

# MacUser

02579

THE MACINTOSH RES

## NEW MACS FOR OLD

Your Complete Guide to  
Apple's New Upgrades

### THE SECRETS OF WORD

And the Keys to  
Unlock Their Power

### IT'S CHILD'S PLAY

Create Custom  
Educational Programs

### WHAT ARE THE ODDS?

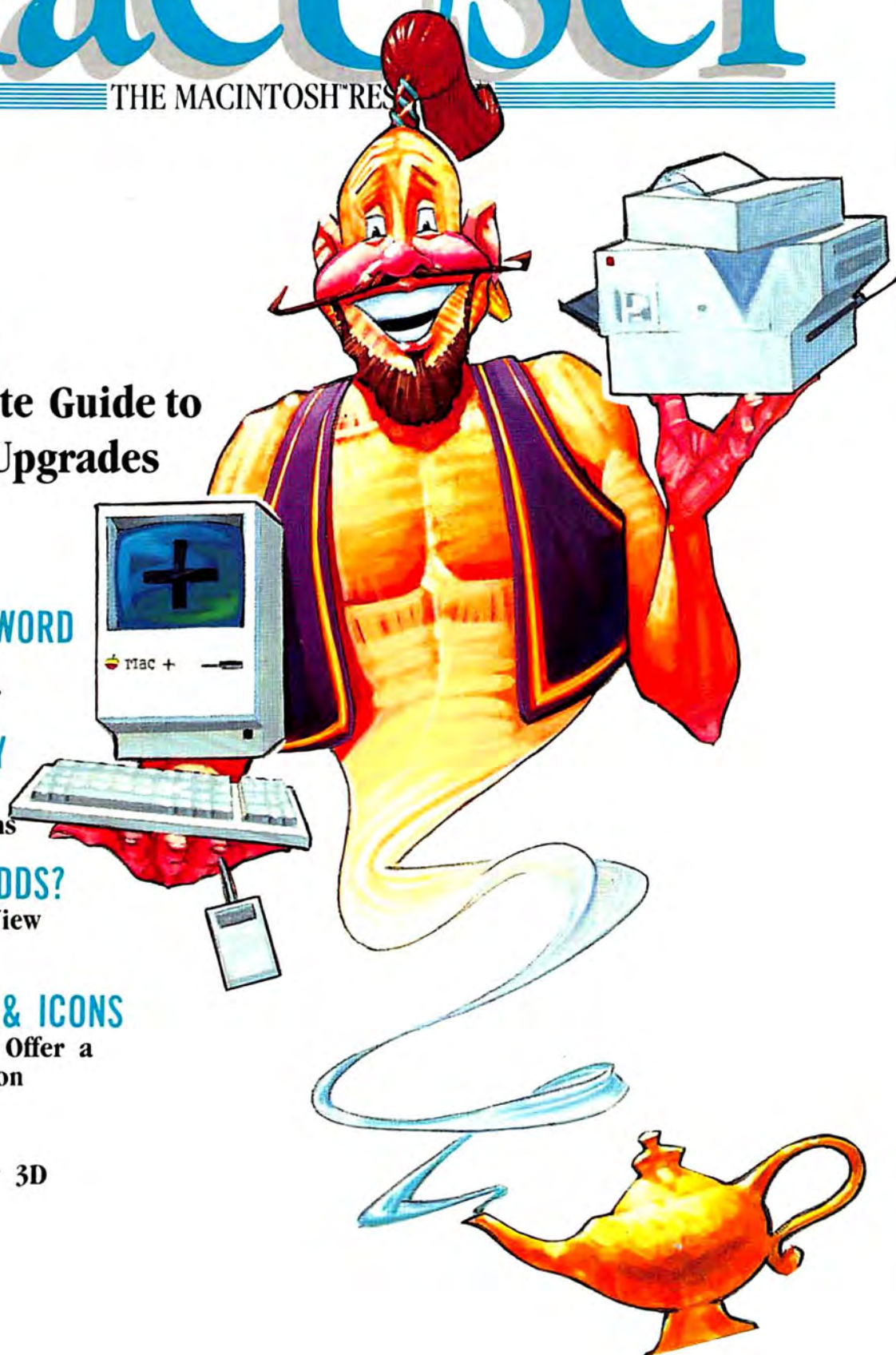
StatWorks and StatView  
Go Head to Head

### STOCKS, BONDS, & ICONS

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### 3D DRAWING?

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"WORTH EVERY PENNY!"  
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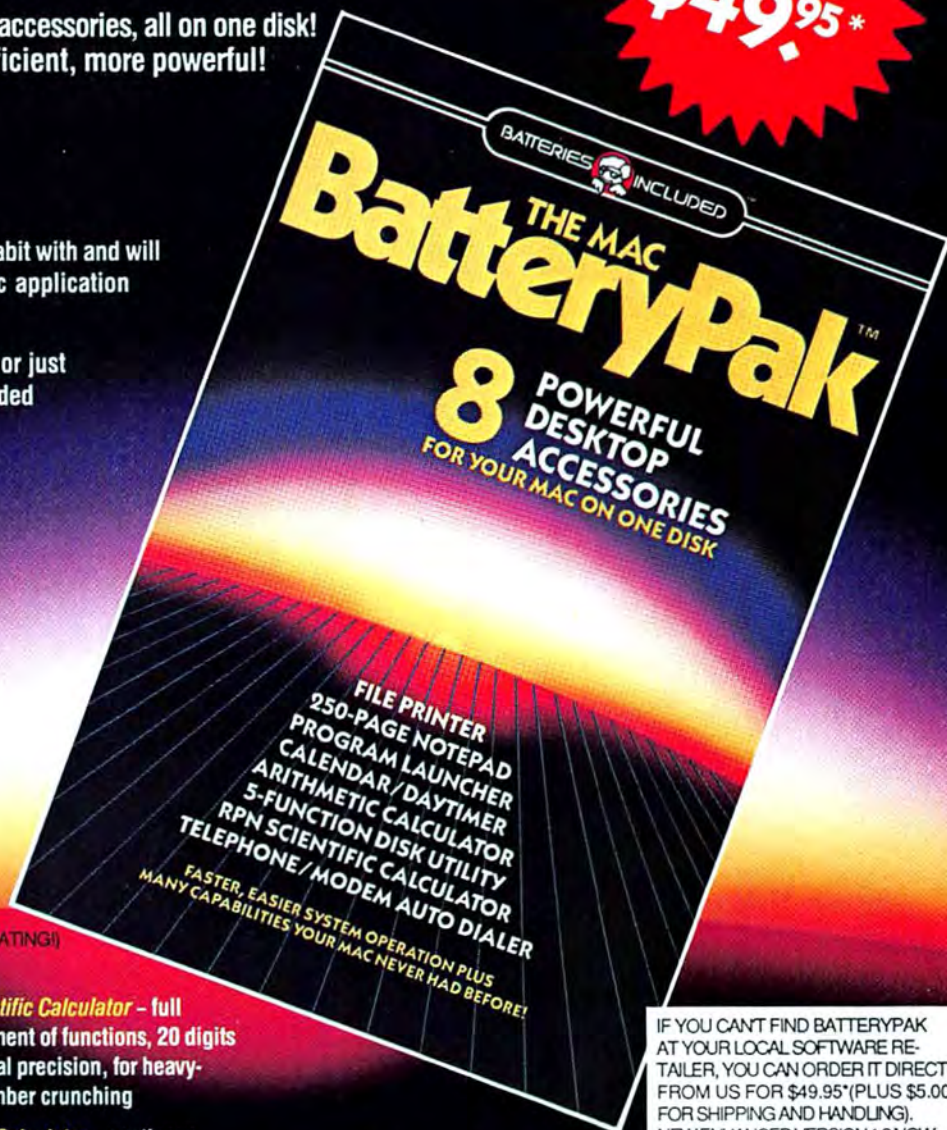
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Cover by Don Pace

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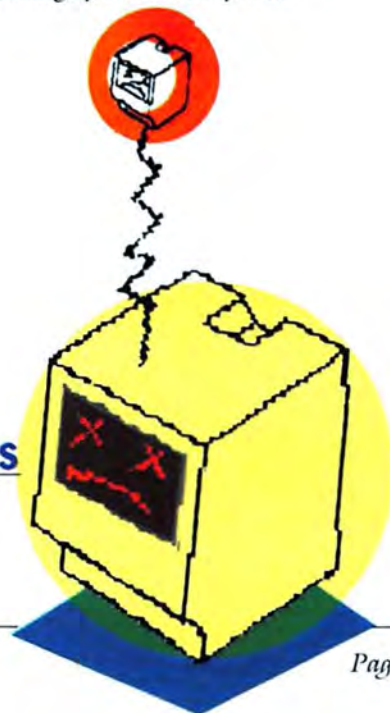
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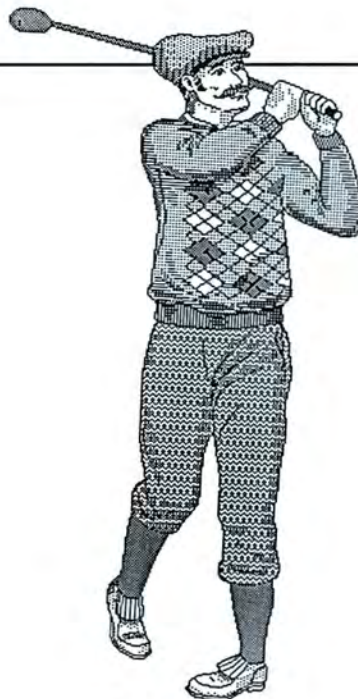
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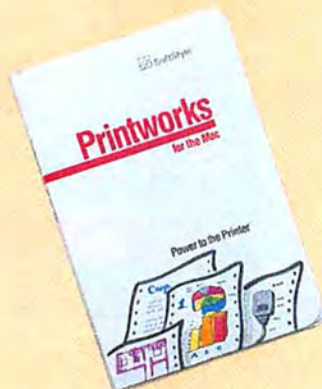
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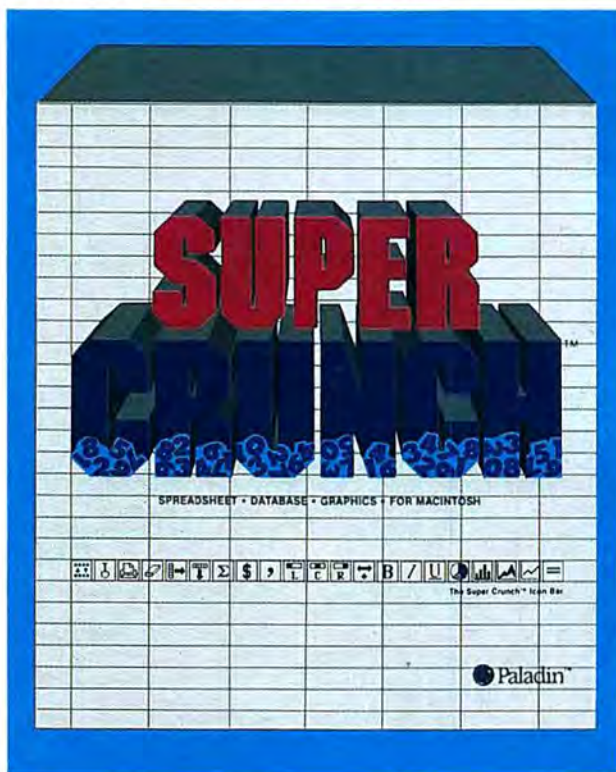
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# NEW WORDS, NEW WAYS

by Neil L. Shapiro

Although I'm not an anthropologist, even I've heard the maxim that if a language does not have a word for a concept, it is impossible for a person in that culture to think of that concept. Many people have blithely used this scientific gambit to explain everything from peace in the Pacific atolls to chronic tardiness.

So I think I'm entitled to use it to explain why the Macintosh is one of the greatest forces of change in society that we're likely to see in our lifetimes.

## GIVE ME WORDS

The Mac is a vocabulary all to itself. It can extend the boundaries of human thought and interaction as no other tool, no other computer, has ever done before. A programmer might think that I mean the new series of words are such things as *SetWindowPic*, *InvalidRect*, *DoRadioButton* and *DIVerify*. But as succinct, enticing and mind-expanding as these new words may appear to the average genius hacker, they are not the vocabulary with which the Mac truly conjures.

Rather, the real power of the Mac's new language lies in complex words that are referred to as "programs." Back in the days of the caves, most people sat around and picked up words (such as "Bear!!!") invented by others, and then used them to their own advantage. The early language hackers took a few thousand years to work up to inventing the clause and the compound sentence and finally, with the paranthetical phrase, took the first era of "programming" their brethren as far as it could then go.

After a long time the first computers were invented and then the first micros made their appearance. Various new words were developed, such as "word processing," "spreadsheet" and "system crash."

But the real concepts these words represented were no longer people-programs, but computer programs. By programming machines, people extended their own programming as well.

What is it about the Mac which makes

it the language generator of the future, the style-setter for future societies? Well, first let's take a look at what one author has seen as a possible future within the world of science fiction.

## THE CHILDE AND THE MAC

Gordon R. Dickson's book *The Final Encyclopedia* (published by The Berkley Publishing Group, New York, NY, copyright © 1984) is the latest in a series of books known collectively as the



"Childe Cycle." The books published so far have been concerned with the way humanity, in this future society, has been split into various specialized factions. These factions have each developed one aspect of humanity into an almost super-human trait. Dorsai worlds have become independent warriors, Friendlies live by faith and Exotics seek the truth.

In this book, all of mankind must come together again in order to react to a threat from a newly developed offshoot of humanity. They must in some manner coalesce.

The "Final Encyclopedia" hanging in orbit around Old Earth is the repository of all human knowledge and thought through the centuries. But to manipulate all of this data, to use it as a true synthesis, calls for a new way of thinking.

In Dickson's book the huge library is a computer. As he describes it: "Its walls were banked with control consoles; and in mid-air in the center of the room floated what looked like a mass of red, glowing cords, making a tangle that was perhaps a meter thick, from top to bottom, and two meters wide by three long. Ajala led him up to it. The cords,

he saw from close-up, were unreal—visual projections.

"... She took him up close to the glowing, airborne mass of red lines, and began to trace individual ones, explaining how one was clearly a tap from the Encyclopedia's memory-area of history over to the area of art, which meant that a certain scholar from Indonesia had found a connection to a new sidelight on the work he was doing; and how another line showed that the Encyclopedia itself was projecting related points to the research another person was doing—in effect suggesting avenues of exploration."

## CONNECT WITH THIS

In effect, Dickson's work (which is a monumental book in every respect) predicts that the next form of computer-human communication will be in the form of almost visionary manipulation of data; that the next "words" spoken will be something other than the auditory type.

I think that Dickson is right about this because I have seen the Mac in general and one program in particular, both of which support the idea that the newest vocabulary to base thought processes upon will be more than just the speaking of information. A program called *MacSpin* (from D<sup>2</sup> Software, PO Box 9546, Austin, TX 78766-9546) is at least an ancestor of the far future "Encyclopedia" of Dickson's book and is, I believe, an indication of what is truly revolutionary in the way in which the Macintosh lets us approach life from new perspectives.

*MacSpin* is a database that can plot data in three, even four dimensions. Take the safety record of various automobiles and *MacSpin* will plot the points of information suspended in space. The points often define a surface of a three-dimensional shape, or chords of data points that are remarkably similar to Dickson's predictions. The shapes may be shifted by the viewing user, rotated about major axes, zoomed in upon and otherwise manipulated.

Often you will be examining a series of data points which form a hollow sphere. By rotating the sphere you may see wrinkles in the "skin" areas where the information has come together. By plotting the information against time as a fourth dimension, an almost animation-like quality can be given to the data.

Just as Dickson's "Final Encyclopedia" may suggest new avenues of research, plotting data in such a manner can show connections that ordinary words and visual aids would miss.

But the real future lies not in simply



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## THE EDITOR'S DESKTOP

connecting the dots of information already known by select groups. Rather it is in having new words, new ways of thinking, generated by people who can use such new techniques to cross-connect information from many existing fields.

### NEW WORDS FOR OLD

While programs like *MacSpin* are startling enough to make us recognize when science fiction becomes everyday life, many of the programs (words) that we take for granted on the Mac are just as awesome. The Mac has given us all new words which have resulted in many people thinking in ways that they would never have thought in before.

How many of us have thought that we had no artistic or musical ability before the Mac, only to be proven wrong?

When the right half of the brain gets to work with programs like *MacPaint*, *Magic Slate* or *VideoWorks* it's as if language is invented all over again. Whether or not the results of using such a program are up to the level of a Michael Saez or Bert Monroy, each person who has used and allowed such a program to mold their thought process understands how a computer like the Mac opens new neural pathways.

And now, with the MIDI interface programs for the Mac, we are seeing a surge in people who are discovering that they are not only artistic but musical. They finally, at last, have the words—the programs—with which to think of concepts that before were only the most ephemeral of feelings and emotions.

This two-way process builds upon itself. As more and more people become proficient in existing areas of culture, thanks to new ways of thinking, it becomes more appropriate to open entirely new areas within such an enriched cultural environment.

What will happen when enough people who are musicians become visual artists, when enough artists become programmers, when enough programmers become businesspeople, when a businessperson uses the same tool in business as when composing an animated poem? What kind of connections will these people—will all of us lucky enough to be able to participate in the Desktop Metaphor's new language—be able to find?

I don't know, but I'm very excited to see this happening and I think we will all be astonished by the eventual outcome. So the next time you buy a new program, don't think of it simply as a disk to pop into your Mac. Think instead that you have just been given a new word.

Use that word in a sentence. Make it your own. ☐

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### OVERLOOKED IN CLEAR LAKE CITY

Once in a while a good magazine appears on the stands—MacUser is one of them.

As for Mr. Dvorak, after reading your first issue, I had not planned to subscribe. In your January issue, however, he is at least accurate for once. I pleaded with Apple for almost a year now to do some marketing in the NASA/JSC area. Clear Lake City is full of engineers, scientists and yuppies. There is a tremendous market here and Apple has been stubbornly silent about it. I brought my "meager" Mac in to work one day, and within two months three other people bought Macs. Even the company now has a few. That same thing has happened at other companies.

I believe the Mac will sell once people see it and use it. The government spends millions of dollars and hundreds of hours training people to use IBMs and clones. A little work on Apple's part would go a long way towards educating people that the Mac is easy to learn and powerful.

SHAWN T. HARRISON  
LEAGUE CITY, TX

### OUT IN THE COLD

It seems that much of both hardware and software is of poor quality. The conceptions are good but the implementations are poor with little or no quality control.

Also, the response from the manufacturers and/or distributors is very poor. Meanwhile the clock on the warranty keeps ticking. Have you ever thought of creating a consumer support group to help those of us faithful readers who appear to be stuck with poor quality hardware and software?

GLENN N. POMERANCE, MD  
DOLTEWAH, TN

*A magazine like MacUser is not the best place for such a group. Our response time is too slow. Why don't you start such a group within a local user group. You'll be pleased with how much even a small group can accomplish.*—SB

### BOTH SIDES OF THE COIN

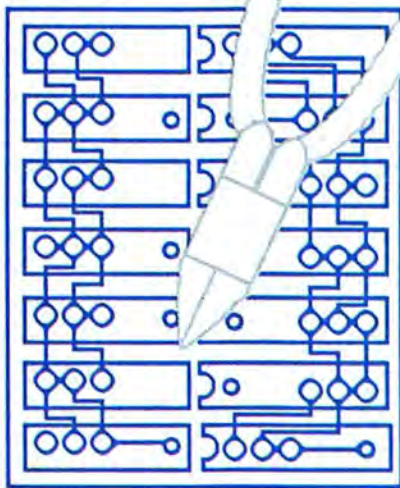
I have been an extremely happy and satisfied owner of a 512 Mac for the past five months. I, as most of us,

realized after the first, second or third week that I needed a hard disk for all the stuff that was accumulating. I recently purchased a Macintosh Hard Disk 20, and have had some really interesting experiences, especially with its compatibility with the applications, utilities and desk accessories I have grown to love and use. "La Bomba...System Errors" and some spectacular crashes have literally become a way of life.

Running with Mac's hard disk has also been a lot of fun and of definite benefit with its speed, storage, and information accessibility. Being able to place frequently used large "K" applications on the same disk and avoid disk switching is a great boon.

BOB LAZZARINI  
MT. TABOR, NJ

*The compatibility problems you mention are not the fault of the HD20, but result from the way some programs interact with the new Hierarchical Filing System (HFS). Apple told developers to "play by the rules." Many didn't. You're finding out who did and who didn't. Most programs that don't work now can and will be fixed.*—SB



### THE UPGRADE MYSTIQUE

I purchased a 128K Mac and have been fairly pleased with its operation. However, I have reached a level of operating proficiency such that I need to upgrade to more internal memory, possibly 2 megs, and possibly to a hard disk. When I went to my Apple dealer to inquire about upgrading to 512K, I was informed it would cost \$450. I was most

shocked and angered to hear this news.

I was aware that I could obtain a non-Apple upgrade for about \$250 and for \$900 be upgraded to 2 megs.

I would prefer to purchase the Apple upgrade. However, unless Apple can be more competitive in its pricing, I will either go the non-Apple route or trade in my Mac for the Amiga. It is my suspicion that unless Apple make its prices lower, it will price itself out of the market.

JOHN L. EARNEST  
BALDWIN, NY

*Don't get an Amiga! And check Apple's prices for upgrading to the Mac Plus. You'll find them more in line. Remember, you usually get what you pay for. If you go for a third-party upgrade many are excellent. Be sure to check on service.*—SB

I would be interested in a feature in your magazine discussing the issue of RAM upgrades. There are a couple of particular points I am interested in although I suppose there are several others. What is the current status of those who have gotten non-Apple 512K upgrades when the ROM upgrades are available? Could you compare and discuss the various RAM upgrades that go beyond 512K? Specifically daughter boards versus contiguous memory and whatever else!

THOMAS SCHARE, MD  
MENLO PARK, CA

*If you got a third-party upgrade, you'll pay \$200 more to upgrade to 1 meg. You can upgrade to the new ROM and double-sided internal drive, but Apple can't and doesn't promise it will work. The ROM should work with most upgrades. So far the problems have been with upgrades to 1.5 meg. Some don't seem to work. Finally, an article on the new meg (and larger) boards will be out very soon.*—SB

### A HINT OF HELP

I found your hints for power users extremely useful. Even the most expert experts will probably have found something to add to their repertoire.

CAROLINE ARMS  
PITTSBURGH, PA

### MEMORIES

Now that I finally have a 512K Macintosh, I sometimes long for the good old days of a 128K machine, and I've found that Switcher is perfect for this. Sometimes I'll put MacWrite and MacPaint in Switcher, each with 128K of memory. Then, I'll make a MacWrite



# SQUINT!

## SQUINT! SQUINT!

### THE VERDICT'S IN THE FINE PRINT!

#### SO WHAT DO "THE REST OF US" THINK OF MACUSER?

"Premier Issue looks like a winner!" David LaComb, Schenectady NY 12304; "Best of the bunch!" Patrick J. Flynn, E. Lansing MI 48825; "Great first issue; keep it up!" Charles Fisher, Los Altos CA 94022; "The 'Macintosh' of Macintosh magazines. MacWorld now has a standard to shoot for." Devin B. King, Anaheim CA 92806; "Very pleased. I like it." Trent Reese, Austin TX 78750; "Excellent — well written and informative." Dr. Donald L. Kane, Satellite Beach FL 32937; "Reviews and ratings are the best." William R. Anderson, Rio Grande City TX 78582; "Very, very nice. But don't stop here!" David Wheelless, Midland TX 79701; "Super ideas — more!" James P. McIntyre, Louisville KY 40219; "Looks like a very good publication!" H. James Rosenberg, Chicago IL 60602; "Good! No gosh-wow articles. I hate gosh-wow articles. Keep this level." Merryl Gross, Lake Grove NY 11755; "The first issue set a very high standard of usefulness." Roscoe Fitts, Sweet Briar VA 24595; "Great articles. Best of any so far." R. Ponton, Visalia CA 93279; "It's great! Keep up the reviews and programming articles." Devon L. Petty, Hanover NH 03755; "About time a magazine for real Mac users came out." Gabriel Davidov, Dallas TX 75248; "Excellent!" Brett Sage, Jacksonville FL 32211; "Excellent!" M.J. Head, Wylie TX 75098; "It's great!" Denise Sims, Stockton CA 95207; "Excellent!" Nick Hademenos, Riverside CA 92504; "Best 'beginner' Mac magazine." Mark Davis, Los Altos Hills CA 94022; "Excellent product capsules." D.G. Detling, Oakland CA 94604; "Very good. Maybe very, very good" Charles Preston, Anchorage AK 99521; "Nice magazine. Much better than MacWorld." Richard Clone, Dallas TX 75219; "Very useful!" Jos. L. Anderson, Boston MA 02134; "The best Mac publication on the market!" Robert J. Milko, Oakton VA 22124; "Excellent!" Steven P. Young, Brooklyn NY 11218; "Best (Mac) magazine I've seen yet." Craig Dugas, Lake Orion MI 48035; "Excellent. Finally a new magazine to outdo MacWorld." David Lawrence, Anaheim CA 92804; "More informative than MacWorld." Tim Whelan, Regina Canada S4R 3E8; "Best I have seen yet. Keep it up." B.W. Murray, Richmond, Ontario, Canada; "Looking good!" H.M. Jakobsen, Jacksonville FL 32217; "Excellent." Bradford J. Sandler, Springfield PA 19064; "Excellent. Very fulfilling to read!" John Yeh, Honolulu HI 96815; "Great format, worth the money." R. Shuhert, Chicago IL 60690; "Lively format and writing. Enjoyed the articles thoroughly." Scott Brown, Wetherfield CT 06109; "Thanks!" Harvey Markley, Indianapolis IN 46222; "Very useful." E.M. Schaffran, El Cerrito CA 94530; "Excellent magazine." Gary Gross, Warren MI 48093; "Very good. Keep up the good work." R. Meynard, Longueuil, Quebec, Canada J4L 3J9; "Really impressed! The articles don't seem as biased as some magazines." R. Grasser, Grissam IN 46971; "A very cool alternative to MacWorld!" Greg Griffin, Westminster CA 92683; "Good, practical first issue." Theodore S. Darany, San Bernardino CA 92402; "Interesting and informative." J.E. Gwyn, Dover DE 19901; "Excellent first issue!" Tom Tarvin, Milford MA 01757; "An excellent first issue." Dr. James M. Todd, Brattleboro VT 05301; "Articles are good and useful." Forrest D. Reece Jr., Vero Beach FL 32961; "Great start." John Novak, Detroit MI 48221; "I love the magazine. It gives me good info." Andy Malucelli, Lafayette CA 94549; "Great! I particularly like the in-depth test reports on software." Steven A. Hale, Waltham MA 02154; "Very informative. Good, wide spectrum." Steven W. Norton, Utica NY 13501; "Great mag. Lots of info." Bob Colmer, Clearwater FL 33515; "Excellent. Loaded with information at all levels of experience." Alan E. Baltis, Elk Grove IL 60007; "Wonderfull!" Jeff Scholl, Fairfield CT 06430; "Great! Watch out MacWorld!" C. Von Rosbach, Santa Clara CA 95051; "Best Mac mag yet. Thanks." Thomas L. Clough, Elgin IL 60120; "Fantastic magazine for the Mac." Michael G. Coffey, West Valley City UT 84120; "This magazine is great." Anthony Macias, Weaver AL 36277.

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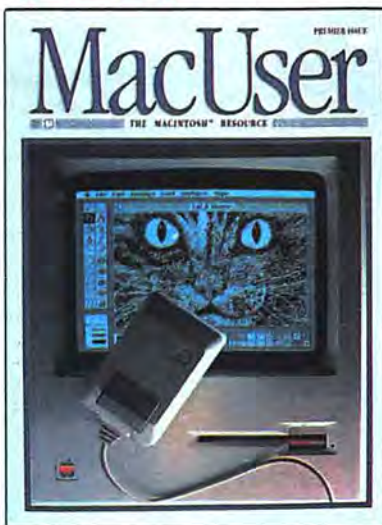
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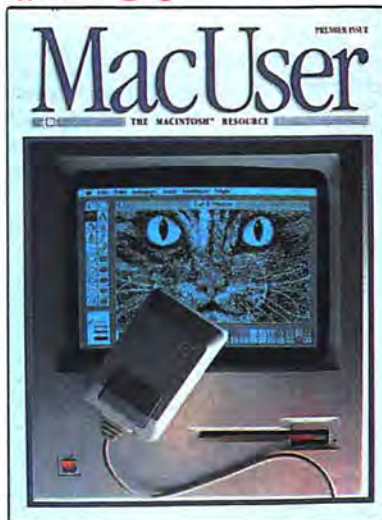
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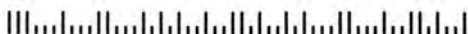
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document with a lot of font and style changes, just until I get the double beep and the "Memory is Almost Full" message. It warms the heart. Then, I'll go over to *MacPaint*, and make a drawing that requires a lot of use of the hand. It's great. Big Clipboards add to the fun.

Sometimes, on a Friday night, I'll disconnect my external drive and use *Switcher* to get a skinny Mac. But please, don't interrupt me when I'm doing this!

JIM JOSEPH  
PHILADELPHIA, PA

### OBSESSED BY A NIGHTMARE

*Deja Vu: A Nightmare Comes True* is the best adventure game ever. We won in 30 hours. We worked in shifts during Christmas vacation 'round the clock. It was great. It was all-consuming. Instant obsession. Better than anything we'd had before. Mindscape has created a tough act to follow.

One aspect I have yet to see in any *Deja Vu* reviews is that the game has more going for it on a 512K Mac than on a 128K. The graphics have more "hidden" pictures when viewed on the larger Macintosh. This does not change the way it plays; only in certain small details not essential to the story.

STAN COUTANT  
PASADENA, CA

### A DIFFERENT ANIMAL

I am astounded at Sharon Aker's glossing over of the glaring deficiencies of *ThinkTank 512* (January issue). It was encouraging to see the program's name appearing on bestseller lists along with glowing reviews such as Ms. Aker's, but using the program has left me with a far different opinion of such lists and reviews, not to mention the program itself. *ThinkTank* ignores the Mac interface completely. While its features look easy to use at first sight, it takes little more than coming to your first need to scroll before you find out what an adventure you're in for. Other "small" inconveniences: no keyboard commands for such common functions as SAVE, PRINT, QUIT, OPEN, or CLOSE. No control over spacing, formatting or such elementary Mac wonders as boldfacing, underlining and italics. The list goes on.

If one wants to make a calendar or a list of things to do, as Ms. Aker suggests in her article, there are great desk accessories around these days to accomplish these tasks quickly and efficiently no matter what program one has open on the Mac, and many of them are free over

CompuServe. Rethinking *ThinkTank* is something the folks up in Mountain View should have done before *ThinkTank* was ever released.

R.L. LEES  
LOS ANGELES

### BLESSING IN DISGUISE

Your updates listing in the New On The Menu column is a godsend. Sometimes it is the only way that I know an upgrade is available (depending on the support offered by software developers). *MacUser* is definitely the Mac+ of the Macintosh magazines. All meat, no filler—keep up the exceptional quality!

GARY D. HIPPLE  
ST. PAUL, MN

### BOMBS AWAY

I read three publications every month from cover to cover in an attempt to locate excellent software. Most publications seem unable to "bomb" a program, reviewing almost as if they were employed by the program developer. *MacUser* reviews are the best on the market. You do seem braver than "brand X" and are willing to throw an occasional bomb.

RICHARD H. ZBINDEN, PE  
KLAMATH FALLS, OR

### PICASSO IT ISN'T BUT...

The one thing that I do like about *MacWorld* that I miss in *MacUser* is the use of Mac-generated artwork. Colorful drawings and sketches are swell and make your magazine look different, but I like to see artwork done on the Mac. It's very exciting, inspiring stuff to see what someone else can do with the same tools that I have access to. I use my Mac mostly for designing greeting cards to family and friends and am always looking for new ideas.

SUZANNE NOMURA  
PEARL CITY, HI

*How about sending a contribution to our new Picture Palette section? And look for some really different graphics articles in the near future.—SB*

### MAC GOES POLISH

Greetings from Warsaw, Poland, where I am stationed at the U.S. Embassy. There are five Macintoshes among the Americans here, and their popularity seems to be growing. The embassy uses Wangs, incidentally.

JOHN C. HIGHT  
WARSAW - DEPT. OF STATE  
WASHINGTON, DC

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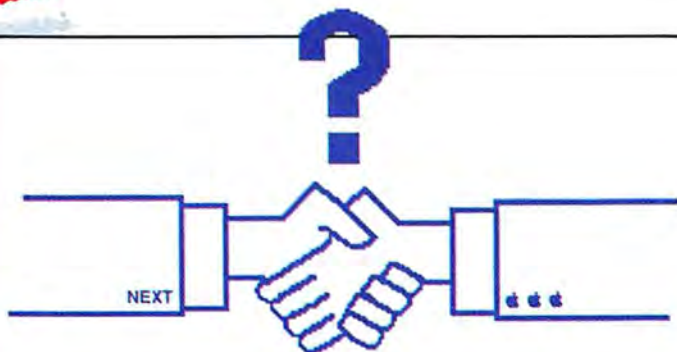
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# New

## ON THE MENU



### NO LITIGATION BETWEEN FRIENDS

Apple Computer has dismissed its lawsuit against former chairman Steve Jobs. Jobs has agreed not to pilfer technology or people, and Apple will have the right to examine any products his new company, Next, Inc.

creates. Apple also reserved the right to re-file the suit if they should find any proprietary stuff in Jobs' machine, but for the moment the bad feelings seem to have smoothed over a bit. —MDW

### UPDATE TEACHES OLD DOG NEW TRICKS

Version 1.1 of Microsoft's *Multiplan* adds some useful new features, including a new ASCII printing mode, support of variable fonts and font sizes and seven often-used financial functions (including present value, internal rate of return, future value, payment and interest rate).

The new version also allows a second window to be opened on-screen, allowing users the flexibility to display, for example, formulas in one window and values in another, or to view different parts of a worksheet simultaneously. A new GO TO command sends the cursor to a specific

cell address without any scrolling, and new command keys for often-used functions have been installed to speed things up even more.

*Multiplan* 1.1, which can read ASCII files directly and offers more context-sensitive help, retails for \$195. Current owners of *Multiplan* (versions

1.0 through 1.02) can get updated for \$25. For more information, contact Microsoft Customer Service at 800-426-9400 or write to Microsoft Corporation, Customer Service Department, 10700 Northup Way, Box 97200, Bellevue, Washington, 98009. —TFH

### STOP THE PRESSES! MILLER SEES THE LIGHT!

Michael Miller, praise the Lord, has finally taken the road to Damascus. In his *Infoworld* piece (1/27/86) he states that, because of its better software and su-

perior features, "I think the Macintosh might succeed after all."

I'm sure we'll all sleep better tonight, Michael. —TFH

### MOTHER GOOSE MACINTOSH

Little Miss Muffet  
Sat on a tuffet,  
Running her Mac  
all day;  
There came an  
Alert Bomb  
Which beeped and  
remained on  
And frightened  
Miss Muffet away.



STEVE SAKURAI

### MACS IN SPACE



KAREN STOLPER

Tess Data Systems' nutrition analysis program *Diet-Mac* has been selected by Lockheed Corporation for the development of menus for the crew of a future manned space station.

Although *DietMac* is available for both the IBM-PC and the Macintosh, Michele Perchonok, Lockheed's "food

scientist" senior engineer, chose to work on the Mac.

The program is the initial program for listing and manipulating food choices. At some point, the nutritive values for space station menus might have to be calculated on a mainframe, but for now, the Mac leads the way into high-tech nutrition. —TFH



## GOOD THINGS IN SMALL PACKAGES

If you're looking for a program to fill that empty space in your life, one that only something small could satisfy, than look no further than *MacMiniatures*.

*MacMiniatures* is a complete set of living room furniture designs on disk. These *MacPaint* files can be printed out, then cut, pasted and folded to create 3-D furniture "ready for use" (when assembled, their scale approximates dollhouse standard 1" = 1'). Included is an illustrated step-by-step guide to make construction easier.

You can construct *MacMiniatures* as they come on-disk, or use your interior designer instincts to modify the designs in *MacPaint*. The finished miniatures can



be painted with watercolors, airbrush, markers or crayons to enhance your *MacMiniatures* living room.

Whether you enjoy collecting miniatures, crafting models, or just enjoy a good challenge, *MacMiniatures*

will satisfy even the smallest cravings in all of us. *MacMiniatures* is priced at \$49.95. For more information, contact JemmStar, 974 Mount Curve, Altadena, CA 91001. (818) 797-3393. -RBK

## JOBS WARS

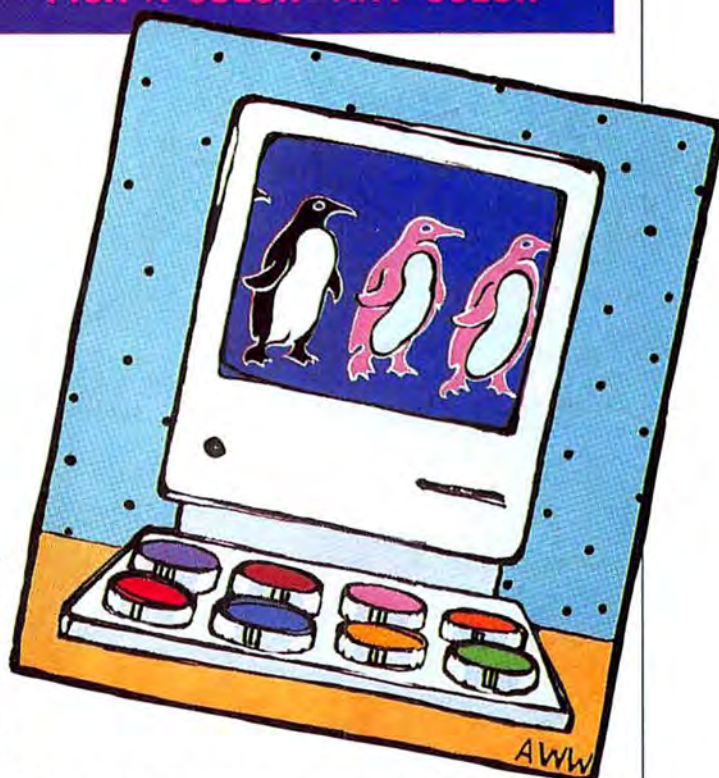
Steve Jobs, former Apple head honcho, is expanding his interests far past the world of microcomputers. The Pixar division of Lucasfilm, responsible for the Pixar Image Computer, was bought up by Jobs for an undisclosed sum (reportedly in the millions). Certain key departmental heads were retained by Jobs to manage the company, which is responsible for some of the spectacular effects seen in today's motion pictures. The Pixar machine is one of the most powerful graphics and animation generators in the world, hundreds of times faster than machines of the same genre. Wasn't it Jobs that thought that high-speed color graphics weren't that important for a computer?...—DB

## UPDATES

Do you have the latest versions of your programs? Most programs indicate what version they are when you look in the **About** . . . choice at the top of the Apple menu. If your version isn't the latest, contact the publisher about possible upgrades. Look for addresses in our MiniFinder section. Here's our list (as of press time).—SB

Aztec C	1.06g	MacLabeler	2.0
BatteryPak	1.11	MacPaint	1.5
ColorChart	1.3	MacProject	1.0
ColorPrint	2.01	MacSpell+	1.07
ConcertWare+	3.0	MacTerminal	2.0
Copy II Hard Disk	5.0	Mac Tools	5.0
Copy II Mac	5.0	MacWrite	4.5
Dollars & Sense	1.3	Mac Zap Copier	4.1
Excel	1.01	Mac Zap Tools	3.5
ExperLISP	1.04	Mac Zap Patcher	3.1
ExperLogo	1.1	Microphone	1.0
Factfinder	1.1	MS BASIC	2.1
Fedit	4.0	MS Chart	1.00
Finder (HFS)*	5.1	MS File	1.01
Finder (MFS)*	4.1	MS Fortran	2.1
FONTastic	2.5	MS Word	1.05
Font/DA Mover	3.0a	Multiplan	1.1
Front Desk	1.0	Omnis 3	33.10.MAC
Gato	1.3	OverVUE	2.0c
Hard Disk Utility	1.21	PageMaker	1.1
Hayden Speller	1.2C	QUED	1.3
Helix	2.0 r5	Quick & Dirty Utilities,	
Home Accountant	1.03	Vol.1	1.5
Jazz	1A	Quickset	2.0
Just Text	1.1	ReadySetGo	2.1
MacDraw	1.9	Red Ryder	7.0
Mach	11.1	Slide Show Magician	1.3
		Smartcom II	2.2A
		StatWorks	1.2
		Switcher	4.4
		ThinkTank 512	1.1
		TimeBase	1.6
		Top Desk	1.2
		TurboCharger	1.11
		VersaTerm	2.00
		*HFS is Apple's new Hierarchical File System that comes in ROM in the Mac	
		Plus, MFS stands for Macintosh File System and is the old, "regular" file system.	

## PICK A COLOR—ANY COLOR



ANJA WREGBO-WELLING

SoftStyle, Inc. has a new version of its *Colormate* software that allows for "color painting" on the Macintosh and printing on the ImageWriter II in eight colors.

Macintosh users can import black and white pictures or text created by *MacPaint*, *MacDraw*, *MacWrite*

and others to be colored, then printed in color.

*Colormate* is compatible with any Macintosh and requires an Apple ImageWriter II printer with a color ribbon. For further information, contact SoftStyle, Inc., 7192 Kalaniana'ole Hwy., Honolulu, Hawaii. 96825. (808) 396-6368.—RBK



# New ON THE MENU

## IT'S OFFICIAL: SCULLEY NAMED APPLE CHAIRMAN

The inevitable finally happened on January 29, 1986: John Sculley was named Chairman of Apple Computer Inc. by the board of directors immediately after Apple wrapped up its fifth annual stockholders' meeting. This comes as a surprise to absolutely no one. —TFH

## WHAT'S YOUR I.Q.?\*

### \*ICON QUOTIENT

A document icon is usually a chip off the old block, bearing a strong resemblance to the icon of the application that created it. How many of these application and document icons can you match? And, how many can you identify? Give yourself 2 points for each correct icon match and 5 points for each correct program identification. The maximum score, including the sample that's already done, is 126. (Identifying marks on icons have been painted out.)

Your I.Q. Ratings:  
Over 105: Genius  
90-105: Superior  
75-90: Above Average  
60-75: Average  
45-60: Not So Hot  
Under 45: Abysmal—switch to IBM

—Sharon Zardetto Aker

## RUMOR MANAGER

Look for a new spreadsheet in the summer that will make Excel seem small, slow and lacking. The new program (from a major IBM house) will allow total formatting on a cell-by-cell basis... Borland's TurboPascal is still in the future (way in the future) and TML Pascal is rapidly becoming the Mac's TurboPascal... at least a half dozen special-purpose word processors will be on the street by Christmas 86... three interactive, semi-intelligent accounting packages will be released by midsummer... Wozniak's return to Apple will be celebrated with innovative new systems software for both the Mac and the Apple II (programs that

will run on the same machine)... new power supply boards will be designed for the Mac and offered as a free upgrade... notice how the game company ranks are shrinking due to buyouts and mergers? There'll be only two biggies by this time next year. Any guesses on which ones they'll be?... the dominant Mac products in the second half of the year will all be hardware products... a third-party will offer a real color screen option (not just colorized documents) and it'll sell for under \$5000!... Apple will introduce at least two new laser printers by the end of the year. One will be a low-priced, personal (read that

as slow) machine, the other will be a low-priced (but not quite so low) high-end office machine, capable of between 12 and 18 pages per minute... after Sir-Tech made Mac users wait a year for the first Wizardry scenario, look for all the others by late summer... color printing features will be standard in all business software very soon now... beta test versions of an "interesting" new integrated product have been showing up recently... the disk market is about to take a very colorful turn... a new modem will radically change how Macs talk to other computers... look for a real price war in the word processor market.

1. MacPaint		<input type="checkbox"/>	10.	<input type="checkbox"/>
2.	<input type="checkbox"/>	11.	<input type="checkbox"/>	
3.	<input type="checkbox"/>	12.	<input type="checkbox"/>	
4.	<input type="checkbox"/>	13.	<input type="checkbox"/>	
5.	<input type="checkbox"/>	14.	<input type="checkbox"/>	
6.	<input type="checkbox"/>	15.	<input type="checkbox"/>	
7.	<input type="checkbox"/>	16.	<input type="checkbox"/>	
8.	<input type="checkbox"/>	17.	<input type="checkbox"/>	
9.	<input type="checkbox"/>	18.	<input type="checkbox"/>	

A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R

Answers:  
1. H MacPaint  
2. I File  
3. F Deluxe Map  
4. G Decision  
5. M Filevision  
6. J MindSight  
7. L Know It's Here Somewhere  
8. K MusicWorks  
9. A Slide Show  
10. D Infocom game  
11. E MacDraw  
12. R ConcertWare  
13. C OverView 2.0  
14. N MS BASIC  
15. P MS Chart  
16. B VideoWorks  
17. I Professional Composer  
18. Q Crunch

## REACHING OUT TO AT&T

Although rumors of a takeover of Apple by AT&T have proved to be singularly false, there are moves under way to bring the two companies together, at least from a product standpoint. MacLine is software that provides electronic mail, file exchange, printer sharing and terminal emulation to Macs and/or other computers connected via AT&T's Information Systems Network (INS). Touchstone and AT&T have reached an agreement to co-market the products with the network. According to Touchstone, the software provides automatic conversion for certain types of files as they are transferred between computers with differing operating systems. MacLine, which will sell for \$145, and similar products should further heat up the business networking mess, especially with connections to PBX systems recently announced by AT&T. —MDW



# Drive 16 Macs 50 Times Harder

20 Meg  
Internal for  
Mac Plus + 512k

## The MagNet™ 20 Meg MultiUser Internal Hard Drive

### The MagNet 20™ Hard Drive

Mirror Technologies introduces one of the most powerful Macintosh hard drives available. The MagNet 20 combines great value, expandability, speed and portability to give your Mac amazing capabilities.



### This Internal Hard Drive Is Fast And Portable

Mirror Technologies has teamed up with Infosphere, to develop a special version of MacServe™ (XL-serve, the predecessor of MacServe, is the **most** popular AppleTalk™ network software in the world!) MacServe software adds all of the capabilities and features of the best Mac hard drives available today, plus the ability to share peripherals, programs and data with multiple computers. As your needs grow the MagNet 20 already contains the power and versatility to handle your computing to go.

### Packed With Features

The MagNet 20 allows you to print spool, disk cache, protect files with passwords, partition volumes and fully or incrementally backup your data. The MagNet 20 is the most powerful single or multiuser storage solution available today.

### Rugged Design/One Year Warranty

The MagNet 20 uses a hard drive specially designed to withstand treatment that would "crash" the competition. The patented drive head lifter in the MagNet 20 pulls the read/write heads away from your precious data upon power off. This means you and your Mac can travel with confidence.

### The Powerful Single User Solution

Purchase the MagNet 20 as a **very** powerful single user drive and simply add the inexpensive AppleTalk network cables to allow multiple Macs to access shared programs, data and peripherals!



### Multiuser Capability at a Single User Price

Stop in at your nearest Apple authorized dealer for a demonstration of the MagNet 20.

Drive 16 Macs 50 times harder.

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612-426-3276

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# New

## ON THE MENU

### LASSER HELPS WITH TAXING PROBLEM

Still haven't filed your 1985 income tax forms? Simon & Schuster wants to help. The company's *J.K. Lasser's Your Income Tax* is available in many major bookstores, with a huge red and yellow combination package and instruction manual that's just about impossible to miss.

For \$79.95, users get everything they need to prepare and file all their 1985 income tax forms, plus the entire text from the book of the same name. Finished forms can be printed out and sent to the IRS faster than you can say "tax evasion." —TFH

### APPLE CHANGES HISTORY?



Steve Jobs may have left Apple, but his name lingers on, inscribed inside the case of every Mac. But in a recent

retooling of the plastic case, Apple eliminated the names of many other Mac team players. —TFH

### APPLEGATE?

There are many secrets behind closed doors in Cupertino. Sometimes information manages to leak out, or an outsider manages to break in. The recent "AppleGate" break-in supplied this information about products under development:

#### THE MOUSE-TRACK

The new mouse has some strange-looking rubbery appendages on its upper body whose use becomes apparent when you flip the mouse over. The appendages form a stand for the track ball that was the mouse's belly; a slightly recessed button on the flip side is easy to reach with the thumb as your other fingers twirl the ball.

#### NEW KEYBOARDS

One new keyboard design solves the problem of the new keyboard being too long to fit into a standard carry-case: the numeric pad section slides inside the main body for storage. The telescoped keyboard is less than an inch longer than the original Mac keyboard.

The most exciting new keyboard is actually a keyboard construction kit! The board itself has a surface of velcro-like metallic fiber; the separate keys have tiny hooks around their bottom



edges that lock onto the board. When you press a key, its center shaft slides downward, and a chip in its underside makes contact with the metallic mesh, signaling which key has been pressed. This means that Mac can identify the key based on its individual identity, instead of by its position on the board.

The basic kit comes with the standard alphanumeric

keys, two space bars of differing lengths, and your choice of three Return keys. The Construction Kit Plus includes extra numeric keys and cursor control keys, as well as a longer main board; a deluxe version includes diagonal cursor keys in addition to the standard ones and a track ball that fits through a pre-cut hole in the mesh (since the mesh is reversible, you can have the

track ball on the left or right side of the keyboard).

#### COLOR FILTER

Never mind color boards—now you can keep the incredibly high resolution of the Mac, and have color, too. It's as simple as a special snap-on screen filter that turns shades of gray into red, green and blue. Black remains black, and the usual white background has a light blue tint similar to screen photographs.

#### RING DRIVE

The Ring Drive is an ingenious breakaway from today's mass storage system. The "disk" is a cylindrical cartridge that stores 3200K of data. It remains stationary in the drive; the read/write head is a ring that travels the length of the cylinder. The ring reads or writes around its entire inner circumference at once, resulting in an incredibly fast transfer of data.

There were other products also in various stages of development, but these seemed the nearest to completion. It's always hard to predict release times for new products, but look for most of these to be out within six months of the "AppleGate" date of April 1st.—Sharon Zardetto Aker

KIM EVERS

CHARLES WALLER



# Drive 16 Macs 50 Times Harder

## The MagNet™ 20x MultiUser External Hard Drive

### The Mac Plus and 512k Solution

Mirror Technologies MagNet 20x™ offers speed, portability and great software to provide you with the most powerful single or multiuser hard drive available. The MagNet 20x™ plugs straight into your Mac Plus SCSI port or with our FastPort™ option you can inexpensively get "Plus" performance out of your 512k.



### Rugged Design/One Year Warranty

The MagNet 20x™ hard drive is specially designed to withstand treatment that would "crash" the competition. The patented drive head lifter in the MagNet pulls the read/write heads away from your precious data upon power off. This means large storage and high confidence are not mutually exclusive.

### Midget Size, Monster Performance

The MagNet 20x™ is packed with features. Our software allows multiuser access, print spooling, disk cache, password protection for files, volume partitioning, multitasking and full or incremental backup of your data. What all this technical jargon means is that as your computing needs grow the MagNet 20x™ has the power built in. No upgrades necessary, it's *all* there.

### We Give Great Software

MacServe™ from Infosphere™ is included with every MagNet 20x™...free. A \$250.00 value. MacServe includes great single user features but also allows multiuser access to your Mac. Imagine the value of sharing data and peripherals with other Macs in the office. Don't spend money on unnecessary printers and hard drives. The MagNet 20x™ will make the most of the equipment you already own.

### Mac Plus Power for your 512k?

With our FastPort™ option you can add the speed and SCSI capability that the Mac Plus has to your existing 512k without replacing your motherboard. The FastPort™ installs easily with no modifications to your Mac. FastPort™ is also inexpensive, you can have the performance and speed of the Mac Plus for less than one-fourth the price of the Apple upgrade.



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PANEL DISCUSSIONS AND SEMINARS

Friday and Saturday, throughout the day  
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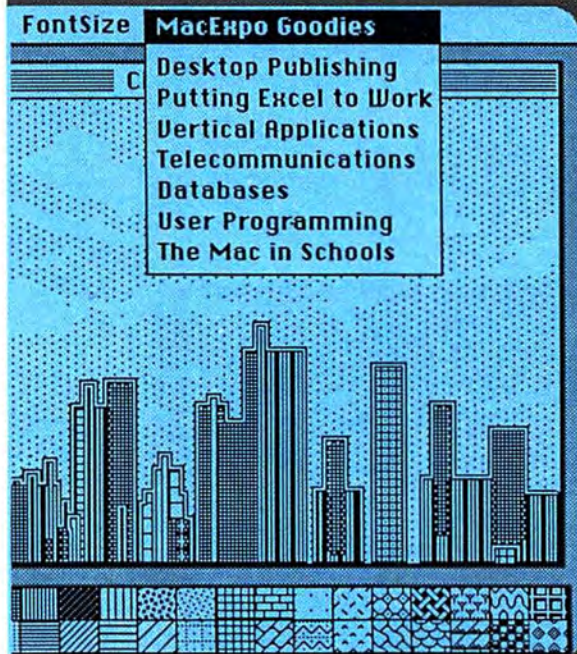
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Tickets available at the door.



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really learn *how-to*. Here is where you get the answers, make the decisions, and meet the people—to *maximize your Mac!*

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# THE WORLD OF MAC

by Michael D. Wesley

The MacWorld/Apple II World Expo held in January was different from other Mac shows. In the first place, it was held in San Francisco, and San Francisco, although wonderful, is different. There doesn't even have to be a qualifier on that statement, such as "different from Boston," or "different from Las Vegas." Just saying that the city by the bay is different is sufficient.

The MacWorld Expo was also an Apple II family (Ile, Iic) show, so there were a lot of non-Mac people, products and users wandering around. The show was the site of a huge conference for Apple dealers, educators and industry moguls. Although the conference was held off show premises, it brought a great many people from around the world to the show floor at various times. The whole extravaganza also served as the launching pad for Apple's new products, the Macintosh Plus and LaserWriter Plus.

There was a lot going on at the expo and more than enough Macstuff to fill a column, but unfortunately there was a dark side to this particular show that needs to be brought up first.

Palo Alto Shipping is a small company that does *Mac I*, a multitasking implementation of Forth on the Mac. Palo Alto Shipping was at the show displaying its product and trying to drum up business. As was true for all the exhibitors, Terry Noyes and company had a lot of equipment there to demonstrate their product. Between Friday night and Saturday morning, most of their equipment walked off the convention floor, to the tune of about \$25,000. And they were not the only exhibitors victimized. At last count, nine Mac Pluses and at least one LaserWriter (as well as an assortment of personal property) were missing. It was apparently very easy to get a property pass to take equipment from the hall.

The impact the theft had on Palo Alto Shipping and others was devastating. And unless security measures are beefed up at future shows, many small developers might stay away. That would be tragic for them and for the Mac community, because for the most part, small developers stole the show.

Of course Lotus, Microsoft, General Computer, Hayes and other good-sized companies were present and had some exciting announcements to make (although the Lotus booth was singularly empty every time I went by). General Computer debuted the HyperDrive 2000, a 20-megabyte internal hard disk and its Hypernet file-serving software, and also announced a "strategic alliance" with Apple and Blyth Software (*Omnis 3*) to sell networking and database solutions to businesses. "Strategic alliance" was the biggest new catch-phrase at the show. All it means is that Apple and some of the other companies are finally going to work together to help build new markets for the Mac and Mac Plus.

