# MACWORLD

*January 1986 $3.95*
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*The Macintosh™ Magazine*




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**Reviews, Reviews, Reviews**

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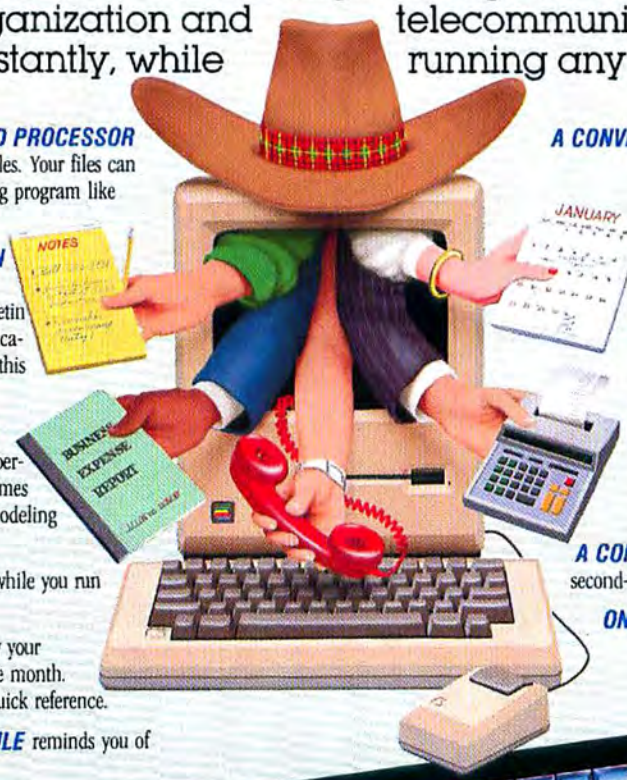


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# MACWORLD

*January 1986* *The Macintosh™ Magazine*

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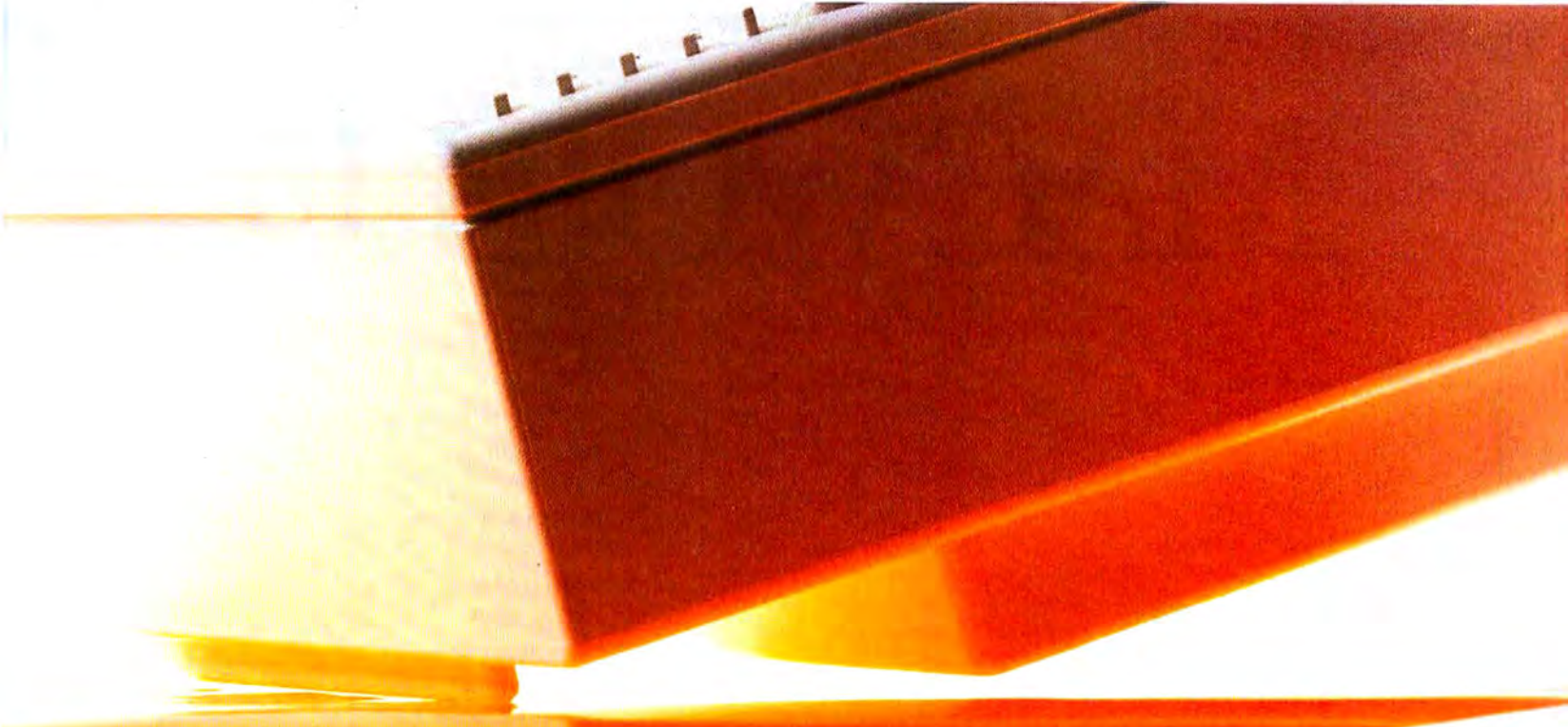

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BPA

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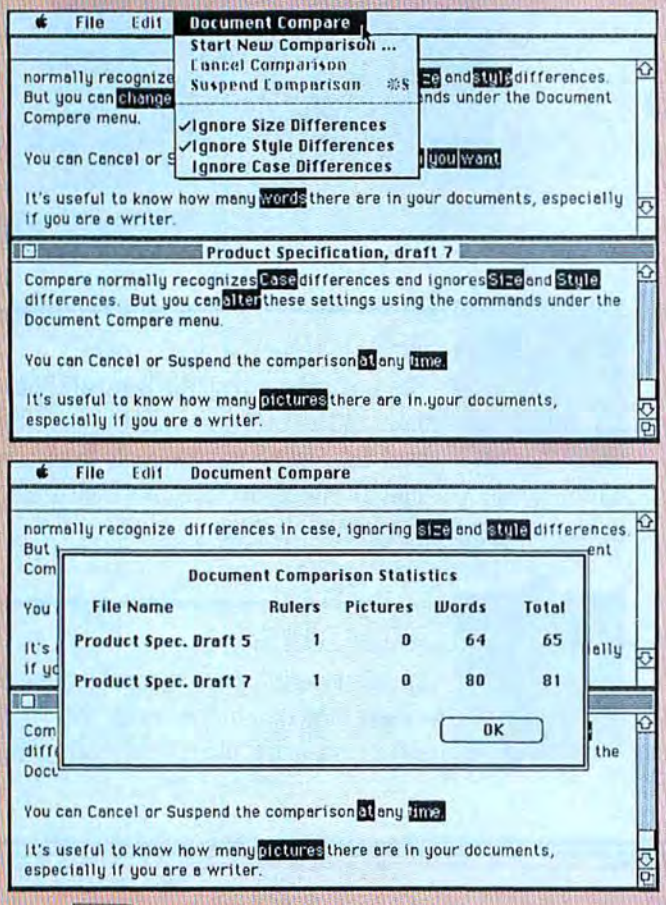


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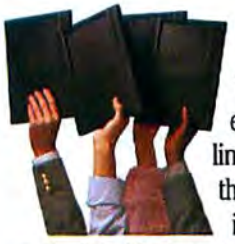

The Macintosh is a computer of great promise. Its enormous capabilities, compact size, and user friendliness make it a standout among microcomputers. Yet the marvelous Mac has mass storage limitations, including the file serving capabilities necessary to make The Macintosh Office live up to its full potential. Until now.

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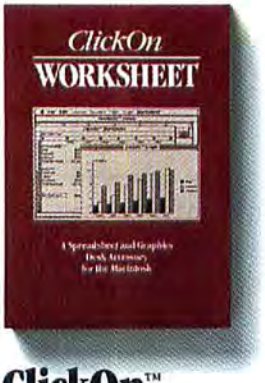


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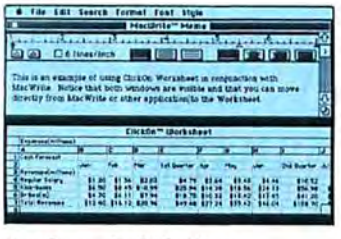

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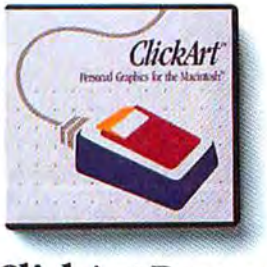


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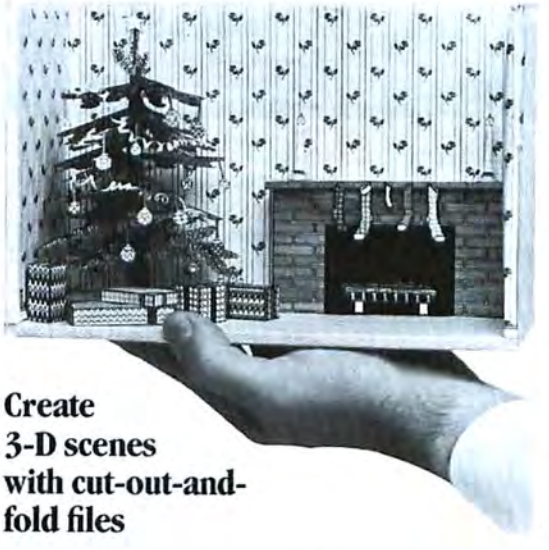

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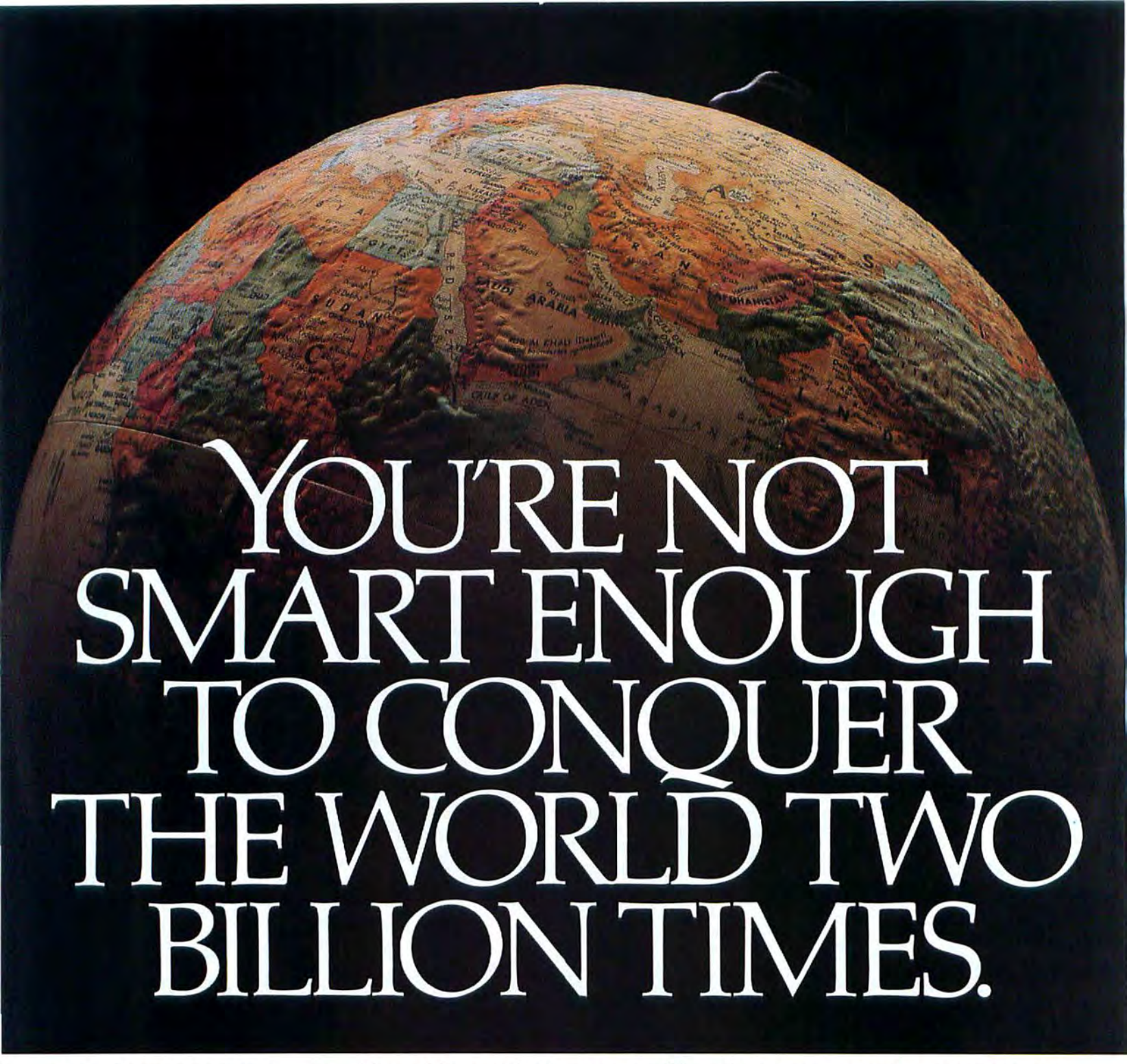


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David Bunnell

# If the Mac Only Had Color—and Then What?

*In the case of color on the Macintosh, less truly is more*

"If the Mac only had color, imagine how much better it would be." I've read and heard many such wishful statements about the Macintosh. People want to know why Apple left color out of such a visually oriented computer.

The lack of color makes some Mac owners see red—especially with the emergence of new computers like the Commodore Amiga and the Atari ST, which boast high-resolution color capability.

The general impression among users seems to be that color is very important for personal computers. My own conclusion is that color, while it's a definite enhancement, is not really all that crucial to a PC.

I've had an IBM PC in my office for over three years. I have two monitors, one monochrome and one color, which requires a special color board. In spite of my elaborate setup, I rarely use its color capability.

A PC in the office is used primarily to prepare documents for other people. For the most part, color is not an essential part of any document, whether letter, spreadsheet, or business plan.

In fact, overuse of color can actually diminish the impact of a document.

So while my IBM PC can print charts and graphs in color using a color plotter such as Hewlett-Packard's, I have never even bothered to figure out how to hook up a plotter to the PC.

Existing color technology may produce attractive screens, but the versions on paper look lackluster because the printing technology lags behind. Even plotters with multiple pens that can produce charts and graphs in color can't faithfully reproduce the color images from the screen onto a printout.

What you see is not what you get.

In this issue of *Macworld,* we review Apple's new ImageWriter II printer, which can print in seven colors. What's truly amazing about this new printer is that while you can't get color on the Macintosh screen, you can get color in the end result—on paper.

So you can type up a document and insert a graph with colored bars or lines. Or to emphasize parts of the text, you can highlight words, a title, or a heading with color.

Putting color into documents is certainly useful. And Apple's ImageWriter II gives you that capability. In this case, thanks to Apple technology, what you don't see is what you get.

I recently spent some time evaluating Commodore's Amiga, the new computer that features advanced color graphics. What I discovered really surprised me: the resolution of color on the Amiga is actually not that much better than the resolution of color on the IBM PC.

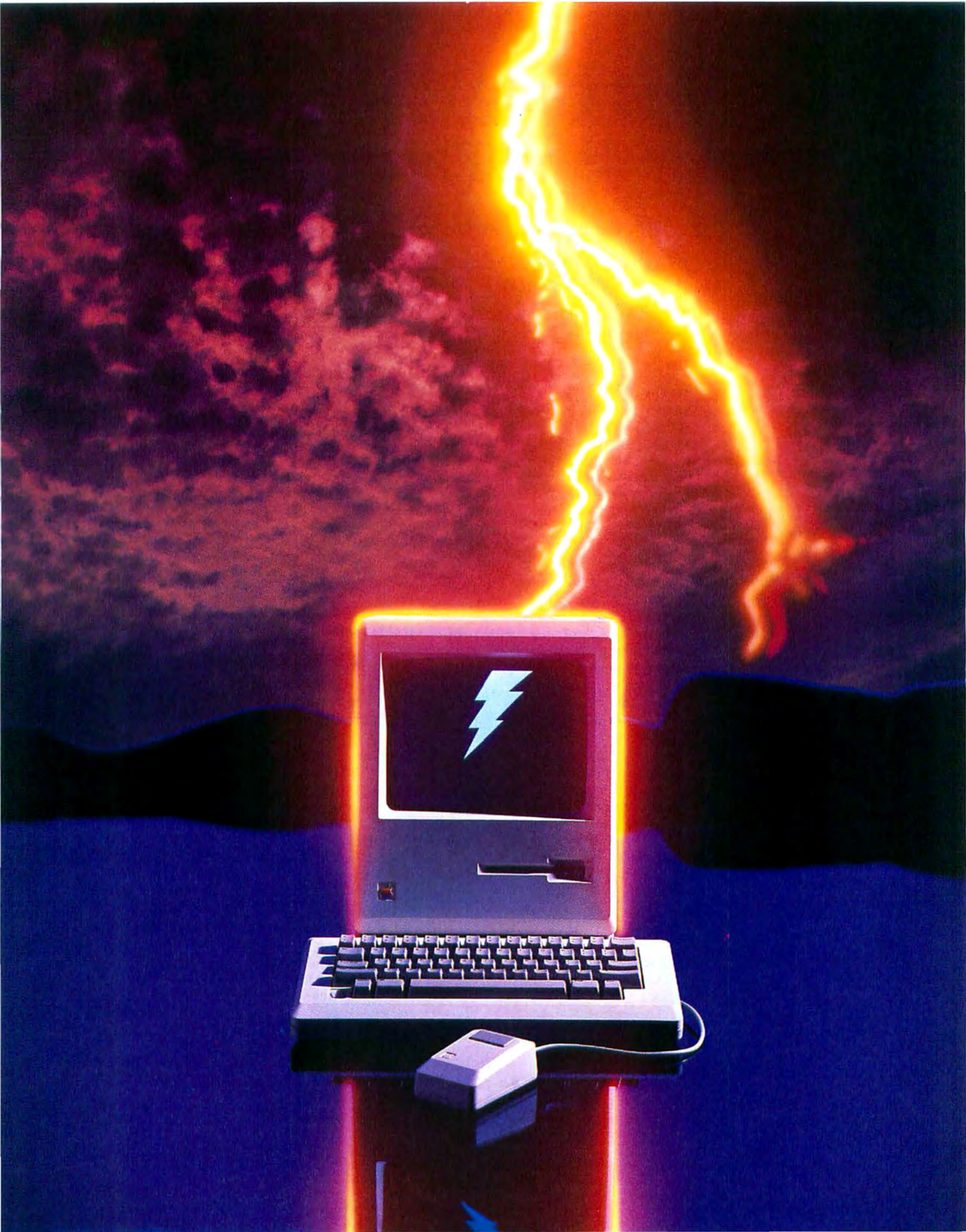
The Amiga's really super resolution is on its black-and-white monitor, just as it is on the Mac.

So if you want to use serious business applications with the Amiga, you still need a black-and-white screen. If you want color, you need a different screen, and you end up with lower resolution. The color screen appears to be good only for games or for certain small niches in the computer market, such as graphic art or screen presentations.

By not making the Macintosh a color machine right off the bat, Apple recognized that today's color technology is still too primitive to dabble in. Creating the same screen resolution in color as you have on a black-and-white screen is not really worthwhile at this stage because the color rinses out in the wash.

On the Amiga you can't even draw a proper circle in color. It looks more like a rounded bunch of jagged lines and is virtually irreproducible on paper.

Right now color is best for games and educational programs. Therefore having color on the Apple II is a natural, while color on the Macintosh makes less sense.



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Industry gurus that claim the Amiga can compete with the Macintosh just because Commodore added color are crazy. What businessperson wants to look at color on the screen if it can't be reproduced on paper for presentations?

Despite the fact that we have long had the ability to print publications in color, books are not as a rule printed in color. Typewriters have been around for ages, but there has never been a demand for color typewriters. Of course, there are color ribbons for typewriters, but nobody really uses them.

Color just doesn't add much value to printed documents.

Apple Computer has shrewdly followed the policy of letting the technology catch up to the users. So if Apple starts supporting color on the ImageWriter II, sooner or later color will be represented on the screen.

Why should Apple sacrifice screen resolution only to end up with disappointing shades such as those that the Commodore Amiga prints?

Jumping the gun is a loser's game. And Commodore will probably file for Chapter 11 within a year.

Because the Amiga is an interesting new computer, a lot of people will go into computer stores to check it out. And, given their budget considerations, they will end up walking out the door with an Apple II or a Macintosh instead.

Why buy a machine with an entirely new operating system and no software base? And why spend money for color that can't be rendered on paper?

The Macintosh and the Apple II offer quality and security. You buy knowing you're getting a well-established software base, support, and a guaranteed future. You also know that ultimately Apple will bring out an enhanced version of the Macintosh with usable color that can actually be duplicated from the screen onto paper.

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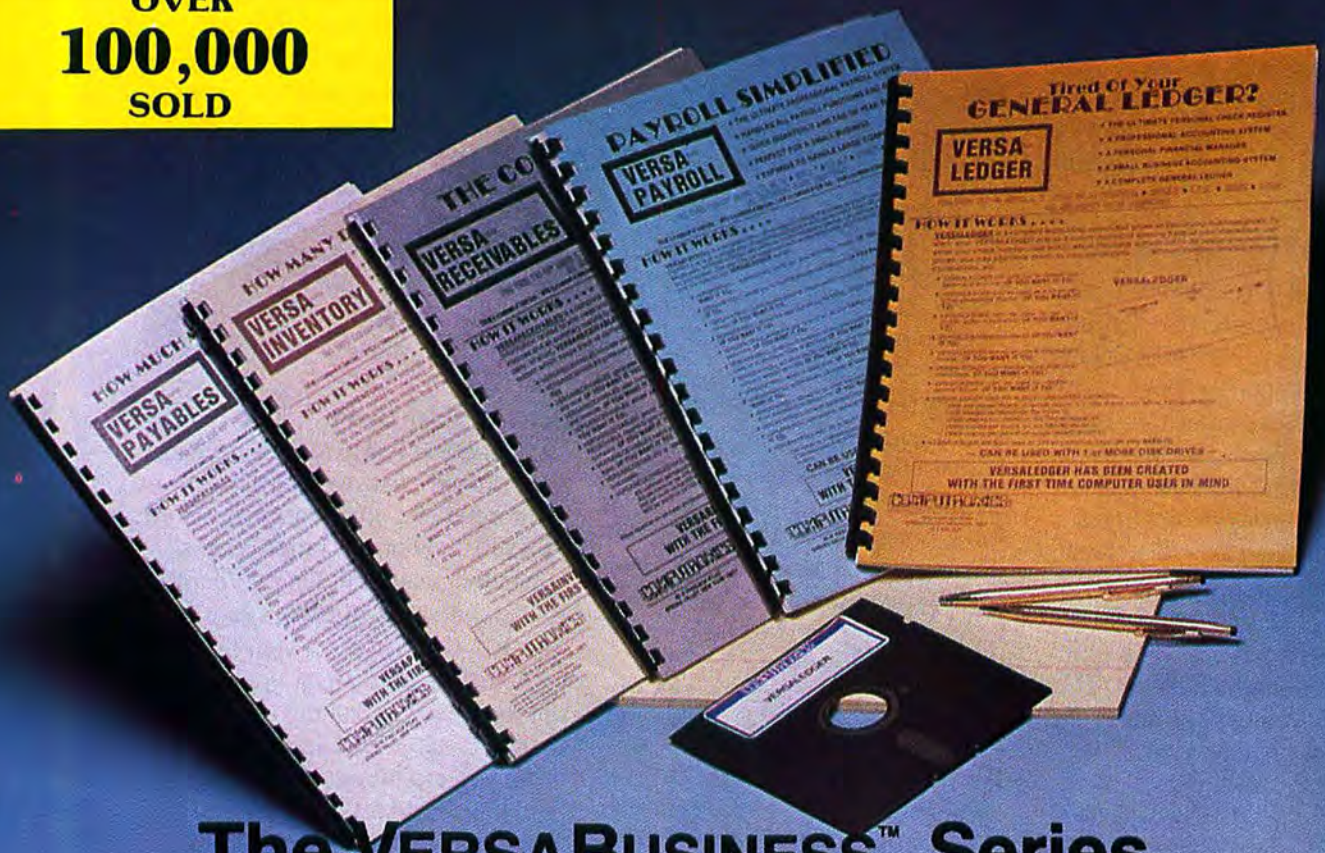


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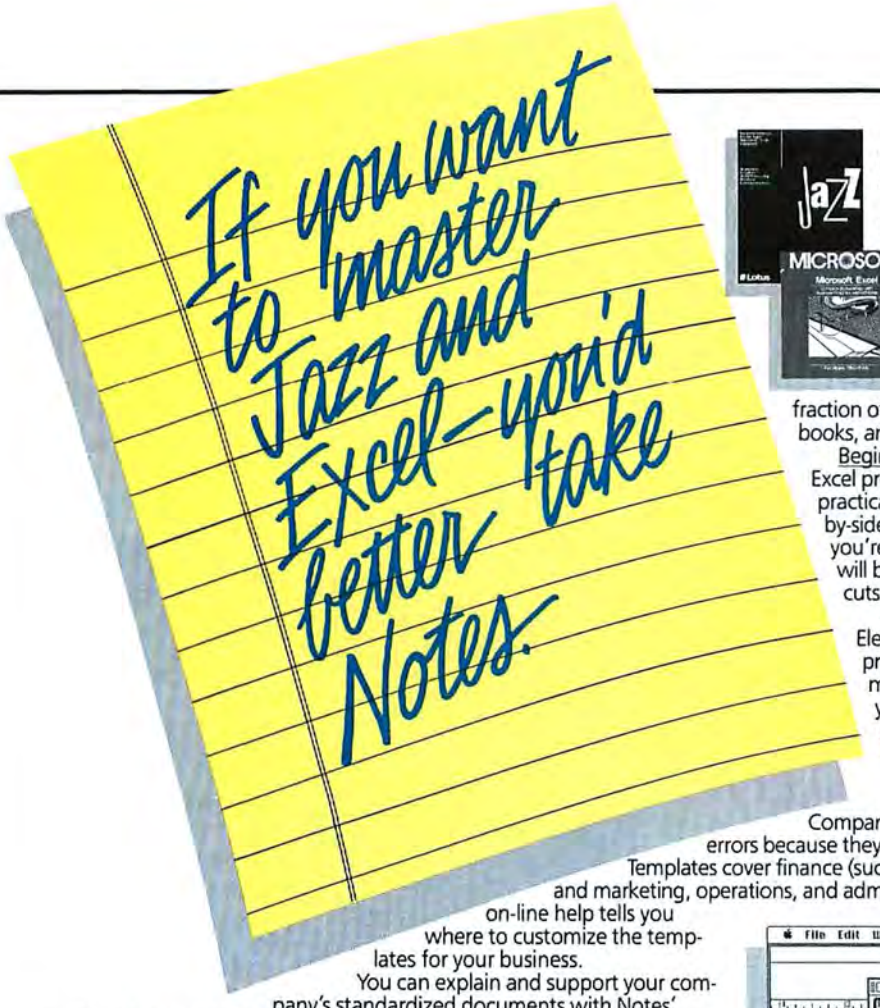

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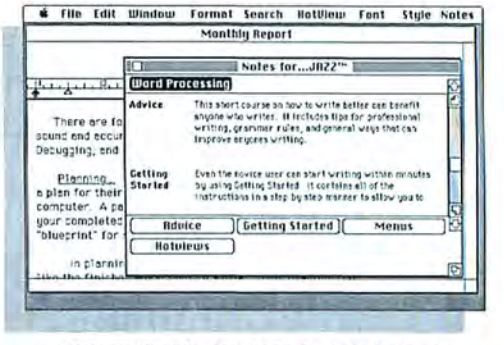


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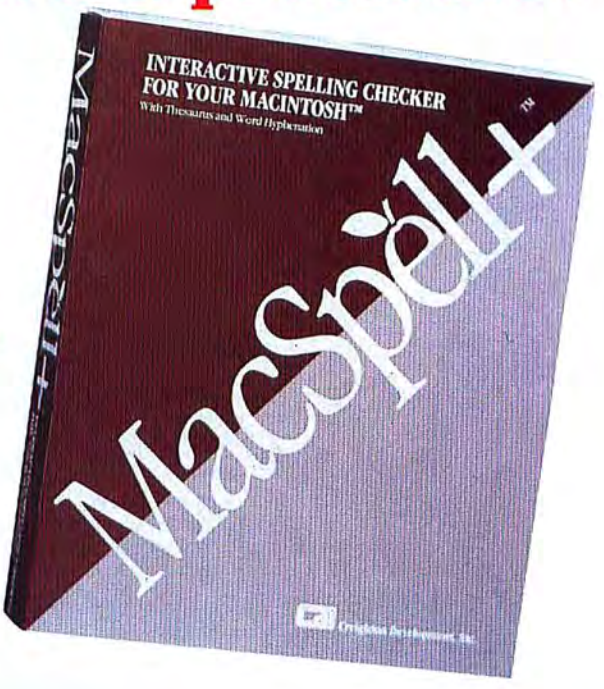


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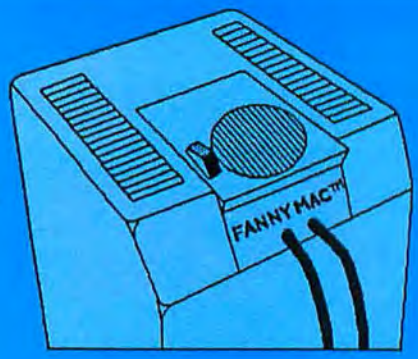


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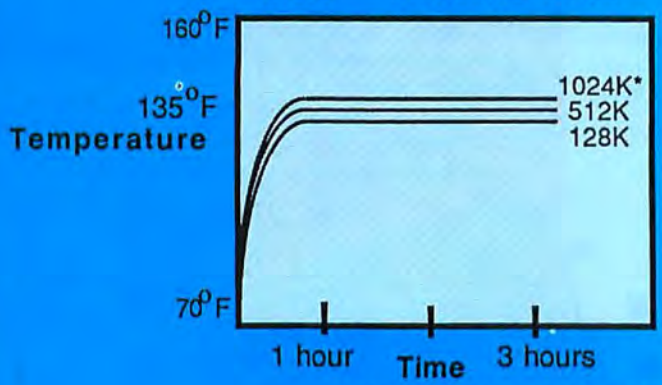


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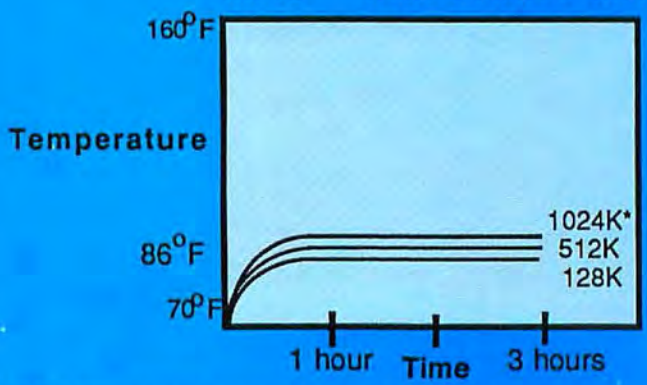


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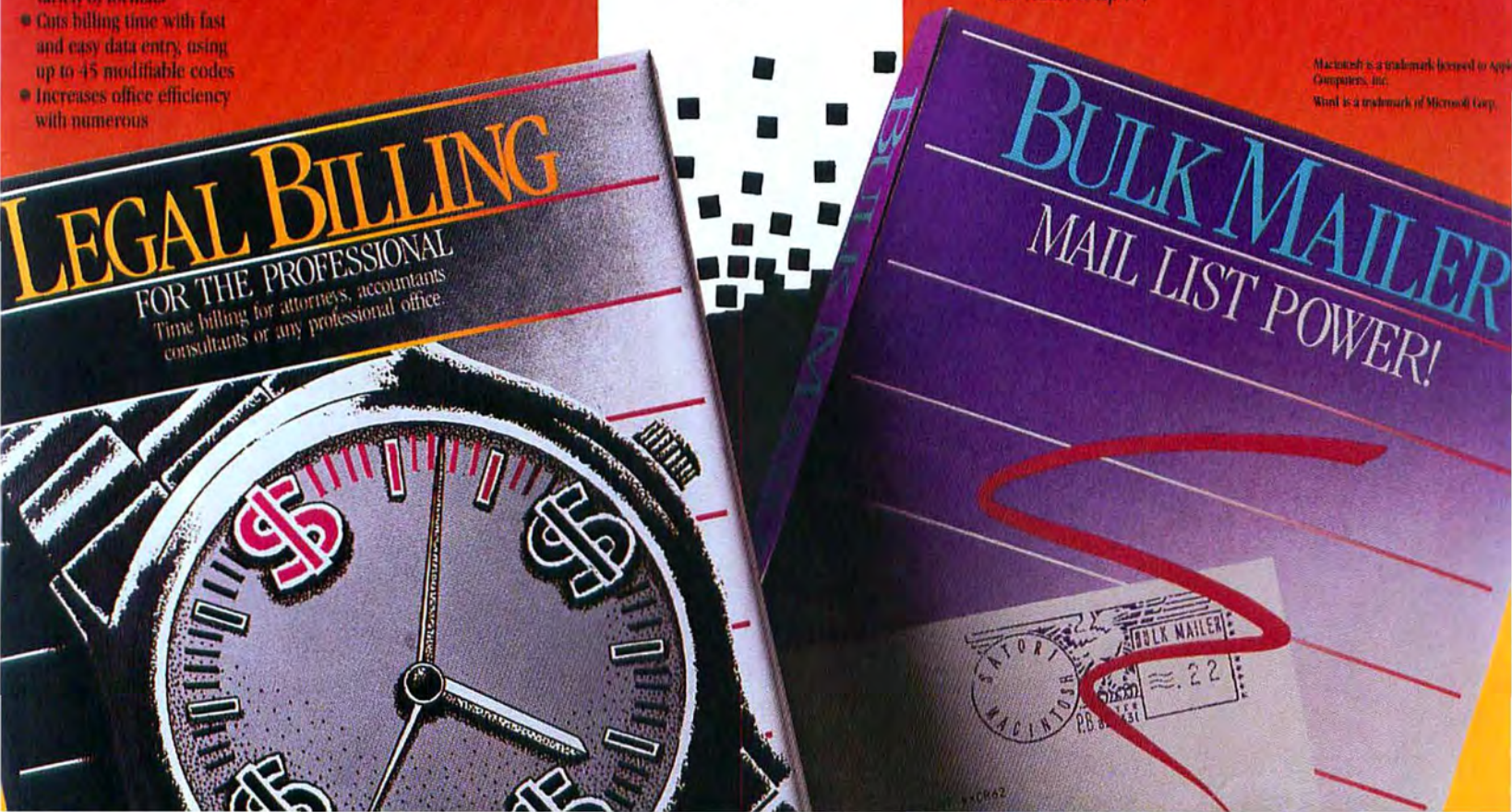

# Letters

*Readers request computer longevity, set the academic record straight, and more*

**Spinning Wheels**
I am a software development manager at Reed College, a member of the Apple University Consortium. Of course I was pleased to read "Wheels for the Mind" about Dartmouth College [*Macworld,* October 1985]. Imagine my surprise to read that "At Reed College . . . purchase [of a Macintosh] is cumpulsory for incoming freshmen." Well, nothing could be further from the truth. Reed students are not required to purchase a Macintosh.

Reading the rest of the article, I felt somewhat annoyed because it seems to be only a human interest story. I certainly can't argue with the need for such articles in a computer magazine. But I was left with the impression that Dartmouth's activities are academic and private–that the outside world has no way of benefiting from the work there.

Such is not the case, as anyone who investigates Macintosh work at consortium schools will find out. The newsletter *Wheels for the Mind* amounts to an extensive listing of contacts at consortium schools for hundreds of Macintosh software and hardware projects. It has been my experience that the people listed in *Wheels* are willing to talk to anyone about what they are doing.

My reaction comes from a frustration that has been building up for a while due to the way the AUC is perceived by the public. The consortium is treated in a somewhat patronizing way. Could it be that the consortium is only a way for college students to get computers cheap? I'll admit that some member schools treat the consortium that way, but most members are using the Macintosh in original and exciting ways.

*Scott Gillespie*
*Portland, Oregon*

**Tires for the Imagination**
I was pleased to read that the Apple University Consortium is thriving at Dartmouth. As a graduate student at the City University of New York, a consortium member, I have not received any word from Apple since purchasing my Macintosh over a year ago. While I am still thrilled about the price break, I admit that I am disappointed with the support. I was surprised to learn that there is a newsletter, *Wheels for the Mind,* being distributed. How does one receive this newsletter?

*Harold S. Bernstein*
*New York, New York*

*Write* Wheels for the Mind, *Boston College, Fulton 430, Chestnut Hill, MA 02167.–Ed.*

**The Bigger They Are**
You purport to be solidly pro-Macintosh, but the cover of your October issue shows an (expletive deleted) brand-X PC looking down on a Mac!

*David R. Cantrell*
*Manchaca, Texas*

**Think Again**
I am contacting you concerning the review of *Think Fast* by Sharon Zardetto Aker ["To Halve and Halve Not," *Macware Reviews,* October 1985].

There is an aspect of this software that Aker fails to mention, probably because she has no particular experience in the field of brain-damaged people.

I have a son who suffered massive intracranial hemorrhage about 18 months ago following an automobile accident, and he uses *Think Fast* on a regular basis to measure his cerebral processes.

The software is quite simplistic, and I agree that it has a questionable role in improving the cerebral function of normal individuals; however, it appears to have a definite role in helping people with mental impairment, be it from trauma or from other conditions.

*R. John Torontow*
*Nevada, Missouri*

**Low on HyperDrive**
Your review of hard disks ["The Megabyte Managers," *Macworld,* October 1985], neglects to mention a major flaw in HyperDrive's software. A morning of experimenting with the Backup application for the HyperDrive hard disk convinces me that while it may be useful in some contexts, it is not for me. The program can only write files to blank disks. It apparently has no ability to read a disk and decide whether or not an additional file can be added to it.

It is relatively easy to back up the whole HyperDrive hard disk by drawer. Moreover, you get an alphabetical list of the files in each drawer by calling Print Master. The problems

*(continues on page 28)*

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*(continued from page 25)*

start when you want to back up an additional file without repeating the process for the whole hard disk. You can use Incremental or File backup, but you must insert a new floppy each time or allow an old floppy to be erased before the new file is written to it.

If you try to update an existing data disk, the Backup program warns you that the existing disks will be erased. If you continue, Backup erases the disk, copies the new files, and renames the disks, which makes it difficult to keep track of disk names. If you use the New option, you create a new master disk and should presumably recopy the whole hard disk.

The data disks created with Backup cannot be read by the Macintosh until they are decoded with the Restore option in the Backup program. The decoding is time-consuming and does not appear to result in a vastly more efficient use of space on the backup disks.

I find the standard backup procedure—copying sets of folders, each with a bit less than 400K, to floppy disks—to be much more efficient. You can read such disks without having to use the Backup program, and you control disk names and contents, which Backup does not allow.

*Paul Davenport*
*Montreal, Quebec*
*Canada*

**The Jazz Slinger**

Your review of *Jazz* ["All That Jazz," *Macworld,* September 1985] does not mention that the program does not use a letter-quality printer. Worse yet, members of the Lotus staff I contacted by telephone and at the Macworld Exposition in Boston could not explain how to print *Jazz* documents on a letter-quality printer. Without that capability I could not consider *Jazz* an acceptable business program. Fortunately, representatives of Assimilation at the Expo gave me some technical advice on using *Jazz* with their *Mac Daisywheel Connection,* which enables the Macintosh to use a daisy wheel printer.

A second point missing in all the reviews I've read is that *Jazz* does not function properly with the Apple numeric keypad because two arrow keys provide cursor movement in the same direction. A telephone conversation with the Lotus staff confirmed that the cursor-key mixup results from a bug in the program and that an attempt was being made to correct it.

*Kenneth J. Dymski*
*Windsor Locks, Connecticut*

**Against Obscurantism**

There must be some undisclosed prejudice underlying Hansjorg Zeller's comments ["Putting Up with Genius," *Letters, Macworld,* September 1985], in which he suggests that the Macintosh is too good for business. We can and should question the concept of business that favors obscurity and complexity. Complexity does not necessarily imply sophistication. In fact simplicity often exists in software judged as elegant.

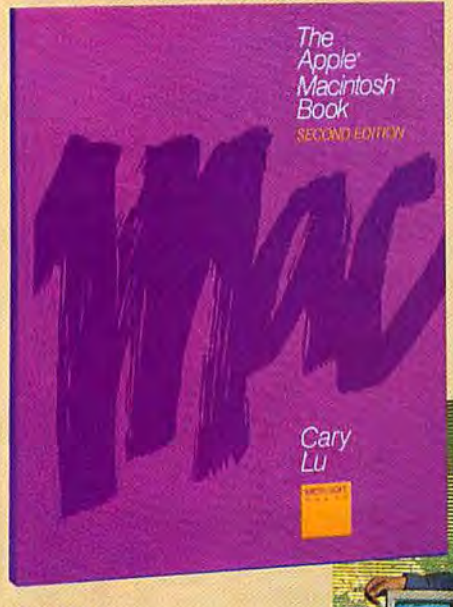
*John O. Hard*
*Arlington, Texas*

**The Last Pitcher Show**

On September 15, 1985, Apple sponsored *Death of a Salesman* on CBS, which tells of the tragic fate of a once strong and

*(continues on page 32)*


THE EXPERIENCE CONTINUES

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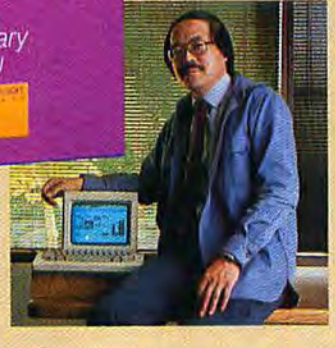

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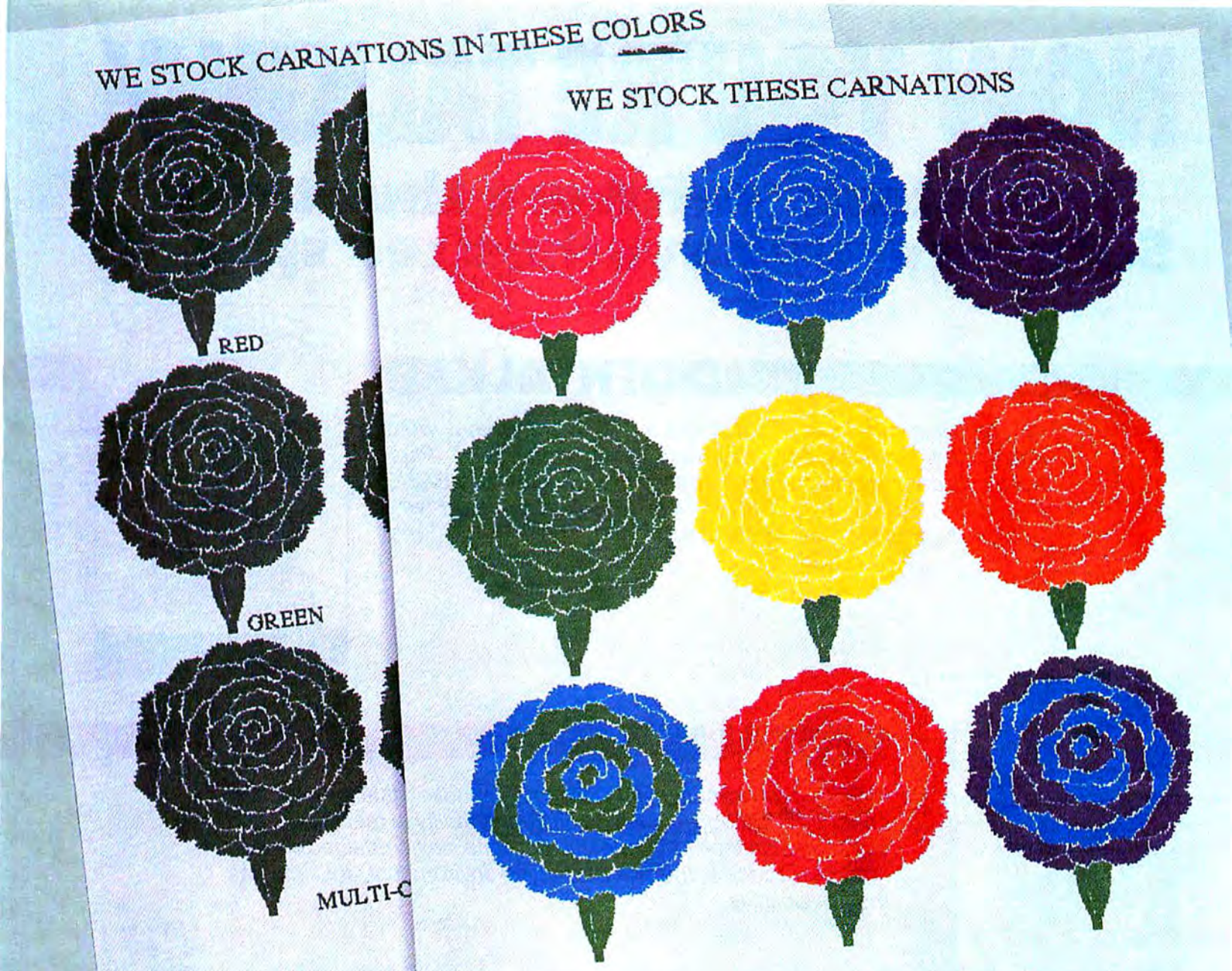


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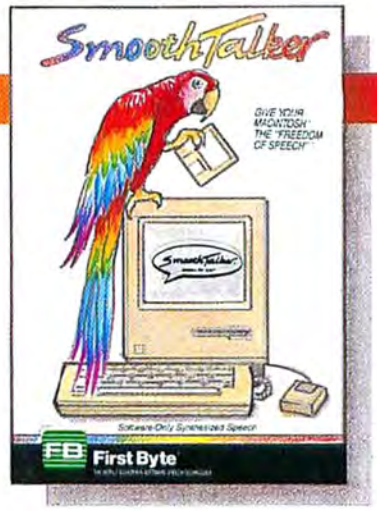


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Our first ad for the View Control System™ did more than raise a few eyebrows. We set a record for *Macworld* reader response, pulled in lots of orders, and inspired a flood of callers to ask, "does that crazy looking headset really work?" Read what users are saying about it.

Users agree. It works. The View Control System from Personics moves the cursor where you look on the screen. It's much faster than a mouse or trackball and doesn't take up space on your desk. Why not try the VCS for 30 days and see for yourself? Join us for a test flight. There's absolutely no risk.

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## Product Review

*It's all quite interesting and sexy in a technological way, but how well does it work? I have used the VCS for a week. The first day was something of a strain, as I found myself overshooting screen targets and making exaggerated head motions. After a few days, using the system became second nature. My thumbs fell readily on the buttons below the space bar, and the cursor always seemed to be just where I was looking. After a week, you'll wonder how you managed without it. On the whole, the View Control System represents a real advantage over the mouse for many Mac tasks.*

ICON–*Magazine of the Assoc. of Apple 32 Users.*

## Customer Letters

*I just received my VCS and am more than delighted with its performance. I couldn't believe that it would be able to work one pixel at a time but it does, and that with less than an hour's use. It's the best thing yet that I have seen for controlling the Macintosh.*

*My daughter and I are certainly enjoying our "flying mouse." Not only is it terribly ingenious, it really works very smoothly and with fine sensitivity. Congratulations on an innovative advance.*

*I am a university professor and I do a substantial amount of writing. I just finished a monograph of about 64 single-spaced pages. I used the VCS for the entire project and it performed beautifully. If there were a market for my mouse, I might sell it.*

# Join us for a test flight.

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*(continued from page 28)*

vibrant pitchman. The next day, I learned that the most evangelical of Macintosh pitchmen resigned. Life imitating art? Steve Jobs is surely better off than Willie Loman ever was, yet attention must finally be paid to such a person and to a company like IBM, which used Jobs's vision of personal computers and embraces that vision to suit its own marketing strategies.

*Merrill Jed Zoldan*
*New York, New York*

**No Fondness for Fossils**

I don't wish to beat a dead horse, but I, too, paid a premium price for my Macintosh during its first 100 days and am continually disheartened by the falling prices I see. But I would consider it a greater loss if the Mac goes the way of so many other computers, and I am left with the fossil of a great idea. Surely the computer industry has inflicted enough disposable computers on the public. The time has come for stability, for computers that stay on the marketplace long enough to generate a solid software and service base and that ensure years of relevance to business and education. If the Macintosh endures, I will consider the money I overspent a good investment and will look forward to more years of overspending.

*J. Michael Moore*
*Clarkston, Georgia*

**Some Friendly Advice**

*User friendly* were the buzzwords that influenced my decision to purchase a Macintosh. For me, the computer has lived up to that claim.

I consider myself to have average learning skills, having graduated from a liberal arts college and taken one year of graduate studies in business, yet I am having difficulty reading your articles. Try to make your magazine as "language friendly" as the Mac is user friendly. I would rather see you take the risk of being too simple in your language than to require your reader to take a brush-up course in computer language before reading the magazine.

*Richard Cheroske*
*San Diego, California*

*Thank you for your comments. Communicating information about the Macintosh in clear and simple language is one of our top priorities. –Ed.*

**Boosted in Boston**

I have had my Macintosh since May 1984. After attending the Macworld Expo in Boston in August, I found that even though I've had my Mac upgraded to 512K, I've been living in the dark ages with it. Needless to say, I enjoyed the show very much and got many ideas for projects that I have now set my mind to.

Trying to get a sense of what is available for the Mac by reading magazines, including *Macworld,* pales in comparison to attending a show like the Macworld Expo. When you spend 4½ hours just looking at exhibits, as I did, you realize that a magazine can take you only so far. The other alternative is to join a user group.

*Donald J. Gustafson*
*Taunton, Massachusetts*

*(continues on page 36)*

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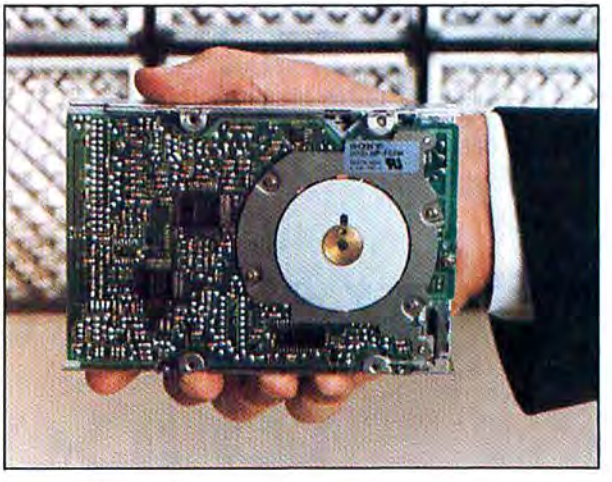
### Apple Support

Mirror technologies is certified by Apple Computer as a Macintosh Developer. Apples support made the Magnum possible, and Sonys support helped us to make the Magnum the reliable, high quality drive you and your Mac deserve. We thank Apple and Sony. So will you.



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We based the Mirror Magnum on Sony's 800K 3.5-inch microfloppy disk drive. That's the same fine quality drive already in your Macintosh. We figured it just made sense to start with the best. The result is a fast, powerful drive that is everything it should be...to make your Mac everything it should be.

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# Introducing FileMaker.

Because just *having* information isn't enough. You have to be able to do whatever you want with it. Arrange it. Rearrange it. Massage it. Embellish it.

FileMaker™ lets you not only store and organize your business information, but also manipulate it in limitless ways, to create literally any kind of form or report you want.

First of all, FileMaker lets you change direction, any time, without redoing everything. It even lets you start out without a direction.

And in addition to doing what a database is supposed to do—calculations, summary reports, sorting of all kinds—FileMaker does everything you bought your Macintosh™ for. Text editing. Graphics. Pull-down menus. Windows. Different fonts and graphic design tools. Your information not only makes more sense, it makes an impression.

With FileMaker, you can put information *in* any way you want, without arbitrary limitations. It automatically indexes every word, number and date for speedy searches. Since you design your output right on the screen, you can see exactly what you (and your customers) are going to get. And you can create any number of forms for presenting your information.

So an order acknowledgement can become a clear, friendly letter. Or a comparison of inventory by vendor. Or parts lists, receiving verifications, purchase orders, labels, name badges, rosters and hit lists.

You can pick up data from other programs, like MacWrite,™ MacPaint,™ Multiplan,™ Jazz,™ share the applications you've created with other members of your team, or consolidate group efforts into one database. And FileMaker is not copy protected, so it's easier to use, easier to back up, easier to configure for the Macintosh Office.

