic to Control Your Printer

**VOL 1, #4 OCT 84**

Manuals + How To Tell What MD You Have'+ About Surge and Spike Protectors + I Thought It Would Never Happen to Me + Never Too Old to Start with a Morrow + More Printing and Editing Concurrently wih WordStar + Brightening Your Day with NewWord + Programming Your Function Keys with NewWord + Public Domain Software Made Easy




**VOL 1, #5 DEC84**

George Morrow Faces the Nation + Notes from a SmartKey User + Speeding Up Your Computer + ZCPR3 Makes CP/M 2.2 Shine + Deciphering Your Terminal Manual + WordStar Emergency Treatment + Customizing WordStar's Terminal Defaults + Spool-Away with Printer Buffers + Soul of CP/M

**VOL 2, #1 FEB85**

Teaching with PILOT + Trouble-Shooting Your Morrow + Micro Justification and Prop. Spacing in WordStar + Toward a More Useful MD2 (1876K disk-space) + Getting Started with TURBO PASCAL + SmartKey Alert!

**VOL 2, #2 APR85**

PILOT Programs for Children + Morrow Drive Error Messages + MDBITS, a Program to Replace SETBAUD + SUBMIT to Less Work + Saving Time in SuperCalc with X (eXecute) + MEX, A Great PD Modem Program + The Morrow Toolbox + Automatic Formatting with PILOT + SOFTWARE: UniForm, a File Transfer Utility + The CP/M Plus Handbook --Book Review

**VOL 2, #3 JUN85**

Modems: What's All the Fuss About? + MM300 Modems and Communications Software + The CTS MM300 Modem With MITE + Short Introduction to FIDONET + Getting Started with Modem Programs + The Smartest Modem of All (Visionary) + Morrow Printer Ribbons + Locked Out of LOGICALC? + Adding Z-CLOCK to MD3

**VOL 2, #4 AUG85**

The Basic Morrow Word Processor + Upgrading NewWord: Why and How? + The MD3 as a Dedicated Word Processor + In Search of the Perfect Writing Tool + New Tricks for WordStar + KAMAS, an Outline Processor + EUREKA! A CP/M Disk Cataloger + Punctuation & Style + ShadowPrint (SPRINT), a Print Spooler + ShadowPrint at the MOR Office + MultiForm, a File Transfer Utility + Day-Old Computers + New Product: The Turbolink 1200 Modem + NSWEEP: A Public Domain Jewel