It was really the smaller developers who brought the most excitement to the show. Levco displayed a souped-up Mac with a 68020 processor. SuperMac Technology showed one of the first hard drives to take advantage of the new SCSI port on the Mac Plus. Silicon Beach showed *SuperPaint*, a full-screen, upgraded version of *MacPaint* that can blend bit-mapped and object-oriented (*MacDraw*-style) artwork and prints in color on the ImageWriter II. And Casady had a new set of four downloadable font families (Bodoni, Calligraphy, Sans Serif and Regency Script) for the LaserWriter.

Another market of great importance

to Apple, desktop publishing, was supported by a wide variety of products including one very interesting item out of Bellevue, Washington that's not from Microsoft. *Set and Send* is software that automatically generates typesetting codes for text. Options such as hyphenation, kerning and letter spacing are selected from a dialog box and files are translated quickly into code usable by Compugraphics typesetting equipment, either through a direct cable connection or via modem. Formatted text can be proofed on the screen or printed out on the ImageWriter before sending.

At \$970, *Set and Send* is pretty expensive, but for companies that do a lot of typesetting, it may prove very cost-effective in the long run. For more information, contact Byron Lawes at Set and Send Technologies, Inc., 545-108 Ave., NE, Suite 6, Bellevue, WA 98004.

Kurta Corporation, which manufactures several sizes and styles of graphics tablets, showed the PenMouse. PenMouse is a great little graphics tablet and pen with a difference. Most pens are connected to tablets by a cable. The PenMouse is not — it is a free-standing pen with electronic circuitry built in that makes the cable unnecessary. I only spent a little time with it, but I must say that the lack of a cable made the PenMouse much easier to use than a normal graphics tablet.





There were also some off-the-wall people and products around the show. One of the most unusual products to come my way in a long time was *MacMiniatures*. Created by Julia Ulano (her company is named JemmStar), *MacMiniatures* is a set of *MacPaint* images for miniature furnishings, drapes, carpets, books and so on. The printed images fold into little objects that completely furnish a dollhouse-sized living room, fireplace included. Some of Julia's cut-outs appeared on a ClickArt Holiday Disk put out by T/Maker. For more information about *MacMiniatures*, contact Julia at JemmStar, 974 Mount Curve, Altadena, CA 91001.

Another strange but fascinating product is EZ-Mouse. EZ-Mouse is a soft plastic antifriction pad that fits on the bottom of a mouse. Actually, it's not a pad, but a thin sheet of clear plastic with an adhesive surface. Stick it to the mouse, and it makes operation of the mouse quicker and smoother.

EZ-Mouse is also supposed to prevent the wearing down of the mouse pins, a dreaded problem hardly ever addressed. According to Jim Ruch of Hi-Tech Products, when mouse pins wear down, the mouse tends to rock and becomes less than accurate. Hi-Tech Products also

claims that EZ-Mouse can prevent fraying of mouse pads or wear on a desktop surface. Such a deal, and a package of six runs \$9.95 plus shipping and handling. (You need six EZ-Mice because they eventually wear down themselves.) Hi-Tech Products is located at 8331 Artesia Blvd., Buena Park, CA 90621.

Be on the lookout for a book from Microsoft Press called *Zen and the Art of Macintosh*. Michael Green, the author, spent about an hour showing me his manuscript and it is truly... something. With a fabulous combination of digitized and hand-drawn Mac artwork that spreads across pages and often includes the author's face, *Zen and the Art of Macintosh* recounts Michael Green's personal odyssey as a noncomputer person discovers the Mac. The book ends with a look at Zen concepts and a section describing how the artwork was generated. Fascinating stuff, even if you don't get into Zen.

Still more unusual artwork is offered by a company in Eugene, Oregon. Called the MacMemories Series, it is a collection of 13 disks filled with classic, turn-of-the-century images that run the gamut from cowboys and Indians to comic figures and even silhouettes. Many if not all of the images appear to have

been digitized from old books, magazines and drawings and are very high quality. The disks sell for \$39.95 each. A ring-bound book containing printouts of all of the images is available for \$5.00, although it comes free with three or more disks or "The Medallion Series," which is the name for the complete collection of 13 disks. For more information, contact ImageWorld, Inc., at PO Box 10415, Eugene, OR 97740. There was too much going on at the show to describe everything, but at least this provides a sampler.

My last item does not come from the show, but it's intriguing anyway. For anyone interested in Forth programming, there is a Forth Interest Group with over 5000 members and 80 chapters worldwide. FIG (I love acronyms) publishes *FORTH Dimensions*, a bi-monthly magazine that is free to group members, and provides other services (including health insurance) and an online database for a membership fee of \$20. I guess the health insurance is necessary because of the slings and arrows inflicted on Forth programmers by devotees of other languages. Anyway, if you're interested, contact Linda Kahn at 1327 Rosburn Ave., Hawthorne, CA 90250. ☐

# Mac Disks

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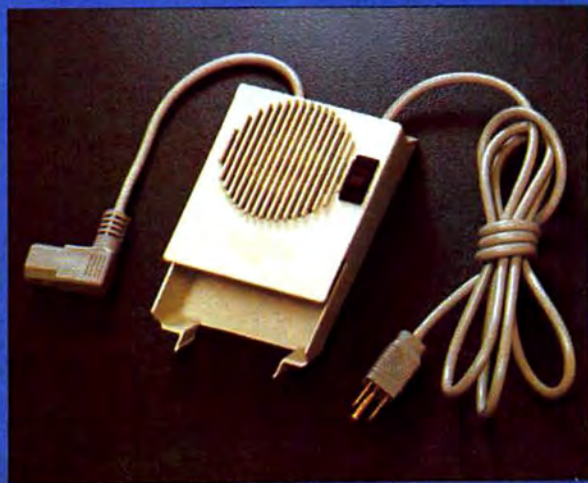


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# A DISPLAY OF INTELLIGENCE

by Doug Clapp

Let us now praise Jerry Daniels. Who? Jerry Daniels. I'm sure you've seen him; his digitized picture is at the bottom of all those Mac Underground ads. It's kind of a wide, blank-looking face made of dots.

Who is this guy?

Well, in person, he's not composed of dots. He's blond and cheerful. Midwestern. He looks like he comes from Iowa. He does come from Iowa, in fact. He even lives in Iowa. With a wife and two kids. They're also probably cheerful and look Midwestern.

None of which matters very much to this column. This is what matters: Jerry Daniels is maybe the brightest, highest-powered Macintosh Visionary we've got these days. What's-his-name in exile doesn't count. Besides, what's-his-name can't (as far as I know) write for beans. Daniels can write. Boy can he write.

Jerry Daniels is the creator and proprietor and instigator of Mac Underground. Mac Underground is a...well, Daniels calls it an "information utility." And it is, I guess. More than anything, Mac Underground is a concept.

The concept works like this. There's a Mac Underground in Iowa. They've got a snazzy bulletin board and a snazzy communications program called *Courier*. When you "join the Underground," they send you—among other things—the *Courier* communications program.

*Courier* is designed to mate exclusively with the MU BBS. You wanna see files to download? Use the scroll bar. It's Macintosh all the way. Somebody should give this guy an award.

What's on the bulletin board? Everyday stuff like public domain software and shareware. Good programs (with accompanying documentation, for once!), but you've seen them before.

What you haven't seen are "Notes from the Mac Underground" and the "Daily Grapevine." Each day, there's a grapevine file, written by Jerry or Mary Jane Mara, Jerry's wife (also a heavy-hitter). Every week, there's an installment of "Notes."

The grapevines contain inside stuff: who's selling what, what's new, what's good, what's lousy, what works, what

doesn't. If you want to know Inside-ry Mac Things before all your friends do, this is the place.

The longer pieces are solid journalism or way-out-there visions. Computer visions, people visions, society visions. I used to think some of my stuff was on the edge. These days when I'm on the edge, Jerry Daniels is still a speck in the distance. A faint voice, far away, saying "Look at these technological, societal consequences! Whoa!"

Jerry feels about Macintosh the way some people used to feel about LSD. "Here: Try this and tell me what you think!" He may also understand the idea of "Macintosh" better than anyone.

Case in point. If you download a "comparison of internal hard disks" from MU, you'll find not only text, but pictures! Digitized photos of Macs, uncased Macs, and close-ups of power supplies. Another file may include *MacPainted* schematics, or portraits of hardware wizards, or maybe a picture of Jerry riding a Cable Car in San Francisco. This is a man who understands what you can do with a Macintosh. Oh, there's also a printed newsletter each month. Twenty pages and growing fast.

But MU isn't just a whizzy bulletin board and newsletter. MU is also a VAR, or value-added reseller of Apple products. If you belong to MU, you can buy almost anything—hardware, software, gizmos—at phenomenal prices.

We need to get back to the Mac Underground concept for a minute. You don't buy products through Mac Underground, usually. You buy products through Underground "Safehouses."

The Safehouses are franchises, sold by MU, each with their own bulletin board and services and proprietor. Each Safehouse services a particular area of the country. Safehouses are to Mac stuff what Hardware Hanks are to nuts and bolts.

The pricing works like this: Mac Underground buys at "distributor prices." That's a lot less than "dealer prices." Then they add a modest 3% markup. The Underground Safehouses, who do the actual selling, add another 10% markup. The result, almost always, is the best price you're likely to find anywhere, particularly for Macintosh hardware.

And what hardware! MU, being a VAR, can't sell you a plain-old Macintosh. Only Apple dealers can do that. Beyond that, MU is perfectly happy to sell "anything anybody wants," according to Daniels.

MU can't sell you a vanilla Mac, but they can sell you a Macintosh fitted with a third-party memory upgrade, a third-party hard disk, a built-in modem (1200 or 2400 baud) and, probably, a set of Holley carbs and a pair of fuzzy dice. Mac Underground is a dream come true for Macintosh Power Hardware People.

Daniels admits that "We have good prices, but the primary thing with us is information. We tell people: if you don't need it, don't buy it. Because tomorrow it'll be cheaper and better." Okay, but it's still a dream come true for Power Hardware People.

To date, there are eight Safehouses, and more to come. Daniels hopes to eventually have a Safehouse in every state. He probably will.

Where did this guy come from? From a Roman Catholic background, ten years spent teaching transcendental meditation (including a stint in Switzerland), rock bands, studies with Buckminster Fuller, and a career as an "Information broker"; a professional data detective, prowling the electronic information nets. No wonder he considers MU primarily an "information utility" and Macintosh an "intelligence amplifier," with an interface that will allow "more people to display their intelligence."

This is a man who not only understands Macintosh, but understands the difference between Macintosh and IBM. "What gripes me about IBM," he says, "is that they've continued the tradition of catering to 'the big boys.' I'm not a 'big boy.' I'm one of the little guys."

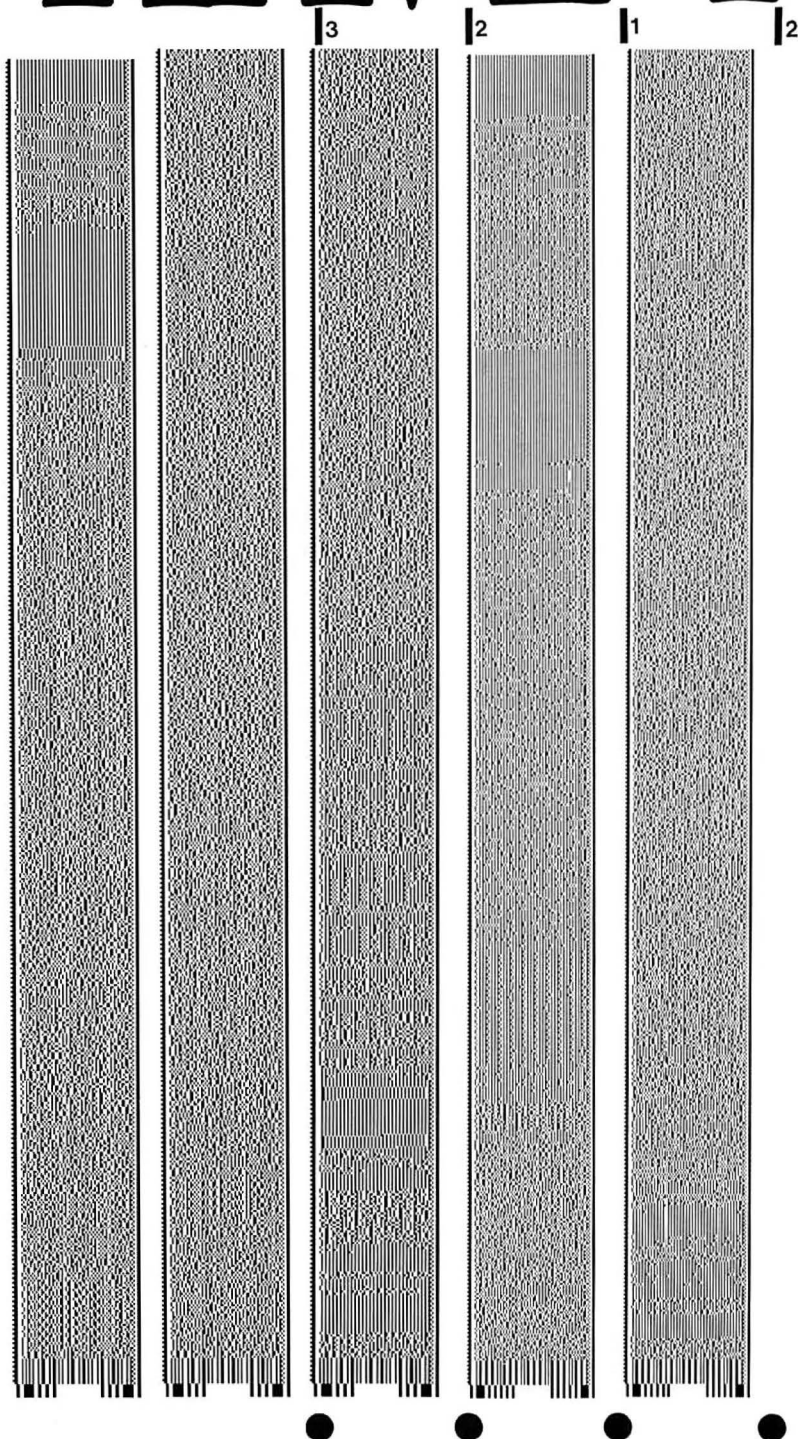
No, you're not, Jerry. ☐

Contact the Mac Underground at 607 North Court, Fairfield, IA 52556. Mac Underground membership is \$39.95 a year.





# HAVE YOU ST



1  
It's a question more and more Macintosh owners are asking. And no wonder. What everyone is talking about is Softstrip™. The revolutionary technology that is changing the shape of computer software.

The Cauzin Softstrip System is more than just software or data on paper. Because when you invest in this system, you can do much more with your computer, and for far less than you are probably spending now. You can even create and print out your own data strips.

But that's only the beginning of an offer that's going to make you wonder why you haven't stripped yet...

The data strips on these six pages include six programs and a directory with instructions. They are numbered as follows:

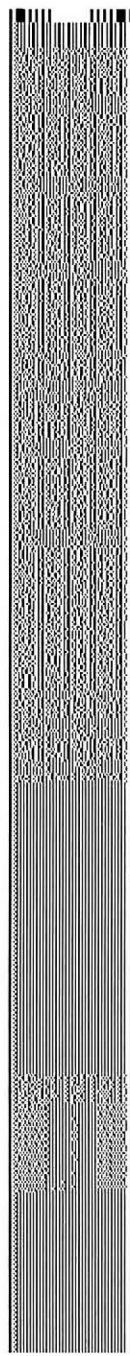
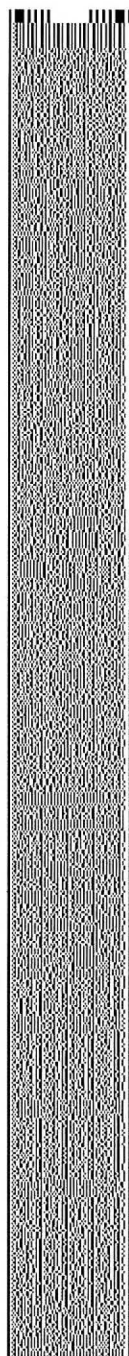
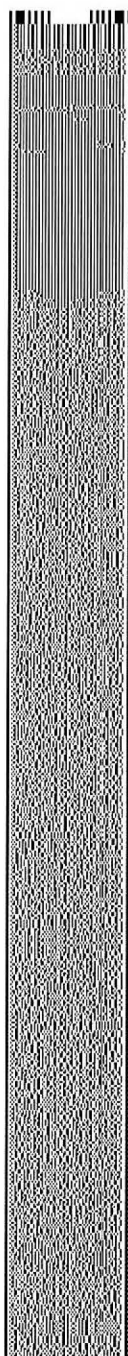
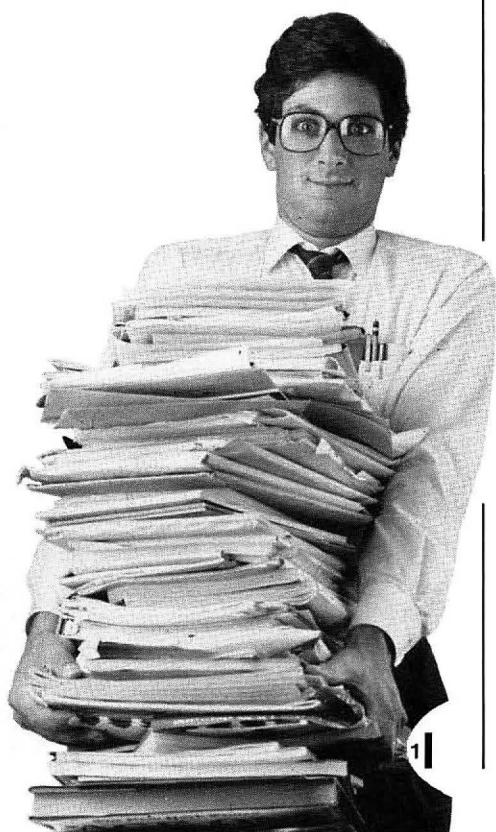
- A — Directory and Instructions
- B — Smile
- C — Slide Show
- D — J Clock
- E — Banner
- F — Mac Bugs
- G — Connect Four

All these programs are brought to you from the Boston Computer Society. Read and enjoy!

**Softstrip**  
COMPUTER READABLE PRINT



# RIPPED YET?



1

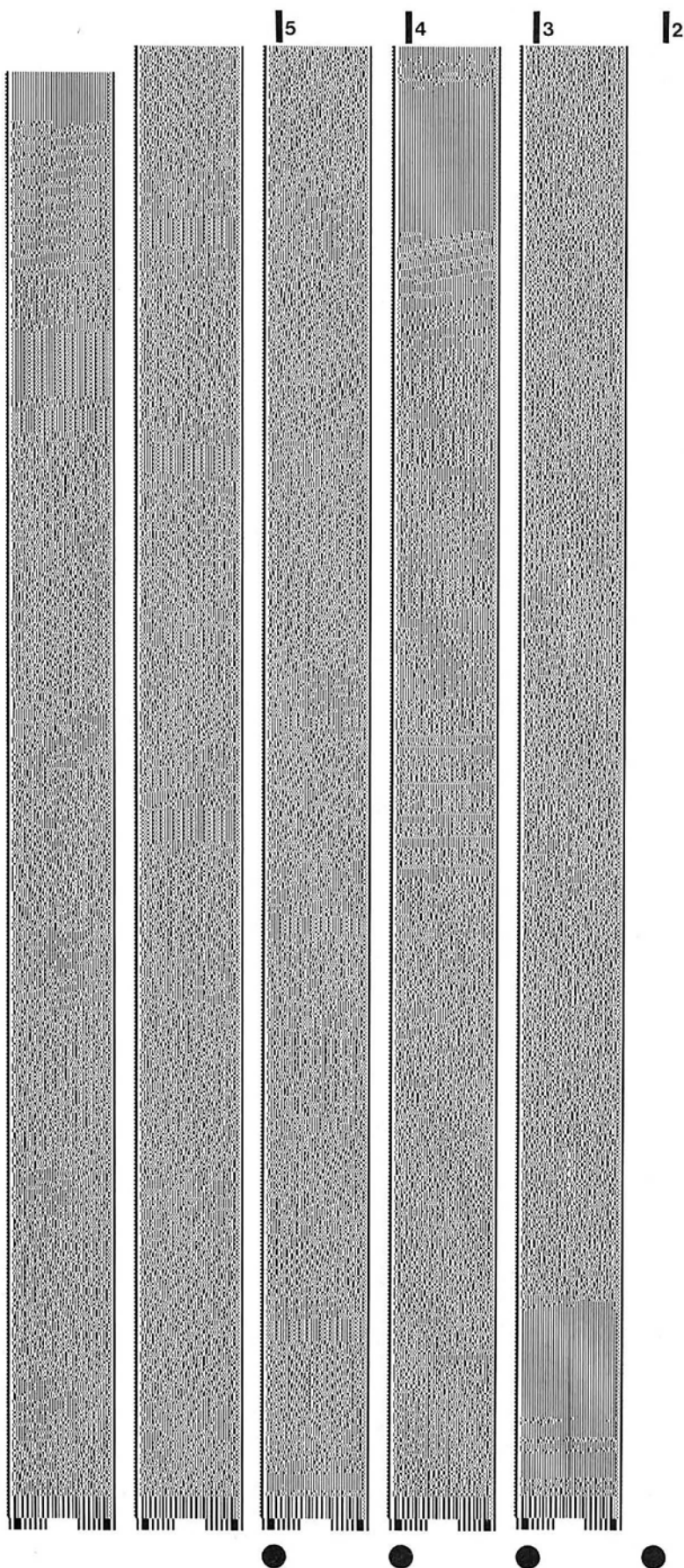
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2





### TAKE OUR ADS (SUCH AS THIS ONE)

It's part of the expanding Cauzin StripWare™ Library containing programs, data, clip art, spreadsheet macros and templates. The Library features a variety of software applications and you'll find new material appearing each month in such leading magazines as MAC Apple, MACazine, Mac User, MacWorld and Nibble Mac.

### BUT THERE'S STILL MORE . . .

When you invest in the Softstrip System, you get the Softstrip reader, a special storage base, and a full one-year replacement warranty. Also included with your purchase is a complete Accessory Kit containing connector cables and communications software to link your Macintosh to the reader.

In addition, you'll find a StripWare Library Sampler of 23 programs from a line-up of popular authors and publishers that includes Addison-Wesley, Family Computing, Hayden Books, Nibble Mac, Osborne/McGraw-Hill, The Waite Group, and John Wiley & Sons.





When you become a Softstrip reader owner, you also get a FREE one year StripWare Club membership with programs mailed to you monthly. You'll even receive a FREE Caizin Effect Newsletter filled with the latest updates and news about Softstrip developments.

There's also StripWare™ brand software in authorized Softstrip dealers across the country. Our collection of titles include everything from utilities, graphics and entertainment to business programs.

There is even a StripWare package that lets your Macintosh talk. All for only \$2.98 to \$19.98!



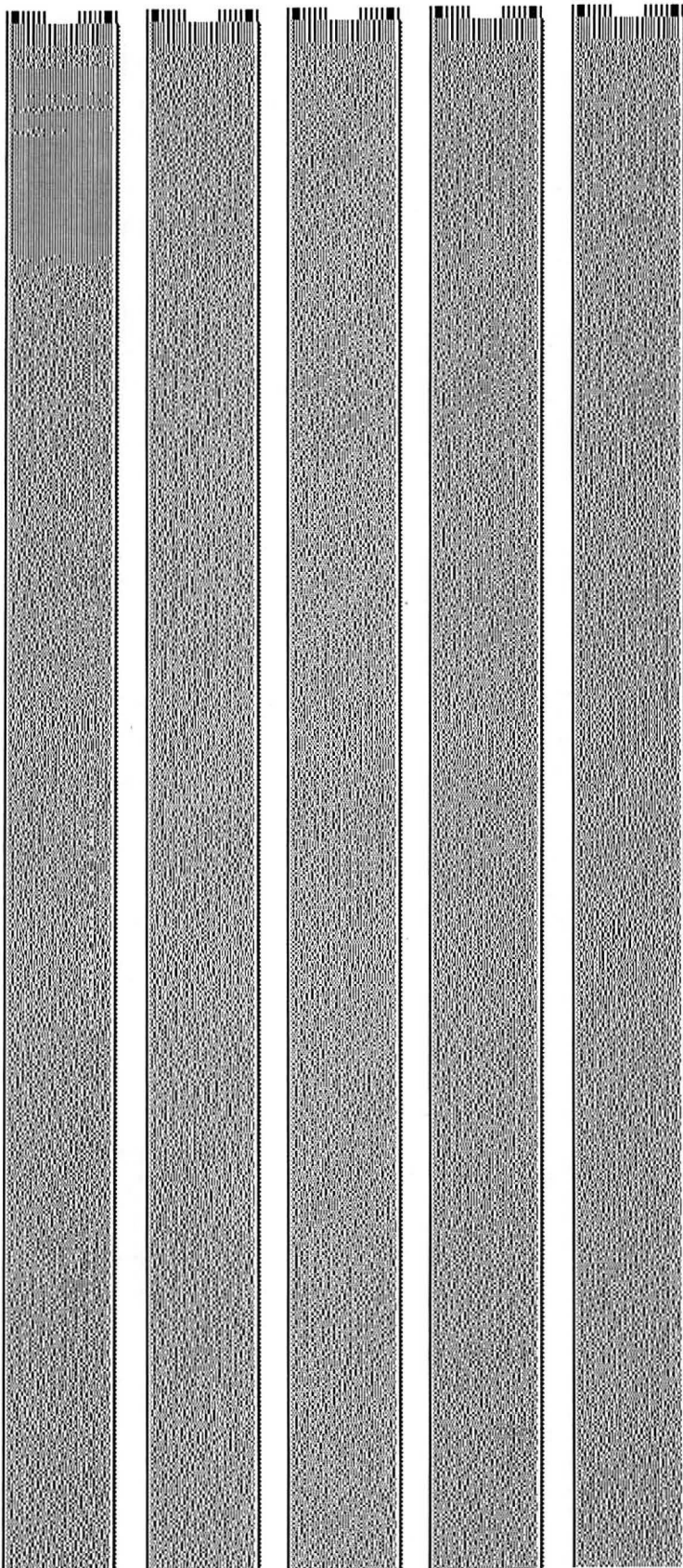
1 |

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1

6

## AND IF THAT'S NOT ENOUGH TO START YOU STRIPPING...

Do you want to create your own data strips? Well, now you can with a special StripWare program called "STRIPPER" that lets you print your disk files as strips using your own Imagewriter printer. The printing software is only \$19.95, but just think of the things you could be stripping. Store backup files on your paper. Print, copy and mail your own programs to others easily and inexpensively. Even exchange ASCII or binary files between different types of computers.

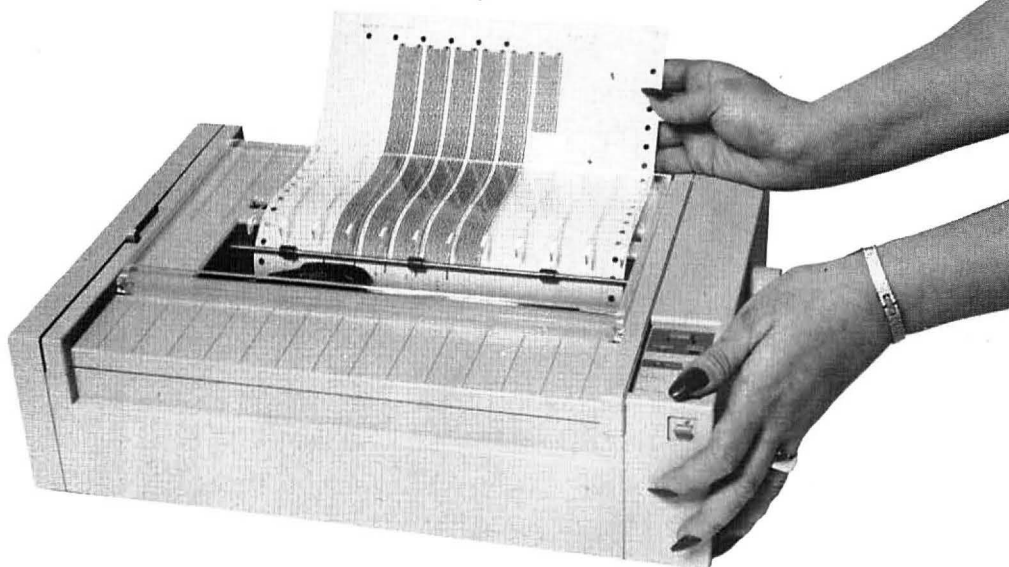
And all you need to start is the Softstrip System. You get everything you need to read strips (like the ones you're seeing in this magazine and others) for just \$199.95.

The CAUZIN SOFTSTRIP SYSTEM. It's what Macintosh owners everywhere are talking about. So what are you waiting for? Shouldn't you be stripping too?

For the Softstrip System Dealer nearest you (or if there isn't one in your area, to order), call toll free:

**1-800-533-7323**  
(in Connecticut,  
203-573-0150)

**Softstrip**  
COMPUTER READABLE PRINT





## HOW TO STRIP

It's easy to read strips.

- 1) Just load Cauzin's communications software into your Macintosh.
- 2) Pick up the reader and lay it on the strip.
- 3) To the side of the data strip you'll see a black dot and a short black line (such as the ones found on these pages). These are your alignment marks.

Place the reader so that its loop fits over the black dot and the edge of the reader just touches the black line.

- 4) Click "Read Strip".
- 5) That's all you have to do. The strip is read automatically, and its contents are saved to disk. You can use the file in the same way as if it had come on disk originally.

**NOW YOU CAN PRINT YOUR OWN STRIPS!**

## "STRIPPER"

It's the make-it-yourself Softstrip™ data strip program. STRIPPER software lets you strip your disk files onto paper.

Put up to 800 bytes on each strip and up to 7 strips on each page. And, if you use a good copier, duplicate the strips you've made.

**REQUIRES:** All you need is your Macintosh and an Apple Imagewriter printer, the reader and you're ready to strip!

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Address \_\_\_\_\_

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835 South Main Street

Waterbury, CT 06706

Attn: Macintosh Stripper

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# Q U I C K

What's new, what's happening in the world of Mac? We'll keep you up-to-date with our monthly Quick Clicks.

## AZTEC C

List price: \$199 (basic system); \$299 (development system; the version reviewed); \$499 (commercial system). Requires 512K or more. Published by Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. (800) 221-0440.

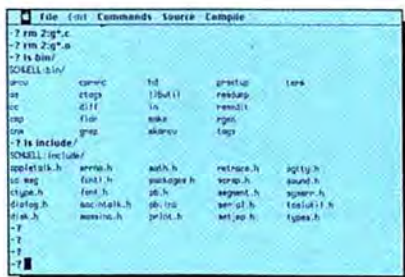
Using Aztec C is rather like driving a stripped-down, supercharged car where every ounce of deadweight has been removed—including seats, seat belts and the radio. It's dangerous, but boy, does it zoom!

Aztec C is probably the best C compiler/assembler/linker available for developers. It interfaces with the Toolbox better than most other C's, supports floating point math, compiles fast, produces fast code and includes common UNIX-C extensions such as `qsort` and `scanf`.

The *Shell* is unique to Aztec C and sets it apart from other compilers. The *Shell* comes with the package and replaces the *Finder*. It resembles Berkeley-UNIX and

greatly speeds up program development on the Mac. The *Shell* supports *stdin*, *stdout*, *I/O redirection*, *streams*, *exec files*, and comes with three dozen utilities (*grep*, *make*, *diff*, a *ramdisk*, etc). Users have the option to write even more utility programs that will work only under the *Shell*; these tend to be much shorter than full-fledged Mac applications.

Aztec C includes source text for a host of



different example programs, including a sample desk accessory and a sample MDEF resource (for non-standard menus).

Telephone support is excellent; and Manx

maintains a bulletin board that users can call to obtain new examples and ask questions.

Aztec C also supports a number of calls listed in *Inside Mac* that don't have trap macros: most C's simply omit those calls. These "extra" cells include *GetIndStr* and *FSDelete*.

Aztec C allows programs to specify functions as type *pascal*, such as *pascal void*, *pascal int*, *pascal long*—such functions will use Pascal stack conventions instead of C conventions. No other C allows this; they all force the programmer to write assembly-language glue when creating items such as new kinds of controls, menus or Dialog Manager filter procs.

This package doesn't use standard MDS (Macintosh Development System) linker conventions, so programs compiled with another system cannot be linked in. But you can buy a separate utility from Manx to convert MDS to Manx.

The 800-page manual is mandatory reading, and it helps to have a feel for both the toolbox and machine logic. Aztec C is a serious tool for programmers interested in developing applications.—Gilbert Colgate

## TOP DESK

List Price: \$59.95. Published by Cortland Computer, PO Box 9916, Berkeley, CA 94709. (415) 845-1142.

Yet another set of desk accessories? Includes an appointment calendar, a finder replacement and a calculator, right?

Wrong. *Top Desk* is a set of seven self-installing (and self-removing, if you wish) desk accessories, with a mix that is very different from all other similar sets. Some of its DAs can be found in other sets

(Launch, BackPrint, Blank and Encrypt all have counterparts elsewhere), but some (Menu Key, View and Shorthand) are unique and extremely useful.

The non-copy-protected disk is accompanied by a superb 26-page manual. Since all the DAs self-install, uses simply double-click each in turn, after making sure the System they wish to install them into is the startup disk. Any or all can be installed. None are particularly large (in total they add 41K to a System), and all run on any Mac. At press time, the current version (1.2) had difficulty installing some of the DAs into the HFS system, but an upgrade will be available by now.

The best DA is Menu Key. It allows users to assign Command key sequences to most menu commands. Those cases where Command key sequences can't be installed or won't work are clearly explained in the manual. This DA can't be beat for ease of use or usefulness.

The View DA allows users to open up to eight formatted *MacWrite* documents at once. Users can scan documents while in other documents or applications. Cutting, copying and pasting between documents is

possible.

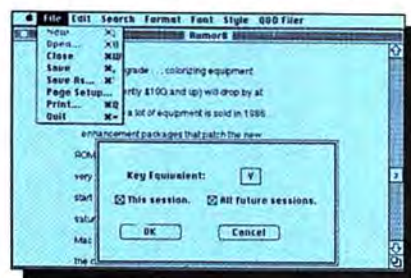
The Shorthand DA creates glossaries. Up to 10,000 entries can be created, if there is room on the disk for the resulting file. Adding entries is simple and the DA works without any hitches.

Encrypt can convert any document into unrecognizable, password-locked gibberish. It is very fast, the fastest encryption program available, and seems reliable (it didn't eat or harm any test files, no matter what was done to them).

BackPrint prints documents from most applications in a background mode. It works with *MacWrite*, *Word* and numerous other programs (not *MacPaint*, though). Performance improves when more RAM is available.

Launch transfers from the current application to any other application. It is simple and works flawlessly. Blank is a simple screen saver. It will automatically activate after a user-set idle time. Cortland has provided a null application so that Blank can be automatically activated at boot up.

This innovative set of desk accessories will make everyone's Mac an even friendlier computer.—SB





# C L I C K S

## ENCHANTED SCEPTERS

List Price: \$39.95. Published by Silicon Beach Software, PO Box 261430, San Diego, CA 92126. (619) 695-6956.

*Enchanted Scepters* evokes the same excitement one might have felt at the first introduction of talking pictures. Playing *Enchanted Scepters* is a surround sound experience, an audiovisual delight.

Silicon Beach Software extensively utilizes the Mac's graphics and sound capacity to enhance this interactive adventure. Almost every move presents the player with a new picture or a miraculously realistic

sound. True to the Mac interface, the player's use of pull-down menus, optional keyboard commands and, most importantly, the mouse, is essential to the game.

Your task is to find the four scepters of Earth, Air, Fire and Water, and to bring them back to the castle. During this quest, players always have available information on their physical and spiritual well-being, the use remaining of their armor, spells and weapons, and their accumulated experience and wealth. Given the simplicity of the mission and some serious limitations in the parser, the adventure provides surprisingly variegated settings, tests and enemies to overcome. In addition to the scepters, there are scores of weapons, treasures and spells awaiting discovery. Adventurers explore forest, desert, sea, jungle, cave, mountains, underground chambers, a sphinx, a temple and more. There is magic to be found and used, too.

The graphics and the commensurate sounds are so excellent that being drawn into the game is an inevitability. The numerous fights would become quickly tedious if not for the grunts, groans, growls, clangs and twangs of battle. Indeed, the battles still become tedious; learn when to run away. Also, players die too easily, so save your position frequently.

First appearances make it look as though this is an easy game. But perseverance

leads to a few difficult puzzles which can only be solved with thought and with some judicious use of the mouse, which can often be used to manipulate the graphic images. In addition to taking objects, your mouse can open hatches, unlock doors and lower drawbridges. There are some delightful moments.

And some terrible moments. On a 512K Mac it takes (count them!) more than two and a half minutes from insertion of the disk to the start of the game. This delay is unnecessary and unfortunate, setting a slow pace which daunts adventurers. On a Mac+, one must start up with some other disk, then insert *Scepters* and double-click it. Also, the parser is frustrating. None of the usual shortcuts apply. One can't type the usual "y" or "n" for "yes" and "no." One can't "take" or "pick up" an object; one can only "get" or double-click it. And there is no sense whatever of story line. Although players find many wondrous objects, they have the capacity to carry very few.

Because almost all these problems are evident at the start, players can be discouraged from continuing. However, the pleasures are worth the pursuit. *Enchanted Scepters* has surprisingly diversified, delightfully innovative elements and provides a modicum of intellectual challenge. At its best, this is a game of action and of experiencing. —Linda Joan Kaplan



## DOCUMENT COMPARE

List price: \$99. Published by The Model Office Co., Inc., The Gooderham Flatiron Building, 49 Wellington St. East, Toronto, Canada M5E 1C9. 1-800-268-8181.

There comes a time in every writer's life when there are two versions of the same piece to examine. They're different, but you're not sure how they differ. So you sit down with both documents side by side and look for the differences.

*Document Compare* can solve that dilemma, and while it's at it, tell you how many words are in a document—that is, if the documents are MacWrite 4.5 documents. That's this program's main drawback. It doesn't work with Word documents, it doesn't work with MacWrite 2.2 documents, it doesn't even work with plain text documents.

The program does tell you a lot about MacWrite 4.5 documents, though. It counts the number of rulers, pictures (graphic elements) and words, which it defines as

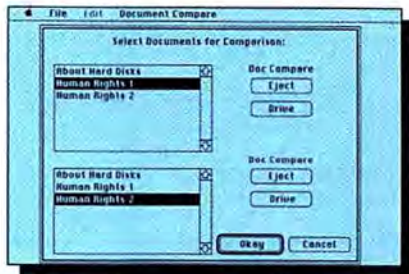
blocks of text between any two blank characters. Words include punctuation, tab and return characters, and a series of blank characters is considered equal to one blank character.

Any two documents can be compared. Document selection occurs in a custom selection dialog box. After the documents are selected, the first step of a comparison is the count. When that is completed, the documents appear in a two-part screen, one above the other. When initially drawn, each document's screen takes up half the screen, but either portion can be resized as desired.

The differences between the documents appear in a reverse, white on black typeface. You can't miss them. The custom reverse image font is included and can be installed in any System. Users can choose whether size, style or case differences and the return and tab characters should be ignored or recognized. Both documents can be printed out with their differences highlighted.

The program is fairly quick, although it can't be accused of being fast. When text is being drawn in the comparison window, it is

drawn line by line, not the fastest procedure. Overall, however, the program worked at an acceptable speed on both large and small documents.



*Document Compare* can handle large documents. Although nothing over 30K was tested, documents approaching that size were handled well.

The program does not work with HFS, since it uses a nonstandard file selection method. An upgrade is planned for HFS users. There is excellent on-screen help available via menu selection. If you write or edit MacWrite 4.5 documents this program is a blessing. —SB



## DIETMAC

List Price: \$79. Tess Data Systems, Inc., 17070 Red Oak Drive, Ste 403-B, Houston, TX 77090. (713) 440-6943.

Is your body getting some or enough of the nutrients it needs? Are you overdoing fat intake?

If you're diet conscious, the kind of person who tends to keep a watchful eye on what you put into the old burner, then DietMac is a useful program to have. DietMac is a database full of foods, and the



nutritional information it contains can help assemble meals for any part of a day, and, yes, it even works for snacks.

DietMac's three-part startup screen covers different facets of each food users choose from for their daily menus. The Menu window is where most information appears. It serves three purposes, displaying all food names, their quantities, and which have been selected for the day's menu. Click on the Add button to add a food to a menu.

Over 778 food names are alphabetically listed, and any given food can be reached by scrolling to it or simply typing its first letter. Then users are immediately taken to the area in the food list that contains that food.

The second part of the screen shows the composition, vitamin and mineral makeup of the highlighted food. Composition data changes with every selection made to reflect the new values for the new selection. When a meal name is highlighted (as in "Lunch," for instance), the composition of nutrients for the whole menu appears.

The last part of the screen displays the Find and Menu buttons used to switch from

one section to the other in the Menu window. Alongside are ten selection boxes, six of which are boxes for specifying a range for calories, carbohydrates, total fat, cholesterol, protein and sodium contents of the food entries. Select ranges from "any" to "high." Four of the boxes are dedicated to modes that allow access to food selections from within each category, such as food group, course, meal and food type. A menu option for abbreviations used within the program facilitates understanding what some of the more obscure abbreviations mean. The Tables menu is also an aid to understanding weights and measures in both dry and liquid equivalents.

All new selections are added as they are made. Up to seven days can be accumulated on one diet sheet. If calorie counts don't add up, users can cut from one menu and add to another. Customize your data by adding any foods not listed, or update nutritional information through the Modify Food Data option.

Since it is said that you are what you eat, with DietMac tracking your dietary intake the chances are that you may not have to worry.—DG

## SPELLSWELL

List Price: \$49.95. Published by Greene, Johnson, Inc., 15 Via Chualar, Monterey, CA 93940. (408) 375-2828.

Some writers refuse to use one, others can't live without one. Spelling checkers are a very personal product. You either want a great one or you don't want one at all. And you know the answer. Now.

So far, spelling checkers for the Mac haven't been an impressive lot. Spellswell changes that. This standalone spelling checker combines power with performance. It checks for incorrect hyphenation, contractions, homophones and homonyms. The program works with MacWrite 4.5 files, Word files (any version), and all text-type files.

The dictionary is large (approximately 80,000 words) and you can easily add or delete items. When Spellswell finds a questionable word, it displays the word highlighted and in context. You are also pre-

sented with a suggested "best guess" correction and the section of the dictionary right around the suggested correction. If you don't accept the suggestion, you can type in your own word. As you type the dictionary rapidly scrolls to that area. If the word desired appears before you finish typing it in, just click on it and it fills in automatically.



There is an option to replace words every time they appear with no further intervention on your part, a nice touch especially if you've misspelled a word many times in a

document. Other options allow capitalization and homonym checking. Simple menu toggles turn all options on or off.

Adding words to the dictionary is particularly easy, using a well-designed entry screen. All commands can be activated by menu selections or keyboard equivalents. And as a final touch the program gives you a word count when it's finished.

While a desk accessory spelling checker would seem preferable, this program is so well designed and implemented that using it at the end of a session to check all your work is no burden. An example of the program's excellent design is what Spellswell does when it finds a misspelled first word in a sentence. Say a sentence starts "Whn." Most spelling checkers would, without human intervention, change that to "when." Spellswell will change it to "When." That's what it should do.

The dictionary is well chosen and will not bother users with silly questions or words that are obviously valid. The program ran well and reliably and is a good addition to the writer's program library.—SB

## TEMPO

List Price: \$99. Published by Affinity Microsystems, Ltd., 1050 Walnut Street, Boulder, CO 80302. (303) 442-4840.

Yes, the Mac is an easy computer to use. Yes, all the commands can usually be found somewhere in those pull-down menus. But when you already know what has to be done to accomplish a specific task, it can become quite a dull experience

selecting and reselecting the same series of commands over and over again. Wouldn't it be nice to have the ability to avoid doing just that? Say hello to Tempo.

Tempo lets the Mac do what IBM owners have been doing for ages: create macros. Mouse commands, text entry, cutting and pasting, just about anything that you do can be recorded and the procedures can be recalled and played back at any point.

Simply put Tempo into Record mode and it will faithfully track everything you do. But





# POWERful statistical software from BRAINPOWER

## introducing... StatView 512+™

StatView 512+ offers more analyses and greater data handling features than the original StatView while retaining the original's capability for interactive data analysis.

StatView 512+ contains all the statistics on StatView plus the following statistics not found there:

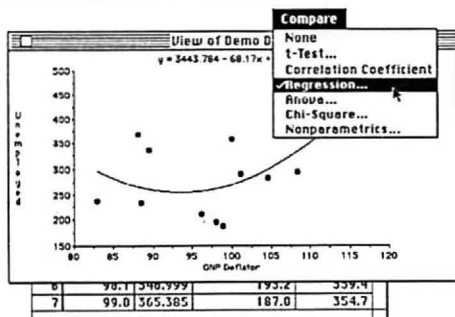
- Multivariate Analysis techniques for Exploratory Factor Analysis with orthogonal & oblique transformations
- Step-wise Regression
- One through Four Way ANOVAs with repeated measures & unequal cell frequencies
- Scheffe test (One Way ANOVA)
- confidence intervals, standardized beta coefficients, adjusted  $r^2$ , & Durbin-Watson for Simple, Multiple, and Polynomial Regressions
- 8 x 8 Contingency (Frequency) Table analysis
- user specified confidence intervals (t and normal distribution).

StatView 512+ 's advanced data handling capabilities include:

- ability to run concurrent analyses on multiple columns (results viewed in a paging window)
- set columns: allow users to create columns containing alpha-numerics to identify data (ie. patient, sample, etc.) and to code, sort, and group data
- string columns: allow users to document data
- composite graphics to compare results of analyses or plots of data on the same axis
- interactive graphs allow users to control origin, borders
- bar charts, box plots, & error bars
- graphic window can be enlarged to full screen size
- quick variable designation.

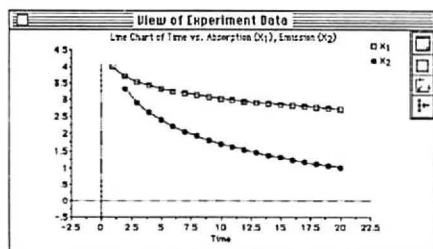
StatView 512+ requires a Macintosh with at least 512K RAM and 2 disk drives to operate.

**StatView 512+ \$349.95**

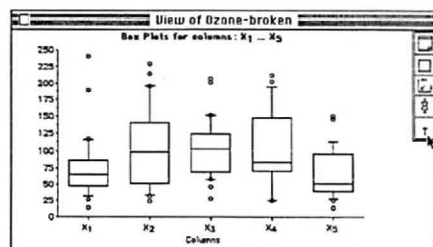


Polynomial Regression Scattergram

call for demo disk information



Composite Graphics



Box and Whisker View

## StatView™

StatView, the original, interactive, graphic statistics utility, computes the following statistics.

- **Descriptive Statistics:** mean, standard deviation, standard error, variance, median, mode, frequency distribution, kurtosis, skewness, geometric mean, harmonic mean, sum, sum-squared, count, minimum, maximum, missing values
- **Comparative Statistics:** one & two sample paired/unpaired t-tests, correlation coefficient, ANOVA, simple regression, multiple regression, polynomial regression (w/ ANOVA tables & residuals), contingency tables
- **Nonparametric Tests:** Chi-square, Wald-Wolfowitz Runs, Mann-Whitney U, Kolmogorov-Smirnov, Wilcoxon signed-rank, Kendall rank & Spearman rank-order correlation coefficient, Kruskal-Wallis, Friedman

StatView presents analysis results in table form, bar chart, line chart, pie chart, or scattergram form. The program includes: extensive transformation capabilities; sorting; selection of data for analysis by criteria; column definition by formula, and more!

**StatView \$189.95**

**BrainPower, Inc.** 24009 Ventura Boulevard, Calabasas, CA 91302 (818) 884-6911

Please circle 133 on reader service card.



*Tempo* takes things one step further by allowing the macros to respond intelligently to different situations. Macros can branch to other macros, depending on what the user types into a dialog box. A procedure can repeat itself a specific number of times or until it sees a particular chunk of text. It can pause for seconds, minutes or hours, or until a specific time (AM or PM) to do something. You could set up your Mac to call a database service at a predetermined time, when the phone rates are lower. Custom dialog boxes with instructions for complex situations can be created to assist the meek. *Tempo* will be invaluable for

people programming custom database and business systems.

*Tempo* can be programmed to activate immediately upon starting up the computer, and it remains active between different programs, so that data can be automatically moved from one program to another. Macro files can be edited once they're created, by playing them back and modifying specific actions. The files can also be sent to friends that also have *Tempo*, paving the way for macro "libraries."

Macros can be activated by either selecting them from *Tempo's* main dialog box, or by assigning them Command and Option key

combinations.

*Tempo* is a desk accessory, a very large desk accessory. It needs at least 60K free on the disk when it installs itself. The program can be used on floppy disks, but a hard disk makes life much easier. And it's not fully compatible with every program (*ReadySetGo*, for example), so it may be wise to contact Affinity to see if it works with the software you plan on using. The documentation is well written, and does give advice as to what does and doesn't work, and hints as to what works best. Even with these few limitations, *Tempo* is a valuable addition to a serious user's library.—DB

## MAC THE RIPPER

List Price: \$49.95. Published by Miles Computing, 21018 Osborne Street, Building #5, Canoga Park, CA 91304. (818) 341-1411.

If you don't think the name of this graphics/fonts disk set is appropriate, just open up the *MacPaint* file titled "The Big Ripper." The demonic dragon in this file is a good example of the stylized artwork that makes *Mac the Ripper* so very unique in the galaxy of clip-art disks. Both disks were created by one artist, Trici Venola, who's definitely one of the stars of the Mac graphics world.

Two disks are included in the package, one with a multitude of *MacPaint* files, the other with a series of large (one 36 point, the rest 72 point) fonts. The fonts, like the

artwork, are very stylized and attractive. The nine fonts include graphics fonts, a beauti-



ful old-west style face, some very modern urban fonts, and some other blockbuster typefaces based on the styles of famous underground artists. Some of them, such as Rick Griffin 72, are noticeably incomplete, but overall, most of them are useful. Be-

cause of their size, though, it's advisable to use them on a 512K machine only; a 128K machine doesn't have enough memory to handle fonts this size.

The graphics are, in one word, gorgeous. The 13 different files cover a broad range of subjects, from the standard holiday fare (Christmas, Thanksgiving, Easter) to strange dingbats (tiny detailed clowns, bike riders, borders). A lot of the graphics look as though they were digitized, and then extensively cleaned up, to the point where it's hard to determine their origins. Some of the objects are a bit too large to be extremely useful, but overall, the quantity and quality are consistently high. It would have been nice to see the fonts more completely executed, simply because these are some of the most creative fonts yet seen. In the end, you'll find yourself wishing that there were more files, a good sign in a clip-art disk.—DB

## SCORE IMPROVEMENT SYSTEM FOR THE SAT

List Price: \$60. Published by Hayden Software, 650 Suffolk Street, Lowell, MA 01854. (617) 937-0200.

Spring is in the air, and there's more to it than just flower scents and love songs. It's time for high school students to start studying for the most grueling—and important—test in their academic careers. Many school admission boards make or break you on the basis of SAT scores, and Hayden wants to help Mac owners get in to the (consortium?) college of their choice with its *Score Improvement System for the SAT*.

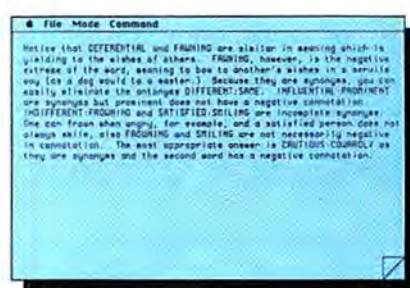
Ever see those huge Barron's SAT study guides on bookstore racks? That's about what you get with this disk-based drill-and-practice session: plenty of practice tests in the areas of vocabulary, reading comprehension, algebra, geometry and quantita-

tive comparisons.

While of course there are a few disadvantages to a disk-based study guide (you can't use it on the bus, for example), this program offers something no book can possibly deliver: a tutor mode that gives students immediate feedback about their multiple-choice answers. Tutoring options include displaying explanations for all answers or tutoring only those questions the student has answered wrong. After each question is answered, the tutor mode screen appears when appropriate.

The reading portion of the test is depicted in Monaco font, which many find harder to read than Geneva, and there is no way to change font displays for more comfortable viewing. But aside from that, the program adheres well to the Mac interface, with all possible actions taken care of through the mouse. Just mouse to the choice you want, click, and the computer takes care of the rest.

The reading comprehension test was a bit harder to use than it would be in a book, since only so much text can be displayed on the Mac screen at one time. This means that when the time comes to answer questions based on reading a short passage,



there's no way to quickly and easily reference the material being tested unless you scroll back through numerous pages. There is also a punctuation mistake in the first passage we read. Tsk!

Despite its drawbacks, *Score Improvement System for the SAT* takes a lot of the drudgery out of practice testing for the Big One. Students can dump their test results to the *ImageWriter* when they're done (the program doesn't support the *LaserWriter*), with the machine tallying scores and percentages quickly and without any fuss. Students who hate slogging through thick textbooks will enjoy this no-nonsense approach to practicing for the SAT.—TFH



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## "Mac Underground is a dream come true for Macintosh™ Power Hardware People!"

Doug Clapp, co-author of *The Complete Macintosh Sourcebook*

HI. I'm Jerry Daniels (national director of Mac Underground) sitting in for our regular corporate image--Mr. Rick. We chose Rick and his French Resistance image to illustrate our position as distributors of high-grade intelligence, far-out equipment, and technical support.

You've probably seen Mr. Rick in our other ads. He's a good guy, but he smokes too much...so while he's away at a smoke-enders weekend, I thought I'd slip in and comment on Doug's quote.

Doug Clapp became a member of the Mac Underground last summer. I'm pleased that--as a member--he thinks we're the organization for Mac power hardware people. WE think we're spreading the power of the Mac over a larger base of people--and creating more power users.

The Underground does give you a "power edge". We supply you with first-hand knowledge and direct access to equipment that will transform your Mac. We help you discover the souped-up, super computer you need to ride the tumultuous waves of the information age all the way into the twenty-first century.

### A TICKET TO RIDE

A ticket to the future via the Mac Underground will cost you \$39.95. It's good for a year. For that kind of money you get a copy of our telecommunications software Underground Courier™, twelve months of unlimited entrance (via your modem and phone) to an Underground SafeHouse™, free member classifieds, and access to outrageous discounts on hardware, software and accessories for the Mac direct from Online Publishing Systems. (More on OPS later.)

Let's get back to Courier and the Safe-Houses it accesses: we think Courier represents a real landmark in telecommunications. You use it with a Hayes-compatible modem to point/click your way into a local SafeHouse.

Once in a SafeHouse you can copy daily intelligence reports, Mac article abstracts, art, documented public domain programs, and demo software. You can also send messages to your MU Bishop™ (the person who runs your SafeHouse). But local SafeHouses are not just outlets for our info. Read the next column.



### A STRATEGIC ALLIANCE

The Underground SafeHouses provide service, support, and installation for a company called Online Publishing Systems. OPS is an Apple value-added reseller (VAR). OPS sells its Mac value-added products directly to our members. This is the same sort of strategic alliance that Apple has with General Electric. Maybe on a different scale, though, huh?

For some, our best feature is still the the great deals on products that OPS offers to our members (and other selected clubs, fraternities, and associations). These products include innovative hardware items like the OPS Internal Mac Modem designed by Larry Dziegielewski, master engineer for OPS.