So for $195 (suggested retail), things could look better for your entire division, department, practice, retail operation, organization, or principality.

To get a $15 demo version of FileMaker, call 1 800 MACWARE today. From Forethought, Inc.

MACWARE™

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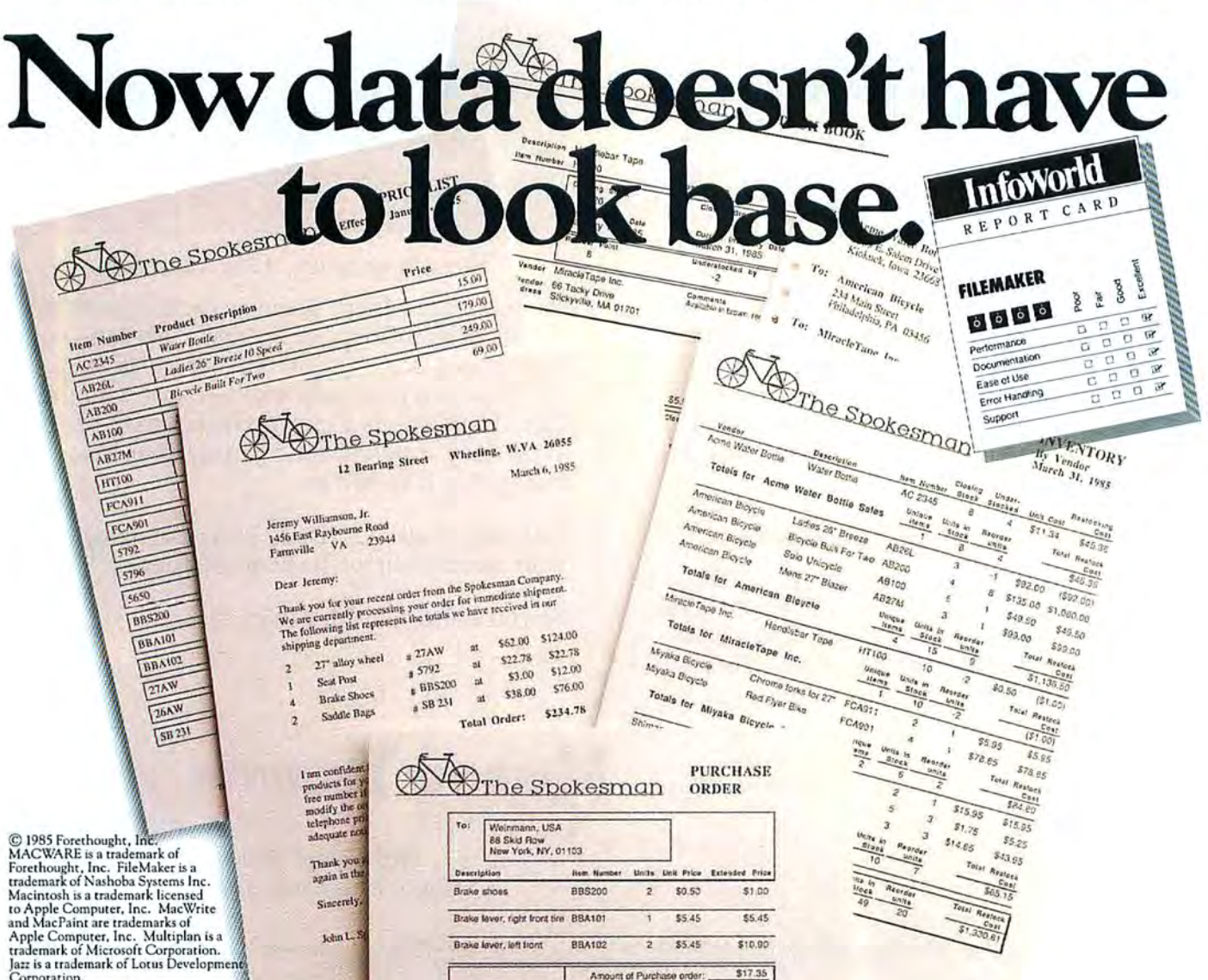


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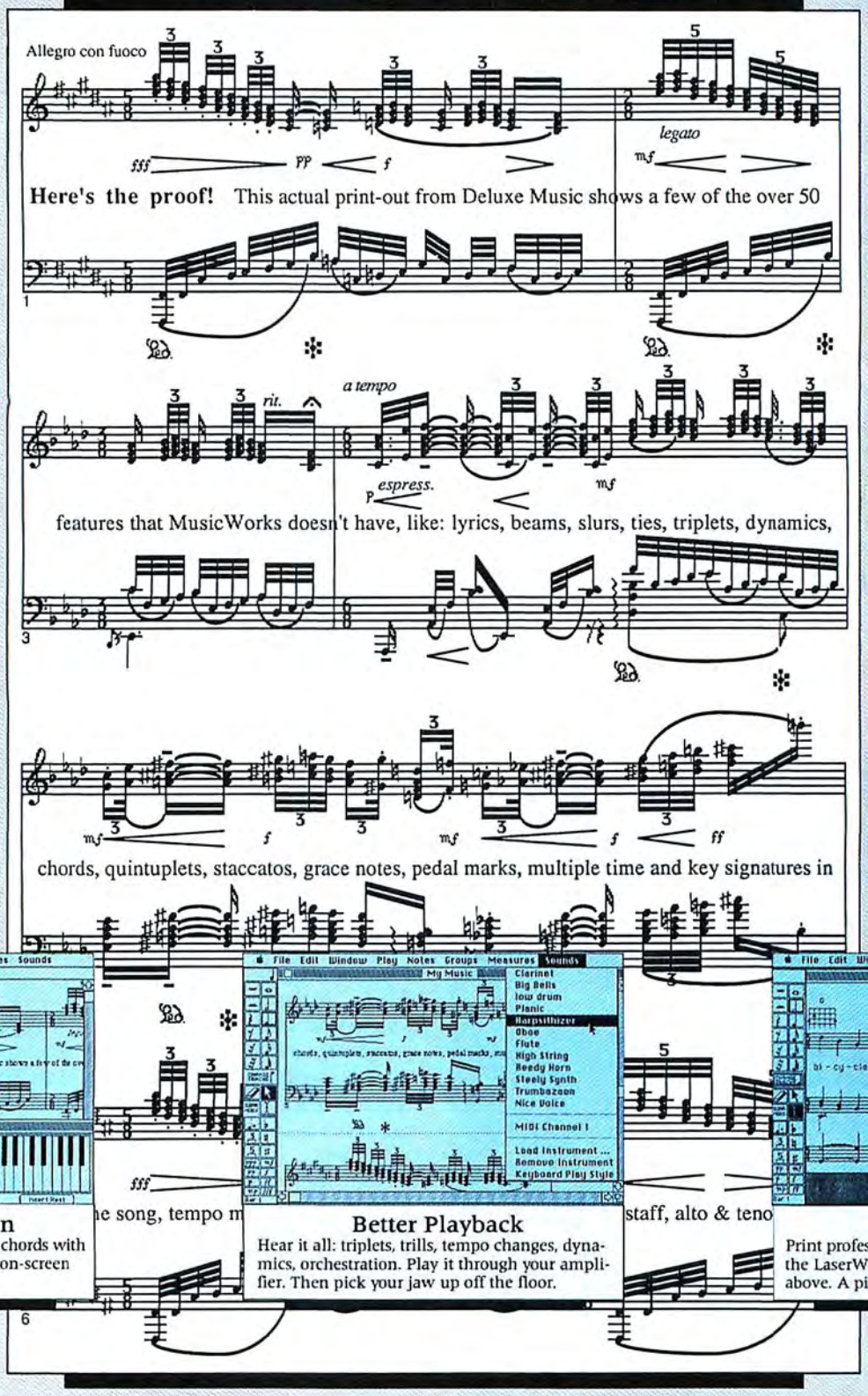
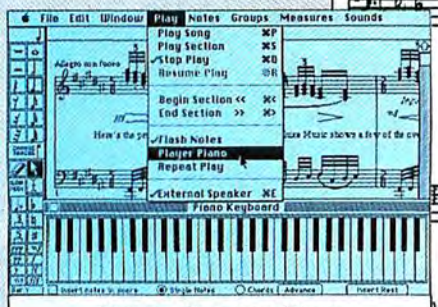
(nothing personal, but . . . )

# Better Music Than MusicWorks™

## A small list of Deluxe Music's features that MusicWorks™ does not have:

- triplets, quintuplets
- beams, slurs, ties
- 1/32 notes & rests
- 1st & 2nd endings
- alto & tenor clefs
- 8 staffs, 2 tracks per staff
- chords of up to 6 notes in any track
- guitar chord notations
- staccato marks
- crescendo & diminuendo
- dynamics: ppp to fff
- lyrics
- octave raise & lower
- paged scores
- on-screen player piano
- 28 special music symbols (D.C., trill & coda signs)
- easy transpositions
- external speaker command
- note stem direction control
- see & hear notes played before placing them
- multiple time and key signatures in one song
- multiple tempos in one song
- grab & slide notes, chords & bar lines where you want
- complete "what-you-see-is what-you-get" print preview
- and a few dozen more

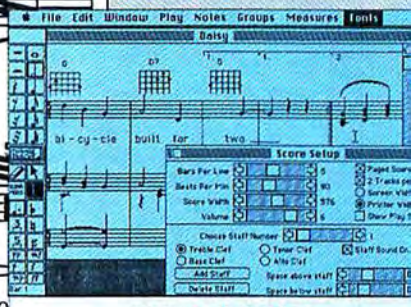



**Better Composition**
Simplicity AND power. Place notes & chords with a simple click on the score or on the on-screen piano keyboard.




**Better Playback**
Hear it all: triplets, trills, tempo changes, dynamics, orchestration. Play it through your amplifier. Then pick your jaw up off the floor.




**Better Printing**
Print professional quality sheet music. Support the LaserWriter. Look at the actual print-out above. A picture is worth 1,000 words.

## Another small breakthrough:

MIDI support.
Produces MIDI output on 16 channels, including pre-s program channels. Supports the MIDI Conductor™ from Assimilation™ for connecting your Macintosh to synthesizers.

## A very special offer for owners of MusicWorks™

You can upgrade to Deluxe Music Construction Set dire from Electronic Arts for a mere $29.95. You save $20. Plus, you'll receive a FREE UTILITY PROGRAM that allows Deluxe Music to rea your MusicWorks' songs.

That means the extra featur of Deluxe Music can be use on your existing song files. And we have a 14-day "sati faction or your money back guarantee on direct orders.

It's a tough offer to turn down. This is our way of showing that advances in technology don't have to penalize your pocketbook (see details below).

# Deluxe Music Construction Set™

How to order: Visit your retailer or call 800-227-6703 for direct VISA or MasterCard orders (in CA call 800-632-7979). The direct price is $49.95. To buy by mail, send check or money order to Electronic Arts, P.O. Box 306, Half Moon Bay, CA 94019. Add $5 for shipping and handling. Allow 3-4 weeks for delivery. All EA products purchased direct have a 14-day "satisfaction or your money back" guarantee. If you own MusicWorks™: MusicWorks™ owners can upgrade to Deluxe Music Construction Set for $29.95 (a savings of $20) plus $5 for shipping & handling. This upgrade can only be done direct with Electronic Arts. Send your check or money order AND THE BACK COVER OF YOUR MUSICWORKS™ MANUAL (no facsimiles accepted) to Electronic Arts, Deluxe Music Upgrade, 2755 Campus Drive, San Mateo, CA 94403. Allow 3-4 weeks for delivery. MusicWorks™ is a trademark of Hayden Software. Comparison data is based on MusicWorks version 1.0.

ELECTRONIC ARTS

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Circle 368 on reader service card

Circle 90 on reader service card


## Letters

*(continued from page 32)*

### A Better Mouse Pad

As president of Mouse Systems, I am writing in response to "In Search of a Better Mouse" in your August 1985 issue.

Our mouse pad is an aluminum mirror with a two-color grid printed on it, covered by a special protective coating. A number of pads with a defective coating shipped earlier this year. The printed grid on some of those pads is subject to flaking or being scraped off, particularly if the pad has been exposed to moisture.

We have subsequently adopted a coating that provides adequate protection for the printed grid without interfering with mouse movement.

As a matter of information, the A+ mouse does not need to be oriented parallel to the edge of its pad. Its orientation can be up to 45 degrees in either direction from vertical without interfering with its operation.

*Robert V. Dickinson*
*Santa Clara, California*

### Makeup Tips

I want to point out some information about page-processing programs that was not emphasized in "Publishing Turns an Electronic Leaf" or "Late-Night Layout" in the July 1985 issue of *Macworld*. I have used both *MacDraw* and *ReadySetGo* for page makeup. Those programs share problems that I assume are common to similar programs.

First, the documentation that comes with both programs recommends using the Tall Adjusted orientation, rather than the Tall orientation, when you print combined text and graphics on the Imagewriter. When you use the Tall orientation, the on-screen rulers and other measurements do not accurately correspond to the printed result, although Tall is generally considered to be the aesthetically more pleasing orientation for text.

Second, when you print graphics that were imported from *MacPaint* into these programs either in Tall or Tall Adjusted orientation, the quality of the image seems lower to me than if the same image were printed directly from *MacPaint*.

Finally, if you want to reduce the size of a graphic, these programs can do it. But I have found that I get much better results by printing the image at 100 percent size and reducing it on a photocopy machine that has reducing capabilities.

The net result is that if you want to combine Tall-oriented text with *MacPaint*-quality graphics, you need at least two programs and possibly a copy machine as well, and you still need scissors and paste to finish the job. Perhaps using a LaserWriter overcomes these problems. But those of us limited to an Imagewriter still await the ultimate page-processing program.

*Ted Landau*
*Rochester, Michigan*

*Mail your letters to* Letters, Macworld, *555 De Haro St., San Francisco, CA 94107, or send them electronically to CompuServe 70370,702 or The Source BCW440. All published letters become the property of* Macworld. □

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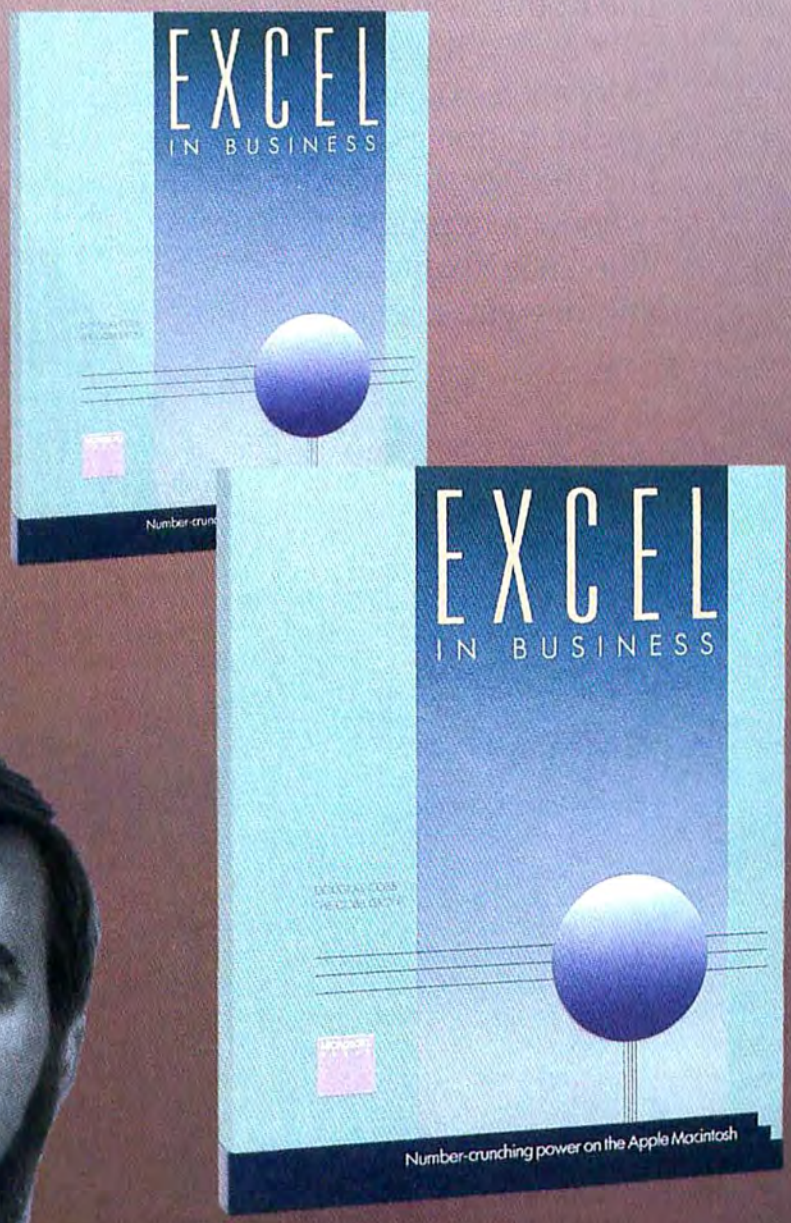


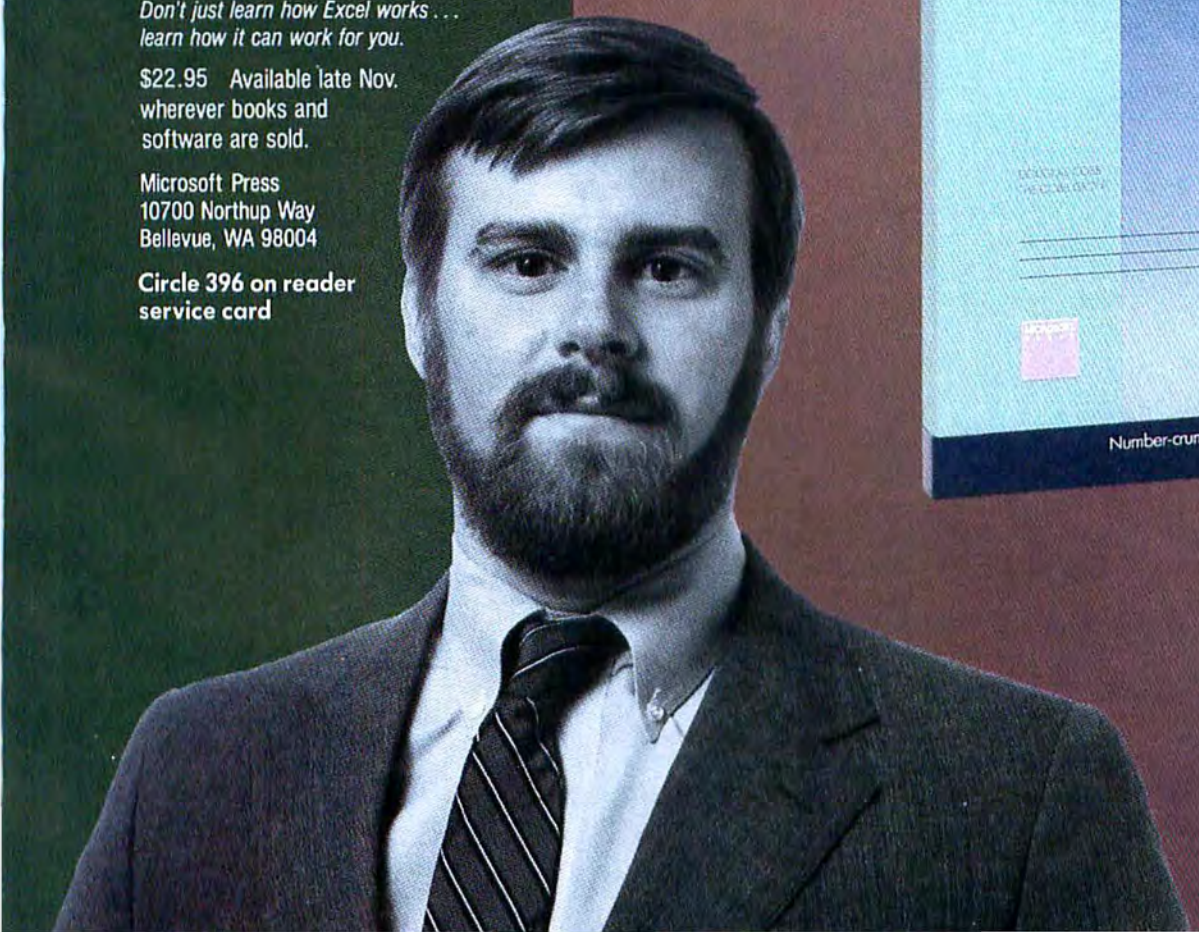

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# strivers, your unabashedly to succeed the boss.

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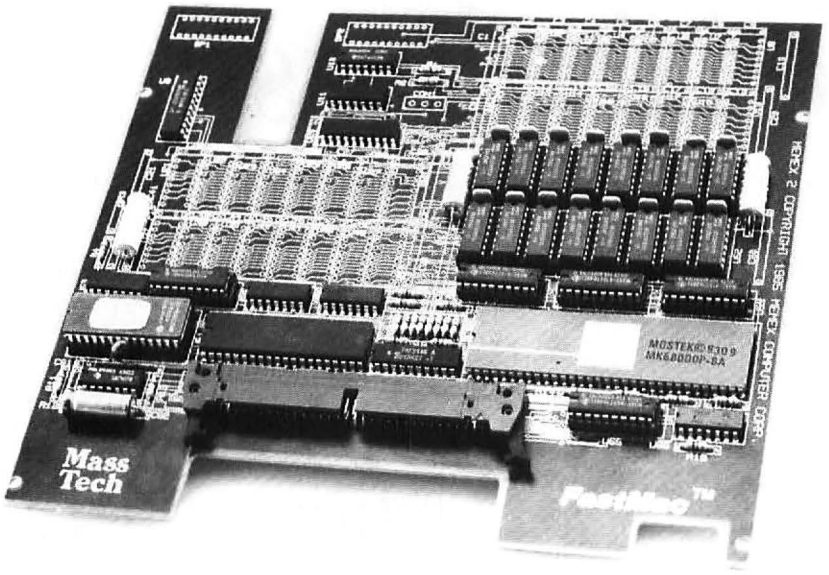
# The FastMac™

## Memory and CPU Performance Upgrade




# 1,1.5, and 2 Megabytes

### Featuring no modification clip-on design easily removed for Apple Servicing

***Introduction:***
The FastMac series of memory upgrades is available in **1, 1.5, and 2 megabytes (true linear memory).** With the FastMac upgrade you will be able to quickly and powerfully create and manipulate large files with programs such as Jazz, Excel, Crunch, Word, Helix, Multiplan, Switcher, etc. Each FastMac upgrade comes with a free electronic disk program which will create itself when the Macintosh is powered on and move your favorite applications to it automatically.

***ROM Enhancement:***
The FastMac upgrade includes the necessary ROM enhancement to run software such as Jazz, Excel, Switcher, etc.

***CPU Performance***
In addition to adding memory, the FastMac upgrade increases CPU performance because of its high performance memory interface design.

***MacFan:***™
Many Macintosh users are concerned about the running temperature of the machine. MassTech offers a cool solution called MacFan. A MacFan is provided with each FastMac upgrade. It exhausts heat out the rear vents of the Macintosh. MacFan mounts securely in the inside back cover of the Macintosh and requires no modifications to the Macintosh's cabinet.

***MacBus:***™
MacBus is a new internal expansion bus which will soon be available on all Fastmac upgrades. This will provide for future expansion of the Macintosh.

***Servicing:***
**Apple servicing can still be provided** because the upgrade can be removed as easily as it was installed. All the necessary circuitry for the FastMac upgrade is located on a seperate circuit board and is connected to the Macintosh board with a simple clip-on connector.

***Warranty:***
The FastMac upgrade has a **warranty of 120 days** from the date of purchase. An extended one-year warranty is also available.

***About MassTech:***
MassTech has provided upgrades for the Apple Macintosh for over one year. Our list of customers includes: Wang Laboratories, Hewlett Packard, The United States Air Force, The United States Navy, Columbia University, Harvard University, Tufts University, The University of Pennsylvania, MIT Lincoln Laboratory, and The University of Rochester.

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| FX85 — 160 cps | $ 499 | $ 399 |
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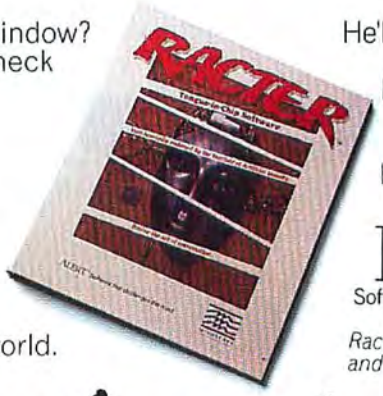


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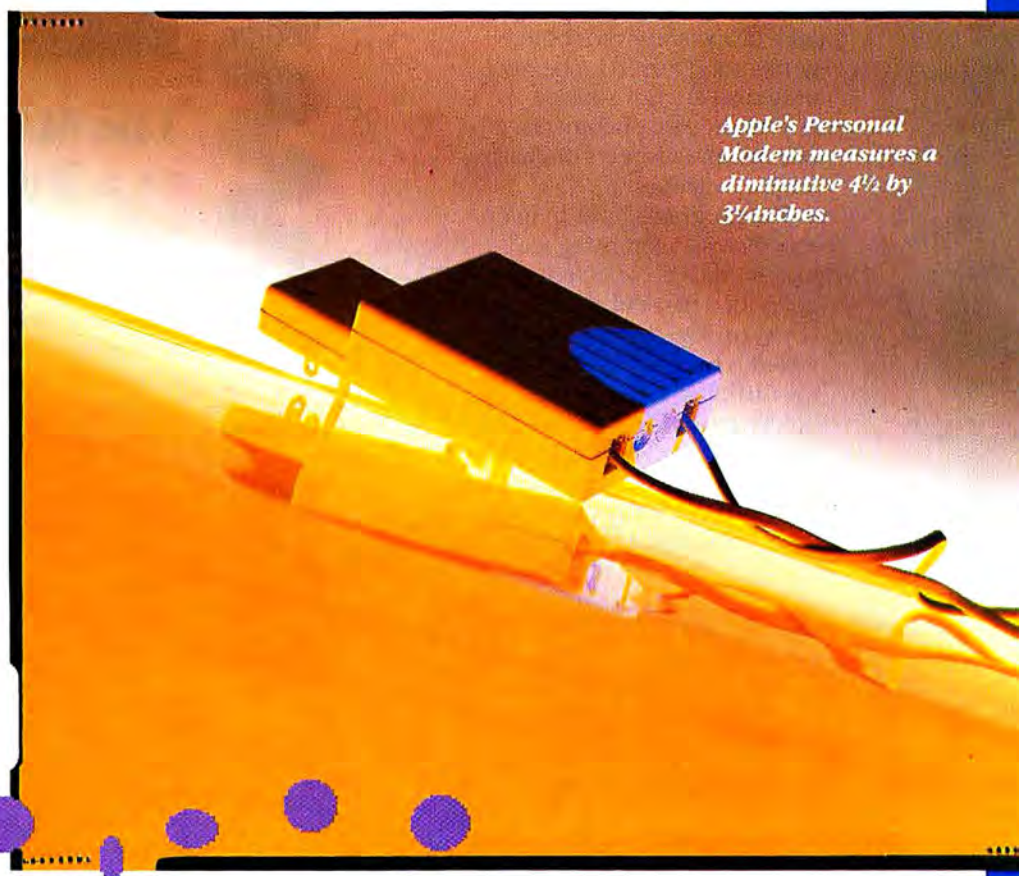
# Macworld View

*A compact modem from Apple, on-line help to go with Jazz and Excel, Mac-generated wine labels, and more*

***Edited by Herschel Schmedick***

*I suspect that many of you have had strange or enlightening encounters with the Macintosh. Or perhaps you've heard of someone else's unique application of the Mac. Your contributions are welcome.* Macworld *pays up to $50 for each item published. Send your contributions to* Macworld View, *555 De Haro St., San Francisco, CA 94107. I look forward to hearing from you.*



***Apple's Personal Modem measures a diminutive 4½ by 3¼ inches.***

## Apple's Compact Modem

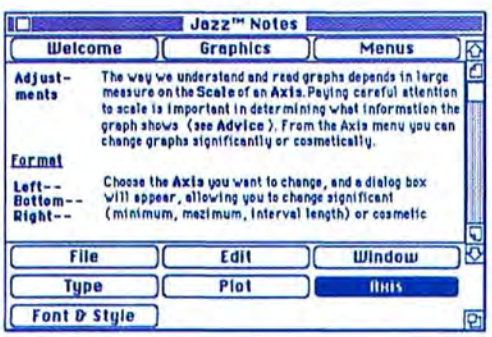
Apple Computer has come up with a compact modem that you can plug directly into a wall outlet or power strip. The 4½- by 3¼-inch Apple Personal Modem consists of two parts: the modem itself and the power connector, which can be attached to the modem in two ways. If you want to plug the unit into a wall outlet, for example, you attach the power connector to the modem with the prongs facing up. With a floor-mounted power strip, you attach the power connector with the prongs facing down. After installing the modem, you can leave it on continuously because it requires little electricity and does not interfere with normal telephone use.

The 300 and 1200-bps Apple Personal Modem works with Macintosh communications programs such as *MacTerminal* and sells for $399. The modem also works with Apple IIs and other computers.—*Daniel Farber*

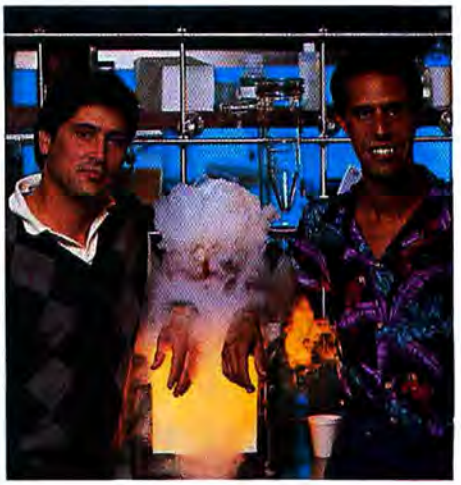
# On-Line Documentation

Layered, developer of *Front Desk,* has created a new concept in on-line help for Macintosh application programs. Notes... for Jazz and Notes... for Excel work as desk accessories and provide on-line documentation that makes learning *Jazz* or *Excel* easy for both beginners and experts. The Notes programs also give advice on how to prepare documents, such as spreadsheets or charts, for presentation.

The programs have an interactive cross-referencing feature, so you can search through notes for a particular topic or keyword. The documentation includes both text and graphics. Clicking on one of the boldface words in the text displays a cross-reference. In addition, clicking on an entry in the table of contents automatically takes you to the appropriate text.




Notes... for Jazz and Notes... for Excel, which sell for $89 each, come with the Business Companion, a series of templates accompanied by on-line help. For information contact Layered, Inc., 85 Merrimac St., Boston, MA 02114, 617/423-9041.–*Daniel Farber*



*Mac scientists Dominic Toboni (left) and Ned Lagin, creators of MacReader, down in the lab.*

# The Macintosh as a Tool for Science

A biotechnology company located in Richmond, California, has developed a new and innovative way of tapping the Macintosh by using it as a tool for immunological analysis.

The company, BIO-RAD, has created a Macintosh program–the MacReader–that can give a scientist or a lab technician information regarding vitamin deficiencies, pregnancy, AIDS, or cancer. To obtain data for the program, the optical density of fluids is measured with an optical reader. The results are then fed into the Macintosh, where the MacReader produces statistical analyses of the data.

The MacReader was written in BASIC by Ned Lagin and Dominic Toboni. Lagin, who is manager of scientific systems at BIO-RAD, is completely self-taught in computers. Trained as a biochemist at MIT, Lagin got involved with computers through electronic music. For five years he performed with the rock group the Grateful Dead. Toboni, on the other hand, has a background in computer science and has been programming at BIO-RAD for two years.

Lagin and Toboni plan to convert many of the BIO-RAD programs currently working on the Apple IIe to the Macintosh. "The Macintosh's user interface and processing speed make it an ideal machine for our research needs," says Lagin. Over the next three years the two expect to create more sophisticated Macintosh application programs in the C programming language for use in several areas of biotechnological research.–*Barbara Leone*

## Bully Hill Vineyards

Walter S. Taylor is a descendant of the oldest family of wine producers in America. Known as the Baron of Bully Hill–the name of his vineyard–Taylor is also famous for his unusual wine labels. Recently he created a label for one of his estate wines–St. Walter de Bully Red Table Wine, vintage 1984–on the Macintosh. A self-taught artist, Taylor's painting of the space shuttle Columbia hangs in the Smithsonian, and he keeps more than 800 of his paintings at his upstate New York vineyard.

Taylor uses the Macintosh for the business side of his winery as well as for his artistic endeavors. "I bought a Macintosh after trying several other computers. The Macintosh, unlike other computers I've used, doesn't intimidate. You don't feel like you're being held hostage by the machine. In the same way that you shouldn't have to consult a wine expert to enjoy wine, you shouldn't have to read extensive manuals or hire a consultant to learn how to use a computer."

The wine maker's latest artistic venture with the Macintosh is a "don't drink and drive" logo created with *MacPaint*. The logo is on the back label of the 800,000 to 1 million bottles produced each year by Bully Hill. The label warns that "Even though wine has been used by humans for 4,523 years, irresponsible use of this product could be harmful." Taylor says he created the label because he wanted to neutralize critics who claim the wine industry is irresponsible.–*Daniel Farber*

*Walter S. Taylor at Bully Hill vineyards–where the Mac hits the bottle. Taylor's Mac-generated wine labels include a "don't drink and drive" warning. Bully.*

## Professional Bibliographic System

Creating bibliographies for books and other documents is usually a tedious, time-consuming process. Personal Bibliographic Software has developed a Macintosh program that takes much of the drudgery out of the task. The *Professional Bibliographic System* creates a bibliographic database, making it easy to set up catalogs for specialized libraries, compile bibliographies for inclusion in articles or books, or create simple reading lists.

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The Biblio-Link utilities let you download records from online services such as Dialog. The program sells for $295. For more information contact Personal Bibliographic Software, Inc., P.O. Box 4250, Ann Arbor, MI 48106, 313/996-1580.
–*Daniel Farber*

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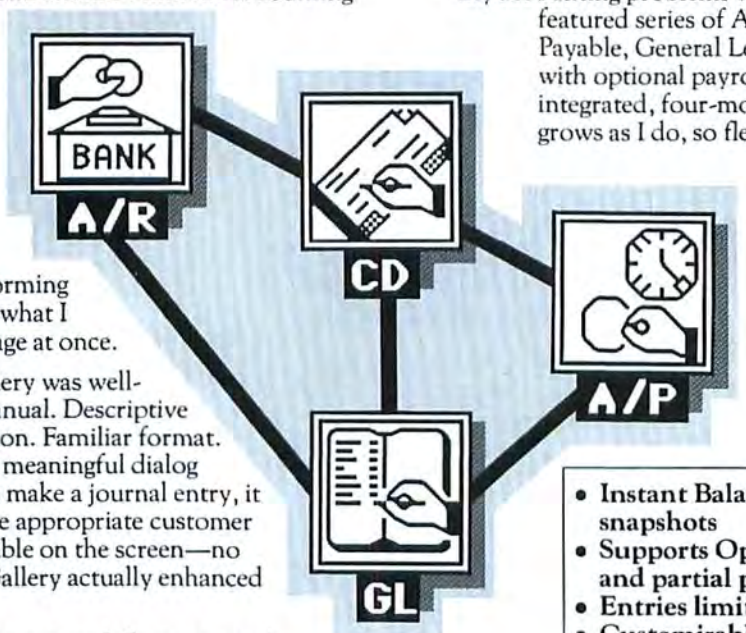


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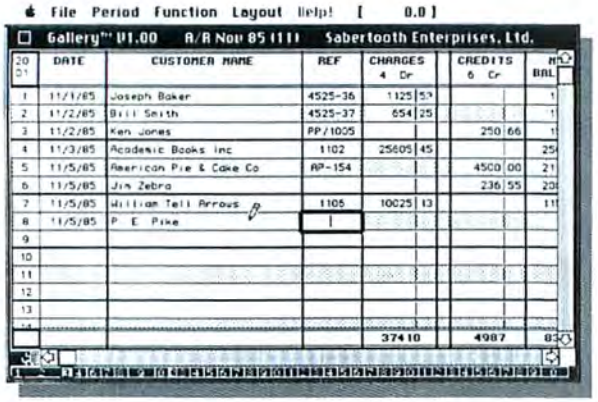


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# Turning Japanese

*Haruyuki Wada, Robert Cory, Fred Scherrer, and Hidetoshi Ichihashi (left to right) of Apple Japan*

Apple selling computers in Japan is like Pepsi hawking cola drinks in Coke's company cafeteria. Apple Japan, whose parent corporation is headquartered in the former orchards of Cupertino, California, has had offices in the concrete canyons of Tokyo only since December 1984. One of the early lessons Apple Japan executives have learned is that "you can't turn Japan around overnight," as director of direct sales Fred Scherrer puts it.

Among the difficulties the subsidiary faces, after the formidable homegrown competition, are the lack of Japanese-language software, hardware products not intended for the Japanese market, and a local corporate style that reflects radically different assumptions from those in the North American business scene.

In the fall of 1985, nearly 18 months after the Macintosh was introduced in Japan, Apple released its Japanese-language word processor for the Mac. The program was long awaited because the Mac of the Rising Sun had as much chance as a squid in a sushi bar without it. Japanese word processing involves keying in the phonetic symbols and then having the computer convert the symbols into kanji, which is displayed on screen or printed out.

While Apple Japan's software development seems well on its way, general manager Robert D. Cory suggests that some hardware development is also desirable. "The real issue," Cory says, "is a long-term one. We have to develop products specifically for this market. Apple will not be competitive in Japan if it always offers a product that's designed and built in the United States. That's a simple truth. No one else tries."

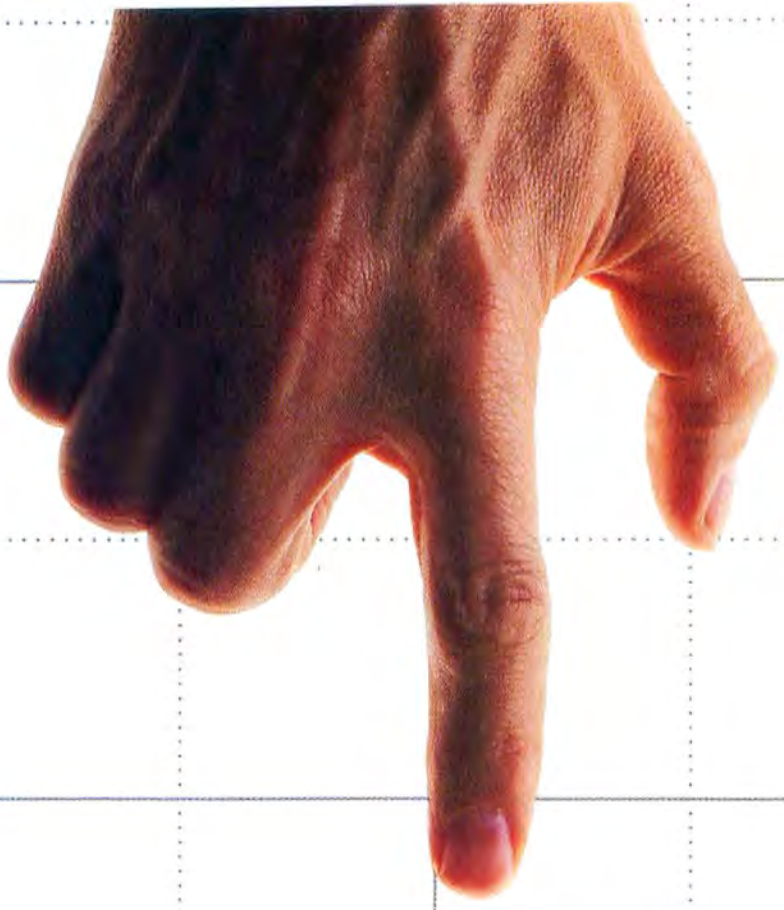
In its advertising as well, Apple Japan has taken the unbeaten path. While local products are often advertised with images from American culture, ads for the Macintosh feature traditional Japanese themes such as a bonsai tree or a classical painting. "A tiny bonsai tree," marketing assistant director Haruyuki Wada explains, "is 200 years old, but it is also a universe. Like the bonsai, the Macintosh is small, but the idea contained in it is large. We wanted to convey the idea of the Mac's powerful features and functions contained in a small box."

The Macintosh screen is one feature that isn't making any tsunamis in Japan. Cory says, "The Mac basically has a low-resolution screen by Japanese standards"–just another cola drink, so to speak.–*J. E. Arcellana*

## Macworld's Top 10 Best-Selling Business Software

| Months on chart | Last month | This month | Product |
|---|---|---|---|
| 2 | 1 | 1 | *Jazz,* Lotus Development |
| 6 | 2 | 2 | *Microsoft Word,* Microsoft |
| 6 | 3 | 3 | *Microsoft Multiplan,* Microsoft |
| 5 | 4 | 4 | *Microsoft File,* Microsoft |
| 6 | 6 | 5 | *Dollars and Sense,* Monogram |
| 3 | 7 | 6 | *MacDraw,* Apple Computer |
| 6 | 5 | 7 | *Microsoft Chart,* Microsoft |
| 0 | – | 7 | *Helix,* Odesta |
| 0 | – | 8 | *ThinkTank,* Living Videotext |
| 0 | – | 9 | *ClickOn Worksheet,* T/Maker |

Source: InfoCorp survey of over 300 retail stores



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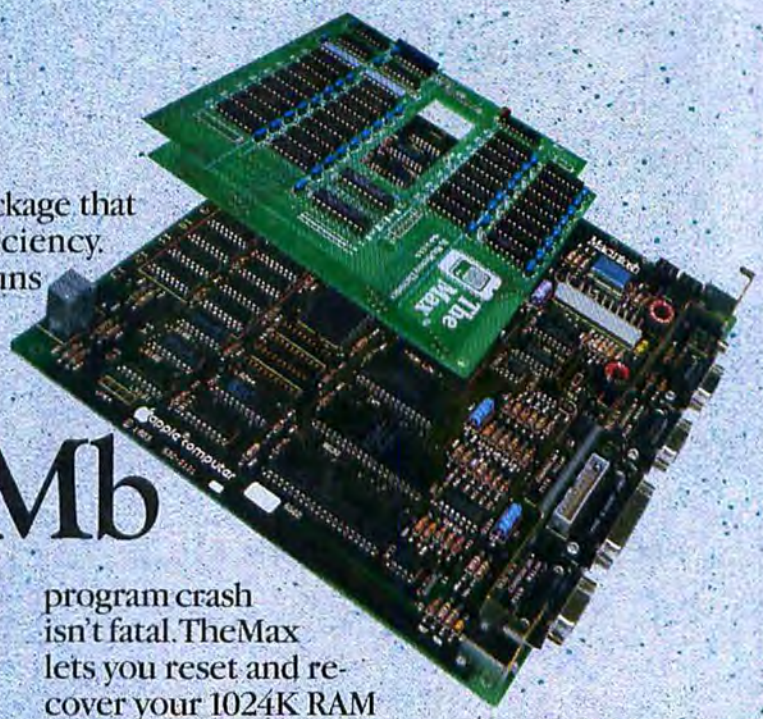

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† Due to the unavailability of the one megabit chip, MacMemory anticipates but cannot warrant expandability to four megabytes. The expected production release date is early 1986.

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# Get Info

*Macworld's tutor answers questions about CompuServe screens, sharing peripherals, and flipping MacPaint documents*

***Lon Poole***

Saving information as it scrolls off the screen is a good way to keep a journal of your on-line activities. This month, a CompuServe subscriber points out a problem with that technique. Those of you who own more than one personal computer may be faced with the problem of using your peripherals with several computers. One reader wants to double up the Imagewriter with a Macintosh and an Apple IIc, while another wants to use a modem with the Mac and another computer.

Hints for adding custom paper sizes to the Page Setup dialog box, flipping *MacPaint* documents, and working with Microsoft BASIC to control a modem round out this month's column.

### CompuServe Clear

**Q.** Using *MacTerminal* to record lines from CompuServe as they scroll off the top of the screen works fine until CompuServe comes to the end of the file it's sending, at which time you go back to a menu. When you do, the screen clears, and that last screenful of information is not recorded off the top for future use. You can save the last screen by typing ⌘-L 24 times before going back to the menu, but that is awkward. How can the last screen be automatically scrolled off the top? Changing terminal settings (page length or form feed) on CompuServe doesn't seem to help.
*Mark B. Schupack*
*Providence, Rhode Island*

**A.** *MacTerminal* can mimic two of the six types of terminals that work with CompuServe: ANSI compatibles, such as Digital Equipment Corporation's VT-100, and teletypes (TTY). When *MacTerminal* emulates an ANSI-compatible VT-100, invisible control characters sent by CompuServe determine where to position text and when to clear the "screen" (that is, the program's window). When *MacTerminal* acts like a TTY terminal, it responds only to CompuServe's invisible return and line-feed control characters. A return character moves the cursor to the left edge of the screen, and a line-feed character drops the cursor down one line. A TTY terminal cannot actually clear the screen; it can only simulate the process by scrolling up enough blank lines to force all the text off the top of the screen.

Therefore, to capture all the information sent by CompuServe, you want *MacTerminal* to act like a TTY terminal, not a VT-100 terminal. Choose Terminal from *MacTerminal*'s Settings menu and click TTY in the dialog box that appears.

You must also tell CompuServe which terminal type you are using. Type GO TERMINAL at any exclamation point prompt to display CompuServe's Terminal/Options menu. Choose option 2, Setting Your Terminal Type, to proceed to the Terminal Type menu. Choose type 6, which is Other (General Purpose). The CompuServe command prompt then reappears so you can go on with your work.

### Easy Serial Port Setup

**Q.** In the September 1985 issue, you recommended setting up the serial port as described in *Inside Macintosh* ["Modem Control with MBASIC 2.0," *Get Info*]. Can't this be done with the OPEN statement in Microsoft BASIC?
*Angus Faircloth*
*Halstead, Kansas*

*(continues on page 56)*

# Miles Computing Entertainment Software. The Promise Fulfilled.

When the Macintosh first came out, everyone looked at it and said, "Wow, wait 'till the gaming wizards get ahold of this baby..." And some of them did. But some of the "quick and dirty" products that have appeared have left some entertainment software for the Mac a little disappointing.

Here at **Miles Computing**, software designers who simply will not put up with second best, or half-baked concepts, have delivered entertainment products of such intensity of effort and such depth that our designers say "Wow, wait 'till people get ahold of *this*..."

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**Harrier Strike Mission** is follow-up to MacAttack! in a tour-de-force of Assembly language utilizing sensational 3-D graphics. This flight combat simulator features the famous Harrier Jump Jet, a fighter aircraft which can maneuver like a helicopter but has all the punch of the latest in modern jet armament. You are pitted against an enemy-occupied island firing heat-seekers, not to mention fighter aircraft in mid-air combat. You must take off from an aircraft carrier, take out the command post and fuel depot on the island and return to your ship. With two skill levels and your choice of day or night mission, mouse or joystick controls, it's the ultimate 3-D flight combat simulator.

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If real trouble is what you're looking for, **MacWars** has it. Miles Computing just can't keep away from 3-D, and this one has a black planet strewn with a deadly obstacle course of surface and sky targets through which you fly your laser cannon-equipped and shielded space ship. On the way to the enemy's planet-sized space station you must survive waves of enemy space paraphernalia, and only your mouse or joystick stand between you and destruction as the waves keep coming, and coming, making things "rather difficult indeed" for you.

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MACATTACK!
MACATTACK!
OVERLORDS
OVERLORDS
GROUND MISSILE ALERT!
HARRIER STRIKE MISSION
MILES
Computing

*(continued from page 51)*

**A.** I see you read your manuals. In Microsoft BASIC 2.0, you can easily set up the modem port with a statement such as this:

```
OPEN "COM1:1200,N,8,1" FOR OUTPUT
  AS #1
```

This example would open the modem port for output at 1200 bps, no parity, 8 data bits, and 1 stop bit, through file #1. For more information, see the Microsoft BASIC Interpreter manual, page 42 and pages 200-201.

### One Imagewriter for a Mac and an Apple IIc

**Q.** I own an Apple IIc, and my brother obtained a Macintosh through his college. We were looking for a printer to use with both computers. Naturally, the Apple Imagewriter was our first choice; it was designed for both computers. We noticed that the serial port on the IIc is different from that of the Macintosh. How does the same printer work with computers that have different ports?

*Bob Dizon*
*Willingboro, New Jersey*

**A.** All you need to hook up the Imagewriter to any computer–Apple IIe, Apple IIc, Macintosh, Macintosh XL, or even non-Apple computers–is the proper cable. Apple packages the original Imagewriter without cables, but when you buy a printer, the dealer includes an accessory kit with the cable to match your computer. Strictly speaking, the accessory kits are not sold individually, so you'll have to negotiate for the extra cable you need. The Apple product numbers for the accessory kits are listed in Table 1.

| Computer | Accessory Kit Product Number |
|---|---|
| Apple IIc | A2C4515 |
| Apple IIe | A2C0352 |
| Macintosh | M0150 |
| Macintosh XL | A60352 |

***Table 1***
*Apple product numbers for Imagewriter accessory kits*

You can also buy an Imagewriter-to-Mac cable from other companies (for example, $29.95 from N-Squared Products, 408/435-0227). There are no accessory kits specifically for the ImageWriter II (see "The ImageWriter, Round II" in this issue). Individual cables for the new model are sold separately.

In addition to switching cables, you may have to change a switch setting inside the Imagewriter. Beneath the top cover of the original Imagewriter, you can find two rows of small DIP switches, labeled SW 1 and SW 2, visible through a window on the right-hand side of the metal track under the print head. Switch 5 of SW 1 must be in the open position for the Mac, but you may need to flip it to the closed position for the Apple IIc or other computers. A photo on page 8 of the Imagewriter User's Manual shows where the DIP switches are.

Incidentally, to use the Imagewriter or any other serial printer with an Apple IIe, you also need a Super Serial Card (Apple product number A2B0044, $139) or the equivalent.

