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Is a Lot More
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dBase Power and Compatibility

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The Skies Are Yours

LET'S TALK TELECOMMUNICATIONS
A Friendly Guide to Getting Started

MONEY AND MS WORKS
A Financial Tutorial

NEW!

Turbo Pascal for the Mac: incredibly fast and fully integrated!

Borland's new Turbo Pascal for the Mac™ is so incredibly fast that it can compile 1,420 lines of source code in the 7.1 seconds it took you to read this sentence.

And reading the rest of this page takes about 5 minutes, which is plenty of time for Turbo Pascal for the Mac to compile at least 60,000 lines of source code!

Turbo Pascal for the Mac does both Windows and "Units"

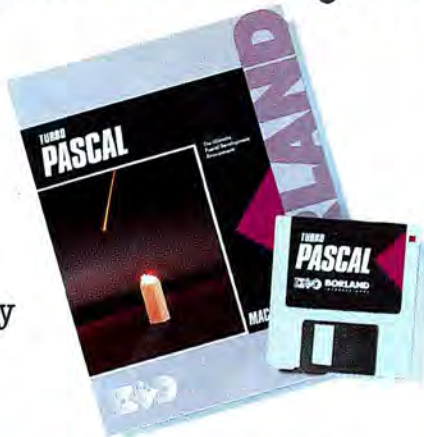
The separate compilation of routines offered by Turbo Pascal for the Mac creates modules called "Units"—which can be linked to any Turbo Pascal™ program. This "modular pathway" gives you "pieces" which can then be integrated into larger programs. (You build the "pieces" once, and you know they work, so you can use them again without having to recompile.) The immediate benefits of this technique are a more efficient use of memory and a reduction in the memory space needed to run large programs. (What you need to run Turbo Pascal for the Mac is 256K minimum—or half a Fat Mac, 1 drive, and the ability to handle astonishing speed.)

"The timing of Turbo Pascal for the Mac couldn't be better. The recent success of the Macintosh in business and its continuing momentum in higher education coincide well with the introduction of Turbo Pascal for the Mac. Turbo Pascal is already an industry standard in the IBM-compatible world, and we're very excited to see Borland International's new commitment to provide this and other modestly priced, high-quality software for the Macintosh computer."

John Sculley, Chairman,
Apple Computer, Inc.

"Turbo Pascal has become the language of choice at major educational institutions around the country, and more than 400,000 copies of the IBM PC version have been sold. We believe that Turbo Pascal for the Mac is the ideal educational and professional programming tool for the Macintosh."

Philippe Kahn, President,
Borland International



Turbo Pascal for the Mac is so compatible with Lisa that they should be living together

Not just Lisa®, but also Macintosh Programmers' Workshop Pascal™. Routines from either one can be compiled and run with only the subtlest changes. Turbo Pascal for the Mac is also compatible with the Hierarchical File System™ of the Macintosh™. (You can define default volume and folder names for the names used in compiler directives.) Compatibility is also familiar, and you'll feel right at home with Turbo Pascal for the Mac because it fits neatly into every aspect of the Macintosh environment. The pull-down menus are there, along with dialogue boxes to guide you in making choices and picking options.

Turbo Pascal for the Mac cranks out more than 12,000 lines a minute

Better than 12,000 lines per minute of compiled source code race out of Turbo Pascal for the Mac. There is definitely "No Waiting." And none of the "stop/start" compiling delays that afflict some of the software programs that we're not mentioning here. (They can take 10 minutes to do what Turbo Pascal for the Mac can do in 10 seconds!)

You don't spend a lot of up-front time learning to use Turbo Pascal for the Mac. It's as easy as it is fast—which is not to say that it's over-simplified or written for people who have recently learned to walk erect. Instead, it's electronic proof that sophistication and complication don't need to go hand-in-hand.

In all software, there's the Hard Way, the Wrong Way, the Weird Way, the No Way, and the Borland Way. Welcome to the Borland Way!

How to walk and chew gum!

Turbo Pascal for the Mac lets you do up to 8 different things at once. You can have up to 8 separate programs in memory, work on one, move on; work on another, move back—or duck and weave between all 8 at the same time! And you can do these 8 Easy Pieces while you run the compiler. Multiple editing windows allow you to edit, compile, and execute each window individually. With several windows open at the same time, you switch from one open window to another faster than a cat burglar—and never get caught. It's "take the source code and run!"