### YOU CAN GET INVOLVED

If you look at the list of SafeHouses below and don't see your state, you should apply for a SafeHouse license. Licenses aren't free, but you've probably got the hardware you need to get started, and Bishops make money! (No vows of poverty here.)

Maybe we really are a dream come true! Call us and decide for yourself. Ask for a complete dossier on the Mac Underground (brochure for those who don't like spy jargon). Or, better yet, just get it over with and join the Underground. Doug can't be that far off, can he?

FOR MORE INFO:  
MAC UNDERGROUND  
HEADQUARTERS  
607 North Court Street  
Fairfield, Iowa 52556  
(515) 472-9613  
10AM-4PM Mon.-Fri.



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BY STEVEN BOBKER

# THE MACINTOSH MAZE

***A Mac owners' guide to navigating the current catalog of Apple hardware options.***

TIMES WERE SIMPLE FOR A MAC buyer way back in early '84. If you wanted a Mac, you had one model with one configuration to choose from. You either got the 128K Mac or you didn't.

There was one option. You got an ImageWriter printer or you didn't. That was it. The Mac listed for \$2495 and the printer went for \$495. Units were so scarce that many people paid full retail list for their Macs. A full system listed for \$2990.

With the Mac, you got a small plastic box containing the System software and *MacWrite* and *MacPaint*. If you looked around a bit you might have found a copy of *Microsoft BASIC*, version 1.0. That was it. At the very beginning there was no other software.

Many Mac owners first met other Mac owners during the daily pilgrimage to their dealer to see if anything new had come in. Many user groups were formed in dealers'

showrooms, waiting for the salespeople to check what was in that day's arrivals. Of course, new programs arrived very rarely. One of the first was *Habadex*, a rushed program that had so many flaws that it became virtually a joke among those Mac people looking for "real" programs.

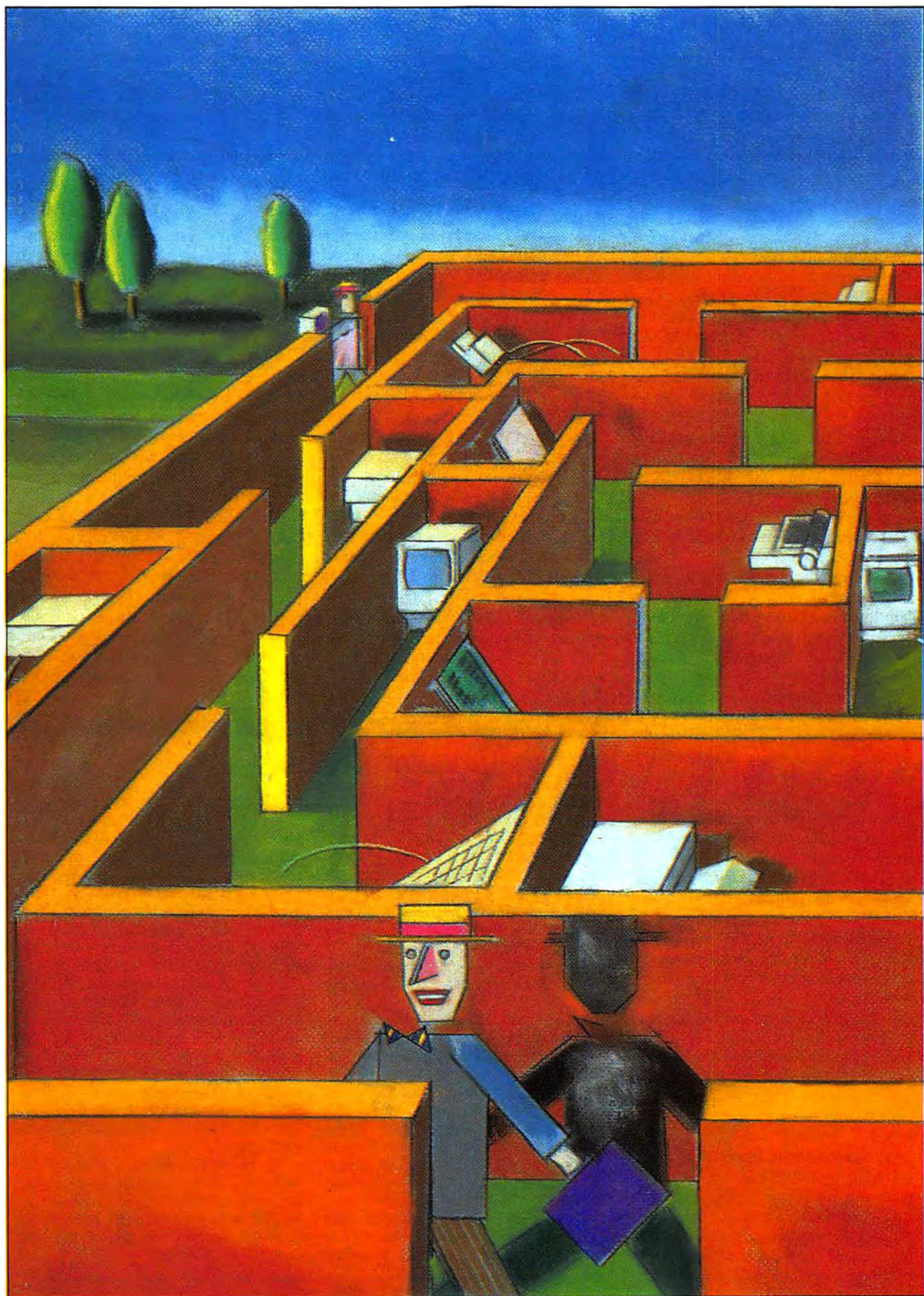
Every month the computer magazines were eagerly scanned for their ads. Promises of truly innovative and great programs abounded. Virtually all of these were late, often months late, and some never did make it to market. But the ads and those programs that did appear fueled interest and imagination. They were the promise of things to come.

Telecommunication programs were nonexistent. A very early, unfinished version of *MacTerminal* was passed around, but it could do little more than connect users to another Mac running *MacTerminal*. Telecommunications basics, such as error-corrected transfers, were impossible.

In the spring Dennis Brothers wrote and released his *MacTep* communications program to the public domain. Mac users could and did finally start communicating with each other on a nationwide scale. The most active and influential forum was the MAUG special interest group on CompuServe.

Also in late spring, Apple released its eagerly awaited 400K external disk drive. This drive, the only cure for the dread Mac disk swapping







# THE MACINTOSH MAZE

disease, sold for \$495. And rumors started to get around that the much-needed memory expansion to 512K would occur sooner rather than later. It had originally been promised by the end of the year.

The Mac 512K debuted in early September. It carried a list price of \$3195 and units were sold as fast as they could be made and shipped. This machine finally started to deliver on the promise of Macintosh.

Owners of 128K Macs could upgrade their machines for \$995, a price that generated howls of outrage in the user community. In an attempt to soften that blow, Apple gave upgraders free copies of *MacProject* and *MacDraw*, a \$250 value at then-current list prices. That wasn't enough to stifle the cries, though, especially since *MacDraw* wasn't shipped until around the end of the year.

Software started to appear. Lots of good programs became available, although certain categories were prominent by their absence. For example, *MacWrite* remained the sole word processor.

The first months of 1985 brought new hardware and software. On the hardware front the LaserWriter was introduced, along with the basic connectors and cables of the AppleTalk personal network. The LaserWriter, every bit as revolutionary as the Mac, listed for \$6995, and was in short supply.

When Apple announced its LaserWriter in January 1985, it also announced a 20-megabyte file server for delivery later in the year. A file server is a hard disk that has special programs to let multiple users access material on it. The LaserWriter and the file server were to anchor the Macintosh Office. That file server still hasn't appeared on the market, and it doesn't seem likely to appear any time soon. Third-party file servers are only now starting to fill the gap.

The price of the memory upgrade dropped to \$695, but the free software was no longer included. Third-party companies started to offer lower cost memory upgrades.

In April, new, improved System software was released along with

new versions of *MacWrite* and *MacPaint* that used the Mac more efficiently. Software that could drive (or utilize) other printers (letter-quality, ink-jet and other dot-matrix units) became available. A top of the line system (512K Mac, external drive and ImageWriter printer) listed for \$4290, but could often be obtained at a substantial discount. Street prices often were around \$3500 for the top system.

By summer, with the release of *Jazz*, software became abundant. Microsoft *Word* had joined *MacWrite* in the word processing category in January. Games and databases, utilities and speciality programs were released to the marketplace en masse.

Mass storage of programs and data was always a problem. The Mac's original design didn't allow for efficient use of a hard disk. There wasn't a fast port (plug) to connect one to. The first hard disks had to use a relatively slow serial port. Data transfer rates were way below those on all other personal computers. Still, units reached the market. They were slow, awkward to use, limited

in the number of files they could hold and expensive. They didn't sell well.

One innovative solution to the hard disk data transfer speed problem was offered by General Computer Corporation with its 10-megabyte HyperDrive. This internally mounted hard disk was widely praised and much sought. Its major drawback was its high price (\$2195 if you already had a 512K Mac).

By the late summer a second generation of hard disks joined the early units; these included a 20-megabyte HyperDrive. The new units had more capacity and were generally cheaper, although the innovative HyperDrive internal unit was still very expensive at \$2795, again for owners of 512K Macs.

Apple finally put its own hard disk on the market in October. This 20-megabyte unit was marked by its quiet operation, robust construction and a surprisingly low price of \$1499. Other manufacturers quickly lowered their prices in response to it, and Mac owners finally had a reasonable assortment of mass storage de-

## YOU WOULD MENTION CABLES

It's a horrible fact of life. The connectors on the back of the Mac Plus do not have the same shapes as those on the Mac. Some of your cables aren't going to work! In particular, your modem, printer and AppleTalk cables will not work. And the first Mac Pluses shipped with either one or no conversion cables. The logic board upgrade will contain only one conversion cable. You're going to have to get your own conversion cables, either from Apple or a third-party supplier.

Apple has announced that the following cables connect the Macintosh Plus personal computer to Apple and third-party peripherals. We're giving you the part numbers so that your dealer can be sure to get you exactly the cable you need. Unfortunately, prices were not available at press time.

The Apple system peripheral-8 cable (part number M0187) connects the Mac to the ImageWriter II or the Apple Personal Modem.

The Mac Plus peripheral adapter cable allows users to connect the Mac Plus to third-party peripherals without discarding

their old cables. It can also be used to attach peripherals previously used with the Macintosh 128K or 512K. This cable is included in the Macintosh Plus logic board upgrade kit and is part number 699-0372.

The Apple SCSI system cable (part number M2556) links the Mac Plus to the first SCSI peripheral. (You can attach up to eight, all in a row.) Additional peripherals are linked together with Apple SCSI peripheral interface cables (part number M2557). If more length is needed between peripherals, use the one-meter SCSI cable extender (M2558). A SCSI cable terminator (M2559) is required in every SCSI configuration to help filter the line. With more than one peripheral daisy-chained to the system, SCSI cable terminators are used like bookends at the beginning and end of the line of peripherals.

The AppleTalk system connector kit (M2052) links the Mac Plus to the AppleTalk personal network. If you upgrade to the Mac Plus, you can choose between the AppleTalk system connector or the Mac Plus peripheral adapter.



## LASERWRITER PLUS

The LaserWriter Plus lists for \$6,798, while the LaserWriter goes for \$5,999. Current LaserWriter owners can upgrade their printers to a LaserWriter Plus through a dealer-installable upgrade kit. This upgrade path allows LaserWriter users to expand their system as their printing needs grow. The upgrade kit is available from Apple LaserWriter dealers, and sells for \$799.

For those LaserWriter users whose publishing needs grow to require a commercial typesetting machine, Linotype Corporation offers two photo-typesetters, the Linotronic 100P and Linotronic 300P, that use the PostScript language, are fully Macintosh-compatible and 100 percent plug-compatible with both LaserWriter models.

The LaserWriter Plus has all the features and power of the LaserWriter, in addition to seven new typefaces including ITC Avant Garde, ITC Bookman, Helvetica Narrow, New Century Schoolbook, Palatino, ITC Zapf Dingbats and ITC Zapf Chancery. The LaserWriter Plus has an additional one megabyte of ROM to enhance the machine's power.

vices to choose from. This unit also introduced the next generation of Apple file systems, HFS (Hierarchical File System). This system allows users to keep as many files as they want on a disk.

By the time schools reopened most people were aware that Apple would make a major Mac announcement in January 1986. There was much speculation as to what it would be. Maybe we'd finally see the promised "open"-architecture Mac with expansion card slots. Or would it be the Jonathan modular Mac with a variety of screens and keyboards for users to pick from? Or would Apple surprise us all with something entirely different?

### TODAY'S LINEUP

Buying a Mac today is no longer the matter of a simple choice. There are several very different Macs and many different price combinations.

On January 16th, Apple introduced a new machine in an old Mac's clothes. The Macintosh Plus offers substantial new power (and costs \$2699, \$100 more than a 512K Mac

sold for on January 15th). The new machine has a much improved and faster operating System, major portions of which are stored in 128K of Read Only Memory (ROM). All previous Macs had 64K of ROM. One of the major enhancements of this new System is the provision of a true hierarchical file system called HFS, allowing efficient file storage and use on hard disks. The earlier Systems were designed only with floppies in mind, and couldn't handle much more than a hundred files. The new System efficiently handles an essentially unlimited number of files.

The Mac Plus has other significant features. It comes with one full megabyte of random access memory (RAM) and is expandable to 4 megabytes when larger capacity chips are available, probably by the end of 1986. Large models, documents, and databases are easily handled. It has a Small Computer System Interface (SCSI) parallel port that lets hard disk drives transfer data up to six times faster than the 512K Mac could. And up to seven peripherals can be daisy-chained to the Macintosh Plus' SCSI port at one time.

[A cultural note: In the IBM world SCSI is pronounced "scuzzy;" Mac people tend to say "sexy." Just about what you'd expect.]

The internal drive is now an 800K, double-sided drive that runs faster than the old 400K drives. There is also a new 78-key keyboard, which is about 3 inches wider than the old unit. The new keyboard has a numeric keypad built in at the right.

There are also four cursor control keys at the bottom right corner of the main section. These keys don't work with all existing programs (the fault is the programs'), but most new programs should take advantage of them.

The new disk drive is also available in an external unit. The new external drive, with twice the capacity of the old drive and greatly improved speed, lists for the same \$499. That, certainly, is progress.

The basic 512K is still offered, at a list price of \$1995. It is essentially the same unit that you paid \$3195 for in September 1984. While there have been rumors that the 512K Mac will be orphaned when current inventory is exhausted, Apple strongly denies that. It is true that the 128K Mac is no longer being produced, and many programs require at least 512K of RAM. Owners of 128K machines can upgrade using either Apple's 512K memory expansion (now listing for \$449, including dealer installation), or one of the numerous third-party memory expansion kits.

The ImageWriter has been replaced by the ImageWriter II, a faster, better printer that received *Infoworld's* highest rating (5 out of 5 possible symbols and a 9.3 numeric rating, the highest rating of anything yet tested). It lists for \$695.

### OLD SOFTWARE+NEW HARDWARE = ?

Most Macintosh software packages do not have the Macintosh Plus  
(continued on page 118)

Here's a plain and simple suggested price list for the Macintosh product line, as of press time.

512K Macintosh	\$1999
Macintosh Plus	\$2599
Hard Disk 20	\$1499
Apple Personal Modem	\$399
Macintosh Memory Expansion Kit (128K to 512K)	\$449
New ROM + Disk Drive Upgrade Kit	\$299
Logic Board Upgrade Kit (for 512K Macs)	\$599
Logic Board Upgrade Kit (for 128K	

& third-party upgraded Macs)	\$799
Macintosh Plus Keyboard	\$129
LaserWriter Plus	\$6798
LaserWriter	\$5999
ImageWriter II	\$595
LaserWriter Plus Upgrade Kit	\$799
MacWrite	\$125
MacPaint	\$125
Peripheral 8 Cable	\$30
Peripheral Adapter Cable	\$30
SCSI System Cable	\$50
SCSI Peripheral Interface Cable	\$40
SCSI Cable Extender	\$40
SCSI Cable Terminator	\$30
AppleTalk System Connector	\$50



# EDUCATING YOUR GUESSES

BY BARRY L. KEATING

## Forecasting the future with StatWorks and StatView.

WHAT WILL APPLE STOCK DO IN the next 12 months? How might a half-point dip in computer sales affect your business of finances? Will that new union contract really break your company's back, or that new car break your family budget?

These questions are just a few of those problems that no one can predict with certainty. But using a tool called a "single-equation regression model," you and your Mac can help forecast the answers to those, or many other, economic or financial problems. Many private companies, government agencies and individuals spend a lot of money to make financial forecasts, since most decisions can be improved upon if more is known about the future. Short of having a crystal ball, statistical methods are used to make basic forecasts. The secret is all in the model—and in

the program you use to make your calculations.

Here, we're going to teach you how to construct an economic model, using either *StatWorks* or *StatView*. Both programs are excellent for this purpose, and both are complete statistical packages, not meant just for forecasting. Anyone who must use and display numbers is a potential user of one of these packages. Other than creating probabilities, what will they do?

Both packages are excellent for describing any set of data using what are commonly called "descriptive statistics." These include the mean, median, mode, and so on. In both packages, the Macintosh is used to advantage in the graphic display of data. While both packages are capable of printing their graphic output, we preferred the printed output from *StatWorks*. Histograms in *StatWorks* have many more display options than in *StatView*. In addition, the plotting options and user-chosen fill options will appeal to users who must write reports and make graphic presentations. The *StatWorks* manual mentions that its

plots can be color-coded, but we didn't try the program with a color printer. [They certainly can be and they really look good.—Eds.]

*StatWorks* also has the unusual ability to produce three-dimensional plots of either histograms or scatterplots. Granted, these 3-D plots are of limited use unless you happen to be working with three variables at once, but they are quite useful in displaying multiple regression or crosstabs.

*StatView*, on the other hand, has a more appealing spreadsheet for data display than *StatWorks*. In the *StatView* spreadsheet the user may select any size column heading, which means that printed data are more easily identified for what they really are. In *StatView*'s spreadsheet, the variables for use in various calculations are chosen by making them either X variables (independent variables, in most cases) or Y variables (usually dependent variables). The columns then display a small x or y to show that you have selected them for analysis (see the top of Figure 5 and note that CLOTHING EXPENSES is selected as the dependent variable because it has a small y beneath it, while FAMILY MEMBERS and FAMILY INCOME have small x's beneath them to indicate that they are independent variables). This feature helps users keep track of what's going on more easily than the menu selection for variables in *StatWorks*.

Both packages also perform analysis of variance (both one-way and two-way), Kruskal-Wallis tests, Friedman tests, Kendall rank correlation tests, Spearman correlation, Wilcoxon signed rank tests, Mann-Whitney U tests and Kolmogorov-Smirnov tests. Both manuals carefully include the exact formulas used to calculate each of the tests statistics.

For users who already have data files and wish to use them with a statistical package, or for those who'd like to capture data from a computer, both *StatView* and *StatWorks* manuals carefully explain the composition of their data files. There is a section in the *StatView* manual specifically devoted to importing text files (an IMPORT com-







# EDUCATING YOUR GUESSES

mand is available in *StatView's* main menu). *StatWorks'* manual also explains how to get data from mainframes and other Macintosh application programs. Neither program is copy protected, so using them with hard disks is easy.

## MAKING MODELS

Think of a model automobile like one you could buy in any hobby shop. These plastic cars look very much like their real counterparts; they are what we call *iconic models*. That is, while these plastic models have the essential characteristics of their large-scale counterparts, they do not contain all the working parts of the cars they resemble, such as working motors, functioning brakes or velour-covered seats. However, real automobile companies do build models like these to test in wind tunnels because they behave much like real, full-scale automobiles in many dynamic situations.

*Financial and economic models* are not iconic models, but they also must contain the essential character-

istics of the process to be forecast in order to behave like the real thing. Regression analysis is by far the most widely used of the forecasting techniques in business today. The term "regression" dates back to the last century when English statistician Francis Galton compared the heights of parents to the heights of their children. Galton found, using his technique, that the height of offspring tended to "regress" toward some average height of the population.

We will examine three similar methods of using regression analysis to build a forecasting model. In each case the objective will be the same: Construct a model that will allow accurate forecasts of some economic variable (like sales, total revenue or inventory). Each of these three variations of regression analysis is useful for forecasting different variables.

Simple regression is used to forecast something that depends upon only one explanatory variable (which is usually called the independent variable). Because simple regression

is so easy to use, it is possible to try many different independent variables before selecting the best one.

Multiple regression is much like simple regression, except that more than one independent (or explanatory) variable is used to predict or forecast the dependent variable (whatever you are forecasting). While a multiple regression is actually more difficult to calculate by hand than a simple regression, with a statistical package it takes no extra effort. Your cost in using this method lies only in the extra time you'll have to spend collecting data on the extra variables you'll be using.

Time-series analysis is actually just another use of regression analysis. In time-series analysis, time itself is used as one of, or perhaps the only, independent variable. Time-series analysis is called trend analysis when only time is used as an independent variable.

In our example, imagine yourself as a clothing store owner trying to figure out annual clothing expenditures for families with various incomes. You believe that families with higher incomes will spend more on clothing than families with lower incomes. You've collected the data for 10 families as shown in Figure 1. This *StatView* spreadsheet is the format for entering data. *StatWorks* uses a similar spreadsheet style to enter and display data. Using a spreadsheet form makes data entry from the keyboard easy and it also allows quick and easy editing of any cell, row or column.

Once the data is in the spreadsheet, you'll have to select one variable (one column) as the variable you wish to predict; both *StatView* and *StatWorks* (and most other statistical packages) arbitrarily call this dependent variable Y. The variable in simple (one variable) regression that you believe causes Y to take on different values is called X, or the independent variable. Both packages use a menu bar to make the variable selection.

Selecting CLOTHING EXPENSES as the dependent or Y variable and FAMILY INCOME as the independent or X variable allows the running of the regression. The regression is

Fig. 1: *StatView* spreadsheet for easy data entry. The spreadsheet method of data entry and editing is also used by *StatWorks*.

	Clothing Expenses (\$000)	Family Members	Family Income (\$000)
1	.8	1	21
2	1.6	2	25
3	.3	1	10
4	2.3	2	37
5	3.4	2	48
6	2.1	3	27
7	3.3	4	35
8	2.9	3	35
9	3.0	5	25
10	4.0	3	51

Fig. 2: *StatView* regression output showing clothing expense as the dependent variable (the variable being predicted) and family income as the independent variable or X (the explanatory variable).

Simple - Y : Clothing Expenses (\$000) X : Family Income (\$000)			
DF:	R-squared:	Std. Err.:	Coef. Var.:
9	.775	.398	25.216
Beta Coefficient Table			
Parameter:	Value:	Std. Err.:	T-Value:
INTERCEPT	-.275	.539	-.511
SLOPE	.084	.016	.000258
Analysis of Variance Table			
Source	DF:	Sum Squares:	Mean Square:
REGRESSION	1	9.824	9.824
RESIDUAL	8	2.857	.357
TOTAL	9	12.681	
Residual Information Table			
SS(e(1)-(1-1)):	p > 0:	q < 0:	DV test:
5.203	4	6	1.149



Fig. 3: StatView graphic output showing the equation estimated in Figure 2. Note that the regression equation is shown in mathematical form near the top of the screen.

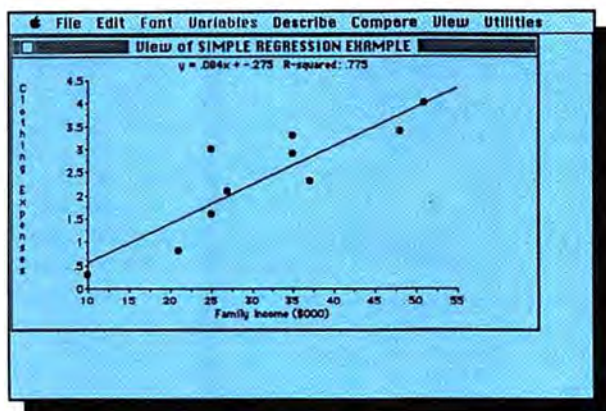
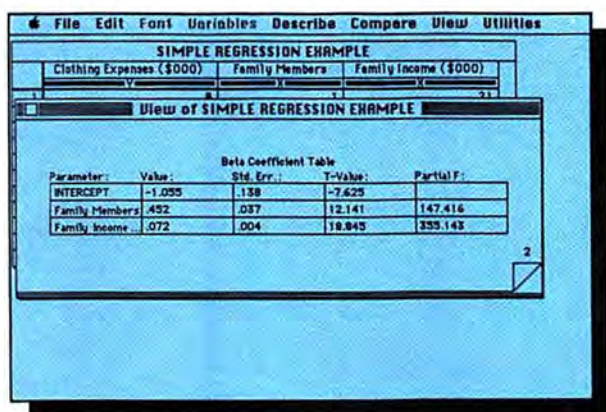


Fig. 4: StatView multiple regression output (page 1).



made by choosing another selection from the menu bar. The resulting output in table form is shown in Figure 2 and the graphic results are shown in Figure 3.

It's easy to understand what *StatView* (or any statistical package) does by looking at the graphic output in Figure 3. What we are forecasting is shown on the vertical axis, while the causal (or independent) variable is on the horizontal axis.

### THE REGRESSION LINE

Each of the points on the graph represents one of the families for which we have data. (In an actual forecasting situation it would be much better to have many more data points to ensure the accuracy of our estimating procedure.) The graph in Figure 3 also shows the "regression line," which is the straight line that "best" fits the data points. It is this line that *StatView* or *StatWorks* calculates with the data you supply.

Notice that none of the points are perfectly on the line; there is some deviation. When family income is 21, the actual value of clothing ex-

penditures was .8 but the value of clothing expenditures from the regression line is about 1.5. The deviation is  $.8 - 1.5$  or  $-.7$ . In most cases, deviation is just the vertical distance between the actual value of the dependent variable (expenditures) from the regression line. Some deviations will be negative, while others will be positive.

With deviation defined, we can indicate the criterion by which *StatView* and *StatWorks* find this line. Without standard criteria, statisticians and forecasters would be unable to agree on the best fitting line. The generally agreed upon criterion is that the best fitting line is the one that minimizes the sum of the squared deviations. Why the squared deviations? Well, if we square all the deviations they will all have the same sign and negative deviations will count just as much as positive deviations. If we just minimized the deviations (not the squared deviations) then some of the positive deviations (points above the regression line) would be offset by negative deviations (points below the

regression line). Thus our "best fit" line might not be close to many of the points at all!

### MAKING FORECASTS

Now that *StatView* or *StatWorks* has calculated the regression line for us, how do we use that line to make predictions (forecast)? First, note that the equation for the line appears on Figure 3 at the top of the active window ( $y = .084x + -.275$ ). This is the standard form for a straight line; the  $-.275$  is the intercept of the line on the vertical axis and the  $.084$  is the slope of the line. Notice also that the regression line can be read off the output in table form (as in Figure 2), where the values for slope and intercept are listed. Suppose we wanted to forecast what clothing expenditures would be if family income was \$30,000.

We would use the regression line to make the prediction. Substitute income equal to 30 into the equation and determine the expected clothing expenditure (we substitute 30, not 30,000, into the equation because we originally used income measured in thousands of dollars).

$$\text{Expenditures} = .084(30) - .275$$

$$\text{Expenditures} = 2.52 - .275$$

$$\text{Expenditures} = 2.245$$

Based upon the regression line, a family with an income of \$30,000 would be expected to spend \$2,245 on clothing per year. This is the "point estimate."

### OTHER INFORMATION

In actual forecasting practice it is common to set up a *prediction interval* by using the information in the statistical printout. We expect that actual clothing expenditures fall within the prediction interval most of the time. But if they fall above or below the line you must be prepared to explain why.

This is how to construct the prediction interval. The value of 2.245 which you calculated is only the most likely expenditure; it is the center of the prediction interval. The calculation for the approximate prediction interval is:

$$\text{P.I.} = \text{your prediction} \pm 2(\text{standard error of the estimate})$$



# EDUCATING YOUR GUESSES

Fig. 5: StatView multiple regression output (page 2).

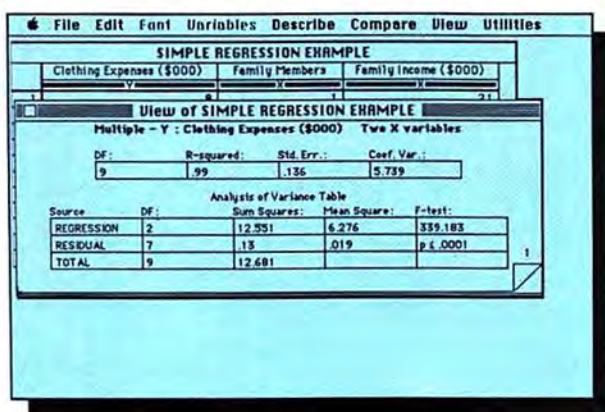
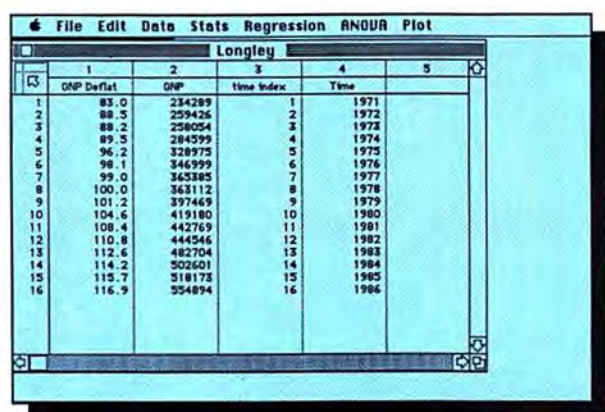


Fig. 6: StatWorks spreadsheet for data entry and display.



The *standard error of the estimate* can be read directly off the regression display. The number .598 comes from the top line of Figure 2. Thus the prediction interval in our example is:

$$P.I. = 2.245 \pm 2(.598)$$

or

$$1.049 <-----> 3.441$$

This is an approximation of what statisticians call the 95% confidence interval; we can be 95% confident that the *real* value of clothing expenditure will be between \$1,049 and \$3,441 if family income is \$30,000.

The other information in Figure 2 consists of standard summary statistics that are reported by both *Stat-*

*View* and *StatWorks*. Of special interest is the "R-squared" reported in the top line. Often called the coefficient of determination, this statistic is a measure of how well the regression equation fits the data. The R-squared in our example was .775, which is read as 77.5 percent; that is, 77.5 percent of the variation (i.e., up and down movements) in clothing expenditures is explained by the variation in family income. The other 22.5 percent is unexplained by this regression equation.

## MULTIPLE REGRESSION

While clothing expenditures appear to be influenced by family in-

come, we might also be correct in assuming that family size would be influential. Suppose that we add an additional independent variable to our study: the number of people in the family. Whereas simple regression includes only one independent variable, multiple regression includes two or more independent variables. Our reason for introducing another independent variable is to make the regression equation forecast more accurately the dependent variable; that is, we wish to narrow the prediction interval of the forecast. Our first equation (Figure 3) showed that clothing expenditures increased as family income increased. We now feel that clothing expenditures will also increase as family size increases:

clothing expenditures (the dependent variable) depends upon family income (1st independent variable) and family size (2nd independent variable).

*StatView* and *StatWorks* also have the ability to compute multiple regressions and their use is essentially the same as in the previous example. Using the data on family size from Figure 1 as a second independent variable gives us the output in Figures 4 and 5. The regression equation now defines a plane in three-dimensional space rather than a straight line in planar, or two-dimensional space, and so no graphic display is available for multiple regression. Our new forecasting equation would be:

$$\text{Clothing expenditures} = -1.055 + .452 (\text{family members}) + .072 (\text{family income})$$

We can also use this equation for forecasting clothing expenditures if we know family income and family size. If family income were again

## IT'S ALL CONDITIONAL

Keep in mind that while *StatWorks* and *StatView* will do all the calculation work for you, every forecast you make is a "conditional" statement of what will happen in the future. Your forecasts always depend upon what happens to the surrounding situation. Updating your forecasts is simple with

powerful software and it is worthwhile to keep forecasts accurate. Caution is required when forecasting far into the future, though, because relationships you base your predictions on may change over time!

This has been an introduction to forecasting. Interested? You can pursue the

topic in either of the following books: Edwin Mansfield, *Statistics for Business and Economics*, New York: W.W. Norton & Company, 1980, or Neil Seitz, *Business Forecasting: Concepts and Microcomputer Applications*, Reston, VA: Reston Publishing, 1984.



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# EDUCATING YOUR GUESSES

Fig. 7: Regression line shown by StatWorks. (StatWorks produces all the output windows shown with just a single command.)

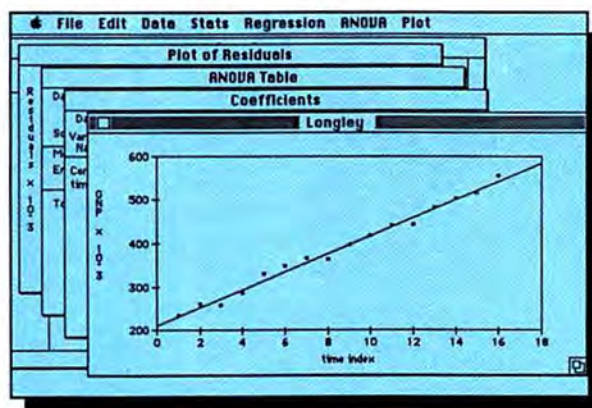
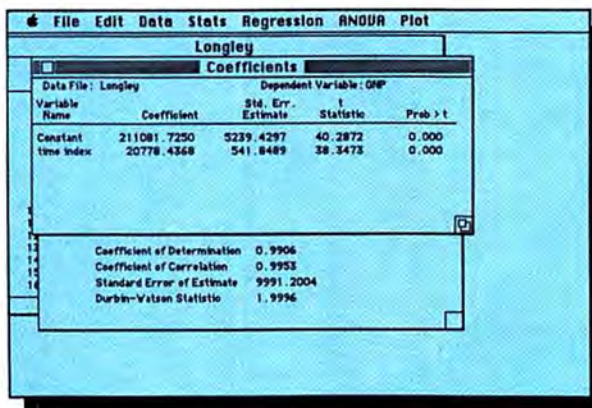


Fig. 8: StatWorks regression equation output.



\$30,000 and the family had three members:

Clothing expenditures =  $-1.055 + 452(3) + .072(30)$   
Clothing expenditures = 2.461  
Clothing expenditures should be about \$2,461 per year.

The summary statistics in Figure 4 are interpreted in the same way as

for simple regression. The standard error of the estimate (.136) is used to construct the prediction interval as before:

$$P.I. = 2.461 \pm 2(.136) \text{ or } 2.189 < \text{-----} < 2.733$$

Since the standard error is much smaller with the multiple regression than with the simple regression, the prediction interval is also much

smaller (i.e., our forecasts will likely be more accurate).

The R-squared value can also be used with multiple regressions to measure how well the equation fits the data. The R-squared value of .99 in Figure 4 indicates that 99% of the variation in clothing expenditures is accounted for by variation in the two independent variables.

## TIME-SERIES ANALYSIS


The data we have been forecasting (clothing expenditures) are *cross-sectional* data, which pertains to measurement at a given point in time. The ten data points in Figure 1 could all have been collected in 1984 for instance. Some data, however, is *time-series* data. That means it is collected over time. The data in Figure 6 is displayed in a StatWorks spreadsheet. GNP stands for gross national product (the dollar market value of all goods and services produced in the United States during a calendar year), and, since it is listed year-by-year for 16 years, it is a time-series variable. Most data available to managers is time-series data—sales data, inventory figures, and so on.

In time-series analysis, it is possible to forecast by using time itself as an independent variable. If we wanted to predict the GNP for 1986, for instance, we could use GNP as our dependent variable and time (simply the numbers 1 through 16) as the independent variable to estimate the equation in Figure 8:

$$GNP = 211081.7250 + 20778.4368 (\text{time index})$$

The data points and the regression equation are also produced automatically by StatWorks and are shown in Figure 7. If we wished to make a point forecast of GNP for 1987, we would substitute the number 17 (because 1987 would be year 17) into the equation:

$$GNP_{1987} = 211081.7250 + 20778.4368 (17) \\ GNP_{1987} = 564315.1506$$

The standard error of the estimate and R-squared (or coefficient of determination) are also listed as shown in Figure 8 by StatWorks. These summary statistics are used with time-series data in the same way we used them above. 

## STATVIEW

Overall Rating: ☒ ☒ ☒ ☒ ☐  
Follows Mac Interface: ☒ ☒ ☒ ☒ ☒  
Printed Documentation: ☒ ☒ ☒ ☒ ☐  
On-Screen Help: ☒ ☒ ☒ ☒ N/A  
Performance: ☒ ☒ ☒ ☒ ☒  
Support: ☒ ☒ ☒ ☒ ☒  
Consumer Value: ☒ ☒ ☒ ☒ ☒

**Comments:** Extremely easy to use, allows nice formatting for presentation of results, can be moved to a hard disk. **Best Feature:** Ease of use. **Worst Feature:** Inability to transform data using user-defined transformations. **List Price:** \$199.95. Published by BrainPower, Inc., 24009 Ventura Blvd., Suite 250, Calabasas, CA 91302. (818) 884-6911.

## STATWORKS

Overall Rating: ☒ ☒ ☒ ☒ ☐  
Follows Mac Interface: ☒ ☒ ☒ ☒ ☒  
Printed Documentation: ☒ ☒ ☒ ☒ ☐  
On-Screen Help: ☒ ☒ ☒ ☒ N/A  
Performance: ☒ ☒ ☒ ☒ ☒  
Support: ☒ ☒ ☒ ☒ ☒  
Consumer Value: ☒ ☒ ☒ ☒ ☒

**Comments:** Unusual 3-D scatter and 3-D histogram displays, easy-to-use spreadsheet data format, can be moved to a hard disk. **Best Feature:** All results for each procedure appear in "layered" windows. **Worst Feature:** Can't transform data using user-defined transformations. **List Price:** \$125. Cricket Software, 3508 Market St., Philadelphia, PA 19104. (215) 387-7955.



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The above statements are based upon benchmarks for creating an executable version of XLISP v 1.4 (16.5K source lines) from scratch and by modifying, re-compiling, and re-linking one source file. Comparisons were performed using a 512K Macintosh with a 10MB Hyperdrive.\*

Generated code size (in bytes)  
Program build time (in secs.)  
a. compile  
b. link-to-run  
c. TOTAL pgm build  
Turnaround time (in secs.)  
(time to make a change to module xicont.c)

Consulair (MacC V4.0)	Aztec (V1.06G)	Megamax (V2.1)	Lightspeed (V0.40)
36770	34566	37698	33870
887	654	354	194
99	49	95	5
986	703	449	199
159	108	127	9

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# THE SECRETS OF WORD

***The ins and outs of Word processing  
aren't as mysterious as they seem.***

THE SEMINAR IS TITLED "MAXIMIZING Word Processing." The question from the podium is, "How many people use Microsoft Word?" It's an Iowa cornfield in July: With few exceptions, every hand shoots up. The next question: "How many people understand Microsoft Word?"

Harvest has come and gone.

Let's face it: The most powerful Macintosh word processor isn't easy to understand. It's easy to use, but that's another story. WordStar is easy to use, for God's sake, once you understand it! The tough part is understanding it to begin with.

Mention Microsoft Word and you'll hear hosannas of praise or the sound of grinding teeth. Along with Helix, Word is a "love it or hate it" application.

***by Doug Clapp***



HOWARD PERLIN







# THE SECRETS OF WORD

I love it. I use it. I understand it. It knows me and I know it. Life is good.

## THE PAINFUL JOURNEY

But understanding *Word* was a long, painful journey. I received a prerelease "beta" copy of *Word* in, I think, 1985, about the time Microsoft announced the product. I've seen it go through version number after version number. I remember the early bugs and I know what's still buggy.

I've written two books using Microsoft *Word*, one of them completely formatted for publication using *Word* and the LaserWriter. What you see in the book is exactly what rolled out.

So how come I'm so smart? Easy:

I wrestled with the program for hundreds and hundreds of hours, made every stupid mistake possible, cursed and kicked, and spent a fortune calling Microsoft with "just one more little question."

This article is my big chance to get some of that money back.

## THE GOOD WORD

If *Word* is so hard to use, why use it?

The easy answer is this: Right now, only two full-fledged word processors are available for Macintosh, and *Word* is the better one.

It's tempting to launch a "features war." *Word* does have more features than *MacWrite*, in every category, but we'll save feature-listing for the sidebar that accompanies this article.

## SUPPORTING WORD

You still don't get it? Need more help? Call Microsoft Customer Support. The number is (206) 828-8089. Say you're a registered user of Microsoft *Word* for Macintosh.

(You are a registered user, right? You did send in the registration card, didn't you?)

It's not a toll-free call, but the support people are friendly and courteous. We called a few times and received good answers and good advice every time.

Next, we called and revealed our identity. And did some chatting. We found, as suspected, that page numbering and running heads provoke the most calls for help.

Character	Paragraph	Document
Plain text	Normal	Division Layout...
Bold		
Italic	✓Left	Footnote... %E
Underline	Centered	Running Head...
Outline	Right	
Shadow	Justified	Repaginate %J
Small Caps		
Superscript	Single Space	
Subscript	Double Space	
	Open Space	
Formats...	Formats... %M	
	Tabs... %T	

The Microsoft *Word* Philosophy in three menus: Character, Paragraph, and Division.

Nor is *Word* for everyone. If your word-processing needs are simple and few, and if you spend weeks away from your Macintosh (what a thought!), maybe *MacWrite* should be your choice for mashing words.

If there's a single reason to choose *Word* over *MacWrite*, it's this: multiple windows.

## WINDOWS ON THE WORD

*Word's* ability to have multiple files open simultaneously in multiple windows is something you can't live without, once you've tried it.

Think of the possibilities. You might combine two documents by cutting and pasting between them. Or one window might contain notes, and another window might have the final article under construction.

Or maybe you receive correspondence through MCI Mail or Compu-

Serve. With *Word*, you can call up letters one by one, each in its own window, and open new windows for responses. The letter you received might be in a window covering the top half of the screen; your answer might be below—another file, in another window.

Programmers can fix source code in one window while displaying an error listing from a compiler in a second window and an earlier version of the same program in still another window.

Or what about the ultimate in trickiness? Since *Word* allows a maximum of four windows to be open at once, why not open the same document four times?

Sure you can do it. And you can make changes in any of the windows. Whichever window you save overwrites—on disk—the contents of the other windows. (Actually, you're seeing four "views" into the same document; it just looks like you've turned one file into four.)

And don't forget the "split bar." You don't need to open the same document to see another view; just drag down the split bar.

It goes on and on. It's not as good as playing *Zork* in one window and writing a thesis in another, but it's close.

## THE WORD PHILOSOPHY

First, understand that *Word* isn't *MacWrite* with a bunch of additional features. It's a different program entirely, created using a different design philosophy. *MacWrite* tries to be a WYSIWYG, or "What You See Is What You Get" word processor.

*Word*, instead, is a "galley" word processor, with a few concessions to the Macintosh and the WYSIWYG crowd. With a galley word processor, you have extensive formatting options, but might not see the results of your formatting until you print the document. For example,



you can specify multiple columns in *Word*, but you see only one column on-screen. Ditto for page numbers. Ditto for running heads (which are akin to what *MacWrite* calls headers).

That galley approach makes *Word* intimidating to novices. Sorry, but that's the way it is.

*Word's* philosophy is best seen on the menu bar. To the right of the Search menu are the menus Character, Paragraph and Document. That's *Word* in three words. At any time, anywhere, you're dealing with your document on a "character" level, a "paragraph" level or a "document" level.

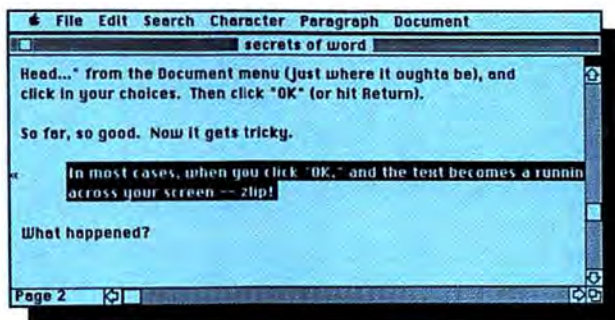
What's that mean? It means that FONT and STYLE are on the same menu, as they should be. It means that paragraphs can be formatted precisely, without bothering to INSERT RULER for every change. And it means that documents can have "divisions," and each division can have radically different formats. One division in a document may be single-column; the next division may be multi-column with new page numbering and different running heads.

## WORD AND TYPE

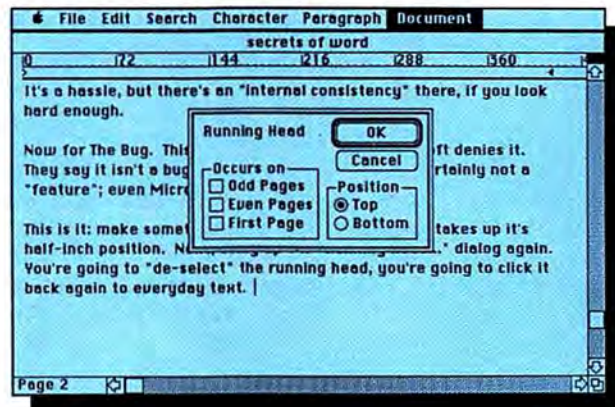
If the idea of divisions seems needlessly complicated, think typesetting. Think books. Think about how each chapter in a book might have a different running head. And remember that Microsoft took the long view: *Word* was designed from the start for the LaserWriter and other snazzy typesetting engines. Microsoft was thinking "desktop publishing" back when *PageMaker* was only a good idea. In fact, it's typesetters who have the greatest appreciation for *Word*, and who suffer the greatest anguish over *Word's* few shortcomings.

Typesetters think in points and picas. A point is a unit of measurement about 1/72th of an inch. A pica is equal to 12 points. If you hang around typesetters, you'll hear, "I think that needs a couple more points" and "How many picas wide is that column?"

Picas are new to many, but points should be familiar. They're the same old points used to express font sizes:



A running head in action. The running head "zips" across the page in a determined effort to find its "default" position.



To make a running head relax and become regular document text, unclick the choice in "Occurs on."

12-point Chicago, 18-point London or 6-point Micro. The next time you need to know how large 18-point Chicago really is, just remember "18/72" or (lemme drag up the calculator...) .25 inches—a quarter of an inch, give or take a pixel.

With *Word*, you can pull down the Edit menu, select PREFERENCES and click on POINTS. From then on, the ruler displays points, not inches. What's more, everything in *Word* becomes pointy: the Page Setup dialog, the Paragraph Formats dialog, the Tabs dialog, the Division Layout dialog, the works.

Points are important, because points are how the typesetting world really works. Typesetters jeer at *MacWrite's* naive use of three boxes to designate space between lines. Typesetters think in points. To typesetters, the space between lines is called "leading" (pronounced "led-ding"), and leading is expressed in points. (This is from the old days, when strips of lead were inserted, by hand, between lines of type.)

*Word* tries to be friendly. In the Paragraph Formats dialog, leading is called LINE SPACING, but it's leading just the same. After having stated your preference for points, you can

specify the exact amount of leading, in points, you want between lines.

Precisely.

This makes typesetters coo with delight. Personally, I like to write in Chicago 12 with 17 points of lead. That's a little more than single-space and a little less than space-and-a-half. It gives each line a bit more "air," and it makes the text easier to read on-screen. Easier to read text means fewer typos and fewer misspellings. To be completely accurate (and impressively typesetty) you could also call it "12 on 17," just like real typesetters do.

## UNRAVELING RULERS

But enough about points. If you use *Word*, you want to know about the ruler. You don't understand how the ruler works. And you really don't understand running heads, right?

Don't worry. At this moment, only six (well, maybe nine) people understand how *Word's* rulers work. In a few paragraphs, that number will skyrocket.

Here's a secret: when the cursor is located in your text, the "left edge" of the ruler isn't the left edge of the paper. No, no, no. The left edge of the ruler is the left edge of your



# THE SECRETS OF WORD

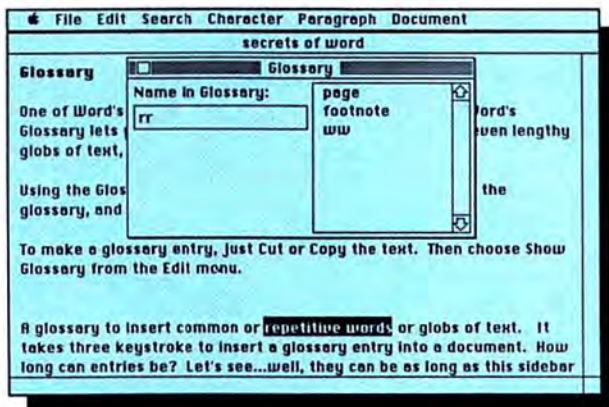
text—a different matter altogether. And here's another secret: The ruler displays settings only for the paragraph where the cursor is located. That's it. It's not like *MacWrite*. Not at all.

Given that, a few things become clear. First, you don't have to select a paragraph to change ruler settings. Just bring up the ruler and slide away. Any changes you make to the ruler affect the entire paragraph—and only that paragraph—where the cursor is. Nothing needs to be selected. The cursor can calmly blink away.

This approach isn't as obvious as with *MacWrite*, but it does allow paragraph-by-paragraph precision in formatting. And not having to first select the paragraph saves time, once you get the idea. That idea is childishly simple compared to our next stop: rulers and running heads.

## HEADS OR TALES?

Here we need a preface, a law, a Great Truth of Computing: If you don't understand a program, it's not your fault. It's the fault of whoever



A glossary entry is about to be made. The text has been selected and copied, Show Glossary has been chosen from the Edit menu the name of the entry ("rr," in the instance) has been typed. All that remains is pasting, to enter the entry into the Glossary.

programmed whatever confusing, stupid, ridiculously unintuitive "feature" that has you baffled. It's their fault. If you wanted that kind of aggravation, you'd buy an IBM, right?

That being said, *Word's* way of doing running heads is lousy. It works, it can be done, but it's hard. It doesn't look right and it doesn't feel right.

A running head is text that appears at the top or the bottom of your page. (Either one; just click the appropriate radio button, TOP or

BOTTOM, in the Running Head dialog box.)

Running heads usually contain the document name and a page number. You can get fancy and use a picture or a doodle in a running head, or you can use multi-line running heads with different fonts or styles or whatever. *Word* doesn't care. Have fun—go crazy.

Running heads don't need to be typed into a special window. They should, however, be located at the beginning of your document, or at the beginning of a division. If they're

## WHY USE WORD?

*Word* has a slew, a ton, a gaggle of features. If you need only one of *Word's* features, and you can't find it in another word processor, you need *Word*.

Below are a few—just a few—of *Word's* many temptations:

- Carriage returns, line feeds, tabs and spaces can be displayed, searched for or replaced.
- Variable point sizes are supported: from 4 to 127 points, in 1-point increments. Some choices may look terrible, but *Word* will obligingly show or print them.
- Virtually unlimited fonts can be used. They're shown in a dialog box that can hold up to 32 font names.
- Settings can be displayed, and text formatted, in inches, centimeters or points (for typesetting use). In addition, you can use the "P10" and "P12" settings for letter-quality printers.
- *Word* features built-in support for letter-quality printers.
- What else? How about...
- Optional automatic back-up of files.
- Keyboard scrolling and keyboard cursor control (including selecting text) entirely from the keyboard.
- Horizontal scrolling; if you need it, you

need it.

- A galaxy of arcane keystroke combinations. From the keyboard you can change fonts, quickly delete a word (using Option-Backspace), Open, Save, Find, Change, set spacing between lines, format paragraphs, respond to or cancel dialogs, and more.

- Nested paragraphs, with a half inch greater indent than the previous paragraph. This one is accomplished with Command-Shift-N.

- Heavy-duty mail merge: You name it, *Word* can probably merge it the way you want it merged.

- Auto-numbered (or non-auto-numbered) footnotes. You need footnotes? You gotta get *Word*.

- The "why don't all programs do it?" zoom feature. Double-click the title bar or size box to zoom a window to full screen. Double-click again to revert to the window's previous size.

- Multicolumn printing, with up to six columns on a page. Unfortunately, you can't see the columns until you print. But there's always *Word* version 2.3, still to come.

- The ability to specify a "gutter margin" on a printed page. Gutters are neces-

sary for pages to be bound in a book, manual or what-have-you. The gutter's an extra margin. A "left-hand" book page has a gutter on the right side of the page; a "right-hand" page has a gutter on the left. Those gutters get taken up when the manuscript is bound. A bizarre feature? Sure, unless you need it; then it's mandatory.

- Flexible tabbing, and a choice of four "tab leaders." The spaces to the left of a tab can be spaces, underlined, dotted or a series of hyphens.

- Small caps. Until *MacWrite* improved its act, the previous sentence would have read: "Superscripts, subscripts, and small caps." *MacWrite* now offers superscripts and subscripts, but only *Word* offers small caps—LIKE THESE.

- Need automatic page numbering? *Word* can do it five ways: numeric (1,2,3...), roman upper (I, II, III...), roman lower (i, ii, iii...), alphabetic upper (A, B, C...), or alphabetic lower (a, b, c...).

- And there's more, a pet feature for every *Word* user. Command-W closes any window: the document, a Find window, the Scrapbook, anything; Command-W makes it vanish. Now, if there were a way to call up the Scrapbook from the keyboard....



not the first thing in a document (or new division), they won't appear on the first page of a document (or first page of a new division).

To create a running head, type in (or paste in) the text that you want as a running head. Now choose RUNNING HEAD from the Document menu and make your choices. Then click OK (or press RETURN) to send the dialog back to the bowels of Word.

So far, so good. Now it gets confusing. Boy, does it get confusing.

When the Running Head dialog box vanishes, and the selected text becomes a running head, it's jerked across your screen and—zlip! Whoa! What happened?

This happened: The running head took up its default position on the page. The default setting for running heads is a *half inch from the edge of the paper*. A half inch margin. Odds are, the body of your document has different margin settings (the default margins in the Page Setup dialog box are "1.25 inches," for example). In other words, running heads, by default, *begin in the margin*. The actual text of your document, of course, begins where the margin ends. But that still doesn't explain why the running head jerks across the page! What's more, if the running head begins *in the margin*, why does text that becomes a running head get *jerked to the right*?

The answer is found on the ruler.

## RULER RULES

Word rulers work two ways. When the cursor is in the body of a document, the left edge of the ruler (starting at "0") marks the beginning of the text. But when the cursor is in a running head, the left edge of the ruler marks the *edge of the page*! Again, that's a whole 'nother thing! And that explains the "running head jerk."

Clear so far? Anyway, let's say you don't want the running head to start a half inch from the edge of the paper. How do you change it?

Easy: just as you'd change any paragraph. First, bring up the ruler. COMMAND-R is the fastest way. Next, make sure the cursor is some-

## WHAT DOESN'T IT HAVE?

Lots of things. Print spooling would be nice. So would a built-in outliner, automatic hyphenation, optional "wrapping" of text around graphics, a built-in speller (that's coming in the next version, along with style sheets that let you save and use complex—or simple—text formats).

Three wished-for features of Excel may someday appear in Word, including keyboard macros, a Delete item on the File menu, and a "Show Page" way to preview documents before printing.

Finally, there's a worldbeater, absolutely killer feature that Word lacks. One feature that would not only sell Word, but sell Macintosh as well. It's the ability to search and replace on text attributes. To search for boldface, for example, and add a typesetting code—maybe [bf]—into the text. That's the feature that professional editors and typesetters need the most.

Please, Microsoft: let us search and replace on attributes. And while you're at it, how about a faster Repagination?

where—anywhere—in the running head. Finally, just slide the indent markers around. Or use the Paragraph Formats dialog. But remember: the left edge of the ruler is now showing you the edge of the page, not the text.