*(continues on page 58)*

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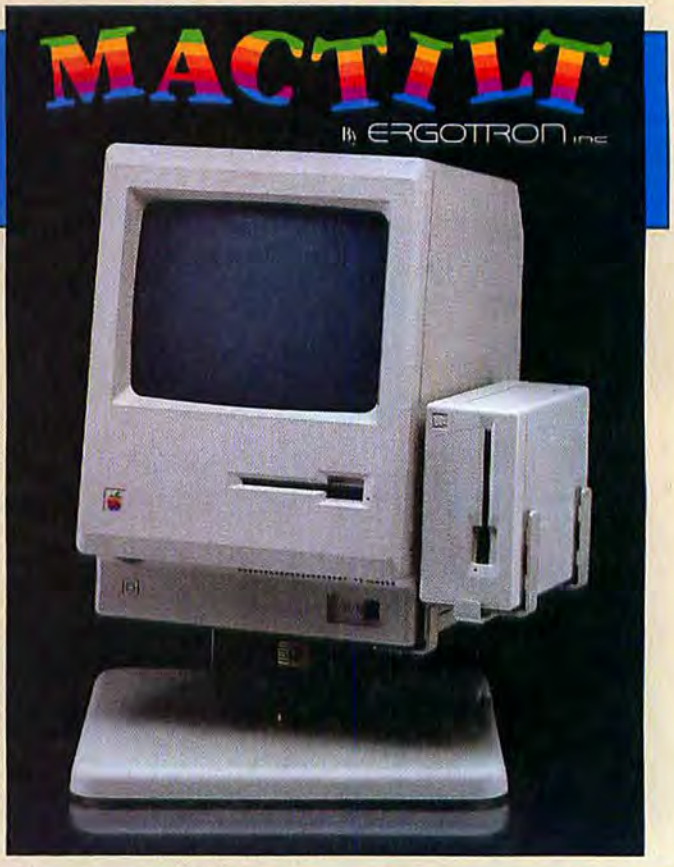


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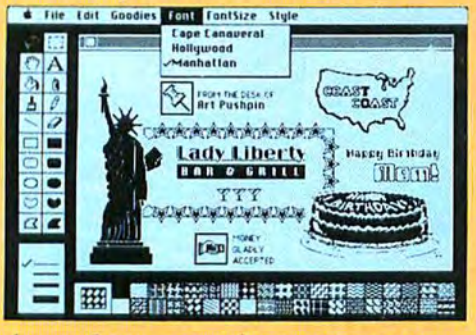


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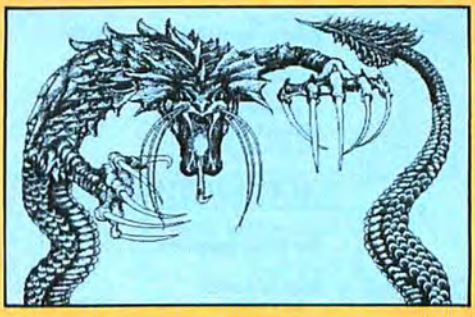

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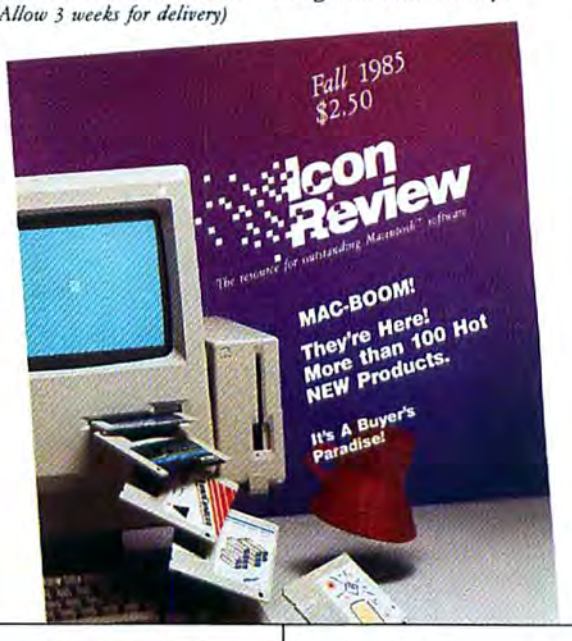


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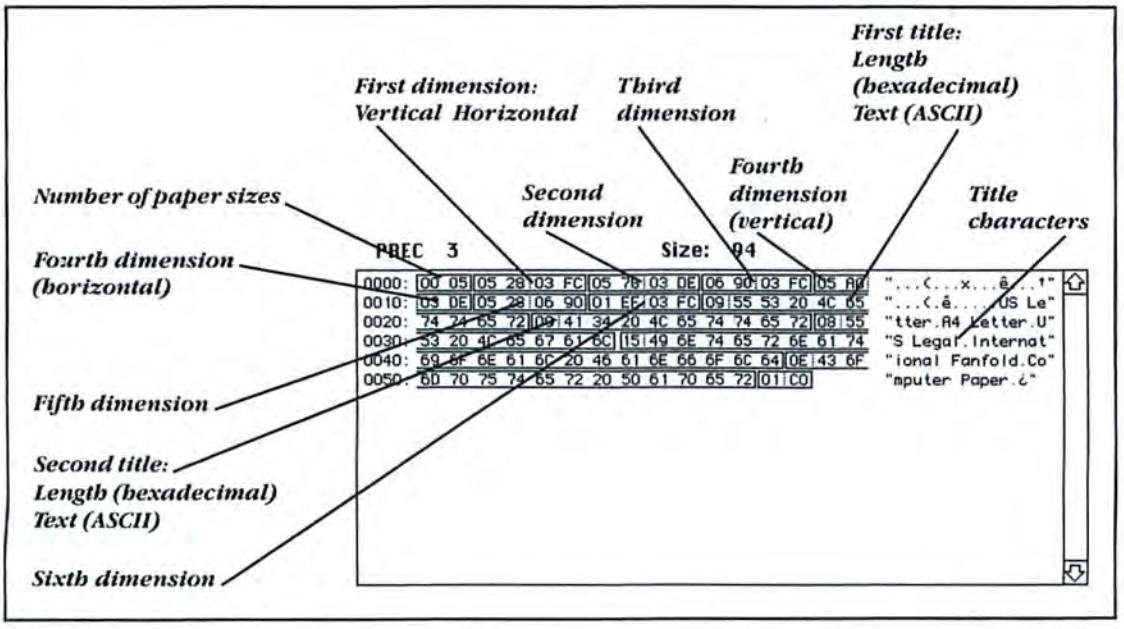


***Figure 1***

*You can add custom paper sizes for printing by opening the ImageWriter file with REdit. Double-click on the icon labeled PREC, select icon 3, and choose Patch Data from the Edit menu. You can then edit the resulting screen, which consists of a table of paper dimensions followed by a series of titles for each paper size.*

*(continued from page 54)*

### Big Flip

**Q.** How can I horizontally flip an entire *MacPaint* document, not only the part in the drawing window?
*Claude Oppikifer*
*Richterswil, Switzerland*

**A.** *MacPaint* itself can't do what you want. However, the *Paint Cutter* program (part of *Accessory Pak 1*, $39.95 from Silicon Beach Software) allows you to select a rectangular region of any size from a *MacPaint* document. The program lets you cut, copy, flip vertically, flip horizontally, and rotate the selection.

### Editing Resources for Custom Paper Sizes

**Q.** Several of the five paper sizes offered in most Page Setup dialog boxes are of no use to me. Is there any way to convert them to more useful sizes for use with labels, envelopes, index cards, or small letters?
*Denise Fogle*
*Raleigh, North Carolina*

**A.** The paper sizes listed in the dialog boxes are part of the resources in the ImageWriter file. Intrepid Mac users can change resources using a resource editor such as ResEd or REdit. Both programs come as part of the Macintosh Software Supplement ($100 plus tax for California residents from Apple Computer, 467 Saratoga Ave. #621, San Jose, CA 95129). They are also available from many local user groups and from MAUG on CompuServe or Delphi.

For safety you should make the resource changes on a copy of the disk you want to change. Then test the copy thoroughly before replacing the original with it. Not all paper sizes work with all applications. For example, *MacWrite*'s 1-inch-minimum left margin makes it hard to use small sizes effectively.

Using REdit, open the ImageWriter file as you would open a document in any application. A window titled ImageWriter appears, filled with icons. Each icon represents a different type of resource in the ImageWriter file. Double-click on the large question mark icon labeled PREC. Another window appears, titled PREC, showing three more icons. Select the icon labeled 3 and choose Patch Data from the Edit menu. An alert box appears, warning you not to proceed unless you know what you're doing; click OK.

A large window appears, giving you a hieroglyphic view of the page-size dimensions and titles. All the information is encoded in hexadecimal numbers (see Figure 1, and if you're not fluent in hexadecimal, see Table 2). The first four digits specify the number of paper sizes defined in the file. Do not set the number of sizes lower than 0001 or higher than 0006. If you do, the results are unpredictable and unpleasant.

Following the number of paper sizes is a table of six sets of dimensions. Dimensions are expressed in increments of 1/120 inch, and each is written as a four-digit hexadecimal number. For example, 11 inches equals 1320/120, and 1320 in hexadecimal is 0528.

Following the table of dimensions is a table of six paper-size titles. Each title begins with a two-digit hexadecimal number that specifies the title's length. Following the length is the text of the title. Each text character is encoded as a two-digit hexadecimal number, but you can read the titles on the right side of the window, between the quotation marks.

*(continues on page 63)*

**Decimal-Hexadecimal Conversion**

| Decimal | Hexadecimal |
|---|---|
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 | A |
| 11 | B |
| 12 | C |
| 13 | D |
| 14 | E |
| 15 | F |
| 16 | 10 |
| 17 | 11 |
| 18 | 12 |
| 19 | 13 |
| 20 | 14 |

***Table 2***

*Decimal to hexadecimal conversion table*

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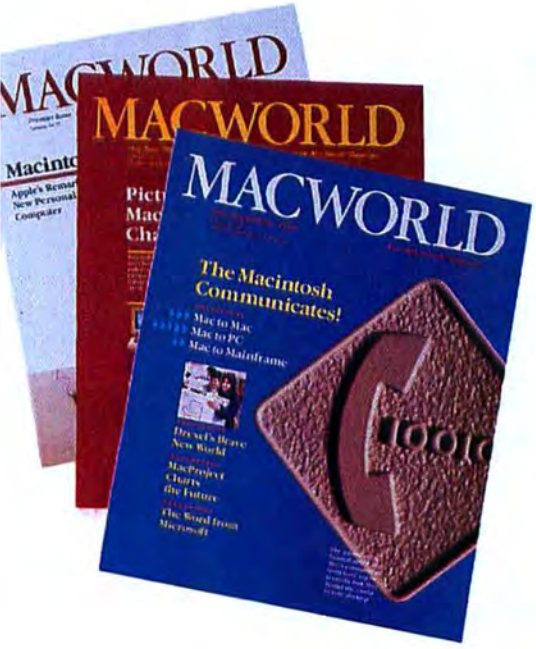


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FERRARA

*(continued from page 60)*

The period ahead of each title is a placeholder for the title's length.

If the displayed titles or dimensions are not to your liking, you can change them with REdit. Table 3 lists titles and dimensions for several common paper sizes. To change any hexadecimal number, point at the first digit, click, and type the new number. As you type, REdit automatically advances to the next digit, so you needn't point and click separately for each digit. To change a title, select the period just ahead of the first letter, press the Tab key, and type the new title's length. Then press the Tab key again and type the new title. Pressing the Tab key switches between the numeric and text areas of the window. The titles must follow each other without gaps. Therefore, if the new title is longer or shorter than the old one, you will have to retype all titles that follow it in the table, including their lengths. Using REdit, you can use up to 62 characters for all six titles, or about 10 characters apiece, not including the title length.

**Sample Paper Sizes**

| Description | | Height by Width | | |
|---|---|---|---|---|
| **Text** | **Hexadecimal code*** | **Inches** | **1/120 inch** | **Hexadecimal code** |
| US letter | 09 55 53 2D 4C 65 74 74 65 72 | 11 by 8.5 | 1320 by 1020 | 05 28 03 FC |
| A4 letter | 09 41 34 2D 4C 65 74 74 65 72 | 11.66 by 8.25 | 1400 by 990 | 05 78 03 DE |
| US legal | 08 55 53 2D 4C 65 67 61 6C | 14 by 8.5 | 1680 by 1020 | 06 90 03 FC |
| International fanfold | 15 49 63 74 65 72 63 71 74 69 6F 6E 61 6C 20 46 61 63 66 65 6C 64 | 12 by 8.25 | 1440 by 990 | 05 A0 03 DE |
| Computer paper | 0E 43 6F 6D 70 75 74 65 72 20 50 61 70 65 72 | 11 by 14 | 1320 by 1680 | 05 28 06 90 |
| Envelope | 08 45 6E 76 65 6C 6F 70 65 | 4.16 by 9.5 | 500 by 1140 | 01 F4 04 74 |
| Small envelope | 0E 53 4D 61 6C 6C 20 45 6E 76 65 6C 6F 70 65 | 3.67 by 6.5 | 440 by 780 | 01 B8 03 0C |
| Label | 05 4C 61 62 65 6C | 1 by 3.5 | 120 by 420 | 00 78 01 A4 |
| File card | 09 46 69 6C 65 20 43 61 72 64 | 3 by 5 | 360 by 600 | 01 68 02 58 |
| Note card | 09 45 6E 76 65 20 43 61 72 64 | 4 by 6 | 480 by 720 | 01 E0 02 D0 |
| Post card | 09 50 6F 73 74 20 43 61 72 64 | 3.5 by 6 | 420 by 720 | 01 A4 02 D0 |
| Half letter | 0B 48 61 6C 66 20 4C 65 74 74 65 72 | 8.5 by 5.5 | 1020 by 660 | 03 FC 02 94 |
| Small letter | 0C 53 4D 61 6C 6C 20 4C 65 74 74 65 72 | 10.5 by 7.25 | 1290 by 870 | 05 0A 03 66 |

** First two digits specify the number of characters (in hexadecimal)*

***Table 3***
*The hexadecimal codes for the paper sizes and titles in the PREC resource. Use REdit or ResEd to edit icon 3 of the PREC resource in the ImageWriter file.*

### Modem Cable

**Q.** I would like to connect my Macintosh to a modem that I already own. How can I find out which pins on the modem's connector are active, and how can I build a cable to connect the modem to my Mac? Also, which communications software is good for someone who doesn't need a lot of bells and whistles, but who needs to talk to a remote mainframe?
*Jim Murray*

**A.** The Macintosh modem port has a 9-pin socket, but your modem probably has a 25-pin socket. The cable between the two devices requires only five wires, so several pins are unused. Connect the wires as described in Table 4.

| Mac pin | Function | Modem pin |
|---|---|---|
| 1 | Frame ground | 1 |
| 3 | Signal ground | 7 |
| 5 | Data → | 2 |
| 7 | Ready | 20 |
| 9 | ←Data | 3 |

***Table 4***
*To connect a Macintosh to a modem with a 25-pin socket, connect the wires as shown here.*

The simplest terminal software I know of is the MockTerminal desk accessory ($25 from CE Software, 515/224-1995, or from your local user group or MAUG on CompuServe). It offers two baud rates, a small dialing directory, and text file capture of incoming information. If you need to send information or use an error-checking protocol, the FreeTerm program may suffice (available free from local user groups or MAUG on CompuServe). *MacTerminal* ($99 from Apple) has even more features, notably the ability to act like different types of terminals.

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Jazz Training ..... 39.
**Batteries Included**
The Mac BatteryPak ..... 27.
**Blyth Software**
✓Omnis 3 *(requires 512k, external drive)* 245.
**Borland International**
✓Sidekick *(unprotected)* ..... 44.
**BrainPower**
✓PowerMath *(requires 512k)* ..... 52.
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**Casady Company**
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Rags to Riches Receivables..... 105.
Rags to Riches Payables ..... 105.
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✓MacSpell+ *(requires 512k)* ..... 55.
**DataFood**
✓DrawForms *(requires MacDraw)* ..... 30.
✓MacForms *(requires MacPaint)* ..... 42.
**Desktop Software**
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✓1st Merge ..... 48.
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Speller Bee..... special
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✓Factfinder ..... 84.
✓FileMaker ..... 108.
**Great Wave Software**
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**Hippopotamus Software**
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Hippo-C - Level 2..... 219.
**Human Edge Software**
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✓The Management Edge..... 127.
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✓Forecast ..... 40.
✓Dollars & Sense..... 81.
**Nevins Microsystems**
Turbocharger *(requires 512k)*..... 55.
**New Canaan MicroCode**
Mac Disk Catalog..... 25.
**Odesta**
✓Helix *(requires 512k, external drive)* .. 219.
**Organizational Development Software**
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✓Crunch *(requires 512k)* ..... 165.
**Palantir**
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✓MathFlash *(math flash card drills)*..... 26.
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General Ledger *(requires Basic)*..... 69.
Inventory Control *(requires Basic)*..... 69.
inTouch *(communication to emulation)*.. 79.
**PBI Software**
✓Icon Switcher..... 14.
✓Icon Fun & Games Library ..... 14.
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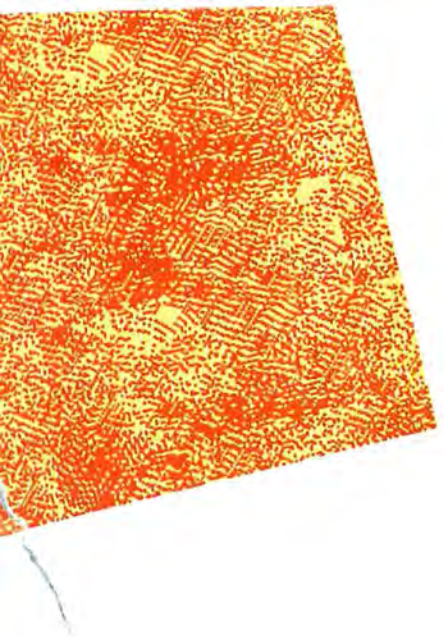

# A Clipboard Collage

***Gordon McComb***

*One of the Macintosh's most notable features is its ability to cut information from one program and paste it into another. For example, the Mac lets you insert a* MacPaint *picture into a* MacWrite *document, convert numbers from a spreadsheet into a graph with* Microsoft Chart, *or take whole paragraphs of text from a word processor and plug them into a* MacDraw *floor plan.*

Cutting and pasting between programs isn't difficult. It's helpful, however, to know a few tricks, such as how to handle large clippings, how to use Apple's Switcher, and how to make sure the information you cut and paste is transferred in the size, shape, and format you have in mind. The following tips make cutting and pasting with the Macintosh a breeze—or at least less of a chore.

## The Basics

The basic cutting and pasting routine is much the same for most Macintosh programs. Select the data you want in the source document and choose Cut or Copy from the Edit menu. Doing so places the selection, or a copy of it, in the Clipboard. Exit the application and open the document into which you want to put the data. Select an insertion point and choose Paste from the Edit menu.

When you cut and paste a large clipping, the Macintosh stores the data in a temporary Clipboard file on disk. The file is placed on the disk that holds the application you're using, regardless of whether the application is on the startup disk. Therefore, if you change disks to load the application you want to paste to, the Mac may ask you to swap disks as it copies the Clipboard file to the new disk. If you have an external drive, you can avoid disk juggling by putting the application you've cut from in one drive and the application you're pasting to in the other.

### Clipboard versus Scrapbook

The Clipboard holds only one clipping at a time. If you're cutting and pasting several clippings, you should use the Scrapbook. It's important to remember that the Macintosh uses the Scrapbook file—the file that holds all the Scrapbook clippings—on the current startup disk. If the application you're pasting to is on another startup disk (that is, a disk containing a System file and the Finder), copy the current Scrapbook file to that disk. If the destination disk already has a Scrapbook file, you'll erase the file unless you change its name.

If you frequently share Scrapbook data between applications, two utilities may help. One is Multi-Scrapbook, a public-domain desk accessory that lets you create several Scrapbook files on one or more disks and enables you to select among them at will. The other is Extras, an inexpensive desk accessory that lets you change the disk that the Mac uses for the current Scrapbook file. Both desk accessories are available through CompuServe and from most Macintosh user groups.

# Mac more merry

**SoftStyle**
Epstart ..... $27.
Jetstart ..... 27.
Toshstart ..... 27.
TIstart ..... 49.
Laserstart ..... 59.
Decision Map ..... 79.
**Software Publishing**
PFS:File/Report ..... 100.
**Springboard**
Art a la Mac Vol. 1-People and Places 23.
Art a la Mac Vol. 2-Variety Pack ..... 23.
**State of the Art**
Electric Checkbook ..... 45.
**Symmetry**
QuickDisk *(requires 512k)* ..... 21.
**T/Maker**
Click Art Personal Graphics ..... 29.
Click Art Publications ..... 29.
Click Art Letters ..... 29.
Click Art Effects ..... 29.
ClickOn Worksheet ..... 46.
**Telos Software**
Filevision ..... 99.
**Think Educational**
Mind Over Mac ..... 29.
MacEdge II *(math & reading)* ..... 29.
**Videx**
MacCalendar ..... 51.
**Warner Software**
The Desk Organizer ..... 55.

## GAMES

**Aegis Development**
MacChallenger *(flight simulation)* ..... 23.
**Activision**
Hacker ..... 27.
Mind Shadow ..... 27.
**Ann Arbor Softworks**
Grid Wars ..... 22.
**Blue Chip**
Millionaire *(stock market)* ..... 30.
Tycoon *(commodities)* ..... 30.
Baron *(real estate)* ..... 30.
Squire *(personal finance, reqs. 512k)* ... 30.
**BrainPower**
Think Fast *(improves recall)* ..... 23.
Chipwits ..... 26.
**Broderbund Software**
Lode Runner ..... 24.
Cyborg *(sci-fi text adventure)* ..... 24.
Ancient Art of War ..... 27.
**CBS**
Murder by the Dozen ..... 25.

### MacConnection Special of the Month
*through January 31, 1986*

**HAYDEN SOFTWARE**
With the selection of **VideoWorks,** Mac's complete animation package, you can choose to receive either **MusicWorks** *(compose & listen to your songs on the Mac)* or **M.U.D.** (MacroMind Utility Disk—*a series of useful & creative desk accessories)* at no extra cost.
- **VideoWorks** ..... $57.
- **MusicWorks** or **M.U.D.** ..... free

**1ST BYTE**
With the purchase of **SmoothTalker,** the voice synthesis program for the Mac, you'll also receive your choice of either **KidTalk** *("talking notebook" helps improve reading & writing)* or **Speller Bee** *(spelling-learning tool for pre-school through junior-high students)* absolutely free.
- **SmoothTalker** ..... $57.
- **KidTalk** or **Speller Bee** ..... free

**Creighton Development**
MacCommand ..... 21.
**Epyx**
Rogue *(great graphics)* ..... 24.
Temple of Apshai Trilogy ..... 24.
Winter Games ..... 24.
**Gamestar**
Championship Star League Baseball ... 22.
**Hayden Software**
Masterpieces ..... 24.
Word Challenge II ..... 24.
Sargon III *(9 levels of chess)* ..... 29.
Perplexx ..... 24.
**Infocom**
Seastalker *(junior)* ..... 24.
Cutthroats *(standard)* ..... 24.
Enchanter *(standard)* ..... 24.
Hitchhiker's Guide *(standard)* ..... 24.
Planetfall *(standard)* ..... 24.
Wishbringer *(standard)* ..... 24.
The Witness *(standard)* ..... 24.
Zork I *(standard)* ..... 24.
Zork II *(advanced)* ..... 27.
Zork III *(advanced)* ..... 27.
A Mind Forever Voyaging *(advanced)* .. 27.
Infidel *(advanced)* ..... $27.
Sorcerer *(advanced)* ..... 27.
Suspect *(advanced)* ..... 27.
Deadline *(expert)* ..... 29.
Spellbreaker *(expert)* ..... 29.
Starcross *(expert)* ..... 29.
Suspended *(expert)* ..... 29.
*Invisiclues (hint booklets)* ..... 6.
**Magnum**
Gypsy *(the Computer Oracle)* ..... 23.
**Mark of the Unicorn**
Mouse Stampede *(highly addictive)* .... 23.
**Miles Computing**
MacAttack *(3-D tank simulation)* ..... 27.
Harrier Strike *(3-D flight simulation)* ... 27
**Mindscape**
Balance of Power ..... 30.
Déjà Vu *(murder mystery)* ..... 33.
**Mirage Concepts**
Trivia *(hours of fun)* ..... 19.
**Origin Systems**
Exodus: Ultima III *(fantasy adventure)* .. 38.
**PBI Software**
Feathers & Space ..... 21.
Strategic Conquest ..... 29.
Fokker TriPlane Flight Simulator ..... 35.
**Penguin**
Crimson Crown ..... 24.
Transylvania ..... 24.
The Quest ..... 24.
**Pryority Software**
Forbidden Quest ..... 24.
Gateway *(sci-fi fantasy adventure)* ..... 25.
**Psion**
Psion Chess *(3D and multi-lingual)* ..... 31.
**Scarborough Systems**
Run for the Money ..... 29.
Make Millions ..... 29.
**Sierra On-Line**
Frogger ..... 24.
Championship Boxing ..... 24.
Ultima II *(role-playing adventure)* ..... 35.
**Silicon Beach Software**
Airborne! ..... 21.
Enchanted Scepters ..... 24.
**Soft-Life Corp.**
Mac-Slots ..... 25.
*The best one-armed bandit going!*
**Spectrum Holobyte**
GATO *(submarine simulation)* ..... 26.
**Telarium**
Amazon ..... 27.
Dragon World ..... 27.
Farenheit 451 ..... 27.

## 1-800/Mac&Lisa 540U

# MacConnection™

MacConnection, 14 Mill Street, Marlow, NH 03456 800/622-5472 603/446-7711

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*Defective software replaced immediately. Defective hardware replaced or repaired at our discretion. Some items have warranties up to five years.

Circle 4 on reader service card

# this Xmas.

**The Other Valley Software**
Monkey Business *(arcade action)* ..... $21.
Delta Patrol *(arcade action)* ..... 21.
**Unicorn**
Futuria *(sci-fi adventure)* ..... 24.
Utopia *(science fantasy game)* ..... 24.
Animal Kingdom *(ages 6-12)* ..... 27.
*Science and language arts program.*
Mac Robots *(pre-school program)* .... 27.
**Videx**
Funpak ..... 23.
MacCheckers/Reversi ..... 28.
MacGammon/Cribbage ..... 28.
MacVegas ..... 34.

## HARDWARE

**Assimilation**
Mac-Port-Adaptor ..... 69.
Mac-Epson-Connection ..... 75.
Mac-Daisywheel-Connection ..... 79.
Mac-Turbo-Touch ..... 79.
Numeric-Turbo ..... 129.
**Compucable**
Mac to Hayes Smartmodem cable ..... 16.
Mac to Epson FX/RX/JX printer cable .. 16.
Mac to Apple modem cable ..... 16.
Mac to Hayes Transet 1000 cable ..... 16.
**Creighton Development**
Proprint ..... 39.
Proprint *(w/one cable)* ..... 54.
Proprint *(w/two cables)* ..... 139.
**Cuesta Systems**
Datasaver AC Power Backup ..... call
*Keeps mac operating. 90 watts.*
**Curtis Manufacturing**
Diamond *(6 outlets)* ..... 28.
Emerald *(6 outlets; 6 ft cord)* ..... 34.
Sapphire *(3 outlets; EMI/RFI filtered)* ... 44.
Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 50.
**Epson**
AP-80 *(Imagwriter compatible)* ..... call
FX-85 ..... call
FX-185 ..... call
LQ-1500 *(letter quality dot matrix)* ..... call
**Hayes**
Smartmodem 300 ..... call
Smartmodem 1200 ..... call
Smartmodem 1200 Package ..... call
*Includes modem, software and cable.*
Smartmodem 2400 ..... call
Smartcom II *(communications software)* 86.
Transet 1000 ..... call
**IOMEGA**
Bernoulli Box *(5-megabyte storage)* .. 1315.
5-meg Cartridge ..... 39.
Head Cleaning Kit ..... 57.
**Johnathan Freeman Designs**
Universal Printer Buffer ..... 175.
**Kensington**
External Disk Drive Cover ..... 8.
Mouse Pocket ..... 8.
Mac Dust Cover ..... 9.
Mac XL Dust Cover ..... 9.
Imagewriter Dust Cover ..... 9.
Wide Imagewriter Dust cover ..... 9.
Mouse Cleaning Kit w/Mouse Pocket ... 16.
Universal Printer Stand ..... 17.
Disk Case *(holds 36 Mac disks)* ..... $19.
Disk Drive Cleaning Kit ..... 19.
Tilt/Swivel ..... 22.
Polarizing Filter ..... 31.
Surge Suppressor ..... 32.
Starter Pack *(includes Tilt/Swivel)* ..... 53.
A-B Box ..... 60.
Control Center ..... 61.
Modem *(300 baud)* ..... 86.
**Koala Technologies**
MacVision *(digitizer)* ..... 169.
**Kraft**
QuickStick ..... 45.
**Microcom**
MacModem *(Hayes compatible)* ..... call
**Microsoft**
MacEnhancer ..... 159.
**Mitsuba**
Super 5 External Drive ..... 239.
**Mouse Systems**
A+ Optical Mouse ..... 59.
**N² Products**
Mac to Modem cable *(6 feet)* ..... 19.
Mac to Printer cable *(6 feet)* ..... 19.
**Paradise Systems**
Mac 10 *(10 megabyte hard disk)* ..... 769.
**PBI Software**
Switch Box ..... 36.
**Systems Control**
MacGard *(surge protection)* ..... 55.
**Video 7**
MouseStick ..... 39.

## DISKS

**BASF** 3½" Disks *(box of 5)* ..... 12.
**Sony** 3½" Disks *(box of 10)* ..... 22.
**Fuji** 3½" Disks *(box of 10)* ..... 22.
**MAXELL** 3½" Disks *(box of 10)* ..... 22.
**Memorex** 3½" Disks *(box of 10)* ..... 24.
**Verbatim** 3½" Disks *(box of 10)* ..... 24.
**3M** 3½" Disks *(box of 10)* ..... 24.

## MISCELLANEOUS

**American Tourister**
Mac Carrying Case ..... 69.
**Automation Facilities**
Floppiclene *(ten cleaning disks)* ..... 20.
Refill Kit *(ten disks)* ..... 10.
**Clean Image Ribbon Co.**
Clean Image Ribbon Kit ..... 12.
**Computer Coverup**
External Disk Drive Cover ..... 4.
Imagewriter Cover ..... 8.
Wide Imagewriter Cover ..... 8.
Mac & Keyboard *(two covers)* ..... 10.
**Diversions**
Underware Ribbon ..... 10.
Underware Colorpens ..... 10.
ColorPack *(includes Colorpens)* ..... 19.
**Environmental Software Company**
The Clutch *(holds 8 disks)* ..... 9.
MacAttire
*High quality rip-stop nylon dust covers. Available in navy, burgundy or silver-gray.*
External Drive Cover ..... 7.
Numeric Keypad Cover ..... 7.
Imagewriter Cover ..... 11.
Wide Imagewriter Cover ..... $13.
Mac & Keyboard Cover ..... 15.
Laserwriter Cover ..... 17.
Mac XL & Keyboard Cover ..... 20.
**I/O Design**
Imagewriter Color Transfer Ribbon ..... 10.
Imageware ..... 39.
Imageware wide ..... 45.
Macinware ..... 49.
**Innovative Concepts**
Flip & File *(holds 25 disks)* ..... 9.
Flip & File *(holds 40 disks)* ..... 18.
**Innovative Technologies**
The Pocket Pak *(holds 6 disks)* ..... 10.
The Easel *(holds 20 disks)* ..... 14.
**Kalmar Designs**
Teakwood Roll-top Case *(holds 45 disks)* 14.
Teakwood Roll-top Case *(holds 90 disks)* 21.
**Microsoft Press**
Microsoft Multiplan: Of Mice and Menus 13.
The Printed Word ..... 14.
Macinations *(intro to Basic)* ..... 17.
**Moustrak**
Moustrak Pad *(standard 7"x9")* ..... 8.
Moustrak Pad *(large 9"x11")* ..... 9.
**Pacific Wave**
Flip Sort Micro *(holds 40 disks)* ..... 12.
Flip Sort Micro *(holds 60 disks)* ..... 15.
**Ribbons Unlimited**
Imagewriter Color Ribbons ..... 5.
Imagewriter Ribbons Six Pack ..... 27.
Imagewriter Rainbow Six Pack ..... 27.
**Smith & Bellows**
Basswood disk case *(holds 90 disks)* .. 18.

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MacDraft $139

So the next time you need a program or peripheral, or help with a problem or a perplexity, let MacConnection come to the rescue.

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TurboCharger $55

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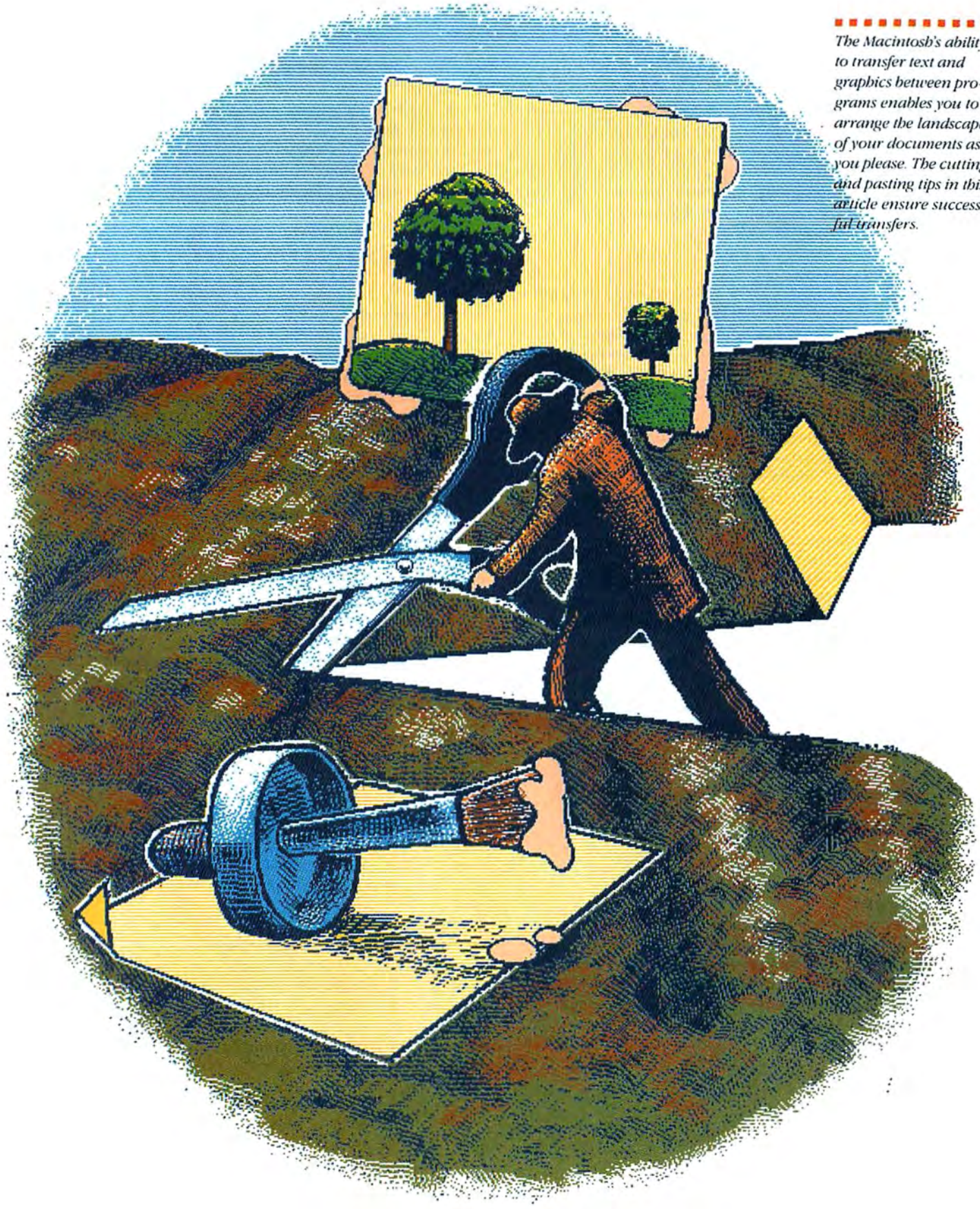

*The Macintosh's ability to transfer text and graphics between programs enables you to arrange the landscape of your documents as you please. The cutting and pasting tips in this article ensure successful transfers.*

### Using the Switcher

The Switcher enables you to cut and paste between documents without quitting one application and starting another. When you use the Switcher for cutting and pasting, make sure the Always Convert Clipboard option is turned on. The option allows the applications in the Switcher rotation to share cut or copied data with each other. If Always Convert Clipboard is turned off, each application accesses its own Clipboard rather than sharing a common one.

Remember that the more applications you install in the Switcher, the less memory you have available for clippings. When you're done with an application, you should quit the program to remove it from the Switcher rotation.

### Data Types

The Macintosh stores four types of information–bit-mapped pictures, QuickDraw pictures, text, and tabular data–and works with each type differently. Some programs limit you to sharing only certain types of information. Understanding the differences between the four data types, described below, will help you transfer data between types successfully.

- Bit-mapped pictures are composed of individual dots. Each dot is handled as a distinct entity by the computer's memory and corresponds to a particular location on the Macintosh screen. You can erase or add dots to alter a bit-mapped picture. *MacPaint* produces bit-mapped images.
- QuickDraw pictures are composed of shapes–circles, rectangles, lines–which are described mathematically by routines in the Mac's read-only memory (ROM). Each of the shapes in a QuickDraw image can be manipulated separately, but individual dots cannot be added or removed from the shapes. *MacDraw* and *Chart* create QuickDraw images.
- Text documents consist of letters, numbers, and other characters. Word processors such as *MacWrite* and *Word* produce text documents, as do communications programs and outlining programs like *ThinkTank*.
- Tabular data is found in all electronic spreadsheets and many database programs. Those programs organize words and numbers into distinct blocks, known as cells. *OverVUE, Multiplan,* and *Jazz*'s database store information in tabular format.

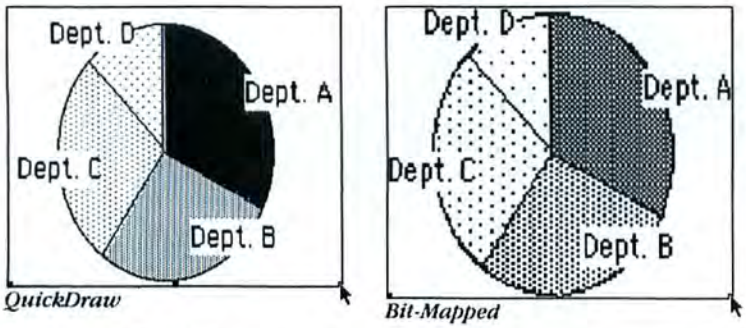


***Figure 1***

*Changing the size of a bit-mapped picture in a* MacWrite *or* Word *document distorts the image. Pictures created by a QuickDraw-based application like* MacDraw *or* MacDraft *won't distort, however. Notice that the text within the QuickDraw image is scaled but still looks better than the text in the enlarged bit-mapped picture.*

# Bit-Mapped Pictures

You encounter bit-mapped pictures when you work with *MacPaint* and other freehand drawing programs, such as Hayden's CheapPaint. Several Macintosh applications accept bit-mapped pictures, including *MacWrite, Microsoft Word, Microsoft File, Helix 2.0,* and *ThinkTank*. Those programs let you pop the picture anywhere in the document. The only limitations are that you can't place text on the same line as a picture, and you can't modify an image once it's pasted in.

### Bit-Mapped to Text

When you paste a bit-mapped graphic into a word processor, the Macintosh automatically shrinks the picture if it doesn't fit within the margins you've set. The Mac won't stretch a picture if the margins are wider than the image, however. If you want the picture to fit within a specific margin, you can insert a new ruler and adjust the margins before pasting.

When the picture is pasted into the document, it lines up with the left margin. You can move the picture by clicking anywhere on it and then dragging it by the border that appears. Don't pull one of the square "handles," however, because those are reserved for resizing the image. If you're not satisfied with the vertical placement of the picture, use the word processor to add or remove lines above or below it.

Bit-mapped images deform when they are enlarged or reduced. The distortion is particularly noticeable if the image includes a pattern. It's always better to resize and clean up a picture in *MacPaint* before you cut and paste it.

### Bit-Mapped to QuickDraw

You can send bit-mapped images to *MacDraw* and IDD's *MacDraft,* both of which create QuickDraw graphics. Once the picture has been pasted, you can't edit the picture other than to stretch or shrink it. As with other programs, stretching or shrinking a *MacPaint* picture in *MacDraw* or *MacDraft* distorts the

image. Unlike text-based programs, *MacDraw* and *MacDraft* let you place text next to a bit-mapped picture.

### Printing Text and Graphics

When you print a document that combines text and graphics, set the Imagewriter's print quality to Standard; no pictures appear when you print a document in Draft mode. You should also avoid using the high-quality print mode because the graphic prints lighter than the text. In high-quality mode the Imagewriter prints the text in two passes but makes only one pass for the graphic.

Pasting a *MacPaint* picture into another application can be a good idea if you want to print the picture on the LaserWriter, which automatically smooths *MacPaint* images. If you want a laser-printed *MacPaint* picture that closely matches the image you see on screen, transfer the picture to a program like *Microsoft Word,* which lets you turn smoothing on and off.

### MacPaint Enhancers

If you do a lot of cutting and pasting between *MacPaint* and other applications but don't like to fuss with the Switcher or repeatedly open and close applications, take note: two desk accessories, Hayden's Art Grabber and EnterSet's QuickPaint, let you snatch a picture from a *MacPaint* document without leaving the application you're in. The desk accessories, which work similarly, enable you to open any *MacPaint* document in either disk drive. You then select a portion of the document, copy it, and paste it into the document you're working on. Art Grabber and QuickPaint save disk space as well as time, since they let you open *MacPaint* documents without the 60K *MacPaint* application.

*MacPaint* limits you to cutting and pasting pictures no larger than its drawing window. *Paint Cutter,* from Silicon Beach Software, lets you cut and paste *MacPaint* pictures of up to 8 by 10 inches. Although *Paint Cutter* is designed primarily to help you cut and paste between *MacPaint* documents, you can use it to plug data from another application into a *MacPaint* document or to cut extra-large pictures from *MacPaint* into another application, such as *MacDraw* or *Word.* You could, for example, cut a 5- by 7-inch digitized photograph from *MacPaint* and paste it into a *MacWrite* letter.

An easy way to edit *MacPaint* pictures without leaving the current application is to use Hayden's CheapPaint. CheapPaint loads into a 512K Macintosh as a desk accessory and provides *MacPaint*-like drawing and editing tools.

To edit a picture with CheapPaint, first copy and paste the image into the Scrapbook. The image then appears in CheapPaint's window when you open the desk accessory. When you finish editing the drawing, use CheapPaint's selection tool to copy the part of the picture you want, and paste it into a document. CheapPaint is ideal with an application like *MacDraw,* which can't edit bit-mapped pictures.

### Make Your Own Bit Maps

Some Macintosh programs, including many games and desk accessories, don't provide an Edit menu with Cut, Copy, and Paste options. If the application you're using doesn't let you cut or copy the image that appears on the screen, you can create a bit-mapped image by generating a "snapshot," or screen dump. To take a snapshot, simply press ⌘-Shift-3, and the Mac records the current screen image on disk. The first snapshot is labeled Screen 0, the second Screen 1, and so on. If there's room on the disk, you can record up to ten screens. Because snapshot documents are bit-mapped, you can use *MacPaint* to edit them.

## QuickDraw Pictures

In many ways, QuickDraw images give you more flexibility than bit-mapped images. The biggest difference is that a QuickDraw picture doesn't distort if you resize it after it's been pasted, as does a bit-mapped picture. Even patterns retain their integrity (see Figure 1). Note, however, that text within a QuickDraw graphic can become distorted when you resize the image, since the text is sometimes scaled to a size that is not available for a particular font.

### QuickDraw to Bit-Mapped

Once a QuickDraw image has been pasted into *MacPaint,* it becomes a series of dots like any other *MacPaint* image. If you resize the picture, it becomes distorted. You can, however, "presize" a QuickDraw image before it's pasted. Simply draw a selection rectangle of the desired size with *MacPaint*'s marquee and choose the Paste command. An undistorted version of the picture is pasted within the confines of the rectangle (see Figure 2).

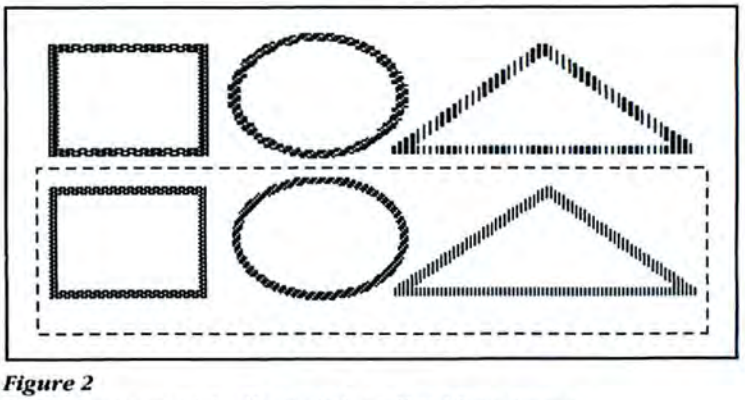

***Figure 2***

*This picture was originally created as a QuickDraw image with* MacDraw. *The image on the top was resized after it was pasted into* MacPaint *and looks distorted. The image on the bottom was resized before being pasted, by creating a selection rectangle first.*

# Paste It Here

**Art Grabber, CheapPaint**
Hayden Software Co.
650 Suffolk St.
Lowell, MA 01854
800/343-1218, 617/937-0200
List price: Art Grabber $49.95, CheapPaint $49.95 as part of MacroMind Utilities Disk

**Helix, version 2.0**
Odesta Corp.
4084 Commercial Ave.
Northbrook, IL 60062
800/323-5423, 312/498-5615
List price: $395

**Jazz**
Lotus Development Corp.
55 Cambridge Pkwy.
Cambridge, MA 02142
617/577-8500
List price: $595

**MacDraft**
Innovative Data Design, Inc.
1975 Willow Pass Rd. #8
Concord, CA 94520
415/680-6818
List price: $239

**MacDraw, Switcher Construction Kit**
Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
800/538-9696, 800/662-9238 in California
List price: MacDraw $195, Switcher Construction Kit $19.95

**Microsoft Chart, Microsoft File, Microsoft Multiplan, Microsoft Word**
Microsoft Corp.
P.O. Box 97200
Bellevue, WA 98009
800/426-9400, 206/828-8080
List price: Chart $125, File $195, Multiplan $195, Word $195

**MockChart**
CE Software
801 73rd St.
Des Moines, IA 50312
515/224-1995
List price: $30 as part of MockPackage

**OverVUE 2.0**
ProVUE Development Corp.
222 22nd St.
Huntington Beach, CA 92648
714/969-2431
List price: $295

**Paint Cutter**
Silicon Beach Software, Inc.
P.O. Box 261430
San Diego, CA 92126
619/695-6956
List price: $39.95 as part of Accessory Pak 1

**QuickPaint**
EnterSet
410 Townsend St. #408-B
San Francisco, CA 94107
800/621-0851 ext.305, 415/543-7644 in California
List price: $49.95

**ThinkTank 512**
Living Videotext
2432 Charleston Rd.
Mountain View, CA 94043
415/964-6300
List price: $245

**Spreadsheet Link**
Dow Jones & Co., Inc.
P.O. Box 300
Princeton, NJ 08540
800/257-5114, 609/452-1511 in New Jersey
List price: $99; requires Straight Talk ($95) and a modem

**Business Graphics**

Business graphics programs like *Microsoft Chart* and *Jazz* usually create their images out of QuickDraw shapes (an exception is CE Software's *MockChart*, which produces bit-mapped pictures). If you paste a QuickDraw image from one of those business programs into an application like *MacDraw* or *MacDraft*, you can manipulate each element in the image separately. Say you paste a bar graph from *Chart* into *MacDraw*. If you then want to make every other bar light gray, for example, you could select the bars individually and change their fill patterns.

One of the more common cutting and pasting chores is placing a picture made with *Chart* into *MacPaint*, where you can enhance the graphic. The job is simple, as long as you copy the original chart into the Clipboard correctly. First, choose Copy Chart from *Chart*'s Edit menu. A dialog box asks if you want the image to be copied as it appears on screen or as it appears when printed. If you're pasting the chart into *MacPaint*, select the As Shown on Screen option, or the chart won't fit into *MacPaint*'s window. Most other applications accept the As Shown When Printed option, which creates a larger chart.

# Text

Cutting and pasting text on the Macintosh is straightforward, partially because you can't do much with text you transfer from one application to another. Unlike a graphic, which usually retains the attributes it was given in its original application, text imported from another word processor is formatted according to the settings and options in effect within the destination document.

*MacDraw accepts text from word processors, but in a roundabout way—in other words, MacDraw has a serious drawback.*

You might, for example, select text from a *MacWrite* document and feed it into a *Microsoft Word* document. No matter how the rulers in *MacWrite* were set, the text will be reformatted when it enters *Word* to match the ruler settings in the *Word* document.

Tabs are a special case. When you paste text between programs, tabs are retained, but they are inactive until you set the tab markers in the ruler of the new document. So if you paste an elaborate columnar chart, it appears in the destination program as continuous text. When you reset the tabs, however, the chart automatically sorts itself into columns.

*MacWrite* and *Word* use different file formats. Blocks of text can be transferred between the two programs with the Clipboard, but if you transfer a whole document, you must save the file as Text Only. If you don't, the receiving word processor isn't able to open the document.

### Text to Bit-Mapped

When you paste text into *MacPaint*, it appears in 12-point Geneva, surrounded by a marquee, with no regard to the original line breaks or formatting. If you want a different font, size, or style, you can make changes using *MacPaint*'s menus either before you paste the text or after the pasted text appears. You can continue to reformat the text as long as you don't click outside the marquee. Of course, the changes affect the entire block of text.

With the marquee still surrounding the text, you can use the mouse to resize the rectangle. Grab the marquee by the lower-right corner, hold down the ⌘ key, and drag the marquee with the arrow-shaped pointer. As you resize the rectangle, the text within it rewraps to fit the confines of the marquee (see Figure 3). Bear in mind that *MacPaint* converts text to bit-mapped graphics, so you aren't able to edit the text once you click outside the marquee in *MacPaint*.

### Text to QuickDraw

*MacDraw* accepts text from word processors, but in a roundabout way—in other words, *MacDraw* has a serious drawback. Text can be pasted into *MacDraw* with the usual technique only in single-line snippets. Generally, it's quicker simply to type the text from within *MacDraw*.

If you want to import long passages of text, the process is involved. First, select an insertion point, as usual. When the text is pasted in, it appears in one long line. *MacDraw* automatically extends the size of the document to accommodate as much of the text as it can. Text that overflows the boundaries can't be seen, but it's not lost.

Next, triple-click over the line of text, which selects the entire line. Cut the selection by choosing Cut from the Edit menu. Using the rectangle tool, create a box for the text. Don't worry if the box isn't large enough, since excess lines will overflow beyond the bottom of the box. Finally, make sure that the box is selected and paste the text once again. This time the text conforms to the shape of the box.

If you edit the text within the box, it rewraps as usual. If you want to reshape the text block, select it, then shrink or stretch it by yanking the handle at the lower-right corner of the box. If you want to get rid of the box after the text has been pasted, select the box and strike the Backspace key.

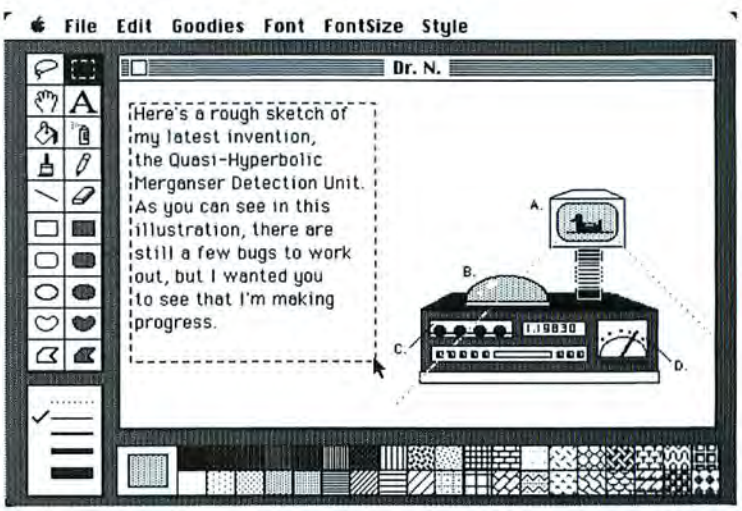


***Figure 3***
*To reshape a block of text that you pasted into* MacPaint, *hold down the ⌘ key and drag the lower-right corner of the rectangle with the mouse.*

# Tabular Data

Cutting and pasting tabular data from applications like *Jazz, Multiplan, Excel,* and *Crunch* can be the toughest job of all, because the Macintosh passes little of the original format to the destination document. The Mac simply handles the numerical data as plain text.

### Tabular to Text

All of the electronic spreadsheet programs for the Macintosh, as well as a number of spreadsheet-oriented databases, store the data in their cells in tabular format. The tabs are much like the ones used in word processing documents, except that instead of separating words or characters, the tabs separate the contents of the cells.

If you're pasting tabular data from a spreadsheet or a database into a word processor, set up the word processor's ruler with tabs where you want the contents of the cells to be positioned. Once the data has been transferred, you can adjust the positions of the columns by moving the tabs along the ruler (see Figure 4).

### Text to Tabular

Moving information from a word processor to a spreadsheet is considerably harder than the other way around. If you're downloading Dow Jones quotes, for example, the individual parts of each quote—stock name, high and low prices, and so on—are separated by blank spaces that are not true tabs. To transfer the data to a spreadsheet, you must open the downloaded document with a word processor and replace the spaces between each part of the quote with tabs. You can do this manually or use the word processor's search and replace feature.

Realistically, even the search and replace technique is the hard way to prepare data captured by a communications program for transfer into a spreadsheet. Dow Jones sells an application called *Spreadsheet Link* for just this purpose. The program automatically converts data received on line into a form that can be used with a spreadsheet application. On the other end of the transfers, *Jazz* includes a "parsing" feature that lets you tell it how you want captured data to be translated for use with the program's spreadsheet.

*Moving information from a word processor to a spreadsheet is harder than transferring data in the other direction.*

### Tabular to QuickDraw

Business graphics applications such as *Microsoft Chart* and *MockChart* work with tabular data, allowing you to cut or copy numbers from a spreadsheet to create a graph. When you paste data into a series window in *Chart,* for example, each cell—one tabular entry—is considered a separate number to graph. Because of the time involved in cutting and pasting between applications, it's often more efficient to type the numbers into the charting program rather than pasting them in.