The 27-Second Guide to Turbo Pascal for the Mac

- Compilation speed of more than 12,000 lines per minute
- "Unit" structure lets you create programs in modular form
- Multiple editing windows—up to 8 at once
- Compilation options include compiling to disk or memory, or compile and run
- No need to switch between programs to compile or run a program
- Streamlined development and debugging
- Compatibility with Lisa Pascal™ and Macintosh Programmers' Workshop Pascal
- Compatibility with Hierarchical File System of your Mac
- Ability to define default volume and folder names used in compiler directives
- Search and change features in the editor speed up and simplify alteration of routines
- Ability to use all available Macintosh memory without limit
- "Units" included to call all the routines provided by Macintosh Toolbox



Clear your desk, SideKick's here!

SideKick® brings true desktop management and communications to your Mac. Now you can automatically dial phone numbers, log on to bulletin boards, schedule appointments, jot down notes,

calculate business expenses—and more—while running all your other Mac software. Once you get SideKick you'll wonder how you ever did without it!

See order form on right-hand page ►

Introducing Reflex for the Mac, **NEW!** Borland's remarkable new relational database

Because it is a truly relational database, Reflex for the Mac lets you get your various acts together. Lets you connect "A" to "B" to "C," or "Dog" to "Cat" to "Fight." Or whatever links and connections you need to make and need to see. It's a simple spreadsheet-style series of electronic and visual cross-references. There's a clear connection (which you first make by drawing it on-screen) between "Client"—"Matter"—"Attorney"—"Time Sheet"—"Expenses" and "Bill." Or between "Slow Driver in Left-Hand Lane"—"Mile-long Traffic Jam" and "Shot from Behind." It's all relational.

Designed to make the most of your Mac's visual talents, Reflex for the Mac lets you place fields and pictures wherever you want them on the page—and print them that way with your Report Generator.

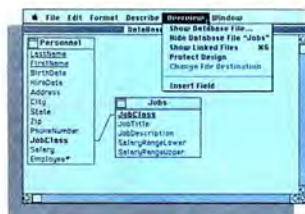
A funny way to use Reflex for the Mac

Let's say you have to make a lot of speeches and you like to tell jokes, but can't always remember the right one for the right audience at the right time. So you use Reflex for the Mac to set up multiple files

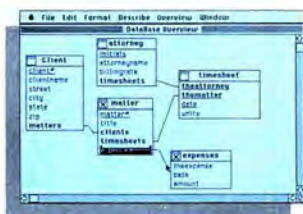
that all connect to each other.

Your "Joke" file connects to your "Audience" file, which is split into categories like "Friendly," "Hostile," "Dumb," "Student" or whatever—all of which are interconnected and relational. Reflex for the Mac lets you find the right joke for the right audience, right now.

(The serious sides of business include applications like client billing, stock portfolio management, tax planning, and your checkbook.)



After opening the "Overview" window, you draw link lines between databases directly onto your Macintosh screen.



The link lines you draw establish both visual and electronic relationships between your databases.



You can have multiple windows open simultaneously to view all members of a linked set—which are interactive and truly relational.

Mac News for Kangaroos!

Heart of America, one of the U.S. 12-meter contestants in the America's Cup races in Australia, is relying on Reflex for the Mac to help Bring The Cup Up. (They're also using Borland's SideKick and Turbo Pascal.) Reflex analyzes 20 different variables like wind speed, heel angle, backstay load, trim tab angle, rudder angle and 15 other criteria to show and tell Heart of America where to be when—and what to do now to win!



You need Reflex for the Mac

Get some Reflex action out of your Mac. Call now. With Reflex for the Mac, you'll have all the right connections—for only \$99.95!

Heart of America's skipper Buddy Meiges with Borland International's skipper Philippe Kahn on a testing, training, and analytical run, Santa Cruz, California.

“ Really uses the visual strength of the Mac to produce a database design tool

Adam Greene, InfoWorld

... a stunningly wonderful application generator/dbms

Esther Dyson, Release 1.0

Bridges the gap between the pretty programs and the power programs

Stewart Alsop, PC Letter ”

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Minimum system requirements:

Turbo Pascal for the Mac: 256K. Reflex for the Mac: 512K. SideKick for the Mac: 128K.