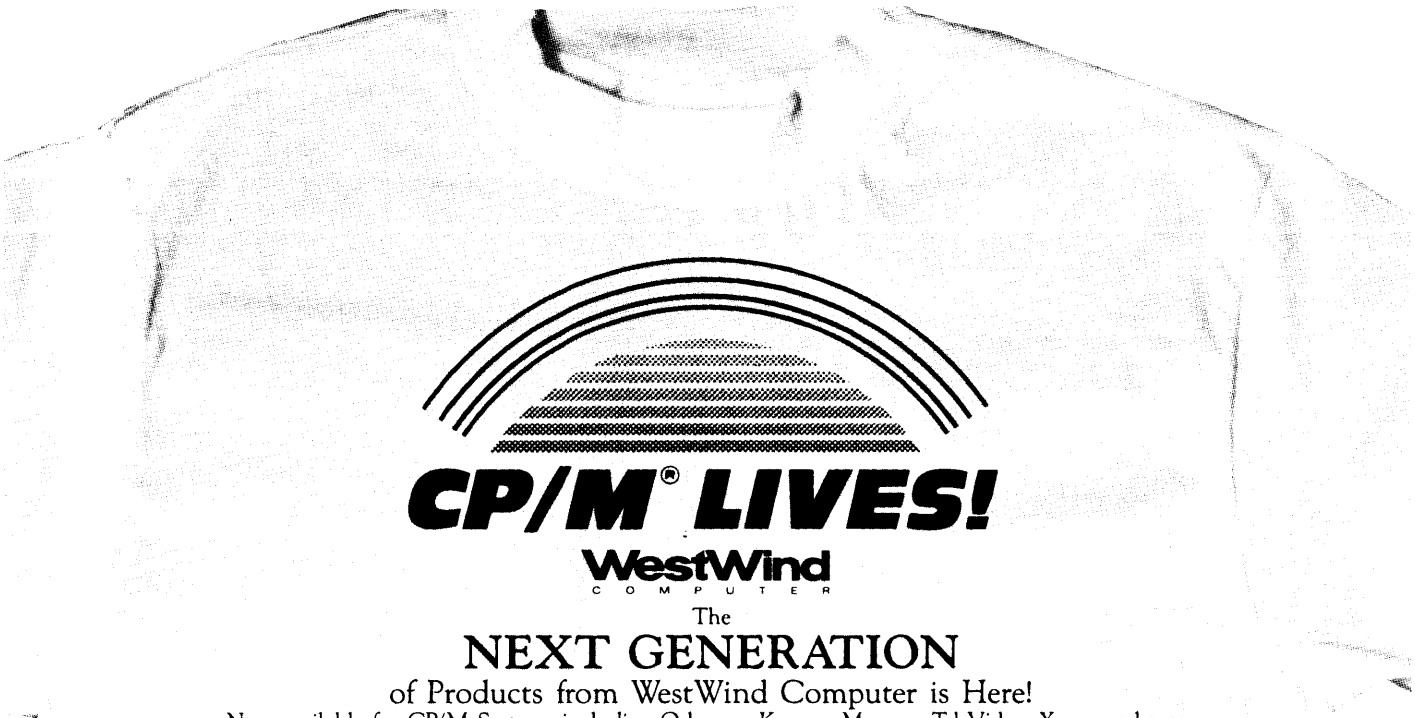
**VOL 2, #5 OCT85**

Running a Small Business with a Morrow + Reflections on dBASE II, Comparing Gold to Pearl + dBASE II Hints for Morrow Users + An Overview of Personal Pearl + Let's Get Rid of Personal Pearl, Look at Options + POIL: A Fix for Personal Pearl's INSTALH.DAT + Accrual Bookkeeping on QUEST Version 1.2 + Affordable Computing (Almost) + Eliminate Sort Disk Swap when Using Pearl + ShadowPrint (SPRINT), an Update + Pearl File Load + Free Filer + How to Make Money with Your Micro + James River Group's Accounting for Micros + Computer-Assisted Investment Handbook

**On February 1, 1986, the price of Back Issues and newsstand copies of MOR will go up to $4.00 each.**

**You can get back issues at the 1985 price of $3.00 each *if we receive your order by February 1, 1986***

Order Form for Back Issues on reverse side of this page.



# CP/M® LIVES!

WestWind
COMPUTER

The
## NEXT GENERATION
of Products from WestWind Computer is Here!

Now available for CP/M Systems including Osborne, Kaypro, Morrow, TeleVideo, Xerox and more

### The Revolutionary NEW Drive C 2!
Up to 1 MegaByte of RAM-disk, Print Buffer and giant *EXPANDED-MEMORY* SuperSize SuperCalc2

### BackPac!
Battery Backup for Drive C

### NEW! 8- and 16-bit Trantor Hard Disks!
Use *BOTH* CP/M and IBM PC-DOS or MS-DOS on the *SAME* drive.

### NEW! Daisy-chain Trantor Hard Disks!
Now, *ADD* more capacity as easy as plugging in a cable.

### NEW! 19 Meg Tape System!
Quick, reliable low-cost Backup capability.

### 5 Meg Removable Cartridge System!
Removable Drive flexibility *AND* Backup capability. Ideal for multiple client businesses.

### TurboPac and TurboTrantor Hard Disk Systems!
*THE* most powerful Hard Disk systems available today! Combine the power of Drive C and a Trantor Hard Disk separately or in a single TurboTrantor enclosure. Simultaneous RAM-disk, Print Buffer, SuperSize SuperCalc2 and the *INCREDIBLE* speed of Cache-Buffered Hard Disk.

### The Web MultiUser Network!
Up to 4 users, 3 printers, electronic mail. Now with up to 1 MegaByte of hi-speed Cache for the most cost-effective, hi-performance CP/M Network ever.