Of course, these hints just scratch the surface of the Mac's cutting and pasting capabilities. Don't be afraid to try combining information from different applications to see what concoction you can brew. Only as a last resort should you pull out that pair of scissors and bottle of rubber cement. □

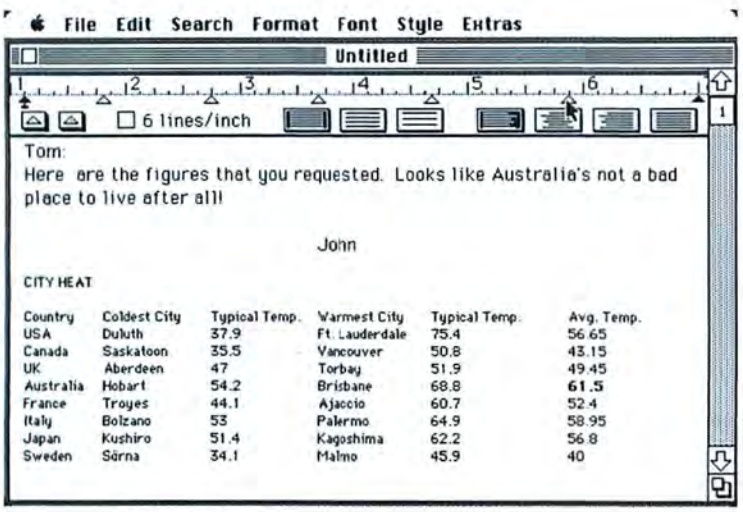


***Figure 4***
*You can paste tabular data from a spreadsheet into a word processor by selecting the cells you want to copy, then choosing the Copy command. To maintain the format of the pasted text and properly separate the columns of data, place tab markers in the word processor's ruler.*

*Gordon McComb is a Contributing Editor of* Macworld.

# The C for the Macintosh

*"Library handling is very flexible... documentation is excellent... the shell a pleasure to work in... blows away the competition for pure compile speed... an excellent effort."*

COMPUTER LANGUAGES, 4/85

## Why Professionals Choose Aztec C

Professionals choose Manx Aztec C development systems because they are the most powerful, portable, and professional microcomputer C development systems available. Professionals know that Manx Aztec C offers the features, dependability, and performance required for producing professional results.

Applications implemented with Aztec C development systems range from real time control of robot arms used in manufacturing, to message switching systems, to games, languages, operating systems, and business systems.

Much of the commercial software for the Apple Macintosh including top selling titles from software publishers Broderbund, Hayden Software, and Spinnaker is developed using Manx Azec C.

## Value, Performance, and Flexibility

Manx Aztec C68k for the Macintosh is available as a line of three upgradable development systems: **Manx Aztec C68k-p, Manx Aztec C68-d, and Manx Aztec C68k-c.** Student, noncommercial, and small business discounts are available. Whatever your budget and requirements, there is a Manx Aztec C68k development system that offers you the best value and performance for your investment.

## New Macintosh Mouse Interface

The highly acclaimed, powerful, and professional Manx Aztec SHELL development environment now includes a mouse interface. Developers unfamiliar with UNIX or MS-DOS can work entirely with the mouse interface. Those interested in learning the advanced features of the SHELL can do so at their leisure. Developer's familiar with UNIX or MS-DOS can ignore the mouse, if they so choose, and work entirely in a familiar command driven environment.

## Aztec C, The Most Portable C.

Manx Aztec C Development Systems are available for the Apple Macintosh, Apple*II*, IBM PC, PC compatibles, CP/M-80 systems, Radio Shack Systems, and the Commodore 64/128. Manx Aztec C is also compatible with UNIX and UNIX ports. Manx currently is developing systems for the Amiga and other microcomputer systems. No other C Development System for the Macintosh comes close to the portability of Manx Aztec C.

## Power To Spare

In benchmark after benchmark, Manx Aztec C appears in column after column as the clear winner.

The following sieve benchmark timings are reprinted with permissions of Computer Languages, 131 Townsend Sr., San Francisco, Ca 94107 from a Macintosh review that appeared in the April, 1985 issue:

| compiler | compile/link | run | size |
|---|---|---|---|
| Manx Aztec | 49 | 7 | 13,274 |
| Megamax | 114 | 7 | 13,816 |
| Softworks | 201 | 9 | 46,914 |
| consulair | 152 | 10 | 17,654 |
| Hippo 2 | 102 | 13 | 30,648 |

The following sieve benchmark timings are reprinted with permission of Macworld, 555 De Harro St., San Francisco, CA 94107, from the May, 1985 issue from "Mac Wins By a Length" in the Open Window column.

| Language | Run Time |
|---|---|
| Aztec C 1.06C | 6.55 |
| McFORTH 2.0 | 20.01 |
| Modula-II | 71.60 |
| MBASIC 2.00 | 1170.00 |
| Pascal | 1270.00 |

**Sieve timings for Manx Aztec C68k 1.06g:**

with register variables 3.37 secs 5,007 bytes
without register variables 6.02 secs 5,140 bytes

## Manx Aztec C68k - Professional Tools

Manx Aztec C68k is bundled with a rich abundance of tools to help produce superior results in reasonable time frames. The following is a list of features and facilities included in Aztec C68k-d, the Developer's System, and Aztec C68k-c, the Commercial system. Items that are marked -c are unique Aztec C68k-c.

| | |
|---|---|
| Optimized C | Mouse Enhanced SHELL |
| UNIX-like SHELL | Creates desk Accessories |
| Macro Assembler | Creates Clickable Applications |
| Smart Overlay Linker | Phone Support |
| C-PASCAL Interface | PASCAL-C Interface |
| Resource Compiler | UNIX Library Functions |
| Debuggers | Terminal Emulator (Source) |
| Object Librarian | Easy Access to Mac Toolbox |
| Mouse Editor | unlimited code size |
| IEEE floating point | six register variables |
| Inline assembly | extensive sample programs |
| 600 page manual | hard disk support |
| no license fees | PASCAL type strings |
| MacintTalk support | AppleTalk support |
| code optimizer | symbolic debugger (512k)-c |
| MacRam Disk-c | UniTools (ul, make grep, diff)-c |
| Library Source-c | One Year Of Updates-c |

## Summary

If you plan to program in C on the Macintosh or are currently doing so using a brand x C compiler, there is a Manx Aztec C68k system for you that offers the best value and the greatest degree of portability, power, and professional quality available.

Look around, evaluate, and compare. The more you look, the more you compare, the more you will see that Manx Software Systems has succeeded in its objective to provide you with the best C development system available at the best possible price. Then, give us a call, and join the 25,000 users who already know and enjoy the Manx Aztec C advantage.

## Products and Prices

| | |
|---|---|
| Aztec C68k-c Commercial System | $499 |
| Aztec C68k-d Developer's System | $299 |
| Aztec C68k-p Personal System | $199 |
| C-tree database (with source) | $399 |
| Lisa Kit | $ 99 |
| MS-DOS → Macintosh Cross | $750 |

## Discounts

Discounts are available for professors, students, independent developers, hobbiests, and small businesses.

## How To Become an Aztec C User

To become an Aztec C user call 1-800-221-0440 or call 1-800-832-9273 (800-TEC WARE). In NJ or outside the USA call 201-530-7997. Orders can be telexed to 4995812.

Payment can be by check, COD, American Express, VISA, Master Card, or Net 30 to qualified customers.

Orders can also be mailed to Manx Software Systems, Box 55, Shrewsbury NJ, 07701.

## How To Get More Information

To get more information on Manx Aztec C and related products, call 1-800-221-0440 or 201-530-7997, or write to Manx Software Systems.

### 30 Day Return Policy

Manx has a 30 day return policy. If you don't like your Manx Aztec C development system, return it within thirty days for a refund. Refunds do not include shipping costs, and might incur a small restocking charge.

### Distribution Of Manx Aztec C:

In the USA, Manx Software Systems is the sole and exclusive distributor of Aztec C. Any telephone or mail order sales other than through Manx are unauthorized. Aztec C is available from qualified retail outlets under license to Manx Software Systems.

Circle 112 on reader service card

MANX

To order or for information call:

**800-221-0440**

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# A Hierarchy and 20 Megabytes

*Lon Poole*

Vast expanses of disk storage along with software that lets you easily organize a multitude of files has been the dream of many a Macintosh owner since the day the watch first appeared on the screen. Apple's new Hard Disk 20 (HD 20), with its competitive price of $1499, its relatively high storage capacity of 20.77 megabytes, and the accompanying new file

MacWrite Docs
Work Docs
Sandbox
megbeyond.draft3
megbeyond.draft4
salad
Sandbox
Open
Cancel

system, is the alternative to "The Song of the Floppy Disk Drive."

The HD 20 connects to the Macintosh's external disk drive port, leaving the modem and printer ports free for other devices. Since the HD 20 itself has a disk port, you can attach an external floppy disk drive–or even a second HD 20, which gives you up to 40 megabytes of storage. However, the second external drive–hard disk or floppy–is not recognized unless the first drive is turned on when you start up the Mac.

The HD 20 fits under the Macintosh and matches the Mac's looks and size. Stacked under the Mac, the HD 20 takes no additional table space, though it does raise the computer screen by 3 inches. Alternatively, you can place the drive alongside the Mac if you have room on your desk. The connecting cable is too short to allow placing the hard disk anywhere else.

While you may hardly notice the HD 20 when it's tucked under the Mac and turned off, you will when you turn it on. Like all hard disk drives, the HD 20's disk platters spin constantly at high speed, and the disk requires a ventilation fan. If the whir of a disk drive bothers you and you use the Mac at home or in a quiet office, listen carefully before buying an HD 20.

Starting the Macintosh from the HD 20 is like starting from a floppy disk. You insert the HD 20 startup disk in the floppy drive. After 14 seconds the Mac ejects the floppy and completes the startup procedure with the files stored on the hard disk. This two-step method of starting isn't as fast as the method used by the HyperDrive. Until Apple puts the HD 20's startup files into ROM, you won't be able to start up directly from the hard disk.

### File Management System

A 20-megabyte hard disk may contain 100 times more files–programs and documents–than a 0.4-megabyte floppy disk. That many files would hopelessly bog down the Macintosh's original floppy disk file management system, which is designed for copying, renaming, removing, reorganizing, and finding files only in the quantities found on floppy disks. With the floppy disk file system, finding a document would not be so bad from the Finder, but scrolling through hundreds of document names when you choose Open from *MacWrite*'s File menu would be ploddingly slow.

Most hard disks for the Macintosh circumvent the deficiencies of the floppy file management system in two ways. First, they partition the hard disk into many *volumes,* making the hard disk look like 10, 20, 30, or more floppy disks. However, only a few volumes can be used at once, and switching between volumes requires using a desk accessory unless both volumes are already mounted. Second, most hard disks parcel out relatively large chunks of disk space–10K in some cases–to every file, no matter how small. That scheme exhausts disk space rapidly, cutting down the number of files that a hard disk can store.

For the HD 20, Apple developed a hard disk file management system that incorporates the Finder's folders in the file system itself. The previous Finders listed only documents in their dialog boxes, but with the HD 20, the folders on the desktop also show up on the list.

Whereas the program that implements the floppy file system is stored in the 64K of the Macintosh's read-only memory (ROM), the hard disk file system soft-

## Hard Disk 20 Specs

### Storage

Data capacity, formatted: 20,769,280 bytes (20.77 megabytes)
Data surfaces: 4
Heads per surface: 1
Block size: 532 bytes (512 user data, 20 system data)
Total disk blocks: 39,040

### Drive characteristics

Average seek time: 85 milliseconds
Data transfer rate: 7.5 MHz
Rotation speed: 2744 RPM
Drive startup time: 15 seconds
Drive spindown time: 25 seconds

### Interface

Cable: 15-inch, 19-pin, compatible with Macintosh external drive port
Expansion port: 19-pin, compatible with Macintosh external drive
Transfer rate: 500 kilobits per second (serial)

### Environmental characteristics

Operating temperature: 50° F to 104° F (10° C to 40° C)
Storage temperature: 32° F to 122° F (0° C to 50° C)
Relative humidity: 20 percent to 80 percent (non-condensing)
Altitude: −1000 to 10,000 feet (−305 to 3050 meters)

### Power requirements

Line voltage: 85 to 270 volts AC, RMS
Frequency: 47 to 64 Hz
Consumption: 30 watts

### Size

Height: 3.1 inches (78.5 millimeters)
Width: 9.7 inches (246 millimeters)
Depth: 10.5 inches (266 millimeters)
Weight: 7 pounds (2 kilograms)

ware is loaded into RAM when you insert the HD 20 startup disk. So for now the hard disk system runs only on Macintoshes having 512K or more of memory. However, when Apple expands the existing 64K ROM to 128K, the hard disk file system will undoubtedly be included in that upgrade.

### A Nest of Folders

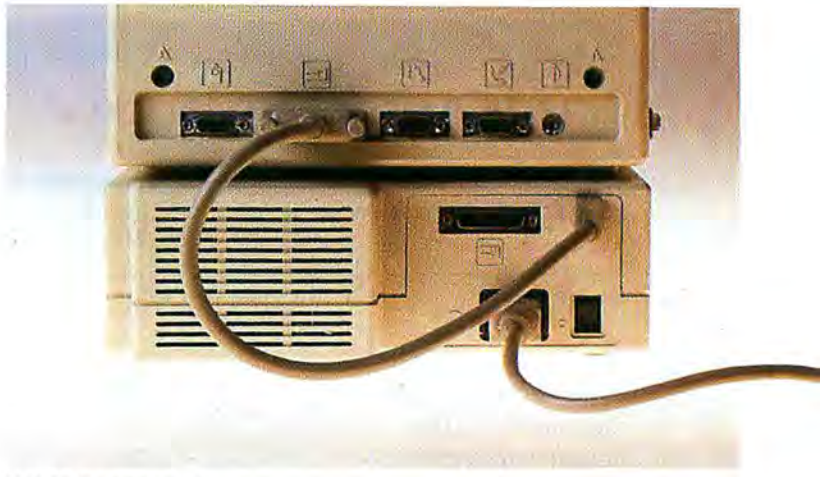
Organizing documents and applications with Apple's hard disk file system is analogous to organizing paperwork with the system of hanging files typically found in the office filing cabinet, though the nesting—the storing of folders within folders—can occur many levels deep. Placing documents like your staff's January expense reports in a folder labeled January Expense Reports, inserting the folder in another one called 1986 Expense Reports, placing that folder within another folder labeled 1986 Department Finances, and so on creates a series of nested folders that you must open one by one whenever you want to see a particular document. For example, to see a January expense report, you first open the 1986 Department Finances folder, then the folders 1986 Expense Reports and January Expense Reports, then finally the expense report you want. With Apple's hard disk file system, you open and close folders either from the desktop or by using the Open, Save, or Save As dialog boxes in an application.

While the hard disk file system looks exactly like the floppy system from the desktop, the major changes are apparent when you use the Open, Save, or Save As dialog boxes. The new Open dialog box shows the *directory* of either the hard disk or a folder you select. A directory works like a table of contents. The disk directory, for example, lists the documents, folders, and applications that appear when you first start up the HD 20 (see Figure 1). The name of the folder or disk appears above a scrollable list of document and folder names. The icon to the left of the directory name identifies the directory as an open folder or a disk. Similarly, icons indicate whether each name in the directory belongs to a folder or a document. Names in a directory are listed strictly in alphabetical order. I would prefer to have the options of grouping folders and documents separately or viewing documents in chronological order.

When you double-click a folder's name in the dialog box, its contents fill the directory. Pressing the directory name as if it were a menu title reveals the nest of folders that lead from the current folder back to the disk directory (see Figure 2). To reopen the disk directory or to scan the contents of a folder from a previous level, you drag the pointer to the name you want and release the mouse button, as if choosing from a menu.

The new Save and Save As dialog boxes also show directories, allowing you to specify in which folder a document is saved (see Figure 3). You can also save a document directly in the main disk directory.

*(continues on page 81)*



**HD 20 Connection**

*The HD 20 connects to the Macintosh's disk port, leaving the modem and printer ports free. You can attach an external floppy drive or a second HD 20 to the disk port on the HD 20.*

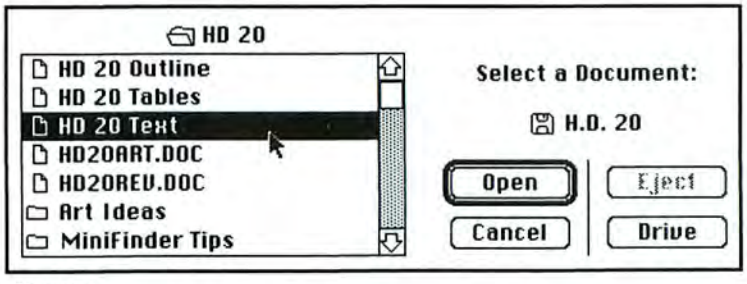



***Figure 1***

*The new Open dialog box displays the folders that you set up with the Finder. The name of the current directory appears above a scrollable list of document and folder names. When you open a folder, its directory becomes the current one, and its contents are displayed.*

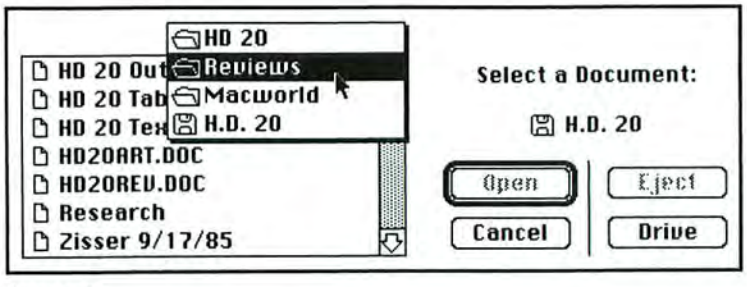



***Figure 2***

*You can use the directory name in the Open dialog box as if it were a menu title and pull down a list of the folders on the path from the currently open folder back to the main disk directory. To reopen the disk directory or a folder, drag the pointer down the menu to the item you want.*

# Hard Disks at a Glance

| | Apple HD 20 | Paradise Mac-10 | HyperDrive 10 | Apple floppy disk |
|---|---|---|---|---|
| **Hardware** | | | | |
| Mac connector used | disk | serial | internal | disk |
| Spare connector provided | yes | yes | yes[1] | no |
| Start from hard disk | no[2] | no[2] | yes | n/a |
| Capacity in megabytes | 20 | 10 | 10 | 0.4 |
| Subjective sound rating | medium | medium | quiet | quiet |
| **Software** | | | | |
| Partitioning method | folders | volumes | volumes | none |
| Method for changing partitions | Open/Save boxes | desk accessory | desk accessory | n/a |
| Maximum number of partitions | no limit | 26 | 32 | n/a |
| Method of partition sizing | automatic | manual | automatic | n/a |
| Partition passwords permitted | no | no | yes | n/a |
| Partitions available at startup | all | 6 | 1 | n/a |
| Backup application provided | no | no | yes | no |
| Disk test application provided | yes | yes | yes | no |
| Print spooling provided | no | yes | no | no |
| **Performance**[3] (time in seconds) | | | | |
| Initial startup to Finder | 75 | 49 | 30 | 21 |
| Restart to Finder | 32 | 35 | 27 | 22 |
| Restart to MiniFinder | 17 | 20 | 13 | 14 |
| Open MacWrite document from Finder | 21 | 19 | 19 | 27 |
| Quit MacWrite to Finder | 19 | 16 | 18 | 20 |
| Quit MacWrite to MiniFinder | 4 | 3 | 3 | 8 |
| Save MacWrite document | 22 | 24 | 17 | 47 |

[1] Since the HyperDrive mounts internally, it does not occupy the Macintosh's modem, printer, or external disk drive ports, leaving them free for other peripherals.

[2] The startup floppy disk automatically ejects and transfers control to the hard disk part way through the startup process.

[3] Performance tests were run with an HD 20 containing 10 megabytes of information, a Mac-10 with 5 megabytes mounted, a HyperDrive 10 with 2 megabytes mounted, and a floppy disk with 350K. All *MacWrite* tests were performed with a 65K *MacWrite* document.

***Hard Disks at a Glance***
*A comparison of the features and performance of three hard disks. In gauging performance, keep in mind that the three hard disks use different disk management software. A more uniform comparison will be possible when Apple's new file system is available from other hard disk manufacturers.*

*(continued from page 79)*

To make selecting a document easier, the hard disk file system lets you select a document from the Open dialog box by typing the first few letters of the name. The file management system automatically opens the first document that matches the characters you type. You have to avoid interruptions while typing, however, because if you pause too long, the next character you type is considered the start of a new request. The keyboard touch control in the Macintosh Control Panel determines the length of the pause.

The folder hierarchy provided by the hard disk file system, besides allowing you to organize large numbers of files, offers several additional benefits. For one, documents, applications, and folders on the hard disk need not have unique names. Folders can contain icons with the same names as icons in other folders.

Also, several System files can coexist on an HD 20 as long as each System file is in a different folder along with a copy of Finder 5.0. Thus you can customize a System file with fonts and desk accessories for a particular application–a time-saving feature for preparing text for the LaserWriter. To substitute a System file, you drag the specialized System file you want to activate onto the desktop and then back into its folder again.

While the hard disk file system neatly organizes the documents on the HD 20, the benefits don't extend to floppy disks. Only the Finder recognizes a floppy disk's folders, so they do not appear in Open, Save, and Save As dialog boxes. The Open dialog box lists from the floppy disk only the documents compatible with the current application. You cannot save documents directly into a particular folder on a floppy disk. One problem I encountered as a result of that filing discrepancy was that when I backed up my HD 20 by saving files on a floppy disk, I couldn't save more than 84 files per disk even though my floppy disk had plenty of room left. While the wasted floppy disk space resulting from the hard disk file system's shortcomings is bearable with 400K floppies, it could be annoying with 800K double-sided drives.

The hard disk file management system is easy to use with a little practice. After several days I could rapidly find any of the 700 files I had arranged in folders nested from three to six levels deep. At first I thought I would feel frustrated because I couldn't move directly to a deeply nested folder without having to view the disk directory or some intermediate folders. But in practice I could move so quickly between folders that I didn't mind clicking through several levels to get to a document. Initially, you have to spend some time organizing the files and folders until you find an arrangement that suits your style of work. I used lots of folders to minimize the number of items in a folder, for example, because changing folders seemed faster than scanning lengthy directories with the scroll bar.

### Finder 5.0

The hard disk file management system makes it easy to open and save documents in any folder you like, but you still need the Finder for copying, renaming, removing, and reorganizing documents, applications, and folders. With Finder 5.0, the methods for viewing and manipulating files are not substantially changed from the methods you use with Finder 4.1. However, you must use Finder 5.0 with the HD 20.

Finder 5.0 offers two new commands. The File menu has a Put Away command that returns selected documents, applications, and folders on the desktop to the folders in which they last resided. The View menu includes a new option, By Small Icon, that displays miniature icons with their names (see Figure 4).

*(continues on page 83)*

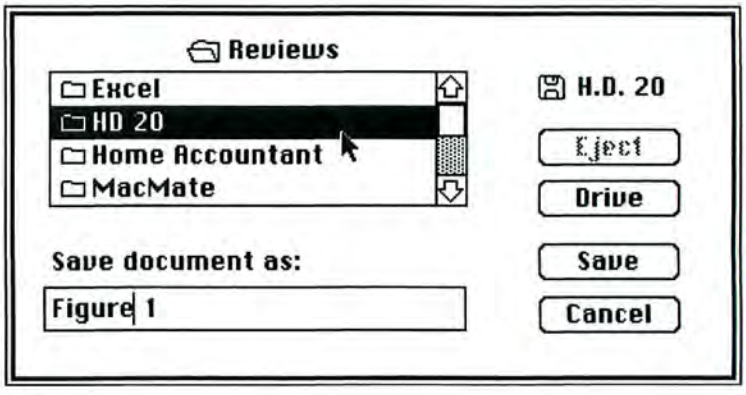



***Figure 3***
*The new Save and Save As dialog boxes allow you to save a document in the current folder.*

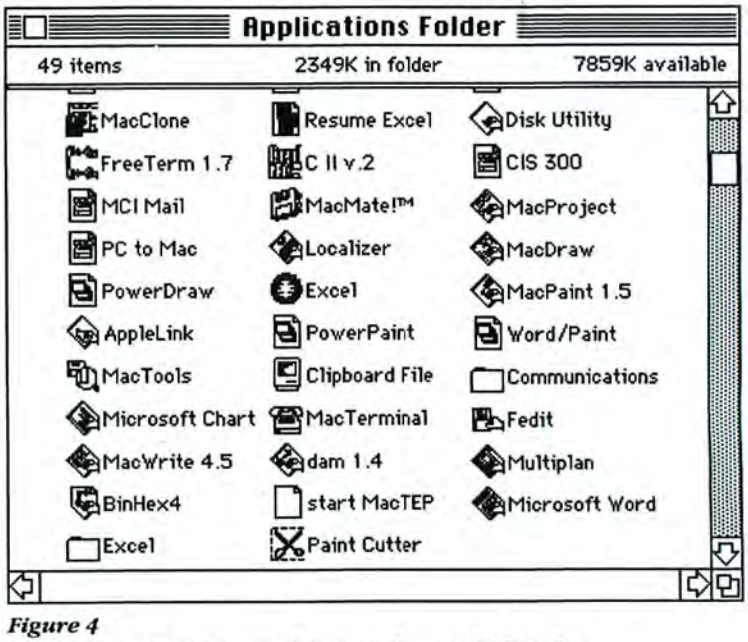



***Figure 4***
*Finder 5.0 lets you view small icons to fit more folders, documents, and applications in the directory window. Choose Clean Up from the Finder's Special menu while pressing the Option key to organize the view.*

# MiniFinder Speedups

If you have lots of files on the HD 20, the time spent waiting for the Finder to reconstruct the desktop can be annoying. One strategy to speed up the HD 20's operation is to choose the MiniFinder rather than the Finder to open the applications and documents that you most often use. The MiniFinder, unchanged from the version that came with Finder 4.1, allows you to install up to 12 documents or applications on its own abbreviated version of the desktop. If you need to open other documents or applications, clicking Open Other causes an Open dialog box to appear, from which you can open any file on the disk.

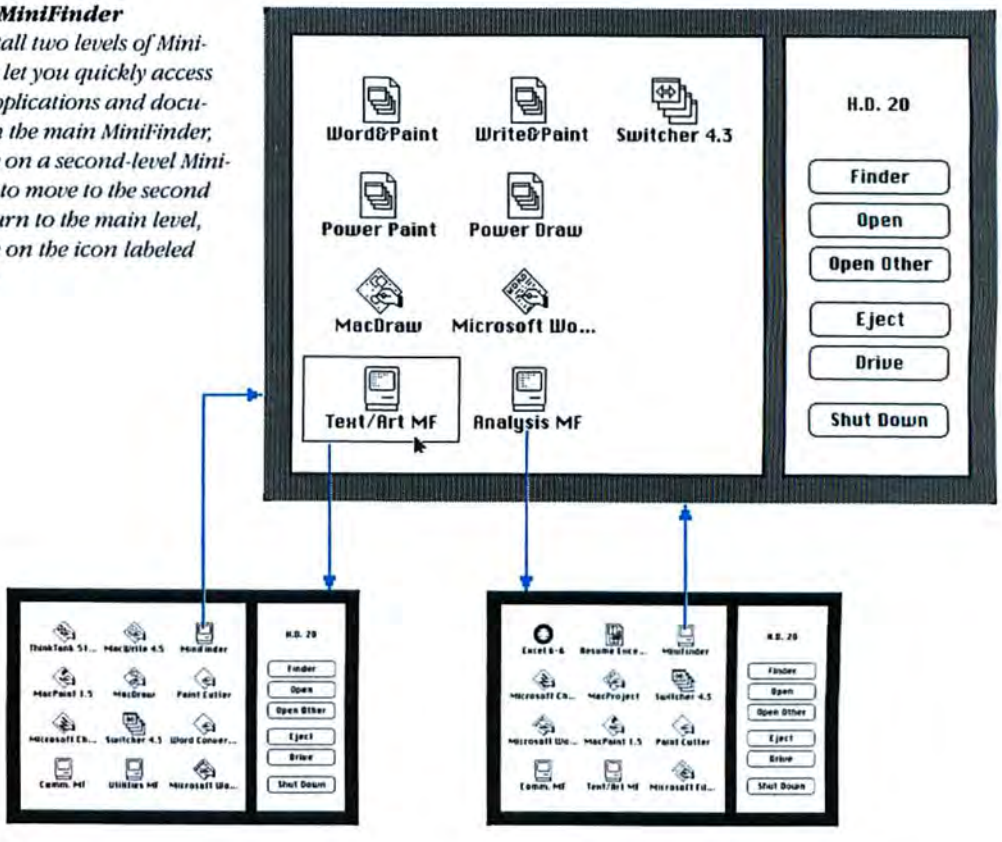
It's also possible to set up multiple levels of MiniFinders that accommodate many applications and documents. For example, using two levels, you can install 132 applications and documents (see "Split-Level MiniFinder"). The first level could contain up to 12 renamed MiniFinder icons. Double-clicking one of the renamed MiniFinder icons opens a second-level MiniFinder. Each renamed second-level MiniFinder could contain the icon of the first level MiniFinder and up to 11 application and document icons.

Here's how to create two levels of MiniFinders to speed up your work. You create the second level before the first.

- Start by dragging into one folder the applications and documents you want to install. If you want to be able to move from a second-level MiniFinder back to the first level, the folder must also contain a MiniFinder icon named MiniFinder to act as a placeholder for the first-level MiniFinder you'll create later.
- To create the placeholder, select any application icon and choose Use MiniFinder from the Special menu. In a few seconds an icon named MiniFinder appears in the System Folder.
- Drag the placeholder MiniFinder into the folder with the applications and documents you're collecting.

***Split-Level MiniFinder***

*You can install two levels of MiniFinders that let you quickly access up to 132 applications and documents. From the main MiniFinder, double-click on a second-level MiniFinder icon to move to the second level. To return to the main level, double-click on the icon labeled MiniFinder.*



Now you're ready to create each second-level MiniFinder—and rename it—in turn. There's a trick to renaming MiniFinder icons for the second level. The Finder doesn't let you rename a MiniFinder icon directly, but you can rename a duplicate of the icon.

- To create a second-level MiniFinder, select up to 11 application and document icons and the placeholder MiniFinder icon.
- Choose Use MiniFinder from the Special menu and click Install. In a few seconds a new MiniFinder icon appears in the System Folder.
- Select the new MiniFinder icon and choose Duplicate from the File menu or press ⌘-D. A duplicate MiniFinder icon appears, labeled "Copy of MiniFinder."
- Rename the duplicate MiniFinder icon.
- Repeat the previous four steps for each second-level MiniFinder.
- To create the first-level MiniFinder, open the System Folder and select all the renamed second-level MiniFinder icons you have created and then choose Use MiniFinder from the Special menu. Click Install. In a few seconds a new MiniFinder icon appears in the System Folder.

You can double-click the MiniFinder icon to start the MiniFinder. Whenever you start up the Macintosh with the HD 20 startup disk, the MiniFinder, rather than the Finder, takes control.

*(continued from page 81)*

I was disappointed that Apple chose not to include new commands in the Finder to help you work with large numbers of files. It took me 15 minutes to manually look in every folder to find a misplaced document. One step-saving command I wished for would search by name through all directories for a document, application, or folder. The other new command I'd like to see would display or print a structured list of the folders, documents, and applications to act as a map to help you find your way through a complex hierarchy of files.

*Most existing Macintosh software is compatible with the HD 20, the hard disk file management system, and Finder 5.0.*

The performance of the HD 20 with the Finder 5.0 depends on the number of files on the disk. Because Finder 5.0 must keep track of large numbers of documents and applications on the HD 20, the Finder is somewhat slow in displaying folder and disk directories. Quitting an application and restarting the Finder with a half-full HD 20 (700 files, 10.7 megabytes) and no floppy disks inserted takes about as much time as returning to the Finder with two full floppy disks inserted (60 files, 0.8 megabytes) and no HD 20 (see Figure 5). Other hard disk models that use Finder 4.1 and the floppy file management system may be faster, depending on the number of volumes open.

Performance also suffers in the areas of reorganizing and copying documents. For example, I dragged the Imagewriter icon out of the System Folder onto the disk directory window and then copied another Imagewriter icon from a floppy disk onto the System Folder. The copy operation took over 2 minutes. Unlike the procedure followed by the floppy file system and Finder 4.1, when you move a document from one folder to another on the hard disk, the document is actually copied to a new location on the disk, hence the delay.

**Compatibility with Existing Software**

Most existing Macintosh software is compatible with the HD 20, the hard disk file management system, and Finder 5.0. I ran major application programs, including *Microsoft Word, Microsoft File, Excel, MacWrite, MacPaint, MacDraw, ThinkTank 512, Mac-*

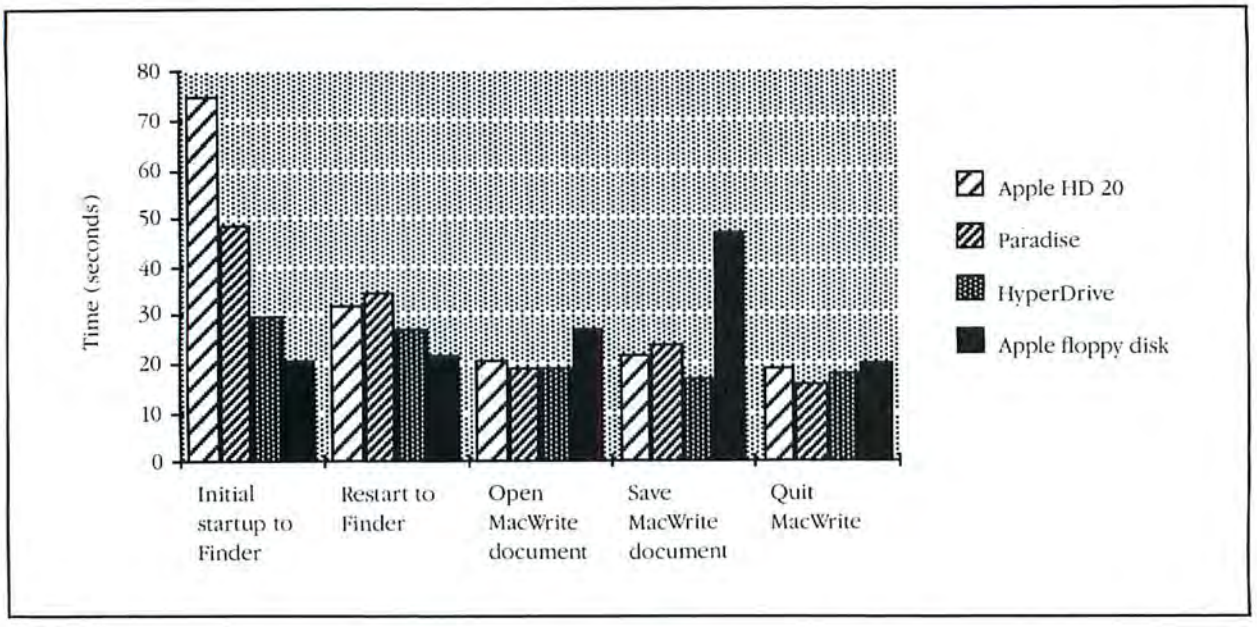



***Figure 5***
*Performance comparisons using the Apple HD 20, the Paradise Mac-10, the HyperDrive 10, and the Apple internal floppy disk drive. The tests were performed with the hard disks half full.*

*Terminal,* and *Jazz.* Of the 34 programs I tried, only 6 did not work. Without exception they were utility programs: the MacMate RAM disk and print spooler, the ResEd 0.5 and REdit 0.7 resource editors, the Fedit and MacTools disk editors, and the Nevins disk turbocharger. New versions of Fedit and the Nevins turbocharger that work with the HD 20 software have been promised.

Several desk accessories I tried, most of which interact extensively with the file management system, did not work at all. The most notable is Mac Tracks 2.0. Two others, Extras 1.5 and DiskInfo 1.0, did not work properly with the HD 20, though they did work with floppy disks.

### Backup Woes

Along with the capability of storing large masses of information comes the danger of losing that information. Therefore, backing up files is a procedure recommended by all but the bravest souls. I concluded Apple must have great faith in the reliability of its hard disk file management system, Finder 5.0, and the HD 20. No other explanation suffices for the lack of a selective backup program for the hard disk that automatically backs up files that have changed since the last backup or files that have been changed since a certain date. The HD 20 provides no easy way to back up a database file that is larger than a single floppy disk.

Perhaps the ultimate answer for people with pockets deep enough is a second HD 20. In time other companies will no doubt offer tape backup devices complete with selective backup programs, but for now you have to drag files to floppy disks or use the Save As command in applications.

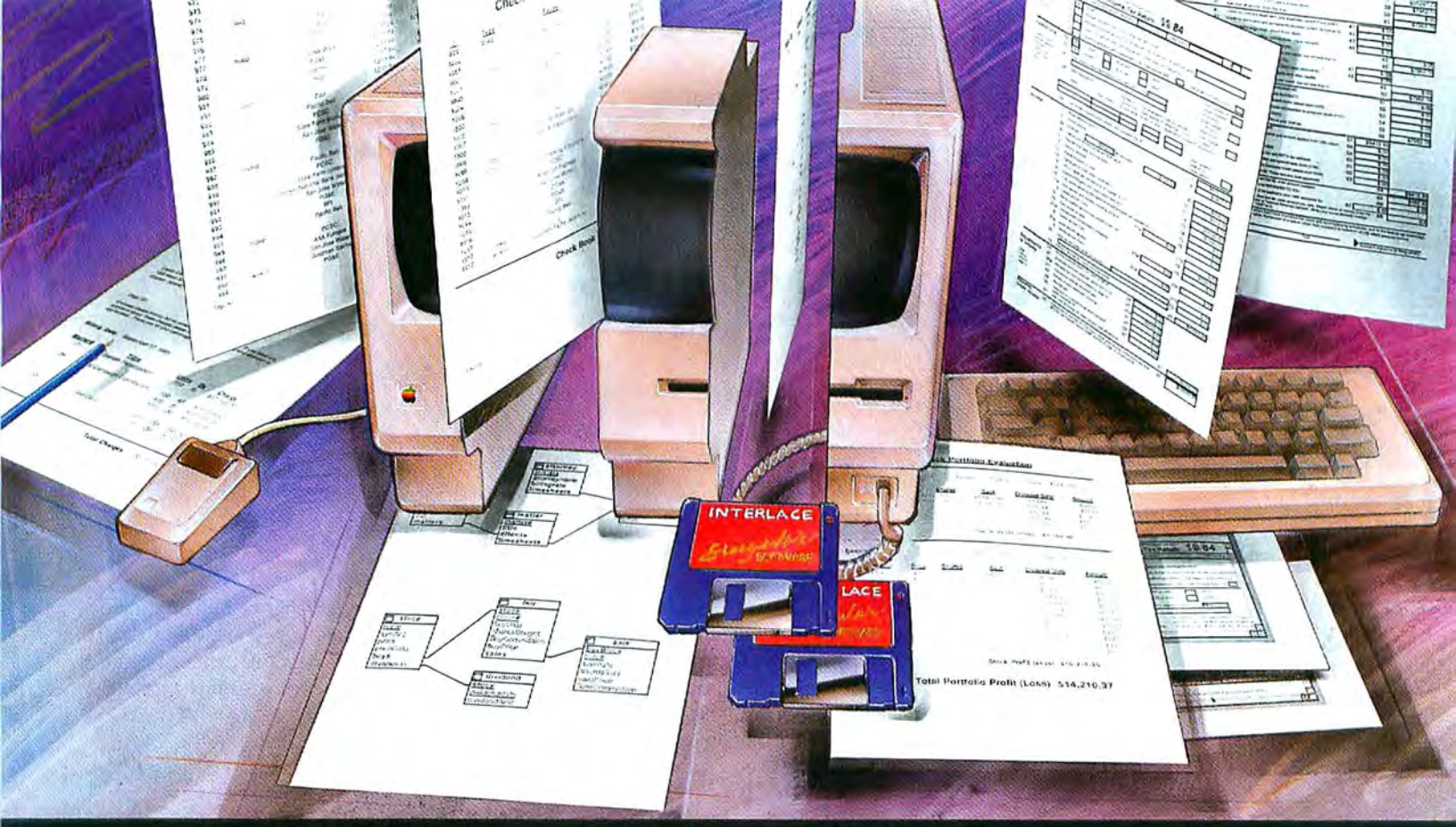
### Conclusion

Aside from the lack of a backup program, Apple's hard disk and companion software are good performers at a competitive price. The speed of the HD 20 hardware suffers, as does that of any other external hard disk for the Macintosh, when you store a lot of files. But the quick and elegant file management system software palliates the speed limitations imposed by the external port. On the other hand, Finder 5.0 has not been improved much over previous versions, nor is its performance noticeably faster. In fact, with the HD 20 half filled with files, I altered my work habits to bypass the Finder whenever possible, just to avoid the lengthy wait while the Finder rebuilds the desktop.

In the final analysis, though, judging by convenience, performance, capacity, and price, the HD 20 is a top contender among external hard disk drives for the Macintosh 512K. □

*Lon Poole is a Contributing Editor of* Macworld.

*Hard Disk 20*
*Apple Computer, Inc.*
*20525 Mariani Ave.*
*Cupertino, CA 95014*
*408/996-1010*
*List price: $1499*

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# The ImageWriter, Round II

*Nicholas Lavroff*

*Whether you create intricate spreadsheets or simple memos, when all is said and done, the end result of most computing tasks is printed output. Dot matrix printers remain the most commonly used printers for everyday printing jobs, although they lack the high-resolution glamour of laser printers. The Imagewriter dot matrix printer has served the basic printing requirements of the Macintosh for nearly two years. The appearance of a redesigned Imagewriter, called the ImageWriter II, demonstrates that while printers may have gone thanklessly unnoticed, the essential role of the dot matrix printer has not been forgotten.*

Most Macintosh owners would agree that Apple's original Imagewriter was a workhorse, a productivity tool that could do the job with a minimum of fuss and bother. But like its metaphorical cousin, the Clydesdale, the first-generation Imagewriter lacked a certain polish and refinement. For one thing, its tractor-feed mechanism had a tendency to derail and jam the paper during the printing of long documents. For another, its printing speed, although average when the Imagewriter first made its appearance two years ago, has been eclipsed by faster dot matrix printers. Finally, Apple's own LaserWriter represents such a dramatic advance in printer technology that the Imagewriter looks like the poor cousin of Apple's family of hardware.

Enter Apple's new ImageWriter II—quicker, more accurate, and more versatile than the original. And while it still pales before the LaserWriter, the ImageWriter II can hold its own in the world of dot matrix printers.

Compared to the original, the ImageWriter II is trimmer and more streamlined. It sits at an angle, with enough room underneath to store up to 200 sheets of fanfold paper. The new printer's cabinet matches the white color of the LaserWriter rather than the beige of the Mac.

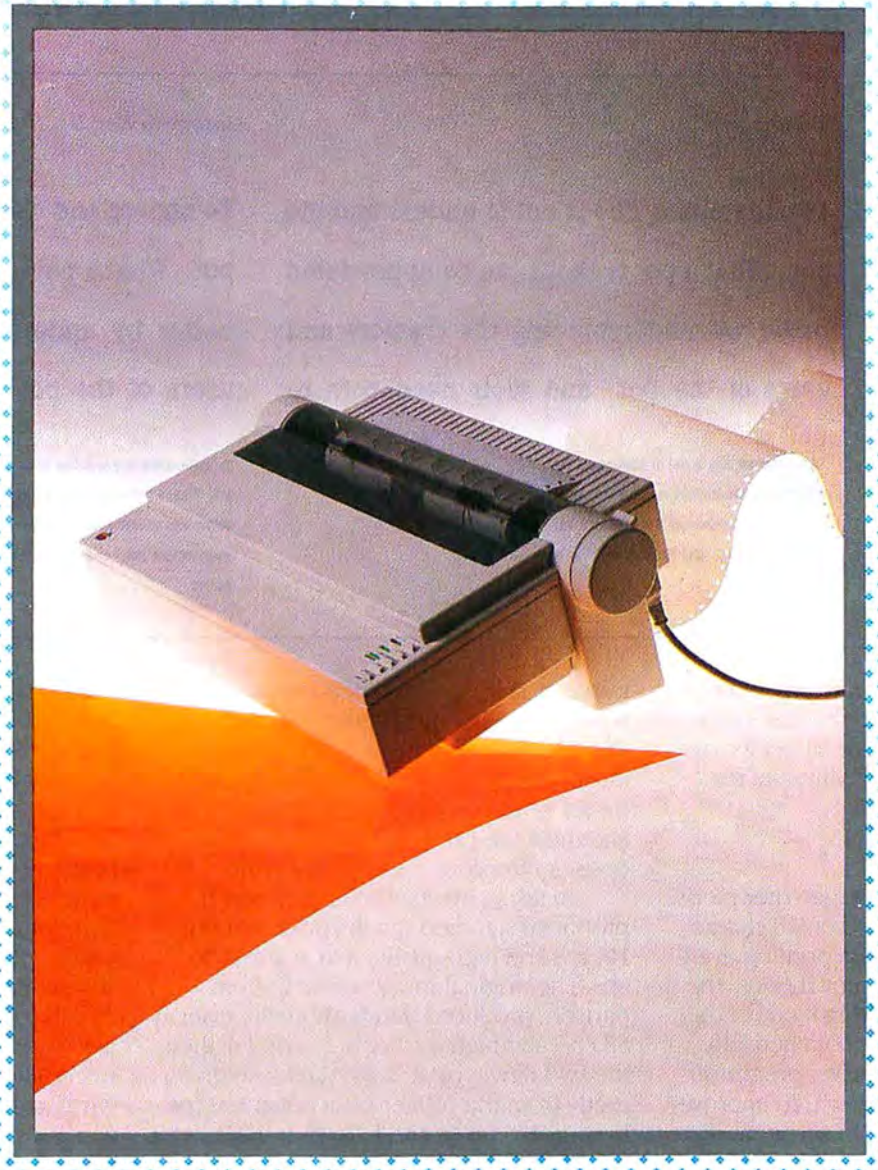
### Print Quality

With the original Imagewriter you could choose draft-quality, standard-quality, or high-quality printing from a dialog box within application programs. The ImageWriter II adds two new fonts, called standard quality and near letter quality, which you choose directly from the printer with a switch (see Figure 1). The ImageWriter II now also lets you choose draft quality directly from the printer because the draft-quality font is stored within the ImageWriter's ROM, along with the two new fonts, instead of within the Macintosh's System file. In addition to draft quality, you can also choose two new type styles, standard and near letter quality. These type styles are overprinted variations of draft-quality text.

Unfortunately, choosing print quality from the printer is not as useful with the Macintosh as it is with other computers because of the way the Macintosh sends data to the printer. When printing standard- or high-quality text, the Mac uses variable spacing, meaning that spaces between characters are adjusted automatically to fit together more attractively than typewritten text. When printing in draft mode, the Mac includes the invisible proportional spacing controls in the form of extra space. The invisible controls produce spacing anomalies between words because the proportions of the screen characters don't match those of the printer's fonts. Consequently, all three versions of the draft-quality font space words irregularly, making them unsatisfactory for business correspondence.

The only way to avoid the irregular spacing of words when you print in a version of draft quality is to use the Mac's Monaco font. Since Monaco doesn't use proportional spacing, intercharacter spaces

*The ImageWriter II, a new dot matrix printer from Apple, replaces the original Imagewriter as the Macintosh's printing mainstay*



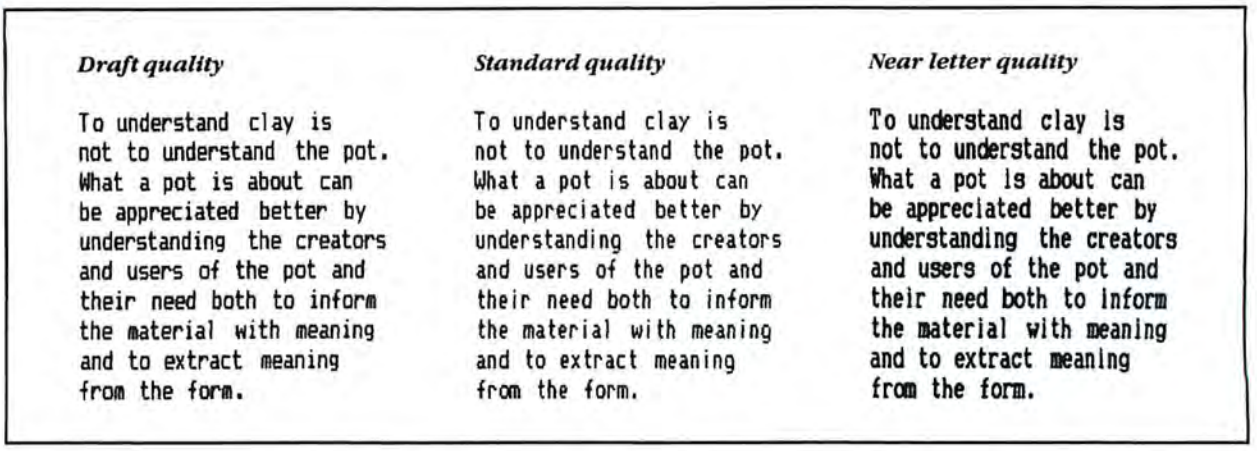



***Figure 1***
*Three draft typestyles can be selected with a switch on the printer. The figure shows the three: draft quality, standard quality, and near letter quality.*

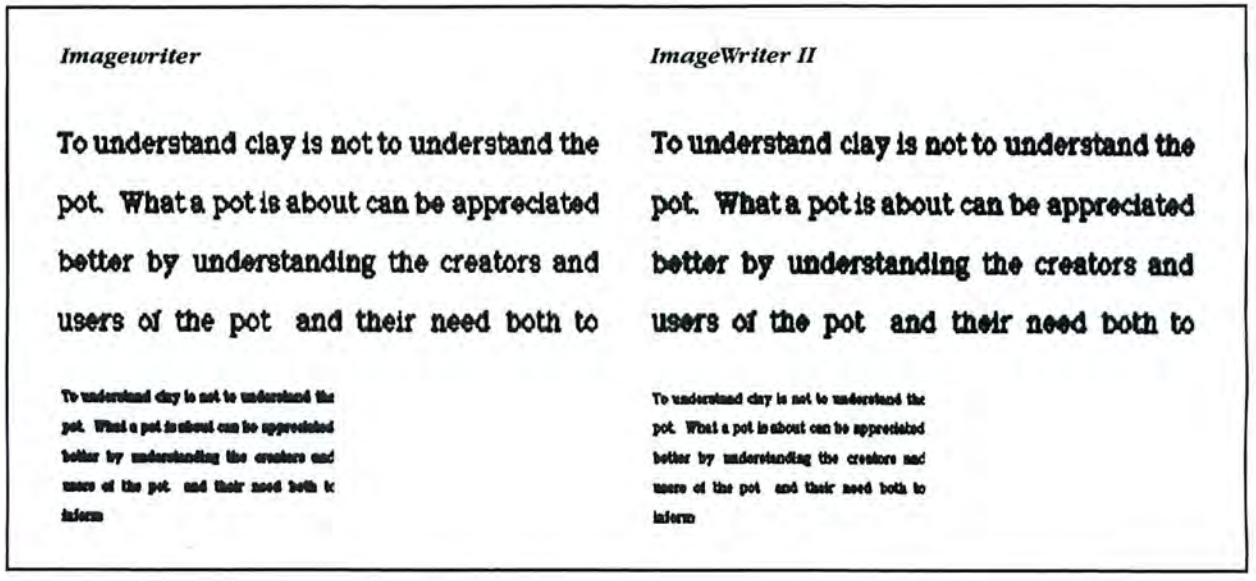



***Figure 2***
*These examples of printed output compare the resolution of the ImageWriter II and the original Imagewriter. The ImageWriter II's higher resolution lets you produce readable 10-point type using the Page Setup dialog box's 50 percent reduction feature.*

don't accumulate between words. However, once you get used to the Mac's proportional spacing, it may be difficult to revert to the aesthetic compromise of the Monaco font.

### Speed

While the original Imagewriter plods along at a maximum speed of 120 characters per second (cps) when printing draft-quality text, the ImageWriter II prints the same text at 250 cps, making it one of the fastest dot matrix printers commercially available. A new printer driver program comes with the ImageWriter II to improve printing speed as well as to accommodate an optional new cut-sheet feeder (see Figure 1). The printer driver takes advantage of the ImageWriter II's ability to print bidirectionally along the platen, improving printing speed in standard quality by 30 percent. There is little speed improvement when you print high-quality text and graphics however, because the printer must pass over each line twice. The new driver works with the original Imagewriter and the wide-carriage Imagewriter but does not improve the speed of either.

In tests I made, the ImageWriter II produced standard-quality print at about 115 cps and high-quality text at about 30 cps. The original Imagewriter, by comparison, produced standard-quality print at 58 cps, and high quality at 27 cps. Further, the two new type styles you choose directly from the printer print out at 180 cps in standard quality and 45 cps in near letter quality.

### Resolution

The ImageWriter II represents a significant improvement in resolution over the first-generation machine, yielding cleaner, crisper images. The ImageWriter II's standard-quality resolution corresponds to the Macintosh's screen resolution of 72 dots per inch (dpi). But the ImageWriter II can produce images with twice the resolution of the screen, or 144 dpi.

The reason the ImageWriter II offers better resolution than the original Imagewriter is that the wires on the print head that produce the characters are 15 percent smaller than the original wires; it's like sharpening your pencil before adding fine details to a drawing. In addition, dots are placed on the page 50 percent more accurately. This combination of more refined wires and more accurate dot placement lets you produce readable print even when 10-point type is reduced 50 percent (see Figure 2).

The ImageWriter II also has a set of half-height characters built in, for use with certain programming languages, such as Pascal and C. By shifting to this special character set, you can print a program listing in half the space.