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Cover Photo by Henrik Kam



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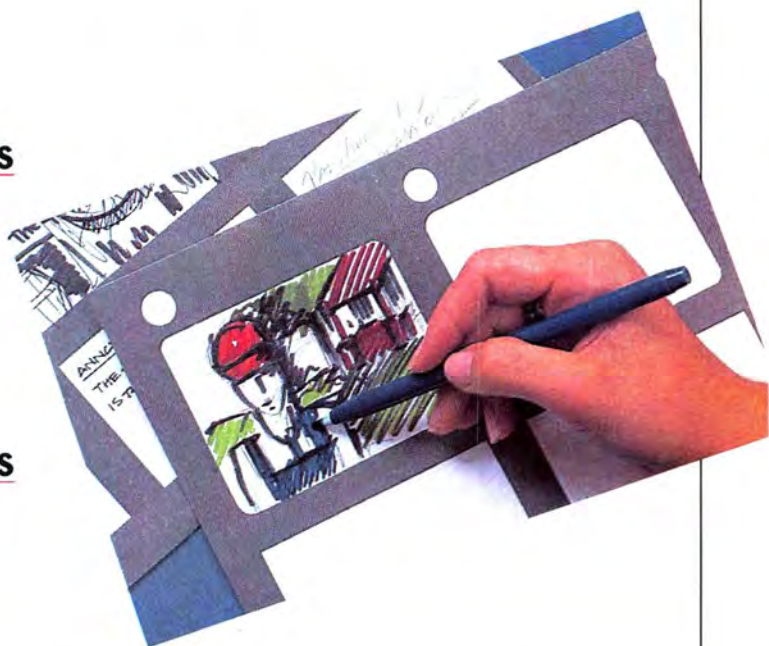
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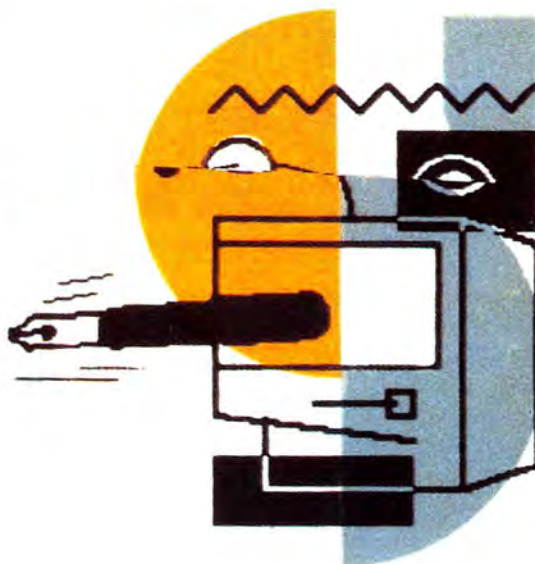
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 Demosthenes 384 - 322 B.C.