WestWind's integrated family of products is designed to grow with your needs. WestWind Products include all necessary hardware, easy-to-read complete documentation and powerful, user-friendly software.

Yes! ☐ Send me the new, *FREE* WestWind Fall Catalog.
My computer is a _____

Yes! ☐ I want my very own **CP/M LIVES!** T-Shirt!
Size S M L XL (Circle one)

Name _____

Address _____

City _____ State_____ Zip _____

Enclose $9.95 plus $2.00 Shipping and Handling for each T-shirt. CA residents add 6.5% Sales Tax.

Payment: ☐ Check ☐ Visa ☐ MasterCard

Card No. _____ Exp. Date____/____

**WestWind Computer 1690 65th St., Emeryville, CA 94608**

MOR

To learn more about our **NEXT GENERATION** products and to get all the details of our great **DOUBLEUP** Sale including complete CP/M and PC-DOS compatible systems, Call or Write *NOW* for our New *FREE* Fall Catalog.

*Save!* Get your **CP/M LIVES!** T-shirt *FREE* with any order over $100! OR, order your T-Shirt now for only $9.95 and we'll give you *FULL CREDIT* on any future purchase of $100 or more.

For Information or To Order:
*CALL TOLL-FREE*
**US 800-526-6500**
**CA 800-831-3144**

For Technical Support:
**CALL 415-652-3222**

**WestWind**
COMPUTER
1690 65th Street, Emeryville, CA 94608, (415) 652-3222
Telex: 756329 (DRIVE C UD), WU EASYLINK 62533500

Trademarks: WestWind Computer - BackPac, DriveC, Trantor, TurboPac, TurboTrantor, Web Digital Research - CP/M Computer Associates Sorcim/IUS - SuperCalc2 OCC Osborne Kaypro Corp - KayPro Morrow - Morrow TeleVideo - TeleVideo Xerox Corp - Xerox International Business Machines Corp - IBM, PC-DOS MicroSoft - MS-DOS

# Outline Processing and More for CP/M!

**$75 Complete***
**HALF-OFF!**
*Includes S/H U.S. & Canada.
Overseas add $20.00 S/H
Special Holiday Sale ends
December 31, 1985.

KAMAS is available for most Z80, CP/M Computers. Ask about your system!

VISA/MC Call: 503 - 649-3765, or Write:

**KAMASOFT, Inc.**
**2525 S.W. 224th Ave., Dept. 261**
**Aloha, Oregon 97007**

KAMAS, Z80 & CP/M are trademarks of KAMASOFT, Inc., Zilog, Inc., & Digital Research Inc., respectively.

As an idea craftsman, you use your mind like a skilled pair of hands. You take hold of concepts, then manipulate them to discover, refine, convey dynamic new thoughts.

Now, the tool that can strengthen your creative grasp is well within your reach.

KAMAS™, a revolutionary outline processor from KAMASOFT, supports your thinking process and keeps you in touch with your ideas. That's because KAMAS is designed to work the way your mind works — naturally.

Begin by brainstorming. KAMAS enables you to jot down ideas quickly, as you think of them. If you want to elaborate, you can add text with full screen editing.

Then develop your ideas using a familiar outline format. Change the structure as easily as you change your mind. Move an idea and all attached text moves with it.

KAMAS puts full control at your fingertips. You can keep track of your main line of thought by collapsing the details from view. Then, expand the outline to develop the specifics when you need to. By collapsing and expanding portions of the outline, you can maintain an overview and literally see how your ideas fit together.

And KAMAS is fast. Your ideas remain at your fingertips. KAMAS can locate and retrieve by keyword — even a misspelled one — in less than a second per topic file.

Use as much of the power as you feel comfortable with. KAMAS is menu-driven with over 100 on-line help screens. But you can also open the hood to find a high performance programming environment with the additional horsepower you may need to get the job done. An active user community and the KAMAS Report newsletter keep you in touch with the latest KAMAS applications.

Bring your ideas to life with . . . **KAMAS**™