Now pay attention. What if you set one inch left and right margins in the Page Setup dialog? And what if you also wanted the running heads to begin one inch from the edge of the page? How do you do it?

Put the cursor in the running head, bring up the ruler and drag the Indent marker to the "1 inch" position. That'll do it. Of course, when the cursor is in the body of the text,

the ruler will try and fool you, by showing your text as beginning at "0 inches," but you know better now.

## LIVING WITH THE BUG

Now for The Bug. This is truly a bug, friends. Microsoft denies it. They say it isn't a bug. I say it is. At the least, it's certainly not a "feature"; even Microsoft agrees with that.

This is it: Make something a running head. Whiz—it takes up its half-inch position. Next, bring up the Running Head dialog again. You're going to DESELECT the running head, then click it back to everyday text again. To do that, unclick each choice under the label "Occurs On." If the running head doesn't occur anywhere, it can't be a running head, right? Right.

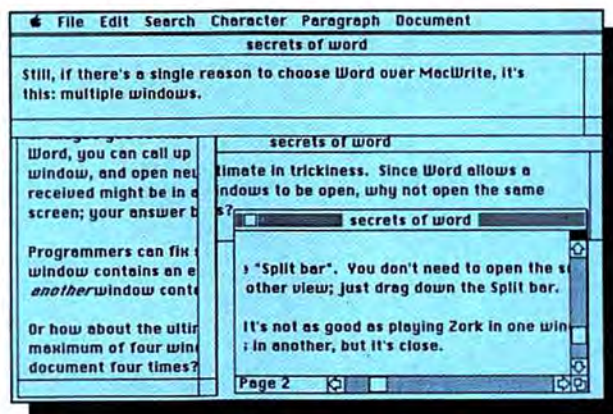
That done, click OK. Now for the bug. Look: The text is still where it was, with the previous half-inch setting! It should have reverted to the margin setting it had before, when it was run-of-the-mill text, but it didn't!

That's a bug. I think.

To work around it, you need to schlep back to the ruler once again and set things right. Or select the entire document and change margins from the Page Setup dialog. Either way, it's a pain. A bug.

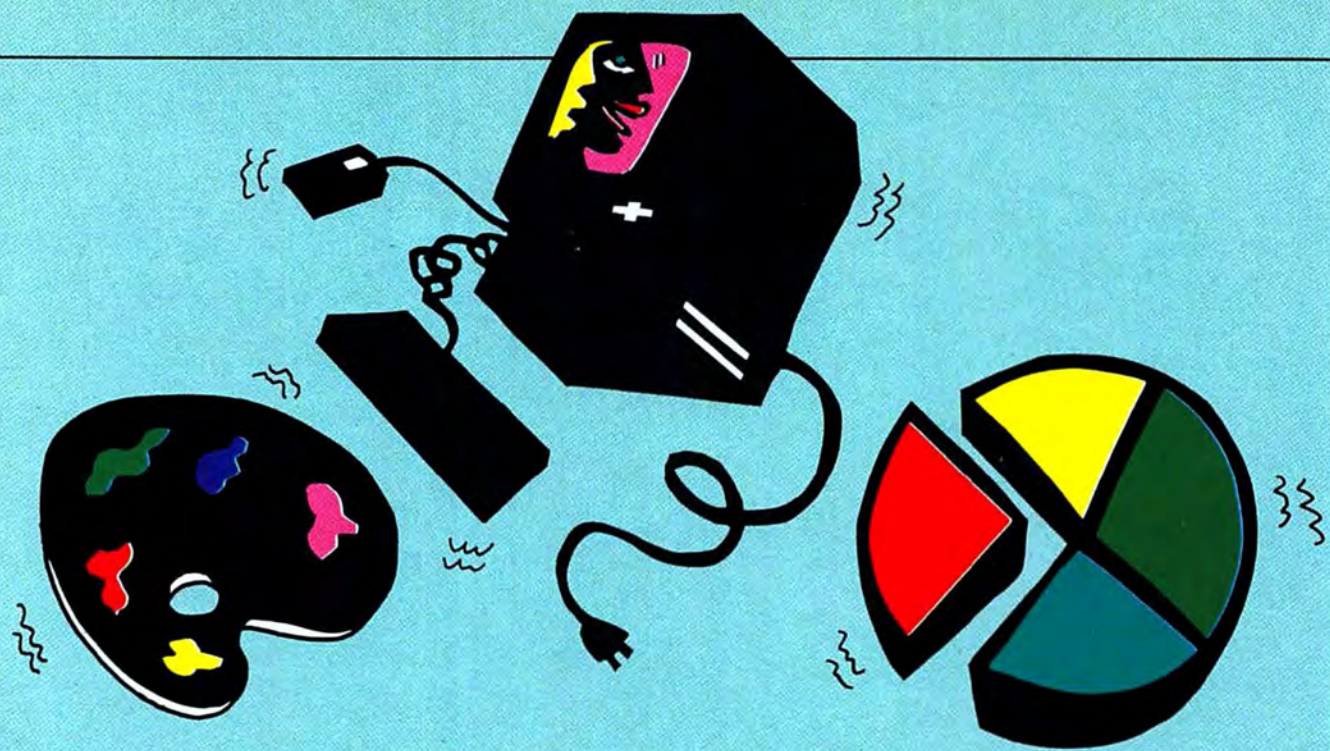
(But, to be fair to Word, it's easy to say: "Okay, hotshot: You want the paragraph to revert back? To what? To its previous ruler setting? Or the setting of the paragraph before it? Or the next paragraph? What? And does that mean Word

(continued on page 140)



Fun with multiple windows.







# COLOR MY WORLD

LET THERE BE COLOR! EVEN though there are very sound and logical reasons behind the Mac's high-resolution monochrome display, there is still that little part of us that wants color. It's like being a little kid again and having the world's greatest coloring book, but only black and white crayons. Sure you get some great designs, but even an almost infinite number of gray patterns can get old and boring.

Of course there are other computers that offer some of the same features as the Mac and have a color display. Games look great and paint programs let you run wild with color.

Don't despair, there are several ways to get color from a Mac. About the only thing you can do with other computers that you can't do with a Mac is display color directly on the built-in screen. With appropriate software, the ImageWriter II and other printers can generate dot matrix print in several colors. Plotters can do very high quality full color

**Software and hardware  
give you color slides  
and film from the  
Mac in minutes!**

printouts of Mac pictures and designs. And some third-party companies now make it possible to connect the Mac to an external color monitor to display *MacPaint* or other programs in full blooming color.

A San Francisco company, Dunn Instruments, has taken the process one step further and put together a complete system that provides high quality color display and output directly from a Macintosh. Called the Dunn Color Macintosh System, it can produce some extraordinary results and dramatically reduce the time and cost involved in producing

presentation quality color slides, prints and transparencies.

The Dunn ColorSystem includes a graphics generator, a 19-inch studio-quality color monitor, *DunnColor* software, and a film recorder that produces the image as a color slide. With a price tag of \$12,000, the system is out of reach for all but medium to large companies, but in the near future you may be able to use *DunnColor* as you would a copier in local print shops. Several large chains are looking at Dunn systems very carefully, and may soon be placing them in stores across the country. And if the demand for the service is as great as expected, other operations may quickly follow suit.

The heart of the Dunn Color System is a graphics generator and controller produced by I/O Research in the United Kingdom. The graphics generator is basically a printed circuit board, with its own microprocessor and graphics language, that is used as an engine to drive CAD (computer-assisted drafting/

**by Michael D. Wesley**



## COLOR MY WORLD



The Dunn Color Macintosh System includes a graphics controller, 19-inch color monitor, film recorder and software.

design) workstations. The board has an Intel 8088 processor running at 8 MHz, a NEC 7220 graphics chip and a megabyte of RAM. The components are enclosed in a long flat box with its own power supply and fan that connects to the Mac or Mac Plus through one of the serial ports.

The 8088 is the same chip used in the basic IBM PC. According to Tony Reynolds and Carol Finkelstein, product managers for the Dunn system, for some as yet unexplained reason the 8088 version of the generator interfaces better with the Mac than does a generator controlled by the 68000, the same chip used in the Mac. Conversely (and confusingly), the 68000 system works better with an IBM PC than does the 8088.

The graphics box generates an image in the PAL (European television) standard, with a display of 768 by 576 resolvable pixels. Since the Mac screen has a resolution of 512 x 342 pixels, the generator must convert Macintosh images to the higher resolution. The reason for using the PAL standard is that it produces 40 percent more pixels on the film image, providing much greater clarity. The generator can display a total of 16.7 million colors, with 256 on screen at any one time, and much of what happens with the Dunn soft-

ware is controlled from the generator's own built-in command set.

The graphics generator sends out an RGB (red-green-blue) color signal. In the Dunn Macintosh System, the signal is sent to a 19-inch "flicker-free" monitor. The graphics generator can work with any PAL-compatible RGB monitor, but since the system is used to capture an image on film, it is extremely important that the signal be steady.

The final bit of hardware in the Dunn system is the film recorder. This is a large box with a camera body hanging out of it. The film recorder receives the image and color information from the graphics generator. A small monochrome CRT is built into the unit so you can make sure the image is being picked up correctly. Pressing the EXPOSE button on the front of the recorder opens the camera's shutter and exposes the film to the image. The signal is processed through red, green and blue filters.

A 35mm camera is supplied with the system, although others are available including Polaroid bodies in various sizes and a 5 x 4 transparency body. A slightly higher priced recorder, which can be purchased instead of the standard model, can also take an 8 x 10 photograph or slide.

It is here that the Dunn Color System differs from others that are available. Rather than just offering a color display, or printed output, the primary purpose of the Dunn system is to generate color *film*. The film can be used for prints but more often it is used to create color slides for slide shows or transparencies for overhead presentations.

### SOFTWARE TO MAKE IT GO

Dunn packages two basic applica-



"NY Waterfront." Original art courtesy of T/Maker Graphics.



tions with the system—*DunnColor*, an enhanced *MacPaint* workalike, and a special enhanced color version of *Cricket Graph*. *DunnColor* boots like an ordinary Macintosh program and has many of the tools familiar to *MacPainters*, including the paint brush, spray can, paint can and eraser. However, unlike *MacPaint*, *MacDraw*, and other Macintosh graphics applications, the *DunnColor* screen has no image window. Instead, the artist's palette occupies the entire Mac screen. The image, meanwhile, occupies the entire monitor screen.

To draw or paint with *DunnColor*, select the appropriate tool and then press TAB, or slide the cursor past the edge of the Mac screen. Either action moves the cursor onto the monitor, where the entire surface

acts as the drawing window. Sliding past the edge of the monitor's display returns you to the Mac screen and the palette. This takes a little getting used to, but it has the advantage of providing a full-sized drawing area.

*DunnColor* supports cut and paste, so images can be brought in via the Clipboard, but it can also open *MacPaint* files and other graphics documents directly. When a *MacPaint* file is opened from within *DunnColor*, the *MacPaint* palette and patterns are ignored so that only the image is displayed. This makes it possible to work with images much larger than you can on the normal *MacPaint* screen.

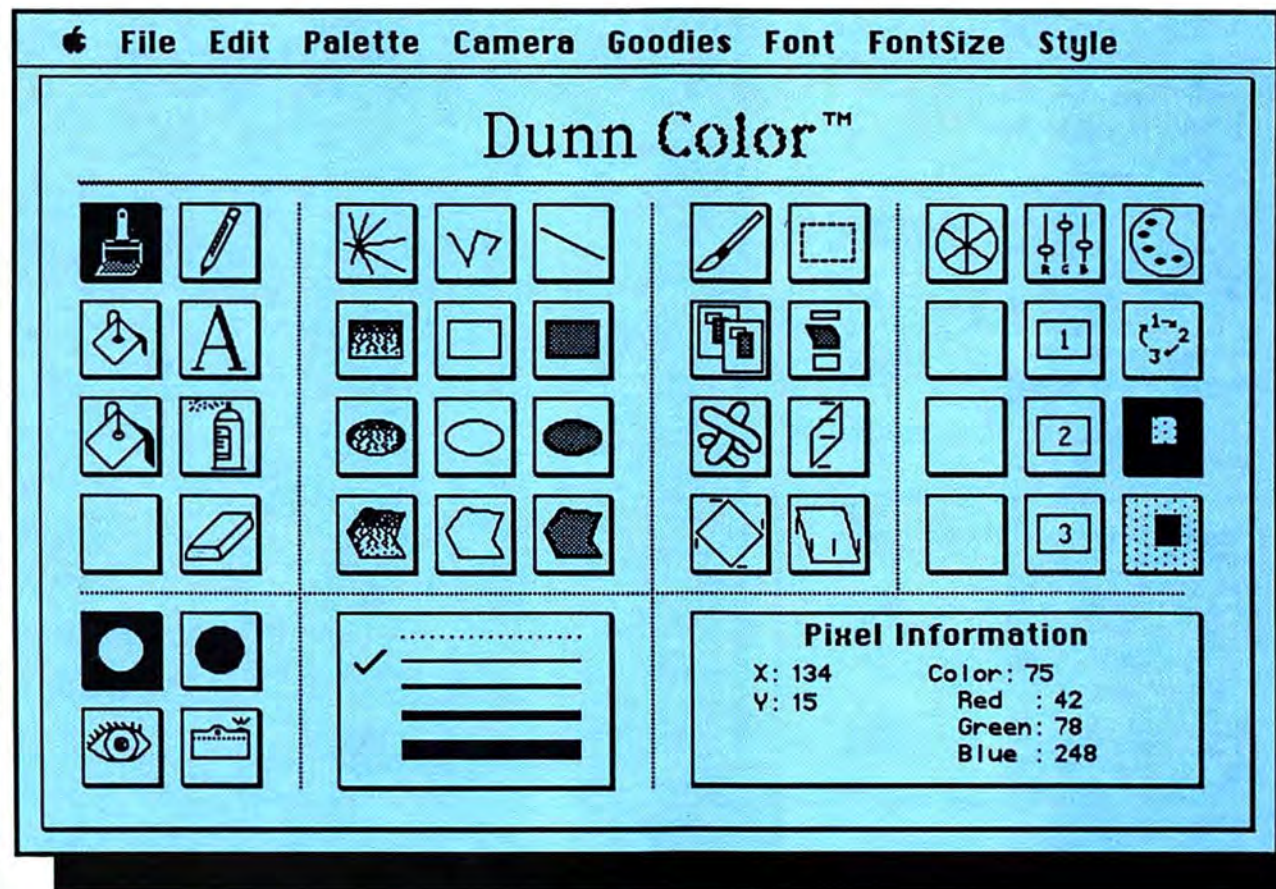
*DunnColor* permits an image to be created or modified in up to 256

colors. A palette of colors appears in small bands across the top of the screen. Color is added to an image by selecting first a tool and then a color and drawing or painting in familiar fashion.

*DunnColor* has some fun options in its menus, including zoom, which expands the view of an image in steps up to 16 times normal display size. As is true with *MacPaint*, you can adjust an image pixel by pixel, but *DunnColor* also gives the added benefit of changing colors pixel by pixel.

Another option called "sequence color" lets you roll colors along the palette so that as you draw or fill, a line or space will appear in many colors, not just one. The pattern

(continued on page 139)



The *DunnColor* Mac screen. The first group of tools resemble standard *MacPaint* tools and work in much the same way, although the oversized paint can, dubbed a "comic book can," is slightly different. The second grouping is used to design and fill enclosed shapes such

as boxes and to draw lines. The multi-line tool creates a starburst pattern as the mouse is moved around in a circle. The additional shading option fills boxes with a pattern that varies in density. The third grouping includes cut and paste tools and tools for rotation of objects.

Tools in the final group adjust color information. A special box keeps track of the location of the cursor by X and Y coordinates, and also indicates color information as varying amounts of red, green and blue.



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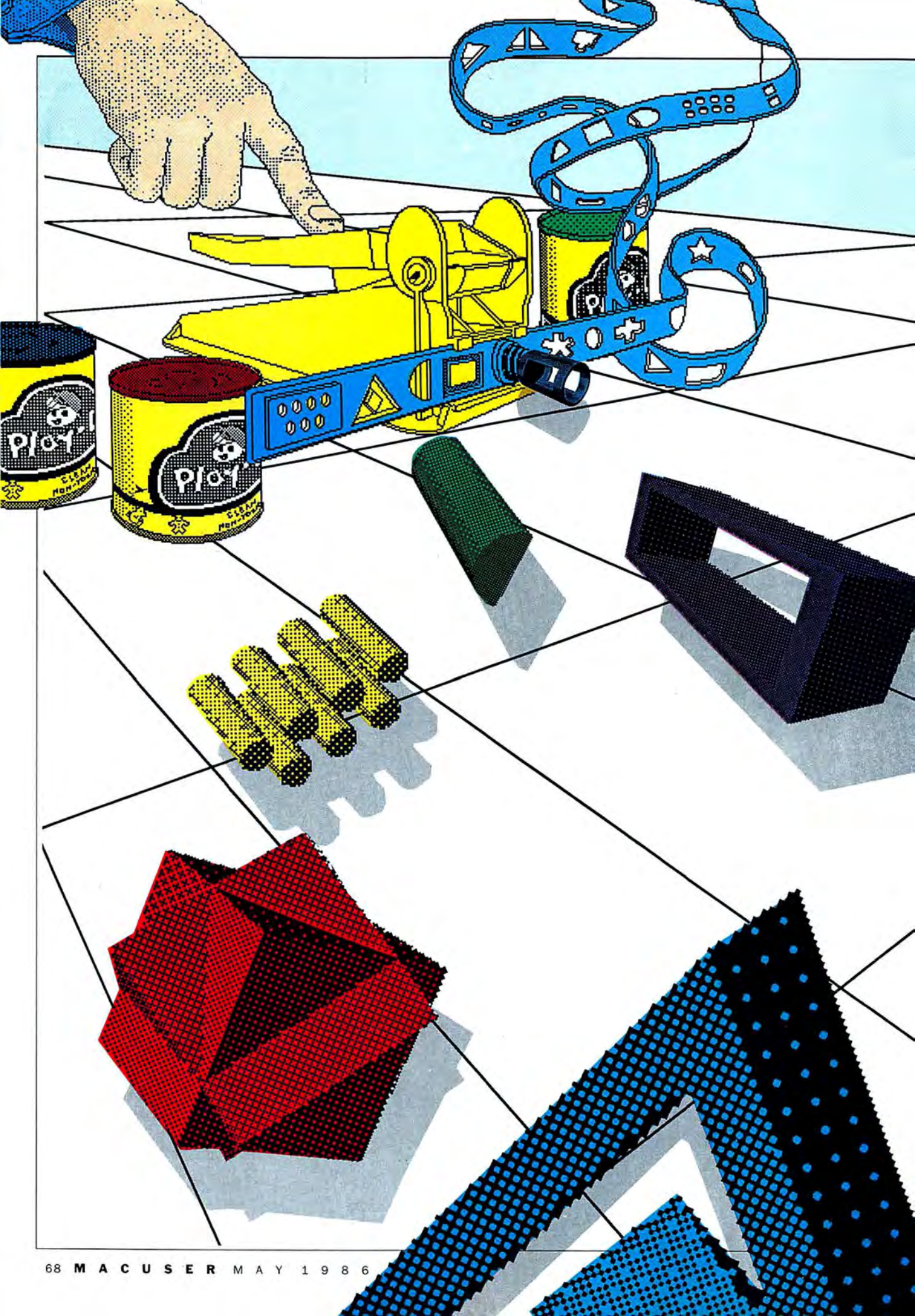
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AS  
EASY  
AS  
1, 2,

by David Biedny



**Tired of two-dimensional drawing? Easy3D puts some real space into that Mac screen!**

REMEMBER PLAY-DOH? IT WAS ACTUALLY the most popular line of toys ever produced, simply because you could take a simple, otherwise plain lump of clay and change it into whatever your mind could imagine. Different shapes could be cut from it like cookie dough, and a little plastic device accepted play clay into a little chamber, which had a lever on top and a side that had changeable, multiple shaped apertures. Force the lever down, and viola! Strings of exotic geometric stripes. These shapes could then be used as building blocks to make more intricate toys, which provided pleasure until they were mushed up and used again for new things. The powerful creative toys for young minds are now powerful creative tools for older minds. Crayons are gone, and in

their place is *MacPaint*. Play-doh is in the past. We've graduated to *Easy3D*.

*Easy3D* has a superb user interface and the ability to painlessly and quickly produce shaded, three dimensional graphics. Using a variety of tools, including the electronic equivalent of a lathe, jigsaw cutter and a series of graphics primitives. *Easy3D* can be used to create detailed models that were, up until recently, the domain of much larger and faster computers. Since the program is written in Forth, it draws complex shaded objects relatively quickly. And for an extremely reasonable price, to boot.

Objects are created with three basic tools: the lathe, the jigsaw and the pre-defined primitives. The lathe is rather like a pottery wheel turned

on its side. A stick of clay or wood is inserted between two pins that hold it in place. The lathe tool in *Easy3D* is exactly like its real world counterpart, except that the outline of the object is drawn as a symmetrical series of lines. The number of polygonal segments is selected via a scroll bar in the lathe window. An object can be designed with both internal and external surfaces (like a wine glass). Any point can be edited by using the POINT scroll bar, which repositions the cursor at any of the vertex points, which can then be repositioned. SEAL automatically closes an object, drawing the final lines between the last point and the first point. The SEGMENTS scroll bar specifies the number of polygonal planes the object will contain. Click DO LATHE, and a few seconds later the object appears on the screen.

The number of segments that make up an object directly effects the smoothness of nonlinear surfaces. More segments render higher resolu-



# AS EASY AS 1, 2, 3D

tion of nonlinear surfaces, and also take up more memory, meaning it will take more time for *Easy3D* to draw the image, and its file will occupy more disk space than the same object created with less segments. A note on disk storage: *Easy3D* stores objects with the information that the program needs in order to modify it at a later time. If you don't plan on modifying your creations after they're finished, *Easy3D* can save a drawing directly as a *MacPaint* file.

The jigsaw tool presents the equivalent of a flat board from which shapes can be cut. The board is a fixed depth, but the depth of the rendered object can be altered by stretching the object along the Z axis, effectively making it deeper. It can also be shrunk in the same manner.

*Easy3D* also generates a number of simple, primitive shapes including cubes, wedges, torii (doughnuts),

and four different spheres (each with a different number of segments). Spheres with more segments are rounder than spheres with less segments.

When creating any type of object, the primary color, or shade, of an object is determined by selecting a shade from a gray scale before actually creating it. This tone will then be the darkest that the object can display on any of its faces.

## VIEW TO A STILL

*Easy3D* makes it simple to observe the model from various different vantage points. Up to four simultaneous scaled-down windows allow the model to be viewed from the right and left sides, top, bottom, front and back. Specific elements of a drawing can be freely moved, horizontally or vertically, stretched, shrunken, elongated, spun and resized along the X, Y and Z axes in these view windows. The Camera window is only for changing the view of the model, and modifications in this window act as changes in a nonexistent camera lens that is observing the entire drawing. Any modifications to the view in this window will not affect the actual objects that are part of the model. It's very handy for previewing the effect of an action without actually changing the object.

There's also a Super Camera mode that expands the drawing to fill the entire screen. The resize icon can be used in the Camera view to shrink the drawing to size, if it isn't all visible on the first try.

A Perspective bar along the left side of the main window gives the Camera mode a variable focal length. The higher up the eye icon is on the control, the more emphasis is given to the perspective differential. This gives the view a variable fisheye lens effect that can totally exaggerate the apparent dimensions of objects in the scene.

## SHEDDING LIGHT ON THE SUBJECT

One of *Easy3D*'s unique features is that it has variable light sources. The CUSTOM LIGHTING menu selection opens a window, with a front and back view of a generic sphere. The

four separate "spotlights" can be used in any combination, and the effects of each can be viewed separately or combined. Selecting SOURCE 1 and clicking on the SHOW ONE SOURCE radio button displays the orientation and intensity of the selected light. Clicking on a pattern in the scroll bar specifies the shade of the brightest point of the light (the "hotspot"). Changing the orientation of a light source is simple: select the desired light source and click on the sphere where you want the light to hit. Lights can shine from in front of or behind the model area.

Four lighting configurations can be created and selected from the LIGHT menu. Each can have a totally different set of lighting conditions. A smart feature allows objects to be stored either with the lighting conditions that were last selected, or without lighting, which allows a shape to be used in various drawings with different lighting specifications.

Overall lighting conditions (ambient light) are modified through the scroll bar on the right hand side of the screen. The sun icon is appropriate: think of the difference when viewing an object seen on a bright, sunny day and during the later hours of the afternoon. The shading floods out in the bright light, while the darkest surface of the object gets darker as the sun goes down. In *Easy3D*, this feature can also be used to render a hidden line wire frame version of a shaded object, by placing the sun icon at the top of the shading bar.

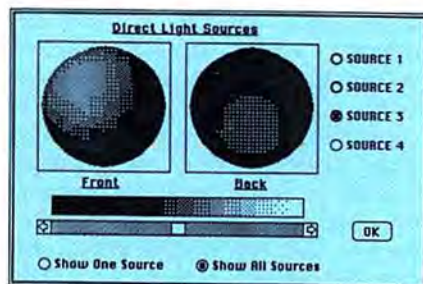
## A MANIPULATING MATTER

*Easy3D* can do a lot more than just create simple and not-so-simple geometric objects. Its primitives can serve as building blocks for very complex, irregular shapes. The MERGE menu provides a fascinating set of tools like those commonly found in much more complex modeling software.

Take two objects, a sphere and a cube, for example. They can be combined to form a single object in a number of ways. The cube can be designated as matter, the sphere as anti-matter. When matter meets anti-matter, matter is disintegrated.

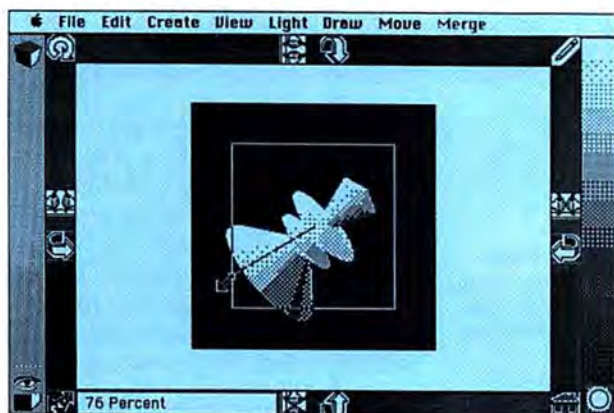


A sphere embossed with the letter H. The character was created with the Jigsaw tool, and assigned a light shade. It was then placed on the sphere, and merged in emboss mode.

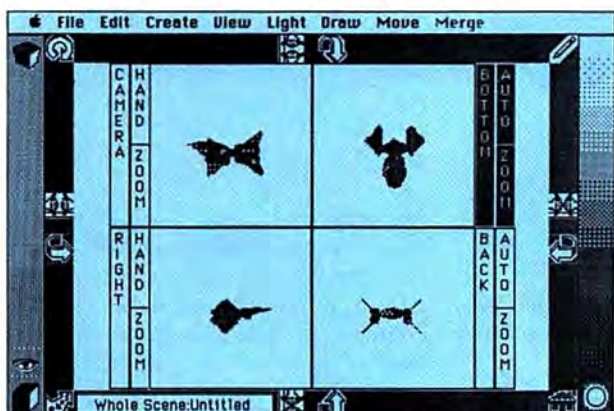


The Custom Lighting window. The highlighted radio buttons indicate which lights are being used, and the effects of each light can be viewed separately or combined. Note the 16 shades of gray: they're used throughout the program to designate direct lighting, ambient lighting and primary object shades.





In the Camera mode, the resize control works like a zoom lens. The black box around the object indicates the current size of the view (100 percent), while the white rectangle shows the resulting reduction ratio (76 percent). When manipulating individual elements, this same control varies the absolute size of the object.



The Four View mode. Each scaled-down view can be set to automatically update itself after a modification is done in one of the individual windows.

## EASY3D AND VIDEOWORKS: A MATCH MADE IN HEAVEN

The power of *Easy3D* combined with *VideoWorks* is nothing less than awesome. The combination of fluid movement and stable light sources lends a feeling of exquisite realism to collaborations between the two programs. Spinning disks seem to be real enough to pluck right out of the screen, spaceships swoosh by with the light of a distant sun sparkling off their smooth surfaces, shapes can change and mutate into different forms. The animation power previously attainable in ultraexpensive frame buffer systems can be emulated with much less effort and cost. The one drawback is the amount of disk space realistically needed to move the complex imagery into *VideoWorks*, and the very large sizes of the resulting animation files. A hard disk is a blessing for any serious work along these lines. A few helpful tips:

1. Keep individual objects as small as possible. The smaller the overall size of the image, the smoother it will animate in *VideoWorks*.

2. Animation of rotating objects is a good

place to start, as it will provide quick gratification, plus the motivation to continue to more complex sequences. While in *Easy3D*, experiment with different degrees of rotation: 10 degree increments render reasonably smooth motion. This will require 36 separate images for a full 360 degree turn for any object. Synchronized rotation along two or three axes is great for gyroscope-type motion.

3. Play with the placement and intensity settings of the various light sources, and use them as the primary effect in your animation sequences. Having a light slowly come up to full intensity while panning around an object can look dramatic, indeed.

4. *VideoWorks* and *Easy3D* can both be loaded into *Switcher*, facilitating animation making. Use a 256K partition for *Easy3D*, 200K for *VideoWorks*. The current version of *Easy3D* has some Clipboard handling problems when used with *Switcher*, so it's best to create *Paint* documents from within *Easy3D* and use the *Art Grabber* DA to copy the elements into *VideoWorks*.

Wherever the cube and sphere intersect in space, the equivalent of the sphere's area will be carved out of the cube. The surface shade of the resultant hole in the cube is that of the antimatter object.

If the cube and sphere are both set to matter, we get a cube with a dome on top. The intersection area is destroyed, and is no longer visible. The edges of the two objects blend smoothly together, and a new composite object is born.

Probably the most mathematically interesting merge is accomplished by setting both objects to anti-matter. The mathematical intersection of two shapes (the area that they have in common) is what's left after this function. In the case of the cube and sphere, the result of a double anti-matter merge is the area that got wiped out in the previous merge operation. With a little experimenting, some extremely complex shapes can be created.

Objects can be embossed with the shape of other objects. This allows contoured "printing" of any shape and shade onto the surface of an object. Known as "surface mapping" on larger systems, this is an extremely powerful capability. How about a monogram stretched around the surface of a sphere? Or the shapes of continents wrapped around a spinning globe? The possibilities are almost endless.

Sometimes merging two complex objects can take more than a few moments. In fact, some merges can take over thirty minutes to complete. Even so, this is relatively fast, as those who have worked on larger systems will testify. The fact that this is happening on a microcomputer is an achievement in itself.

### 3D TO 2D

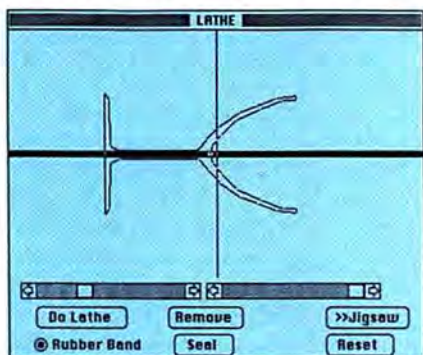
As expected, *Easy3D* offers various print options. The program supports both the *ImageWriter* and *Laser Writer*. Three different print quality modes are offered: DRAFT, FINAL and SUPER. For the *ImageWriter*, the difference between these modes refers to the size of the printout. DRAFT prints the object at screen size, FINAL enlarges the image about 40 to 50 percent, and SUPER ex-



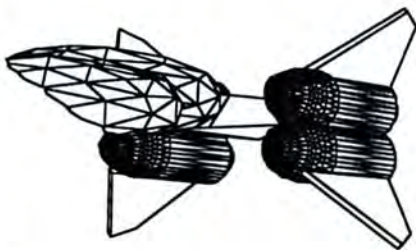
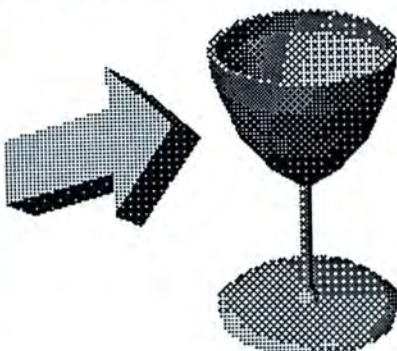
## AS EASY AS 1, 2, 3D



The Merge function offers four options, including embossing. These three objects represent the three different merges of the same two elements, a sphere and a cube. From left to right: a matter/matter merge (union), an anti-matter/anti-matter merge (intersection), and an anti-matter/matter merge (subtraction). In the last one, the sphere was set to anti-matter, the cube to matter. The shade of the gouged-out surface is that of the original anti-matter object.



The Lathe window. The scroll bar on the left controls the number of segments the object is to have, the other scroll bar allows individual vertex points to be reworked. Click Do Lathe, and you'll get a cup (sans coffee!)



Shaded and wire frame hidden-line-removed versions of the same spaceship. The latter is created by assigning a line frame to the object, and then setting the ambient light to full intensity.

pands the object to fill the 8 x 10 page. When using a LaserWriter, there is no difference between DRAFT and FINAL. The size can be modified, though, through the standard LaserWriter Setup dialog box which is invoked when executing any PRINT mode command. A useful feature allows any object to be sent to the LaserWriter as a wire frame/hidden line removed object, without modifying the ambient light.

The different print options are also used to vary the size of a graphic when the file is saved as a MacPaint document from within the program.

The company plans on supporting an enhanced LaserWriter driver in

future releases of the program, to support the full resolution of that printer for shaded objects.

### THE SMALL DETAILS

The main complaint about this program is with a feature that is lacking, not lower-than-expected performance. The program sorely needs an alignment command that would permit easier placement of objects to be merged. There is a grid background that can be accessed through the background pattern window (which can be set to any pattern, including black), but it isn't sufficient for precise alignment.

The documentation is delightfully

clear in explaining all the program's functions. A two page table illustrates the results of the different types of merges between the various primitives, a useful touch. The manual is open and easily readable by a prospective buyer, with the program disk sealed in a compartment on the cover. How many times could you actually read a program's manual before buying it? This is a classy and intelligent way of marketing software.

The disk also contains five pre-made primitives that cannot be created by single commands within the program, but that people will find useful. They are a pyramid, a trapezoid, a tetrahedron, a cone and a cylinder. This thoughtful gesture saves users a bit of work.

To sum it up, *Easy3D* is fun. It's a powerful tool in the context of creativity, it can create absolutely stunning graphics for audiovisual presentations, it has potential to be a useful engineering aid, and it can induce heady inspiration in every artist who gets anywhere near it, but the bottom line is that this program is *addicting*. It creates shaded three-dimensional objects as easy as MacPaint makes a circle. Add the lack of protection, the reasonable price, and this program becomes as irresistible as candy. Or even Play-doh....

### EASY3D

#### Overall rating:

Follows Mac Interface:

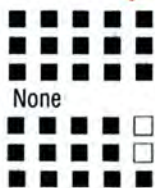
Printed Documentation:

On-Screen Help:

Performance:

Support:

Consumer Value:



**Comments:** Powerful and easy program for creating complex shaded three-dimensional objects. Intelligent user interface combined with extreme ease of use make this a graphics masterpiece. **Best Features:** Complex object merging, multiple light sources, relatively quick drawing speed for program of this type. **Worst Features:** Lacks alignment feature. **List Price:** \$99. Requires 512K Mac. Published by Enabling Technologies, 600 S. Dearborn, Suite 1306, Chicago, IL 60605. (312) 427-0408.



“Smartcom II<sup>®</sup> (communications software) for the Mac is the best terminal program for the Macintosh...”

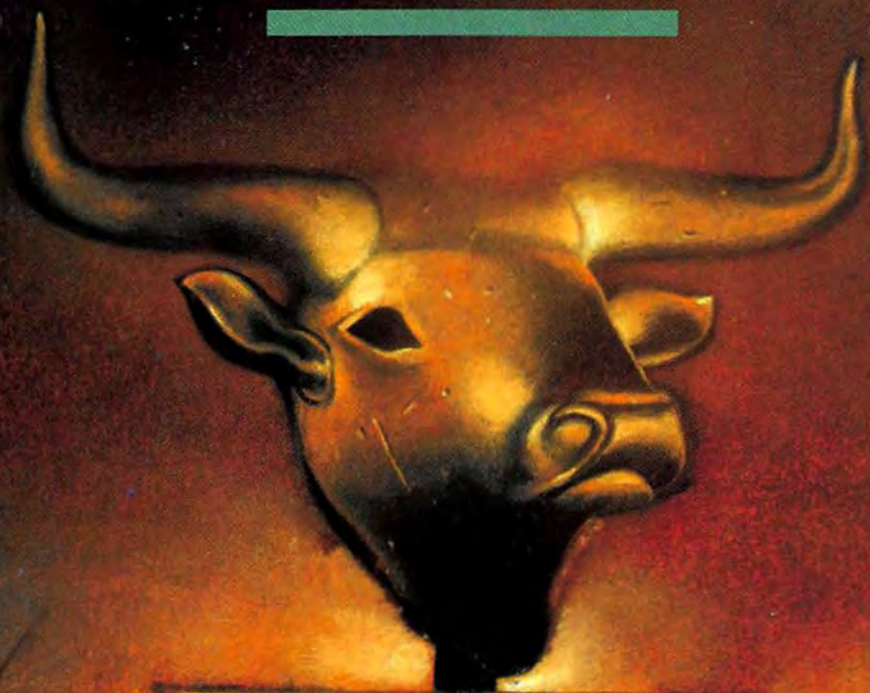
—*Link Up*, September 1985.

What more can we say?

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# STOCKS, BONDS AND ICONS

Get the inside scoop on MacStock market.

by  
**Steve  
Maller**

THOSE OF US WHO PLAY THE stock market sometimes fancy ourselves armchair wizards of Wall Street. We brag to our friends that we "called that one a month ago!" when sudden stock moves make an instant millionaire of someone else. We then rationalize that the other guy has some Secret Source for all the inside poop, or that he's got so much money to throw around that he can't lose. On top of this comes the gloomy need to survive on a monthly salary hoping some day to be able to fall back on a pension and Social Security.

Although you may not realize it, you already possess a direct channel into the inner sanctum of American business: a Macintosh and a modem. All that you need now is a subscription to a financial database service.

The volume of information accessible on these systems is enormous, and far too varied to cover fully in this space. Therefore, we'll work with a somewhat limited cross-section of the services available, and their possibilities.

The examples given in this article are from the Dow Jones News Service, but are applicable to other services as well. For instance, The Source and CompuServe, popular on-line information utilities, carry a respectable complement of financial services.

In addition to providing a variety of financial services, Dow Jones & Co. is the publisher of *The Wall Street Journal*. In the last few years, Dow has opened up its massive data banks to the public, albeit at a price. The service is known as the Dow Jones New/Retrieval service and is usually simply called DJN/R. Among the many services offered by DJN/R are stock quotations, historical data, late-breaking news, analysis by professionals and full-text searches of *The Wall Street Journal*. As with all such systems, you have to pay for the time spent on-line, but there are ways to make the most of your connect time and keep costs to a minimum.

## GETTING STARTED

To connect with an on-line information utility, you need a Mac, a modem and communications software. We'll use *MacTerminal* in our



# STOCKS, BONDS, ICONS

example, but any of the communications programs available for the Macintosh will do the job. Some programs, such as *Red Ryder* or *Dow Jones' Straight Talk*, even allow users to automate some of the steps necessary to access on-line systems, like logging on or entering queries.

Aside from the software, you'll also have to buy a subscription to one of the services. These vary in cost from a few dollars to over \$100, but most are in the \$30 to \$50 range and include some free on-line time to get started. DJN/R charges \$75 for an initial subscription. Many modems come with free subscriptions. Look around and you might not have to pay the initial subscription fee. And luckily for novices and those of us who never read any supplied documentation, every on-line information utility has a "free area" that can be accessed for help without incurring on-line charges.

## ON-LINE!

With a modem connected and *MacTerminal* running, call the access number and log onto the system using the information provided with the subscription. A typical logon sequence is illustrated in Figure 1. The one illustrated utilizes GTE's Telenet service, a telephone system used by many of the information services. Two other common systems, Tymnet and UniNet, are similar in operation.

To investigate financial services, we'll gather up-to-date information on a few significant personal computer stocks. How about some research on IBM, Hewlett-Packard and, of course, Apple Computer?

Once connected to Dow Jones, there are a number of paths to follow. The first and most obvious is

The screen prompts:	...and you type:
CONNECT	ATDT 9565777
TELENET 415 218A	[CR] [CR]
TERMINAL= @	D1 C 60942
609 42 CONNECTED WHAT SERVICE PLEASE????	DOW1
PASSWORD:	XYZ321ABC

Fig. 1: A sample logon sequence using GTE Telenet.

to check the latest prices of the three stocks by entering the Current Quotes database. To do this, enter two slashes followed by the DJN/R abbreviation for the database, which in this case is CQE. Thus, the proper command is //CQE. When a message appears indicating that the Current Quotes database is in use, the user can enter a "query." Any of the over 5000 stocks tracked by Dow Jones can be accessed through the quotes database, as can options and futures.

In order to query a stock, you'll have to know the ticker symbols of the companies involved. (In case you don't know the correct symbol for a particular company, there is another database on DJN/R specifically for looking them up.) AAPL is the symbol for Apple Computer, IBM for IBM and HWP for Hewlett-Packard. To query all three, type the three symbols on one line then press Return. The Dow Jones computer looks up the latest prices and displays them on the screen.

If any of the requested stocks is "in the news" today, that fact will be mentioned below the price quotations. In our example, the system alerted us to news about Apple and IBM (see Figure 2).

It should be noted that there is at

least a 15-minute delay in the posting of trades on the //CQE database. This may not be timely enough for more serious investors, who may wish to subscribe to the Real Time Quotes (//RTQ) database. As its name implies, this database is updated instantly to all trades, giving subscribers a split-second advantage in trading decisions.

## FINANCIAL NEWS

The Dow Jones News database can be accessed by simply typing //DJNEWS. An article will be flagged by the system even if the name of a company appears only once. Therefore it is best to scan the titles before going to the trouble (and expense) of printing out the full text of an article. Often many of the articles listed will be of no particular interest.

The request we made was for the very latest news about Apple Computer. (The service lists a wide variety of articles on the requested subject.) To access the most recent article, simply type .AAPL again. To see one of the other articles, enter its two-letter code (e.g., AQ).

## HISTORY 101

Historical data are crucial to any

Fig. 2: The day's quotes for Apple, IBM and Hewlett Packard, and a list of articles that mention Apple Computer.

FOR AN OVERVIEW OF NEWS/RETRIEVAL, TYPE //DJHELP. AAPL IBM HWP							
DOW JONES STOCK QUOTE REPORTER SERVICE STOCK QUOTES DELAYED OVER 15 MINUTES **CLOSE PRICE ADJUSTED FOR EX-DIVIDEND							
STOCK	BID	ASKED	OPEN	HIGH	LOW	LAST	UOL(100'S)
AAPL	22	23 3/8	23 3/4	22 1/2	23 1/4	12174	
IBM	149	149 3/4	149 7/8	148 3/4	149 1/4	8851	
HWP	36 3/4	36 7/8	37 1/4	36 3/4	37	3334	
NEWS AVAILABLE FOR AAPL 8:43am, IBM 2:10pm							

AQ 81/14 APPLE COMPUTER 1ST QUARTER  
(UJ) NET 91C A SHARE US. 75C  
AP 81/13 APPLE COMPUTER IN PROGRAM TO  
(UJ) DISTRIBUTE MICROCHIP SOFTWARE  
AQ 81/10 SALES SPURT CAPS DISMAL 1985  
(UJ) FOR PERSONAL COMPUTER INDUSTRY  
AP 81/07 APPLE COMPUTER TO UNVEIL  
(UJ) ENHANCED MACINTOSH, PRINTER  
AL 12/31 VENTURE TYCOON ARTHUR ROCK  
(UJ) BETS ON HIGH-TECH PROSPECTS  
AK 12/19 SALES OF PERSONAL COMPUTERS  
(UJ) REBOUND WITH AID OF DISCOUNTS  
AJ 12/18 APPLE COMPUTER SEES 13% RISE  
(UJ) IN FISCAL 1ST-QUARTER PROFIT  
AI 12/09 AN APPRAISAL: SECONDARY STOCK  
(UJ) MAY RISE BUT BOOM NOT EXPECTED  
AH 11/11 APPLE'S FORMER CHAIRMAN  
(UJ) JOBS REDUCES STAKE TO 7.3%



investment decision. As the old saying goes, "You can't tell a book by its cover." Nor can you make prudent investment decisions based on superficial data such as recent headlines or records of a stock's activities for just a couple of days. There are two parts to historical information: stock performance and financial history.

On DJN/R, the stock performance part of the picture is accessed through the Historical Quotes (/HQ) database. You can look at any period of time through the last 8 months as a day-to-day picture. Enter the stock's symbol (AAPL), and a period of time. In this case, P1 indicates the most recent 12-day period. The prices are given in "high-low-close" format. Simply put, it is useful to see the highest and lowest prices at which your stock traded each day, as well as the final price for that day.

Although Apple is an over-the-counter stock, it is one of the most active. Very active OTC issues are part of a National Market Service and are tracked completely, while others are not. Entering the numeral 7 before AAPL in the query alerts DJN/R that Apple is a part of NMS, so full data are provided. Without the 7, the system would only list the "bid" and "asked" prices for each day. The service looks through its archived daily prices and presents the information (see Figure 3).

The other part of the big picture, the financial history of a company, is far more complex. Here, an intermediate level of accounting and business knowledge really helps. Every public corporation in the United

## COST COMPARISON

A prudent investor will be interested in maximizing the dollar investment in the information accessed on-line. There are many systems other than Dow Jones. For comparison's sake, we kept a tally of the exact timings and costs involved in the trek through DJN/R for this article. We then logged onto The Source and attempted to duplicate our journey. The Source does not offer quite as extensive a selection of databases. For instance, the Historical Quotes (/HQ) database has no rival on The Source. However, almost all of the other services are available, and they are much less expensive than Dow Jones.

## TIPS FOR REDUCING ON-LINE TIME CHARGES

- Always plan ahead for each session.

Have a list of exactly which databases you plan to utilize, and of the stock issues you wish to research.

- Look up ticker symbols beforehand and write them down!
- When accessing one of these services, always have the printed documentation handy. All of them have a small quick-reference card that is invaluable for finding your way through these systems.
- Make use of your communication software's TEXT CAPTURE capabilities to save each session to a disk file. This way, you can review information at your leisure without incurring excessive on-line charges.
- Learn how to use your communication software's automation facilities if it has them. Macros may seem difficult at first, but they certainly save time in the long run.

States is required to publish its financial results at least once a year, although this is usually done on a quarterly basis. DJN/R and other services don't generally carry the full text of these annual or quarterly reports, although they do make the numbers they contain available. And

sometimes a synopsis of the plans and results (and excuses) is also put on-line. However, it's hard for numbers to lie. If a company's sales have declined every quarter for 2 years, no fancy annual report can mask that fact!

Dow Jones has a number of differ-

ENTER QUERY 7AAPL P1				
DOW JONES HISTORICAL STOCK QUOTE REPORTER SERVICE				
STOCK 7AAPL				
DATE	HIGH	LOW	CLOSE	VOL (100/S)
12/27/85	22 5/8	21 3/4	22 3/8	5486
12/30/85	22 5/8	22 1/8	22 1/4	4807
12/31/85	22 3/8	22	22	3895
01/02/86	22 1/4	21 3/4	22 1/4	5242
01/03/86	22 3/8	22 1/8	22 3/8	10811
01/06/86	22 3/8	21 7/8	22 1/4	8261
01/07/86	23	22 1/8	23	21006
01/08/86	23 1/2	22 3/4	22 7/8	27125
01/09/86	23	21 7/8	22 5/8	19966
01/10/86	23 1/8	22 5/8	22 3/4	6841
01/13/86	23 1/8	22 1/2	23	9517
01/14/86	23 3/4	22 1/2	23 1/4	12174

Fig. 3: Historical data for Apple Computer, accessed through the /HQ database.

Fiscal Year	EPS	Revenue	Net Income	Book Value Per Share
Sep 85	.99p	1918.2	61.2	8.50
84	1.05	1515.8	64.0	7.67
83	1.28	992.7	76.7	6.38
82	1.06	583.0	61.3	4.58

(Revenue and net income in millions)

(S&P) 1/10/86 (AAPL) PAGE 2 OF 2  
Apple Computer

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FINANCIAL OVERVIEW

BALANCE SHEET

Current Ratio	2.71
Long Term Debt	61.77
Shares	61.77
Report of	06/28/85

(Long term debt and Shares in millions)

INCOME STATEMENT			
QUARTERLY REPORT FOR:			
	12/28/84	03/20/85	06/28/85
NET SALES	698,297,000	435,344,000	374,930,000
COST OF GOODS	415,802,000	250,920,000	220,463,000
GROSS PROFIT	282,495,000	175,415,000	154,467,000
R & D EXPENDITURES	17,666,000	18,371,000	17,430,000
SELL GEN & ADMIN EXP	173,791,000	140,127,000	133,577,000
INC BEF DEP & AMORT	91,038,000	16,917,000	3,460,000
DEPRECIATION & AMORT	NA	NA	NA
NON-OPERATING INC	-648,000	2,643,000	-37,282,000
INTEREST EXPENSE	NA	NA	NA
INCOME BEFORE TAX	90,390,000	19,560,000	-33,742,000
PROV FOR INC TAXES	44,291,000	9,583,000	-16,532,000
MINORITY INT INCOME	NA	NA	NA
INVEST GAINS/LOSSES	NA	NA	NA
OTHER INCOME	NA	NA	NA
NET INC BEF EX ITEMS	46,099,000	9,977,000	-17,210,000
EX ITEMS & DISC OPS	NA	NA	NA
NET INCOME	46,099,000	9,977,000	-17,210,000
OUTSTANDING SHARES	60,724,449	61,516,679	61,620,275

Fig. 4: Income Statements for the Apple Computer, from the /DSCLO database.



# STOCKS, BONDS, ICONS

Minutes	Service	On-Line	Surcharge	On-Line	Surcharge
2	Quotes	\$3.96		\$0.88	
3	News (D.J.)	\$6.84	\$0.30	\$3.12	\$0.60
2	Historical	\$3.96		\$0.88	
7	Profiles	\$15.96	\$0.30	\$7.28	\$0.60
<hr/>					
14	Totals	\$30.72		\$12.16	
	1200 baud Rates ->	\$1.98	Peak	\$0.44	Off-Peak
<hr/>					
Minutes	Service	On-Line	Surcharge	On-Line	Surcharge
2	Quotes	\$0.86		\$0.36	
4	News (A.P.)	\$1.72		\$0.72	
3	Historical	\$4.50	\$1.07	\$4.68	\$0.92
6	Profiles	\$6.00	\$0.57	\$3.60	\$0.42
<hr/>					
15	Totals	\$13.08		\$9.36	
	1200 baud Rates ->	\$0.43	Peak	\$0.18	Off-Peak

Dow Jones  
News Retrieval  
Service

The Source

Fig. 5 A cost comparison between Dow Jones News Service and The Source.

ent services with which users can view and track these reports; we'll look at the Disclosures (//DSCLO) database. It contains required SEC filings, corporate profiles and detailed data on over 10,000 public corporations. If we enter AAPL after accessing //DSCLO, we are presented with a list of available reports. Entering the numeral 4 brings up Apple's quarterly income statements (see Figure 4). An income statement tells a lot about the sources and uses of cash in a company. Other DJN/R databases stocking similar historical

data are Standard & Poors on-line (//SP), Merrill Lynch Research Service (//MLYNCH) and Media General Financial Services (//MEDGEN).

All these facts we've been able to access combine to arm a serious investor with the highest quality ammunition for a bullfight on Wall Street!

## WHAT CAN I DO WITH ALL THIS INFORMATION?

We're glad you asked! Because we are working with financial data, and because financial data are mostly

numeric in nature, the obvious place to turn for help is spreadsheet software. *Multiplan*, *Jazz* and *Excel* are all excellent tools to play "what if," or simply to archive data. First, though, it is necessary to get the data off the screen.

Save the data generated on-line using the terminal program's CAPTURE TO DISK command. In *MacTerminal*, this command is called RECORD LINES OFF TOP. It saves all the text that comes across the screen during an on-line session to a disk file. The file can then be opened with any word processor or editor, such as *MacWrite*, and the desired information can be copied to the Clipboard. Paste the information into a spreadsheet file to more closely analyze the data.

An alternative way is to copy a table of numbers directly from your communication software's screen. *MacTerminal* has a command in its Edit menu called COPY TABLE meant just for this purpose. This command differs from the normal COPY command in that it preserves the spacing on the screen more effectively. This can be critical to getting a spreadsheet program to properly interpret the imported numbers.

The table can be pasted into a blank worksheet. Unfortunately, the data may not be aligned properly because telecommunications is not yet an exact science. Reformat the data so it again looks like a table. The final table can be graphed to provide an even clearer picture.

## THE BOTTOM LINE

All the data in the world cannot replace expert advice. With the recent proliferation of discount, no frills stock brokerage houses, it's now possible for the individual investor to get a fair price on small quantities of stocks. However, what you lose with a discount broker is the advice that a full-service house charges for. On-line information utilities can supplement sound advice, but be very careful. You are competing in fast company: There are big-time investors out there who would love to take your small stock purchase and leave it as a tip after their next business lunch!

## OTHER TOOLS AVAILABLE

Many software companies have long offered investment analysis software. It has taken many forms, from simple spreadsheet templates all the way to dedicated programs costing thousands of dollars. Recently, however, Dow Jones expanded its line of software to the Macintosh.

There are three packages exclusively made for Macintosh. *Straight Talk 2.0* is a specialized communications program. It is a very useful tool for accessing the Dow Jones News/Retrieval service. It offers pull-down menus with all of the databases on them, on-line help, and some nice cosmetic touches. One such feature is the means by which //DJNEWS is accessed. The news comes up in pages in a Note Pad-like window, allowing users to click back and forth between pages. Fortunately for Dow Jones, these cosmetic features tend to

make people stay on-line longer to play with all the "goodies," driving up connect-time charges. However, this is a well thought-out program for the uninitiated.

Another Dow Jones product is *Spreadsheet Link*. It allows effortless transfers of financial information directly into spreadsheets. It works in concert with *Straight Talk 2.0* to create *Multiplan* files from material that is received from Dow Jones. And these worksheets are also compatible with *Jazz* and *Excel*.

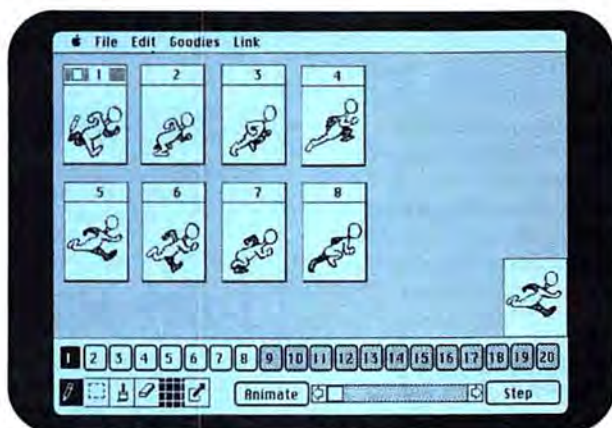
Last on the list from Dow Jones is its *Market Manager Plus*. This is an older package that has its own communications software built-in. It allows graphing and detailed analysis without the need for a spreadsheet program. It has a tremendous amount of useful information and reports for the serious investor.