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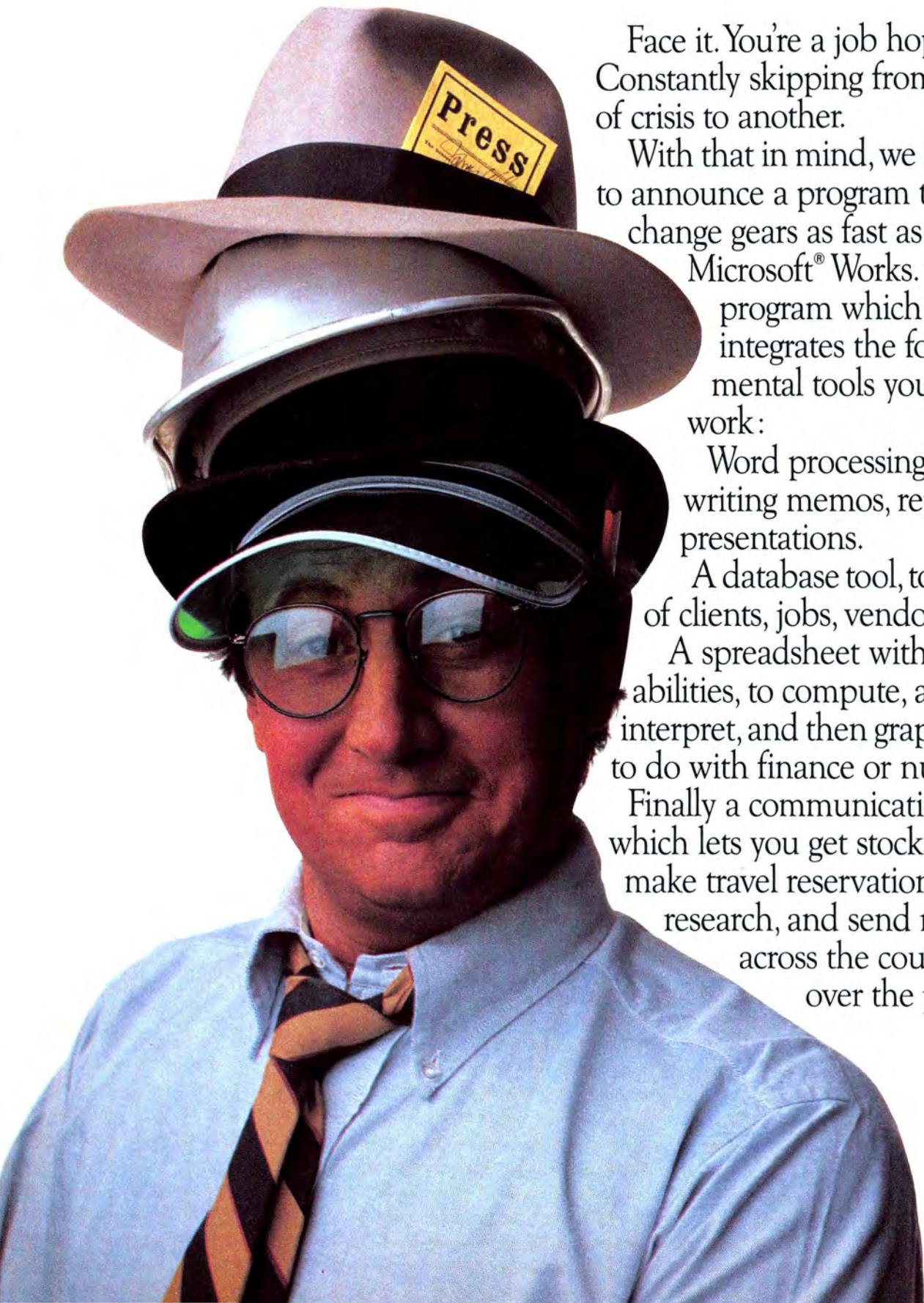
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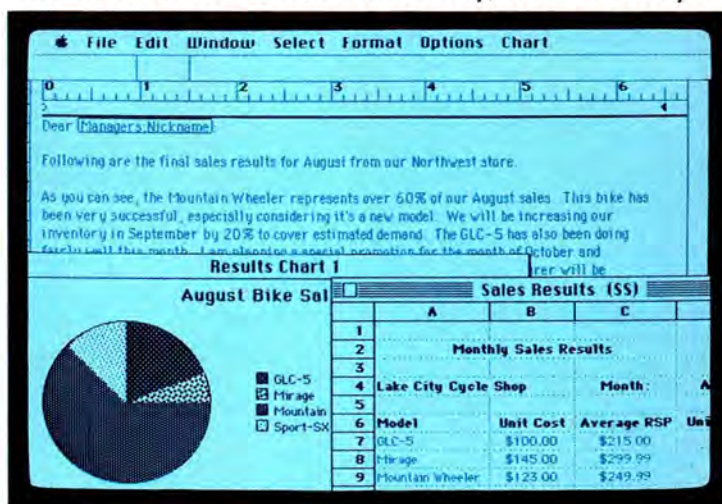
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