### Paper Handling

Perhaps the most significant improvement over the original Imagewriter is the ImageWriter II's paper handling abilities. The new ImageWriter rolls the paper forward during printing at the rate of 4 inches per second, more than twice the original Imagewriter's rate of 1.67 inches per second.

When the original Imagewriter prints long documents, it is not uncommon to see the position of lines creep down the page, eventually leading to text printing on a page perforation. That paper-feed flaw limits the number of pages the original Imagewriter can be expected to reliably print at a time to 30 or 40. The ImageWriter II has a superior line printing mechanism that lets you print hundreds of pages without worrying about misalignment or mangled tractor-feed perforations.

Another improvement eliminates one of the original Imagewriter's minor annoyances. When you load a single sheet of paper or an envelope into the Imagewriter, you have to remove the continuous paper from the tractor-feed mechanism, which often causes the paper to slip behind the printer. If you have ever had to crawl around under the desk looking for the end of the tractor-feed paper because you disconnected it to load an envelope, you know exactly what I mean.

To overcome the problem, the ImageWriter II offers both friction and pin feed in a way that promises peaceful coexistence between the two methods. The new printer's pin- and friction-feed mechanisms operate independently of each other, so that one can be selected to the exclusion of the other by means of the paper release lever. You can load a single sheet or envelope quickly and easily without disconnecting the fanfold paper. Simply place the sheet or envelope behind the platen and press the Form Feed button. The single sheet advances automatically so that the top of the sheet is ⅛ inch above the print head. Further adjustments can then be made using the Line Feed button.

### Cut Sheet Feeder

If you want to improve paper handling on the ImageWriter II even more, you can purchase an optional SheetFeeder (see Figure 3). With the SheetFeeder in place, the ImageWriter II lends itself to the demanding printing requirements of business, where weekly correspondence can amount to hundreds of letters and memos. The SheetFeeder holds up to 100 sheets of letter-size 16- to 24-pound bond and loads each sheet automatically as printing proceeds.

Installing the SheetFeeder is a simple procedure that should take no more than 5 minutes. You align the SheetFeeder with the ImageWriter and then click it into place. Both the electrical and the physical connections occur at once, eliminating the need for external cables. Although installing the SheetFeeder requires disabling the tractor-feed mechanism, after you get used to the smooth operation of the SheetFeeder, you are not likely to miss the inconvenience of separating perforated margins and sheets of tractor-fed paper.

Like the pin-feed mechanism, the SheetFeeder also allows you to load a single sheet of alternate paper–for letterhead or for a second page, for example–without making you disconnect something first. You place the alternate paper into the slot directly in front of the paper stack and press the Form Feed button. The single sheet rolls into place as though it had been fed through the SheetFeeder. With a width of 9¼ inches, the single-sheet slot is not quite wide enough to accept 9½-inch business-size envelopes. That means you must either remove the SheetFeeder or try a more creative approach, such as loading the envelope sideways and then printing sideways by making the appropriate selections from the Page Setup dialog box. Although Apple deliberately made the slot too small for envelopes to avoid jamming problems, I would have liked to see a more satisfactory solution.

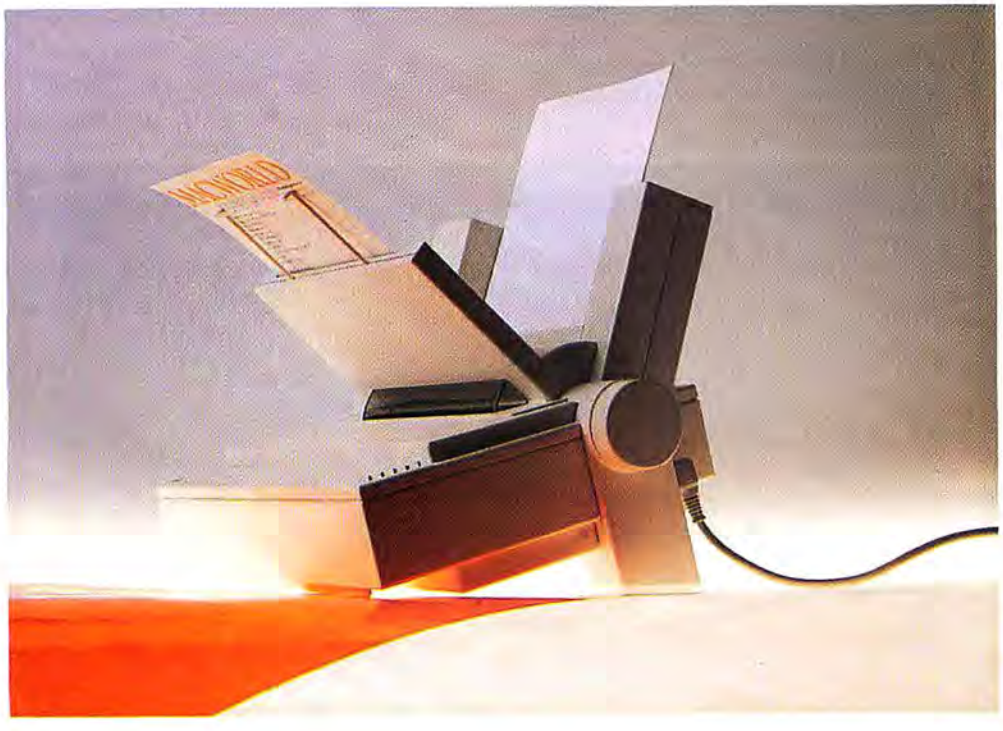



***Figure 3***
*The SheetFeeder attachment can automatically load 100 individual sheets of paper, enabling you to print jobs on letterhead or other special paper without loading each page by hand.*

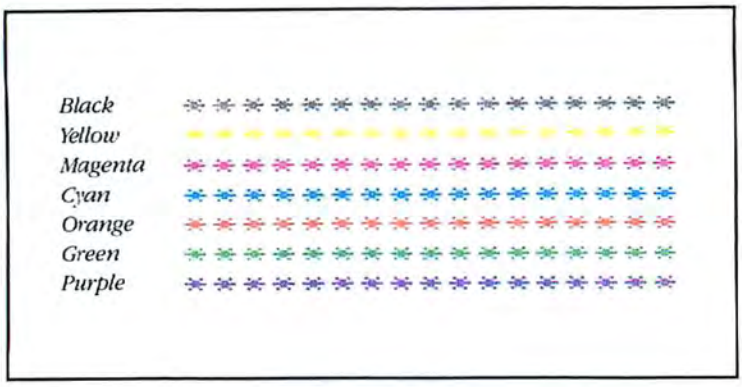



***Figure 4***
*The ImageWriter II has an optional four-color ribbon that can produce the colors shown here. Once specialized color printing software is developed, the ribbon will let you print multicolored documents.*

### The Imagewriter Opens Up

In addition to its improved paper handling capabilities, higher output, and ability to print in color, the ImageWriter II shows the first signs of a departure from the "closed architecture" philosophy that has prevailed at Apple since the introduction of the Macintosh two years ago. By opening up the circuitry and providing an expansion slot, Apple is encouraging independent developers to produce hardware that can further enhance the ImageWriter II's performance.

The expansion slot allows installation of a new AppleTalk board, which lets you connect the printer to as many as 31 Macs and other hardware, such as hard disks. With AppleTalk installed and with the appropriate software, you can queue printer requests and have your ImageWriter work nonstop throughout the day.

The other option for the expansion slot is a 32K memory buffer, which stores documents for printing so that you can continue working on the computer, performing other tasks such as typing. However, the buffer is less useful for the Macintosh than for other computers, except when you print *MacPaint* documents or draft-quality text. With most applications, the Mac prepares a printed image in a special print file that requires its own microprocessor. Since the printer must wait for the Mac to prepare the image anyway, the printer buffer's extra memory is superfluous. Hardware manufacturers could design specialized boards for the expansion slot to enlarge buffers, store fonts, or attach the ImageWriter II to other computers.

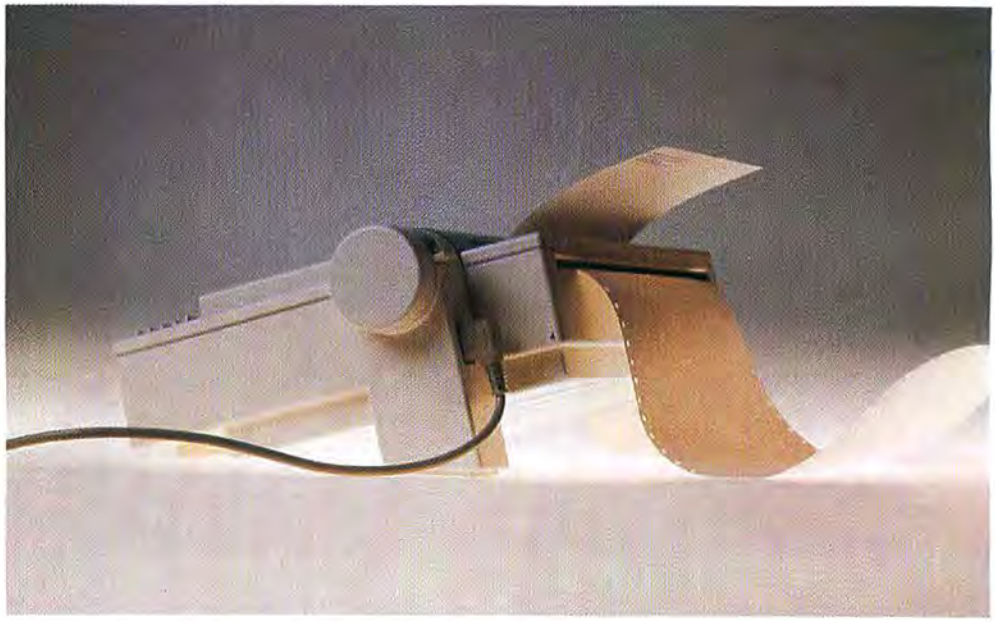
### Color Printing

The ImageWriter II can take an optional four-color ribbon so you can print color documents such as those produced with *MacPaint* (see Figure 4). Although most Macintosh owners may not immediately see much point to color printing from a black-and-white display, color printing software could be developed that would let you print documents combining up to seven solid colors. With such software you could assign colors to a graphic image, such as a business chart, on the Mac's black-and-white screen and then print the image in the specified colors. Color printing from the Mac is already available for the NEC Pinwriter by means of the Colormate software (see "Color Commentary" in this month's *Macware Reviews*).

Apple's ImageWriter II makes such a significant improvement over the original that it deserves to have the designation *II* added to its name. Its flexibility, ease of use, and improved performance make it a worthy companion to the Macintosh in both convenience and quality. And with a price tag of $595, Apple has made it easy to own a thoroughbred for the price of a Clydesdale. □

*Nicholas Lavroff is a Contributing Editor of* Macworld.

*ImageWriter II*
*Apple Computer, Inc.*
*20525 Mariani Ave.*
*Cupertino, CA 95014*
*408/996-1010*
*List price: $595, SheetFeeder $225*



*The ImageWriter II paper-handling mechanism, in addition to being faster and more precise than the original, lets you insert single sheets of paper or envelopes without disconnecting your fanfold paper. To load a single sheet, you roll back the fanfold paper, set the paper-release level to friction feed, and press the form-feed button.*

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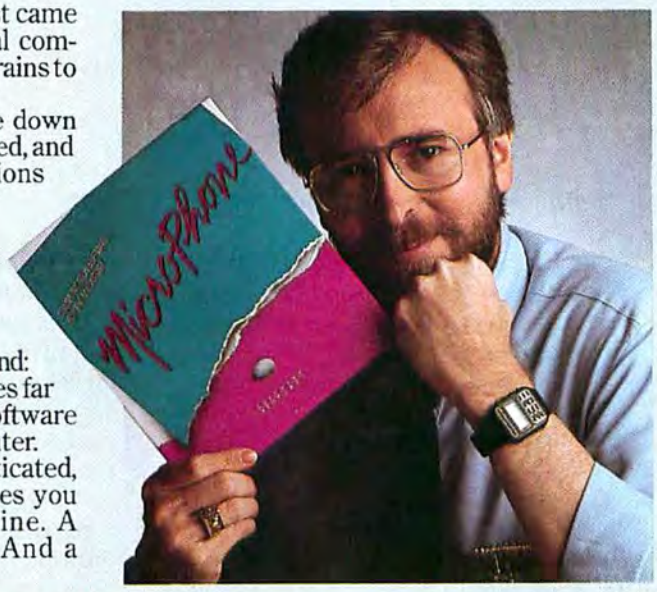


## Run on automatic.

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The second way to generate macros is through MicroPhone's unique "Script" window. Open it and you'll discover an extensive set of functions which can be called up and linked with a series of mouse clicks. The resulting macro is extremely powerful. The method is Mac-simple.

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Sending and receiving files is faster and easier with MicroPhone, too. Using XMODEM protocols and MacBinary, MicroPhone transmits or receives anything you can create on a Macintosh. Including MacPaint documents, text, spreadsheets, charts, database tables, or programs.

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# Drafting's New Compass

*Vahé Guzelimian and Adrian Mello*

*A drawing program for architects, mechanical engineers, and other experts who demand precision*

*MacDraw* was the first electronic drafting and design program for the Macintosh, but many professionals thought it lacked features crucial to a serious drafting tool. They appreciated *MacDraw*'s large drawings, Show Size option, and Custom Rulers, but the absence of single-degree rotations, a scaling feature, and a way of magnifying details for precise editing left few professionals willing to discard mechanical pencils and T squares in favor of the Macintosh.

Innovative Data Design's *MacDraft* has many of the features *MacDraw* lacked. Like *MacDraw, MacDraft* is an object-oriented graphics program, which means that the program handles lines and shapes as distinct entities instead of treating them like a collection of dots on the screen, as does *MacPaint,* for example. *MacDraft* looks and acts a lot like *MacDraw,* but it's a much more advanced drawing tool. Among other important capabilities, *MacDraft* lets you rotate objects in precise increments and zoom in on details; it automatically draws and labels dimension lines and scrolls automatically as you draw. These features heretofore have been found only in computer-aided design systems costing at least $20,000.

### Sizing Up a Drawing

*MacDraft* provides excellent features for working with measurements smoothly and conveniently. Rulers along the sides of the *MacDraft* drawing window can be set to match the drawing's current scale and can display any unit of measurement you choose, including metric units or feet and inches. You can select the size of units for the drawing grid, and you can convert the units of measurement for previously drawn objects.

The Show Size feature displays, in the units you select, the objects as you draw or resize them. Show Size provides different measurements depending on the type of object you're working with. It displays the lengths and angles of lines, the height and the width of rectangles and ovals, the radius or diameter of a circle, and the radius and arc angle of an arc.

While Show Size and the rulers let you measure objects as you draw them, it is often essential to show measurements on finished drawings. Choosing the dimension line option from *MacDraft*'s line menu causes the program to automatically add the traditional double-headed arrows to any line you draw and to include the correct length and unit of measurement (see Figure 1).

### Tipping the Scales

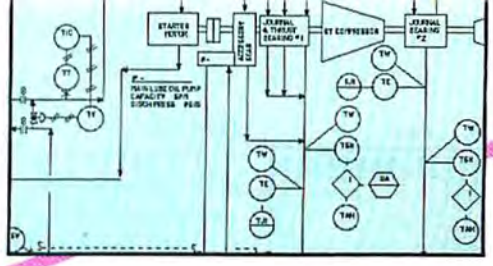
*MacDraft*'s Set Scale dialog box lets you choose among 16 feet-and-inch scales and 12 metric scales (see Figure 2). You can create a drawing in one scale and later convert to another scale in a single step. The program automatically adjusts the size of the drawing to reflect the new scale.

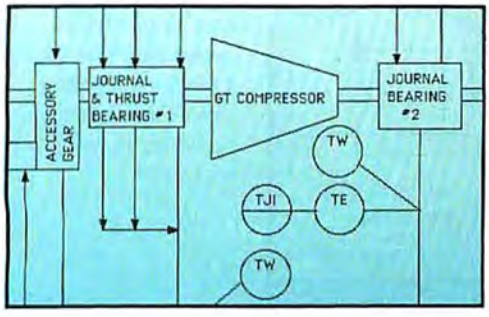
Set Scale also comes into play when you transfer objects between *MacDraft* drawings via the Clipboard. Transferred objects adjust to the scale of the drawing into which they are pasted. *MacDraw* objects retain their original size when pasted into *MacDraft,* but they then change along with the other objects in the *MacDraft* drawing if it is rescaled.

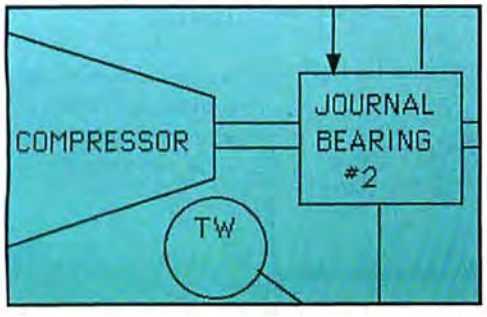
### A Change of View

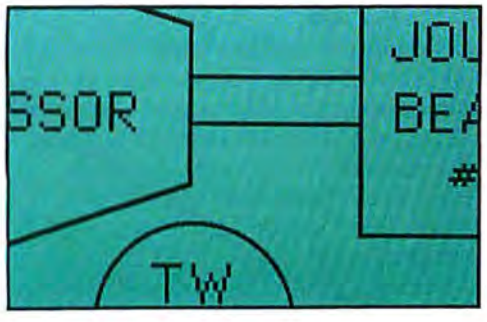
*MacDraft*'s designers appreciate that drawing is a visual activity, and the program's visual cues let you see the consequences of your actions. For example, when you click on a handle to change the size of an object, the cursor turns into a tiny set of cross hairs, letting you know that you can alter the object's size by dragging it. Whenever you select a drawing tool, horizontal and vertical cross hairs appear. The cross hairs span the drawing window, so you can measure an object's dimensions with the window's rulers.

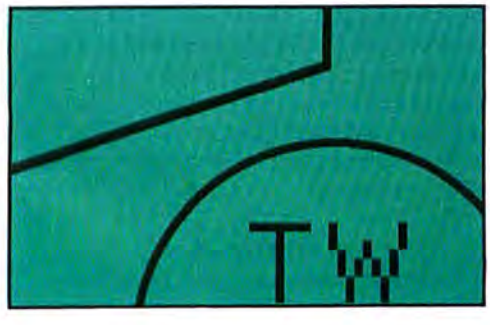
*MacDraft*'s visual orientation doesn't stop with the cursor. The program lets you zoom in on a drawing's details or zoom out to view the big picture. And the Pan tool makes it easy to view nearby off-screen sections of a drawing. When you se-






lect the tool, a rectangular frame called the Viewfinder fills the screen. By dragging the Viewfinder, you can adjust the view in a single motion. In *MacDraw* you have to tinker with the horizontal and vertical scroll bars until you find the section of the drawing you want.

When you're working with a drawing larger than a single panel, you may want to refer quickly to a remote section. For example, a floor plan of a large office building could span several *MacDraft* panels, and you might want to compare the layout of two suites on opposite sides of the building. *MacDraft*'s Zoom Out commands let you fit more of your drawing on screen by reducing the image of a drawing by a factor of 2 or 4. The effect is as if you were looking down on the floor plan from a helicopter, gaining altitude each time you select Zoom Out.

For the moments when a drawing's details become important, *MacDraft*'s Zoom In commands give you the ability to magnify details 2 or 4 times (see Figure 3). You can repeatedly magnify an area until it is 8 times its normal size. When you choose a Zoom In command, the Viewfinder appears on the drawing to let you choose which part to magnify. Complementing the Zoom commands are convenient commands that restore the previous view or the view when you first opened the *MacDraft* document.

### The Big Picture

Anyone who has tried to create large drawings on the Macintosh knows how the creative process can bog down as soon as you venture beyond the screen's 9-inch limit. When you want to continue a line or shape beyond the screen's boundary, it's a nuisance to stop and scroll a new portion of the drawing into view.

*MacDraft* scrolls the screen automatically as you draw, so you can create a line or shape in a single motion without worrying about how it fits onto the immediate screen image. This feature doesn't work, however, when you draw with the freehand tool.

Although you can draw and view large drawings more freely with *MacDraft* than with *MacDraw, MacDraft* restricts you to a smaller drawing area—48 by 48 inches, compared to *MacDraw*'s 96 by 48 inches.

### MacDraft's Tool Chest

The *MacDraft* palette closely resembles *MacDraw*'s. But *MacDraft* provides more ways to create shapes and more control over the way you reshape an object after it is drawn. However, a price is paid for the increased capability of a few of the drawing tools.

The tools for creating circles, rounded-corner rectangles, and arcs have different drawing "modes"—meaning the tools operate in different ways depending on how you select them. For example, when the letter *R* appears in the circle tool's icon, you can draw circles by radius. Clicking the letter changes it to a *D*, which means you can draw circles by diameter. Modes like this make programs more complicated and difficult to learn. However, *MacDraft* is a tool for experts, and perhaps the drawing modes are justified.

*MacDraft* provides tools for creating rectangles with square or round corners. Rounded-corner rectangles can have two different types of corners: proportional or constant. Proportional corners change according to the size of the rectangle, so when you increase the size of the rectangle, the size of the corners increases. When you select the constant corners mode, the corners on all rectangles you draw are alike until you change the corner size. You change the size of the corners by pulling an extra handle that appears inside the rectangle.

### Circles and Arcs

Because the circle tool lets you create circles by radius or diameter, you can position them relative to the center or side of an object, whichever is more convenient.

*MacDraft*'s arc drawing tool lets you fit curves accurately between points in a drawing, making it easy to draw arches and door openings in architectural designs. *MacDraft* lets you draw arcs by their radius or by specifying three points through which you want the arc to pass.

Whether you create an arc by radius or by three points, you can easily readjust its shape. You can change the length of an arc without disturbing its radius, and vice versa. The shape of three-point arcs can be changed by moving any of the three defining points.

### The Polished Polygon

*MacDraft*'s polygon and freehand drawing tools have exceptional flexibility. Polygons are displayed with a major handle at each point and a minor handle at the center of each side. Dragging a major handle changes the corner's angle and the lengths of the two sides forming the angle. Dragging a minor handle allows you to move a line without changing its length or angle of inclination. The program lengthens the adjacent sides and adjusts the angle as necessary. You can add more sides to an existing polygon or freehand shape by choosing the Split Poly Handle option from the Edit menu. You could, for example, add an alcove to a room without redrawing the entire polygon representing the room.

*MacDraft*'s Reshape command enables you to adjust objects once you've drawn them. You can smooth polygons and freehand shapes and convert square-corner rectangles to rounded corners and arcs to circles, or vice versa.

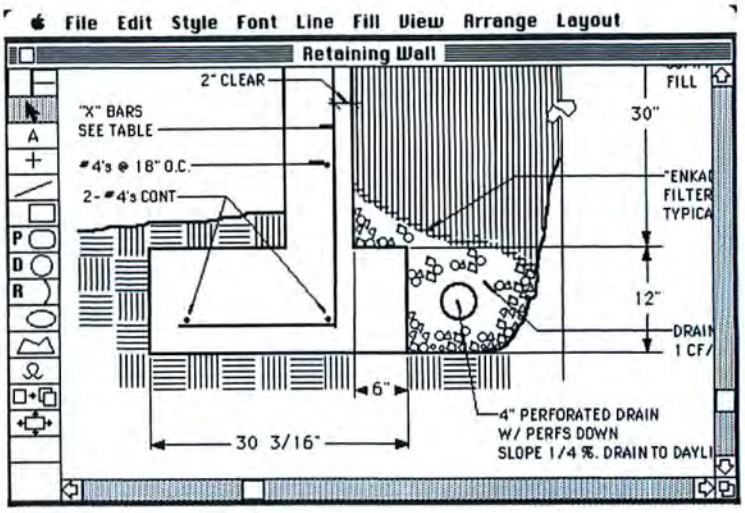



***Figure 1***
MacDraft *makes it easy to show objects' measurements by letting you draw dimension lines. Dimension lines have arrowheads at each endpoint and automatically include a measurement that shows the line's length according to the drawing's scale.*

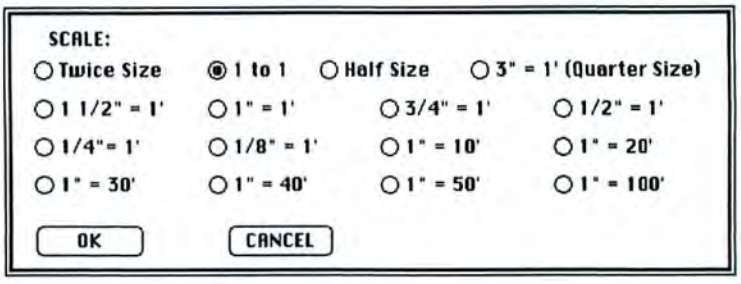



***Figure 2***
*The scale dialog box lets you determine the drawing's scale in feet and inches (as shown) or in metric units.*

### Free and Easy

The freehand drawing tool is one of *MacDraft*'s most useful features. Lines drawn with the freehand tool have handles at every turn that enable you to change a line to almost any shape you want. You can include straight line segments within a freehand shape by pressing the Option key as you draw. If you make a mistake, you can fix it without breaking stride; pressing the Shift key flips the pencil and lets you erase any unwanted portion of the freehand line.

Using the freehand tool with the zoom feature provides a level of drawing precision approaching that of *MacPaint*'s FatBits. This precision, combined with *MacDraft*'s control over objects, gives you an ability to handle details in a way other programs are unable to match.

The Zoom In command can be used to help turn bit-mapped images imported from other programs, such as *MacPaint,* into *MacDraft* images. As you zoom in on the bit-mapped picture's details, you can use the freehand tool to trace the bit-mapped image to control the image's shape.

### As the Object Turns

One of *MacDraft*'s outstanding assets is its ability to rotate lines and objects a full 360 degrees in 1- or 5-degree increments. Interior designers, for example, might rotate shapes to examine different furniture arrangements within a building's floor plan. You can rotate objects singly or in groups. Text and bit-mapped images can be rotated only in 90-degree increments.

In addition to rotating objects, you can position them by flipping horizontally or vertically or by aligning on a horizontal or vertical plane. There is also a clever feature that lets you space several objects evenly along a horizontal, vertical, or diagonal line. Architects, for example, could use this command to space several windows of equal size evenly across the front of a building.

### The Last Picture Show

Although you can paste bit-mapped images into *MacDraft* via the Clipboard, they must be accepted in an "as is" condition. With some extra trouble, you can overcome this problem by copying bit maps into *MacDraw*–where you can resize them–and then copying them from *MacDraw* into *MacDraft*. Bit-mapped graphics are one of the Mac's most appealing as-

pects, and *MacDraft*'s failure to provide a flexible way to work with them is a limitation.

Another serious limitation is that you can't resize grouped objects. If you want to resize a group of objects in *MacDraft*, you must ungroup them and resize them individually. This procedure is especially annoying with a complex group, such as might occur in a mechanical drawing of a motor subassembly.

*Although you can paste bit-mapped images into MacDraft via the Clipboard, they must be accepted 'as is.'*

**For Appearance' Sake**

Objects can be embellished with any one of 64 fill patterns and 9 line widths. Dotted lines are an especially welcome addition to the line varieties.

You can vary the appearance of text in a drawing by changing its font, size, and style. *MacDraft* places fonts and sizes in the same menu, however, and it doesn't take many fonts before the menu sags off the visible portion of the screen. People who like to work with a large number of fonts may have to parcel them out to additional System files.

When it comes time for a document's final appearance, *MacDraft* lets you print on the 10- or the 15-inch Imagewriter and the LaserWriter. You can't print from the desktop, so if you have several documents you want to print, you must open each separately.

Professional designers must be able to print large drawings in high resolution. Taping a half dozen or more Imagewriter sheets together to assemble *MacDraft* drawings larger than 8 by 10 inches doesn't meet professional standards. Two products, *MacPlot* and *MacPlots II*, provide *MacDraw* plotter drivers for plotters ranging from $350 to $8000. At present, neither product works directly with *MacDraft*, but you can plot *MacDraft* drawings by first pasting them into *MacDraw*.

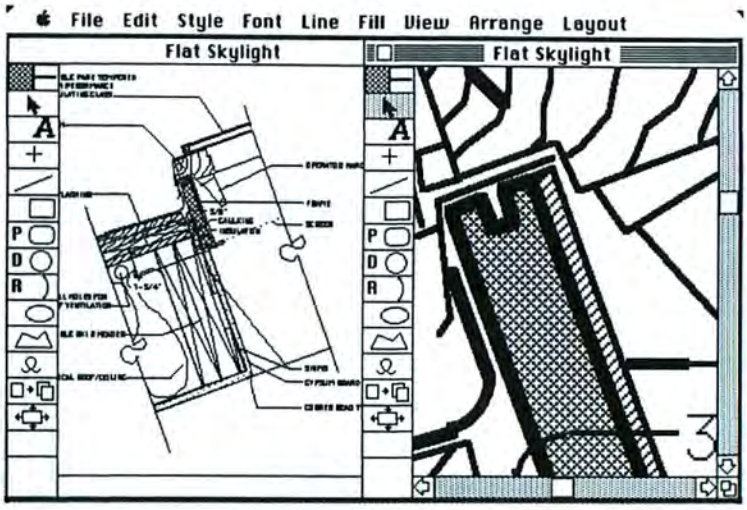



***Figure 3***
*You can use the Zoom In command to magnify a section of the drawing so that you can work with details. The figure shows two versions of a document to show a detail and its context in the larger drawing. Note how the artist–architect Greg Wolter of David Wright Associates–rotated the entire drawing.*

**MacDraw or MacDraft?**

All in all, *MacDraft* is well suited to the demands of professionals such as architects, mechanical engineers, ship designers, city planners, and commercial interior decorators. Its rotation, Zoom, autoscrolling, scaling, and dimensioning capabilities make it the best tool available for advanced mechanical drawing applications on the Macintosh. However, it does not outshine its predecessor, *MacDraw*, in every respect. People who already have *MacDraw* may not need *MacDraft*.

For people whose work is not exacting, *MacDraw* has a few advantages over *MacDraft*. *MacDraw* runs on a 128K Macintosh, while *MacDraft* requires 512K. *MacDraw* isn't copy protected, and it's easier to learn than *MacDraft*. Although *MacDraft* works with the Switcher, it requires nearly twice the memory that *MacDraw* does. *MacDraft* requires about 250K in the Switcher compared to 128K for *MacDraw*, which means on a 512K Mac you can't run *MacDraft* with more than one other medium-sized program, whereas *MacDraw* works with at least two other programs.

For advanced applications *MacDraft*'s biggest weak point is that it can't resize grouped objects and bit maps; *MacDraw* can. Fortunately, you can copy and paste documents between programs. But keep in mind that modifications unique to *MacDraft*, such as additional fill patterns or line widths, don't accompany drawings when you transfer into *MacDraw*.

Nevertheless, if you do work that requires precise measurements and maximum control over the way you create, manipulate, and view drawings, *MacDraft* deserves a premier position in your graphics tool chest. □

▲▲▲▲▲▲▲▲▲▲ *Vahé Guzelimian is the author of* Becoming a MacArtist *(Compute Publications, 1985). Adrian Mello is an Associate Editor of* Macworld.

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*MacDraft*
*Innovative Data Design, Inc.*
*1975 Willow Pass Rd. #8*
*Concord, CA 94520*
*415/680-6818*
*List price: $239*

*MacPlots II*
*Computer Shoppe*
*Guilford-Jamestown Rd.*
*Greensboro, NC 27409*
*919/299-4843*
*List price: $195, for Hewlett-Packard Drafting Plotters $295*

*MacPlot*
*CompServCo*
*800 Freedom Ln.*
*Slidell, LA 70458*
*504/649-0484*
*List price: $162, professional version $325*

# Survival Tips for the Jazz Age

*Jim Heid*

*Jazz was one of the first programs to up the Macintosh hardware ante. The integrated spreadsheet requires a minimum of 512K to operate, and serious applications of the program call for the storage and speed of a hard disk. If the combined hardware and software costs of* Jazz *have already put a pinch on your computer budget, however, you may not want to invest in a megabyte upgrade or a hard disk. Several memory management techniques can help you get the most out of* Jazz *while operating within the Mac's 512K memory limit.*

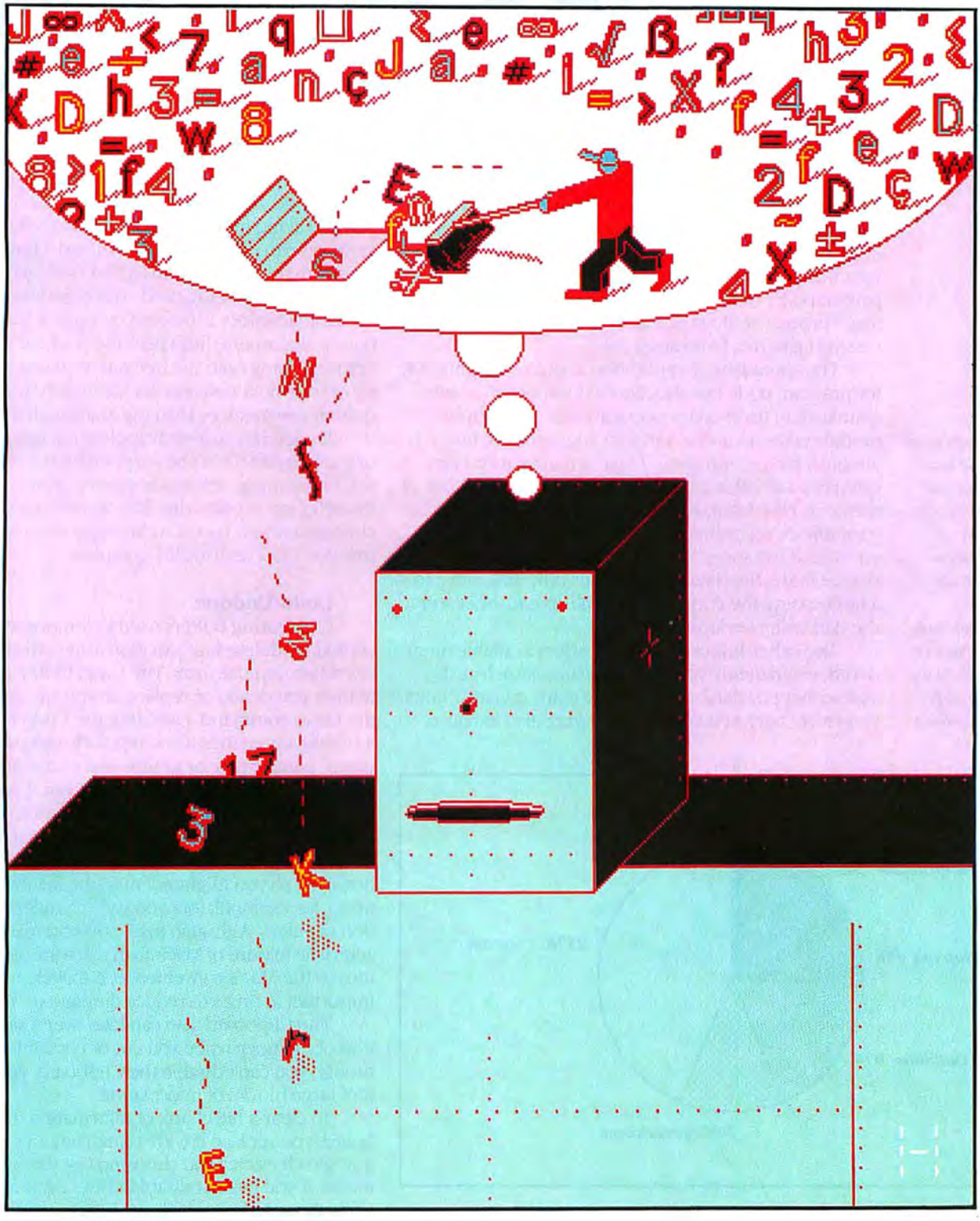
One of the advantages of *Jazz* is the way it lets you move easily from one task to another. *Jazz*'s five functions make it possible to perform common business tasks–analyzing numbers, producing reports, maintaining client lists–without having to quit one application to start another. I've discovered, however, that you have to pay a price for *Jazz*'s five-in-one convenience. Because of the way *Jazz* manages memory, using the program on a 512K Macintosh often feels like living in a well-furnished house that lacks closets: the surroundings might be comfortable, but storage space is limited.

Even when you work with a single modestly sized worksheet, out-of-memory messages can interrupt cut-and-paste operations, attempts to open additional documents, or even simple editing changes. Severe memory shortages can occur when you work with several documents; the program sometimes refuses to obey Save or Quit commands, forcing you to restart the Macintosh and consequently lose unsaved information. In the 512K Mac, the *Jazz* combo is performing on a bandstand that's barely large enough. But with an understanding of how the program uses memory, you can use *Jazz* effectively without suffering from claustrophobia.

### Operating Overhead

One reason *Jazz* gobbles memory is that the program places open documents entirely in RAM instead of storing portions on disk and recalling them as needed. Keeping entire documents in memory limits the size of any document to the amount of free memory remaining. In contrast, programs like *Microsoft Word* store the majority of a document on disk and load only the portion you're currently working on into memory.

Adding layers of complication to *Jazz*'s memory utilization, the program has several applications instead of just one. Each application absorbs memory to



operate. So when you work with more than one application, such as spreadsheet, graphics, and communications, the combination raises the operating overhead in memory.

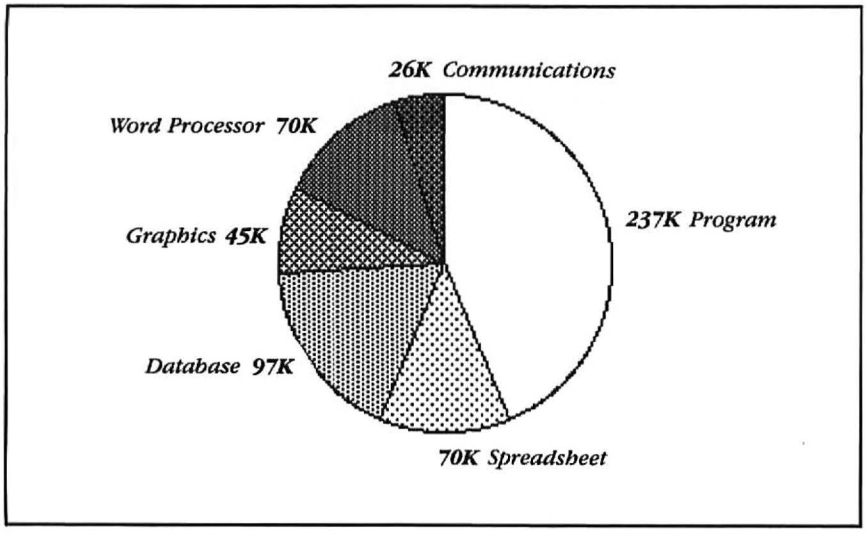
Memory is required to hold each application's program code, as well as work space for each open document (see Figure 1). The word processor, for example, requires 60K to 70K of memory. Of that amount, about 60K holds the program code, while the remaining 10K is set aside to provide adequate work space for a document roughly 2 pages long. When you fill 1½ pages, the program allocates additional memory for another page. The word processor reserves memory in such large blocks to boost performance, since allocating memory on a sentence-by-sentence or even a paragraph-by-paragraph basis would monopolize the Mac's processor, slowing editing or other word processing tasks to a frustrating pace.

The spreadsheet application requires roughly 70K for program code but allocates work space in smaller chunks than the word processor does. The graphics module takes up about 44K for program code but only about 1K for a graph itself. The communications program has a smaller appetite and uses only about 26K of memory. The database fills about 97K and allocates extra memory according to the size of each new record you add. If the spreadsheet is open when you open the database, the database requires only 30K, since to a large extent the code for both the spreadsheet and the database overlaps.

Two other important factors affect available memory: how efficiently you use applications such as the spreadsheet or database and how many dynamic links you create between applications. *Jazz* also exhausts memory when you store information on the Clipboard, delete information, or use more than one font or type style.

In short, *Jazz* taxes the memory resources of a 512K Macintosh. But take heart–there are ways to lighten the memory load and avoid an unpleasant encounter with the Mac's memory limits.

***Figure 1***
*The Jazz program itself, along with each Jazz application you use, requires memory. This chart shows the number of kilobytes needed by each application. If the spreadsheet is already open, the database requires only 30K. If the database is already open, the spreadsheet requires only 3K.*




### About Jazz

Before learning sophisticated memory management strategies, try two simple ways to bypass most of *Jazz*'s blind alleys. First, save your work frequently. Repeated saving insures against a loss of information in case you run out of memory. Second, choose About Jazz from the Apple menu to find out how much memory is currently being used. The best time to check available memory is before you open a new application or document, like checking your car's fuel gauge before driving onto the freeway. Evaluate the complexity of your next task and decide whether it might require more memory than the Macintosh has available.

Remember that each application requires memory to operate. Don't be surprised if the word processor, for example, refuses to open a 2K document even though *Jazz* reports that 20K of memory is free. By checking About Jazz you can avoid starting projects that you can't realistically complete.

### Undo Undone

Eliminating buffers used to temporarily store cut, copied, or deleted information also conserves memory when you use *Jazz*. The Undo buffer saves information you delete or replace so you can restore it with the Undo command. Disabling the Undo buffer creates a significant savings if you regularly delete entire columns, paragraphs, or groups of records. You can disable the buffer in the Apple menu, but if you do, you can no longer regain deleted information. *Jazz*'s Undo command is not as comprehensive as that in some other Macintosh programs, such as *Microsoft Word*, however, so you might not miss the feature. *Jazz* can't undo, for example, font and style changes or the insertion of rulers. Although the Undo command is a characteristic feature of Macintosh software and contributes to the Mac's convenience, it may be more important at times to reduce demand on memory.

The Clipboard also can take over a significant portion of memory when you cut or copy information. Although you can't disable the Clipboard, you can empty it of large blocks of information.

To clear a big chunk of information from the Clipboard, you replace it with a small amount by selecting a single character and choosing Copy from the Edit menu. If you haven't disabled Undo, you must choose Copy twice to force the large block out of *Jazz*'s Undo buffer, which is where the Clipboard's previous tenants go when you use the Cut or Copy command.

Throughout *Jazz* you can conserve memory by closing windows and documents. For example, if you finish creating a spreadsheet and a few graphs and then decide to move on to the database, close the

completed documents before you open the database. Although *Jazz*'s design encourages the simultaneous use of multiple windows, it's more efficient to close documents when you finish entering information into them. You can also save memory by minimizing the number of fonts and sizes in a document and using supplied sizes instead of scaled sizes. Each font variation requires that the Mac load that font or style into memory, taking up room that could otherwise be used for extra cells or paragraphs.

### Save the Cells

Most people who use *Jazz* begin by creating a spreadsheet and then go on to create graphs, which they might then include in a word processing document. Not coincidentally, it's at the beginning of that process, in the spreadsheet, where most memory management problems have their root. By carefully organizing cells in a spreadsheet, you can avoid the memory squeeze.

As you create a spreadsheet, *Jazz* draws an imaginary rectangle whose upper-left corner is located at cell A1 and whose lower-right corner is located at the intersection of the rightmost column and the lowest row containing an active cell (a cell that contains data or that has been formatted or protected). The rectangle forms the spreadsheet's *active area*. *Jazz* considers even empty cells within the rectangle active, and each cell consumes at least 4 bytes of memory. If you scroll to blank cells outside the active area and create a few more cell entries, the active area readjusts to include the new cells, as well as the empty cells between the new cells and the previous active area (see Figure 2). To prevent needless occupation of memory, avoid placing more than one blank row or column between sections and try to position all sections so that they fit economically within a rectangular area.

### Be Selective

You can also save memory in a spreadsheet by learning how to be thrifty when you select a range of cells for formatting, copying, and other operations. In the same way that you create an unnecessarily large active rectangle by positioning data in distant cells, you waste memory when you select a cell range larger than an operation demands. Assume, for example, you want to format column F to display numbers in currency form. If you click on the column's label, you select the entire column. When you format the column, you activate all 8192 cells in that column. You also activate all the cells in columns A through E, since the spreadsheet's active area must always be a rectangle. Although you may want to format only a few cells, by selecting the entire column you activate over 40,000 cells, which consume more than 162,000 bytes of memory.

To avoid this trap, don't select by clicking row or column labels. Always select a range of cells by dragging the pointer across only those cells you need to work with (see Figure 3). If you receive an out-of-memory message with a small spreadsheet, or if an attempt to insert a row or a column results in a message saying,

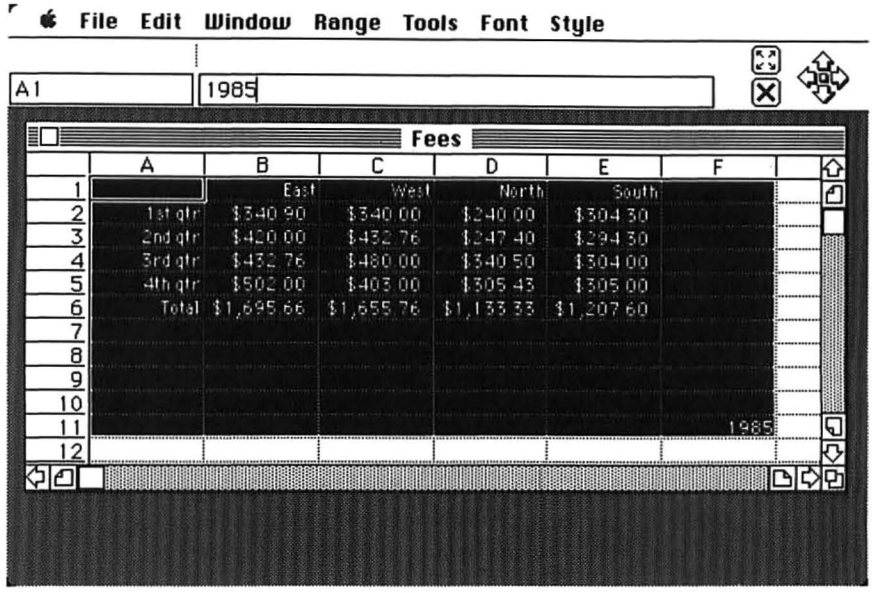



***Figure 2***
*As you create a spreadsheet, Jazz activates cells within a rectangle. The rectangle's size is determined by salient cells that are formatted or include data. Each cell within the rectangle, whether empty or not, consumes at least 4 bytes of memory. In the figure, when "1985" is added to cell F11, the spreadsheet's active area extends to include a number of empty cells.*

"You can't add more columns or rows to the worksheet," chances are you selected an unnecessarily large range. To find out if you've unwittingly traversed a spreadsheet's expanses, choose Select All from the Edit menu to determine the active area. Click on the Corner Navigator four times to locate the active area's boundaries (see Figure 4). If one of those clicks shows that the active area stretches to row 8192 or column IV, you formatted or protected an entire row or column.

### Escaping the Trap

Learning how to properly design a spreadsheet and select information can help you maximize the amount of data you can fit in a spreadsheet. But once you fall into *Jazz*'s active area trap, escaping it can be difficult. A couple of techniques can help you reclaim enough memory to continue working. If a spreadsheet is small, the solution is simple. Select the spreadsheet by dragging across only the cells containing entries and then copy it to the Clipboard. Close the spreadsheet, open a new spreadsheet document, and paste the contents of the Clipboard. *Jazz* maintains the formatting in the individual pasted cells, but it leaves behind the memory-consuming, row- and column-wide formatting of the original spreadsheet. Save the new spreadsheet and make a note to throw away the old, extravagantly formatted version when you return to the desktop.

If your spreadsheet is large, however, or if your attempt to copy it to the Clipboard fails with an out-of-memory message, you must choose a more elaborate escape route. One approach is to clear the column or row you formatted and then reenter the data it contained.

If the column or row contains more data than you feel like retyping, you can recover the wasted memory by clearing just the empty cells within the active area. If you receive an out-of-memory message, disable the

***Figure 3***
*When you format cells, don't select them by clicking a row or column heading (left). Doing so unnecessarily activates all the cells in that row or column, wasting memory. Select only the cells you need to format by dragging the pointer across them (right).*

***Figure 4***
*Two of the three icons on the spreadsheet's console are important for* Jazz *memory management. The Corner Navigator (upper left) can be used to find the boundaries of a spreadsheet's active area. The Cancel icon (lower left) can be used to regain control of a spreadsheet when the Mac reaches its memory limit.*

Undo command using the Apple menu and try again. You can verify that you've cleared the excess cells by choosing Select All from the Edit menu and viewing the limits of the revised active area.

### When Jazz Disobeys

Another type of memory shortfall may occur when you edit a spreadsheet. If you issue a command, such as a large formula, that if executed would push *Jazz* over the memory threshold, the program displays an out-of-memory message. If you try to quit or save the spreadsheet or even move to a different cell, *Jazz* may refuse your commands and maddeningly repeat its error message, leading you to believe that the system is hung and that the only escape is to turn off the Macintosh. But before you pull the plug, check the spreadsheet's console. If you see the Cancel icon below the Corner Navigator, click it or press the Backspace key to regain control (see Figure 4).

The problem crops up because *Jazz* usually enters the information you type into the entry box before the program executes any other commands. Attempting to enter the data, however, is what causes the error message to begin with, so you continue to receive an out-of-memory message–an apparent dead end. By clicking the cancel icon, however, you clear the entry box, effectively telling *Jazz*, "never mind." You can then save what you have, quit, or eliminate blank cells to make room for more data.

### Dense Databases

The way the *Jazz* spreadsheet manages cells makes it the place where most memory-fit problems begin, but economizing memory can help in some of the program's other applications as well. The graphics and the communications applications don't offer much opportunity for saving memory. However, memory efficiency techniques for the database and the word processor do exist. The database application operates much like the spreadsheet. "Blank" records–ones that appear numbered like other records but contain empty fields–take up memory. Therefore, remove any blank records that remain after a data-entry session. Report and query definitions also subtract from the amount of memory remaining, so discard definitions you don't use.

If *Jazz* balks when you try to print a report, try copying the records you want to print to a new database. Then close the original and generate the report from the new database. The Macintosh may not have enough memory remaining to copy a substantial block of data at once. You may have to copy records into the document by batches until it is complete enough to print.

### Cooling Down Hot Views

In the *Jazz* word processor, HotView is the major memory monopolizer. HotView dynamically links documents from different applications so that changes made in a spreadsheet, for example, are reflected in a graph that appears in a word processing document. When a document includes data that is linked to other applications, portions of those applications are active to an extent, even if the linked documents do not appear on the screen. Because active documents use more memory than other open documents, dynamically linked applications are especially costly to available memory. For that reason use the HotView menu's Freeze command to break the links to documents you don't plan to update. When you create documents that won't require updating, transfer information between applications with the Clipboard instead of HotView.

| | Capacity | |
|---|---|---|
| **Application** | **512K** | **1 megabyte** |
| Spreadsheet | 11,340 cells | 27,233 cells |
| Word processor | 20.5 pages | 60 pages |
| Database | 1917 records | 5382 records |

***Table 1***
*These figures, supplied by Lotus, compare approximate capacities of* Jazz*'s spreadsheet, database manager, and word processor when used with 512K and 1-megabyte versions of the Macintosh. The test spreadsheet consisted of equal thirds of formulas, integer values, and floating-point values. The word processing document tested was all text, formatted in 12-point New York. The database had ten fields, some formatted for characters and some formatted for currency.*

You can minimize out-of-memory messages in one more way: get more memory. *Jazz* can use a full megabyte of memory. Table 1 compares the program's approximate capacities on a 512K Mac and on a Macintosh XL with a megabyte of memory. But if you can't give *Jazz* more memory, you can still scale memory problems down to size by following the guidelines I've presented here. After all, if you can't enlarge *Jazz*'s bandstand, you can at least keep the show on the road. □

*Jim Heid is a Contributing Editor of* Macworld.