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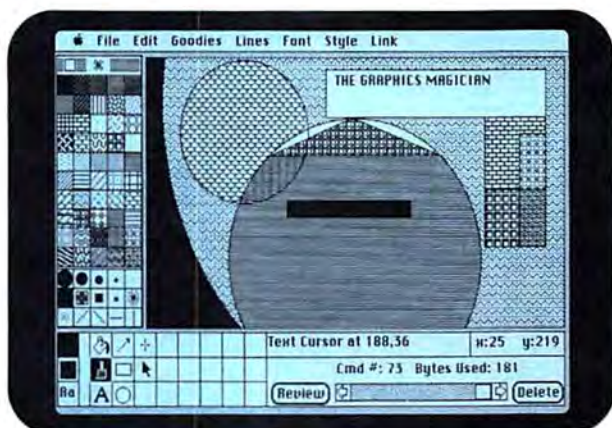
## PAINTER AND ANIMATOR

for the Macintosh by Eagle Berns and Roger Lawrence



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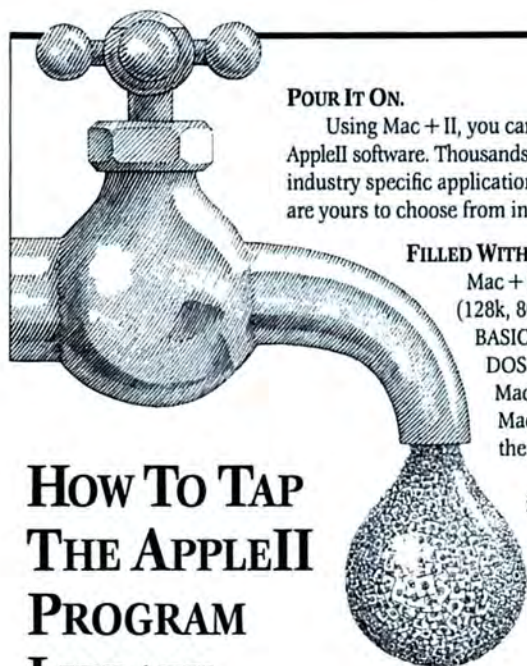
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# CHILD'S PLAY

DO YOUR CHILDREN LIKE your Mac as much as you do? Do they compete with you for time on it? Well, why not? It's the easiest-to-use computer in the world, and children love it. It appears to be an ideal machine to use with a young child. Yet, children's software for the Mac is still hard to find. There are some programs available, but nothing really aimed at the Mac's youngest users. Have you ever thought of creating custom programs for your children? And stopped because it meant (ugh) programming?

Well it doesn't matter if you can't whip out a few lines of code in one programming language or another. You don't have to be a programmer to create educational games and programs on the Mac. Two readily available programs, Hayden's *VideoWorks* and Magnum Software's *Slide Show Magician*, are ideally suited for this sort of project.

## VIEW-ONLY "GAMES"

*VideoWorks* has no interactive elements at all; *Slide Show* allows limited interaction by way of screen buttons. Both programs can be used to make "passive" displays.

Passive? Isn't that educational heresy? Not at all. Watch a few segments of "Sesame Street" and see

## Use Slide Show

### Magician and

### VideoWorks to create

### custom teaching

### programs for your

### children—without

### programming!

just how much can be conveyed in an animated or stop-action sequence with little or no sound. Besides, such vignettes are only apparently passive; the child has no control over what happens next or when it happens, but that doesn't mean he or she isn't responding to the display.

Most educational computer games are set up to react to a child's directions, or acknowledge an answer as right or wrong, but such interactions are not always necessary. A well-placed pause in a "show" lets the child predict an outcome; occa-

sionally the prediction is mental, but more often it means the child points to the screen, or calls out an answer. When the show continues, the child sees whether or not his prediction was correct.

*VideoWorks* and *Slide Show Magician* may be short on interactive elements, but their creative freedom gives you a lot to work with. *VideoWorks*' superb animation ability makes it perfect for many displays, and sound effects are available to emphasize such things as the appearance of objects.

*Slide Show Magician* has buttons that let the user control the slide show timing sequence, and, in the current version (1.3), move directly to other slides. It also allows users to draw on-screen with the mouse cursor; and, best of all, a companion program called *Sound Editor* lets you create voice files with *MacinTalk* for use with your show.

Okay, you're convinced it can be done. Now, what do you do—and how?

## WHAT IS EDUCATIONAL SOFTWARE?

Almost any activity, computer or otherwise, is educational for a young child, but we're talking here about some specific "academic" areas. For preschoolers, there are many "pre-

by Sharon Zardetto Aker



## CHILD'S PLAY

reading" and "premath" skills, as well as related miscellaneous concepts, that can be taught with computer games.

Even seemingly simple tasks require many separate skills. If the child is presented with a screen that shows a few pictures and some numbers, and is expected to pick the correct number, there are at least three skills involved.

Numerical recognition is the most obvious: If the child knows that there are three apples on the screen but doesn't know what a 3 looks like, she's not going to get anywhere. Then there is rote counting: if she can't chant "1, 2, 3, 4" and so on, she can't count the apples. Most importantly, she has to have mastered the concept of one-to-one correspondence; that is, every apple receives one and only one count. If you're making programs for a very young child, design shows that foster basic skills separately as well as in combination.

These and other skills are listed in the sidebar; some suggestions for related shows appear later in this article. Any time you need inspiration though, watch "Sesame Street" and pay attention. Even if you're not sure of the specific skill that is being taught, you can copy the idea.

Older children, in kindergarten and first grade, can also find home-made computer games helpful and fun. (Beyond that age, noninteractive shows don't offer enough to hold the child's attention.) By then, of course, the children are working with a different level of skills. In the math area, for instance, they've graduated from counting to adding and subtracting, and simple multiplication and division. This is the area where commercial educational software so often falls short. Flashing "3+5" on the screen and waiting for the input of 8 is testing, not teaching, whether it's done with numerals, pictures or bells and whistles. The child may enjoy it, and, of course, eventually learns from such drill practice, but the program does nothing to foster the concept of addition.

Instead, picture this: Two apple trees are on the screen—one has two

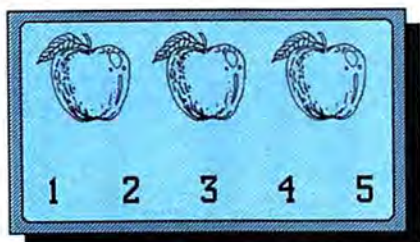


Fig. 1: Even a task as simple as finding the correct number for this picture is made up of several numeric skills.

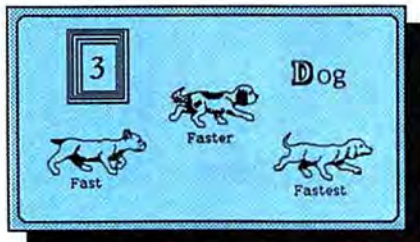


Fig. 2: Don't try to teach too many concepts in a single show.

apples on it and the other has three. The related numerals appear on the trunks of the trees. The apples begin to fall, rolling down a slight incline and piling up at the bottom of the screen. The numbers on the trunks flash alternately, then the number 5 appears over the pile of apples at the bottom. That's the concept of addition being shown. A single tree losing two of its five apples can illustrate subtraction; three trees with four apples each can show multiplication; and ten apples falling from a tree so that five land in each of two baskets on the ground can show division. Good educational software doesn't use sound and pictures just for decoration, but as an integral part of the overall teaching purpose.

### DESIGN GUIDELINES

To get started, first pick the area in which you want your child to work; use the sidebar descriptions as a starting point, but don't limit yourself to the concepts listed there. Keep in mind the following points:

- A show can illustrate a single basic concept, or foster a few related concepts (such as counting skills), but don't try to teach too much at a time. Three dogs running across the screen shouldn't be teaching the number 3, the letter D and the relative size concept of "big, bigger,

biggest" all at the same time.

- On the other hand, there's no reason you can't design a show that can serve as the basis for other shows, saving design time on your part. The "dog show" mentioned above can be used for letters, numbers and size, but in three separate shows.

- Pace and design the show for your own child. After a few trial runs, you'll know whether he's getting bored because it's too slow or elementary, or frustrated because it's too fast or advanced.

- Take advantage of your absolute freedom of design, and tailor the shows to your child's interests. "D" can always stand for dinosaur instead of dog.

- Include a "delay" in the show wherever possible so the child has a chance to give an answer. She might want to point to the one object out of four that is different, or count the number of ghosts on the screen, or find the one word in the list that describes the picture; whatever the situation, leave time for the child's response before the program illustrates the answer.

- Make the most of the program's abilities to add interest to the show. *VideoWorks* makes animation so simple that things can glide on and off the screen instead of just appear and disappear; sound effects are easy to add to emphasize movements. *Slide Show* has buttons that let you decide when the next frame appears, so the child can indicate when he wants to see an answer. Use *Slide Show*'s draw option liberally: if a pumpkin was used for the letter P, the child can make a face on it before the next slide appears. (Drawing is only temporary—it doesn't change the show on the disk.)

- When objects appear on the screen, or move across the screen, make the appearance or motion proceed from left to right. This helps train the left-to-right eye coordination that is necessary for reading.

### ON WITH THE SHOW

Here are a few suggestions to get you started, divided into subject areas. The parenthetical note refers to whether the suggestion applies to



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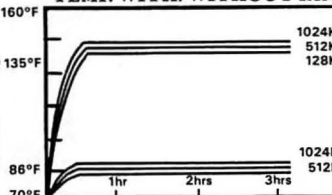
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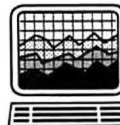
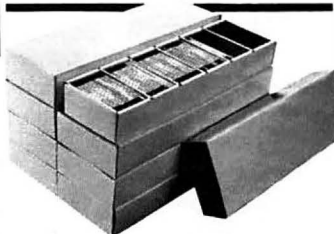
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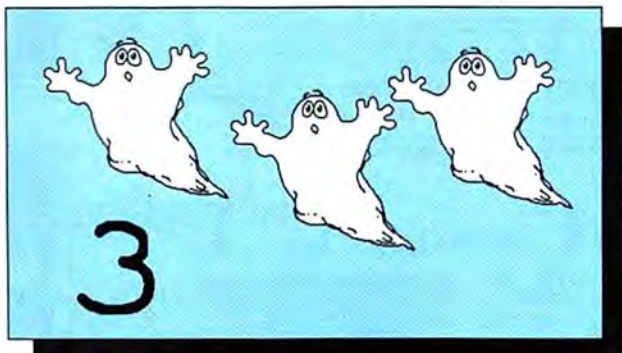
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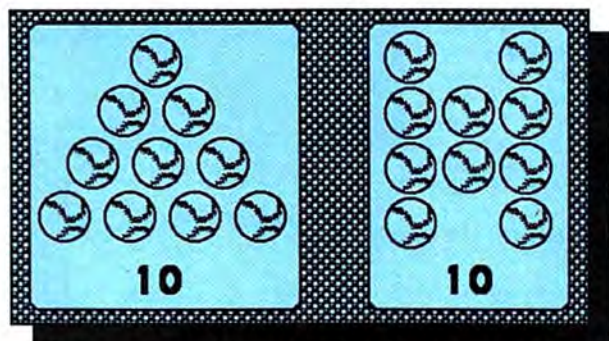


# CHILD'S PLAY

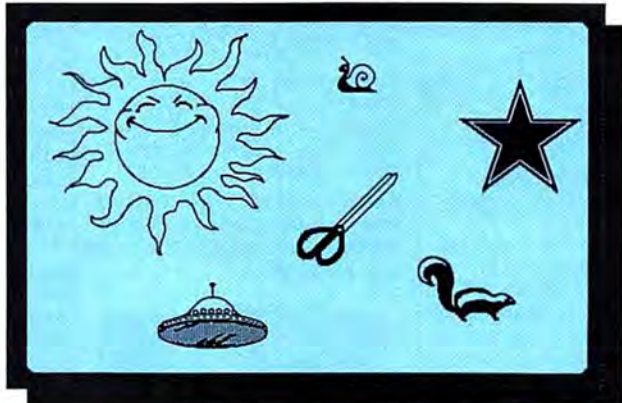
**Fig. 3:** *VideoWorks'* smooth animation lets the ghosts fly in one at a time and fly away together. A similar show in *Slide Show* would let the ghosts "dissolve" on and off the screen while a voice-over identifies the number.



**Fig. 4:** Showing that rearrangement of items does not affect their total number teaches "conservation of number"; these two pictures would be the beginning and end of a *VideoWorks* animated sequence.



**Fig. 5:** This is a screen from *Slide Show*. The objects appear one at a time, with the voiceover identifying them: "Sun," "Spaceship," and so on. At the end the letter S is added to the frame and identified.



*Slide Show* (SS) or *VideoWorks* (VW). In many cases, you'll be able to create a similar vignette in either program, although *Slide Show* with *MacinTalk* is invaluable for letter sounds and other reading skills. In fact, if you own and use both programs, you'll find yourself wishing, as I did, that there was some way to combine the wonderful animation of *VideoWorks* with the voice capability of *Slide Show*.

**Shape Identification:** (VW) Make a frame with "outdents" on each of its four sides that will hold a circle, a triangle, a square and a rectangle. Have one of the four shapes appear on the screen, inside the frame. The shape moves around inside the frame, bouncing off the

walls with appropriate sound effects, trying to squeeze into each one of the spaces. Finally, it finds the proper "parking space" and slides in.

(SS) Have pictures whose main element is a simple shape (such as a door, an envelope and a crate for rectangle) appear one at a time on the screen. You can blend separate *MacPaint* documents so all the shapes will be on the screen at the same time. The final frame shows the objects with the rectangular portion highlighted by heavy lines, and Mac says "Rectangle."

**Numbers:** (VW) Have a single picture repeated on the screen display up to 12 times. For instance, have three ghosts fly in one at a time, using white on a black background.

After a pause, the number 3, also white-on-black, is drawn slowly with a wide brush. Another pause, and the ghosts fly off together. Different figures and sound effects can be used for the different numbers.

(VW) To demonstrate conservation of number—that the number of items remain the same no matter how they are arranged—put ten items in a pyramid and flash the number 10 on the screen. Have the items rearrange themselves slowly into another pattern, and flash the number 10 again. Repeat the rearrangements and number flashing.

(SS) Using a small drawing of any interesting item, have one additional copy of it appear for each frame, with Mac counting "one," "two," "three" and so on as the frames appear. The final frame can include an additional counting from 1 to the number of items showing.

**Letter Sounds:** (SS) Have different objects that start with the same letter appear one at a time. After each appearance, have a slight pause and then a *MacinTalk* identification of the object. Put in a longer pause after the final picture; then add the appropriate letter to the frame and a voice file that says "The letter...S."

**Same/Different Concept:** (VW) Put a row of four or five shapes or items across the screen, with all but one identical. If your child is older, the differences can be more subtle. For very young children, you can use three circles and a square; for older ones, you can use a line of jack-o-lanterns with one that has a slightly different face. After a pause long enough for the child to have chosen the shape that's different, have it flash on and off.

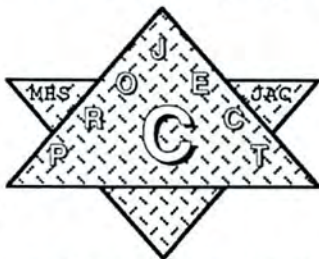
(SS) Show a row of objects, with one item different, in the first frame. Replace it with a similar frame where the "different" object has fallen out of the line; experiment with different wipes from one frame to the next until you find the effect you like.

(VW) Place a picture at the left of the screen and a vertical row of pictures on the right; the row should contain a duplicate of the single picture at the left. After an appropriate pause, the single picture slowly moves over to its twin on the right.



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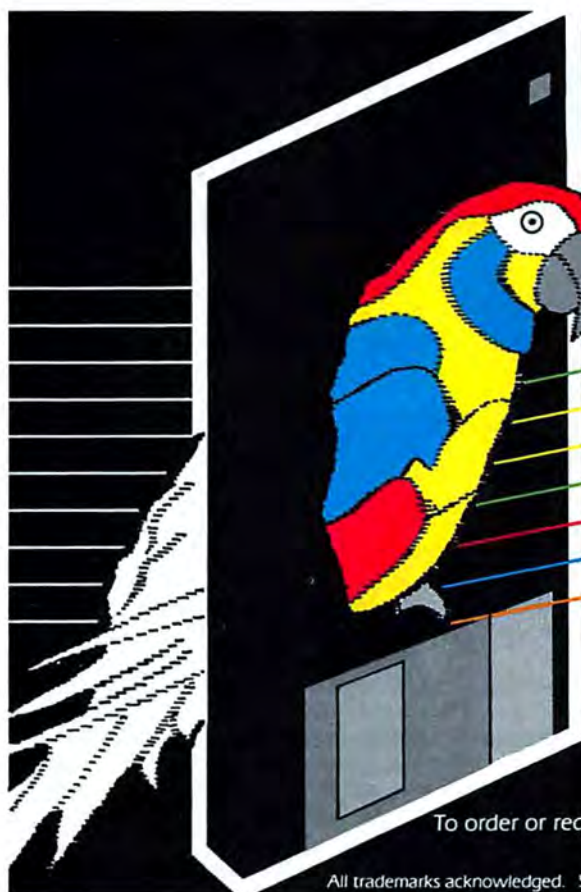
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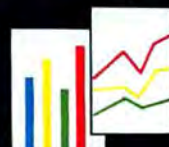
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# CHILD'S PLAY

Fig. 6: After the child has had time to find the matching object in the row at the right, the mitten at the left moves over to its twin. Make sure you keep motion and object appearances in a left-to-right direction.

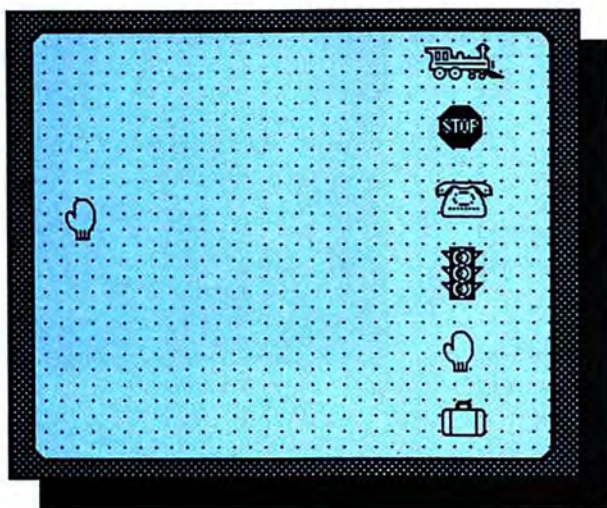
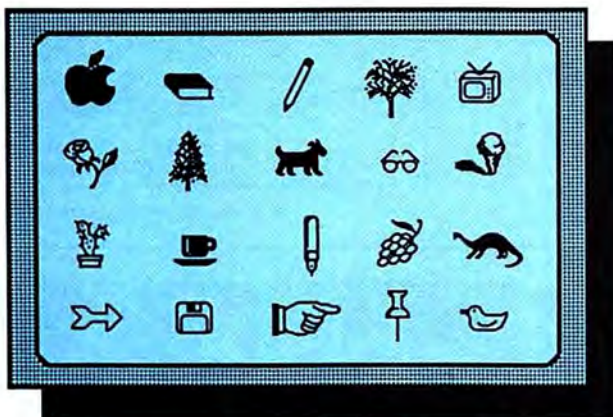


Fig. 7: A memory game can be made in *Slide Show* or *VideoWorks*, and the potential complexity can challenge even an adult.




You can make the object pause at any or all of the other pictures and coordinate a sound effect to indicate that it doesn't match.

You can do the same thing with letters, using the uppercase version on the left, and match it to the correct one in the row of lowercase letters on the right.

## AND, FOR CHILDREN OF ALL AGES

There's one educational game that can vary so much in complexity it's appropriate for anyone from toddler on up; it can be used with more than one player at a time, too, and you can do it with either *Slide Show* or *VideoWorks*.

Put a picture on the screen that is made up of any number of objects; after a delay, replace it with a picture that is the same, except that one of the objects is missing. The player(s) then must name the missing item. After an appropriate delay, the missing object can show up on the screen again. There are many variables you can adjust according to the age of the audience: the number of objects or items, the length of time the original is shown, how many are removed (it can be more than one), the arrangement of the remaining objects, and the time interval before the answer is given. 

## EDUCATIONAL SKILLS FOR YOUNG CHILDREN

Here are brief descriptions of some of the skills you can design your shows to teach.

### PREREADING SKILLS

**Letter recognition:** Identifying upper and lowercase letters separately; matching the uppercase letter to its lowercase counterpart.

**Name recognition:** The child should learn to identify his or her first and last names. Make sure you use uppercase only for the first letter of the name.

**Letter sounds:** Initial consonant sounds. Avoid confusing words like knife and phone, but include both sounds for letters such as G, as in giant and gorilla.

**Rhymes:** Simple rhymes like cat and hat, and fall and ball are good. If the words appear on the screen, stick with those that are spelled alike except for the initial letter(s). Avoid, for instance, hoe and snow.

### PREMATH SKILLS

**Rote Counting:** Reciting the numbers. Begin with 1 to 3 or 1 to 5, then 1 to 10; 1 to 12 and 1 to 20 are the next goals.

**Numeral Recognition:** Begin by presenting only a few numbers, going only as high as the child can rote count, and present them in order. If you're a wiz in *VideoWorks*, you can present the numbers 1 to 10 with each one slowly transforming itself into the next.

**One-to-one correspondence:** Matching related objects into pairs with no items left over.

**Quantity:** Demonstrate concepts of more/less, greater than/less than.

**Conservation of number:** Rearranging objects does not affect their total number.

**Ordinal numbers:** First, second, third and so on.

**Simple operations:** Begin with the addi-

tion or subtraction of 1 from other small numbers; graduate to adding or subtracting more at one time.

### OTHER SKILLS

**Shape identification:** Work with circles, squares, triangles and rectangles. Later, add ovals and diamonds.

**Shape discrimination:** Differentiation of shapes—geometric or otherwise. Approach this from two directions: finding the shape in a group that is different, and matching two that are the same.

**Spatial relationships:** Under, over, in, on top, next to, through, up, down and so on.

**Object classification:** Things that belong to the same group: animals, fruit, food, things with wheels or things to play with.

**Pattern recognition:** What comes next in a repeating sequence.



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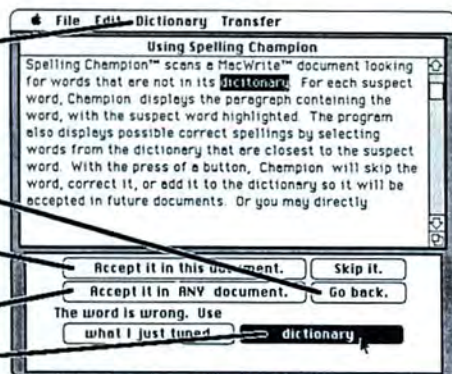
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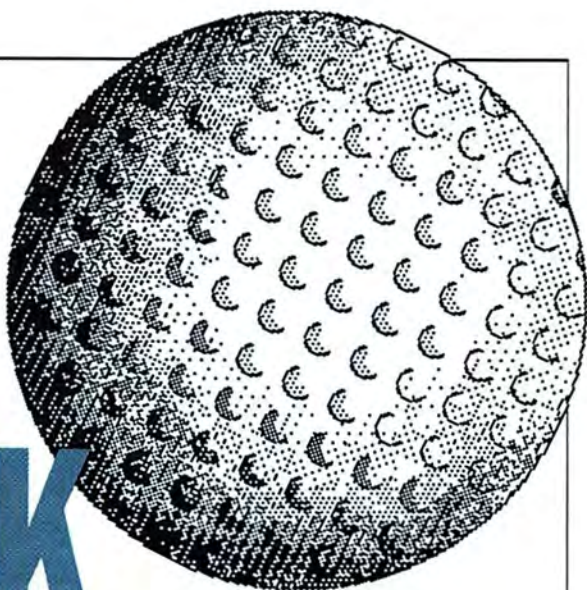
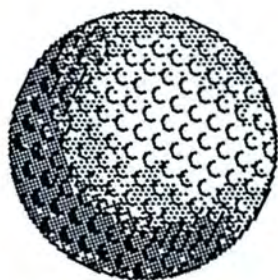
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# CLICK AND PUTT

***Would-be hackers can  
improve their game  
with MacGolf.***

THE BEST WAY TO LEARN A NEW skill or technique is to do it. Reading helps some; even thinking helps some. But nothing beats actually doing it.

Sometimes doing it has its drawbacks. Learning to fly is the classic example. The very best way to learn is to have someone take you aloft in a two-seat aircraft and say, "Here, it's all yours." Almost anyone can learn very fast and very well in a situation like that. Of course, this way of learning is somewhat dangerous and expensive. Aircraft are not as common as automobiles and often

can't be spared for the purpose of teaching fledgling pilots.

One solution to the lack of aircraft, high costs, and loss of life was devised almost 50 years ago. Simple aircraft simulators proved very effective in teaching flying skills. The simulators were very simple: They didn't attempt to replicate the whole environment that pilots function in, but merely the feel. Right from the beginning it was obvious that sound and motion were at least as important as visual input. The early simulators were wildly successful.

As computer technology advanced, so did simulation technology. Simulators became incredibly detailed and sophisticated. Industrial psychology studies of simulation produced many expected results (simulation works well and fast, in most cases), but a few findings were surprising. For example, the lack of color has little bearing on the effectiveness of simulation training. Simple simulations that accurately recreate the feel of an endeavor are far more effective than elaborate simulations that can mask an experience's true feel through an overabundance of details.

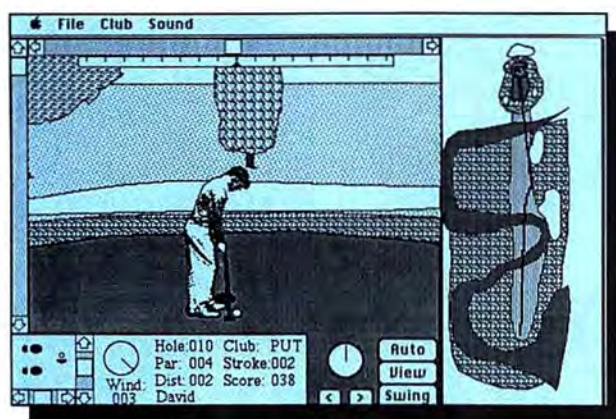
Aha! Then might the Mac not be able to run useful simulations? The answer, of course, is "Yes." The flight simulators that are available ("If Mice Had Wings," *MacUser* February 1986) are nice, and at least PBI's *Fokker Triplane* comes close, but flying is still too complex to really be handled by a microcomputer. To see what a true simulation is really like, explore PCA's *MacGolf*.

**BY STEVEN BOBKER AND DAVID BIEDNY**



## CLICK AND PUTT

Sometimes a putt appears not lined up correctly. If David swings now, he'll miss this short putt for a birdie. Use the small view adjustment arrows to line the putt up perfectly. By the way, it was a great 2 iron shot that put him in this great position.



*MacGolf* simulates a round of golf on either of two full courses. A quick disclaimer: *MacGolf* will not teach you to actually hit a golf ball. That skill still falls in the "you have to actually do it to learn it" category. But it *will* teach you the strategic aspects of golf, and let you see if it's worth it to go out and actually do the real thing. Golfers who know the basic techniques stand to gain the most from this simulation. They'll see what club and technique works best in many situations.

All the necessary variables are factored in and the play has an amazing feel to it. Extensive use is made of digitized sounds (produced and run by Kette's wonderful *SoundCap*), adding much to the overall effect.

We're told that the game was programmed in assembly language and the code was optimized. In spite of that, the program barely fits on a single 400K disk, and only then if the Finder is replaced by a Mini-finder. To get the necessary real-time effects, virtually the whole program resides in memory, straining the capacity of 512K machines. Simulations are always memory and processor hogs, and the more memory they have available and the faster their processors run, the better they'll be. *MacGolf* is a fine simulation, with most of its deficiencies attributable to a lack of memory. We'd love to see a version of *MacGolf* on an 800K dual-sided disk running on a Macintosh Plus.

### TEEING OFF

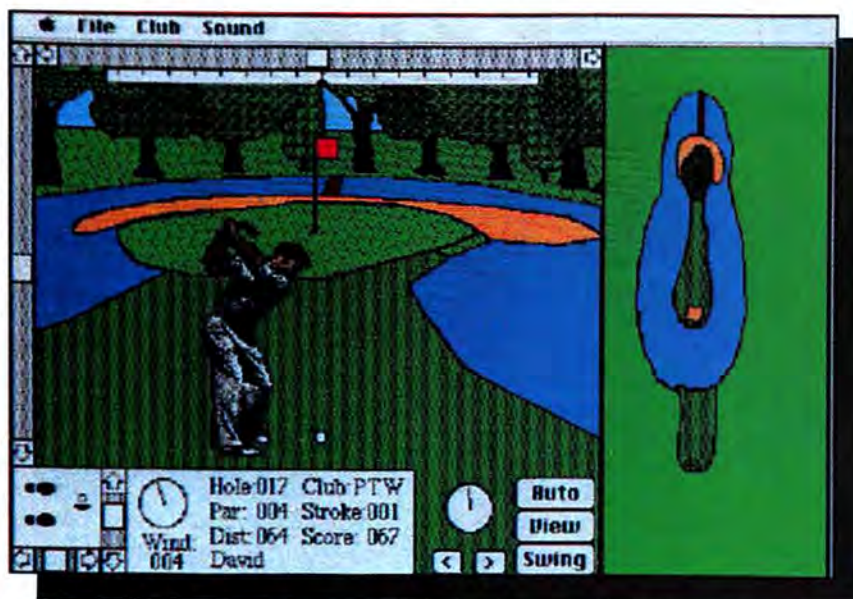
Golf is a social game, and so *MacGolf* allows groups of up to four people (foursomes) to play together. If you do play in a foursome, allow a lot of time. A whole round takes from an hour to an hour and a half per player and partial rounds can't be saved. Fortunately, you don't have to worry about toting a 20-pound bag of clubs around, or being caught by a sudden rain storm. The other side of the coin is that there is no golf cart to have fun driving.

Each player selects one of three difficulty levels. Players playing together can be at different levels. Level 1 is the easiest level. The effects of wind are the least and the player's natural abilities are the greatest. Levels 2 and 3 make play significantly more difficult. Wind effects increase, often dramatically, and shots usually travel a lesser distance than they do when easier levels are selected.

### ON THE LINKS

Play mechanics are simple. Every control is activated by the mouse. After the players' names are typed in, the keyboard can be disconnected and put somewhere out of the way. Each shot follows the same sequence that a real player would take on a real course.

Step up to the ball by clicking on VIEW. What you see is the section of course that you are about to hit the ball to. If there are no wind effects (Hah!), the ball will wind up along a line that runs right up the center of the window. Use the small left and right arrows to adjust your basic position as you wish. Look behind you if you want. Then select your club. At the beginning of a hole you already have a 1 wood in your hands; your helpful, but not always too bright, computer caddy has put it there. Don't assume that a 1 wood is what you want or need. Look at the situation, the distance, the hole layout and, most important, the wind. Maybe another club is called for. In the teeth of a strong headwind, maybe you'll do better with a 2 iron. Your caddy is carrying a reasonably full set of clubs. You can select from an assortment containing



At the easiest level (Level 1) a pitching wedge shot will travel between 130 and 150 yards. The strength bar has been adjusted to reflect the shorter shot required here. This is the "interesting" 17th at Shinook Hills. There are a lot of balls in that water. The color is courtesy of Dunn Instruments. They used their Macintosh Color System to colorize an ordinary monochrome screen dump.



1, 3 and 5 woods, 2 through 9 irons, a pitching wedge, a sand wedge and a putter. Yep, only one putter.

After a club has been selected, make those fine, crucial, somewhat ritualistic adjustments to your stance. Position your feet exactly as you want. Then make the final aim adjustments and decide how hard you're going to swing. Don't neglect these adjustments. They make all the difference in going around in par and skying over 100.

When everything is set to your

liking, take a deep breath and swing. You'll hear a satisfying "thwunk," and the ball will soar up and out of sight for a moment. You can watch its path in real time in the scale view at the right, or just keep your eyes glued to the main window.

Eventually the ball will fall back into the viewing area and bounce to its resting place. You're automatically blessed with fine eyesight for the duration of the game, so you always see the ball—unless, of course, you've managed to drop it in the

abundant water or one of the diabolically placed sand traps, or hooked or sliced out-of-bounds. Those events are noted with appropriate sound effects, of course.

After each shot has come to rest, get set for the next one. Always use the view adjustment arrows before you ask to see the view. That will save one redrawing of the main window each shot, and the time savings over the course of 18 holes will be considerable. Sometimes it is not necessary to actually select the next VIEW. If your shot falls within 40 yards of the hole, the View window is drawn automatically.

Always remember to check what club is in your hands. Computer caddies are not known for their great golf sense. It will usually be the last one used, and may not be at all appropriate. Trying to blast out of a mid-fairway sand bunker with a 1 wood isn't going to get you far at all.

The status box at the bottom of the main window will always tell the "as the crow flies" distance to the hole. The actual distance that you have to play may be greater, since there may be water or rough on the direct path.

The distance indicated is in yards. That seems normal when on the tees and fairways, but it's a bit odd on the greens. Still, it's yards, never feet. That 5 distance putt is really a putt between 13½ and 16½ feet. A distance of 0 means the ball is within 1½ feet of the hole.

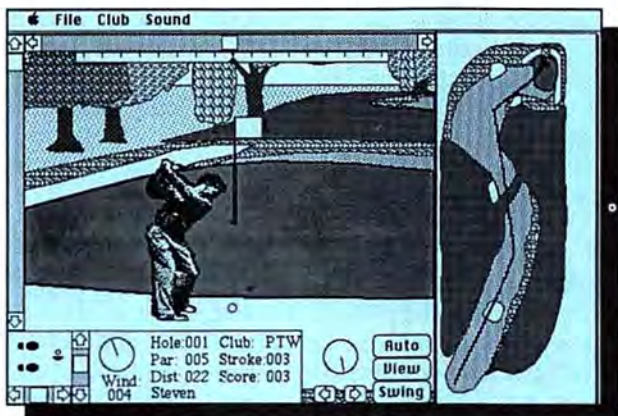
#### TALES OF THE PUTTER

Once you've made it to the putting green, the caddy will automatically put the putter in your hands. Putting, in *MacGolf* as well as real golf, is the hardest skill to master. The greens are perverse; expect to "just miss" often.

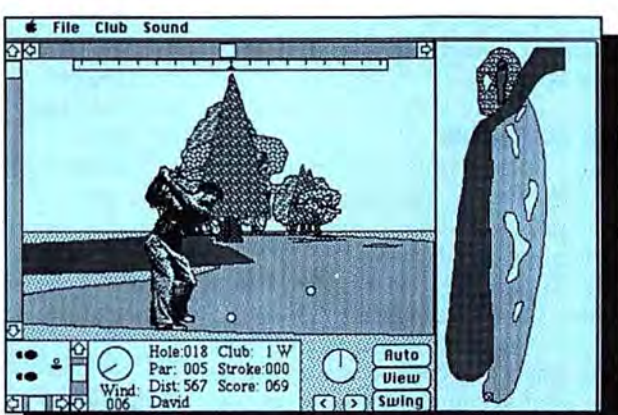
There are always crowds of people (you can't see them, but they're there) around the greens. They'll audibly react to particularly good shots and some near misses. When you finally hole out, you'll hear as well as see the ball drop.

Putting is a skill that practice will improve. You can't go to a putting green and just shoot away, but do plan on a round or two of practice

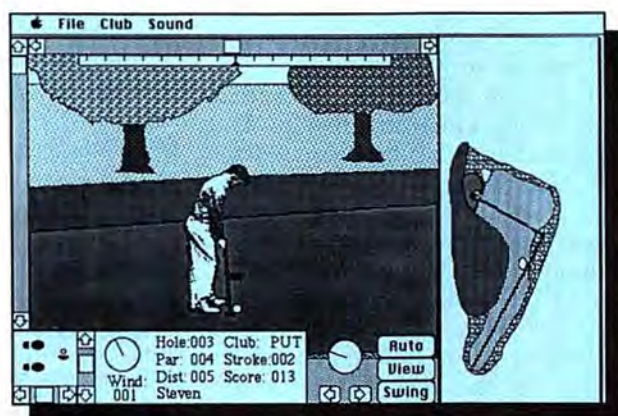
In a sand trap. The selected club, a pitching wedge, should probably be exchanged for a sand wedge. The wind will carry your shot to the right, not the left, since you're shooting back towards the tee. This tough hole is what you start out on at Augustina National.



On the 18th tee at Shinook Hills. Aim carefully to avoid the sand traps and water. Be sure to allow for fairly strong breeze blowing toward the water.



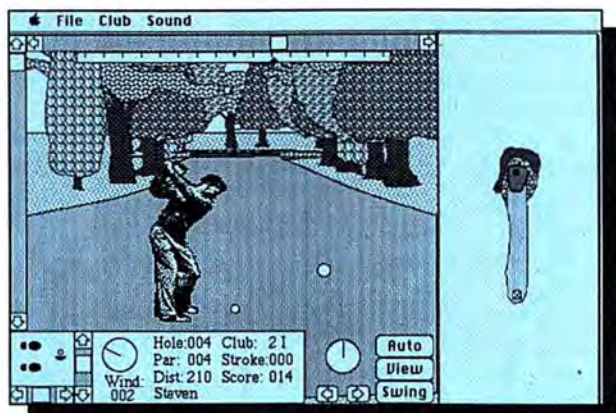
Putting for a birdie on the 3rd at Augustina National. This is a moderately tough putt of between 13½ and 16½ feet.





# CLICK AND PUTT

The 4th at Augustina National is shown as a par 4. It really should be a par 3. When you step up to the tee, you'll have a 1 wood in your hands. Be sure to change it, unless you like the sound of golf balls splashing in water.



before you achieve a respectable score. The key to putting, as it is on the fairways, is using all of the fine tuning controls. Be sure to set your stance and aim to counteract the break of the green. Sometimes the automatic view that you get whenever you are within 40 yards of a hole is off. If that's the case, use the left and right view arrows until you have what appears to be a straight line to the hole. The most crucial control on the green is the shot strength bar. It's going to take a while to learn what setting will get your ball where

it must be. This is also the hardest control to master.

It's hard to determine how the ball will curve, or break, on the putting greens. Keep in mind that the wind/green angle indicator shows directions relative to the scale view, not to the View window. A nice feature, had there been room on the disk, would have been a ground level view of the hole from the player's position on the green. Golfers often get down to ground level to see how to aim their putts. This ground level view could replace either the scale view or the View window. We'll be looking for it, or something like it, in the next version.

## THE SCORECARD

If a hole-by-hole score matters to you, be sure to record it on paper. The program doesn't keep records showing each player's score on each hole. In fact, all that is shown is the number of strokes taken so far by the player who is currently active, and that player's overall stroke count so far. So if keeping track is important to you, do it yourself. This is a drawback caused by the size of the program. There's just no room on the disk to store such information.

The holes, and the courses for that matter, vary widely in difficulty. The manual claims that both courses are par 72's, but a careful recording of the Augustina National course shows a par of 75! The other course, Shinook Hills, is a par 72, but it's par 35 on the first nine, and 37 on the back nine.

That's a problem if you choose to play only the back nine, for the program assumes you shot "par" on

the front nine and starts you off with a stroke count of 36. Be aware that if you play only the back nine and your score qualifies for the "top ten" opening screen it will be recorded there, even though you didn't play the front nine and couldn't possibly shoot a 36 there even in your wildest dreams.

The publisher has announced plans for more courses, but these two, with the ability to vary difficulty levels, will keep most armchair golfers busy for a long time.

In spite of the many little things that are missing, the occasional flaws and the lack of color, *MacGolf* is a superb simulation. It meets the requirement of real-time response and provides proper visual and audio stimuli. It's more than almost like playing golf; it can teach you to be a better golfer.

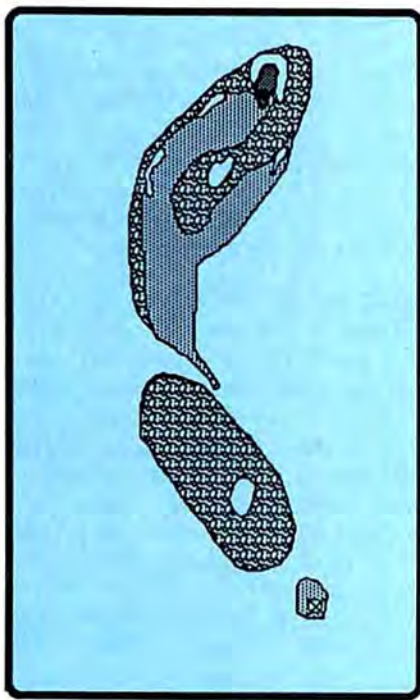
And if your goal is merely sedentary pleasure, *MacGolf* also supplies that in abundance. We are not golfers and never even ventured onto a real golf course as players, yet we found the game fascinating and addicting. Several real golfers were exposed to *MacGolf*, and, if anything, their reactions were more enthusiastic than ours. We had difficulty getting the master disk back from some of them.

*MacGolf* succeeds on many levels. As a game it's superior, as a simulation it is more than adequate, and as a promise of what can be done in the future, it leaves us waiting in great anticipation. ☞

## MACGOLF

Overall Rating:	■ ■ ■ ■ □
Follows Mac Interface:	■ ■ ■ ■ □
Printed Documentation:	■ □ □ □ □
On-Screen Help:	None
Performance:	■ ■ ■ ■ ■
Support:	■ ■ ■ □ □
Consumer Value:	■ ■ ■ ■ ■

**Comments:** Provides a realistic simulation of golf. **Best Feature:** Excellent use of graphics and digitized sounds. **Worst Feature:** Inability to save partial games. **List Price:** \$59.95. Requires 512K or Mac+. Published by Practical Computer Applications, Inc., 1305 Jefferson Highway, Champlin, MN 55316. 612-427-4789.



A scale view of the 16th at Shinook Hills. This is about as tough as they get. It takes a perfect shot to hit the fairway. We've never seen anyone do it from the tee. Play through the rough; that's much easier.



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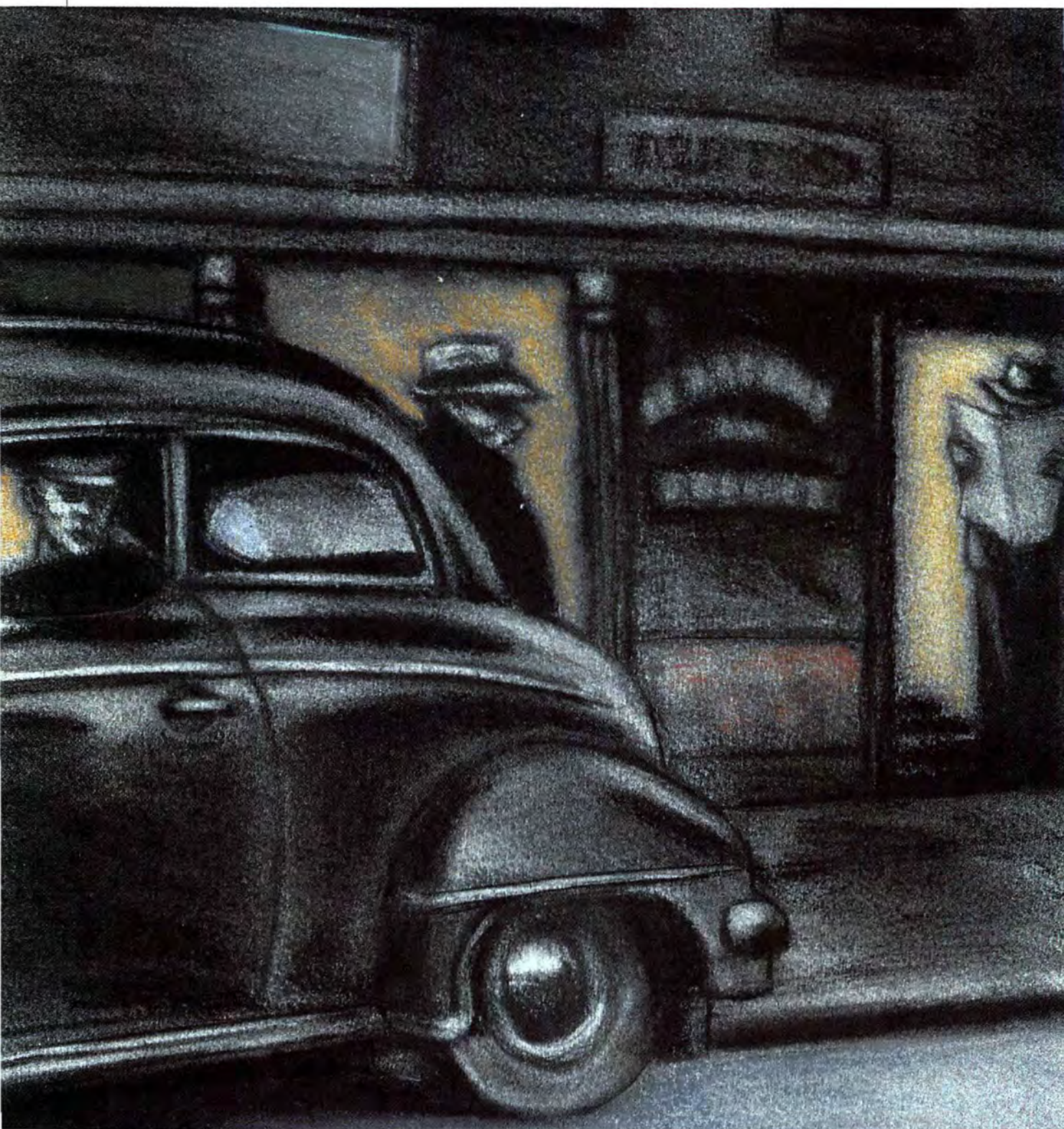
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# THIS MYSTERY W





# ILL KILL YA!

**Detective work ain't  
easy when you're living  
on Borrowed Time!**



"SAM, YOU'RE A DEAD MAN." No, you're not paranoid. Somebody really is out to get you, at least when you're playing Activision's *Borrowed Time*. In short, the object of the game is to solve a murder—yours—before it happens, a feat that requires much more knowledge than your character starts out with.

This illustrated adventure casts players as a hard-boiled Chandleresque gumshoe who's made more than a few enemies in his checkered career, a fact that becomes apparent when gamers read the various case files stored in the office.

The game begins with an anonymous phone call saying only those fateful words. Okay, they want you dead. But why? The caller doesn't define who "they" are, but after a few exploratory rounds of the game, it will become clear that you have far more enemies than friends. Could your attempted murderers have been hired by your ex-wife Rita and her lover Fred Mongo? Is Mongo's boss Farnham trying to stop your investigation into his mob ties once and for all? Or could a drug-pushing doctor named Lafferty be trying to cut you off once and for all? All in all, there are over three dozen good suspects, and they may have more in common than a death wish for Sam Marlowe.

*Borrowed Time* demands creative thinking from the word "go," with a suspense-packed opening sequence that could make Sam Spade quake in his gumshoes. From the second Sam Marlowe—that's you—ventures out of his office, the goon squad is hot on your heels. And these guys mean business. They do their talking with loaded pistols. To really do well in the game, players have to actually think like a hard-boiled detective would. Don't be afraid to throw

**BY TRACIE FORMAN HINES**



# THIS MYSTERY WILL KILL YA!

your weight around, show your gun and otherwise intimidate the general populace. Think Bogart. It's the only way you'll get through the game alive.

## OF GRITTY CITIES

The game's fictional city is huge, sprawling and anonymous. It will take a while to get your bearings and make an accurate map, but be sure to create one—the goons have a tendency to pop out of nowhere and let their guns blaze, especially when players take too much time simply wandering around. They're constantly on the prowl for detectives who seem to be too confused, and quickly pick off any players who stumble around too aimlessly. If the program tells you you have the feeling you're being watched, it's your cue to take your act on the road. Fast. Stick around any place a little too long and chances are your "friends" will be able to get a fix on your location.

The map is laid out along the lines of a real city, with streets that can be followed in any of the four directions (north, south, east or west). Once novice gumshoes have gotten their bearings, movement through the various locations is logical and quite precise. For example, if you hang a left at the intersection of

Pershing and West Sixth Street, you can follow West Sixth all the way to Sixth and South Main Street. Go north from there and you'll find yourself at First and Main. The map is more logical than many real cities!

Sam has a couple of real friends scattered throughout the city. Among his most loyal (and useful) confidantes are old blind Hawkeye, who runs the local newsstand with his trusty blind dog, and Mavis, the barmaid with the heart of gold, whose sympathy for Sam lands her in the middle of the fray. Elegant Doris also seems friendly, but a quick check of the case files reveals she might not be as sympathetic as she seems.

The visuals are excellent, although occasionally confusing. Some objects can be picked up merely by clicking on them; others seem to be just part of the scenery, though sometimes these can be further explored by typing in "Get (object)" or something similar.

Graphics are rendered in a pseudo-comic book style, not at all like the fine-grained "grit" visuals found in *Deja Vu: A Nightmare Comes True*. Instead of the detailed still lifes pictured in *DV*, *Borrowed Time's* pictures are often animated. Many screens feature cute graphic flourishes, like the wildly jangling

telephone that practically jumps off the hook, or a diet pill freak's speed-induced trembling.

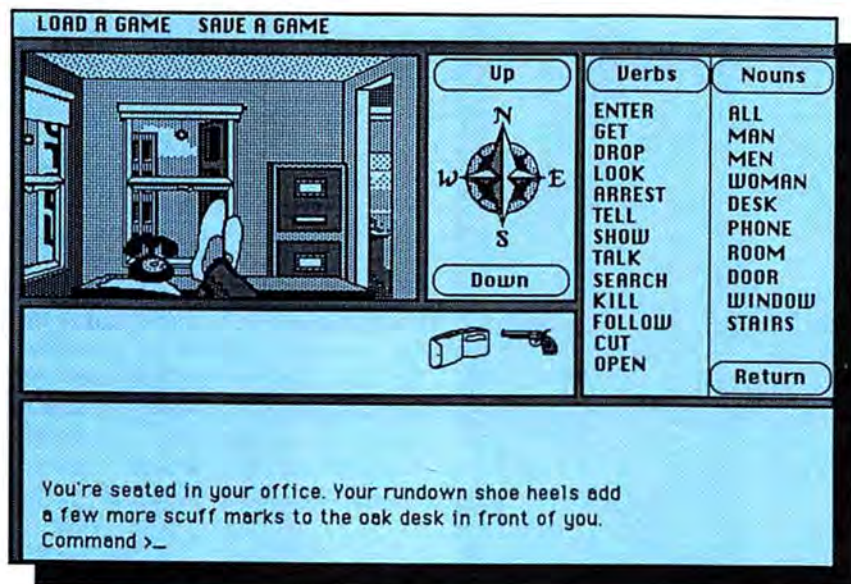
The text is even better, reading more like a detective magazine's "True Tales of Murder" than like a standard Mac adventure. Having spent many hours in front of the screen, I have yet to find any put-downs, rude comments or sophomoric humor directed at the gamer by the program. If anything, the program seemed to bend over backwards to stroke my ego—for example, I had been taken off guard and knocked cold, then tied to a ceiling pipe by both wrists, and was helplessly dangling in the middle of the room. In desperation, I noticed a table and tried to swing over to get a decent foothold on it. "Good idea," commented *Borrowed Time*, "but it doesn't work." Thanks—I think. It sure beats the old days of computer adventuring, when players could look forward to such confidence-building comments as "You lose, turkey!" and "Better luck next time, fool!"

## TALKING TO THE PROGRAM

The game displays two different menu bars at the top right side of the screen. One contains useful verbs such as GET, SEARCH and LOOK, while the other lists nouns like MAN, ALL and STAIRS. (A small directional compass sits next to the menu bar, letting players click on the desired section to go: UP, DOWN, NORTH, EAST and so on.) Gamers can click on the word menus to automatically enter those commands. The word menus provide a nice shortcut to often-typed words, but they don't contain every word a player will need in many situations.

These word bars are the game's only major annoyance. The word bars never change, either—for example, the word STAIRS remains on the menu for all locations, even in obviously empty lots with no staircase in sight.

Neophyte players are sure to end up confused about "legal" commands, since the word bars don't update themselves to new situations and locations. To compensate, the disk includes a complete tutorial on



Sam Marlowe's office. Note the word menu, which allows text entry in seconds, and the inventory bar just below the graphics screen.





The goon squad in action. This gorgeous mug is the last thing you'll see.

playing the game, accessed by typing in its option number from the opening screen. This tutorial is quite lengthy, but we recommend that everyone go through it at least once—it could just save you a lot of aggravation later on.

*Borrowed Time* may appear Mac-like, but on closer look it isn't really. That's due to the fact that it was simultaneously programmed for a lot of different computers, so while the game simulates Mac play on, say, a Commodore 64, it sometimes simulates Commodore 64 play on a Mac as well. For example, the program does not support desk accessories. At all. It also doesn't treat all graphics equally, such as the way all objects on-screen in *Deja Vu: A Nightmare Comes True* act like icons. In this game, some objects merely behave as window dressing.

#### UNRAVELING THE MYSTERY

*Borrowed Time* is far more complicated than the other "hot" Macmystery, *Deja Vu: A Nightmare Comes True*. This is both good and bad. *DV's* button-operated menu is much easier to use, but the flip side is that it's a much easier game to solve—there are fewer locations to visit, and less things to do, by far.

While a lot of *Borrowed Time's* early challenge lies in simply trying to communicate with the program, this game offers a far more diverse array of locations, subplots and characters than its major competitor. Players who took a month or so to solve *DV* should expect to puzzle over *Borrowed Time* much longer.

It takes a few hours with the program just to get a handle on the characters' names, locations and, most important, how they tie into the plot. Expect to visit people more than once, since a lot of the game is

learned as you go along. Eventually, players will learn which questions should be asked of whom. Even the barflies at the Dublin Rose beer hall have something to say, if you know how to loosen their tongues.

Properly using objects is another story. Here, a bit of experience with illustrated or text adventures can pay off, since a lot of the game's challenge lies in figuring out how to use everything you find—or even what you need and what's merely window dressing. As with most adventures, we advise players to pick up anything they find (Sam's current inventory is displayed in a small pseudowindow at the bottom of the graphics display). Items that might seem to be just junk could save your life many times over.

Other lifesaving tips are to listen to people (don't just LOOK WOMAN—listen to her as well) and, most important, look closely at any objects you see on-screen. Sometimes the "obvious" solution isn't obvious at all until you examine what you have more closely.

#### FAST ACCESS IN THE FAST LANE

*Borrowed Time* makes up for early problems by allowing up to ten games to be instantly saved to disk and re-accessed from inside the program, meaning you can try just about anything you want without the threat of a game-ending twist stopping your progress so far. Find yourself in a seeming dead end? Just load the position you saved previously from under the Load menu (the last game saved is automatically checkmarked on the menu) and try again.

#### EXPERTS ONLY?

*Borrowed Time* is best for people who've already cut their teeth on other, less complicated adventure games. While its relatively easy access and good sentence parser (that's what the program uses to understand words you type in) make the game look easy to dive into, the storyline leads Sam into more than one hard-to-solve puzzle. How do you get past the bruiser guarding an important door? What do you do to get down from the ceiling pipe

you're tied to? You've collected a lot of important facts—now what? These are just a few of the types of challenges successful detectives will have to rise to. Inexperienced players will find many of the situations frustrating. These people should try out one or two other programs before going back to try to solve this one. If the publisher assigned difficulty ratings to its adventure games, *Borrowed Time* would definitely get an "Advanced Level" sticker.