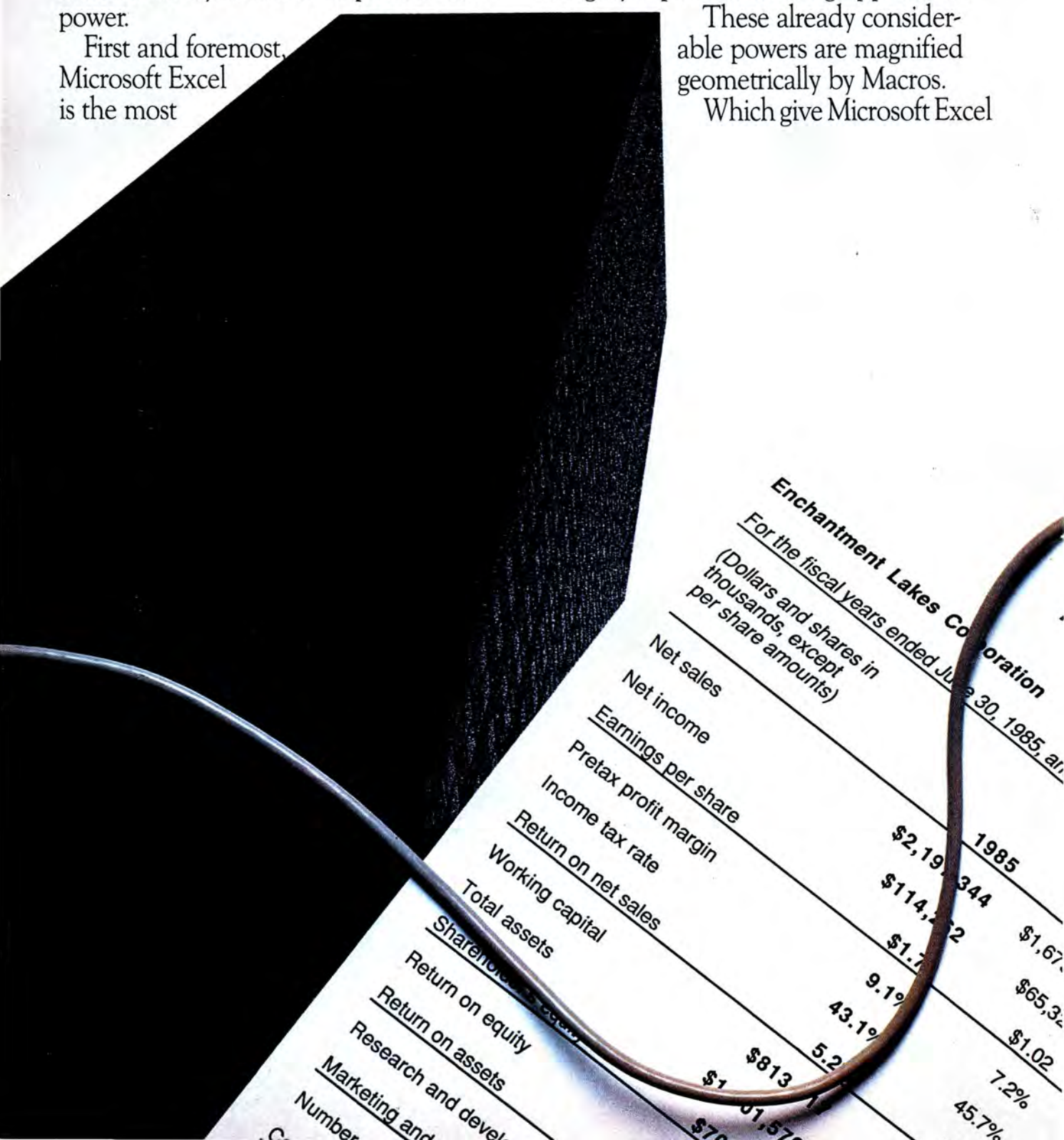
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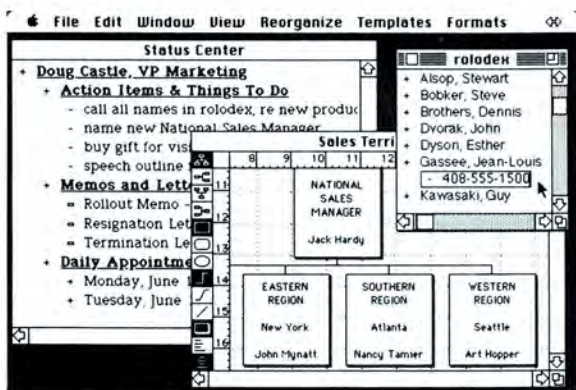
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by Neil L. Shapiro