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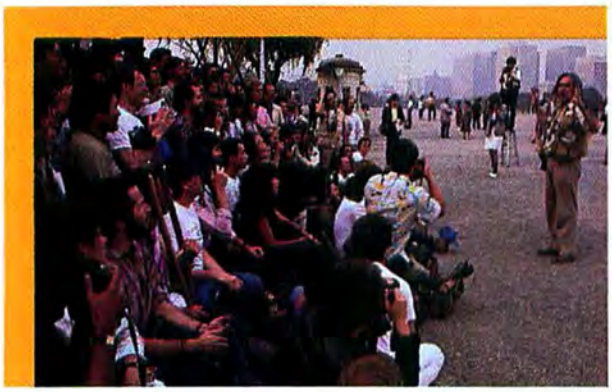
# One Day in the Life of Japan

*J. E. Arcellana*

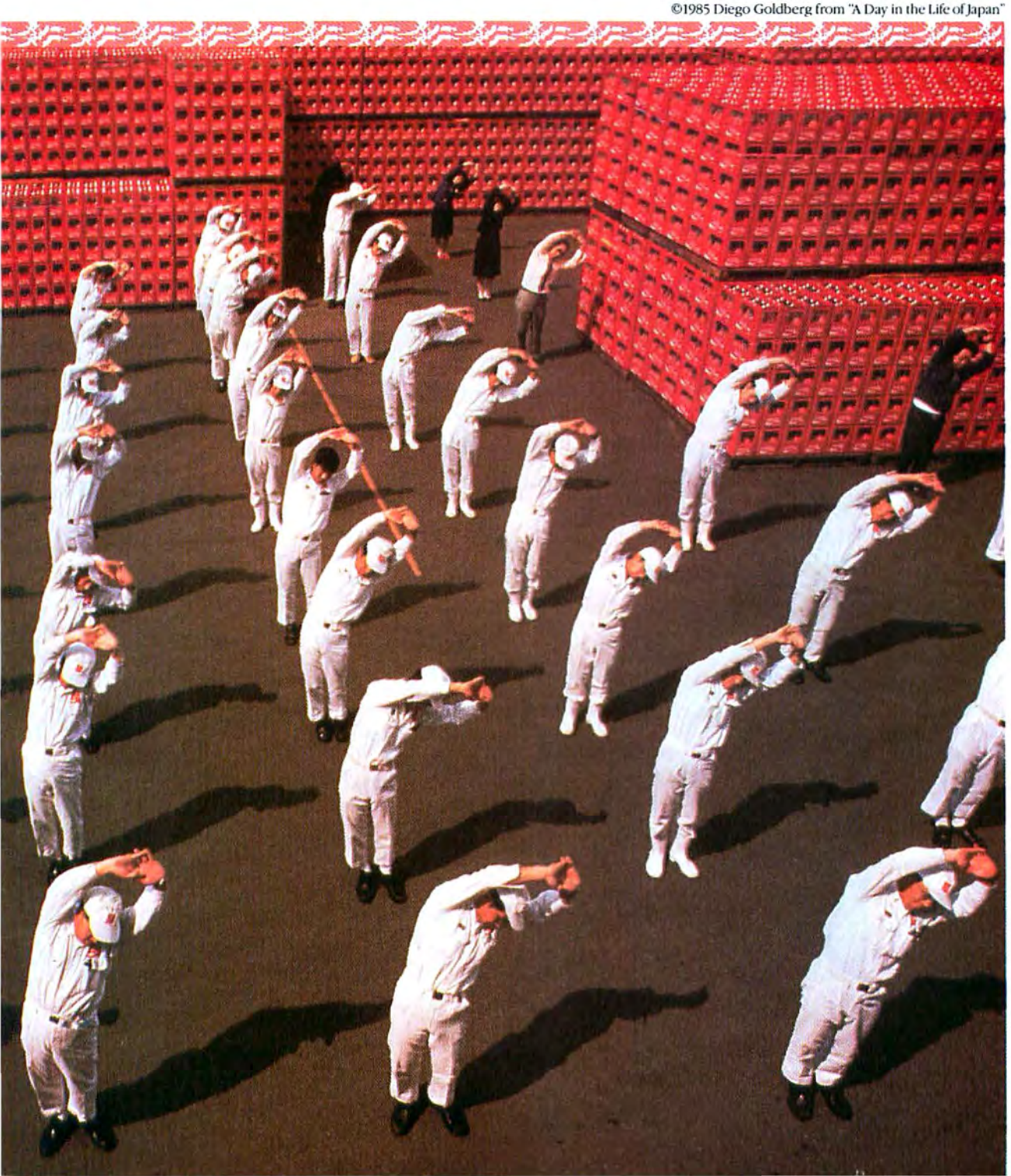
*A hundred photographers from all over the world converged on the Land of the Rising Sun last summer. Their mission was to capture the life of the Japanese nation in thousands of photographs taken on a single day, and the Macintosh was there to help them.*



Friday, the seventh of June, 1985, would have been an ordinary day in Japan. But as the rising sun cast a light-orange glow on Mount Fuji's snowcap and as Japanese who had no compelling reason to be up earlier in the morning slowly stirred, an extraordinary event was taking place. A hundred photographers from 18 countries–including 25 photographers from Japan–were deployed along the length of the archipelagic nation, from Hokkaido in the north to Okinawa in the south. The photojournalists, many of the world's best, included two Pulitzer prize winners.

These hundred men and women are rarely on the same continent at the same

©1985 Diego Goldberg from "A Day in the Life of Japan"



*Morning at the Coca-Cola bottling plant in Asahikawa. Each day begins with ten minutes of exercises. On the facing page, Neal Slavin photographs the photographers for the group portrait that runs in every Day in the Life volume.*

time, much less in the same country on the same assignment. Yet they were in Japan for a week before and a few days after the seventh of June to shoot *A Day in the Life of Japan,* the fourth of the Day in the Life series of photography books.

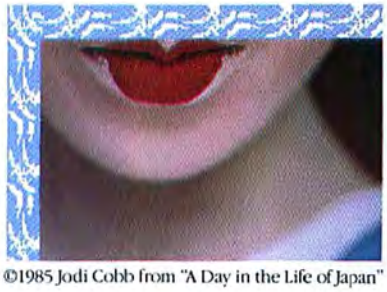
The person responsible for bringing all that talent together is a 35-year-old photojournalist named Rick Smolan, whose work has appeared in *Life, National Geographic, Paris-Match,* and other magazines. Smolan conceived of the series and codirects it with 30-year-old David Cohen, the former managing editor of an international photo agency. Each volume of the Day in the Life series is a photographic record of life in a specific country on a single day. Smolan started the book series with *A Day in the Life of Australia,* which was published in 1982 and sold 180,000 copies worldwide. He and Cohen continued the series with books on Hawaii, published in 1984, and Canada, published in 1985.

Smolan regards the Japan volume as the toughest challenge thus far. "It's so easy for the photographers to come back with quaint pictures of people on the street bowing, women in kimonos–that sort of thing," he says. "Visually, Japan is so interesting, but in fact photos are a lot harder to make interesting to the people here than any other place I've been. Everything here is so interesting to us Americans but may bore the Japanese."

### Preparing for the Day

With its complex logistics and monumental scope, *A Day in the Life of Japan* cost $3.5 million to produce, not including the discounts and donations provided by corporate sponsors. American Express was the project's major underwriter. Kodak Japan donated nearly 5000 rolls of film, Japan Air Lines provided air travel, the Tokyo Hilton made rooms available for lodging and meetings, and Apple Computer Japan set aside office space equipped with Macintosh computers and a LaserWriter printer.

*Detail of a geisha's face*



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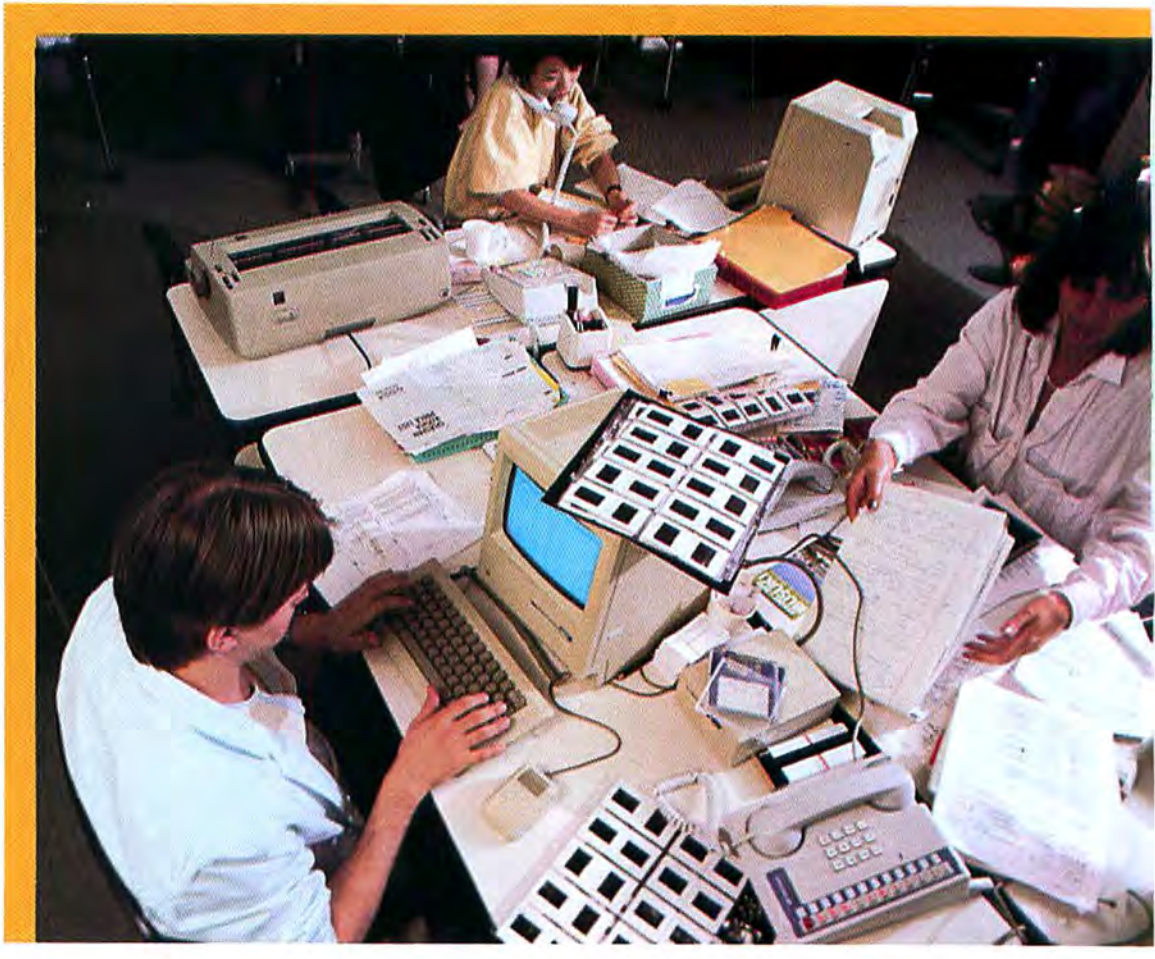
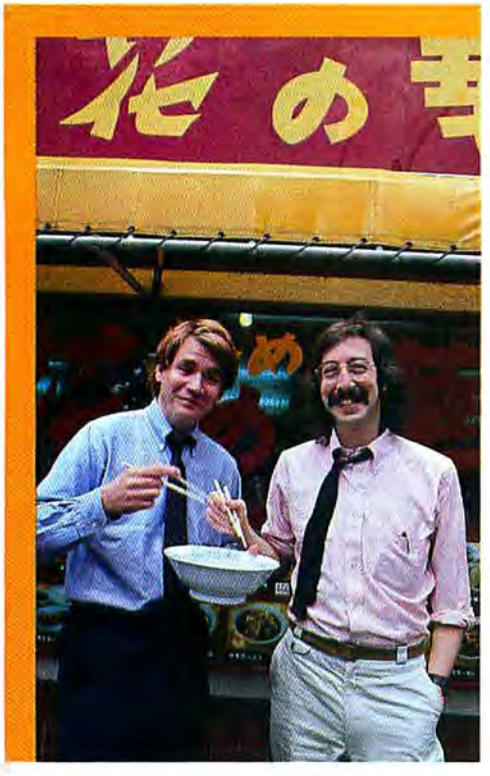


*A Macintosh on every desk. Ten staffers armed with ten Macs handled all the complex arrangements for the shoot. Shown are Torin Boyd, Kiyomi Takeyma, and Pauline Johnson (left to right).*

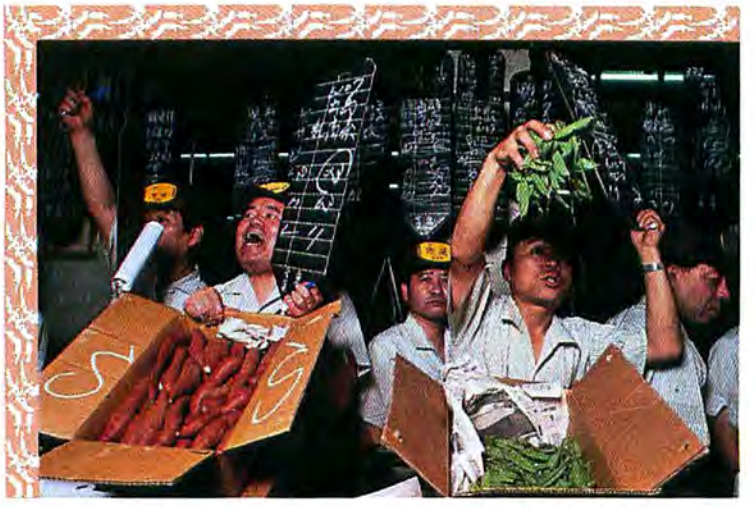
Two months before the date referred to as Shoot Day, the staff of A Day in the Life set up shop in Apple Japan's offices in the Minato-ku section of Tokyo. From there staff members sent out invitations to the selected photographers and to members of the press via MCI Mail using *MacTerminal.* The staff kept track of travel arrangements and accommodations in *MacProject,* stayed on top of the multimillion-dollar budget with *Multiplan,* and set up databases in *Microsoft File* for publicity mailing lists, a directory of photographers, and the assignment logs. The databases made it possible, for example, to see quickly a photographer's assignment and how to contact the photographer on location. Press releases, schedules, announcements, and other materials were printed on the LaserWriter.

The Day in the Life project was also able to buy, at a generous discount, a 128K Mac and an Imagewriter to give to each photographer. Patricia Richards, the Day in the Life publicity coordinator, says the photographers have taken to the computer surprisingly well for people who ordinarily couldn't be bothered with learning how to use one. According to Richards, the photographers should find the Mac handy for preparing budgets, scheduling assignments, keeping track of stock photos, and, of course, annotating photos for agencies and publishers.



*Day in the Life cofounders David Cohen (left) and Rick Smolan at a noodle shop across the street from their offices at Apple Japan. Smolan regards the Japan volume, fourth in the series, as the most challenging so far: "Everything here is so interesting to Americans but may bore the Japanese."*

©1985 Neal Ulevich from "A Day in the Life of Japan"



*Wholesalers bargain for the best price at the early morning vegetable market in Tokyo's Akihabara district. On offer here are peas and* Satsuma-imo, *Japanese sweet potatoes.*

**Database for Pictures**

In a wide-ranging conversation with *Macworld* Editor Kearney Rietmann a few days before Shoot Day, Day in the Life co-directors Smolan and Cohen discussed their investigation into how computers can be used by photojournalists and photo agencies. Several years ago they approached The Source about setting up an on-line database containing up-to-date information on individual photographers and on stock photographs available through agencies–a photojournalism special interest group. "We thought if the stock agencies gave us lists of what they had in their files," Cohen related, "you could call one number about a particular photo instead of calling 30 agencies. So we went to The Source, and the people there basically yawned."

In April 1983 they made a similar proposal to Katherine Graham of the *Washington Post* and received a grant to make a feasibility study. Six months later, with significant help from Delphi computer network designers, Smolan and Cohen had set up a trial network of about 50 photojournalists. But the partners ended up making a recommendation against their own proposal.

In large part their recommendation was based on the results of a survey that McGraw-Hill conducted for the *Post* on potential subscribers to the proposed network. "The good news was that everybody in photojournalism wanted to use it," Smolan recalled. "The bad news was that photojournalism is not an industry–it's a handful of people. Unless we charged $5000 per hour on line, the special interest group wouldn't have been worth our time.

"So in the end, the *Post* slapped us on the back and said, 'You guys did a great job, but this looks more like a nice club than a business,'" Smolan concluded.

Still, the Day in the Life codirectors are optimistic about the Macintosh. Smolan says, "The exciting thing about the Mac for photojournalists and photo agencies is that there's a possibility of digitizing photos well enough so that you can actually look at a photograph and make a judgment on whether it suits your needs."

### Taking In the Sights

While *A Day in the Life of Japan* is designed to be a time capsule in print effected through photographs taken on a single day, the project itself took much longer. The *gaijin,* or foreign, photographers were in Japan for 12 days, with Shoot Day set for the beginning of the second week. Their schedule included a reception, several briefing sessions, photography symposia and children's workshops in Tokyo and Osaka, and a day left free for on-location research and scouting.

At the children's workshop in Tokyo, starter kits with disc cameras provided by Kodak Japan were given away to the young people, while the grown-up professionals offered tips. The universality of pointing and clicking seemed to help the two oddly matched groups understand each other. The photo symposia featured several photographers, including Abbas of Iran, Koo Bohn-Chang of Korea, Hiroshi Hamaya and Eikoh Hosoe of Japan, and Jay Maisel of the United States, who showed and discussed their works.

A Day in the Life's quintessential coordinating task was an outdoor photo session near the Imperial Palace on the Monday preceding Shoot Day. The purpose of the session was to take a group portrait of all the photographers. Gathering globe-trotting photojournalists who on any given day could be scattered from Beirut to Bora Bora and from Pinsk to Patagonia can easily become a logistical bad dream. Fortunately the photo session went well enough to take a portrait. A group portrait of participating photographers is included in every volume of the series.

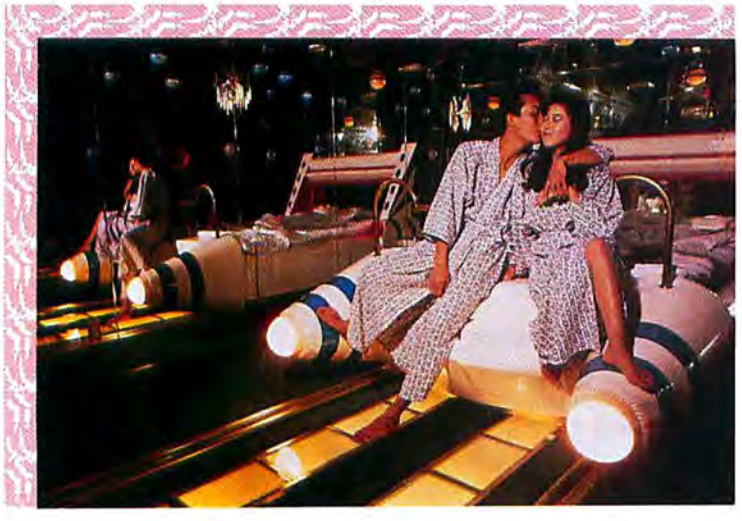
### Time Stands Still

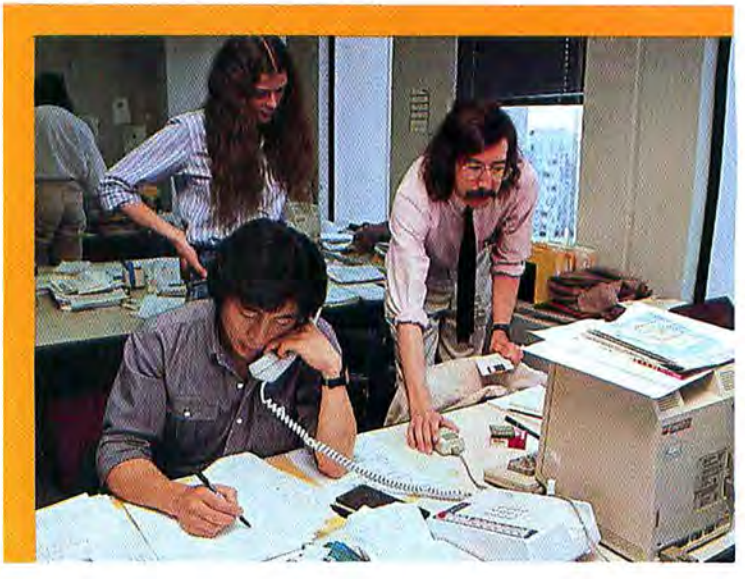
On Shoot Day *Macworld* photographer Ed Kashi accompanied Polish photographer Andrew Stawicki of the *Toronto Star* to the Suzuki violin school in Tokyo. The school was established for children as young as three or four years old, in the belief that all children have musical ability. The children gamely practiced on even as Stawicki set up lights and started clicking away. Kashi took pictures of Stawicki taking pictures of the children.

The scene of pictures being taken of pictures being taken was replayed all over Japan that day. Patricia Richards estimates that the country's largest television network, NHK, sent out 60 camera crews and used 1000 hours of videotape to cover the photographic activity, which was also covered by other television stations and numerous publications.

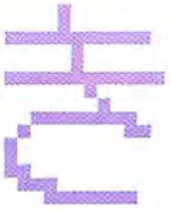
*Fly me. The space shuttle bed at Osaka's Super Fashion Hotel. Rates are ¥ 420,000 ($80) for an overnight flight, or ¥ 45,000 ($20) for an hour's ride.*

©1985 Roger Ressmeyer from "A Day in the Life of Japan"





*Rick Smolan with production director Jennifer Irwitt and assignment editor Munesuke Yamamoto in the project's preshoot nerve center, the Day in the Life headquarters at Apple Japan.*



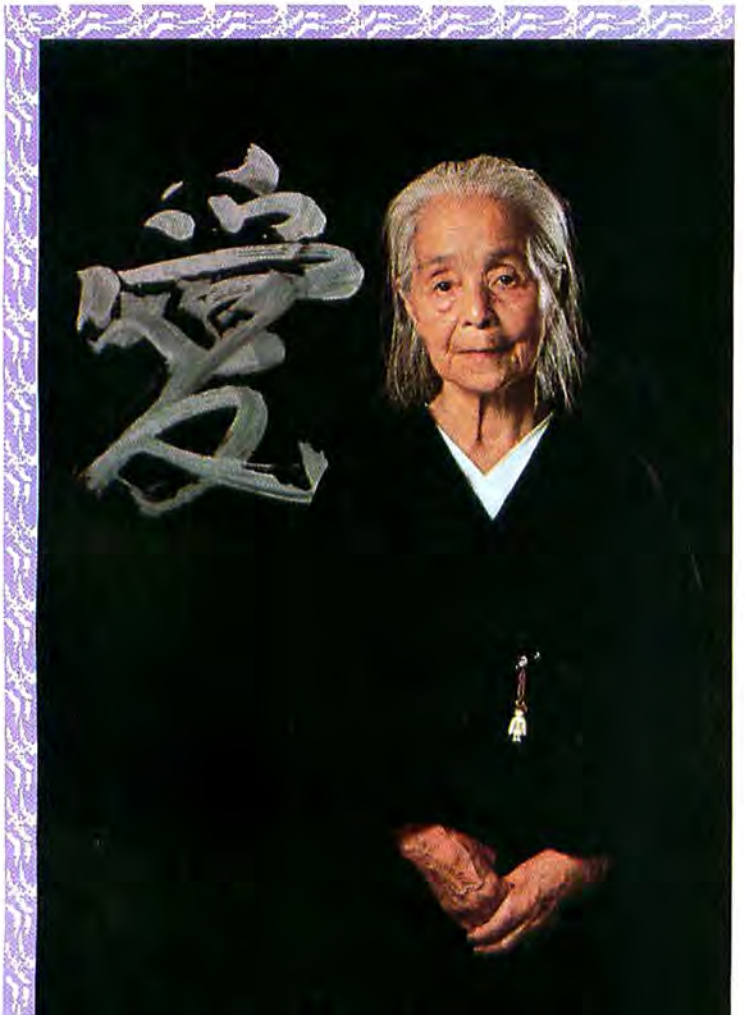
*Myoshin Nakamura, 82, writes poetry, composes and sings songs, and teaches calligraphy to the local children in her home of Aikawa. On the backdrop is an example of her art: the character for* love.

Quite a few photographers were concentrated in Tokyo, which in addition to being Japan's political and industrial center is its most densely populated prefecture. (The country is politically divided into prefectures, each about the size of a county in the United States.) David Burnett of Contact Press went to the Tsukiji fish market, where wholesalers bid for the day's catch. Leonard Lueras, a resident of Hawaii, photographed campus life in Seikei Daigaku, Tokyo's university district. Jean-Pierre Laffont, a French photographer connected with the Sygma photo agency, took pictures at a Tokyo hospital. The location was a logical choice for Laffont, who was recovering from a broken leg and covered his subject from a wheelchair. Smolan went up in a helicopter for shots of the city and of Mount Fuji, mostly because, he says, no one else likes to take aerial pictures. He also took aerial shots for the three earlier Day in the Life volumes.

Most of the photographers were scattered across prefectures lesser known than Tokyo. Jack Corn of the *Chicago Tribune* was in the town of Teshikaga-cho on Hokkaido following motorcycle-riding cowboys on a ranch with 1500 head of cattle. Eikoh Hosoe was in Hiroshima to take portraits of survivors of the nuclear bomb detonated over that city 40 years ago. Dilip Mehta of India was in Chiba prefecture, parts of which are becoming Tokyo suburbs, to capture the amusements in Disneyland of the Rising Sun.

As the day wore on, some photographers moved to other locations, while others stayed to document the changes one place underwent through the day. Bruno Barbey of France explored the amazing maze of Tokyo's subways from the start of the morning rush hour to the end of the evening crush.

©1985 Eddie Adams from "A Day in the Life of Japan"



### The Morning After

The next day in the life of *A Day in the Life of Japan,* the photographers returned to the Tokyo Hilton from their assigned locations. They turned in several thousand rolls of film for processing. Each photographer had to log every roll that he or she submitted. An estimated 100,000 photographs were taken. The photographs that appear in the book were selected by a panel of eight photo editors that included

*Andrew Stawicki of the* Toronto Star *photographs a petite prodigy at the Suzuki violin school in Tokyo. The school is based on the idea that all children have innate musical ability that should be developed before the age of 5.*

*A TV camera films as a photographer logs in his shots. The Day in the Life documentary was the largest production ever undertaken by Japanese TV network NHK, which assigned 60 camera crews to cover the event.*

staff members of the London *Sunday Times, Newsweek,* the *New York Review of Books,* and *Time.* The photo editors arrived in Tokyo the day after Shoot Day so that they could make their selections in the country where the pictures were taken. In the remaining two days before the *gaijin* photographers left Japan, a debriefing session was held during which photographers shared useful information about their pictures with Smolan, Cohen, and the photo editors. The hectic Japanese adventure climaxed in a farewell party at the Tokyo Hilton.

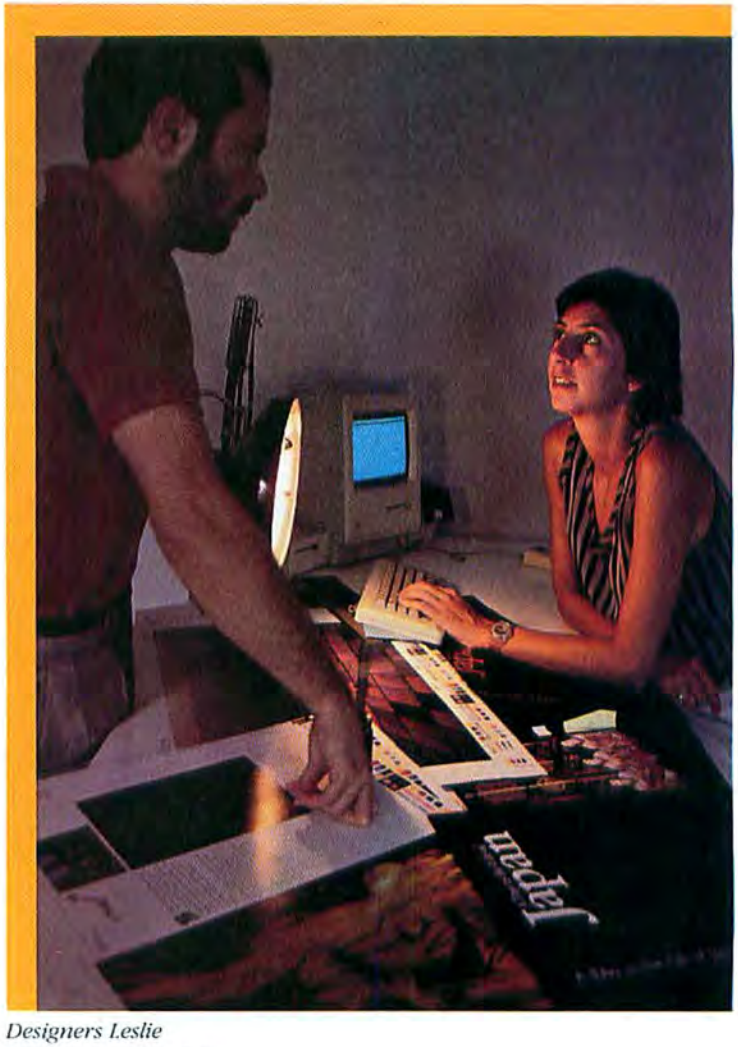
**Back in the U.S.A.**

By June's end, the Day in the Life staff had moved out of Apple Japan offices and into the New York City offices of the British publisher William Collins Sons & Company, which is publishing the volume through its Day in the Life subsidiary. The subsidiary was formed under an agreement between the publisher and Smolan and Cohen. Moving the entire operation across the Pacific and over the North American continent was a major undertaking. Smolan arrived at John F. Kennedy International Airport with 76 boxes. He probably would have traveled lighter if Japan Air Lines weren't a Day in the Life sponsor.

Some of the boxes contained Macintosh equipment, which was used to continue the tasks it had been performing in Tokyo. Already computerized with an Apple III and a IIc, the Day in the Life's New York office depended primarily on five Macs and a LaserWriter printer to help finish the book. Publicity coordinator Richards says matter-of-factly, "There is nothing in this office that isn't done on the Macintosh." As with *A Day in the Life of Canada,* text for the book on Japan was processed

©1985 Roger Ressmeyer from "A Day in the Life of Japan"

*Osaka's traffic control system, which links TV cameras with traffic lights and signs, has cut accidents, travel time, and exhaust emissions.*




*Designers Leslie Smolan and Ken Carbone consult over a jumble of* Day in the Life of Japan *layouts. Their firm uses the Macintosh extensively and has designed all of the Day in the Life volumes.*

on the Mac and telecommunicated to the typesetter.

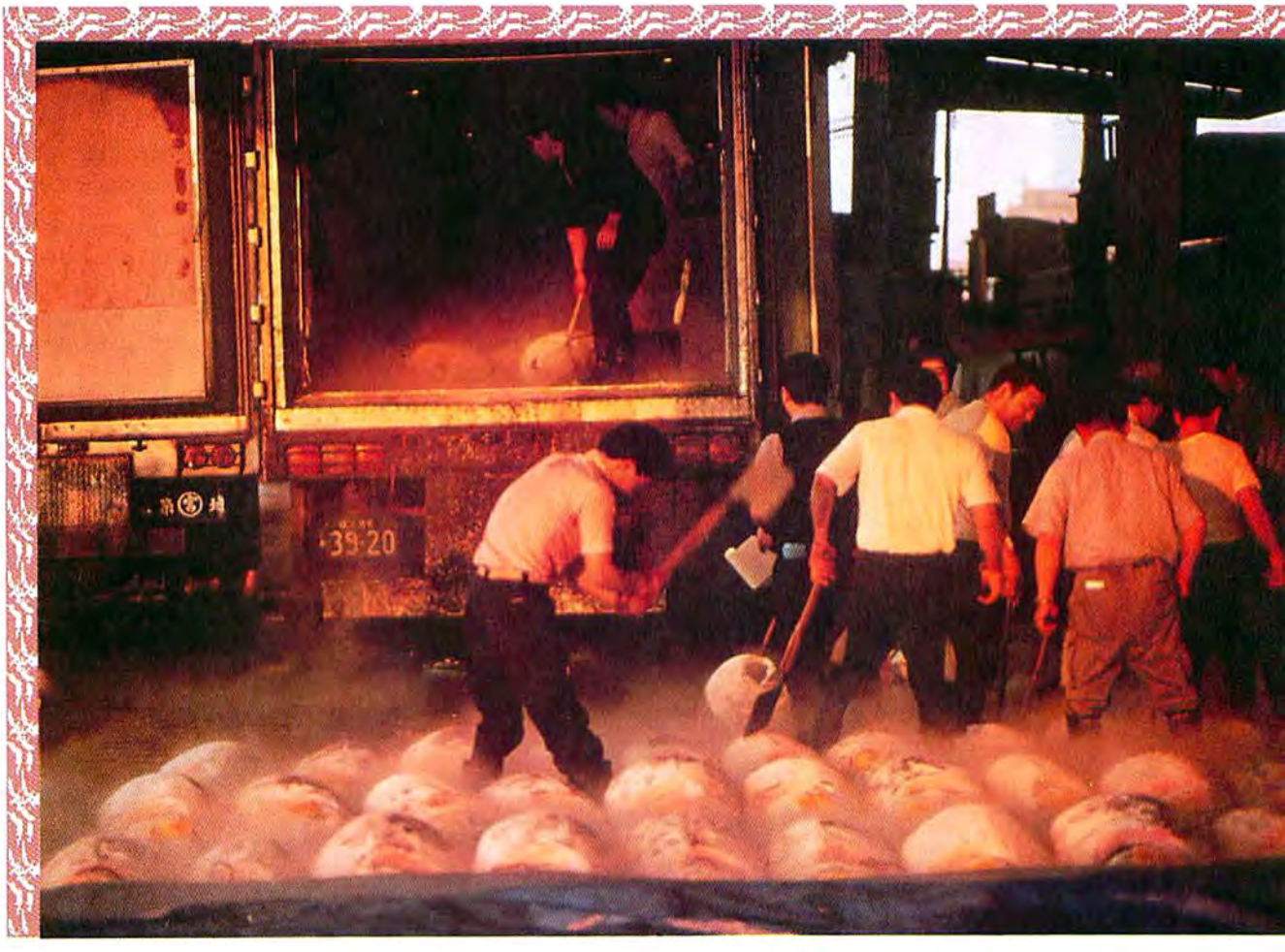
The size of the Day in the Life staff is always small, although it varies according to need. Only Smolan, Cohen, and Richards are permanent, full-time staff members. Fifteen people were in the Tokyo office, but five people worked out of the New York office to bring *A Day in the Life of Japan* to a close. Leslie Smolan, a partner in the Carbone/Smolan Associates graphic design firm and Rick's sister, designed the volume. Richards is convinced that the Macintosh enabled the small staff to finish in a month work that otherwise would have taken much longer. By the end of July, the photos were selected, the text and the captions written, and the book's design finished. The text and captions of the book, which has more than 200 color and 70 black-and-white photographs on 224 pages, was then translated into Japanese for the edition released in that country. Both the Japanese and English-language editions were published in November.

**Another Day**

Friday, the fifteenth of November, 1985, was like any other day in Tokyo. As on every workday morning, the traders at the Tsukiji fish market bartered in their seemingly chaotic predawn choreography of fingers, hands, and facial expressions that close agreements between the ocean's supply and the demand of restaurants, neighborhood fish markets, and the seafood cognoscenti. The day ended, as usual, with the neon lights of Shinjuku and the Ginza blinking on and on, staring down the night that surrounded the city. It was extraordinary only in its ordinariness, full of the little events that make everyday life remarkable. One such event was the official release of a remarkable photo book entitled *A Day in the Life of Japan*. □

*J. E. Arcellana is an Assistant Editor of* Macworld.

©1985 David Burnett from "A Day in the Life of Japan"



*Unloading incipient sushi—frozen tuna—at the Tsukiji central fish market in Tokyo. The most popular fish in Japan, tuna comes to Tsukiji from all over the world. On Shoot Day the best cuts sold for ¥45,000 ($20) a pound and up.*

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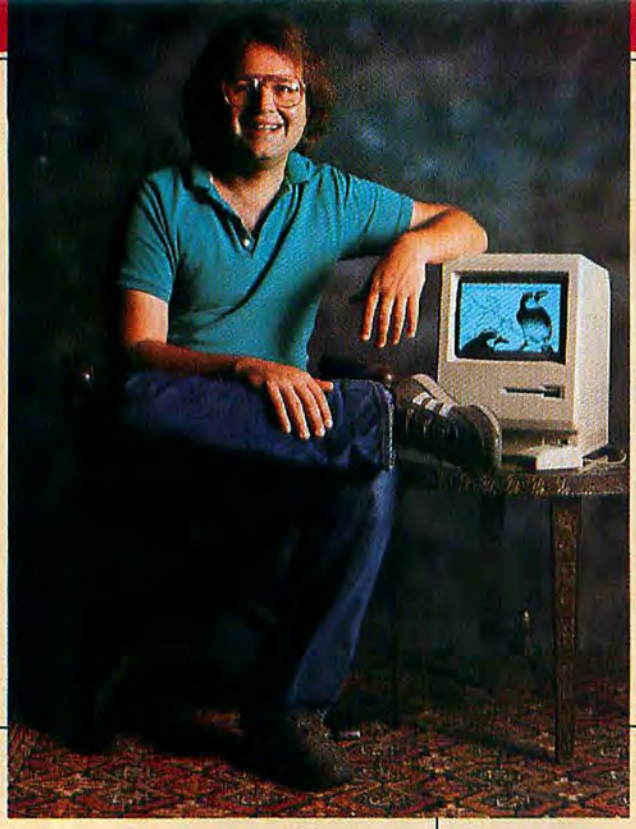
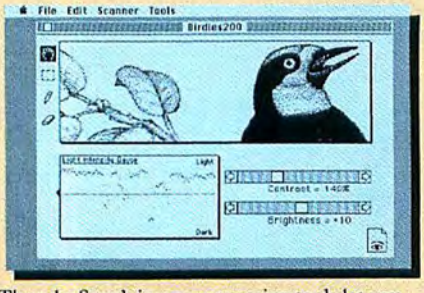


# Hertzfeld on ThunderScan™

After three years on the Macintosh development team, Andy Hertzfeld began to work on the software for an easy-to-use, low-cost way to put images into Macintosh. The result: ThunderScan.™ The high-resolution optical scanning device that turns the ImageWriter printer into an image reader. Recently, Andy shared some thoughts on the product he's dubbed, "MacPaint for the rest of us."

## "...I was incredibly thrilled. I knew it would blow people's minds."

"I spent over three years developing Macintosh's operating system. I care a lot about Mac and wanted people to be able to use it to its full potential. But how do you get images into the machine? Most people can't draw. That's why I got involved with ThunderScan. To give people, especially non-technical users, an easy, low-cost way to get high-resolution images into Macintosh. When I first saw how beautiful ThunderScanned images were, I was incredibly thrilled! I knew it would blow people's minds."




ThunderScan's image processing tools let you enlarge, reduce, cut, paste, select, draw, scroll and erase, as well as control contrast, brightness and half-toning.

## "You get to make artistic decisions. To change and improve what you see."

"Macintosh inspires creativity. ThunderScan is a vehicle for its expression. It lets you put any printed image into Mac. But you're never stuck with the image as is. You get to make artistic decisions. To change and improve what you see. You can control the contrast, brightness and half-toning. Over all or just parts of the image. Even create reverse images and outlines. It's really fun. But the great thing is, when the novelty wears off, you have a useful tool.

"ThunderScan has a whole range of applications. Some people use it for inserting graphics into newsletters and reports. I know a fine artist at Stanford who makes collages with it. I use it a lot, too. The way I write a program is an expression of who I am, so in my new "Switcher" program, I included a ThunderScanned image of myself."

A scanned image is just the start. Now you have micro-control over 32 shades of gray to enhance all or part of the image as you please.

## "...With LaserWriter you can create unbelievably exquisite images."

"We now have an enhanced version (available as a software upgrade for current users) that has some neat new features. It supports AppleTalk, the wide-carriage ImageWriter and LaserWriter. The output resolution of LaserWriter and ThunderScan's input resolution are a perfect match. So with LaserWriter you can create unbelievably exquisite images.

"ThunderScan is a complete imaging system. You don't have to buy anything else. You just snap out ImageWriter's ribbon cartridge and snap in ThunderScan. It fits in any office or home environment, takes up no space and the lighting is always perfect.

"Developing ThunderScan was a lot like developing Macintosh. We were doing something for the first time. Making an important tool. We think we did a good job."

ThunderScan requires 128K. But to take full advantage of all its features, you'll need a 512K Mac.

Available now through computer retail stores or directly from Thunderware for just $229. To order or for more information, call today (415) 254-6581. Thunderware,® Inc., 21 Orinda Way, Orinda, CA 94563.

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ThunderScan™

Circle 167 on reader service card

# Macware Reviews

*Color printing, a clever murder mystery, a computerized proofreader, facts and esoterica, and a new Logo*

***Edited by Erfert Nielson***

## Color Commentary

Until recently if you wanted to push the Macintosh beyond its basic black-and-white printing capacity, you had no choice but to use colored ribbons on the Imagewriter. Substituting a red ribbon in place of the usual black one has predictable results: a printout in red instead of black. With much diligence, a selection of colored ribbons, and the creation of several color-keyed *MacPaint* files, some Mac artists are able to produce multicolor art. This approach, however, is best utilized by artists with a working knowledge of printmaking and color separation. But with the ***Pinwriter CP2*** printer from NEC and accompanying ***Colormate*** software developed by SoftStyle, color printing with the Macintosh is available even to people who don't know a registration mark from a circle in the ground.

The Pinwriter CP2 is a dot matrix printer of about the same size as the original Apple Imagewriter. With the NEC-supplied Pinwriter printer driver, which must be installed in place of the Imagewriter driver, the CP2 serves adequately, although more slowly, in the Apple printer's stead.

### Coming Out in Color

The Pinwriter CP2 really makes an impression, however, with its ability to produce multicolored graphics in a single printout. You paste *MacPaint* files, including imported graphics from *MacDraw* or other programs, into *Colormate,* which allows you to prepare the artwork for printing on the CP2 in up to seven colors, including black. The Pinwriter prints out the red, yellow, blue, and black on the printer ribbon, as well as three combinations derived from those colors: violet (red and blue), green (blue and yellow), and orange (yellow and red). Because the secondary colors result from having the ribbon strike twice over the same area, they tend to be quite dark, particularly with a fresh ribbon. "Violet," therefore, is actually a dark purple, while most people would call "orange" a bright red. Color capabilities aside, the Pinwriter CP2 is an able printer that you can also use with other computers, such as the IBM PC. One distinct advantage it has over the Imagewriter is its near-letter-quality resident font, which produces easily legible type even when printing in draft mode. On the other hand, draft- and standard-quality printing on the Pinwriter take roughly twice as long as on the Imagewriter. Printing *MacPaint* files on the Pinwriter in one color can take over two and a half times longer than on the Imagewriter. The CP2 is even slower compared to the ImageWriter II.

In general, each advantage the Pinwriter provides over the Imagewriter is accompanied by a drawback. The Pinwriter is more versatile than the Imagewriter, but it is also noisier, emitting a penetrating high-pitched whine. Its 18-pin print head theoretically provides greater resolution than the Apple printer, but it produces both pictures and text 8 percent smaller than the Imagewriter prints or the Mac displays. This discrepancy causes some gray patterns to fill in solid black and results in other slight distortions.

### Black and White in Color

Color printouts or not, you still have to face the Macintosh's monochrome display while deciding which colors to use.

*(continues on page 115)*

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*(continued from page 113)*

Thinking in color while looking at black and white is an obvious challenge. *Colormate* provides a clever solution, although unfortunately, no black-and-white coding method that merely indicates color can successfully suggest the visual impact of color. You must rely on your own imagination and memory while working in *Colormate* until you print out the file on the Pinwriter. Consequently, you probably want to see some work-in-progress printouts, which the software makes easy with a Print Draft option.

*Colormate's* easel resembles a stripped-down *MacPaint* screen, with a window bordered by a palette of six tools on the left and a palette of eight colors below (see "Color in Black and White"). Because of the program's limited drawing tools, creating a color drawing from scratch is a minimalist proposition in *Colormate,* which is designed primarily to color an existing *MacPaint* document.

You color an area by first selecting a hue from the color palette and then applying it with the coloring tools arrayed on the tool palette. The lasso and the marquee are used to select an area, which can then be filled with a color from the paint bucket. A selected area can also be cut, copied, pasted, or cleared using the Edit menu. You use the paint bucket to "pour" a color onto a line, and the color flows to cover all connected lines. The crayon, like *MacPaint's* pencil, draws a line of color one pixel wide. It is also the tool for pixel-by-pixel coloring in a FatBits-like function that *Colormate's* developers call ColorBits.

With the magnifying glass, which has no counterpart in *MacPaint,* you can examine any pixel in the drawing for a quick color check. After you position the glass and click, a letter that stands for the color of the pixel shows up in the lens. The eraser completes the tool palette.

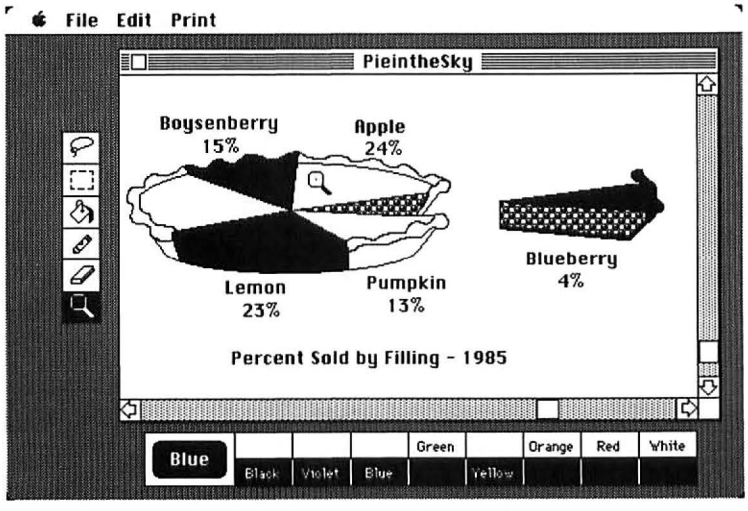
A little conspicuous by its absence is a tool like *MacPaint's* hand, to use for scrolling. Instead, *Colormate's* canvas window has horizontal and vertical scroll bars, which, while familiar enough to Mac owners, require more clicking and mouse movement than the hand tool.

The color palette allows you to specify which colors appear as black and which as white on the Mac's monochrome display. Colors whose names are in the black boxes are displayed in black, and those whose names are in the white boxes are displayed in white. By toggling the colors on or off on the color palette, you can get a sense of how you have used color in the drawing.

### Color Stains

Certain limitations in *Colormate* are worth mentioning. I noticed that the cursor disappeared from time to time for a few moments after I clicked on either palette. If you make a mistake while pouring colors–and such mistakes are easy to make–no Undo function is available. The program does have a Revert command on

*(continues on page 120)*




***Color in Black and White***

*Indicating in* Colormate *how a document is printed in color on the Pinwriter CP2 involves using a color palette and a tool palette. The currently chosen color is represented by white on the current display. The magnifying glass, here positioned on the Apple slice, is used to check the color of individual pixels.*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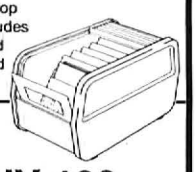

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*(continued from page 115)*

the Edit menu, which returns the image to its state when you last saved, printed, used the scroll bars, or opened the document—whichever occurred most recently. But Revert is of small comfort if you've made complex changes in the interim. Not saving your changes regularly and often could be your undoing.

Another limitation is a mere annoyance: *Colormate*'s canvas is fractionally smaller than *MacPaint*'s. If you forget this difference when coloring and aren't fastidious in your scrolling, you may be surprised by a printout with black-and-white strips of art around the edges of your color drawing. According to a SoftStyle spokesperson, part of the reason for the slightly smaller window, as well as the absence of a hand tool, is to maximize the speed at which the screen display is updated. While *Colormate* does not test your patience when running on a 512K Mac, on the 128K model the program gives you time enough during loading and updating to ponder the artistic significance of Picasso's blue period.

If color printing is important to you, the Pinwriter CP2 is well worth considering. But if color is incidental to your work, evaluate this printer carefully, without rose-colored glasses.—*Jay Kinney*

*Pinwriter CP2, Colormate*
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*617/264-8000*
*List price: Pinwriter CP2 $1085, cut-sheet feeder $330, Colormate $125*

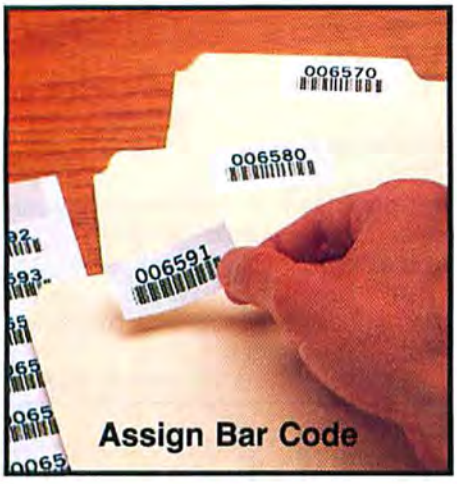
## The Scene of the Crime

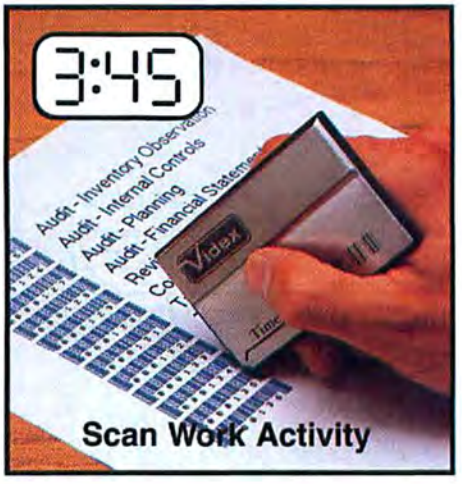
If you think Mindscape's ***Déjà Vu, A Nightmare Comes True*** is just another text adventure game, you've got another think coming. Hold onto your fedora and get ready for a new breed of Macintosh game.

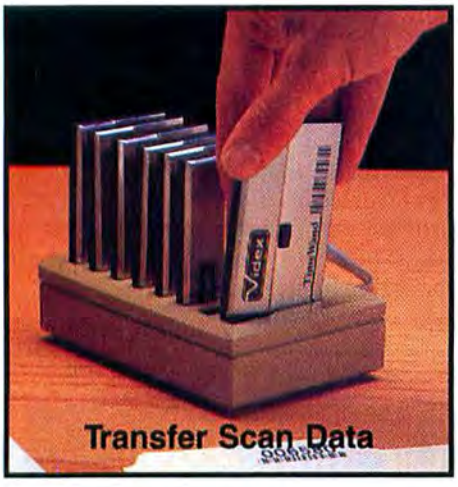
You wake up feeling like a used punching bag. As you examine your immediate surroundings, you realize that you're on the floor of a men's room, and you have

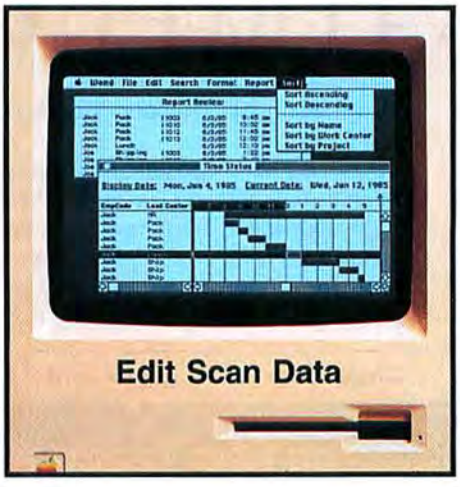
*(continues on page 124)*

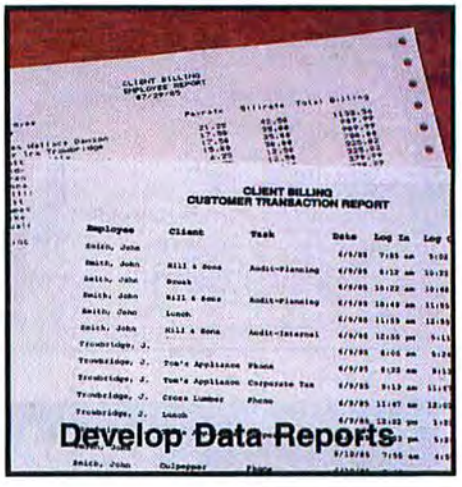
# TimeWand™ - Keeping track of time...