#### SPENDING TIME WITH BORROWED TIME

This illustrated adventure game (that means its text is accompanied by pictures) is a tough, no holds barred mystery that demands a lot of real role-playing. Act namby-pamby and you'll never solve any of it. After all, Sam Spade would never accept a brush-off.

The game's quirky now-you-see-it, now-you-don't Mac interface will be an early trial to people who never played adventures on other computers and don't know what to expect.

But the early hardships most detectives will experience with its interface will be rewarded by a richly woven plot with all the skidding twists and turns you'd expect from a good mystery novel. If you like mystery, lend a few hours to *Borrowed Time*. ☞

#### BORROWED TIME

Overall Rating:	■ ■ ■ ■ □
Follows Mac Interface:	■ □ □ □ □
On-Screen Help:	■ ■ ■ □ □
Performance:	■ ■ ■ ■ □
Support:	■ ■ ■ ■ ■
Consumer Value:	■ ■ ■ ■ □

**Comments:** Hard-boiled mystery game that demands players to think and act like detectives. **Best Feature:** Excellent support. Frustrated gamers can write to Activision for a free tip sheet. Good storyline and plotting. **Worst Feature:** Mac interface is sketchy at best; on-screen word menu doesn't change with new locations or situations; certain clues should be shown instead of players having to specifically LOOK. **List price:** \$44.95. Published by Activision, PO Box 7287, Mountain View, CA 94039. (415) 960-0410.



# MacConnection

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inTouch ( <i>communication to emulation</i> ) . . . . .	79.
<b>PBI Software</b>	
Icon Switcher . . . . .	14.
Icon Fun & Games Library . . . . .	14.
Icon Business Library . . . . .	14.
<b>Peachtree</b>	
Back to Basics General Ledger . . . . .	88.
Accounts Payable . . . . .	88.
Accounts Receivable . . . . .	88.
<b>Polarware</b>	
Graphics Magician . . . . .	47.
<b>Practical Computer Applications</b>	
MacBackup ( <i>free upgrades</i> ) . . . . .	41.
<b>ProVUE Development</b>	
OverVUE 2.0 ( <i>power-packed database</i> ) . . . . .	149.
<b>QED Information Sciences</b>	
Typing Made Easy . . . . .	36.
<b>Rubicon Publishing</b>	
Dinner At Eight ( <i>recipes to wines</i> ) . . . . .	35.
<b>Satori</b>	
BulkMailer ( <i>mailing lists</i> ) . . . . .	79.
<b>Scarborough Systems</b>	
Mastertype ( <i>arcade typing tutorial</i> ) . . . . .	25.



# Gilding the lily.



Is it real, or  
is it Marlow?  
It's quiz time!  
Get your mice  
and Macs ready.

It's time to  
find out how good a job we're  
doing convincing you that

we're the best  
thing to happen  
to mail order  
since the Pony  
Express! Each  
of the following  
statements is either  
true or false.

1. That beautiful picture of our  
home town, Marlow, NH (pop.  
552) was completely created  
and digitally enhanced on a  
Macintosh computer. ☐ ☐

2. Last week we  
tore down those  
old useless

buildings to make room for  
a new MacConnection park-  
ing lot. ☐ ☐

3. Our corporate headquarters  
is really in downtown Los  
Angeles, and this whole  
Marlow thing was a clever lit-  
tle bit thought up by our adver-  
tising people. ☐ ☐

## Dare to be normal.

And now for your score. If you  
said any one of the above is  
true, you are a *bona fide* skeptic.  
If you said two of the above  
are true, you probably  
work for the compe-  
tition, and are  
indulging in

a little wishful  
thinking. And  
if you said all  
three are true,  
then we regret

to inform you that little blue  
men with ion generators are  
waiting in your  
kitchen to vapor-  
ize you after  
breakfast.

By the way,  
Spring *has* sprung  
in scenic Marlow.  
The local teen-

agers have very suspicious  
smiles on their faces. The  
grownups don't look so  
innocent either. And here  
at MacConnection, we're  
positively bursting... with  
prices and service beyond  
your wildest imagination.  
And that's the truth.

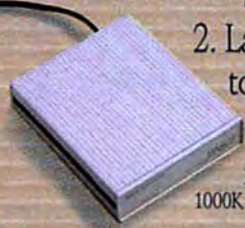


Excel \$225

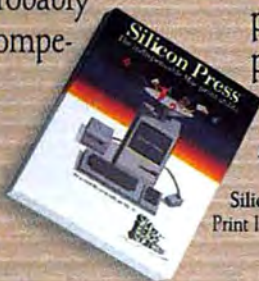
World's largest spreadsheet



MacLightning \$53  
Instant spell checker!



Dasch \$699  
1000K external RAMdisk



Silicon Press \$42  
Print labels of any size

# MacConnection™

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# makes Macs much

<b>Sierra On-Line</b>	
MacOneWrite (cash disbursements)...	\$137.
MacOneWrite (accounts receivable)...	137.
<b>Silicon Beach Software</b>	
Accessory Pak 1 .....	21.
Silicon Press (printer utility, 512k) .....	42.
<b>Simon &amp; Schuster</b>	
The Mac Art Department .....	24.
Paper Airplane Construction Kit .....	24.
Typing Tutor III .....	31.
<b>SMB Development</b>	
MacMate (requires 512k) .....	35.
<b>SoftStyle</b>	
Epstart .....	27.
Jetstart .....	27.
Toshstart .....	27.
Tlstart .....	49.
Laserstart .....	59.
Decision Map .....	79.
<b>Softview I, Inc.</b>	
MacInTax 1985 (tax prep & planning) ..	53.
<b>Software Publishing</b>	
PFS:File/Report .....	100.
<b>Springboard</b>	
Art a la Mac Vol. 1-People and Places ..	23.
Art a la Mac Vol. 2-Variety Pack .....	23.
<b>State of the Art</b>	
Electric Checkbook .....	42.
<b>Symmetry</b>	
Picture Base (clip art manager, 512k) ..	48.
<b>T/Maker</b>	
Click Art Personal Graphics .....	29.
Click Art Publications .....	29.
Click Art Letters .....	29.
Click Art Effects .....	29.
ClickOn Worksheet .....	46.
<b>Target Software</b>	
MacLightning (reqs. 512k, external drive)	53.
<b>Telos Software</b>	
Filevision (graphic filing program) .....	99.
Business Filevision (512k, external drive)	219.
<b>Think Educational</b>	
Mind Over Mac .....	29.
MacEdge II (math & reading) .....	29.
<b>Videx</b>	
MacCalendar (incl. reminder system)...	51.

## GAMES

<b>Activision</b>	
Hacker (you're on your own!) .....	27.
Mind Shadow (Who am I?) .....	27.
Borrowed Time (murder mystery) .....	27.
Alter Ego (become someone else) .....	36.
<b>Ann Arbor Softworks</b>	
Grid Wars (3D graphic arcade) .....	22.
<b>Bantam Electronics</b>	
Sherlock Holmes: Another Bow .....	27.

## MacConnection Special of the Month

through May 31, 1986

### FORETHOUGHT

#### FileMaker

Highly rated database to organize all your business information. Create custom forms and reports.

- Unlimited length of records or individual fields
  - Spruce up your form with graphics
  - Not copy-protected
- For Mac, Mac Plus ..... \$99.

### 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 (robot simulation) .....	26.

### Broderbund Software

Lode Runner (you'll never sleep!) .....	24.
Cyborg (sci-fi text adventure) .....	24.
Ancient Art of War (military strategy) ..	27.

### CBS

Murder by the Dozen (mystery) .....	25.
-------------------------------------	-----

### Electronic Arts

One on One/Dr J vs Larry Bird (reqs. 512k)	27.
Pinball Construction Set .....	27.

### Epyx

Rogue (the mainframe classic!) .....	24.
Temple of Apshai Trilogy (4 levels) .....	24.
Winter Games (Olympic events) .....	24.

### Gamestar

Championship Star League Baseball .....	22.
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### Hayden Software

Masterpieces (jigsaw puzzles) .....	24.
Word Challenge II (boggle-like game) ..	24.
Perplexx (scrabble-type game) .....	24.
Sargon III (9 levels of chess) .....	29.

### 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.

1-800/Mac&Lisa

Infidel (advanced) .....	\$27.
Sorcerer (advanced) .....	27.
Suspect (advanced) .....	27.
Deadline (expert) .....	29.
Spellbreaker (expert) .....	29.
Starcross (expert) .....	29.
Suspended (expert) .....	29.
Invisicues (hint booklets) .....	6.
<b>Magnum</b>	
Gypsy (the Computer Oracle) .....	23.
<b>Mark of the Unicorn</b>	
Mouse Stampede (highly addictive) ....	22.
<b>Miles Computing</b>	
Fusillade (arcade-maze) .....	21.
MacAttack (3-D tank simulation) .....	27.
Harrier Strike (3-D flight simulation) ..	27.
MacWars (3-D space simulation) .....	27.
<b>Mindscape</b>	
Rambo: First Blood Part II .....	24.
James Bond 007: "A View to a Kill" ....	24.
Stephen King's "The Mist" .....	24.
Racter (converse with your Mac!) .....	27.
Balance of Power (world politics) .....	30.
Brattacus (requires 512k) .....	30.
Déjà Vu (murder mystery) .....	33.
<b>Origin Systems</b>	
Exodus: Ultima III (fantasy adventure) ..	38.
<b>PBI Software</b>	
Feathers & Space (arcade-style) .....	21.
Strategic Conquest (war strategy) .....	29.
Fokker TriPlane Flight Simulator .....	35.
<b>Penguin</b>	
Transylvania (rescue the princess!) ....	24.
Crimson Crown (sequel to above) .....	24.
The Quest (beware of the dragon!) ....	24.
Xyphus (role playing adventure) .....	24.
<b>Practical Computer Applications</b>	
MacGolf (requires 512k) .....	36.
<b>Priority Software</b>	
Forbidden Quest (space adventure) .....	24.
Gateway (sci-fi fantasy adventure) .....	25.
<b>Psion</b>	
Psion Chess (3D and multi-lingual) .....	31.
<b>Scarborough Systems</b>	
Make Millions (business simulation) ....	29.
<b>Sierra On-Line</b>	
Frogger (classic video game) .....	24.
Championship Boxing .....	24.
Ultima II (role-playing adventure) .....	35.
<b>Silicon Beach Software</b>	
Airborne! (digitized-sound war game) ..	20.
Enchanted Scepters (text & graphics) ..	21.
<b>Sir-Tech</b>	
Mac Wizardry (fantasy) .....	36.
<b>Spectrum Holobyte</b>	
GATO (submarine simulation) .....	26.
Tellstar North Level I (reqs. 512k) .....	27.

580U

# MacConnection™

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All items subject to availability. Prices subject to change without notice.

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

Please circle 82 on reader service card.





# more amenable.

## Unicorn

Futura ( <i>sci-fi adventure</i> )	\$24.
Utopia ( <i>science fantasy game</i> )	24.
Animal Kingdom ( <i>ages 6-12</i> )	27.
Fraction Action ( <i>arcade style math game</i> )	27.
Mac Robots ( <i>pre-school program</i> )	27.
Read-A-Rama ( <i>reading and spelling</i> )	32.
<b>Videx</b>	
MacCheckers/Reversi	28.
MacGammon/Cribbage	28.
MacVegas	34.

## HARDWARE

### Assimilation

Mac-Port-Adaptor	85.
Mac-Epson-Connection	40.
MIDI Conductor	75.
Mac-Daisywheel-Connection	45.
Mac-Turbo-Touch	89.
Numeric-Turbo	145.

### Compucable

Mac to Hayes Smartmodem cable	16.
Mac to Apple modem cable	16.
Mac to Hayes Transet 1000 cable	16.

### Cuesta Systems

Datasaver AC Power Backup (90 watts)	call
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### Curtis Manufacturing

Diamond (6 outlets)	29.
Emerald (6 outlets; 6 ft cord)	36.
Sapphire (3 outlets; EMI/RFI filtered)	47.
Ruby (6 outlets; EMI/RFI filtered; 6 ft cord)	55.

### Epson

AP-80 ( <i>Imagewriter compatible</i> )	call
FX-85	call
FX-286 ( <i>replaces FX-185</i> )	call
LQ-1000 ( <i>letter quality dot matrix</i> )	call

### Ergotron

MacTilt ( <i>incl. external drive bracket</i> )	75.
---	-----

### Hayes

Smartcom II ( <i>communications software</i> )	86.
Smartmodem 1200	call
Smartmodem 2400	call
Transet 1000	call

### IOMEGA

Bernoulli Box ( <i>dual 10-MB storage</i> )	2475.
10-Meg Cartridge	48.
Head Cleaning Kit	69.

### Kensington

External Disk Drive Cover	8.
Mouseway	8.
Mouse Pocket	8.
Mac Dust Cover	9.
Imagewriter (II) Dust Cover	9.
Mouse Cleaning Kit w/Mouse Pocket	16.
Universal Printer Stand	17.
Disk Case ( <i>holds 36 Mac disks</i> )	19.
Disk Drive Cleaning Kit	19.
Tilt/Swivel	22.
Polarizing Filter	31.
Surge Suppressor	32.
Starter Pack ( <i>includes Tilt/Swivel</i> )	53.
A-B Box	60.
Control Center	61.

### Koala Technologies

KAT Graphics Tablet	139.
MacVision ( <i>digitizer</i> )	169.

### Kraft

QuickStick ( <i>Mac joystick</i> )	45.
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### Microsoft

MacEnhancer 2.0	\$159.
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## Mitsuba

Super 5 400k External Drive	199.
Super 5 800k External Drive	325.

### Mouse Systems

A+ Optical Mouse	59.
------------------	-----

### N<sup>2</sup> Products

Mac to Modem cable (6 feet)	19.
Mac to Printer cable (6 feet)	19.

### Paradise Systems

Mac 10 (10 megabyte hard disk)	599.
Mac 20 (20 megabyte hard disk)	849.

### PBI Software

Switch Box	36.
------------	-----

### PKI

Sydewyndr 400k External Drive	225.
McD 800k External Drive	285.

### Systems Control

MacGard ( <i>surge protection</i> )	55.
-------------------------------------	-----

### Thunderware

Thunderscan ( <i>high-resolution digitizer</i> )	175.
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### Video 7

MouseStick	39.
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### Western Automation

DASCH RAMdisk 500k	399.
DASCH RAMdisk 1000k	699.
DASCH RAMdisk 2000k	849.

## DISKS

BASF 3 1/2" Disks ( <i>box of 5</i> )	10.
Sony 3 1/2" Disks ( <i>box of 10</i> )	20.
Fuji 3 1/2" Disks ( <i>box of 10</i> )	20.
MAXELL 3 1/2" Disks ( <i>box of 10</i> )	21.
Memorex 3 1/2" Disks ( <i>box of 10</i> )	23.
Verbatim 3 1/2" Disks ( <i>box of 10</i> )	23.
3M 3 1/2" Disks ( <i>box of 10</i> )	23.
Sony 3 1/2" Double-sided Disks (10)	30.
MAXELL 3 1/2" Double-sided Disks (10)	33.

## INFORMATION SERVICES

### Compuserve

Compuserve Information Service	27.
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### Source Telecomputing

The Source ( <i>subscription &amp; manual</i> )	30.
---	-----

## MISCELLANEOUS

### Automation Facilities

Floppyclene Drive Care Kit	20.
Floppyclene Drive Care Refill	10.
MacPak Complete Care System	29.

### Clean Image Ribbon Co.

Clean Image Ribbon Kit	12.
------------------------	-----

### Computer Coverup

External Disk Drive Cover	4.
Imagewriter (II) Cover	8.
Mac (Plus) & Keyboard ( <i>two covers</i> )	10.

### Diversions

Underware Ribbon	9.
ColorPack ( <i>includes Colorpens</i> )	19.

### Environmental Software Company

The Clutch ( <i>holds 8 disks</i> )	9.
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### MACATTIRE

<i>High quality rip-stop nylon dust covers.</i>	
External Drive Cover (400k & 800k)	7.
Numeric Keypad Cover ( <i>fits Turbo Touch</i> )	7.
Imagewriter (II) Cover	11.
Wide Imagewriter Cover	13.

Mac (Plus) & Keyboard Cover	\$15.
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Laserwriter Cover	17.
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Mac (Plus) & HD20 & Keyboard Cover	18.
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### I/O Design

Imagewriter Color Transfer Ribbon	10.
Imageware	45.
Imageware II	49.
Imageware wide	49.
Macinware Plus	69.

### Innovative Concepts

Flip & File Micro ( <i>holds 25 disks</i> )	9.
Flip & File ( <i>holds 40 disks</i> )	18.

### Innovative Technologies

The Pocket Pak ( <i>holds 6 disks</i> )	10.
The Easel ( <i>holds 20 disks</i> )	14.
The Disk Directory ( <i>holds 32 disks</i> )	21.

### Kalmar Designs

Teakwood Roll-top Case ( <i>holds 45 disks</i> )	14.
Teakwood Roll-top Case ( <i>holds 90 disks</i> )	21.

### Magnum

Mouse Mover ( <i>let your mouse ride!</i> )	14.
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### Moustrak

Moustrak Pad ( <i>standard 7"x9"</i> )	8.
Moustrak Pad ( <i>large 9"x11"</i> )	9.
Imagewriter Pad	12.

### Pacific Wave

Flip Sort Micro ( <i>holds 60 disks</i> )	15.
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### Ribbons Unlimited

Imagewriter Color Ribbons	5.
Imagewriter Ribbons Six Pack	27.
Imagewriter Rainbow Six Pack	27.

### Smith & Bellows

Mahogany Disk Case, made by New England Craftsman ( <i>Holds 90 disks</i> )	28.
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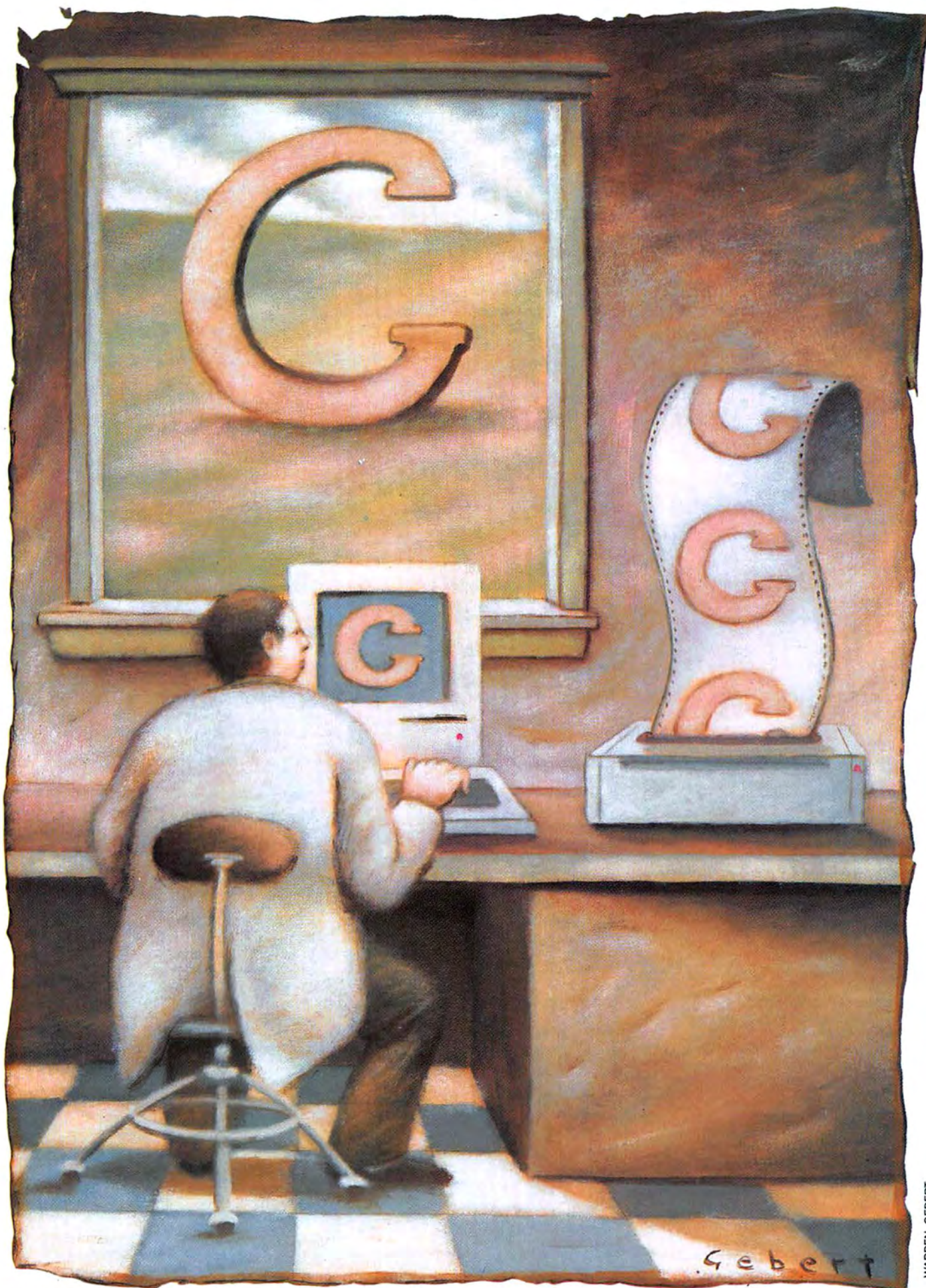
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# WHAT YOU C IS WHAT YOU GET!

PROGRAMS, AT LEAST WORKING programs, are always more than the sum of their parts. Mac programs consist of parts that do whatever the program is designed to do and parts that implement the user interface. It's often that interface that makes Mac programs so wonderful and useful. In previous parts in this series we examined some code examples that illustrated how you could use specific areas of the Macintosh in your program design. This month we'll back up a bit and discuss some of the larger issues involved in programming the Mac with C, and, in particular, how some of the features of the Mac interface can be used.

## **FIRST THINGS FIRST**

Before anyone can become truly proficient at programming the Mac using the C programming language,

***Here's a game that***

---

***teaches some Mac***

---

***interface basics: icon***

---

***plotting, menu***

---

***shuffling and the***

---

***detection of mouse***

---

***collisions.***

---

***by Bob Perez***

three completely separate disciplines must be learned, and learned well. First, of course, is the language itself. C programmers benefit from the enormous popularity of the language and can find information easily and quickly. A recent trip to a bookstore revealed 26 books on C, and this was *not* a computer bookstore! C programmers have no excuse for not keeping current with the language and its evolution. The major compiler publishers are closely following the attempt by the X3J11 ANSI standards committee to standardize the C language, and you can bet that their products will follow the recommendations of the committee.

Another excellent way to keep abreast of C developments is to subscribe to one of the magazines dealing with either UNIX or with computer languages in general.



# WHAT YOU C IS WHAT YOU GET

You'll have no difficulty finding articles on C in most of the major periodicals devoted to computer programming, and you'll have the benefit of reading discussions about all of the latest techniques.

The second discipline you'll need to approach seriously is learning how the Mac itself operates. Read every Technical Note you can get your hands on, and pursue each until you're sure that you understand it. Most early Mac programmers, myself included, remember spending all of the summer of 1984 reading, re-reading, and then re-re-reading the entire *Inside Macintosh*.

Most of the thousands of questions you'll have are answered within that monumental work, but many aren't, and eventually you'll have to

turn to others for help. Generally, users' groups are a great resource to turn to, since there'll always be one or more hackers present at their meetings who'll be anxious to share their knowledge of Macintosh esoterica. The best users' groups for this purpose, though, are of the on-line variety. If you're serious about learning how to program the Mac, consider joining one of the major on-line networks such as CompuServe or Delphi and joining their Macintosh Users' Group sections. The first time you're stuck late at night with a burning question, leave a message on one of the message boards and find your answer in less than an hour, you'll understand the strength of these groups.

Sooner or later every competent C

programmer will have to face assembly language. Before you recoil in shock at this statement, note that you need not learn to program in assembly language. You should just be familiar enough with it to have a fundamental understanding of what your compiler is doing with your C code. Familiarize yourself with the instructions, the addressing modes and with register usage conventions. Pay particularly close attention to the LINK and UNLK instructions, and to the whole subject of stack frames that will generally accompany any discussion of these two.

Your most valuable learning experience will undoubtedly come from examining the source code of others. Nothing can take the place of having example code that works. You can

## LISTING

```
/*
 * CatchMe.c -- A simple game application
 * illustrating icon plotting,
 * menu shuffling, and the
 * detection of mouse collisions.
 * Compiled with Aztec C. May
 * require modification for use
 * with other compilers.
 * © 1986 Robert Perez.
 */
#include <quickdraw.h>
#include <toolutil.h>
#include <window.h>
#include <menu.h>
#include <event.h>
#include <osutil.h>
#include <memory.h>
#include <resource.h>
#include <desk.h>
#include <init.h>
#include <segment.h>

/*
 * Some standard definitions
 */
#define NIL 0L
#define noErr 0
#define FOREVER 1
#define APPLEMENU 1
#define FILEMENU 2
#define EDITMENU 3

/*
 * Application specific definitions.
 * Change WIDTH and HEIGHT within reasonable
 * limits to vary the size of the grid.
 * The _WIN_ and _LOSE_ values have the
 * additional relevance of being the
 * respective resource IDs for the system
 * alert icons we will use in this sample.
 * Substitute these with icons of
 * your own and modify the values of WINICON
 * and LOSEICON accordingly. DELAY is the
 * number of iterations for the timer and
 * may be modified to make the
 * game slower or faster. MASTER, TRAINER
 * and SHY are the various grade
 * thresholds for scoring.
 */
#define OPTIONSMENU 4
#define HELPMENU 5
#define NUMMENUS 5
#define GAMEONOFF 1
#define SOUNDONOFF 2
#define HEIGHT 7
#define WIDTH 13
#define _WIN_ 1
#define WINICON _WIN_
#define _LOSE_ 0

#define LOSEICON _LOSE_
#define DELAY 180L
#define MASTER 2
#define TRAINER 5
#define SHY 9

/*
 * Globals
 */
MenuHandle mymenus[NUMMENUS];
WindowPtr wp;
EventRecord er;
Rect wrect;
Rect dragRect;
Rect grid[HEIGHT][WIDTH];
Rect winRect;
short plotting = FALSE;
short sound = TRUE;
Handle icon[2];
long time;
short score;
main()
{
    /*
     * Set up everything.
     */
    init();

    /*
     * Fall into our event loop.
     */
    event();
} /* end of main() */

init()
{
    register unsigned short i;
    char apple[2];
    /*
     * Standard sequence to initialize
     * all managers, clear event queue
     */
    InitGraf(&thePort);
    InitWindows();
    InitFonts();
    InitMenus();
    TEInit();
    InitDialogs(0L);
    FlushEvents(EventTypeAny, 0);
    InitCursor();

    /*
     * Set up the menu bar. Usually this would
     * be done using resources and
     * GetMenu(). We've hard-coded it here for
     * simplicity. The apple[]
     * array is a hack to get the hex value $14
     * (the apple) into a Pascal
     * string (as expected by NewMenu) for the

```



look at it with your eyes, feel it in your hands and even input it into your compiler and alter it to suit your needs. Do what you can to get hold of source code, even if it's in assembly language or Pascal — translating it into C source is not only educational, but it will make you some friends in the process.

Don't be afraid to ask a C programmer for copies of his or her source. Most programmers are proud to show off their work, and if they're not bound by contract from disclosing their work, chances are they will gladly share with you. I recently moaned to a friend that I was about to write a routine for one of my programs that I know had been written many times before. He graciously offered me the complete

source code to an application of his that's currently a bestseller in the Mac market. There's no need to reinvent the wheel when others are around and glad to help out.

The third, and most overlooked, discipline — the one you'll want to absolutely master — is learning how your compiler operates. Carefully study all of the documentation provided and make sure that you understand what's going on at the lowest level. Note how your compiler passes its arguments internally (some pass them on the stack, others stick them into registers, etc.). In order to write most any sort of program that uses controls, for example, you'll have to be able to write a function that can be called from the Mac's ROM, meaning it will have to be set

up to handle Pascal calling conventions. Pascal utilizes a method of passing arguments to and from functions that is completely incompatible with the method used by C. Some compilers do a fine job of making this difference transparent (*Aztec C* does this quite well), but others, including some of the major compilers (for example, *Consulair's*), expect you to be able to "fix" this difference yourself when writing C/Pascal interfaces. Either method is okay; just be sure that you know enough about your compiler to be able to understand what's going on.

This is a good place to touch on some other aspects of knowing your compiler that rarely get discussed. Many compilers are supplied with some sort of batch facility for auto-

```

* menu bar. Note Aztec C's use
* of the \P prefix to denote Pascal strings.
* Use an equivalent function
* with other compilers (e.g., CToPStr()
* with Consulair).
*/
apple[0] = 1;
/* length byte of this pascal string */
apple[1] = appleMark;
mymenus[0] = NewMenu(APPLEMENU,apple);
AddResMenu(mymenus[0], 'DRVR');
/* This adds all desk accessories to menu */
/*
* File menu will have only a 'Quit' option.
*/
mymenus[1] = NewMenu(FILEMENU, "\PFile");
AppendMenu(mymenus[1], "\PQuit/Q");
/*
* Standard edit menu (intended here only
* for desk accessory support)
*/
mymenus[2] = NewMenu(EDITMENU, "\PEdit");
AppendMenu(mymenus[2],
"\PUndo/Z; (-);Cut/X;Copy/C;Paste/V;Clear");
/*
* Construct our menus
*/
mymenus[3] = NewMenu(OPTIONSMENU, "\POptions");
AppendMenu(mymenus[3], "\PStart New Game/P");
AppendMenu(mymenus[3], "\PSound");
mymenus[4] = NewMenu(HELPMENU, "\PHelp");
AppendMenu(mymenus[4],
"\PStart a New Game via the Options Menu. A single");
AppendMenu(mymenus[4],
"\PIcon different from all others will appear at");
AppendMenu(mymenus[4],
"\Pandom locations. Try to click the mouse on it.");
AppendMenu(mymenus[4],
"\PThe sooner you hit it, the better your score.");
/*
* Check item 2 in the Options menu (sound
* is initially on)
*/
CheckItem(mymenus[3], 2, TRUE);
/*
* Insert the defined menus into our menubar,
* then draw the menubar.
*/
for (i = 0; i < NUMMENUS; ++i)
    InsertMenu(mymenus[i], 0);
DrawMenuBar();
/*
* Get our icons. In this case we get them
* from the System file. If you use your own icons, be
* sure to move them into the finished application
* file using a resource editor such as Apple's Resource
* Editor. Be sure also to modify the constants WINICON
* and LOSEICON to reflect the new icons' resource IDs.
*/
HNoPurge(icon[_WIN_] = GetIcon(WINICON));
HNoPurge(icon[_LOSE_] = GetIcon(LOSEICON));
/*
* Go set up the window, Rects, and timer
*/
setup();
} /* end of init() */
/*
* The event loop, focal point of most Macintosh applications.
*/
event()
{
    WindowPtr wptr;
    short wpart;
    WindowPtr saveport;
    /*
    * Set up an 'infinite' loop to process events
    */
    while (FOREVER) {
        /*
        * Call SystemTask for any desk accessories that
        * might be active.
        */
        SystemTask();
        /*
        * Check to see if we're playing a game right now
        */
        if (plotting)
            puticon();
        /*
        * Do the usual check for events from the real world
        */
        if (!GetNextEvent(everyEvent, &er))
            continue;
        switch(er.what) {
            case mouseDown:
                /*
                * Find out where the mouse was clicked.
                */
                wpart = FindWindow(pass(er.where), &wptr);
                /*
                * Now check wpart to see if the click was in a
                * menu or in a desk accessory window. If in a
                * menu, send that information off to do_menu()
                * for processing. Note Aztec C's use of the pass()
                * macro to pass the value of a point struct.
                * Consult your compiler documentation for specifics
                * on how the compiler handles passing
                * the value (as opposed to the address) of a struct.
                */
                switch(wpart) {
                    case inMenuBar:
                        do_menu(MenuSelect(pass(er.where)));
                        break;

```



# WHAT YOU C IS WHAT YOU GET

making the edit/compile/link cycle. Be sure to take maximum advantage of these facilities — they will make your life much easier. Experiment with complex scripts that take parameters for script values and build your own system for automating your most frequent operations.

I've discovered that some of the UNIX tools that accompany many of the C compilers rarely get used. There are versions of the *make* and *grep* programs for most of the major compilers — learn how to use them! The thing I've found most surprising is how few programmers are using librarians to manage their code.

The upshot of this is that by learning how to maximize your use and understanding of your compiler, you'll spend less time looking at perplexing linker error messages, less

time analyzing compiler diagnostics, less time typing at your keyboard, and *more* time programming your Macintosh in C. My system has been tweaked to the point where I can throw together complete applications with a few keystrokes and alter them easily and quickly with another set of easily-remembered keystrokes that are used consistently from one job to the next. Most of my time is spent designing, editing and debugging — that should be your goal.

## A LEARNING GAME

This month's program illustrates some aspects of using the ToolBox not previously covered in this series. This simple application plays a game in which a grid of identical icons is displayed within a single window. A different icon is plotted within the

grid at random locations, and the object of the game is to click on the different icon before it changes to another location.

The program illustrates several important concepts. The Resource Manager is used to load the icons from the *System* file in this example, but any user-designed icons could be used instead as long as they are moved into the completed application file with a resource moving tool such as Apple's *Resource Editor*. If this is done, the *#defines* in the source file should be changed to reflect the resource IDs of the new icons.

The program starts in the usual fashion, initializing the relevant managers and setting up the menus. The *setup()* function illustrates a quick way to initialize a large grid of

## MORE LISTING

```
case inSysWindow:
    SystemClick(&er,wptr);
    /* Go handle desk accessory click */
    break;
case inGoAway:
    /*
     * If the click occurred in a window other
     * than the frontmost window, bring that
     * window forward.
     */
    if (wptr != FrontWindow())
        SelectWindow(wptr);
    else
        /*
         * If the mouse was released while still
         * in the close box, quit.
         */
        if (TrackGoAway(wp,pass(er.where)))
            bye();
    break;
case inDrag:
    if (wptr != FrontWindow())
        SelectWindow(wptr);
    else
        DragWindow(wptr,pass(er.where),&dragRect);
    break;
case inContent:
    if (wptr != FrontWindow())
        SelectWindow(wptr);
    else if (plotting)
        clickit();
    break;
default:
    break;
}
break;

/*
 * The only keyDown events we handle are
 * command key presses.
 */
case keyDown:
    if (er.modifiers & cmdKey)
        do_menu(MenuKey((char)er.message & charCodeMask));
    break;

/*
 * On an activate event we check first to see if it's
 * our window that's experiencing the event, then we
 * check the status of the activeFlag to see if it's
 * become activated or deactivated.
 */
case activateEvt:
    if (er.message == wp) {
        if (er.modifiers & activeFlag) {
            /*
             * Must be activating our window,
             * so enable our menus.
             */
            EnableItem(mymenus[1],0);
            EnableItem(mymenus[3],0);
            EnableItem(mymenus[4],0);
            SetPort(wp);
        }
        else {
            /*
             * Must be deactivating our window (e.g.,
             * desk acc. opened), so disable our
             * application menus. Leave apple and edit
             * menus enabled, so as to support desk
             * accessories. Try opening some desk
             * accessories while running the program
             * to see how this works.
             */
            DisableItem(mymenus[1],0);
            DisableItem(mymenus[3],0);
            DisableItem(mymenus[4],0);
        }
        DrawMenuBar();
    }
    break;
case updateEvt:
    /*
     * A standard updating sequence.
     */
    GetPort(&saveport);
    SetPort(wp);
    BeginUpdate(wp);
    plotem();
    EndUpdate(wp);
    SetPort(saveport);
    break;

/*
 * In case of other events coming through,
 * dequeue them and continue.
 */
default:
    continue;
} /* end of main event switch */

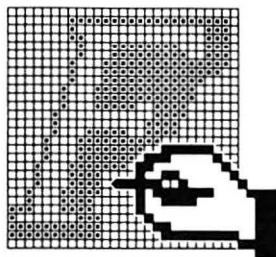
} /* end of while(FOREVER) loop */

} /* end of event() */

do_menu(mresult)
unsigned long mresult;
{
    register short theitem, themenu;
    short err;
    char name[256];
    char *str;
```



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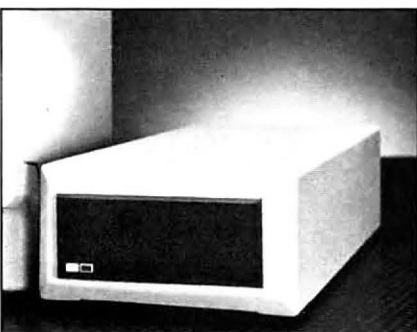
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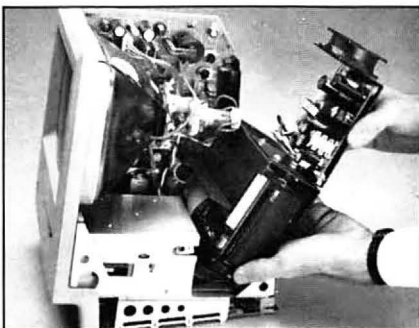
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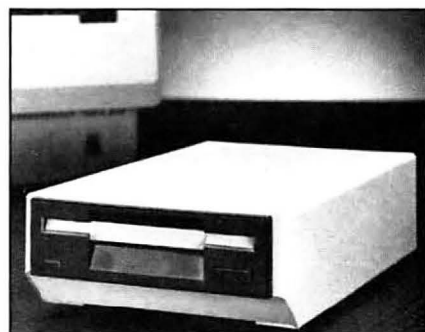
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# WHAT YOU C IS WHAT YOU GET

rects. In this case, the rects will become the destination rects for the icons plotted during the game.

This program only uses two icons. One is the default icon and is plotted over the entire grid area, initially. The other represents the winning icon and is plotted at random within the grid. The example uses the two familiar icons that appear in the system (or bomb) alerts. The icons load in from the *System* file and are protected from being purged. This allows us to not worry about having to reconstruct them ourselves after purging, and while this is okay in small applications such as this, it is not recommended procedure in environments where memory is scarce.

The program checks the status of a global variable to see if there's a

game in progress. The variable is checked on each pass through *GetNextEvent*. Be careful about putting too many functions within your event loop, since this can really slow things down in big applications (this is why there's a slight delay in *MacWrite* when you click in the menu bar, before the menu appears).

If a game's in progress, *puticon()* is called and the winning icon is plotted at a random point within the game grid. The program checks for mousedown events and when it finds one in the content of the window, it further checks to see if it occurred within the winning icon's rect. If so, the little win() fanfare is called. If not, nothing happens.

One thing to note: the Event Manager returns the point at which

the mouse was clicked for a mouse-down event in the "where" field of the Event Record. This point is expressed in "global coordinates." Actually, "global" is a bit of a misnomer, but *Inside Macintosh* uses this description quite a bit and you'll have to live with it. When you create a grafport (which is what you do when you create a window), you've created a new universe with its own "local coordinate" system. That is, all points, rects and pen locations are expressed as two integer values relative to that window's portRect. Think of local coordinates as being relative to the top left corner of a window's portRect, a location that could consist of any unknown point value. If you were to take a rect defined in one local coordinate sys-

## YET MORE LISTING

```
themenue = mresult >> 16;
theitem = mresult;

switch(themenue) {
    case APPLEMENU:
        /*
         * Simple check for 8K available memory prior
         * to opening desk accessory. See last month
         * for additional comment.
         */
        GetItem(my_menus[0], theitem, name);
        ResrvMem(8192L);
        if ((err = MemError()) == noErr)
            OpenDeskAcc(name);
        else
            SysBeep(3);
        break;
    case FILEMENU:
        bye();
        break;
    case EDITMENU:
        /*
         * This will handle a desk accessory edit request.
         */
        SystemEdit(theitem -1);
        break;
    case OPTIONSMENU:
        switch(theitem) {
            case GAMEONOFF:
                if (plotting) {
                    /*
                     * If plotting is true, we're already
                     * playing a game and the user wants to
                     * stop playing. Stop the game and change
                     * the menu item to read "Start New Game".
                     */
                    plotting = FALSE;
                    str = "\PStart New Game";
                } else {
                    /*
                     * Otherwise, the user wants to start a
                     * new game. Set up the game variables,
                     * erase the game grid, and begin playing.
                     * Change the menu item to read "Stop
                     * Current Game".
                     */
                    time = TickCount();
                    score = 0;
                    EraseRect(&wp->portRect);
                    plotting = TRUE;
                    plotem();
                    str = "\PStop Current Game";
                }
                SetItem(my_menus[3], 1, str);
                break;
            case SOUNDONOFF:
                /*
                 * Use this construct to toggle states
                 * efficiently, then change
                 * the menu item accordingly.
                 */
                sound = sound? FALSE:TRUE;
                CheckItem(my_menus[3], 2, sound);
                break;
            default:
                break;
        }
        break;
    }
    HiliteMenu(0);
} /* end of do_menu() */

/*
 * setup() sets up the Rects and the window used
 * by our program.
 */
setup()
{
    register short i, j, top, left;
    /*
     * Start by defining the size of the window Rect. Note
     * that we've tied it into the number of icons you wish
     * on the playing board. Simply changing
     * the #defines above will adjust all other
     * parameters accordingly.
     */
    wrect.top = 60;
    wrect.left = 50;
    wrect.bottom = wrect.top + (32 * HEIGHT);
    wrect.right = wrect.left + (32 * WIDTH);
    /*
     * Now that we've defined our window Rect, open the window.
     */
    wp = NewWindow(NIL, &wrect, "\PTry & Catch Me",
        TRUE, noGrowDocProc, -1L, TRUE, 0L);
    SetPort(wp);
    /*
     * Allow a 4-pixel border around the perimeter of the
     * desktop beyond which the window can't be dragged.
     * This Rect will be supplied to DragWindow as
     * the boundsRect parameter.
     */
    SetRect(&dragRect, 4, 24, 508, 338);
    /*
     * Now, set up the grid Rects. Note how the nesting of
     * for loops and the judicious use of register variables
     * is used to quickly set up a grid of as many rects as
     * are needed. By creating the rects according to the
     * constants WIDTH and HEIGHT #defined above, we are able

```



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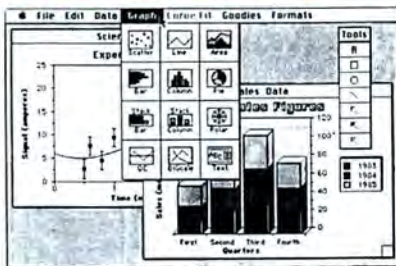
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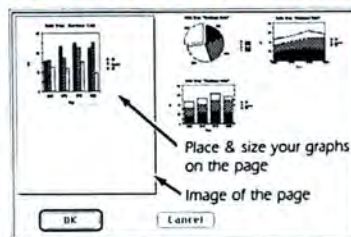
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tem and try drawing it in another window you might find that it's not plotted where you expected it. The other window may have completely different values anchored to its top left corner, yet QuickDraw dutifully attempts to plot it at a location relative to that point value. You can change the top left corner's value by using the QuickDraw procedure SetOrigin, and it may be the case in any given application that separate windows have different values anchored to their top left corners as a result of SetOrigin calls. Hence, the concept of "global coordinates." These are just coordinates expressed in the context of yet another grafport, but since it's one that encompasses all windows drawn on the Macintosh screen, it's reasonable to think of it


as a global system even though these "global coordinates" are in fact "local coordinates" themselves within their own universe.

Since we want to know where within our window the mousedown event occurred (as opposed to where on the Macintosh screen), we convert the global point contained in the Event Record to one which is local to our window. This is why the function GlobalToLocal is called.

If the mousedown point, expressed locally, occurred within the rect currently containing the winning icon, we call the win() function and reset our variables for another game. The PtInRect function handily takes care of that comparison for us, effectively managing our collision detection.

Note how the menu items' descriptions change during play of the game. You can use this same technique to change menu items during an Activate/Deactivate sequence or for whatever reason.

Play around with the values in the listing to create different sized grids and watch how the #defines work for you to make modifications quite easy. If you're really ambitious, add options to the game to allow a menu-selectable delay rate and a numeric score.

There's a lot in this program; examine it, pick it apart, and, most of all, use the pieces. There's enough here to keep you busy until next month, when we'll discuss using printers and hard copy output using the Print Manager. 

## THE END OF A LISTING

```
* to use this routine regardless of the value of
* the constants.
*/
for (i = top = 0; i < HEIGHT; ++i, top += 32)
    for (j = left = 0; j < WIDTH; ++j, left += 32)
        SetRect(&grid[i][j], left, top,
            left + 32, top + 32);
} /* end of setup() */

/*
* This is the where the comparison is made between
* where the click occurred and the winning icon.
* If the click is in the winning icon, bingo.
*/
clickit()
{
    /*
    * Convert the global coordinates in the er.where field
    * to a point local to our window. Then, use PtInRect
    * to determine if the click occurred in the
    * current winning rect. If so, call win();
    * if not, just beep and return.
    */
    GlobalToLocal(&er.where);
    if (PtInRect(pass(er.where), &winRect))
        win();
    else
        if (sound)
            SysBeep(2);
} /* end of clickit() */

/*
* plotem() plots a screen full of losing icons
*/
plotem()
{
    register short i, j;

    for (i = 0; i < HEIGHT; ++i)
        for (j = 0; j < WIDTH; ++j)
            PlotIcon(&grid[i][j], icon[_LOSE_]);
} /* end of plotem() */

/*
* puticon() randomly plots the location of the winning
* icon. Note that the function ranfrom() is taken from
* last month's article and is not reproduced here. It
* simply returns a pseudo-random integer between the two
* supplied arguments, inclusive. Start by checking to
* make sure that enough time has passed since the last
* icon was plotted. We then continue by putting a
* losing ICON back in the previous winning ICON's spot,
* then determine a random rect then plot the new winning
* icon at that location. Conclude by resetting the timer
* to 0 and incrementing the score counter.
*/
puticon()
{
    static short hvalue = 0, wvalue = 0;
    long past;

    if (plotting) {
        if (time++ < DELAY)
            return;
        PlotIcon(&grid[hvalue][wvalue], icon[_LOSE_]);
        hvalue = ranfrom(1, HEIGHT) - 1;
        wvalue = ranfrom(1, WIDTH) - 1;
        PlotIcon(&grid[hvalue][wvalue], icon[_WIN_]);
        winRect = grid[hvalue][wvalue];
        time = 0L;
        score += 1;
    }

    /* end of puticon() */

    /*
    * win() gets called when we make the correct hit
    */
    win()
    {
        register short i;
        char *scoremsg;
        static char *winmsg[] = {
            "\PScore: You're a Mouse Master!",
            "\PScore: You're a Mouse Trainer",
            "\PScore: You're Mouse Shy",
            "\PScore: You're a Piece of Cheese...",
        };

        for (i = 0; i < 10; ++i) {
            InvertRect(&wp->portRect);
            if (sound)
                SysBeep(1);
            FlashMenuBar(0);
        }

        plotting = FALSE;

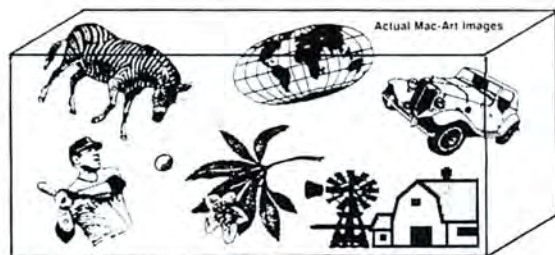
        if (score < MASTER)
            scoremsg = winmsg[0];
        else if (score < TRAINER)
            scoremsg = winmsg[1];
        else if (score < SHY)
            scoremsg = winmsg[2];
        else
            scoremsg = winmsg[3];

        SetWTitle(wp, scoremsg);
        SetItem(mymenus[3], 1, "\PStart New Game");
    } /* end of win() */

    bye()
    {
        ExitToShell();
    } /* end of bye() */
}
```



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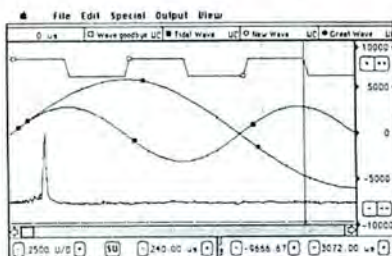
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# TIP SHEET

compiled by Tracie Forman Hines

Found a trick, shortcut or smarter way to get something done with a program? Share your hints with *The Rest of Us* by mailing them in to *Tips*, MacUser Magazine, 25 West 39th Street, New York, NY 10018. We'll pay \$25 for every hint we use, plus we'll print your name and hometown in the magazine. So what are you waiting for? Here's your chance to be rich and famous. Well, at least famous!

## SYSTEM


 There's a way to get rid of the chime that sounds whenever the Mac wants your attention, without altering any of the settings in the Control Panel. Just pick up a Walkman-style plug (jack) wherever portable radios and cassettes are sold, then plug it into the music socket on the back of the Mac. Now, every time the Mac would normally sound its chime, the menu bar will flash—in silence.

MIKE EISENSTEIN

FLUSHING, NEW YORK

Ed: Radio Shack's mono-to-stereo mini jack, part number 274-368, is perfect for the job, and it costs under \$2.

## MACWRITE

 If you're writing a report that requires an unnumbered title page, MacWrite can easily accommodate you. Select the TITLE PAGE option from under the Format menu, and no header or footer information will appear on the first page (either on-screen or in the printed copy). You can tell that TITLE PAGE is selected when it has a tick next to it when the Format window is open.


To make the second page of a document the first numbered page, go back to the Format menu and select the SET PAGE # ... option and enter a zero.

The only problem with this technique

is that you can't choose to print the title page only. Selecting to print From 0 To 0 results in the entire document being printed out. If you'll need to only print the title page, just go back to the SET PAGE # option and specify the title page as page one. (If you don't save the change, the program will default back to a title page numbered "0".)

TAMMY NG

FORT WORTH, TX

 Did you know that you can print MacWrite text up to a full 7 inches wide on the paper, a good inch wider than text you can see on the screen? Here's how:

First, write and edit your text to your satisfaction. Next, click the TITLE bar and drag the entire MacWrite window two inches or so to the left. Using the size box at the lower right corner of the window, expand the window horizontally to the right and you'll see that up to eight inches of the ruler are now visible. Reset the right margin to 8 inches and the text will adjust to the new size.


To view the text, slide the window to the left and right and readjust any size boxes as you need to. To save or print the document, just follow the normal procedures. The quickest way to reset to default margins is to close that document and select NEW from the File menu.

By the way, this does not work with the LaserWriter.

GREGORY O'NEILL


PHOENIX, AZ

## MACDRAW

 To redraw the same type of object that was most recently drawn on the screen in MacDraw, instead of reselecting the action from the icon panel, just hold down the COMMAND key and click at the place the new object is to be drawn. The previous action will be selected automatically. Furthermore, all of the objects drawn while the COMMAND key is depressed will be selected when the COMMAND key and mouse button are released.

KEVIN LONG

HOUSTON, TX

 With MacDraw, it's easy to print out a MacPaint screen in FatBits mode. First, copy the MacPaint document into the Clipboard, then quit MacPaint. Without resetting the Mac, launch MacDraw and choose PASTE from the Edit menu. Then press COMMAND-G to group all the pixels together. At this point, it's best to choose the WIDE option from the Page Setup dialog box,


or use the DRAWING SIZE option to make the document a couple of pages bigger and then choose REDUCE TO FIT to give you a reduced version on-screen.

Click once on the collection of pixels, which will give it some handles, and then drag one of the corners diagonally to stretch the whole image. Stretch it as big as you like, using the NORMAL SIZE option to see its real size. When you're finished, print the file out and you'll find that it will come out much larger than MacPaint alone would allow.

GILBERT KOHL

LANSING, MI


## MICROSOFT WORD

 Everyone knows that Word accepts text-only files from MacWrite. But there's also an easy way to convert formatted MacWrite documents into Word. First, open a new Word document. Without entering a keystroke, close it. Then, choose OPEN from the File menu, insert the disk containing the MacWrite document, and select it from the minifinder. The file will automatically be converted to a Word file.

AMANDA ROLAND

HIAZLET, NEW JERSEY

## FINDER


 A reasonably important disk recently went out of whack on me for no apparent reason. The disk wasn't accepted by the Finder (it asked if I wanted to initialize or eject the disk), and even MacTools failed to help find the problem.

Several weeks later I put that disk in the drive—completely by mistake, since I had already given up on it. As inexplicably as it had stopped working, it suddenly started again, and all my files were intact.

The moral of this story is: Don't automatically trash a disk that's stopped working. It could just decide to rise from the ashes!

DAVID TEITELBAUM


ITHACA, NEW YORK

 If you accidentally begin to rename a disk or file from the desktop, just backspace until what you've typed is gone and hit RETURN. The old name will reappear.

KEVIN LONG

HOUSTON, TX

## MINIFINDER

 To speed up moving from one application to another, I have installed the Minifinder on almost all my disks. The whole idea of the Minifinder,



# MacServe.

## For those who understand the power of sharing.

It's called teamwork. All the members of a team benefit from sharing knowledge and resources.

Now your workgroup can take advantage of an easy to use and reliable way to share your choice of hard disks and printers. Not only will your teamwork improve exponentially, but you'll save lots of money while you make each member of your group a Power User. Then watch what MacServe does for the prosperity and morale of your operation!

### Increase productivity

Everyone in your group will benefit from direct access to common databases (such as Omnis 3) and

libraries of documents. And, MacServe's printer spooling is a great relief, because you can share a printer and still get back to work sooner.

### Reliable and Convenient

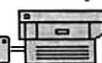
MacServe lets you divide hard disks into segments or "volumes" with speed and security advantages even for single Macintosh configurations. It's faster than accessing a whole disk and much more reliable than any file serving scheme yet devised. And disk sharing is incomparably more convenient than using and swapping floppies with your colleagues!

### The complete Apple network



MacServe networking software and Apple's Hard Disk 20 finally make Apple networking a reality. But MacServe does not limit you to Apple's hard disks and printers—your group can also share any of the leading hard disks—and all at the same time. Add more Macs, disks, and printers as you need them. MacServe requires no special or dedicated hardware.

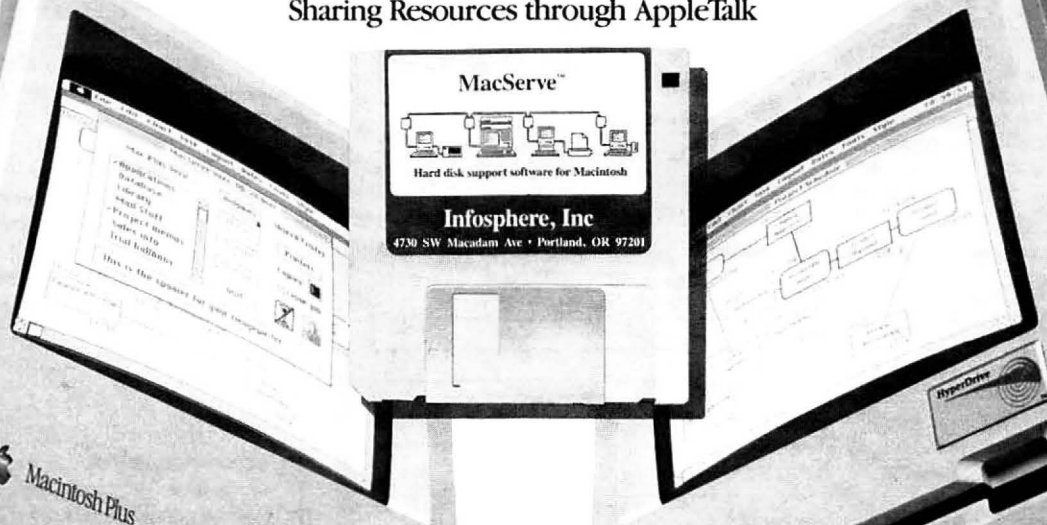
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By April 15, leading Apple dealers will be delivering a networking system that really works. MacServe has arrived.

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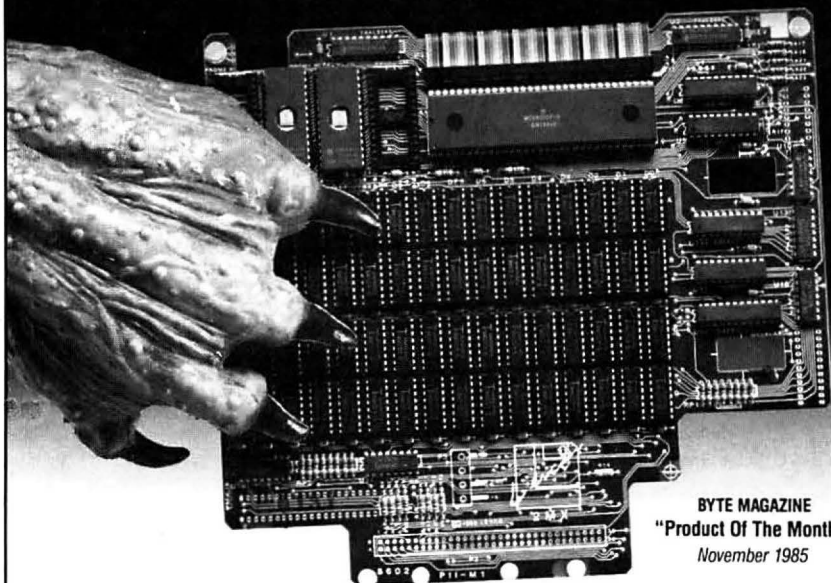
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# LEVCO'S 2 MEG EXPANSION BOARD CREATES MONSTER MEMORY FOR YOUR MACINTOSH™



BYTE MAGAZINE  
"Product Of The Month"  
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## THE MONSTERMAC™ CLIP-ON.

### BOOST SPEED BY 30%

Now you can turn your friendly Macintosh into a real Monster. Levco's MonsterMac enables the memory in your computer to run up to 30% faster than a standard Macintosh. This proven upgrade also provides 256K of PROM space, and the first real Macintosh expansion port for peripherals such as the new Levco OverDrive SCSI internal 20 megabyte hard disk. The whisper-quiet Levco MacBreeze™ piezoelectric fan is included to keep your Macintosh running cool, even when the demands are hot. MonsterMac also provides a true motherboard emulation mode, to functionally "turn off" the extra memory for those rare programs that don't understand a world beyond 512K.

### YOUR MOTHER WILL LOVE IT

Levco offers the MonsterMac with clip-on convenience, for simple, quick installation and no modifications to your Macintosh motherboard. MonsterMac works with old or new Apple ROMs and with either 128K or 512K Macintoshes. Most importantly, MonsterMacs are available now!

"The MonsterMac receives the highest recommendation for its speedy 2 megabytes, its compatibility with all the test software, and the lure of a real bus expansion port."  
*MacWorld*, February 1986



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### SAVE \$50 ON A MONSTERMAC!

Levco is offering a \$50 rebate for those who purchase a MonsterMac before October 31, 1986. Just send this coupon to Levco with your MonsterMac order, or bring it to a participating authorized Levco dealer for an installed MonsterMac. Call Levco for the participating dealers in your area.

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Installation Date: \_\_\_\_\_

MonsterBoard Serial Number: \_\_\_\_\_

Mac Motherboard Serial Number: \_\_\_\_\_

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Offer void where prohibited by law. One coupon per customer.

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## T I P S H E E T

of course, is that you don't go back to the desktop when you quit an application. But there are times when you'll want the desktop—to delete files, for example. The usual way to do this is to click on the *Finder* button in the *Minifinder*.

But here's a handy, undocumented feature: if you hold down the **OPTION** key when you quit an application, you will bypass the *Minifinder* and go directly to the desktop. But don't hold down the **COMMAND** key too, or the *Finder* will rebuild the (invisible) Desktop file and you'll find that all your folders have been renamed "Unnamed #. . ."

GLENN GOODRICH  
BOTHELL, WA

### IMAGEWRITER

The ImageWriter has a magnet embedded in the left side of its cover. Never lay a disk on top of the ImageWriter unless you really like losing data files.

SHELLEY HOFFMAN  
MCLEAN, VA

### FINDER 4.1

With a little help from *Fedit*, you can modify *Finder* 4.1 to prevent it from changing startup disks when an application is opened. Open the *Finder* in *Fedit* and make one simple change: Find B678 0210 6738 and substitute B678 0210 6038.

DARREN TOMERFIELD  
BRIDGEPORT, CT

*Ed: Make sure you do this on a copy of the Finder. Never modify the original of anything with Fedit!*

### LASERWRITER

I often write letters longer than a page, and share a LaserWriter with people who use other letterheads and need blank paper in the cassette for memos and drawings. That means I need the manual feed for both envelopes and letters. I use *Switcher* with two copies of *MacWrite*, and open one of them for letters and the other for envelopes. (You need an external drive, since the *Switcher* gets confused if you try to run *MacWrite* twice from the same disk. The disk in the second drive needs *MacWrite*, but no System folder, which leaves room for letter and envelope documents.)

When I type a letter, I copy the address to the Clipboard and switch to the envelope document (pressing the **OPTION** key as I switch to carry over the Clipboard). In the envelope document, a header of five or six blank lines of 18 point, and a 3 inch left margin positions



the address appropriately for envelopes with a preprinted return address. Put a page break after each address and choose the LANDSCAPE option under the Page Setup menu. By putting several letters together in one pair of documents, you can save all the annoying time and extra sheets of paper used in setting up the LaserWriter each time you print from *MacWrite* with manual feed.

CAROLINE ARMS  
PITTSBURGH, PA

### MULTIPLAN

If you're printing out large sheets of *Multiplan* documents, it's far easier to use forced page breaks to break up the spreadsheet into printable units and then to select pages from the Print dialog box than it is to keep selecting areas on the spreadsheet.

I've also discovered two methods of squeezing extra data on to the page itself. You can either nominate a page size in Page Setup... that's larger than the actual size of the paper you are using, or using the same option, simply set all the page margins to 0.

Another hint is that, although the Tall Adjusted printout is much darker and distinctly more legible than that produced by the Tall setting, it does take almost twice as long to print. Also, although it's not possible to highlight particular sections of a *Multiplan* sheet, pasting into *MacDraw* or *MacPaint* will allow you to put subtle tints behind headings and important totals.

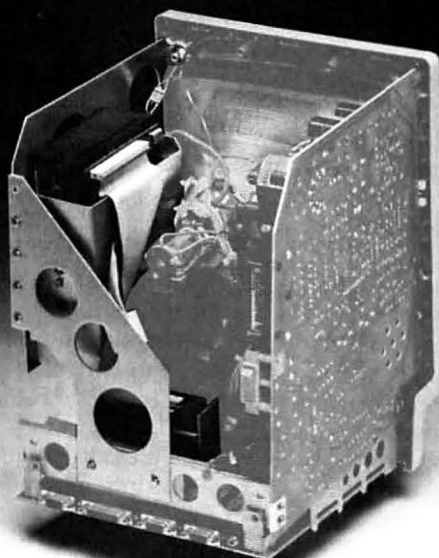
ROY HAMPSHIRE  
LONDON, ENGLAND

*Multiplan* has a comprehensive protection facility, but from the way it's explained in the manual you might think that the only reason to use the system is to stop deliberate or accidental changes to a completed model—very useful if security is a problem, but by no means the only reason for getting interested in the protection scheme.

By using PROTECT DOCUMENT in conjunction with REMOVE CELL PROTECTION, you can set up a model in which cells that may require alteration are highlighted and unprotected. To make subsequent changes, you can move instantly between these unprotected cells using the ENTER key. An additional benefit is that row and column lines are suppressed on a protected sheet, making it cleaner looking and easier to read.

BRIAN DAVIS  
LOS ANGELES, CA

## AND NOW YOU CAN KICK YOUR MONSTERMAC™ OR MACINTOSH PLUS™ INTO OVERDRIVE™.



### LEVCO'S OVERDRIVE HARD DISK SUBSYSTEM.

Combined with Apple's Macintosh Plus or Levco's MonsterMac 2 meg upgrade, *OverDrive* 20 megabyte hard disk system transforms your Macintosh into a powerful, professional work station. Finally, Macintosh owners can have an internal hard disk system that is intelligent, speedy, convenient and reliable.

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With the introduction of the Macintosh Plus, Apple defined Small Computer Systems Interface (SCSI) as the standard for high-speed Macintosh peripherals such as hard disk drives. Levco is committed to this standard, and has engineered the *OverDrive* hard disk system to optimize the new Macintosh technology.

With *OverDrive*, your Macintosh will automatically boot without floppies by using the HFS system built into the Apple 128K ROMs. The system supports multiple partitions, and includes software utilities for disk management. Since the *OverDrive* SCSI port is functionally identical to that on the Macintosh Plus, generic SCSI utilities and hardware will operate without modification.

Levco offers everything you need to kick your Macintosh into *OverDrive* and into a world of higher performance.



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# THE MACINTOSH MAZE

(continued from page 45)

system software yet. Apple has sent dealers a disk that will update the System software on startup disks. If you have a Mac Plus, be sure to get a copy of the Installer from your dealer. Use the Installer to update your startup disks. Most programs will run on a Mac Plus, but some will have problems. When the Mac was first released, Apple asked developers to "play by the rules." If they did, they were assured that their software would run on future Macs. Most took these warnings (or threats, if you like) seriously. Users are now finding out who played by the rules—and who didn't! Most applications run fine on the Mac Plus. Some don't work properly, and some don't run at all. If you run into a problem, contact the publisher. Most publishers are aware of any problems and are rushing "fixed" versions to market.

We planned to run a list of what software doesn't work, but we ran into a problem. The list of programs that don't work is growing shorter literally day by day, and noncompatibility should soon be a thing of the past. The one exception is games. Some games have such unusual internal construction that they may not be fixable, so keep in mind that your favorite game may not be playable on a Mac Plus.

The original Mac let designers draw low-voltage power through some of the connectors. That power source is no longer available. Some products that used it, such as the ThunderScan, Kaola's Kat, and some MIDI connectors, will now have to be supplied with small auxiliary transformers. Manufacturers like Kette and Assimilation have announced adapter cables that will also supply power.

## AND WHAT IF YOU ALREADY HAVE A MAC?

Where does all of this leave over 500,000 current Mac owners? They have numerous options. Any current Mac can be upgraded.

Macintosh Plus upgrade kits for Macintosh 128K and 512K owners are also available from Apple dealers. The disk drive kit sells for \$299. The

logic board kit costs \$599 for upgrading a Macintosh 512K and \$799 for upgrading a Macintosh 128K or any Mac that has a third-party memory upgrade board. The price of the Macintosh Plus keyboard, sold separately, is \$129.

If you have used a non-Apple source for a memory upgrade, you can take advantage of any or all of the upgrades offered. However, Apple can't and doesn't promise that the upgrades will work in a modified Mac. In most cases they will, but there is no way to be 100% sure. The Macs most likely to not work are those that have been upgraded to 1.5 megs of RAM.

*MacWrite* and *MacPaint* will not be included with the Macintosh Plus, but are available now separately at a list price of \$125 each. They will, however, continue to be supplied with 512K Macs.

To use the new external drive with a 512K Mac, you'll need the Macintosh System Update disk, which contains the the new Mac Plus system software. You can make a copy of this disk at your dealer.

## GET SOMETHING BACK

Customers in the United States and Canada who purchased a 128K Macintosh, 512K Macintosh or 512K Memory Expansion kit from an authorized Apple dealer between November 17, 1985 and January 15, 1986 can get rebates on the Macintosh Plus ROM plus disk drive and logic board upgrade kits. To obtain your rebate, get a rebate form from your authorized Apple dealer, and

by May 15, 1986, purchase a ROM plus disk drive kit, a logic board kit or both and mail the rebate materials to Apple. There's not much time left, so hurry up, folks!

Rebates will come straight from Apple, not from your dealer. The ROM plus disk drive kit rebate is \$150, while the logic board kit rebate is \$300. Rebate forms are available now.

Mac XL and Lisa owners have not been forgotten (for once!). For \$1,498, Macintosh XL and Lisa computer owners in the United States and Canada can trade in their systems for a Macintosh Plus and a Hard Disk 20. The U.S. list price of a Macintosh Plus with a Hard Disk 20 is \$4,098, so this trade-in program offers a \$2,600 savings. While that's not much if you were an original Lisa buyer who upgraded (total cost: \$13,000!), it is, at least, some recognition by Apple. The program will be in effect from April 15 through August 31, 1986.

## IF IT AIN'T BROKE, DON'T FIX IT

You just read one of the most basic and important laws of equipment. In fact, it's so important that you should read it again. That being said (and done), everyone should get the basic upgrade, the kit consisting of the dual-sided internal 800K disk drive and the 128K ROM. The new ROM will not run with less than 512K of RAM, so if you have a thin (128K) Mac, you'll need to upgrade it to at least 512K. Whether you get Apple's Memory Expansion kit or a

(continued on page 123)

## IF YOU BOUGHT A MAC THE DAY IT CAME OUT

That Mac cost \$2495. The ImageWriter bought at the same time cost \$495, \$100 off the suggested list.

Total so far: \$2990.

Then you added an external disk drive, at a cost of \$495. Total so far: \$3485.

Then the long-awaited memory expansion board was added. It cost \$995 and entitled you to *MacDraw* and *MacProject*. Total so far: \$4480.

Next was a Hard Disk 20 (\$1499). Total so far: \$5979.

And then the Mac Plus upgrade: \$299 for

the new ROMs and disk drive, \$599 for the new logic board and \$129 for the new keyboard. Total so far: \$7006.

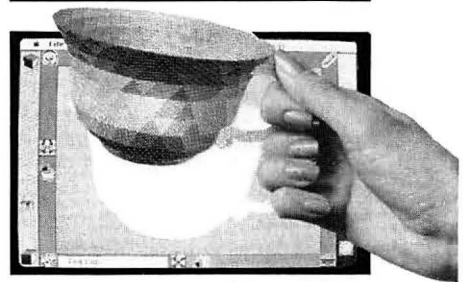
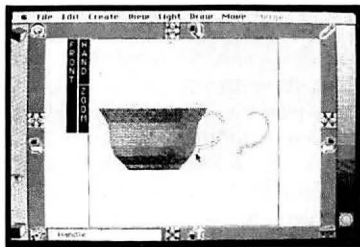
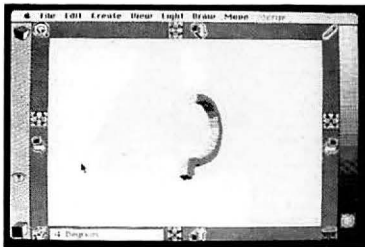
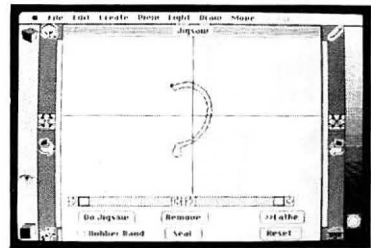
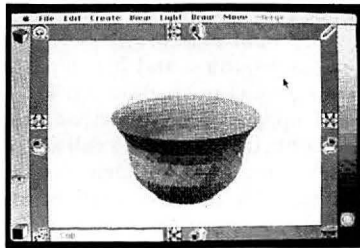
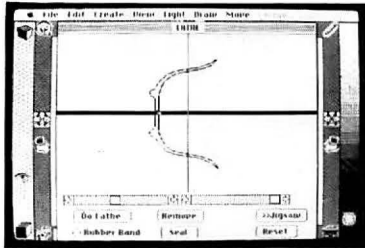
A new ImageWriter II (\$595), an adapter cable (\$30) and a new 800K external drive (\$499) complete the package. Total so far: \$8130.

If you waited until today that configuration would cost \$5792, a figure that includes \$570 for the four software packages "given" to the upgraders.

So far, the price of progress has been \$2338.



# Discover what Easy3D,<sup>TM</sup> your Mac and your imagination can do.



Even though Easy3D is fast becoming popular with architects, artists and engineers, you don't have to be a technical genius to use it. Thanks to its advanced interface—created by specialists trained in the behavioral sciences—you'll find that, with little or no training, you'll be able to create and manipulate complex, shaded three-dimensional models of lamps, jet planes, buildings, logo's, package designs, and more.

Just draw a basic outline and use the lathe or jigsaw to transform it into a solid, shaded figure. Not a wire frame.

Stretch it, shrink it, blow it up, rotate it, and combine it with other objects. Then set it in a 3D scene and transfer your finished image (up to 8" x 10") into a complementary program—such as MacPaint<sup>TM</sup>—for use in your layouts ...drawings...proposals...you name it.

What's more, Easy3D is fast—rendering shaded objects at a rate of up to 12,000 polygons per minute on your 512K Macintosh<sup>TM</sup> and even faster on the new Macintosh Plus. Yet it costs just \$99.

## **\$99/IMMEDIATE DELIVERY**

Find out *how* easy Easy3D is. Stop by your nearest dealer to examine the documentation and ask for a trial-size diskette. Or order direct. Just call collect 1-312-427-7635 (add \$5 shipping and handling) and get a 15-day money-back guarantee. Visa and MasterCard accepted.

But don't wait. Discover for yourself how easy and fun it is to join your Mac in the third dimension.

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# ANSWERS FROM THE MAC TEAM

by Dan Cochran

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, 25 West 39th Street, New York, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries. Watch this space for the pick of each month's Q & A crop.



## SOME GOOD NEWS

Last month I said that there wasn't any way to determine a folder's size under HFS unless all the folders were open (and that is something you'd never want to do!). That advice, fortunately, isn't strictly true. You can simply select a folder and then select Get Info from the File menu (or type COMMAND-I); this will give you the accurate folder size.

My dealer has a disk labeled "Update for 512K Disk." The disk has *System* file 3.0, *Finder* 5.1, *Hard Disk 20* 1.0, and *Font D/A Mover* 3.0. I've got a 512K machine and haven't upgraded to a Macintosh Plus yet. Do I need this update? I also noticed that the *System* file doesn't have a full set of desk accessories, fonts and drivers. Are these special DA and font updates for 512K owners?

TOM MACKIE  
PRINCETON, NJ

Apple dealers have received a disk containing the software and versions you describe. These files were all released and are included with the Macintosh Plus. The *System* and *Finder* on this disk are for use with both the Macintosh Plus and Macintosh 512Ks. The *Hard Disk 20* file is for use with Macintosh 512Ks when using an HD20 or an external 800K drive. The main purpose of distributing this disk is to allow Macintosh 512K owners to purchase and use an 800K external drive.

As for the incomplete *System* file, the reason is that all the drivers and desk accessories would nearly fill a 400K disk (remember, the internal drive is still only 400K) and we are asking people to copy this *System* folder onto their existing application disks. All the new printer drivers are larger than their predecessors. Until the new *Printer Installer* is released (real soon now, if not by the time you read this), you can use the old *Installer* (the one that came with the upgrade to *Finder* 4.1) to install the Choose Printer DA and the desired printer drivers.

By the way, the *System* file on this disk has a bug when you try to initialize a disk on a Macintosh XL, but the *Finder* is fine for use on an XL. Neither the *System* nor the *Finder* work well on a 128K Macintosh—continue to use *System* 2.0 and *Finder* 4.1 if you've got a 128K.

In a Macintosh XL's Get Info window, there is discrepancy between the number of bytes in a file and the number of K that same file occupies. Sometimes the difference is dramatic. What's up? These Macintosh XLs do NOT share disk space with Lisa software and have all the correct and current Macintosh software.

LISA LEWIS  
MARLTON, NJ

This is true not only of the MacXL but



the Macintosh also. Many files have invisible files associated with them. These invisible files are included in the overall file size; yet the actual file, that which is visible, takes up less space and this is what is noted in the Get Info... dialog.

Also, there is a minimum block size of 4K allocated on the XL for files, which, in many cases, is much larger than the actual file. On the Mac the minimum block size is only 1K, while HFS, which the new Macintosh uses, has a minimum allocation block size of 512 bytes, or 0.5K.

What exactly is in the new ROMs on the Macintosh Plus logic board, and what's in the new *System* file (3.0 and greater)? I've been hearing all sorts of claims (fonts and other goodies) and I don't know what to believe.

ALBERTA VERA  
LANSING, MI

Both the new ROMs and the new *System* file contain the AppleTalk driver, the *System* font, the serial driver, the numerics package, and the elementary functions package. These files are contained in both the ROMs and the *System* file in order to maintain compatibility with the old ROMs. This means that the external 800K drives will work on the Macintosh 512, without a ROM upgrade. Other new features that are found in the new ROMs are the HD 20 driver, the Zoom Box and HFS.



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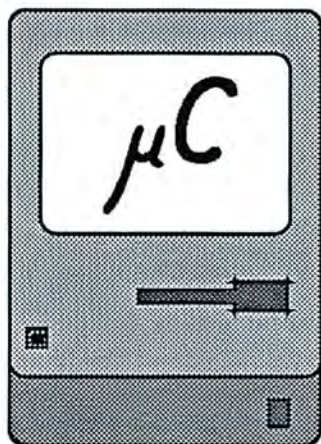
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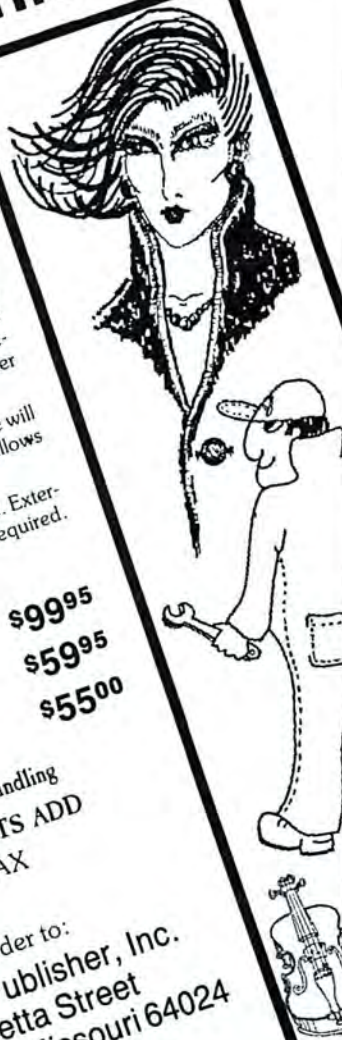
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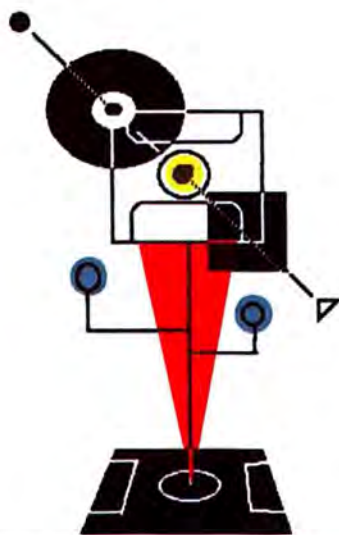
I recently received some dust covers for my Mac, external drive and printer. I don't often use my external drive, but I've noticed a red light inside the drive. Can I leave the dust cover on the external drive while the light is on? Also, can I put the dust cover on the Mac after I've finished using it, or should I let it cool down first?

VYTAS BANIONIS  
NEW YORK, NY

The red light you see is a diode indicating the drive is getting its power from the Macintosh, via the connector cable. The heat output from the diode is negligible and you can certainly leave the dust cover on even when the machine is operational. On question two: unless your Macintosh dust cover is made of Spandex I see no reason to wait for a cooling period. If the material is fairly porous you shouldn't have to worry about a Macintosh meltdown.

I am familiar with sending ImageWriter control codes to the printer via the Apple II series. ESCape [Chr\$(27)],..., etc. can be sent from BASIC and control characters can be inserted in various word processors, for example. My question concerns doing the same type of procedure from the Macintosh. Is there any way to send control codes to an ImageWriter from MacWrite using similar proc How do you get the Mac to send an ESCape character, for example?

EMIL CARLATTA  
MADISON, WI



You cannot insert control or escape characters directly into MacWrite since the Escape and Control keys are mapped as the tilde and command keys, respectively, on the standard Mac keyboard. More to the point, with all the font sizes and styles available, why do you want to use printer control codes?

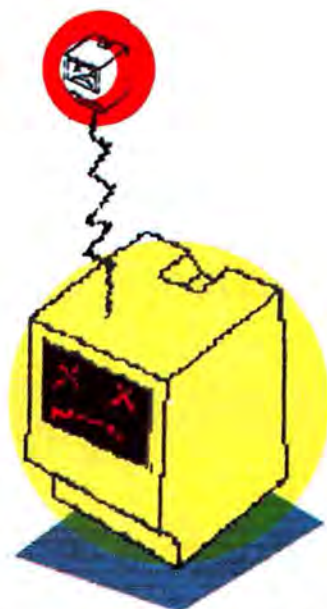
One possible reason would be to use the raw speed of the ImageWriter (or ImageWriter II) when printing its native fonts (those built in). There are more than you might think, and some are quite attractive. You could print out TEXT files (unformatted, no special styles or sizes) using a printing program in programming languages on the Mac such as Pascal or BASIC. These programs allow a user to send nonprinting ASCII codes to the printer if needed. Refer to your printer manual to determine which codes will create the effects you are looking for.

*Think it's easy being a customer support representative at Apple? Every day hundreds of calls a day are answered by Apple Customer Relations. Most questions are fairly straightforward and can be handled easily. Some are a bit more difficult. I'll try to feature the strangest here each month. These questions are not fictional, but are taken from actual phone conversations and letters from our customers. I won't supply the answers, but leave them to your imagination.—Dan*

I took my diskette out of the casing to play frisbee with my dog. As it was flying through the air, a hunter shot it with a 12-gauge shotgun. Now I can't get it back into the casing. I'd like to send it to you for repair because I have some important files on it.

[Editor's Note: We didn't believe this one either until Dan sent us a photocopy of the phone log. The caller didn't identify him- or herself (would you?). If the caller can send us the disk, we'll send a subscription to Macworld in return.]

I've connected a new 800K external drive to my Macintosh 512K. I boot up using Finder 5.0 or greater and System 3.0. When I attempt to mount an 800K volume in the external drive the Mac bombs with error ID=4. When I then attempt to initialize a 400K volume in the 800K external drive the Mac displays "Initialization Failed" dialog box. Any attempt to boot an 800K volume on the external



drive causes the Mac to bomb with a "sad Mac" error 0F0004. What exactly is going on here?

JEFF SCHWARTZ  
BROOKLYN, NY

[Reply by George Deriso of Apple Technical Communications]

You must have the Hard Disk 20 file (the Hard Disk 20 driver) on your startup disk, or communications with volumes greater than 400K will not take place (this also implies that the internal drive must be a 400K drive as long as you are using an "old ROM" Macintosh).

A couple of points should be re-emphasized. You cannot boot up from the external 800K drive with a Macintosh 512K and old ROMs. You must boot from the internal drive, and the internal drive must be a 400K drive. To use the 800K drive with the Macintosh 512, the following three files from the Macintosh System Update for Macintosh 512K disk must be copied to your startup disk: *System*, *Finder*, and *Hard Disk 20*. Dealers have this disk and need to give the customer a copy of this disk when the customer purchases an external 800K drive for a Macintosh 512.

Many of this month's answers were provided by the Apple Technical Communications group, headed by Bob LeMay. Your local dealer can use the Apple Link network to send questions to Bob's group. Or the dealers can access a database of the most commonly asked questions. Bob's group has placed the answers in the database, and your dealer can get these answers for you very quickly. ☺



# THE MACINTOSH MAZE


(continued from page 118)

third-party kit doesn't really matter, especially if you know the third-party dealer and are sure of service. The only possible drawback is the \$200 penalty if you eventually upgrade to the Apple 1-meg board. So be sure that any third-party upgrade is at least \$200 cheaper than your best price for the real Apple product.

Upgrading to or getting the Mac Plus is another story altogether. Many users simply don't need the power the Mac Plus offers. If money is no object, then go ahead and go for the Mac Plus; it is better than a 512K Mac. However, if you don't do big spreadsheets or newsletters and your needs have been met by 512K, then you might be better off by investing the few hundred dollars you'll save in more (and better) software.

Many users (and potential users) don't need more than 512K right now. Writers and other artists can save money by getting the cheaper machine. And don't forget that the 512K Mac includes *MacWrite* and *MacPaint*, while the Mac Plus doesn't. If you don't already own these programs, you should have them.

Keep in mind also that the Mac Plus is not the end of the Mac product line. There will be new Macs with different features available in the future. While color doesn't seem to be in the cards for 1986, there should be bigger screens and, possibly, expansion slots. Don't close out those options by blowing your entire budget now.

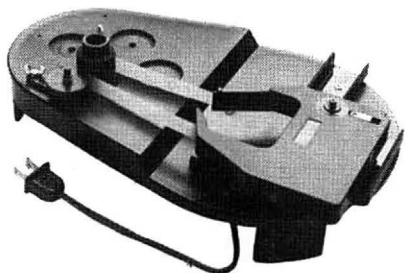
If you own a LaserWriter, upgrade it to a LaserWriter Plus. The only possible reason for not doing so is that you inherited the LaserWriter, don't like it and don't use it much. One of the LaserWriter's biggest flaws is the paucity of built-in fonts. Much of the Mac's personality revolves around its ability to use high-quality typefaces in varied and attractive ways. However, once the LaserWriter appeared, documents started using only the few built-in typefaces (for speed when printing). The LaserWriter Plus, with its seven new type families, changes that. 

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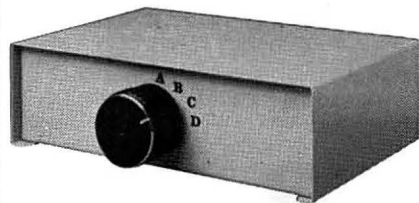
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# MINIFINDERS

Ever go into a computer store and wish you had someone you could trust tell you what the various programs and accessories do and how well they do it? These MiniFinders detail items chosen by the editors. Each one has been rated from 1 to 5 mice and there are even a few bomb icons scattered here and there. Red names indicate this month's additions. Dates at the end of an entry indicate a major review. And, since so many of you have asked, we've included a code that indicates whether or not a program is copy protected. CP means copy protected, NCP means not copy protected and CP? means we don't know the status. If you do, write us at MiniFinders, c/o MacUser, 25 West 39th St., New York, NY 10018. Next time you have to find products you can count on, count on MacUser!

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## INTEGRATED SOFTWARE

**Crunch** is an icon-driven relational spreadsheet that features  
 \*\*\*\* versatile charting and database capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. \$195. Paladin, 2895 Zanker Rd., San Jose, CA 95134. CP (Jan 86)

**Ensemble** lets users create a database of words, pictures, and/or  
 \*\*\*\* numbers; graph data; generate custom forms and link files for applications such as mail merge. Can perform calculations and math functions on data. Capacity limited by RAM and disk size. \$299.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

**Excel** is THE power spreadsheet. Of the Mac, of the world. Has  
 \*\*\*\* 256-column by 16,384-row capability. Features include a powerful, easy to use macro function (with a recorder to make creation simple) and elaborate charting facilities. Can link multiple spreadsheets. 512K Mac and external drive required. \$395. Microsoft, 10700 Northup Way, Bellevue, WA 98009. CP (Prem)

**Jazz** provides well integrated modules for word processing, graphs,  
 \*\*\*\* worksheets, databases and communications. Each of the modules is substantial. HotView, where data placed in any module automatically updates all other documents that use that data, is best feature. Jazz provides adequate coverage of most data and communications needs of small businesses. Requires 512K and external drive. Version 1A requires 800K drive. \$595. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)



## BUSINESS ACCOUNTING

**Accountant's Choice** is a powerful system built around a relational database, with functions accessed through menus. Standard reports are provided but most can be customized. Multiple journals allowed. Number of accounts determined by disk space. General Ledger can stand alone or integrate with other modules, not yet available. Requires 512K, printer and external drive. \$695. Sierra Information Systems, 10201 Torre Ave., Cupertino, CA 95014. CP (Dec 85)

**AMS General Ledger** is a Ledger with five preset journals: Cash  
 \*\*\*\* Disbursements, Receipts, General, Sales, and Purchases. Other modules are planned. Account ranges are preset. Menus and data entry are very straightforward. Flexible summary reports are built in, but customer and vendor information is very minimal. \$295. Applied Micro Solutions, PO Box 860, Fort Collins, CO 80522. CP

**Gallery Finance** is a one-write system with General Ledger, Cash  
 \*\*\*\* Disbursements, Payables and Receivables in a single package. Additional modules to be added. Data entered in a journal is automatically posted to appropriate record card. Excellent manual includes tutorial on basic accounting principles. Requires 512K, printer and external drive. \$795. Micromax Systems, 6868 Nancy Ridge Dr., San Diego, CA 92121. CP? (Dec 85)

**Hardisk** is a complex integrated hard disk system (General Ledger,  
 \*\*\*\* Receivables, Payables, Inventory, Payroll and Job Cost modules) that does not use Mac interface. Fully menu driven. Manual is detailed but complicated, with a few extra pages that make it Mac-specific. Flexible reporting, statements and account numbering; huge numbers of accounts, transactions, profit centers and detailed financial analysis. Requires hard disk and printer. \$695 per module. Great Plains, Box 9739, Fargo, ND 58109. CP? (Dec 85)

**MacOneWrite** Cash Disbursements is a simple, one-write check  
 \*\*\*\* writing system. Limited functionality, but does allow some detailed information. Menus clear and easy to follow, but check printing can be confusing. Other modules planned. 512K and printer required. \$245. Sierra, PO Box 485, Coarsegold, CA 93614. CP (Dec 85)

**Palantir** is a simple, inexpensive accounting system for a 128K,  
 • one drive Macintosh. Manual is clear and concise; program uses icons for common operations; menus are clear and detailed, with most operations easy to find and use. Flexible report formatting and a customized chart of accounts. Program is written in Microsoft BASIC so it is very slow. Nice design but the speed is intolerable. Requires Microsoft BASIC, printer. \$145 per module. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Dec 85)

**Rags to Riches** integrated accounting modules (General Ledger  
 \*\*\*\* and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Menu commands all have command keystrokes, as can accounts. No detailed or flexible reporting. Very easy to use, although it can be confusing to operate with several windows on screen. Requires 512K and printer. \$295 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. CP (Dec 85)

**Strictly Business** General Ledger features clear, well-outlined  
 \*\*\*\* set-up procedures and operations. Very flexible, with a custom chart of accounts; user-defined journals; up to 99 profit centers per company with up to 100 departments each; and customized reports. Program spools to printer and allows for printing of multiple documents. Requires 512K, printer and external drive. \$395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. CP? (Dec 85)

## PERSONAL FINANCE

**Dollars & Sense** is a bookkeeping program suitable for personal,  
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\*\*\*\* **Electric Checkbook** does exactly what the name says: keeps a running account of checkbook transactions, balances checkbook to bank statements, tracks bills, and even prints out checks. Provides detailed financial statements, calculates net worth, lists expenses by category and tracks your personal cash flow. \$79.95. State of the Art, 3191-C Airport Loop, Costa Mesa, CA 92626. CP

\*\*\*\* **Financial Cookbook** provides nearly 3 dozen "recipes" to help users figure out financial formulas (i.e., mortgage costs at different percentage rates) by inputting pertinent data. Very user-friendly. \$44.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP

\*\*\* **Financial Utilities Pack** is a set of applications that allow users to figure annuities, compound and simple interest, depreciation and amortization. Simple and well documented. \$69. Cognitive Software, PO Box 26948, Austin, TX 78755. NCP

\*\*\* **Forecast** is a tax estimating and what-if program designed to work with and use *Dollars & Sense* files. Straightforward, easy to use program. \$69.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

\*\*\*\* **The Home Accountant** is a complete and easy to use financial system. Data entry is intuitive. All kinds of reports, including charts and checks, are easily generated. Entered data will update all relevant material. \$150. Arrays, 11223 South Hindry Ave., Los Angeles, CA 90045. NCP (Apr 86)

\*\*\* **WillWriter** uses a rule-based system to create wills valid in all states except LA. Simple to use, comes with a complete book on wills. \$39.95. Legisoft/Nolo Press, 950 Parker St., Berkeley, CA 94710. NCP (Jan 86)

## DATABASES

\*\*\*\* **Business Filevision** is a masterpiece of Macintosh programming, the only true graphic database on any micro. Much more powerful than the original, accepts *MacPaint* graphics. \$395. Telos Software, 3420 Ocean Park Blvd, Santa Monica, CA 90405. CP (Feb 86)

\*\*\*\* **Factfinder** is a free-form information organizer (medium-duty database). Users enter data on to factsheets in any manner desired and select keywords. Searches are by name or keyword. Only one factsheet can be open at a time. Publisher offers free telephone support (800 number). \$149.95. Forethought, 1973 Landings Dr., Mountain View, CA 94943. NCP (Feb 86)

\*\*\*\* **FileMaker** is a nonrelational database that combines lots of power with ease of use. Data entry is extremely flexible and all items in all fields are indexed so that multiple criteria searches are both simple and fast. Calculation fields make the creation of invoices and similar documents a snap. Reports can include graphics and multiple data layouts are easy to construct. \$195. Forethought, 1973 Landings Dr., Mountain View, CA 94943. NCP

\*\*\* **Filevision** is a simple database that can change the way you think about data and data organization. Records are based around user created graphics screens. Screens and records can be linked in complex ways. \$195. Telos Software, 3420 Ocean Park Boulevard, Santa Monica, CA 90405. CP

\*\*\* **1stBase** is a small, easy-to-use database that allows users to join or append files. It is the simplest, most accessible relational database available for the Mac. Supports calculated fields, including statistical summaries such as averages. Integrates with *1stMerge* and *1stPort*. \$195. DeskTop Software, 244 Wall St., Princeton, NJ 08540. CP

\*\*\*\* **Helix** is a relational database that makes extensive use of icons. Excels in database setup and forms generation. Setup is made easy by the adherence to the Mac interface. The manual is clear, thorough and well-indexed. Too complicated for most simple database applications, excellent where a relational database application is required. Requires at

least a 512K Mac and an external drive. \$395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Mar 86)

\*\*\* **The Housekeeper** is a home inventory database. Users can keep track of assets for both tax and casualty purposes. Specialized reports are easily generated. \$59.95. Aegis Development, 2210 Wilshire Blvd., Santa Monica, CA 90403. NCP (Dec 85)

\*\*\*\* **I Know It's Here Somewhere** stores information in a simple filing system. Ideal for general household or small business use. Can cross reference up to five files at a time; perform simple, wild card, or multiple key searches, and print selected items or whole files. \$59.95. Hayden, 600 Suffolk St., Lowell, MA 01854. NCP

\*\*\*\* **Interlace** is a flexible relational database that makes it simple to create single or multiple files and establish links between files. Excellent report generator gives full control over appearance, style of output. Requires 512K, second drive or hard disk highly recommended. \$129 retail, \$95 direct. Singular Software, 5888 Castano Dr., San Jose, CA 95129. NCP (Apr 86)

\*\*\* **MacLion** is a true relational database program. Can handle all databasing requirements although set up may require outside (consultant) help. Has a built-in programming language (LEO) and can be customized for any application. Reasonably flexible and easy to use once a database is set up. Can handle very large files as well as multiple files. \$379. Computer Software Design, 1904 Wright Circle, Anaheim, CA 92806. CP

\*\*\* **MegaFiler** is a simple file manager. Its limited capabilities have been far surpassed by cheaper and easier to use programs. Valuable only in conjunction with *MegaForm*. \$195. MegaHaus, 5703 Oberlin Dr., San Diego, CA 92121. CP

\*\*\*\* **Microsoft File** is a flexible data manager. Creates files for a variety of data, including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized by moving field names around on a blank form. \$195. Microsoft, 10700 Northup Way, Bellevue, WA 98004. CP

\*\*\*\* **Omnis 3** is a power database, featuring concurrent multiple file management. Can handle 24 files, 12 at a time, and is fully relational. Allows user to create custom environments including user-defined menus, commands and dialogs. Good report generation capability. Comes in single and multiple user versions. \$495 (single user version). Blyth, 2655 Campus Drive, San Mateo, CA 94403. CP (Mar 86)

\*\*\*\* **OverVUE** is a power-packed relational database that has extensive sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. The program tries to anticipate every need conceivable in manipulating data. It can exchange files with a very wide variety of other programs (including IBM software). Be sure to get version 2.0. \$295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. CP (Nov 85)

\*\*\* **Professional Bibliographic System** is a database designed for storing and retrieving bibliographies. Predesigned forms for 20 types of entries. Citations automatically formatted with correct punctuation for printing. \$295. Personal Bibliographic Software, PO Box 4250, Ann Arbor, MI 48106. CP (Feb 86)

\*\*\* **Record Holder** is a flexible, easy-to-use form-oriented data manager. Set up is particularly simple and the search features are powerful. Drawbacks are a somewhat limited report function and the inability to use fonts other than the default font and graphics at all. \$49.95. Software Discoveries, 99 Crestwood Rd., Tolland, CT 06084. NCP (Apr 86)

## NUMBER CRUNCHING

\*\*\*\* **ClickOn Worksheet** is a 50-row by 20-column spreadsheet that loads onto any system disk as a desk accessory. Though small in size, it has remarkable capabilities for a desk accessory. It produces line, bar and pie charts and changes in the worksheet automatically reflect in charts. \$79.95.



# MINIFINDERS

T/Maker Company, 2115 Landings Dr., Mountain View, CA 94043. NCP

**Multiplan**, the first Mac product from someone other than Apple is beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. \$199.95. Microsoft, 10700 Northup Way, Bellevue, WA 98004. CP (Mar 86)

**ProAnalysis** is a powerful real estate investment analysis program. This program uses the Mac interface as well as any program yet published. Analytic power is combined with report generating so good you have to see it produce an extraordinary product. Requires 512K. \$295. Technalysis Services, 14555 DeBell Rd., Los Altos Hills, CA 94022. CP

**StatView** is a high-powered statistical calculation package. Easily and efficiently handles all the common statistical techniques and many uncommon tests. Has a user definable area as well. Easy to use and well documented. \$199.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 86)

**StatWorks** is a general-purpose statistics package that is both powerful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. \$125. Cricket Software, 3508 Market St., Philadelphia, PA 19104. NCP (May 86)

## GRAPHICS & DESIGN

**Animation Toolkit I** lets users prepare "film clips" of moving objects which play back at varying speed, like old-fashioned flip books. Drawings are built pixel by pixel in frames, using some of the tools from *MacPaint*. They can be copied and altered easily from frame to frame. Each film clip plays repetitiously as it is being constructed. A limited animation tool, but a lot of fun. \$49.95. Ann Arbor Softworks, 3081/2 S. State St., Ann Arbor, MI 48104. CP

**Art Grabber with Body Shop** is a desk accessory that lets users browse *MacPaint* documents, selecting and copying as they choose. Selections can be larger than screen size. Also included are *MacPaint* documents and templates to allow the creation of people in your art. \$49.95. Hayden, 600 Suffolk St., Lowell, MA 01853. CP

**ClickArt Special Effects** is a *MacPaint* enhancement desk accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. \$49.95. T/Maker, 2115 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

**ColorPrint** facilitates color printing on the standard ImageWriter. *MacPaint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration and colored ribbon switching. Good results require lots of hard work, but it's cheaper than an ImageWriter II. \$49.95. Esoft Enterprises, PO Box 179, Owasso, OK 74055. NCP (Mar 86)

**DaVinci Building Blocks** features predrawn blocks of brown-stone, garden, and skyscraper portions that can be cut and pasted together to form landscape and architectural drawings. Fun for even non-pros. \$79.95. Hayden, 600 Suffolk St., Lowell, MA 01853. NCP

**Easy3D** is a three-dimensional, solid modeling masterpiece. Four variable light sources, powerful sculpting tools and an exquisite user interface make this program a must-have for Mac graphics enthusiasts. Requires a 512K Mac. Enabling Technologies Inc., 600 South Dearborn, Chicago, IL 60605. NCP (May 86)

**Fluent Fonts** is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user Systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. \$49.95. Casady, PO Box 223779, Carmel, CA 93922. NCP

**Fontastic** is the best font editor now available for the Mac. Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and

previewing the various styles (italic, bold, etc.). \$49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

**Human Forms** allows users to create perfectly proportioned humans in any posture or position. Contains over 1000 separate body parts. Tiny X's mark make limb, head and detail placement perfect. Requires *MacPaint*. \$59.95. Bert Monroy, 205 Luquer St., Brooklyn, NY 11231. NCP

**Icon Switcher** changes icons for applications and the documents they generate, permitting you to customize icons for personal work. New icons can be built pixel by pixel in the program or created in *MacPaint* and pasted in. \$19.95. PBI Software, 1155B-H Chess Drive, Foster City, CA 94404. NCP

**The Mac Art Dept.** is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. Excellent manual. \$39.95. Simon & Schuster, Computer Software Div., 1230 Ave. of the Americas, New York, NY 10020. NCP (Mar 86)

**Mac-a-Mug** is an Identikit type program for creating faces from facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K Mac or larger required. \$59.95. Shaheerazam, PO Box 27731, Milwaukee, WI 53226. CP (May 86)

**Mac the Knife/Vol. 1: Treasury** contains over 500 pieces of clip art in the form of *MacPaint* documents and two new fonts. The art is well organized and mostly high quality. The rulers, for on-screen measurement, and the disk label templates are particularly useful. If you only plan on getting one clip art disk, this would be a good choice. \$39. Miles Computing, 21018 Osborne Street, Bldg. #5, Canoga Park, CA 91304. NCP

**Mac the Knife/Vol. 2: Fonts** contains over two dozen new fonts. Some of these (Paris and Stuttgart, for example are real stunners). If you do a lot of word processing try Paris 9 point (it's a big 9 point) as your text face and use High quality printing. Some fonts have single key fractions (1/2, 1/4). \$49. Miles Computing, 21018 Osborne Street, Bldg. #5, Canoga Park, CA 91304. NCP

**Mac The Ripper** is a two-disk set of highly stylized graphics and large display typefaces. Both are extremely well done, and represent the high-end of the clip-art disk category. \$49.95. Miles Computing, 21018 Osborne Street, Bldg. #5, Canoga Park, CA 91304. NCP (May 86)

**MacDraft** is an object-oriented graphics program. It sports advanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. It has some annoying quirks and a few bugs, and is best used to complement *MacDraw*, not replace it. \$239. Innovative Data Design, 1975 Willow Pass Rd., Concord, CA 94520. CP (Feb 86)

**MacDraw** is an object-oriented structured graphics program. Can be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. *MacPaint* documents can be pasted into *MacDraw* documents, but not manipulated. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

**MacPaint** is the graphics program that started a whole new genre. Still the best freehand graphics tool. Version 1.5 supports 512K Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. Free with 512K Macs. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

**MacPublisher** is a tool for creating newsletters. Allows multiple page issues. Layout is fairly easy but hard to do precisely. Runs on a 128K Mac but is slow; a 512K should be considered a requirement. Printer support, including LaserWriter, is good. Ideal for informal newsletters, not yet a professional tool. \$99.95. Boston Software Publishers, 19 Ledge Hill Rd., Boston, MA 02132. CP

**Magic Slate** is a graphics and design program with built-in special effects and custom features. Fun but sometimes difficult to



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# MINIFINDERS



use. Great for pattern design, block and geometric graphics and watercolor-style "washes." Requires 512K. \$99. Devionics, PO Box 2126, Covina, CA 91722. CP (Feb 86)

**Microsoft Chart** is the standard to be matched in presentation  
\*\*\*\*\* graphics programs. Users can easily create area, bar, column, line, pie, scatter and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. \$125. Microsoft, 10700 Northup Way, Bellevue, WA 98009. CP

**M.U.D. (MacroMind Utility Disk)** is a disk of various utilities for  
\*\*\*\*\* *MusicWorks* and *VideoWorks* owners. It also contains *Cheap-Paint* and *Art Grabber+*, two graphics desk accessories that are musts for graphics enthusiasts. Hayden, 600 Suffolk St., Lowell, MA 01854. NCP (Feb 86)

**PageMaker** is an advanced layout and makeup program. Can  
\*\*\*\*\* easily create multiple page documents. Output is optimized for LaserWriter. Good documentation. \$495. Aldus, 616 First Ave., Seattle, WA 98104. CP (Nov 85)

**Picture Base** is a program and accompanying desk accessory for  
\*\*\*\*\* organizing *MacPaint* and *MacDraw* elements and files. Graphics are organized into libraries, and can be searched for by keywords. A multitude of display options, and an advanced interface make this package indispensable for quick access to graphics files. \$69.95. Symmetry Corporation, 761 E. University, Mesa, AZ 85203. NCP

**ReadySetGo** is a page makeup program for 512K Macs. Users  
\*\*\*\*\* build up pages from blocks of text, graphics and rules. Resizing and scaling of blocks are supported. Each block can be precisely positioned. Text and art may be pasted in from another source or created within the program. Good LaserWriter support. \$195. Manhattan Graphics, 163 Varick St., New York, NY 10013. NCP (Apr 86)

**Slide Show Magician 1.3** is useful for creating full screen audio-  
\*\*\*\*\* visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. \$59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

**VideoWorks** is a full-featured animation package. Professional  
\*\*\*\*\* quality animations are easily accomplished using the tools provided. Features frame-by-frame and real-time modes. Comes with an art disk of predrawn images and *Art Grabber* (which allows the user to use any part of a *MacPaint* document in *VideoWorks*). Includes many special video and sound effects, excellent manual and many on-disk examples. \$99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Nov 85)

## COMMUNICATIONS

**InTouch** comes with its own communications command language  
\*\*\*\*\* able to do unattended sessions. Supports Xmodem, MacBinary and Kermit. Has a macro key function. Many sample set up documents and command language files provided. \$145. Palantir, 12777 Jones Rd., Houston, TX 77070. CP (Prem)

**MacTerminal** provides basic telecommunications and terminal  
\*\*\*\*\* emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation—it is superb at those. \$99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

**Red Ryder** is a full-featured telecommunications program that  
\*\*\*\*\* supports MacBinary, Xmodem and Kermit. Remote service procedures, auto procedure writer and keyboard macros allow automation of many operations. It is shareware and a real bargain. \$40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP (Prem)

**Smartcom II** balances power and ease of use. Capable of  
\*\*\*\*\* unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived both to the printer and to disk. \$149. Hayes, 5923

Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Prem)

**Telescape** is the power telecommunicator's terminal program. Can  
\*\*\* be configured to emulate any terminal and has all the advanced features (except unattended operation). The documentation does not adequately explain the many features and much of the power will be unavailable to all but the pros (who can figure it out on their own). \$125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Prem)

**VersaTerm** features include DEC VT100 and VT52, Tektronix 4014  
\*\*\*\*\* graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. \$99. Peripherals, Supplies & Computers, 2232 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Prem)

## WORD & OUTLINE PROCESSORS

**Document Compare** allows users to compare any two *MacWrite*  
\*\*\* 4.5 documents (only!—no other formats are supported). Differences in spelling, punctuation, formatting and wording are detected. Differences appear highlighted and the documents can be printed out with differences highlighted. Not HFS compatible. \$99. The Model Office Company, Inc., The Gooderham Flatiron Building, 49 Wellington Street East, Toronto, Canada M5E 1C9. CP (May 86)

**EgWord** is a *MacWrite* lookalike that allows full Japanese kanji  
\*\*\* word processing on the Mac. Does a superlative job of making Japanese text-entry as easy as possible, given the difficulties of the language. Great for students of Japanese, may find a place in international business as well. \$300. Counterpoint, PO Box 1685, Cambridge, MA 02138. CP? (Apr 86)

**1stMerge** is a mail-merge program that integrates data files with  
\*\*\*\*\* documents after a blueprint for documents has been designed. Features on-screen help, and the ability to add and search records. Requires *MacWrite*. \$95. DeskTop Software, 244 Wall St., Princeton, NJ 08540. CP

**Hayden: Speller** checks spelling errors in *MacWrite*, and *Word*  
\*\*\*\*\* documents against a dictionary of 20,000 common words and user-created dictionary. Reasonably fast and quite simple to use. \$79.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

**Just Text** is a professional level word processor and page makeup  
\*\*\*\*\* program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. \$195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

**LaserFonts** are new fonts designed for the LaserWriter. Users  
\*\*\*\*\* download them to their machines. Very high quality and very simple to use. *Willamette* (in Medium, Light and Extra Light) looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. \$29.95 each. Century Software, 2306 Cotner Ave., Los Angeles, CA 90064. NCP

**MacSpellRight** is a spelling checker that works with *MacWrite* 4.5  
\*\*\* (not 2.2!). Allows the user to create custom dictionaries. Works from within *MacWrite*. \$89. Assimilation, 485 Alberto Way, Los Gatos, CA 95030. NCP

**MacWrite** is the basic word processor that comes with the Mac.  
\*\*\*\*\* While it doesn't have every bell and whistle, it is more than adequate for most users. Features of the current version (4.5) include document size limited by disk space, global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. Easy to use and well documented. \$125. Free with purchase of 512K Mac. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

**MegaForms** is a well designed forms generator and processor.  
\*\*\* Forms design is easy. Can use data from *MegaFiler*. The form filling and print functions are slow, possibly too much so for large scale use. \$295. Megahaus, 5703 Oberlin Dr., San Diego, CA 92121. CP (Feb 86)



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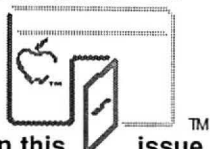
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# MINIFINDERS



**Microsoft Word** is a power word processor for the Mac. It has just about every feature your heart could desire. Supports keyboard commands as well as the mouse. Does mail merge and multicolumn text. Integrates with the rest of the Microsoft line. \$195. Microsoft, 10700 Northup Way, Bellevue, WA 98009. CP (May 86)

**QuickWord** is a word processing accessory that adds sophisticated glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. \$49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. CP

**Spellswell** is an effective and powerful standalone spelling checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. While full-featured, it is easy to use, with keyboard equivalents for all menu commands. \$49.95. Greene, Johnson, Inc., 15 Via Chualar, Monterey, CA 93940. NCP (May 86)

## ORGANIZATIONAL TOOLS

**MacProject** allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 86)

**Micro Planner** is a heavy-duty project planner. Excellent, but slow, at the mechanics of project planning. Reports are its weakness. Speed is much improved when a hard disk is used. \$395. Micro Planning Software USA, 235 Montgomery St., San Francisco, CA 94104. CP (Mar 86)

**ods/Consultant** is a program that lets users organize ideas and helps in thinking through and solving problems. Easy to use thanks to extensive use of icons and on-screen help. This program introduces some low-level AI (artificial intelligence) concepts. \$200. Organization Development Software, 1011 E. Touhy Ave., Des Plaines, IL 60018. CP (Apr 86)

**ThinkTank 128** is a basic outline processor. The interface is not the standard Mac interface, but is simple to use and efficient. Printer support is limited, but files can be printed in a draft-style mode. Only for 128K owners; 512K owners should get *ThinkTank 512*. \$99.95. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. CP

**ThinkTank 512** is a very fast and intuitive organizational tool that can handle word processing chores in the midst of structuring a plan or outline. Full keyboard control (without mouse) is possible. Can store and paste graphics into outlines. Good report formatting and printing capability. \$195. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. CP (Jan 86)

## DESK MANAGERS

**Battery Pak** is a set of 8 handy desk accessories including scientific and RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. Comes with an installer and the best manual we've seen in a long time. \$49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario, L4B 1B5, Canada. NCP (Dec 85)

**The Desk Organizer** is a free-form desk management system based on card index style files. Has many features including alarms, report generation and calculation. The Meta feature lets the program run along with another application. \$99. Conceptual Instruments, 269 W. Walnut St., Philadelphia, PA 19144. CP