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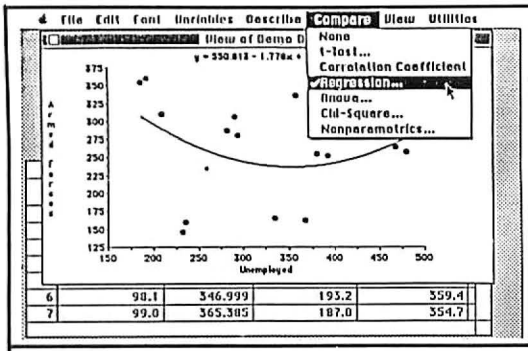


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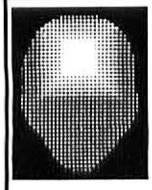

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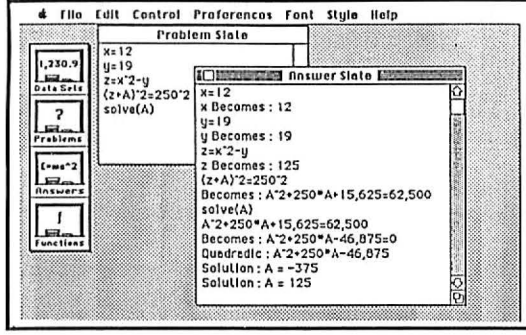


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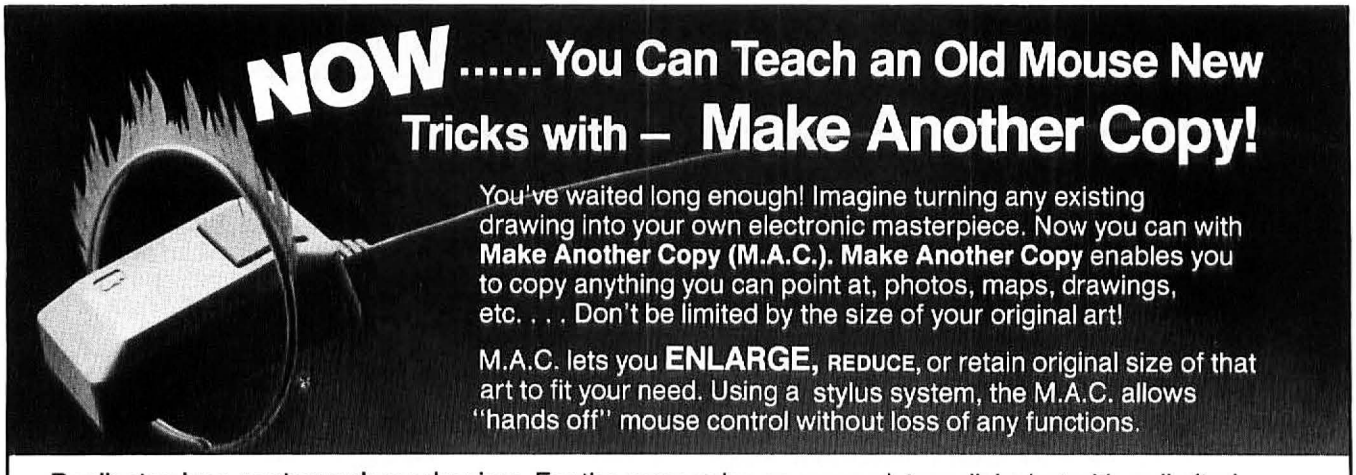


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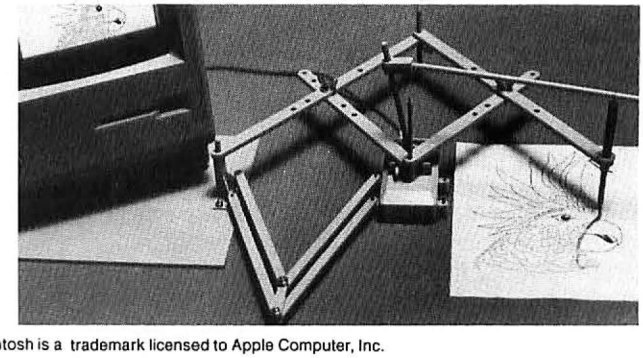

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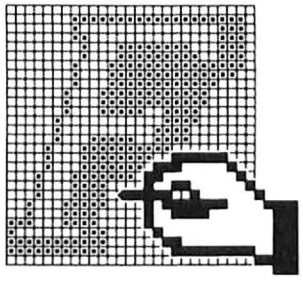

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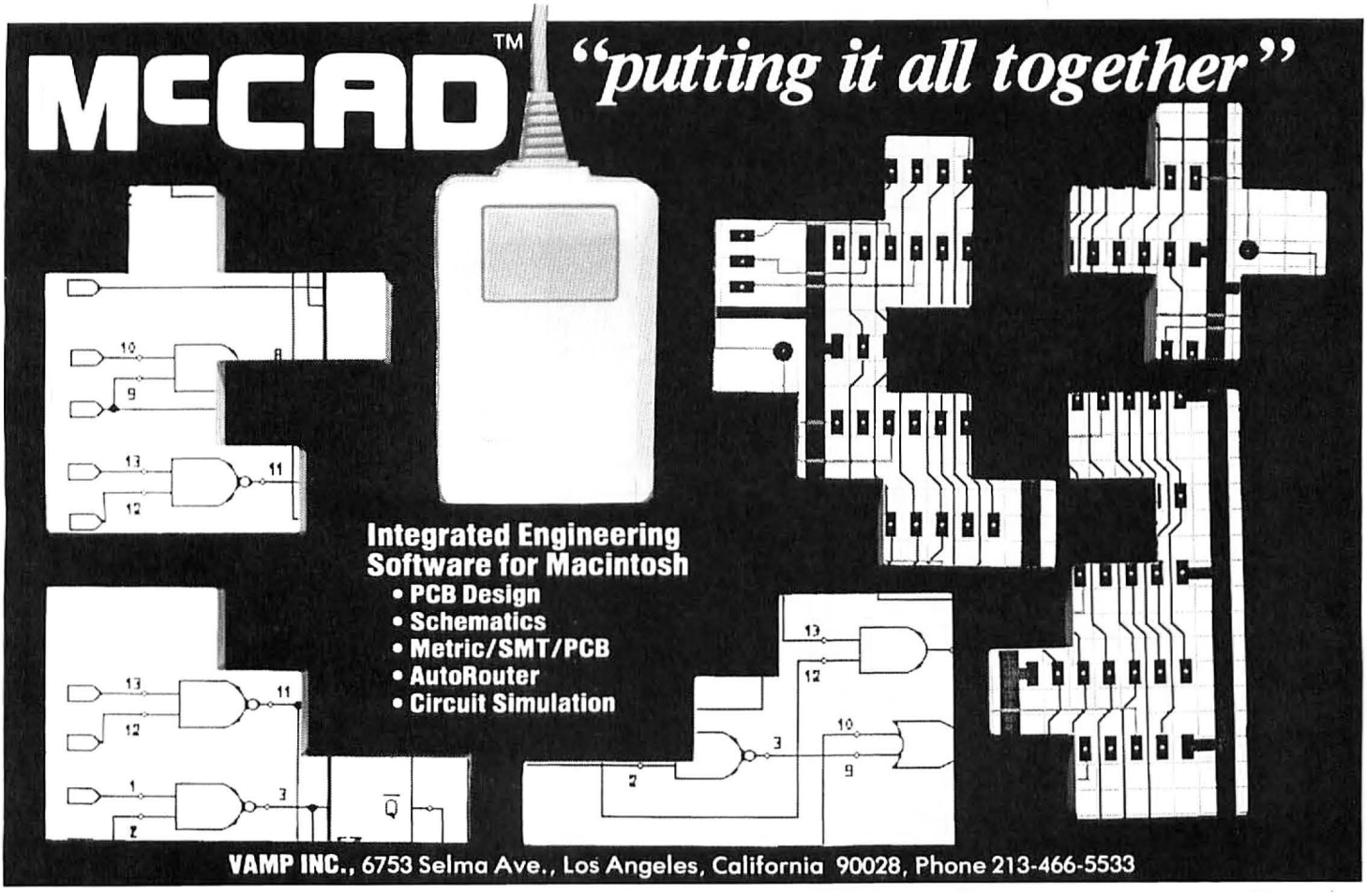



Circle 301 on reader service card

(continued from page 120)

no recollection of how you got there. Then you realize to your added horror that you don't even know who or what you are, or what you might be doing in this unfortunate place that appears to have been abandoned by its janitor. It seems that you have been the victim of foul play, but your head throbs when you try to remember what happened.

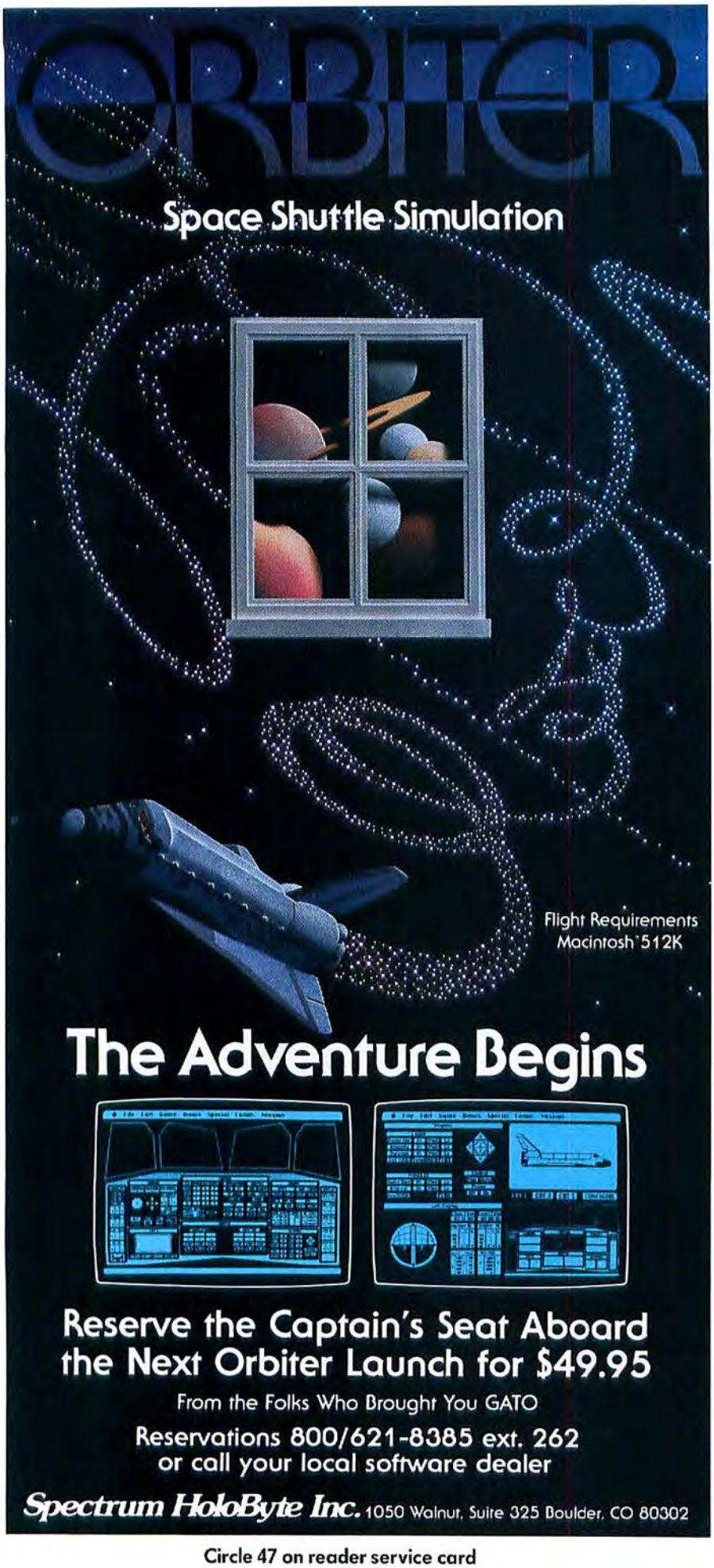
You'd better take stock of the situation before you venture too far afield. Look inside the trench coat hanging in front of you, for example, for a clue as to your identity. Move the trench coat aside, and you can see a gun in a shoulder holster hanging on the coat hook. Open the rest room door and step outside into the hallway (remember to take your gun with you—you never know when it might come in handy). As you walk into the dingy bar, you realize that the place is deserted, except for a sense of impending doom. . . .

### Literacy Is Optional

If this looks like the usual adventure game fare, then look again. *Déjà Vu* is indeed an adventure game, but it can hardly be considered standard. For one thing, the game proceeds almost completely without keyboard input, so that objects are manipulated—opened, closed, operated, and so on—by pointing, clicking, and dragging instead of through verbal commands. For example, to take the trench coat along with you, drag it off the coat hook and into the inventory window. If you want to examine its contents, just click it and select Open from the command window. A new window appears, displaying the contents of the trench coat. The coat and its contents are now in your possession and will stay with you until you drag them out of the inventory window. Once you select an object by clicking it, you can manipulate it in a number of ways; for example, you can open it, hit it, operate it, examine it, and so on, all without typing a single word.

You can also carry out complex operations, such as unlocking a door with a key, with the same technique: click the Operate button, then the key, and then the door. This procedure unlocks the door, thereby allowing you to open it by selecting Open from the command window. Once a door is open, you can pass through it either by clicking the doorway and then clicking Go or by double-clicking the doorway.

(continues on page 128)

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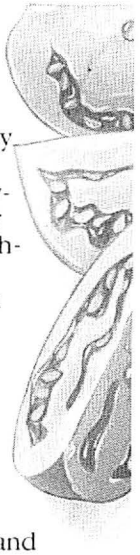

There is evidence that diet and cancer are related. Some foods may promote cancer, while others may protect you from it.

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Foods that may help reduce the risk of gastrointestinal and respiratory tract cancer are cabbage, broccoli, brussels sprouts, kohlrabi, cauliflower.

Fruits, vegetables and whole-grain cereals such as oatmeal, bran and wheat may help lower the risk of colorectal cancer.

Foods high in fats, salt- or nitrite-cured foods such as ham, and fish and types of sausages smoked by traditional methods should be eaten in moderation.

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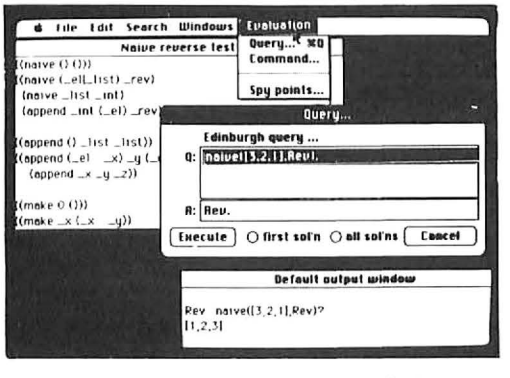


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(continued from page 124)

Adventure game aficionados will surely appreciate not having to second-guess the program's vocabulary and syntax as they proceed through the game. Traditional adventure games require a player to be constantly aware of the relatively few words the program can recognize, so that much of the playing time is taken up composing commands in accordance with the game's syntax or dealing with the frustration that results when the game refuses to recognize a simple command. By contrast, *Déjà Vu* requires typed instructions only when you need to communicate with one of the other characters–for example, to give the cab driver an address–or when you need to dial a telephone number or open a combination safe. On those rare occasions, *Déjà Vu* presents you with a dialog box asking you to type in the specific information. The rest of the time you are free to proceed in any way you see fit, without having to worry about the game's Artificial Intelligence Quotient.

**But What's It Really Like?**

I found *Déjà Vu* simply delightful in every way. As you proceed through the multitude of scenes, you encounter a corpse, a mugger, a derelict, a woman of easy virtue, several cab drivers, and even an alligator that lives in the sewer (see "A Hard Day at the Office"). The variety of resources at your disposal, such as cash, a loaded gun, a pharmacy receipt, and a number of keys, should see you through any situation that might arise, although you have to figure out how and where to use the objects before you can reach the end of the game. And it doesn't pay to become too complacent as you cruise around, for *Déjà Vu* reminds you of your mortality from time to time by keeping that celestial thumb poised above you throughout the game.

You can avoid the frustration associated with an untimely demise by using the game's Save option. You can save a game at any point and then resume playing from that point at another time. That ability means you don't have to start the game from scratch every time you are eaten by the alligator or blown away by the mugger.

(continues on page 131)


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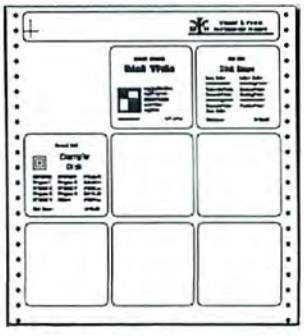

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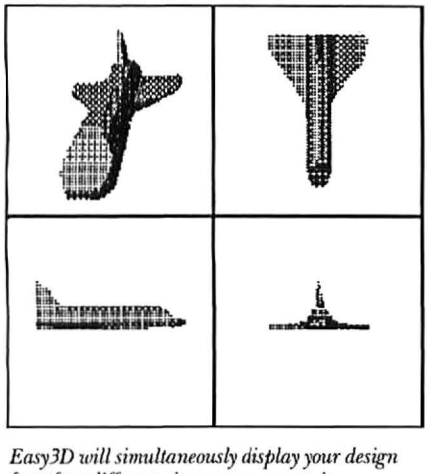

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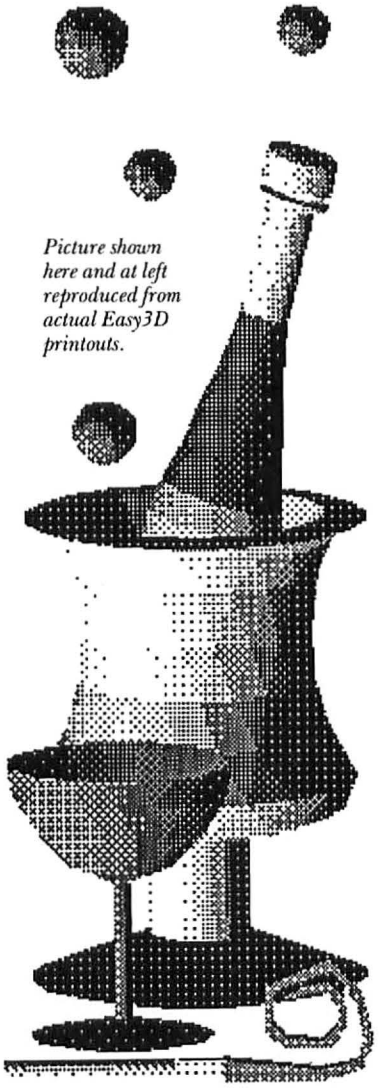

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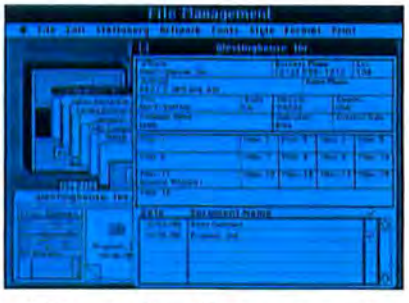

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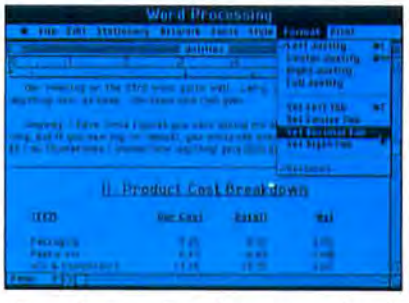

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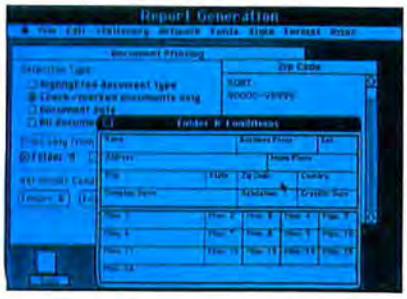

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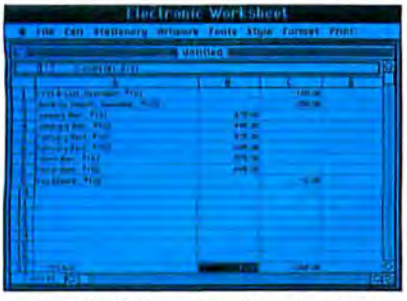

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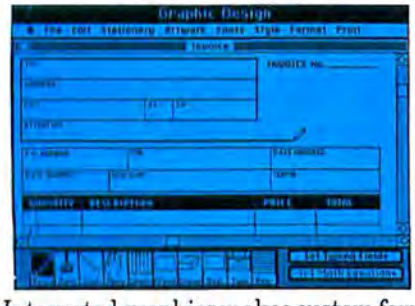

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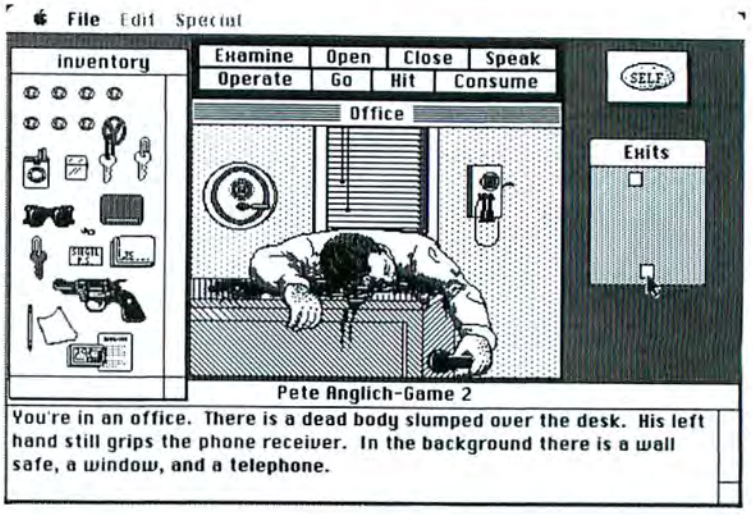


*(continued from page 128)*

Periodically saving the game also lets you take some time off for an occasional meal or nap; experienced adventure-game players are aware of the importance of rest and nourishment to help them through difficult passages.

### A Wiseacre Interface

The accompanying documentation sets the tone and flavor of the game. It includes, for example, the instructions to get you started: "The first thing ya gotta do is stick that little plastic thing labeled Déjà Vu One in the little hole in the fronta your Mac. Then turn the thing on. Go ahead, I'll wait."

Comments displayed during the game are on the snide side if you make a blunder. But *Déjà Vu* is smart as well as smart-alecky. The game greets you with "Good Morning" or "Good Evening," as appropriate (assuming your Macintosh internal clock is set correctly) and provides other realistic touches. For instance, a door you leave ajar is still open when you return to the room later. And if you sock the mugger in the kisser, he's liable to show up later sporting a black eye.

The game's sound effects–although limited to gunshots, police sirens, and the like–are another classy touch. All in all, *Déjà Vu* is a well-crafted game that's bound to draw you into its intriguing, albeit seedy, story.–*Nicholas Lavroff*

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With *MacWrite* or *Microsoft Word* you can turn out perfect-looking pages of prose, using the program's formatting features to set margins, spacing, and font sizes and styles. But while *MacWrite* and *Word* can accomodate your page-formatting preferences, neither program can inform you that you spelled *accommodate* wrong. Many Mac writers with chronic spelling problems turn to supplementary software for help. One such program is ***Hayden:Speller*** from Hayden Software.

Unlike some of the other spelling checkers for the Mac, *Hayden:Speller* functions as an independent application instead of being incorporated into the word processor. You must first create a document using *MacWrite, Word,* or another program that produces text documents, such as *ThinkTank* or *MacTerminal.* You then run the document through *Hayden: Speller* to check for errors. To check documents, you open *Hayden:Speller* and then open the text file and wait while the program sorts the words in the document and checks them against its dictionary.

*Hayden:Speller*'s main dictionary contains approximately 20,000 words. The documentation claims that those words comprise 97 percent of the most frequently used words in the English language, but some surprisingly familiar words are found

*(continues on page 134)*

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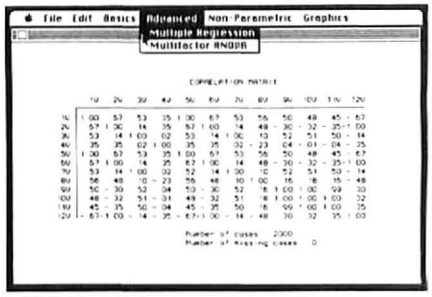


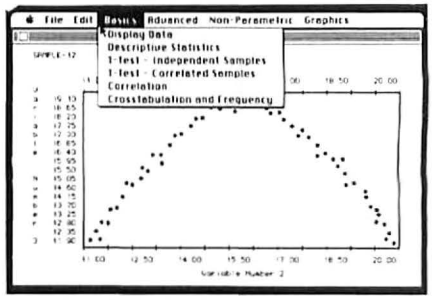


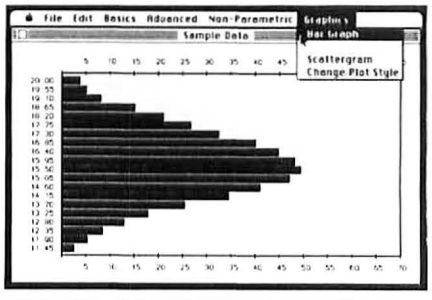


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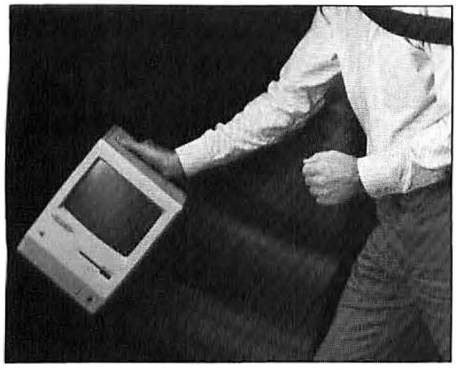

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*(continued from page 131)*

in the 3 percent not covered by the dictionary. For example, when I ran the first draft of this review through *Hayden:Speller,* I found that the program didn't recognize the words *bothersome, cryptic, intuitive,* and *rerun.*

### Lining Up the Suspects

After searching a document, the program presents a window that shows the total number of words in the document, the number of different words, the number of valid words (those found in the program's dictionary), and the number of suspect words (words that are not in the program's dictionary). The next move is up to you: you can display the suspect words in a window that you can scroll, or you can print out a list of suspect words.

Once *Hayden:Speller* has compiled a list of suspect words, you can choose Check Words from the Correct menu. That option displays the suspect words one at a time, in alphabetical order. A dialog box offers four options: accept the suspect word; accept the word and save it in a personal dictionary; postpone action, allowing you to look up the word or see it in context; or replace the word by typing it correctly. You can, if you like, request a list of similar words from the dictionary. The misspelled word *sincerly,* for example, causes *Hayden:Speller* to list *sincere, sincerely, singer, singly,* and *sinister.* Unfortunately, you can't browse through the dictionary. The program usually lists only a few similar words and sometimes none at all.

If you want to see the suspect words in context, you can choose Scan Document from the Correct menu. Scan Document takes longer than Check Words, because it goes through the document from beginning to end rather than just displaying an alphabetical list of suspect words. The options for correcting or accepting suspect words are the same as with Check Words (see "Pointing Out Errors").

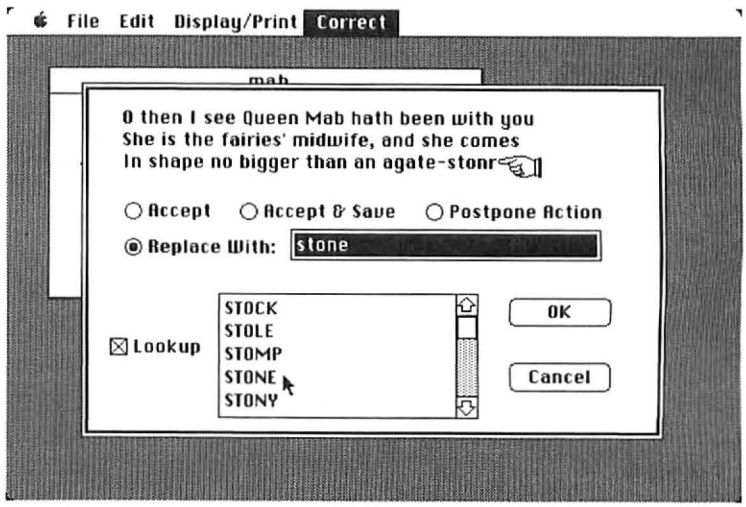
When you're done checking and correcting suspect words, you can review your changes and undo corrections if necessary before making permanent the changes to your document. You can also ask for a printout showing a frequency count of each word used in your document, which can be handy for working on style problems.

### Spell Your Own

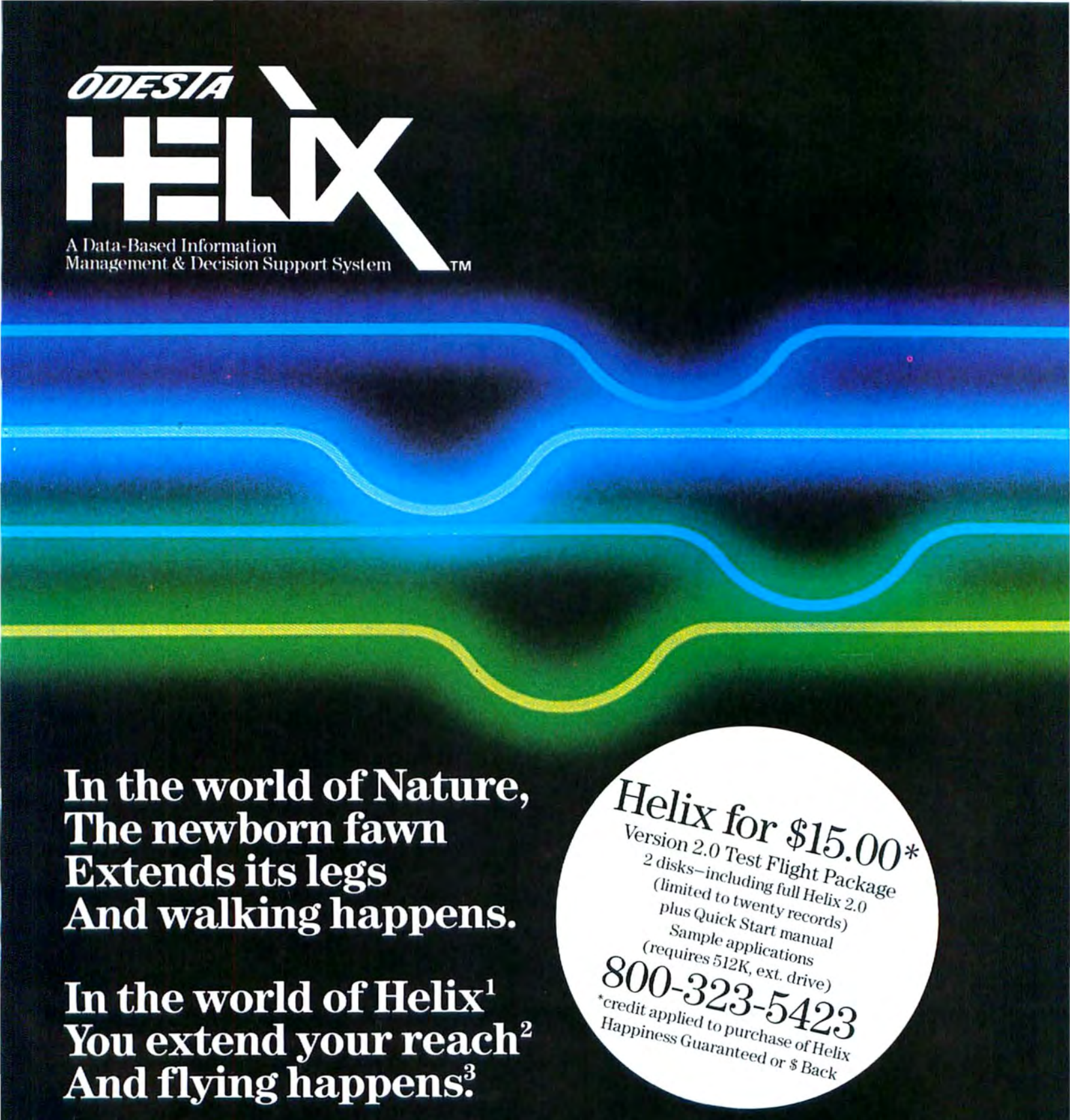
When you close the document, *Hayden:Speller* allows you to add any words you've flagged to a personal dictionary. In future sessions the program checks words against this dictionary as well as the main dictionary, so legitimate words that you frequently use–proper names, for example–don't repeatedly show up in the list of suspect words. You can also create a dictionary that applies only to the current document.

*Hayden:Speller* helps when you edit small or medium-sized documents, but it was clearly not designed for editing large documents (30K or larger, depending on

*(continues on page 138)*




***Pointing Out Errors***
Hayden:Speller's *Scan Document option points out spelling or typing errors in context. If the program lists the word you need, you can replace the misspelled word by clicking on the correct spelling.*

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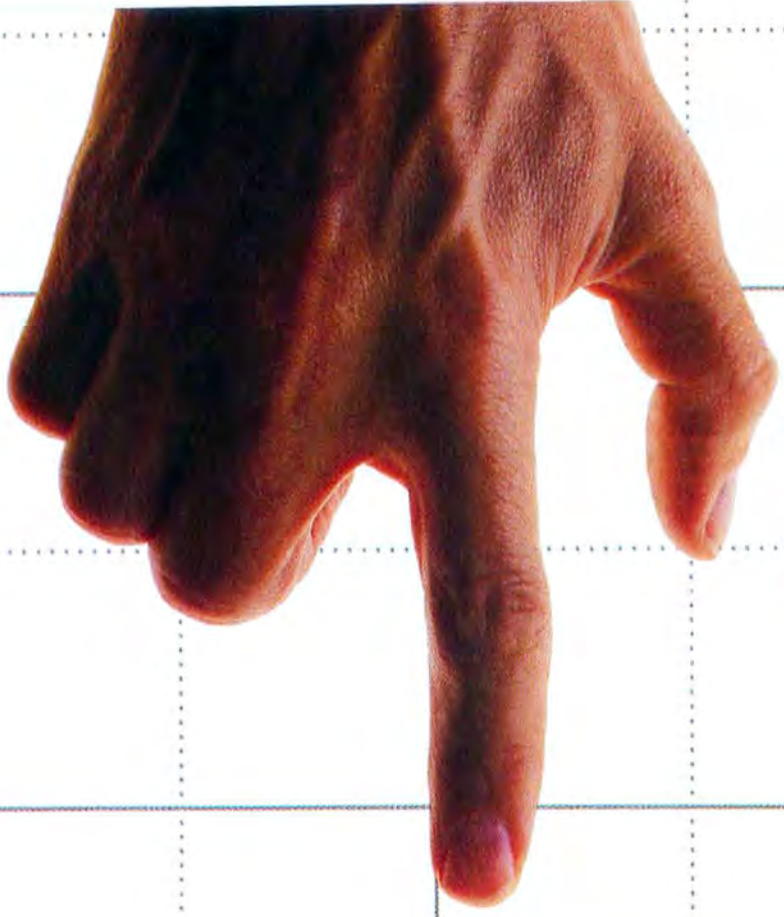

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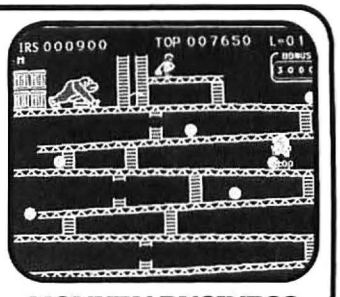


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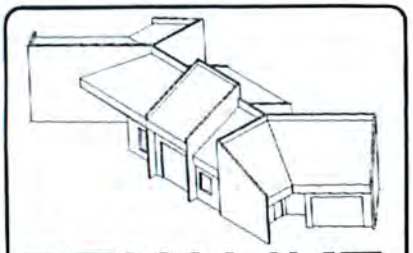

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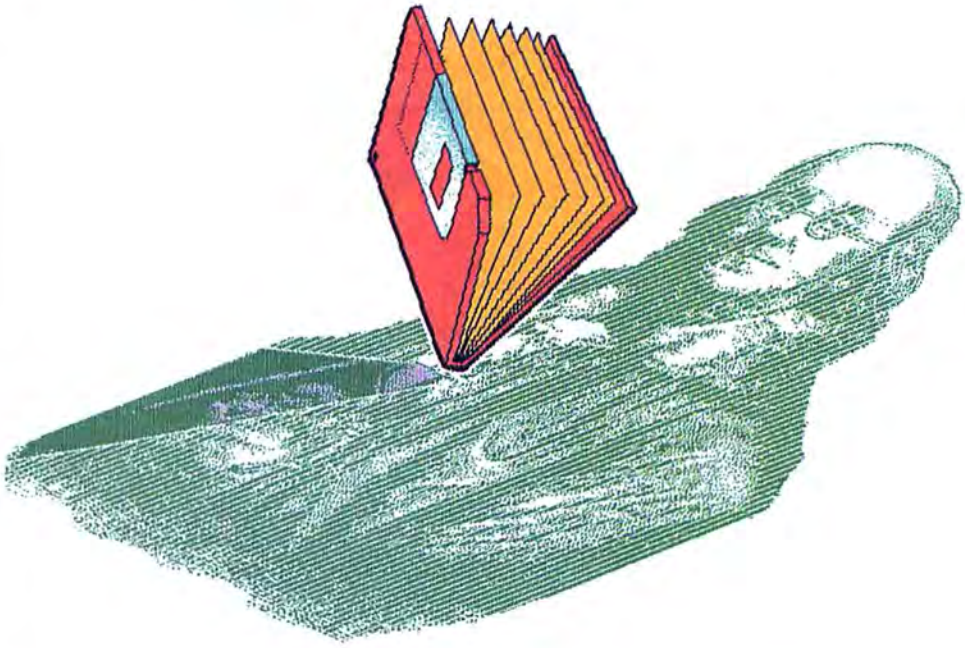

*(continued from page 134)*

the number of unique words). For example, if you try to use *Hayden:Speller* on a document that contains more than 1500 unique words, the program tells you, "Sorry, there are too many different words in this document. Please split the document and rerun Hayden:Speller." When I tried to use *Hayden:Speller* to proofread my latest book, I found that most chapters had to be split and resplit until they were reduced to chunks that were less than ten pages long. The process was so time-consuming that I soon abandoned the program in favor of a sympathetic English teacher.

Even for shorter documents, *Hayden: Speller* is no substitute for human proofreading. The program won't tell you that you typed *moose* when you meant *mouse,* and it won't inform you that you should delete the apostrophe in "check it's contents." But if your writing is plagued by sloppy spelling or typing, and you don't have an English teacher on hand, *Hayden:Speller* is the next best thing.–*George Beekman*

*Hayden:Speller, version 1.2*
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# Poor Richard's Computer

*Poor Richard's Almanack,* introduced by Benjamin Franklin in the eighteenth century, has had a long run. A collection of facts, figures, and arcana, useful and otherwise, the fascination of an almanac lies in the diversity of its entries, which are organized so that the reader can locate information painlessly. ***The Hippo Computer Almanac*** from Hippopotamus Software is intended to be a modern-day *Poor Richard's.* While *Almanac* doesn't live up to its illustrious predecessor, it manages to intrigue with its potential.

### Academy Awards to Zip Codes

As you would expect, this computer almanac contains information about a variety of subjects: geography, history, sports, science, unit conversions, awards and prizes, time, loan calculations, zip and area codes, calories, and even languages to a limited degree (see "Fact-Packed Almanac"). For instance, the program can tell you the diameter of the earth, the word for *hello* in Finnish, and the toll-free number for Apple Computer. In addition, *Almanac* can store and recall a limited amount of in-

*(continues on page 140)*

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*(continued from page 138)*

formation that you enter, including phone numbers and appointments.

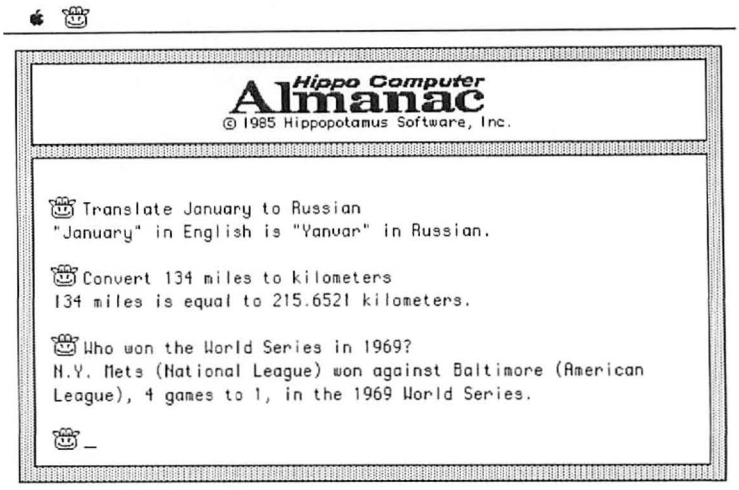
*Almanac* is, at heart, a medium-sized database with the ability to interpret properly-phrased queries and respond in a reasonable way. Hippopotamus Software claims to have stored over 35,000 facts on the disk. While this may seem like a lot of information, *Almanac* is somewhat limited in scope. What the program does know, however, it can give you in a jiffy.

It takes a bit of experimentation to discover the types of information the program has at its disposal. The scanty documentation refers you to help menus, which describe the categories of information stored in the almanac and provide examples of how to phrase questions. If you ask something the program can't answer, it usually responds with "I don't know." Occasionally an unanswerable question triggers a non sequitur:

**Q: How much is 2 times 2?**

**A: The time is 10:22 AM.**

Once you get the hang of what the almanac knows, you can formulate your questions in a variety of ways, and the program understands your input. "Who won the Academy Award for Best Actress in 1956?" and "academy best actress 56" both produce the answer, Ingrid Bergman. You must type your questions carefully, however; you can backspace along a line to correct mistakes, but if there's a typo in a question and you press Return, you have to reenter the entire question.




***Fact-Packed Almanac***
The Hippo Computer Almanac *offers limited language translation, unit conversions, and sports and film trivia in its collection of over 35,000 facts.*

### The Good Points

There's a lot to like about *The Hippo Computer Almanac.* First of all, it's fun. You can amuse yourself for quite some time learning about the mass of Neptune or the number of calories in a malted. Some of the facts are actually helpful. The loan calculations are easy to use, and the area codes and zip codes–while not exhaustive–could come in handy. If you need to make an overseas call, it's easy to start up *Almanac* and type "What time is it in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Brussels?" The unit conversions–meters to feet, kilometers per liter to miles per gallon, and so on–are another useful feature.

Used with the Switcher, *Almanac* might work as an on-line reference cum personal phone book and appointment calendar. You can tell the program to "remember Mom's birthday July 22" and "remember July 22 dentist 8 a.m." and "remember Jennifer's birthday October 30." Later, if you type *birthday, Almanac* comes back with both birthdays. If you type "July," it reminds you of both Mom's special day and the dentist appointment. You can also instruct the program to forget Jennifer when you find a new girlfriend. If you run out of space on the disk after entering a large number of Remember commands, you can delete some information with the Forget command or eliminate the Startup Screen from the Almanac folder on the desktop, saving 22K.

**Glitches and Kvetches**

A few items promised in the help menus are not delivered by the program. Although *Almanac* is supposed to translate *please* into "practically any language," it answers, "I don't know" to requests for *please* in French, German, Hebrew, Finnish, and practically any language. You get the same answer for "How much is a Mexican peso worth?" and any other question about exchange rates.

Sometimes *Almanac* is just plain wrong. When asked on September 25 "What is today's date?" the program responded "It is October 25." Such lapses are annoying and reflect badly on the rest of the program. Hopefully these glitches will be corrected in the next version.

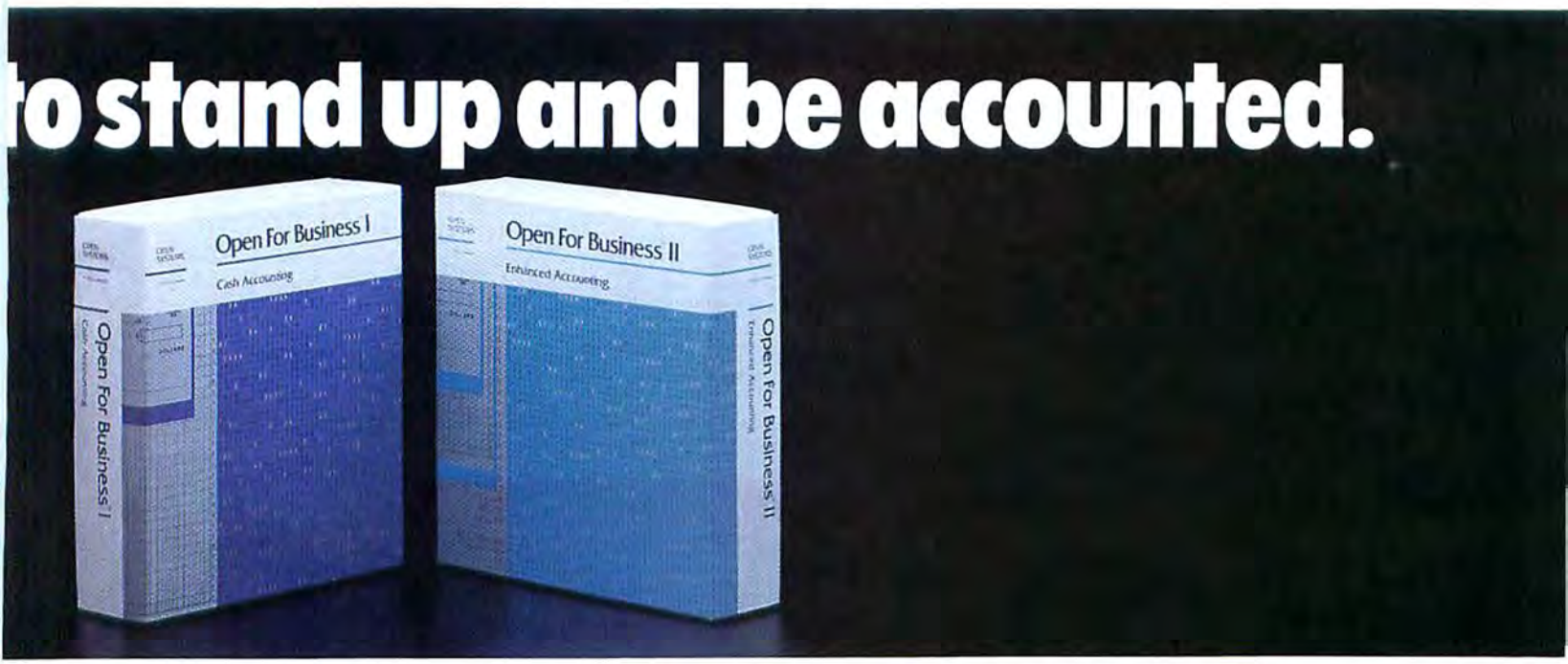
After using *Almanac* for a few hours, we couldn't help but wonder at the choice of included data. Of course, any compendium leaves out someone's favorite fact, but why does *Almanac* know the weight of marble but not the formula for conservation of momentum? Why does the historical information include only facts about American presidents and vice presidents?

Much of *Almanac*'s information seems selected more to amuse than to provide the kind of everyday help you might need. While it's a kick to be able to say *seven* in Hungarian, is it really useful to have a vocabulary of only 35 words–numbers, days of the week, *hello* and *good-bye*, and so on–even if you know those words in 34 languages? The spelling aid is another well-meant but limited feature. The program has a dictionary of only 350 of the most commonly misspelled words. Given the misspelled word *circumferance*, the program returns *discriminate*, the closest word it has.

*The Hippo Computer Almanac* is too full of holes to be considered as more than a toy. If you have a fetish about past NBA champions, need to know the longitude and latitude of Schenectady, or have always wondered how to say *Tuesday* in Tagalog, this program is just what you need. If Hippopotamus Software were to expand the concept and devote an entire disk to each subject area, they might really have something.–*Emil Flock and Miriam Flock*

*The Hippo Computer Almanac, version 1.2*
*Hippopotamus Software, Inc.*
*985 University Ave. #12*
*Los Gatos, CA 95030*
*408/395-3190*
*List price: $34.95*

*(continues on page 144)*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Mac Disk Catalog (128K) 29.00
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**SoftStyle** Epstart V2.0 28.00
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**Batteries Included** Battery Pak V1.1 27.00
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**Hippopotamus Software**
Hippo-C Level 1 75.00
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Hippo-C Upgrade Kit 135.00
**Kriya Systems** Neon! 129.00
**Mainstay** MacASM 75.00
**Megamax, Inc.** Megamax C Compiler 175.00
**Microsoft** Microsoft Basic 86.00
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Microsoft Fortran Compiler 169.00
**Portable Software** PortaAPL 199.00
**SofTech Microsystems**
Mac Advantage UCSD Pascal 159.00
UCSD Pascal Development System 127.00
UCSD Pascal Language Compiler 92.00
Fortran 77 Development System 189.00
Fortran 77 Language Compiler 155.00
Advanced Development Tool Kit 98.00
**Softworks Ltd.**
Softworks C Compiler 237.00
**Terrapin** MacLogo 65.00

## Communications Software

**Aegis Software** MacMail-Telecom 34.00
**Apple Computer** MacTerminal 95.00
**Compuserve** Compuserve Starter Kit 15.00
**DataViz** MacLink with Cable 109.00
**Desktop Software** 1st Port 48.00
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## Business Software

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**Aegis Software** The HouseKeeper 35.00
**Apple Computer** MacProject 145.00
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**Boston Software Publishers**
The MacPublisher 74.00
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**Creighton Development**
MacHome or MacOffice 26.00
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**Cricket Software** Cricket Graph 135.00
**DataFood** MacForms 42.00
DrawForms 30.00
**DataPak Software** My Office 95.00
**Dreams Of The Phoenix**
Day Keeper Calendar 28.00
**Desktop Software** First Base 95.00
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**Dow Jones** Market Manager Plus 109.00
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**Lazer Software** LazerBase 95.00
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**MegaHaus** Mega Business Pack: Filer, Form, Merge & Desk 235.00
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**Microsoft** Microsoft File 112.00
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Microsoft Multiplan 112.00
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Mac Business Pack: Word, Multiplan, File & Chart 342.00
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**Odesta** Helix 219.00
**Paladin** Crunch 165.00
**Satori Software** Bulk Mailer 79.00
**Smith Micro Software**
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**StatSoft** DataFast 39.00
**Stoneware** DB Master Mac 109.00
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**SoftSync** Personal Accountant 54.00
**State Of The Art** Electric Checkbook 45.00
**United Software**
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**Northwest Analytical** NWA StatPak 245.00
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## Graphics Software

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## Educational/Creative Software

**ATI** MacCoach Training 45.00
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| 12 Classic Adventures | 39.00 |
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| Macintosh Hard Disk 20 | 1189.00 |
| Macintosh External 400KB Drive | 359.00 |
| **Bal** | |
| MAC525-10 400KB External Drive | 195.00 |
| MAC535-20 800KB External Drive | 295.00 |
| **Corvus** 5.5 MB Mac OmniDrive | 969.00 |
| 11.1 MB Mac OmniDrive | 1399.00 |
| 21.6 MB Mac OmniDrive | 1999.00 |
| 45.1 MB Mac OmniDrive | 3449.00 |
| **Haba Systems** | |
| HabaDisk 400 KB SS/DD w/SoftBundle | 289.00 |
| HabaDisk 800 KB DS/DD w/SoftBundle | Call |
| **Iomega** Bernoulli Box 5MB | 1299.00 |
| Bernoulli Box 2-10MB | Call |
| 5 Meg Cartridge | 42.00 |
| Head Cleaning Kit | 59.00 |
| **Micro-Design** | |
| The Keeper™ File Servers-10,20 or 30MB | Call |
| **Mirror Technologies** | |
| Shugart 400 M/E Manual Eject Drive | 169.00 |
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| Mac 10 or 20 Hard Disk Subsystem | Call |
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| MacBottom Hard Disk 20MB | Call |
| **Quark** QC10-10 Meg Hard Disk | 1029.00 |
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| **Western Automation Labs** | |
| Dasch External RAMdisk 500K | Call |
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| Signalman Express 1200 Baud | 239.00 |
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| Apple Personal Modem 300/1200 | 289.00 |
| **Hayes Microcomputing** | |
| Smartmodem 300 | 129.00 |
| Smartmodem 1200 | 369.00 |
| Smartmodem 2400 | 579.00 |
| Transet 1000 | 269.00 |
| **Kensington** | |
| Portable Modem (300 Baud) | 86.00 |
| **Microcom** | |
| Mac Modem 1200 w/Software | 419.00 |
| **Novation** | |
| Cat Comm Communications System | Call |
| **Prentice** | |
| Popcom X-100 Modem (Mac) | 259.00 |
| **Prometheus** | |
| Promodem 1200 with Mac Software | 329.00 |
| **U.S. Robotics** | |
| Password 1200 (Male for Macintosh) | 205.00 |
| Courier 2400 | 389.00 |

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| **Apple Computer** | |
| ImageWriter II Color Printer | 459.00 |
| ImageWriter 32K Buffer | 79.00 |
| ImageWriter Wide Carriage | 479.00 |
| LazerWriter Printer | 5249.00 |
| **Brother** HR-15XL | 339.00 |
| HR-25 | 459.00 |
| HR-35 | 679.00 |
| Twinwriter 5 w/Serial Interface | 859.00 |
| **Epson** DX-10 Daisy Wheel | Call |
| DX-20 Daisy Wheel | Call |
| FX-85 w/Hanzon Interface | Call |
| FX-185 w/Hanzon Interface | Call |
| LQ-800 w/Serial Interface | Call |
| LQ-1500 w/Serial Interface | Call |
| **Hewlett Packard** Thinkjet | Call |
| Lazerjet | Call |
| **Jukl** 6100 Serial | 389.00 |
| 6200 Serial | 569.00 |
| 6300 Serial | 679.00 |
| **NEC** SpinWriter e l.f. 360 | 379.00 |
| SpinWriter 2010 | 625.00 |
| SpinWriter 3510 | 995.00 |
| SpinWriter 8810 | 1395.00 |
| Color PinWriter CP2-6 10" | 699.00 |
| Color PinWriter CP3-6 15" | 949.00 |
| NEC Colormate Kit | 79.00 |
| NEC SpinWriter Accessory Kit | 79.00 |
| **Okidata** ML-192 Apple Mac/Lisa | 375.00 |
| ML-193 Apple Mac/Lisa | 545.00 |
| **Toshiba** P-1340 Serial | 439.00 |
| P-341 Serial | 939.00 |
| P-351 Serial | 1079.00 |

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| Bulk 3½" (10) | 18.00 |
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| Fugi 3½" (10) | 21.00 |
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| 3M 3½" (10) | 25.00 |

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| **Koala Technologies Corp.** | |
| KAT Graphics Tablet | 135.00 |
| MacVision | 169.00 |
| **New Image Technology** | |
| Magic Digitizer | 249.00 |
| **Summagraphics** MacTablet | Call |
| **ThunderWare** Thunderscan | 175.00 |

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| **A.M. Products** | |
| 3½" Head Cleaning Kit | 18.00 |
| **AST** *RamStack Expandable Memory for Mac XL:* | |
| RamStack w/512K Ram Installed | 625.00 |
| RamStack w/1, 1.5 or 2 MEG Installed | Call |
| **American Tourister** Mac Carry Case | 69.00 |
| **Apple Computer** | |
| Mac Numeric Keypad | 85.00 |
| Macintosh Carry Case | 85.00 |
| **Assimilation Process** | |
| Numeric Turbo | 129.00 |
| Mac Turbo Touch | 79.00 |
| Mac Port Adaptor | 69.00 |
| MIDI Conductor | 75.00 |
| Mac Epson Connection | 75.00 |
| Mac DaisyWheel Connection | 79.00 |
| **Creighton Development** | |
| ProPrint Software Only | 39.00 |
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| **Curtis Manufacturing** | |
| Diamond-Surge Suppressor-SP1 | 28.00 |
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| **Diversions, Inc.** Underware Ribbon | 9.00 |
| Underware Color Pens-Small | 9.00 |
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| **Environmental Software Company** | |
| MacAttire: *Available in Navy-Blue, Burgundy, or Silver-Gray* | |
| External Drive or Keypad Cover | 6.00 |
| Imagewriter Cover | 11.00 |
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| Mac XL & Keyboard Cover | 20.00 |
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| **Intermatrix** MacPhone | 75.00 |
| ComputerPhone w/Modem | 249.00 |
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| Flip 'n' File II/Micro | 18.00 |
| **Innovative Technology** Pocket Pack | 9.00 |
| The Easel | 12.00 |
| Compubag | 55.00 |
| **I/O Design** | |
| Imagewriter Carrying Case | 39.00 |
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| Macintosh Carrying Case | 49.00 |
| **Kensington** A/B Box | 60.00 |
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| Disk Drive Cleaning Kit | 19.00 |
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| Microdex/25 Modular View File 3½" | 14.00 |
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## Books

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| **Microsoft Press** Inside MacPaint | 14.00 |
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| Microsoft Multiplan: Of Mice & Menus | 13.00 |
| Presentation Graphics on The Apple Macintosh | 14.00 |
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*(continued from page 141)*

# Of Mice and Turtles

The Macintosh designers meant to ease the qualms of computerphobes by presenting a visually oriented user interface and providing commands that resemble English. The same could be said of the Logo language. Its friendly interface and simple graphics commands, which move a turtle-shaped cursor, make Logo a natural for the Mac. Although many people view Logo as a graphics tool for children, it is actually a sophisticated programming language. Logo was developed at the MIT artificial intelligence (AI) research lab in the 1960s. It is closely related to LISP, a language widely used for AI programming.