**Front Desk** lets small businesses and offices easily keep track of personnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, week- and month-at-a-glance calendar. \$149.95. Layered, 85 Merrimac St., Boston, MA 02114. CP (Dec 85)

**MacOffix** combines many of the simple and necessary office functions in one easy-to-use package. Features include

simple word processing, forms design, form letter production, report generation and filing. Good design nearly makes the manual unnecessary. \$79. Emerging Technology, Inc., 4760 Walnut St., Boulder, CO 80301. CP

**My Office** lets you handle your files and papers in much the same way you did before you got a computer. Excellent use of graphic symbols makes this program the easiest to use of its type. \$129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

**Quickset** is a set of desk management and organizational tools that can be used as desk accessories or applications. Modular design allows users to add only selected items to System disks. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. \$49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. NCP (Dec 85)

**Sidekick** is a set of desk organization applications and accessories. Functions include phone dialer and logger, desk accessory terminal, calculator, clock, editor and more. When required resource files are included modules take up a lot of disk space, and are best used with a hard disk. \$84.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 85)

**Top Desk** is a set of 7 self-installing (and self-removing) DAs. Menu Key adds Command key sequences to programs. Views allows looking at and moving data between up to 8 *MacWrite* documents. BackPrint allows background printing from most applications. Shorthand adds a glossary. Blank is a screen saver. Encrypts scrambles files for protection, and Launch transfers to another application. \$59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

## UTILITIES

**Accessory Pak 1** is a set of useful applications and utilities. *Paint Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. \$39.95. Silicon Beach, 11212 Dalby Pl., San Diego, CA 92126. NCP (Nov 85)

**Copy II Mac** was one of the first back-up programs available for the Mac. Does efficient sector and bit copies and in its latest version can back-up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multiuse utility that can recover many damaged files. \$39.95. Central Point Software, 9700 S.W. Capitol Highway, Portland, OR 97219. NCP (Apr 86)

**Disk Ranger** is a speedy cataloguing program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. \$49.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Mar 86)

**Dubl-Click Calculator Construction Set** lets users design personalized calculators with a variety of standard and special functions. Multiple functions can be attached to a single key. Finished calculators can be saved as installable desk accessories or as clickable applications. \$99. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91321. CP? (Apr 86)

**Fedit** is the best disk editor available for the Mac. The program also includes extremely powerful disk and file repair and recovery facilities. All Mac owners should have this tool on hand for emergencies. It is Shareware. \$40. Mac Master Software, 939 E. El Camino Real, # 122, Sunnyvale, CA 94087. NCP

**MacBooster** is a disk-cache program that adds a great deal of operating speed to a 512K Mac. It installs easily from its master disk. This program can increase the speed of your 512K Mac by 2 to 3 times. Not for Mac Plus. \$50. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

**Mac Disk Catalog** is a utility that will quickly organize a moderate size disk library. It's easy to use and has powerful reporting and label making features. \$39.95. New Canaan Micro-Code, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)



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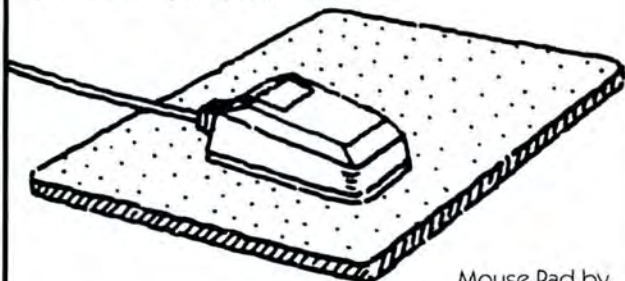
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# MINIFINDERS



**MacLabeler** lets users instantly index and print labels for all the disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. CP (Prem)

**MacLink** lets users transfer data between Macs and PCs. Simple to install and run, high-performance software. Can do special format transfers such as 1-2-3 to *Multiplan* and *WordStar* or *MultiMate* to *MacWrite*. Contains both Mac and PC disks, interface cable is optional. Has Mac and MS-DOS disks. \$125, \$155 with 8-ft interface cable. DataViz, 16 Winfield St., Norwalk, CT 06855. NCP

**MacMate!** combines RAMdisk and print spooling functions in a compact package. Both parts are efficient, work well and have on-screen help. \$49.95. SMB Development Associates, PO Box 3082, Chatsworth, CA 91311. NCP

**Mac Memory Disk** creates a RAMdisk on 512K Macs. The RAMdisk's size is user selected up to 316K. Has auto startup and auto file transfer features. Simple to use, on-screen dialogs prompt for all actions. \$29. Assimilation, 485 Alberto Way, Los Gatos, CA 95030. NCP

**MacNosy** is a global disassembler. A very advanced user can use this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going if you have the skill to guide it. The documentation is sparse. For pros only. \$85. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

**The Macintosh Reference System** consists of the contents of *Inside Macintosh* arranged into a simple database on a disk and a deck of 750 color coded cards that contain the same information. Very useful for programmers and developers. \$109.95. TOM Programs, 1500 Massachusetts Ave. NW, Washington, DC 20005. NCP (Mar 86)

**MacZap** is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. \$60. Micro Analyst, 5802B Gloucester, Austin, TX 78723. NCP (Jan 86)

**'Ncryptor** is a simple, safe program that lets users password their files. The same program is used for encoding and decoding. This is the best product in its category. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

**Packer** is a simple utility that compresses files. It can be used to save disk space and also protect files. Packed files can also be password protected. Typical space savings range from 20 to 50% depending on the original file type and size. This is the best program of its type so far. \$29. Bobbing Software, 67 Country Oaks Dr., Buda, TX 78610. NCP (May 86)

**PC to MAC and BACK** has both Mac and MS-DOS disks. This program easily and efficiently transfers text and other data between PCs and Macs. Easy to use, although not too intuitive. Fortunately, the documentation is excellent. Does special format transfers such as *WordStar* to *MacWrite*. Includes a cable for direct Mac to PC connections. \$149.95. dilithium Press, 8285 SW Nimbus, Beaverton, OR 97005. NCP

**Quick & Dirty Utilities, Volume One** is a disk chock full of the handiest programs you have ever bought. Included are a super disk cataloguer, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. "Fileinfo" and "Q&D Filer" are two file management desk accessories that you'll wonder how you got along without. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

**Quick Disk** is a RAMdisk utility. Users can create RAMdisks up to 350K on 512K Macs. Works well and has good documentation. \$34. Symmetry Corporation, 3900 East Camelback Rd., Phoenix, AZ 85018. NCP

**Switcher** is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Slick and easy to use; every 512K Mac user should get it. Runs on 512K Macs and

larger. \$19.95 from Apple, free from MAUG on CompuServe, from Delphi and included with some third-party applications (e.g., Excel). Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

**TurboCharger** is a disk-cache program. Can dramatically speed up operation (250 to 500% improvements are common). Features include auto-startup and write buffering. Only works on a 512K Mac but is a must for one. \$95. Nevins Microsystems, 210 Fifth Ave., New York, NY 10010. NCP

**TurboDownload** is a desk accessory designed specifically to increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

**Twelve-C Financial Desk Accessory** brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

**TypeNow** is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back or "boilerplate" stored and used as needed. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Jan 86)

**XL/Serve** converts a Mac XL into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the Mac XL's hard disk into multiple volumes (read-only for common access and read-write for private access). Runs in the background on the Mac XL, so users can work on all machines in the network. Comes with a backup and restore utility. \$195. Infosphere, 4730 SW Macadam, Portland, OR 97201. NCP (Nov 85)

## LANGUAGES

**Aztec C** is a C language program system that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. Good, solid system. \$199 basic system, can't produce standalone applications; \$299 development system, can produce standalone applications; \$499 commercial system, development system plus utilities and strong technical support by publisher. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

**ExpertLISP** is a very buggy, but still incredibly useful, programming language for high-level programmers. The more you use it, the more you'll figure out about it. System crashes are too common for a language this useful and expensive. \$495. Requires 512K and either an external or a hard drive. Expertelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP


**ExpertLogo** is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than the usual "turtles." Very speedy, smooth program. Comes with an excellent manual. \$149.95. Expertelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

**Hippo-C Level 1** offers a good basic learning environment for newcomers to the C programming language. The program's limits and restrictions are severe and standalone applications cannot be created. A good place to begin the study of C. Has a useful print spooler desk accessory. \$149.95. Hippopotamus, 985 University Ave., Los Gatos, CA 95030. CP

**MacAsm** is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. \$125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

**Mac C** is a good, highly Mac-oriented implementation of this popular development language. Latest version has assembler and linker built-in. \$375. \$475 with Toolkit and floating





point package. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

\*\*\* **MacExpress** is a development environment or shell. Programmers use it to save time and effort when developing standalone applications for the Mac. Easy to use for those with a strong technical background. \$50 test drive package, \$495. AL-Soft, Inc., PO Box 927, Spring, TX 77383. NCP (Feb 86)

\*\*\* **MacForth** is an implementation of the popular Forth programming language. Level 1 is a simple, introductory version with limited support of the Mac ToolBox. Excellent tutorial and references sections in the manual. Level 2 supports the Mac ToolBox fully. Level 3 extends the language so that professionals can produce standalone applications. All levels are supported by the publisher via telephone and electronic BBSs (the publisher even has a private SIG on CompuServe). \$149 (Level 1), \$249 (Level 2), \$499 (Level 3). Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

\*\*\* **Mach1** is a multitasking implementation of Forth that allows local variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$49.95. Requires 512K. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

\*\*\*\* **Macintosh 68000 Development System** is a fairly traditional assembly language package. The two-disk set provides an excellent editor (*Edit*), an efficient assembler, a linker, an executive, a resource compiler called *RMaker*. The files included in this two-disk set have all the basic equates, process definitions, and trap calls. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

\*\*\*\* **Macintosh Pascal** is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. The documents are mostly references, get one of the tutorial textbooks in your bookstore. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

\*\*\*\* **Megamax C** is an easy to use, full version of C. Has a compiler, linker, disassembler, editor and much more. Good for beginners. Excellent documentation. \$299.95. Megamax, PO Box 851521, Richardson, TX 75085. CP

\*\*\* **Microsoft BASIC** was the Mac's first programming language. This interpreter (it's not a compiler) now supports the ToolBox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available (in user group libraries and magazines) to run. There have been several versions; be sure to get the latest. \$150. Microsoft, 10700 Northup Way, Bellevue, WA 98009. CP

\*\*\*\* **Microsoft Logo**, from Microsoft's MacLibrary, written by LCSi. An excellent implementation of Logo, taking full advantage of the Mac's user interface. Uses three windows. Turtle looks like a turtle, and its screen actions are very precise. Windows can be resized and moved about. \$124.95. Microsoft, 10700 Northup Way, Bellevue, WA 98004. CP

\*\*\*\* **QUED (Quality Editor for Developers)** is the ultimate source code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. \$65. Paragon Courseware, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

## EDUCATION

\*\*\* **A Bill Becomes A Law** is a multiple-choice, role-playing adventure in which students try to pass a bill requiring apples in every federally sponsored school lunch. A good insight into political maneuverings on Capitol Hill for students. \$59.95. Queue, 5 Chapel Hill Dr., Fairfield, CT 06432. CP (Mar 86)

\*\*\* **Astronomy** is a low-level package with basic features. Slow speed and sparseness of information makes this program of limited use to novices, but still useless to experienced astronomers. \$35. E & M Software Co., 95 Richardson Rd., N. Chelmsford, MA 01863. CP? (Apr 86)

**ChipWits** is a combination game and teaching tool. Players create programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit's* built-in icon-based programming language (IBOL). IBOL is a nearly perfect introduction to programming for nonprogrammers. \$49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

\*\*\* **Comet Halley** is a single-purpose, single-minded program. It will indicate where in the sky users should look to see this pass of Halley's comet. That's it. When the comet is gone you can erase the disk. \$29.95. Great Wave, PO Box 5847, Stanford, CA 94305. NCP (Apr 86)

\*\*\*\* **DietMac** is a database consisting of about 800 foods with nutritional information, from which to choose from for planning daily menus. The Modify Food Data option allows users to customize and update data. Some on-screen help. \$79. Tess Data Systems, Inc., 17070 Red Oak Drive, # 403-B, Houston, TX 77090. CP (May 86)

\*\*\* **MacChemistry** is a two-disk set consisting of a titration program (predetermined compounds, not user modifiable), a periodic table program, *MacNest* (a scrapbook with indexing!), and a disk of *MacPaint* files depicting everything from lab equipment to molecular structures of many solutions and compounds. *MacNest* is of general appeal. \$145. Fortnum, 31W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP

\*\*\* **MacEdge** and **MacEdge II** each contain 8 reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws—they require learning format as well as skill. Exception is *Alphabet Train*, a clever game with great graphics and sound, poor font definition. \$49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

\*\*\* **MacStromy** is a good package for novice sky watchers. Has expandable database of sky objects that can be customized by the user. Professionals may find some features lacking. \$75. Etion Software, PO Box 649, Lafayette, Co 80026. CP? (Apr 86)

\*\*\*\* **MacType** offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. \$49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

\*\*\* **MasterType** is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. \$49.95. Scarborough Systems, 55 South Broadway, Tarrytown, NY 10591. CP

\*\*\* **Mind Prober** is a demonstration of a very simple expert-style system. How well do you know your friends? Answer certain statements as either true or false, and the computer prints a 3- to 5-page psychological profile of subject in business, stress, sex and other situations. \$50. Human Edge Software, 2445 Faber Pl., Palo Alto, CA 94303. CP

\*\*\* **Nutri-Calc** uses a large database of nutritional information. Users can plan good, healthy diets and print out shopping and menu lists. \$79.95. CAMDE, 46 Prince St., Rochester, NY 14607. CP

\*\*\*\* **PowerMath** is an equation solver. Handles problems ranging from the simplest to the extremely complicated. Step-by-step solutions make this a powerful teaching tool. Results can be displayed numerically or graphically. Slow, but potent program. \$99.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

\*\*\*\* **Score Improvement System for the SAT** is a no-nonsense drill and practice session covering practice tests, vocabulary, reading comprehension, algebra, geometry and quantitative comparisons. Excellent on-line tutoring for wrong answers. \$99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP? (May 86)

\*\*\* **Spanish Grammar III** is a teachers' tool consisting of ten modules for students who need tutoring in the Spanish language. Previous knowledge of the language is necessary. Uses multiple choice and fill-in formats. Keeps a Teacher's



# MINIFINDERS

Management Report for up to 40 names. \$34.95. Queue, 5 Chapel Hill Dr., Fairfield, CT 06432. CP (Apr 86)

\*\*\* **Speed Reader II** builds skills sequentially to develop faster, more efficient reading and improve retention. Scores kept, and can be graphed. High school level selections included, other levels available on data disks. \$69.95. Davidson & Associates, 3135 Kashiwa St., Torrance, CA 90505. CP? (Apr 86)

\*\*\*\* **TellStar I & II** are the best Mac astronomy programs. Has extensive database, quick sky plotting and can locate specific celestial objects. Level II has southern hemisphere star table, Messier objects. Good for both novices and advanced skywatchers. \$49.95 (level I), \$79.95 (level II). Spectrum HoloByte, 1050 Walnut, Boulder, CO 80302. NCP (Apr 86)

\*\*\*\* **Turbo Turtle** is a turtle graphics program primarily designed as a learning tool for children. Uses Logo commands for graphics, but is not a full Logo implementation. Simple to use, good introduction to Logo for young children. \$59.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

## ENTERTAINMENT

\*\*\*\* **A Mind Forever Voyaging** is a departure in text adventure games.

It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only puzzles to solve. Still this is a trip in the imagination well worth taking. Requires 512K or more. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Apr 86)

\*\*\* **Airborne** is a classic arcade-style game with "real" sound effects. The player sits at a gun position on a low rise and defends against an assault from flying enemies. Game noises digitized from actual recorded sounds add to the game. \$34.95. Silicon Beach, 11212 Dalby Pl., San Diego, CA 92126. CP

\*\*\* **Amazon** is an illustrated adventure authored by Michael Crichton. Unravel the fate of a doomed expedition with the help of Paco the talking parrot. Three difficulty levels, good sentence parser. \$49.95. Telarium, 1 Kendall Sq., Cambridge, MA 02139. CP (Feb 86)

\*\*\*\* **The Ancient Art of War** gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K Mac. \$49.95. Broderbund, 17 Paul Dr., San Diego, CA 94903. CP (Apr 86)

\*\*\*\* **Balance of Power** is the world's first computer peace game. This simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. \$54.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

\*\*\*\* **Baron** is the world of real estate, in a financial simulation. Buy and option properties in five key areas; invest in industrial, residential, or land property; or put cash aside in high-interest accounts. \$59.95. Blue Chip, 6740 Eton Ave., Canoga Park, CA 91303. CP

\*\*\*\* **Borrowed Time** casts players as detectives who have to solve their own murder—before it happens. This game requires players to think and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. \$44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

\*\*\*\* **Championship Boxing** allows statistical replay involving famous boxers. Players can modify existing boxers and can create their own fighters. Good sound and graphics. Sierra, PO Box 485, Coarsegold, CA 93614. CP (Mar 86)

\*\*\* **Cutthroats** casts players in this full-text adventure as a deep-sea diver, hired by a band of toughs to locate shipwreck treasure. The game is very closed-ended, requiring almost Pavlovian obedience. Multiple endings. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

\*\*\*\* **Cyborg** is a text adventure game with an interesting twist. Robot brain is implanted in concert with yours. It scans, evaluates, and reports, then carries out actions. Word and sentence understanding is very good. Absorbing game for adventure

ers. \$39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

\*\*\* **Deadline** is a text adventure in which the player is a detective called in to investigate what seems like a simple drug overdose. The family lawyer thinks it was really a murder. You have 12 game hours to find the killer! \$49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

\*\*\*\* **DejaVu** is an unusually good version of the old card game "Concentration." Great graphics and sound, one- or two-player modes. Improves concentration painlessly. \$39.95. Rubicon, 6300 La Calma Dr., Austin, TX 78752. CP (Mar 86)

\*\*\*\* **Deja Vu A: Nightmare Comes True** is a graphic adventure that breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. \$49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

\*\*\*\* **Dinner at Eight** is a useful recipe filing system that includes a collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes accordingly. \$59.95. Rubicon, 6300 La Calma Dr., Austin, TX 78752. CP (Jan 86)

\*\*\* **Dragonworld** is an illustrated adventure in which the player attempts to save The Last Dragon from the Duke of Darkness. Several on-screen illustrations at once. Outstanding documentation lists all words recognized by the program's sentence parser. \$49.95. Telarium, 1 Kendall Sq., Cambridge, MA 02139. CP

\*\*\*\* **Enchanted Scepters** is a surround sound graphic adventure game. It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. A worthwhile adventure experience. \$39.95. Silicon Beach Software, PO Box 261430, San Diego, CA 92126. CP (May 86)

\*\*\*\* **Fokker Triplane** is about as near to flying as you can get seated in front of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. \$39.95. PBI Software, 1155B-H Chess Dr., Foster City, CA 94404. CP (Feb 86)

\*\*\* **Gateway** comes with 3 full-color prints. You inherit a boring old building from a supposedly rich uncle, eventually learning that the building is a "gateway" to a lost civilization. \$49.95. Priority, 635 Sanborn Rd., Salinas, CA 93901. CP (Prem)

\*\*\*\* **Gato** puts players in command of an American submarine in World War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." \$39.95. Spectrum HoloByte, 1050 Walnut St., Boulder, CO 80302. CP (Nov 85)

\*\*\* **Grid Wars** is a three dimensional arcade style game. Good playability, but definitely meant for those that enjoy shoot-em-ups. Bizarre graphics. \$39.95. Ann Arbor Softworks, Inc., 3081/2 S. State Street, Ann Arbor, MI 48104. CP (Apr 86)

\*\*\*\* **Gypsy** is a computerized, customizable Ouija board. More than just a software package, users get a pasteboard playing surface and a Mouse Mover with 99 ball bearings. \$39.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Prem)

\*\*\*\* **Harrier Strike Mission** pits you against a well defended island. You fly an advanced Harrier jumpjet from a carrier offshore. Fair graphics and reasonable flight simulation prove that color isn't necessary in a flight simulator. \$49.95. Miles Computing, 21018 Osborne St., Bldg. 5, Canoga Park, CA 91304. CP (Feb 86)

\*\*\* **Hippo Computer Almanac** is a collection of interesting facts that users access using a question and answer format. This is a game or toy, not a real almanac. \$34.95. Hippopotamus, 985 University Ave., Los Gatos, CA 95030. CP (Jan 86)

\*\*\* **Infidel** is a text adventure in which the player, left alone in the desert, must find and plunder a lost pyramid. Good sentence parser, bad Mac interface, twist ending. \$44.95. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. CP (Feb 86)

\*\*\*\* **Legacy** is a two-part text/graphic adventure. A magical orb in Drab Castle must be found through the use of spells and careful





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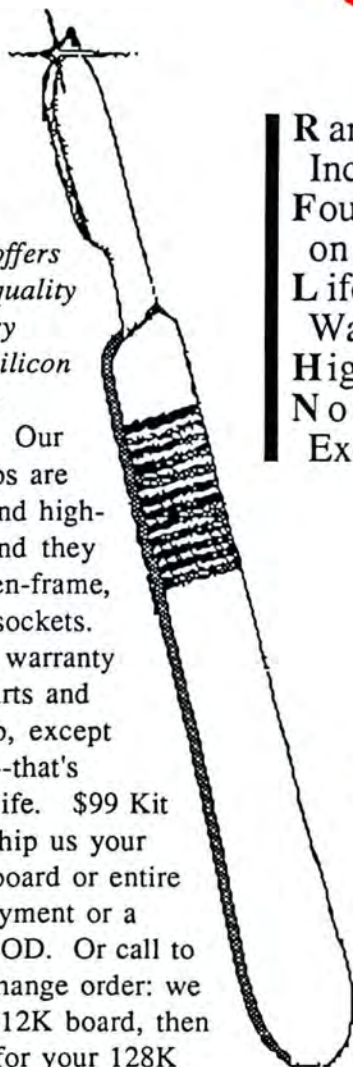
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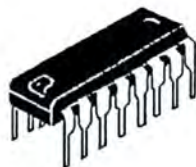
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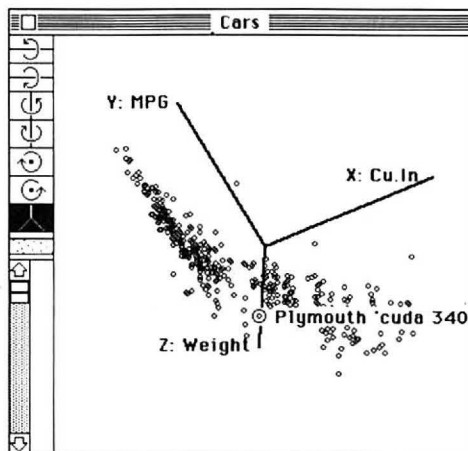
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adventuring. Well-constructed game and fun to play. \$45. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. CP

**Lode Runner** is a 150-screen action-strategy challenge that requires a joystick for truly effective play. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. \$39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

**MacAttack** puts the player in command of a super tank defending the wastes of Alaska against invaders. This 3D simulation pits you against attacking tanks and warplanes that fire heat-seeking missiles. Defeat the horde and get treated to a graphic fireworks display over the town. \$49. Miles Computing, 21018 Osborne Street, Bldg. #5, Canoga Park, CA 91304. CP

**MacChallenger** lets players land a space shuttle. The graphics of this flight simulator are crude and it's a hard machine to fly, but it's also a lot of fun. Version 2.0 lets you record your landing attempt (that's what most of them are!) and then review it from any of ten camera angles, a truly unique touch! \$49.95. Aegis Development, 2210 Wilshire Blvd., Santa Monica, CA 90403. CP (Feb 86)

**MacInooga ChooChoo** is a set of electronic toy trains. Run on the layouts provided, or create your own, as complex as you wish. Create scenery using built-in tools or import fancier MacPaint scenery. \$39. Fortnum, 31 W. Sierra Madre Blvd., Sierra Madre, CA 91024. NCP (Apr 86)

**MacJack II** is a blackjack game pitting users against the house. Includes good graphics, insurance against dealer blackjack, splitting and doubling, and table limit that rises with your stake. The game plays very well, and can be quite addictive. \$39.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP

**MacVegas** contains seven complete casino-style games: bacarat, blackjack, craps, keno, poker, roulette and slots. All are fairly standard but generally well designed. House rules can be altered by selecting establishment from a menu. The games are all fun to play, but not particularly absorbing. \$59. Videx, 1105 Northeast Circle Blvd., Corvallis, OR 97330. CP

**Make Millions** is a fascinating business simulation in which the player competes against the computer to take control of five companies, then run them profitably. Different strategic options and human-seeming associates make simulation more complete. Appeals to the closet capitalist in all of us. \$49.95. Scarborough Systems, 55 South Broadway, Tarrytown, NY 10591. CP

**Millionaire** is a financial simulation based on the stock market. "News" affects stock prices, so read it religiously. Turn a pittance into a fortune to win the game. \$49.95. Blue Chip, 6740 Eton Ave., Canoga Park, CA 91303. CP

**Mind Over Mac** features five games. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help (each has a Rule menu). \$49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

**The Mist** is an all-text "interactive novel" based on a short story by Stephen King. Vivid graphic and sometimes gory descriptions compensate for the game's muddled sentence parser. The story is involving, while the game is overly lock-step. \$39.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (May 86)

**NewGammon** is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. Many positions are included so that you can learn how to play them without having to set up a whole game. An arcade-like high speed play mode is also included. \$39.95. Newsoft, PO Box 4035, Newport Beach, CA 92661. CP

**Perplex** is a board word game based on *Scrabble*. Players can vary the rules and board to suit their tastes and skills. Up to four can play and the game can either be an active player or a scorer and arbiter. Has a 90,000+ word dictionary and

good graphics. \$39.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

**Pinball Construction Set** lets users create their own pinball games, as elaborate or as easy as desired. Uses MacPaint for backgrounds and has lifelike sounds (on 512K Macs). No documentation to speak of. \$40. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Jan 86)

**Planetfall** leaves users shipwrecked on a seemingly deserted planet, with only Floyd the Droid to help figure out how to get home. Two possible endings. This full-text game is written in a tongue-in-cheek style. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

**Psion Chess** is as good a micro chess player as you'll find. This 1984 World Micro Champion makes superb use of graphics and the Mac interface. Switch between 6 languages for a touch of spice. \$59.95. Psion, 40 Lindeman Dr., Trumbull, CT 06611. CP (Mar 86)

**Real Poker** is five-card draw against five other players with Old West names, distinct personalities and playing styles, in a saloon setting. Dealing and play are very fast. Game evaluates your hand, suggests cards to keep/discard. Dynamic, exciting, addictive game. \$39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

**Rogue** is a strategy dungeon adventure in which each quest is completely different. Randomly generated rooms, monsters and treasures keep even veterans on their toes. \$39. Epyx, 1043 Kiel Ct., Sunnyvale, CA 94089. CP (Feb 86)

**Sargon III** is a capable chess program with 9 levels of play, problem-solving modes, take back, change color, hint, manual play, etc. Easy Play option blocks Sargon from stealing search time during player's move, effectively doubling number of levels. Pieces are moved graphically. Disk stores 107 classic games for review and replay. \$49.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Mar 86)

**Strategic Conquest** is large scale, strategic conflict on the Mac. This very involved war game will be enjoyed by those who like this genre. \$49.95. PBI Software, 1155B-H Chess Dr., Foster City, CA 94404. CP (Dec 85)

**Suspended** is Infocom's most unique text game. Using a small plastic board and six markers, the player keeps track of six uniquely designed robots which check on damage to a complex's machinery and report back what they perceive as the problem. \$49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

**Tycoon** is a financial simulation based on the ups and downs of commodities market. Build a fortune in pork bellies and Swiss francs, checking the "Financial Journal" for news affecting the market. \$59.95. Blue Chip, 6740 Eton Ave., Canoga Park, CA 91303. CP

**Ultima II** players take the part of a character who travels through land, sea, air, space and even time itself in a quest to find and defeat the evil sorceress Minax. Good Mac interface; excellent game; confusing graphics. \$59.95. Sierra, PO Box 485, Coarsegold, CA 93614. CP

**Ultima III** allows up to four characters to cooperate to explore the vast wilderness of Sosaria; dungeons, oceans, and the Moon Gates to help solve the adventure. \$59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

**Webster's Revenge** is a Boggle-like word search game. Super graphics make it a pleasure to play. The dictionary is adequate and the user can always override it if necessary. Multiple skill levels make this a game for all. \$34.95. Shapechanger Software, 113 E. Tyler, Athens, TX 75751. CP

**Winter Games** lets up to eight players compete against each other in Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. \$39. Epyx, 1034 Kiel Ct., Sunnyvale, CA 94089. CP (Mar 86)

**The Witness** is a full-text adventure that casts the player as a detective assigned to get to the bottom of a death threat. When the victim is killed, you have only one night to find the real guilty party. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02142. CP





# MINIFINDERS



**Wizardry** is an outstanding dungeon exploration adventure pitting a party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. \$59.95. Sir-Tech, 6 Main St., Ogdensburg, NY 13669. CP

**Word Challenge** is a *Boggle* lookalike. Features multiple (26) skill levels and an extensive dictionary. Even "pro" *Boggle* players should find a level that will challenge them. \$39.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP

**WordPlay** is a word game with over 50 crossword puzzles for different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. \$49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

**Xyphus** is a role-playing game pitting four characters (fighters or wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. \$39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

**Zork I** is a full-text adventure game that lets players explore a strange underground empire. Parser understands full sentences; players can take many different routes to final success. Beware of the thief, who steals random objects. The ultimate text game. \$39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

**Zork II** is where the adventure continues in the underground empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

**Zork III** is the final chapter in the trilogy. Players come up against the ultimate enemy—the Dungeonmaster himself. More closed-ended than previous *Zorks*. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

## MUSIC

**ConcertWare+** is an enhanced version of *ConcertWare*. Has different instruments and the ability to use any four of a set of eight at any point in a musical piece. Can read and use *ConcertWare* and *MusicWorks* files. The best program for those who want to listen to music on the Mac. \$69.95. Great Wave, PO Box 5847, Stanford, CA 94305. NCP (Nov 85)

**Deluxe Music Construction Set** an active piano keyboard and instant audio feedback make this program perfect for educational applications, and the notational capabilities will satisfy most musicians. \$50. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Mar 86)

**MusicWorks** allows the user to create and play simple musical compositions. Music entry is by either a grid or a staff and is very easy. Users can select various instruments and modify each to produce new effects. Compositions are limited to 64 measures and overall limitations make this a beginner's program. \$79.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Prem)

**Professional Composer** is aimed at music professionals. Produces performance-quality sheet music; has only limited playback facilities. \$495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

## HARDWARE & ACCESSORIES

**A+ Mouse** is a replacement mouse. It works by optical tracking on a special mousepad. Good choice if the original mouse fails. \$99. Mouse Systems, 2336H Walsh Ave., Santa Clara, CA 95051.

**The Easel** is a compact and portable carrier for up to 20 disks. Can be converted into a standup rack for desktop use. Solidly made, attractive and useful. \$19.95. Innovative Technologies, 5731 La Jolla Blvd., La Jolla, CA 92037.

**Ergotron** is a Mac (and external drive) holder that allows a full range of swiveling and tilting. Very strong, this well made unit is also very easy to use. \$99.95. Ergotron, PO Box 17013, Minneapolis, MN 55417.

**Hard Disk 20** is Apple's entry in the exploding hard disk sweepstakes. This quiet, small unit uses Apple's new Hierarchical File System (HFS). The lack of utility software (spooler, backup, security) is its only drawback. \$1499. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 86)

**HyperDrive HD20** is an internal 20-megabyte hard disk. It only adds about 5 pounds to the Mac's weight. Good, full featured unit with all common utilities: spooler, security program and backup utility. It could use memory a bit more efficiently, and it remains to see how well it will work with Apple's new HFS. \$2195 installed in a 512K Mac. General Computer Company, 215 First St., Cambridge, MA 02142.

**MacCharlie** is one of the most unusual Mac products imaginable. Its components slip around the Mac and the keyboard and convert the Mac into an IBM PC clone. Amazingly it works well. The enlarged keyboard has a few bugs but is a joy to use. \$1,195 with 256K RAM and one floppy drive. \$1,895 with 640K RAM and two floppy drives. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

**MacIntizer** is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. \$599. GTCO Corp., 1055 First St., Rockville, MD 20850. (Jan 86)

**MacNifty Stereo Music System** converts Mac sounds to simulated stereo by splitting highs and lows between two powerful speakers. User controls bass, treble, balance, low and high impedance output, and most importantly, volume. Hear your music compositions the way they were meant to be played. \$79.95. Kette Group, 13895 Industrial Park Blvd., Minneapolis, MN 55441.

**MacNifty Switch** allows any port on your Mac to connect to two peripherals. Turn the knob to switch between the two devices. \$34.95. Kette Group, 13895 Industrial Park Blvd., Minneapolis, MN 55441.

**MacTablet** is a stylus-driven graphics tablet. Users can easily sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. \$495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

**Mac Turbo Touch** is a mouse replacement device. Features include 2.5-inch diameter track ball with control buttons to either side. Users either love it (and refuse to use anything else) or hate it; very few so-so's on this product. Takes a few days to get used to. \$129. Assimilation, 485 Alberto Way, Los Gatos, CA 95030.

**MacVison** is a digitizer that uses an ordinary video camera for input. Capable of extremely fine results and special effects. Easy to use and well documented. \$399.95. Koala, 3100 Patrick Henry Dr., Santa Clara, CA 95052.

**Magic** is both the most intimidating and easiest to use digitizer available. Use a regular video camera for input. Once the crowded screen is mastered, any effect is possible. \$399, \$549 with camera. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706.

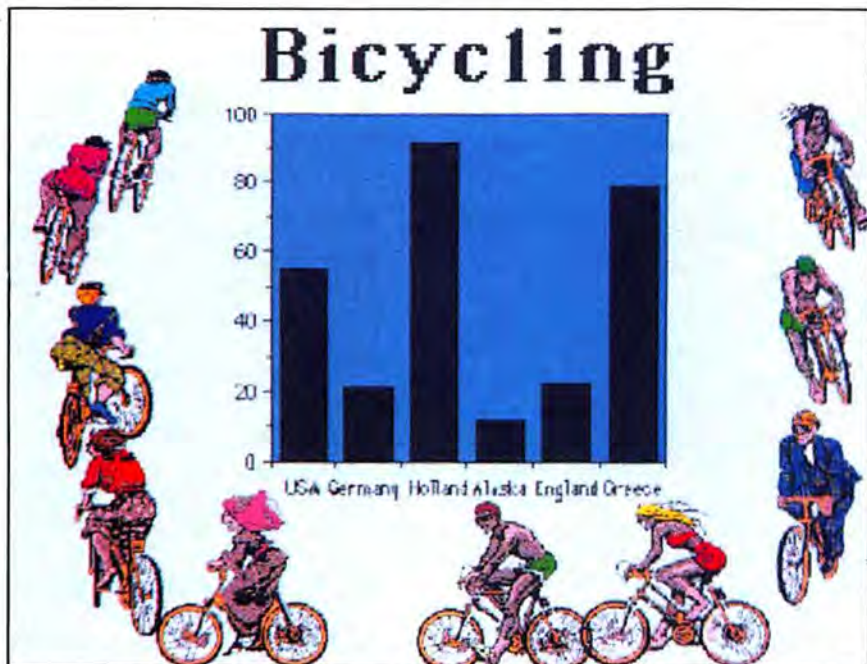
**Mousetrak** is a fabric covered foam mousing pad. It will increase the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desk top environment. \$10. Moustrak, 1 Weatherly, Mill Valley, CA 94941.

**Numeric Turbo** combines a track ball with an enhanced numeric keypad. The keypad includes working cursor keys and other direct function keys that bypass the Mac's Command and Shift keys. The track ball takes some getting used to and some never learn to like it. Those who do rarely ever use a mouse again. \$149. Assimilation, 485 Alberto Way, Los Gatos, CA 95030.

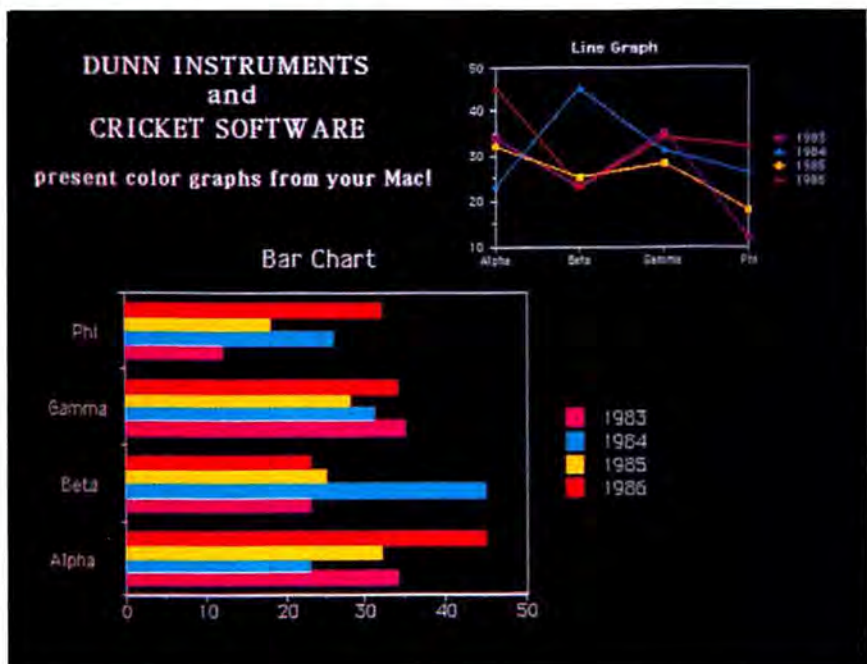
**ThunderScan** replaces the ribbon cartridge in an ImageWriter, which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. Mac Plus compatible using optional adapter. Output has been optimized for LaserWriter. \$229. Thunderware, 21 Orinda Way, Orinda, CA 94563.



# COLOR MY WORLD



"Bicycles." The bicycles in this slide were taken from *Mac the Knife: Volume Three* by Miles Computing, colorized, then placed on the screen next to a graph drawn with *Cricket Graph*.



Color graphs created using the Dunn version of *Cricket Graph*.

(continued from page 63)

starts with the color selected, then changes to the next color as you draw, and so on across the palette. This option can be used to make dramatic background fills.

Two options on the *DunnColor* screen are not implemented with the basic system. The eye and camera

icons represent frame grabber actions, used to take a still image from a video input source. Dunn will be including a PAL video camera with its higher end system to take advantage of these options.

The second piece of software included with the Dunn system is an enhanced color version of *Cricket*

*Graph*. *Cricket* already has a version that will print in color, and even lets you print a color graph within a *MacWrite* document on an *ImageWriter II*. The Dunn version is designed to take advantage of the high-resolution color monitor. Graphs can be drawn in up to eight colors, with 16 shading variations.

Graphs can be accessed from within *DunnColor*, in much the same way as *MacPaint* images. Up to four graphs can be displayed at one time, and the screen can display a blend of *Cricket Graph* and *MacPaint* images side by side.

The inclusion of *Cricket Graph* makes it possible to colorize many applications besides *MacPaint*. *Cricket Graph* can accept data from *Multiplan*, *Jazz*, *Excel*, *Crunch*, *Cricket's* own *StatWorks*, and other number crunchers, as well as *MacDraw* images saved in PICT format.

Also included with the Dunn system is complete access to the graphics generator with its own development language, for anyone who wants to tinker with it. The generator itself produces the color graphics effects on the monitor, while the Mac software essentially just provides the easy to use human interface. By programming the generator directly, anyone who wants to can build individual colorizing applications as well.

## WILL IT PAY IN PEORIA?

As nice as the Dunn System is, \$12,000 seems like an enormous amount of money until you do some cost breakdowns. Creating color slide shows on the Dunn Macintosh system can cost as little \$1 to \$2 per slide. Commercially produced slides can cost as much as \$18 apiece, so if a company puts together three or four major slide shows a year, the system will pay for itself in a relatively short time.

Although it may seem unusual to spend so much for a Mac-based system, remember that this small, relatively inexpensive machine called Macintosh has already created a marketplace for a \$6000 peripheral in the *LaserWriter*. Maybe a \$12,000 graphics system isn't so far-fetched, after all. ☐



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## THE SECRETS OF WORD

(continued from page 59)

needs to save the original setting with the document, in case you change your mind next time you open the file? And besides: don't you normally delete a running head entirely, if you don't want to use it? If so, who cares about all this 'reverting' stuff?" Never argue with yourself in public. People get locked up for that kind of thing. Onward.)

*Word's* automatic page-numbering feature causes similar frustration. If you click AUTO PAGE NUMBERING, the page numbers will appear in the default position: .75 inches from the top of the page and 7.25 inches from the left edge of the page. Humans would probably say, "An inch and a quarter from the right edge."

This isn't as confusing as running heads, but there's still potential for disaster. If you're not careful, it's easy to slam the page number into the text. How? Make the page number appear lower on the page, or make the text appear higher on the page, by making the top margin smaller. If the two settings collide, there will be no page number!

If you do overlap page numbers and text, *Word* doesn't care; it just won't print the page numbers. (A dialog that snickered and said, "Hey, buddy, your page numbers are plop in the middle of your text!" would be great, but that's another dialog in an already large program, and some people still have 128K machines, so....)

The point is that *Word's* flexibility comes at a price. You can do things with *Word* that nobody would want to do, but you can do them all the same.

### USING THE GLOSSARY

One of *Word's* least-used power features is the glossary. *Word's* glossary lets you save frequently used words, phrases or even lengthy globs of text, then insert them into your document.

Using the glossary is a two-step affair involving putting entries into the glossary and then getting them back out and into the text. To make a glossary entry, SELECT, then CUT or COPY some text. Now choose SHOW GLOSSARY from the Edit

menu. Next, type in the abbreviation for the entry. Try to be mnemonic. If the glossary entry is your address—a three-line entry, perhaps—use "add," or maybe just "a," as the glossary entry. Type the abbreviation into the NAME IN GLOSSARY text field. Now paste. That completes the process.

The hardest part is remembering the order. Is it "name, then paste" or "paste, then name"?

It's name, then paste. Repeat after me: Name then paste, name then paste, name....

To insert a glossary entry in a document, type the abbreviation, then hold down the COMMAND key and press BACKSPACE. That inserts the entry.

The bad news is that all entries take at least three keystrokes. The good news is that anything can be an abbreviation ("and," for instance, is perfectly proper), because *Word* doesn't get excited until you hit COMMAND-BACKSPACE.

Using the glossary is like printing your own money. Where do you stop? With *Word*, you might not have to. The names of glossary entries are held in RAM, but the actual glossary entries are stored on disk. With a 512K Macintosh, that means you can have from 100 to 200 glossary entries. One hundred entries is guaranteed; you can approach 200 if the entry names are short.

Since the entries themselves are stored on disk, their length is limited only by free space remaining on disk. If you've got a hard disk, glossary entries can be...well, let's just say longer than you'd ever need or want. I just made this entire article a glossary entry, just to see if it could be done.

It could. No sweat.

### ONLY A TASTE

We only glanced at some of *Word's* good points. There are many more *Word* wonders. To find them—and exploit them—pick up a book about *Word* and read it. Or fool around with each *Word* feature, one by one. See what happens; you won't break anything, and you'll probably "get it" eventually.

And, if all else fails, there's always the Help menu. ☞



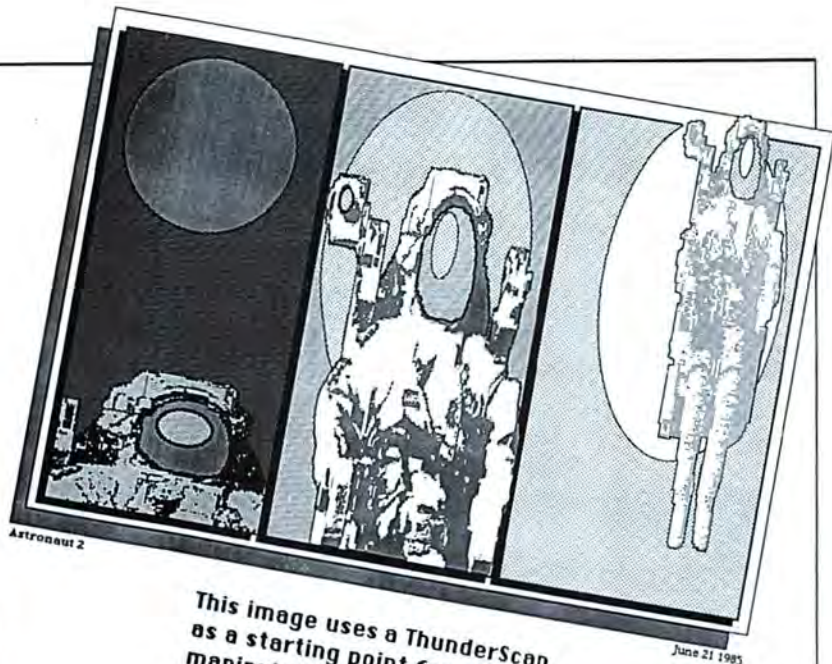
# PICTURE PALETTE



Jerry 3

This is a blatantly visually distorted (and therefore appropriate) tribute to Grateful Dead guitarist Jerry Garcia. Starting with a ThunderScan treated photograph, I took Jerry's hallowed visage through a series of variations and mutations, with interesting results.

**Michael Swartzbeck**  
McLean, VA



June 21 1985

This image uses a ThunderScan as a starting point for manipulation and use of collage points. About the time I did this piece, I had acquired the ClickArt Effects accessory for the Mac. Quite a tool!

**Michael Swartzbeck**  
McLean, VA



"SKULL"

This was my first attempt to duplicate the "dots only" style seen in many scientific illustrations, something for which MacPaint is suited perfectly. The outline with the major features was drawn freehand with the pencil. Then, working from the nose back, the details of line, light, and shade were gradually filled in. The shading was done with the spray can, usually starting with black, then lightening with white or one of the more open dot patterns.

**Simon Edkins**  
Philadelphia, PA

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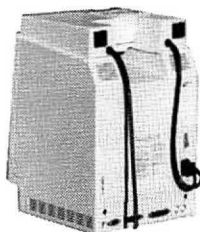


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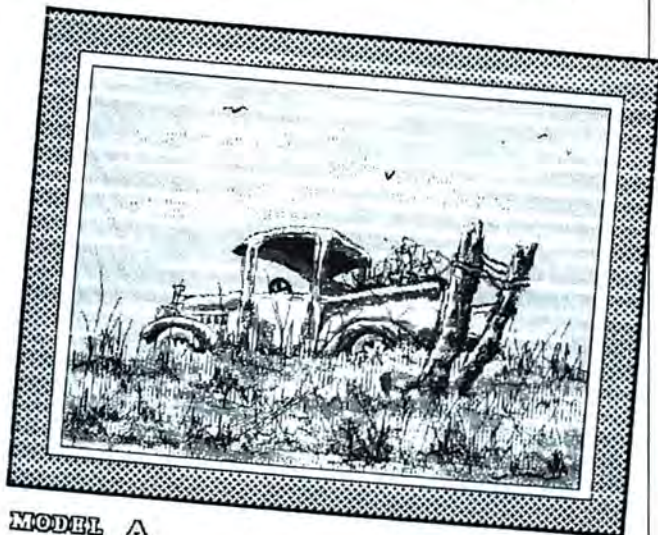
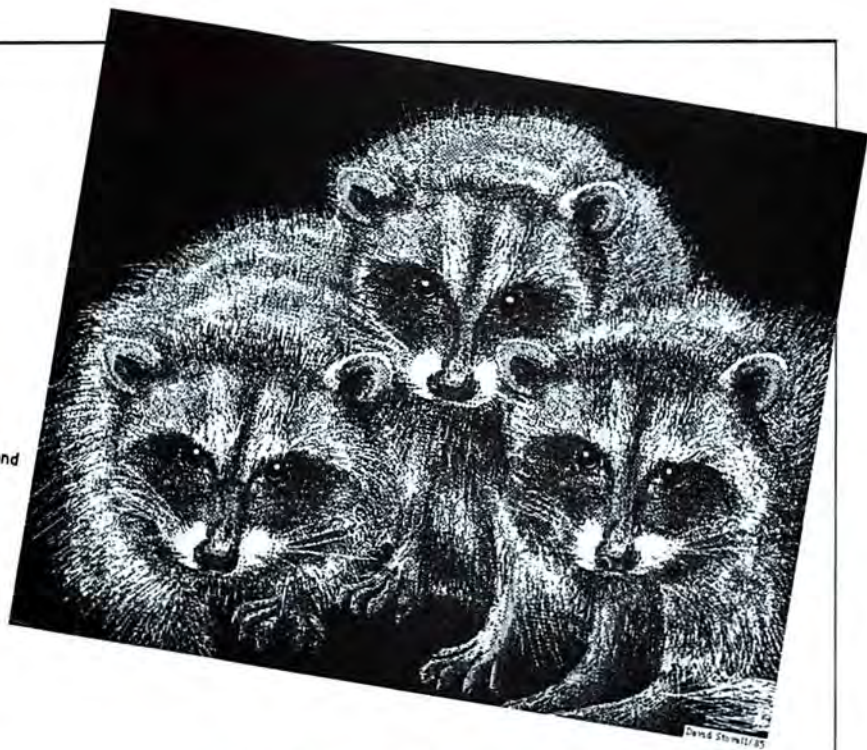
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# PICTURE PALETTE

I drew this using various Paint Brush sizes and patterns in a freehand mode with the mouse. My patterns consisted of Bill Atkinson's 21 raccoon in the MacPaint window as large as I could. I saved it and then used Atkinson's PaintMover program to rotate the head 90 degrees and paste it three times in a new document. I then went back to Paint, cleaned it up, filled in the bodies and put in the black background with the Paint Bucket. After that I spent an hour or so drawing the fine hairs with the single pixel Paint Brush while varying the pattern—lighter patterns on dark backgrounds and darker patterns on light backgrounds.

David Stovall  
Excelsior, MN



MODEL A

RONALD A. OLANSEN 12/22/85

These two pictures were drawn freehand using the mouse. In developing the pictures I usually start with a general idea of the picture layout and fill in the major spaces with the Paint Can, filled rectangles, circles, etc. Using the smallest bit Paint Brush I'll sketch the main items or characters. Next I'll use large size Paintbrushes of various patterns and shapes to start defining the picture working with the smaller brush sizes as more detail is required. The spray can is then used to create special effects and soft edges. Finally, the smallest Paint Brush and FatBits are used for special detail work.

Ronald Olanzen  
Lyme, CT



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# HOW TO PUT US ALL TO SLEEP

by John C. Dvorak

**S**ometime last year Apple decided to move its new products extravaganza away from the annual shareholders meeting and decided, instead, to strut its stuff at a special event called the Apple 1986 World Conference. I went to it.

It was held, in January, at a huge San Francisco barn called the Concourse. The Concourse is one of those bad-side-of-town remodelling jobs typically done on some worthless old building by a sharp operator. In this case the place was an old warehouse or some old manufacturing plant that had been gutted and yuppyfied. The only positive thing I could say about it is that it didn't smell of sewer gas common to old San Francisco buildings. The main auditorium was about the length of two football fields and about as wide as a basketball court. A record was set for the most lousy seats in one meeting. I've already notified the Guinness Book of Records people.

The press got lucky and had the first 30 or 40 rows of seats. Past that, the hundred or so rows would only be able to see a huge video screen that projected a King-Kong sized version of the speaker on what looked like a 60-foot screen. Since there was no slope or incline in the joint, most people just saw the back head hairs of the person in front of them. Three thousand attended.

This carnival began with a ludicrous 7:30 AM registration. The speeches started at 8:30. This is an ungodly hour for most writers worth their salt. No matter, the place was jam-packed. What all the eager beavers got for their trouble, though, was 2 solid hours of the most boring speeches that this writer has ever heard anywhere. And I attended the University of California where there was ample opportunity to be bored stiff! To me, this event is a bad omen for things to come. The theme was button-down shirts, smugness and boredom. I didn't like it.

The event was a series of speeches about the greatness of Apple followed by sessions about the greatness of Apple. A memo would have sufficed.

Sculley started it off. He was close to okay. He managed to turn an aimless

and unfocused talk about future opportunities and new directions of the company (which sounded a lot like the old directions) into a tolerable speech. His speaking technique is the best in the business and he is a master at not being caught looking into the see-through teleprompters that were on either side of the speaker's podium. This morning he physically resembled a genetic cross between Gary Hart and Ted Kennedy. Hey, he looked like a political candidate. He talked like one too. He said nothing, but it was somehow interesting, coming from him. The only distraction in this dog and pony show was Sculley's peculiar and ill-fitting natural shoulder suit that looked like something an aging history professor would wear.

But no matter. Sculley started things off like a champ and I hoped that it



would build to a crescendo of enthusiasm. Wrong again. The whole scene went down the tubes after Sculley said goodbye. Apple honchos Del Yocum, Jean-Louis Gasse and Bill Campbell each came out and each gave their individual renditions of the same pointless speech. Without looking at my notes, I can't remember, for the life of me, what it is they talked about. It was a lot of hot air.

Yocum came out after Sculley. He talked about the new products and about the greatness of Apple. He kept jutting out his chin and baring his lower teeth like his shirt was on too tight. This was very annoying to see on a 60-foot TV screen. He must have learned public speaking from someone who told him to vary his intonation. So he went up and down the musical scale at perfect intervals creating a somnambulistic sine-wave effect. I almost dozed off two or three times. This is the new Apple, I thought to myself as I bit my cheek in an attempt to stay awake.

Then came Jean-Louis Gasse, who

looked as though he'd just gotten off a 48-hour flight. He made some denigrating jokes about the French and paved the way for Apple marketeer (and ex-football coach) Bill Campbell. Campbell, too, droned on and on about nothing. He has a gruff locker room voice, but with a subtle lisp-like slur that reminded me of Sylvester the cat. This was very distracting. Instead of listening to what he had to say I kept waiting for him to say "suffering succotash." Maybe he was tired, I thought to myself. Meanwhile, the meeting dragged on.

By now, the 2 hours seemed like an eternity and I hoped that they'd either give us a gun so we could shoot ourselves or that they would end this ordeal. My prayers were answered and it ended. The multitudes were herded like sheep over to San Francisco's Data Mart, where a bunch of sessions would be held—all of which (except ho-hum product demonstrations) excluded the press.

The Mart was a poor choice to have this follow-on event. The crowd was jammed in and few knew where to go. Some sessions were upstairs, some downstairs. Nothing was marked properly. It was a confused mess. The stairwells were crammed half the time. It was terrible.

There were sessions for educators, salesmen, financial analysts and other specialists. Why I or any other member of the press couldn't get into the financial analysts meeting and newsletter editor Dick Shaeffer was allowed is a mystery to me. But I digress.

The press was only permitted to look at the boring product demos. None of which held a candle to the stuff at the MacWorld Exposition held concurrently over at Brooks Hall on the other side of town.

The press was also invited to a special luncheon. It concluded with a Sculley talk. I was later told that Sculley had little to say. I myself skipped the event. Instead, I went with a friend to eat at San Francisco's Chinatown after discovering that the Sculley luncheon menu was to be chicken breasts and squid (calamari) salad. "Cat food!" I said to myself.

On the plus side of the ledger, I figured that the Apple event managed to, at least, get me out of bed early (although it did waste the morning). hindsight tells me that I should have gone straight to the MacWorld show (to visit the MacUser booth).

After it ended, I had to wonder if Apple will become one big, boring company. I was horrified at the thought. What will I have to complain about if that happens?! Aspirin, please. ☹



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