Logo is a list-based, procedural language of extraordinary flexibility. Unlike most programming languages, it treats words, numbers, and lists of words in the same way. The different forms of Logo data are simply treated as *objects*. Other languages require you to specify data as integers, strings, and so on, and those languages handle each data type differently. Many people are attracted to Logo because of the ease with which it processes a wide variety of data types.

Logo Computer Systems Inc. (LCSI), the Canadian company that produced the popular Apple Logo for the Apple II line, has developed a Macintosh version for Microsoft, ***Microsoft Logo.***

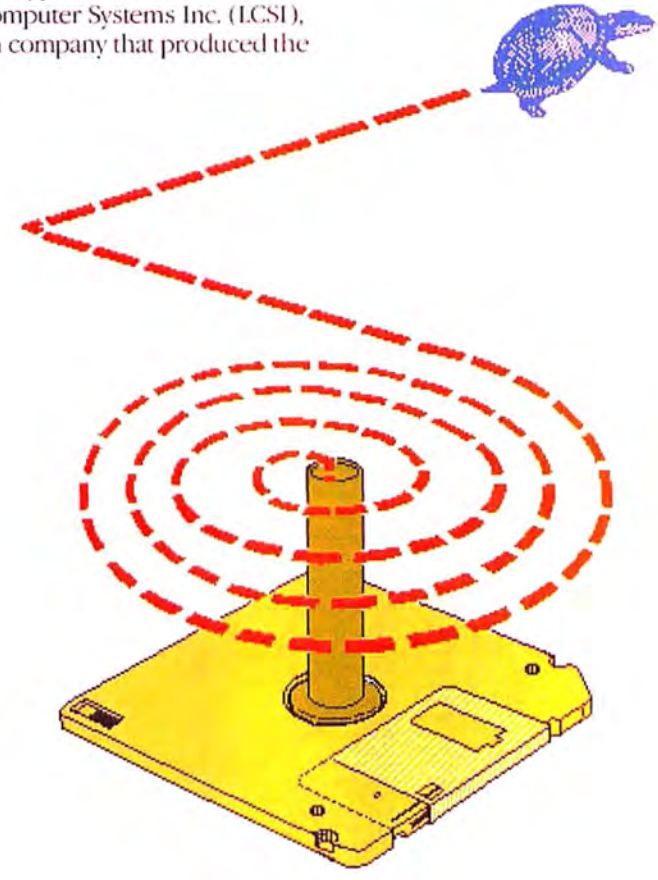
### Primitives

All Logos come with a built-in set of instructions called primitives. Primitives let you do things like load a file, add two numbers, beep the computer's speaker, or move the turtle in various directions. For the Macintosh version of Logo, LCSI has taken a unique modular approach by providing a core group of primitives plus additional sets of specialized primitives that you can load as needed—and as memory allows.

You can run Microsoft Logo on either a 128K or a 512K Macintosh, but certain sacrifices must be made in order to run it on a 128K machine. On a 128K Mac you quickly run out of memory, even after loading only one or two primitive sets. For example, if you have loaded the graphics primitives, you can't load the debugging primitives, and vice versa. You need a 512K Mac to take full advantage of this language.

Logo lets you combine a number of primitives into a newly defined *primitive*

*(continues on page 148)*



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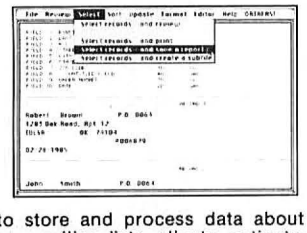

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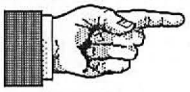

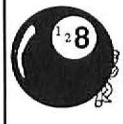


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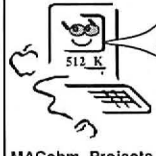


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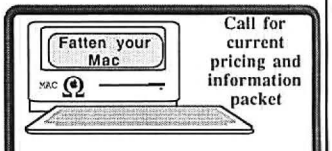


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*(continued from page 144)*

*procedure*. For example, once you type a series of instructions that cause the turtle to draw an octagon, you can name the series of instructions *Octagon*. After you define a procedure, you simply type the procedure's name to execute the instructions. Logo procedures are really lists, and lists can easily be taken apart, rearranged, and put together by other Logo procedures. You can even write procedures that modify themselves. This is where the link between Logo and AI becomes evident.

### Core Primitives

Microsoft Logo's core primitives–those that are essential to Logo's operation and are always present–are divided into seven categories: word, list, and array processing; defining and assigning; work space management and disk drive control; reading and writing information; program control; mathematics; and device management. Taken as a group, these primitives provide the basis of one of the most powerful and flexible Logo implementations to date. People who think of Logo primarily as turtle graphics will be surprised to see that graphics are not included in the core primitives list. The largest number of primitives is found in the work space management and disk drive control group, providing unprecedented capabilities for managing procedures, disks, and data files.

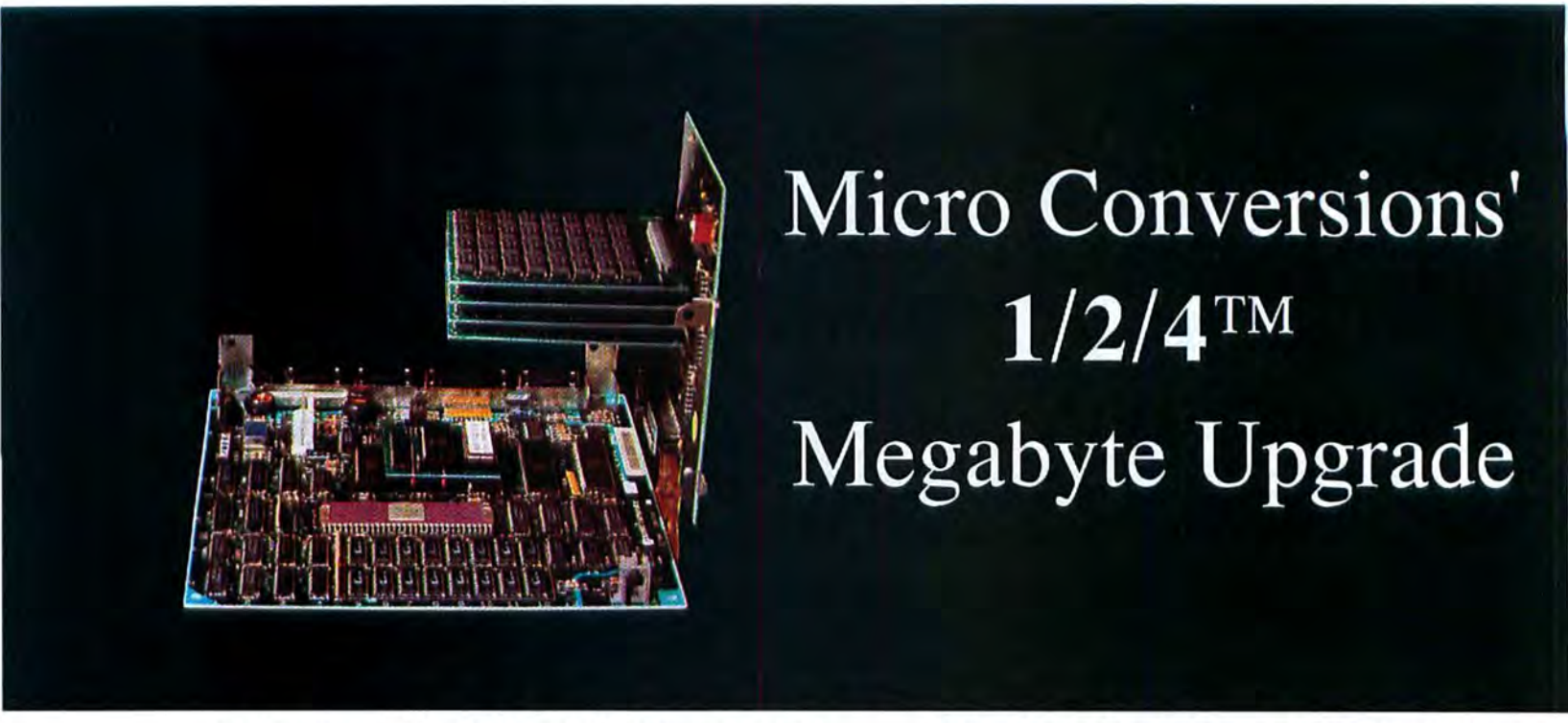
### Add-On Primitives

You can add up to seven sets of primitives to Microsoft Logo's core primitives–turtle graphics, quick graphics, windows, filing, debugging, editing, and printing–keeping in mind the memory constraints mentioned earlier. The turtle graphics and quick graphics are the most widely used optional primitives, and they almost always work in tandem. Turtle graphics primitives move the turtle cursor, while quick graphics primitives control the turtle's pen. Without quick graphics, you can move the turtle but can't use it to draw shapes. Quick graphics also provides access to some of the Macintosh's QuickDraw routines, which let you draw rectangles, arcs, ovals, and so on.

The debug primitive set is one of Microsoft Logo's most powerful features. When you add this primitive set, a new menu, Debug, appears on the menu bar. The menu allows you to open a window in which debugging information is displayed. The window lets you view the values of up to five variables at once as a procedure is running. Debug primitives also provide step and trace functions.

### The Work Space

As you might expect, part of what makes Microsoft Logo so exciting is how well it takes advantage of the Macintosh user interface. When you start Logo and open the Edit window on a 512K Mac, three windows appear. The language has four types of windows: text, graphics, editing, and debug. You type and edit instructions in text windows, define or redefine procedures in editing windows, draw graphics and display a variety of fonts in graphics windows, and find and correct programming errors in the debug window. This Logo offers a handy feature: after trying out a series of commands in the text


Inside every Macintosh beats the heart of a superb machine. However, the sad fact is, most Macs will never have enough memory to run the major integrated software packages wholly from memory. Or perform other tricks. But yours can.

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window, you can cut the group of commands and paste them into the editing window, where they become a procedure.

One anomaly that takes a little getting used to is Microsoft Logo's use of the Enter key. You use the Return key to edit procedures in the editing window, and the Enter key to run commands in the text window and procedures in the editing window. I often found myself pressing Return and wondering why nothing happened. A better approach might have been to use Enter to format listings and Return to run commands and procedures.

**Help**

This Logo has the best help and debugging tools ever to appear in a personal computer version of Logo. To get information about any Logo primitive, simply select the primitive's name and choose Help from the Edit menu. The inputs expected by the primitive appear, followed by a short definition and an example.

The Help function also works with procedures you define. If the first line of a procedure definition is a comment, that line is displayed when you choose Help. The feature encourages you to develop the good habit of documenting your programs.

**From Preferences to Projects**

The Microsoft Logo package consists of a disk, two manuals, and a quick reference guide. The disk contains demo programs, programming examples, several tutorial projects, and a program called Preferences. You use Preferences to specify which primitives you want to add to the language's existing primitives.

The *Guide to Programming* is a tutorial that serves as an introduction to Logo in general and to using Logo on the Mac. Seymour Papert, the most prominent developer of the Logo language, is listed as a contributing editor. The *Guide* starts with the basics of turtle graphics and ends with three programming projects: using list processing to create a random sentence generator, manipulating windows to produce a bar graph, and creating a phone directory that allows you to update individual records.

The *Reference Manual* contains several excellent sections, including an introduction to Logo grammar and explanations of special features such as the various windows, the Help menu, and the editor. The majority of the *Reference Manual* is devoted to detailed descriptions of each Logo primitive.

Microsoft Logo is perhaps the most satisfying Logo available. The broad scope of its primitives, the superb documentation, and the skillful integration with the Macintosh interface provide an excellent programming and learning environment.—*Jason Gervich*

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# Open Window

*Map your adventures, tabulate tables with a spreadsheet, insert patterns in MBASIC programs, create tiny text, and more*

***Edited by Jim Heid***

Open Window *offers tips to help you use your Macintosh more efficiently. Submitted by readers, industry experts, and the* Macworld *staff, items in this department address all facets of Mac work, from applications to programming routines to undocumented capabilities of the Mac and software.*

This month's column includes tips for adventure-game players, some *MacDraw* shortcuts, and a report on a bug in version 4.1 of the Finder. We also pass along a reader's discovery of an undocumented Macintosh Pascal feature, a technique for using spreadsheet programs to create text tables, and a Microsoft BASIC (MBASIC) program that makes it easy to design custom patterns and incorporate them into your programs. Finally, we present a method of obtaining tiny text with *Microsoft Word* and *Microsoft Excel,* and a technique for using Apple's *ResEd* resource editor to add custom paper sizes to the Imagewriter System file.

### Adventurer's Advice: Computer Cartography

I've been an adventure-game enthusiast ever since I played one of the first adventure games, *Colossal Cave,* on a mainframe computer at Purdue University (see "Wake Up to Adventure," *Macworld,* May 1985). One common adventurer's technique I've found helpful involves drawing a map of a fictitious world as you explore it. Maps help you navigate tricky mazes and often decrease the amount of time required to solve an adventure's mystery.

I used to draw maps on paper as I played. Since the advent of the Switcher, however, I've taken to using *MacDraw* as my mapping tool. With Infocom's *Zork III,* for example, I copy the Switcher to the *Zork III* startup disk, then put a disk containing *MacDraw* and *MacPaint* in the external drive. I use Finder version 1.1 because version 4.1 doesn't seem to work with *Zork III.* The Switcher lets me use all three programs to create a detailed map of the Underground Empire while I play (see "Mapping Zork"). *MacDraw* is especially suited to adventure mapping, since you can rearrange and enlarge the drawing as you discover the full size and shape of your surroundings.

Another powerful adventurer's tool is Assimilation's Mac Tracks. The program lets you assign often-used commands or the complicated direction sequences required to get out of a maze to single keystrokes.

*Leland McArthy*
*Redwood City, California*

### Two Keys to MacDraw

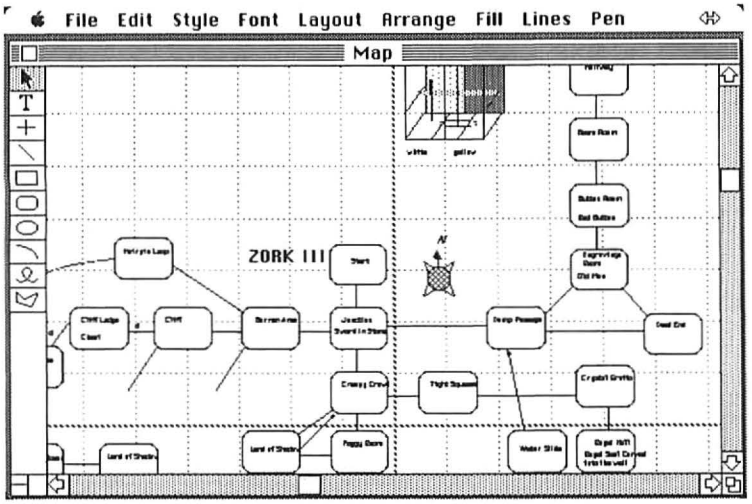
When you move a group of objects in *MacDraw,* they disappear, and only their boundary remains visible, making it difficult to align them to text and other objects. I've found that if you press the Option key before you click and drag, the items remain visible while you move them. They move more slowly, but aligning them is easier.

Another aspect of *MacDraw* that I dislike is that palette tools revert back to the selection pointer after they are used. If you want to draw another object of the same shape, you have to reselect the tool.

If, however, you hold down the ⌘ key while you press the mouse button to draw, *MacDraw* automatically selects the last tool that you used. This technique lets you draw more than one line or shape without having to reselect the tool from the palette.

*Michael Plusch*
*Avon Lake, Ohio*

*(continues on page 154)*




***Mapping Zork***
*By running an adventure game and* MacDraw *under the Switcher, you can produce a detailed map of your adventure land as you explore it. Maps like this one of Infocom's* Zork III *can help you navigate tricky mazes and solve an adventure's mystery.*

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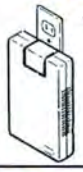

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| **T/Maker** *Click Art* | 25.00* |
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| **Videx** *Mac Gammon & Cribbage* | 25.17* |

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| **Apple** *MacPascal* | 85.00* |
| **Borland** *Sidekick for Mac* | 37.50* |
| **Boston Software** *Mac Publisher* | 65.00* |
| **Creative Solutions** *MacForth Level I* | 66.00* |
| **Creative Solutions** *MacForth Level II* | 110.00* |
| **Desktop Software** *1st Base* | 90.00* |
| **Dilithium** *PC to MAC & Back w/cables* | 90.00* |
| **Dow Jones Software** *Straightalk* | 40.00* |
| **Dow Jones Software** *Market Manager* | 103.50* |
| **Dow Jones Software** *Spreadsheet Link* | 45.00* |
| **Funsoft** *Macasm* | 60.00* |
| **Haba** *Habadex* | 40.00* |
| **Haba** *Quartet* | 101.95* |
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| **Microsoft** *Word* | 102.00* |
| **Odesta** *Helix Reg's 512 K Mac* | 200.00* |
| **Organizational** *OMNIS 3* | 225.00* |
| **Paladin** *Crunch* | 147.00* |
| **Peachtree Software** *G/L, A/P, A/R Each Only* | 77.00* |
| **Provue** *Overvue* | 135.00* |
| **Rio Grande Software** *Softmaker II* | 85.00* |
| **Sierra Online** *Mac One Write* | 125.00* |
| **Soft Design** *Time Base* | 75.00* |
| **Softech Microsystems** *UCSD Pascal* | 140.00* |
| **Software Arts** *TK Solver* | 134.00* |
| **Software Publishing** *PFS: File, or Report* | 68.00* |
| **Stoneware** *DB Master* | 95.00* |
| **Telos Software** *Filevision* | 87.50* |
| **Tronix/Monogram** *Dollars & Sense* | 70.00* |

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### COMPLETE SYSTEMS

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|---|---|---|
| **Apple** *Macintosh Base Systems* | CALL | |
| **Apple** *Apple IIc* | CALL | |
| **Apple** *Apple IIe* | CALL | |
| **AT&T** *6300 PC CPU2 128K/2 Floppy/1 Serial/1 Parallel* | $1,575.00* | *(34.02)* |
| **COMPAQ** *Desk Pro System with Tape Backup w/640K/1 Floppy/10MB Hard Disk/10MB Tape Drive/Monitor* | 2,951.94* | *(63.70)* |
| ▶**COMPAQ** *Hard Disk Portable 10MB Hard Disk/1 Floppy/256K* | 2,235.00* | *(48.28)* |
| ▶**IBM** *PC Base System 2 DSDD/FDC/256K* | 1,425.00* | *(30.78)* |
| ▶**IBM** *PC Professional Hard Disk (1 DSDD/FDC/10MB Hard Disk/256K)* | 1,709.00* | *(36.91)* |
| ▶**IBM** *PC/AT Base System 1.2 MB Floppy/256K* | 2,795.00* | *(60.37)* |
| **IBM** *PC/AT All Configs* | CALL | |
| **Texas Instruments** *Professional* | CALL | |

### DISK DRIVES

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|---|---|
| **Apple** *400KB External Drive* | $ 349.95* |
| **Corvus** *5.5 MB Hard Drive* | 939.00* |
| **Haba** *800KB Double sided Macintosh Add on Drive—Twice the Capacity! Reads Standard Disks!* | CALL |
| **IOMEGA** *5MB Bernoulli Box* | 1,250.00* |
| **Paradise** *10MB Hard Disk & Subsystem* | 969.00* |
| **Tecmar** *5MB Removable Drive* | 999.00* |
| **Tecmar** *10MB Mac Drive* | 999.00* |

### MODEMS

| | |
|---|---|
| **Apple** *Modem 300* | $169.00* |
| **Apple** *Modem 1200* | 371.00* |
| **Compucable** *Mac to Smartmodem Cable* | 16.00* |
| **Hayes** *Smartmodem 1200* | 340.00* |
| **Hayes** *Smartmodem 2400* | 535.00* |
| **Microcom** *Mac Modem* | 360.00* |
| **Prentice** *Pop Com Mac Pack 1200 Baud Modem, Cable, Straightalk* | 245.00* |
| **Prometheus** *Promodem 1200 w/Mac Pac* | 299.00* |
| **U.S. Robotics** *Password LOWEST PRICES 1200 BPS Available!* | 195.00* |
| **U.S. Robotics** *Courier 2400BPS Modem* | 450.00* |

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|---|---|
| **Apple** *Imagewriter 10" Carriage (with Mac kit)* | $ 419.95* |
| **Apple** *Imagewriter 15" Carriage (with Mac kit)* | 485.00* |
| **Apple** *Laser Writer Turns the Mac into a typesetter!* | 4,895.00* |
| ▶**Epson** *DX-35 New! Daiseywheel printer 33CPS/132COL/True Letter Quality* | 569.00* |
| ▶**Epson** *LX-80 10" Platen 100CPS* | 199.00* |
| ▶**Epson** *FX-85 10" Platen 160CPS* | 299.00* |
| ▶**Epson** *FX-185 15" Platen 160CPS* | 429.00* |
| ▶**Epson** *LQ-1500 15" Platen 200CPS* | 799.00* |
| **Hanzon** *Hanzon Board turns your Epson into an Imagewriter* | 60.00* |
| **NEC** *3510 33CPS Letter Quality Printer* | 960.00* |
| **NEC** *8810 55CPS Letter Quality Printer. Both these printers are compatible with Microsoft Word!* | 1,275.00* |
| **Okidata** *ML-192/Mac/Apple New Slimline Design/10" Platen/160CPS/Imagewriter Look-Alike* | CALL |
| **Okidata** *ML-193/Mac/Apple New Slimline Design/15" Platen/160CPS/Imagewriter Look-Alike* | CALL |

### ACCESSORIES

**(Freight minimum $1 per item)**

| | |
|---|---|
| **Apple** *Macintosh Carrying Case* | $ 69.00* |
| **Apple** *Macintosh Security Kit* | 29.00* |
| **Apple** *Numeric Keypad* | 69.00* |
| **Assimilation Process** *Mac•Turbo•Touch* | 73.50* |
| **Innovative Concepts** *Flip N File II* | 28.08* |
| **Innovative Concepts** *Flip N File Micro (25)* | 6.69* |
| **Kensington** *Disk Case* | 20.00* |
| **Kensington** *Dust Cover* | 8.25* |
| **Kensington** *Starter Pack* | 54.00* |
| **Kensington** *Surge Protector* | 33.47* |
| ▶**Koala** *MacVision* | 158.00* |
| **Maxell** *Mac Diskettes (Box of 10)* | 29.95* |
| **Mouse Systems** *A+ Mouse* | 55.00* |
| **PC Network** *Mac Diskettes (Box of 10) Includes Free Flip N File* | 21.95* |
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| ▶**Thunderware** *Thunderscan Turns your Imagewriter into an Optical digitizer!* | 155.00* |
| **Sony** *3.5" Diskettes (Box of 10)* | 22.95* |
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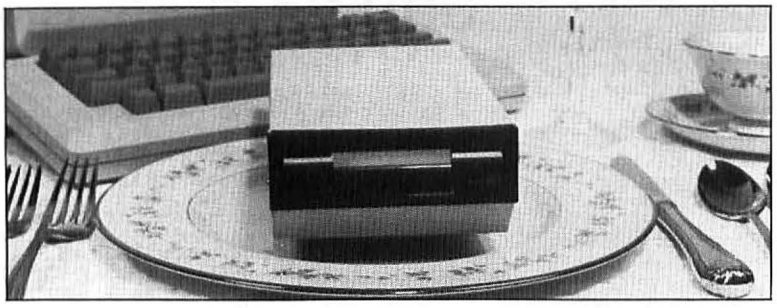

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*(continued from page 151)*

### The Confused Finder

In the process of using version 4.1 of the Finder, I've discovered an interesting bug in the File menu's New Folder command. The bug occurs when you choose that command to create a folder on a disk that's on the desktop but has been ejected. Generally, on an ejected disk the icons are dimmed to indicate that they are not immediately available; when you reinsert the disk, the dimmed icons become defined again. If you choose Finder 4.1's New Folder command for an ejected disk, the Empty Folder icon appears, but unlike its neighbors, it is not dimmed.

When I first saw this, I thought that reinserting the disk would clear the confusion. But when I reinserted the disk, the dimmed icons became defined, and the Empty Folder icon dimmed. Feeling daring, I went ahead and renamed the folder and placed some documents into it. I ejected the disk, shut down the Macintosh, and started up again. When the desktop appeared, there was the new folder, bright and defined like all the other icons.

The bottom line, then, is that this bug doesn't damage your disk, but it is confusing. To correct the problem, drag the dimmed disk's icon to the Trash, provided the disk isn't the startup disk, and then reinsert the disk.

*Bruce Stedwell*
*Havasu City, Arizona*

### Table Processors

Even with a word processor, creating and editing columnar tables can be an exercise in frustration. Adding or deleting an entry in one column moves entries in the table's other columns, forcing you to adjust the entries to make sure all the columns align properly. The process calls for a "column-oriented" text editor.

Next time you create a table, don't reach for your word processor–use your spreadsheet program instead. You can add or remove an entry in the middle of a column simply by adding or deleting a cell; adjacent columns aren't affected. Although you usually think of spreadsheet programs as number-crunching tools, they also make working with columns of text a breeze.

*Roland E. Parenteau*
*Newberg, Oregon*

*(continues on page 157)*

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## SOFTWARE

### DATA BASE MANAGERS

| | |
|---|---|
| DB Master | $109 |
| Fact Finder | 72 |
| File Maker | 98 |
| File Vision | 99 |
| First Base | 99 |
| First Merge | 49 |
| Front Desk | 77 |
| I Know Its Here Somewhere | 35 |
| Mac Lion | 189 |
| MegaFile | 115 |
| MegaForm | 167 |
| MegaMerge | 75 |
| Microsoft File | 112 |
| Omnis III | 245 |
| Overvue 2.0 | 146 |
| Think Tank | 74 |
| Think Tank 512 | 119 |

### LANGUAGES

| | |
|---|---|
| Basic 2.0 | $ 88 |
| Consulair C w/F.P. | 259 |
| Consulair C w/MDS | 435 |
| Consulair Linker/Librarian | 59 |
| ExperLisp | 245 |
| Experlogo | 76 |
| Microsoft Fortran | 175 |
| Microsoft Logo | 74 |

### MONEY MANAGEMENT

| | |
|---|---|
| Accounting Portfolio | $ 32 |
| Dollars & Sense | 79 |
| Dollars & Sense Forecast Module | 39 |
| Mac Home Accountant | 79 |
| Electric Checkbook | 43 |

### WORD PROCESSORS

| | |
|---|---|
| Hayden Speller | $ 45 |
| Microsoft Word | 112 |
| Mac Spell Plus | Call |

### GRAPHICS

| | |
|---|---|
| Accessory Pack 1 | $ 23 |
| Card Shop | 22 |
| Click Art | 29 |
| Color Print | 28 |
| Color Chart | 58 |
| Da Vinci | 28 |
| Icon Library | 15 |
| Icon Switcher | 15 |
| Mac Draft | 149 |
| Mac Pic #1 & 2 | 29 |
| Mac The Knife | 22 |
| Mac The Knife II | 29 |
| Ready Set Go | Call |
| Slide Show Magician | 35 |
| VideoWorks | 57 |

### UTILITIES

| | |
|---|---|
| Concertware Plus | $ 36 |
| Copy II Mac | 19 |
| Desk Organizer | 55 |
| Mac Home | 26 |
| Mac Labeler | 24 |
| Mac Office | 26 |
| Music Works | 45 |
| My Office | 76 |
| Pro Print w/cable | 57 |
| Quickdisk | 18 |
| Sidekick | 43 |
| Smooth Talker | 51 |
| Turbo Charger | 55 |

### SPREADSHEETS

| | |
|---|---|
| Chart | $ 73 |
| Click On | 46 |
| Crunch | 169 |
| Microsoft Excel | 232 |
| Multiplan | 112 |

### INTEGRATED SOFTWARE

| | |
|---|---|
| Ensemble | $146 |
| Helix | 222 |
| Jazz | Call |

### TRAINING

| | |
|---|---|
| Mastertype | $ 29 |
| Mind Prober | 26 |
| Typing Intrigue | 26 |
| Typing Tutor III | 34 |

### ACCOUNTING

| | |
|---|---|
| Mac One Write | $139 |
| Palantir G/L | 75 |
| Palantir A/P | 75 |
| Palantir A/R | 75 |
| Peachtree G/L | 85 |
| Peachtree A/R | 85 |
| Peachtree A/P | 85 |
| Rags to Riches G/L | 102 |
| Rags to Riches A/P | 102 |
| Rags to Riches A/R | 102 |
| Rags to Riches-3 Pak (G/L, A/P, A/R) | 255 |

### COMMUNICATIONS

| | |
|---|---|
| CompuServe Starter Kit | $ 17 |
| Dow Jones Straight Talk | 45 |
| Smartcom II | 84 |

### ACCESSORIES

| | |
|---|---|
| Flip & File 3½" | $ 12 |
| Imageware Printer Carrying Case | 40 |
| Imageware Wide Carriage Printer Case | 49 |
| Kalimar Teak Diskette Box | 15 |
| Mac Niffty | 59 |
| Maccessories Control Center | 59 |
| Maccessories Diskette Box | 20 |
| Maccessories External Drive Cover | 8 |
| Maccessories Head Cleaning Kit | 19 |
| Maccessories Mac Dust Cover | 9 |
| Maccessories Mouse Cleaning Kit | 17 |
| Maccessories Printer Cover | 9 |
| Maccessories Printer Stand | 16 |
| Maccessories Starter Pack w/Swivel/Tilt | 55 |
| Maccessories Surge Suppressor | 34 |
| Maccessories Swivel/Tilt Stand | 21 |
| Mac Enhancer | 157 |
| MacTote Carrying Case | 59 |
| MacVision | 168 |
| MousPad (By Moustrak) | 7 |
| Printer Ribbon | 6 |
| The Easel | 12 |

### DISKETTES

| | |
|---|---|
| MAXELL Disks (10 Pack) | $ 21 |
| SONY Disks (10 Pack) | 21 |

## HARDWARE

### MODEMS

| | |
|---|---|
| Anchor Automation Anchor Express | $235 |
| Anchor Automation Mark XII | 229 |
| Hayes Smartmodem 300 Baud | 129 |
| Hayes Smartmodem 1200 Baud | 369 |
| Hayes Smartmodem 2400 Baud | 599 |
| Kensington Portable Modem | 92 |
| Prometheus Promodem 1200 (MAC) | 335 |
| US Robotics Password 1200 | 195 |

### DISK DRIVES

| | |
|---|---|
| Bernoulli Box 5 Megabyte | $1319 |
| Habadisk Drive | 279 |
| Mirror Technologies 800K Drive | 389 |

### PRINTERS

| | |
|---|---|
| Apple Imagewriter (Wide) | Call |
| Brother HR-15XL | $ 329 |
| Diablo D-25 | 549 |
| Diablo 630 API | 1484 |
| Epson Printers | Call |
| NEC 2010 | 619 |
| NEC 3510 | 989 |
| NEC 8810 | 1329 |
| Okidata Printers | Call |
| Panasonic 1091 | 235 |
| Panasonic 1092 | 349 |
| Panasonic 1093 | 429 |
| Star Micronics SG-10 | 219 |

### PRINTERS (Contd.)

| | |
|---|---|
| Star Micronics Printers | Call |
| Silver Reed EXP500 (Serial) | 279 |
| Silver Reed EXP550 (Serial) | 389 |
| Silver Reed EXP770 (Serial) | 699 |
| Toshiba 1340 Parallel | 439 |
| Toshiba 1340 Serial | 439 |
| Toshiba 341 Parallel | 819 |
| Toshiba 341 Parallel & Serial | 869 |
| Toshiba 351 Parallel & Serial | 975 |

### COMPUTERS

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```
REM Pattern Maker
REM
REM     This program allows you to design patterns for use with several
REM  functions in the Macintosh ROM library. The pixel pattern is displayed
REM  in large and small form, similar to the Control Panel. The
REM  four integers that define the designed pattern are printed on the
REM  screen and put on the Clipboard as BASIC statements for inclusion in
REM  a program.
REM
REM     Written by John T. Finn
REM
DEFINT A-Z
DIM B(8,8), RECTANGLE%(3), WHITE%(3), BLACK%(3),TMP(15),DISPLAY%(3),PATTERN%(3)
DIM POWERSOF2(15)
CLS
REM
REM initialize
REM
OPEN "CLIP:" FOR OUTPUT AS #1
FOR I=0 TO 14
  POWERSOF2(I)=2^I
NEXT I
N=8
C=20
NC=160
NC10=NC+10
NC40=NC+40
NCMC=NC-C
C1=C+1
FOR I=0 TO 3
   WHITE%(I)=0
   BLACK%(I)=-1
NEXT I
REM
REM Draw board for mouse input
REM
DoPattern: CLS
FOR I=0 TO 3
   PATTERN%(I)=0
NEXT I
FOR I=1 TO N
   CALL MOVETO(I*C,0)
   CALL LINETO(I*C,NC)
NEXT I
FOR J=1 TO N
   CALL MOVETO (0,J*C)
   CALL LINETO (NC,J*C)
NEXT J
CALL MOVETO ((NC+20),(10))
DISPLAY%(0) = 50
DISPLAY%(1) = NC+50
DISPLAY%(2)= 90
DISPLAY%(3) = NC+140
CALL FRAMERECT(VARPTR(DISPLAY%(0)))
REM
REM Ask for pattern
REM
CALL MOVETO ((NC10),(NC10))
PRINT "Enter pattern. Click in the circle below to stop"
CALL MOVETO ((NC40),(NC40))
RECTANGLE%(0) = NC40
RECTANGLE%(1) = NC40
RECTANGLE%(2)= NC+70
RECTANGLE%(3) = NC+70
CALL FRAMEOVAL(VARPTR(RECTANGLE%(0)))
REM
REM Wait for mouse to be clicked
REM
DoNothing: IF MOUSE(0)<>1 THEN DoNothing
IF MOUSE(3) > NC10 AND MOUSE(4) > NC40 THEN Done
IM%=(MOUSE(4)\C)*C
JM%=(MOUSE(3)\C)*C
IF JM%>(NCMC) OR IM%>(NCMC) THEN CALL MOVETO(100,NC40):PRINT "Out of range!"
   GOTO DoNothing
RECTANGLE%(0) = IM%
RECTANGLE%(1) = JM%
RECTANGLE%(2) = IM%+C1
RECTANGLE%(3) = JM%+C1
IM%=IM%\C + 1
JM%=JM%\C + 1
CALL INVERTRECT (VARPTR (RECTANGLE%(0)))
CALL FRAMERECT (VARPTR (RECTANGLE%(0)))
B(IM%,JM%)= 1-B(IM%,JM%)
RI=(IM%+1)\2 - 1
I1=RI*2+1
   CALL Decodepat(i1,PATT)
   pattern%(RI) =PATT
CALL FILLRECT(VARPTR(DISPLAY%(0)),VARPTR(PATTERN%(0)))
CALL FRAMERECT(VARPTR(DISPLAY%(0)))
GOTO DoNothing
REM
Done: RI=0
CALL MOVETO(2,NC+2*C)
FOR I1=1 TO 7 STEP 2
   CALL Decodepat(i1,PATT)
   PRINT "pattern%(";RI;") = ";PATT
   PRINT #1,"pattern%(";RI;") = ";PATT
   RI = RI +1
NEXT I1
REM
REM
INPUT "Do you want another pattern";ANS$
IF LEFT$(ANS$,1)<>"y" AND LEFT$(ANS$,1)<>"Y" THEN Endit
FOR I=1 TO 8
   FOR J=1 TO 8
      B(I,J)=0
   NEXT J
NEXT I
GOTO DoPattern
Endit: CLOSE #1
END
SUB Decodepat(i1,PATT) STATIC
SHARED B(),TMP(),POWERSOF2()
   FOR I = I1 TO I1+1
      IB=I-I+I1
      FOR J = 1 TO 8
         JB=8-J+IB*8
         TMP(JB) = B(I,J)
      NEXT J
   NEXT I
   PATT = 0
   FOR I = 0 TO 14
      PATT = PATT+TMP(I)*POWERSOF2(I)
   NEXT I
   IF TMP(15) = 1 THEN PATT = PATT-32768!
END SUB
```

***Pattern Maker***

*This MBASIC 2.0 program lets you design patterns that you can incorporate into other MBASIC programs.*

*(continued from page 154)*

*You're so right. When it comes to creating tables, spreadsheet programs have several advantages over word processors. You don't have to set and adjust tabs. Instead you simply adjust each column's width by dragging. You can center text under column headings or format numbers with dollar signs, aligned decimal points, and fixed numbers of zeros after the decimal. Many programs even let you sort the entries in a column.*

*With its numerous formatting options,* Microsoft Excel *is an especially good "table processor."* Excel *lets you use different font styles, hide the cell borderlines, and create borders around a table.—Ed.*

### BASIC Patterns

Microsoft BASIC's support of QuickDraw's PENPAT, BACKPAT, and area fill capabilities means you can create and use patterns in your MBASIC programs. Calculating the four integer elements of the array where the 8- by 8-pixel pattern is stored, however, involves drawing the pattern on graph paper, converting binary numbers to decimal, and a lot of head scratching (see "Fill Patterns in MBASIC," *Get Info, Macworld,* November 1985).

I've written a program called *Pattern Maker* that makes it easy to design patterns and incorporate them into programs (see "Pattern Maker"). The program can either run by itself or be made into a subroutine for inclusion in a larger program. *Pattern Maker* works much like the pattern maker in the Control Panel desk accessory, except that you must click each black pixel individually; simply dragging across the FatBits window does not produce a stream of dots. After you design a pattern, click the circle, and the four integers that comprise the pattern's definition are printed and placed on the Clipboard, ready to be pasted into your program (see "Making a Pattern"). To design another pattern, type y in response to the program's prompt.

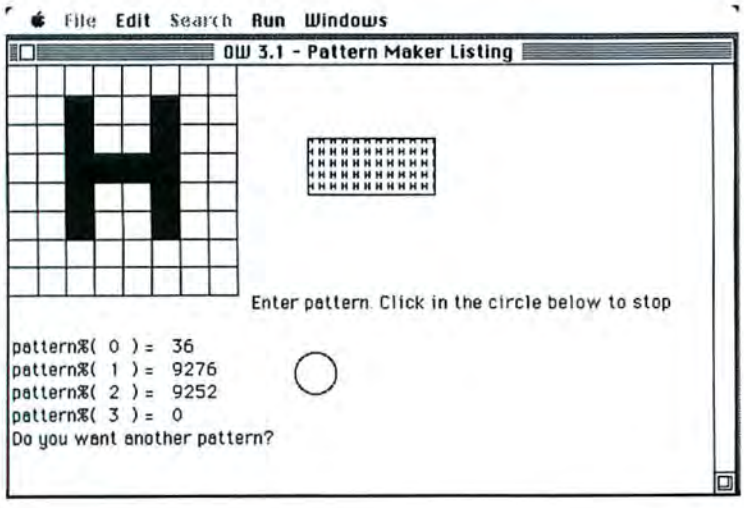
*John T. Finn*
*Amherst, Massachusetts*

### Monitoring Macintosh Pascal

I've discovered a useful feature of Apple's Macintosh Pascal that isn't mentioned in the manuals. If you select two or more Pascal programs from the Finder and choose Open from the File menu, Macintosh Pascal runs the programs one after another and prints a log of their activity. Each page of the log begins with a header that reads, "Macintosh Pascal, Release 1.0." Any output intended for the Text window is printed, but graphics intended for the Drawing window aren't. If you want to see the output on screen as well, include the ShowText and ShowDrawing procedures in your programs. If an error occurs, Macintosh Pascal prints an error message and the statement where the error occurred, making this undocumented feature a valuable debugging aid.

*Jan Bruyndonckx Salvialei*
*Hove, Belgium*

*(continues on page 160)*




***Making a Pattern***

*To use* Pattern Maker, *click each black pixel individually. After you design a pattern, click the circle, and the four integers that define the pattern are printed and placed on the Clipboard, ready to be pasted into a program. To design another pattern, type y in response to the program's prompt.*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- ☐ (5) Reference only

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- ☐ (B) 2-4
- ☐ (C) 5-9
- ☐ (D) 10 or more

**6. How many of the above are Macintoshes?**

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- ☐ (2) 2-4
- ☐ (3) 5-9
- ☐ (4) 10 or more

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- ☐ Less than $250
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- ☐ $1000 or more

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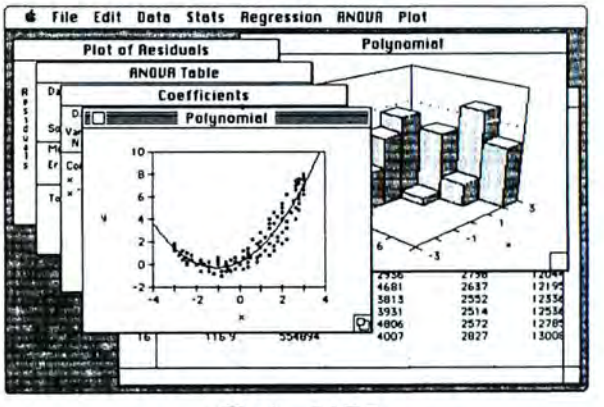


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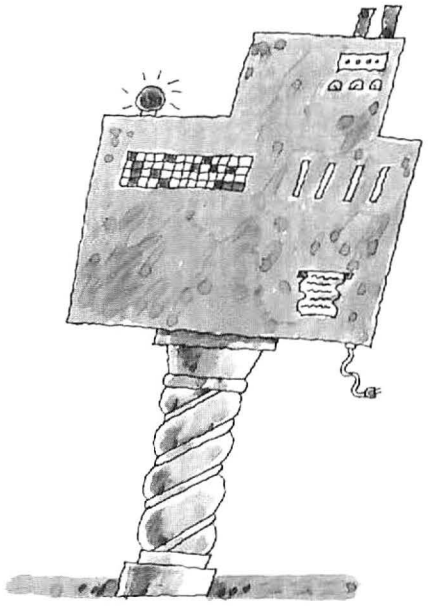

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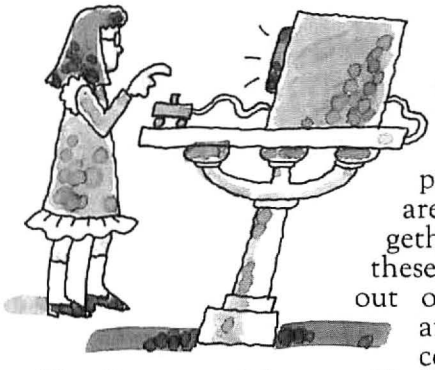

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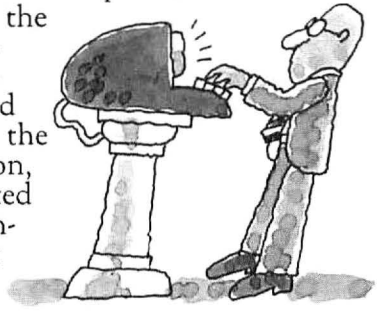

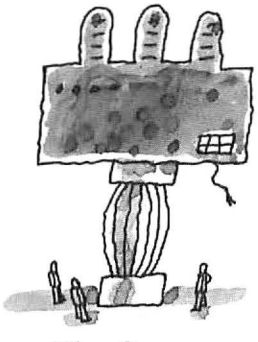

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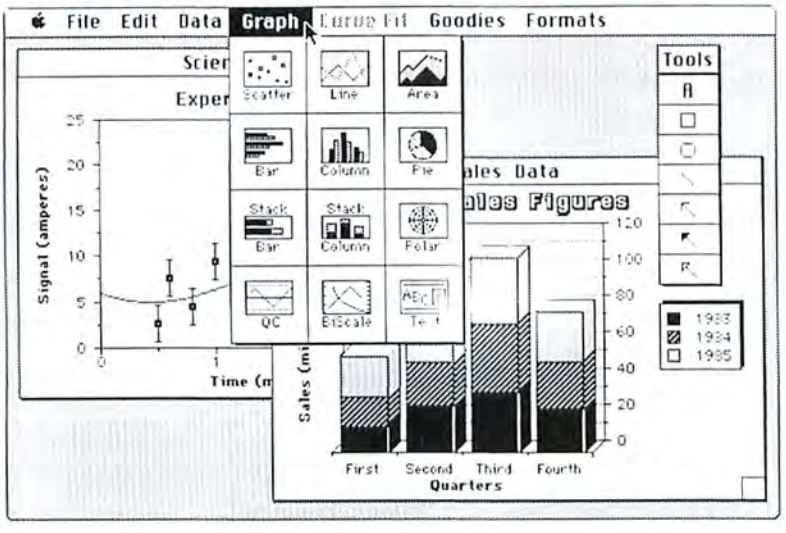


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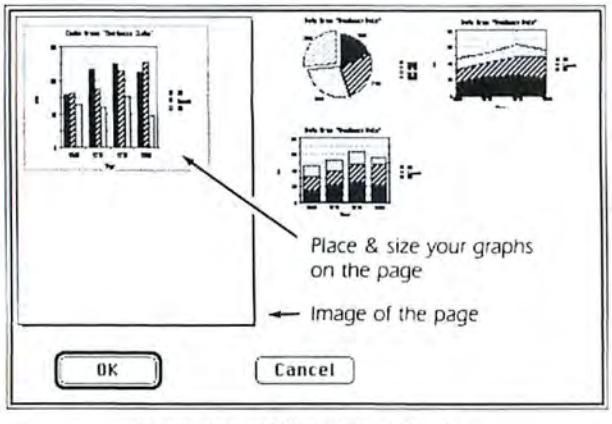


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G = Getting Started
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| | McComb, Gordon | Dec | 102 | H | **Graphics by Phone** *Send* MacPaint *and* MacDraw *documents by modem* |
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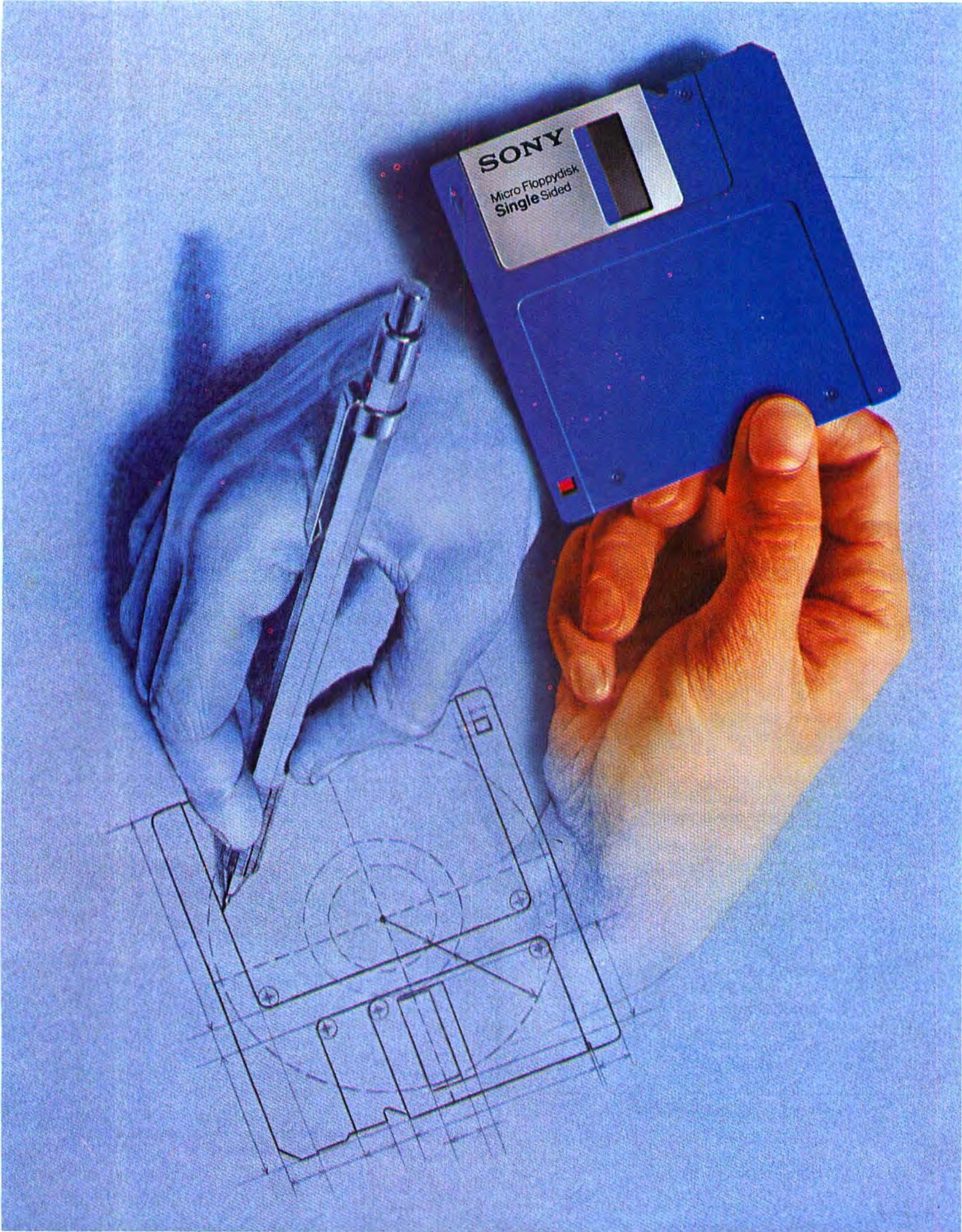
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