THE REEK OF HOT TONER

Printers can be very conservative. I'm entitled to say that because I have a bachelor's degree in printing (along with journalism and photography) from the venerable Rochester Institute of Technology. I have met a lot of printers and so this editorial is based not only on a conversation I had at the Boston Mac Expo but on past experiences as well.

Only one thing can stop or slow down the desktop publishing revolution — and that is today's printers and the printing industry. I am stopping short of predicting a secret cabal of printers wearing black armbands with silhouettes of Linotypes on them actually coming to your home or office, swinging lead-alloy sledgehammers and trashing your LaserWriter. But that's just because I don't think they could get away with that.

Instead, I think the battlefield of desktop publishing will be a rather secretive one — that you may not even know a war is going on unless you're willing to look very closely. Only then will you see the feathers and fonts flying.

THEM'S FIGHTIN' WORDS

While I was at my convention booth wondering where my next hot dog and coke would be coming from, a fellow from what he called a "Desktop Publishing" organization stopped by to say hello. Turns out that his idea wasn't going to be my own idea of desktop publishing at all.

There was a lot of excitement on the show floor about using the LaserWriter and the Mac. Booths featuring programs that linked the two were drawing huge crowds. So, I thought I was going to enjoy our conversation.

Instead, the gentleman from the printing industry seemed rather non-plussed at all of the goings-on. He'd been around the floor and, "seen the Macintosh and the LaserWriter and, let's face it, they're just toys."

Toys? Toys!? I'm not the best person in the world to pick to use the word "toys" to when referencing the Macintosh and LaserWriter. Still, I smiled (outwardly) and asked if he could possibly explain himself.

Well, there were the usual comments about the speed of the LaserWriter and that the resulting output was not "production quality." Still, he insisted that he was very excited about desktop publishing. But when he explained his concept of that field I had to laugh.

CART BEFORE THE HORSE?

According to him, and to many people in the printing industry, desktop publishing doesn't really involve publishing. Instead, it is only entitled to be what is called a "front end" to a print shop.

In other words, the Macintosh is simply used to process words and include various codings which can then be sent to a real printer who can use his machinery to turn out acceptable type. Maybe if



you have a "toy LaserWriter" you can include some of that output as a sort of guide for the printer to use during his own layout process.

I explained that my concept of desktop publishing meant that the actual publishing was done on the desktop; that the LaserWriter was generating either the actual published documents or it was, at least, generating the "artwork" from which the plates to make the published pages would be "shot" via a photographic process.

No, he insisted, you just could not use such toys to do that type of process.

At that point I explained to him that he should excise the word "toy" from his vocabulary if he intended to do any business on that particular convention floor. It took surprisingly long to convince him that the word "toy" could be perjorative, but he did get the hang of not using it. Finally, he went off to other appointments.

Was he right? I wondered after he had left.

Could the LaserWriter really, by anyone, be considered toylike?

Is desktop publishing just what you do to help printers set their own type?

Does the future of desktop publishing lie in continuing to be only a front end?

Bullcrackers, I quickly decided, and here's why.

IN THE BEGINNING

It's true that the output from a LaserWriter is not yet as clear and crisp as that from a Mergenthaler type-setting machine or even from an old-style Monotype. But how much difference is there, really?

I have seen LaserWriter output used in production situations many times. If the output is used in conjunction with "normal" type the difference is more noticeable. But if used by itself the standard is very acceptable to the eye. Even if used in conjunction with print shop type there are ways, such as photographic reduction, to make the LaserWriter type so good it takes a "loupe" or magnifying glass to see the difference.

Programs such as *PageMaker* and *MacPublisher*, *Ready-Set-Go* and *Ragtime* all couple to the text output of the LaserWriter the ability to add graphics and to formulate your own layout and design ideas. Using them you can, for the first time in history, determine how your own printed words will look to the world without having a go-between. This, of course, and depending on your own artistic sensibilities, can be either a plus or a minus.

Even now, as I write these words, there are manuals, ads, brochures, reports, pamphlets, handouts, leaflets, magazines, newsletters and more all being published via what I consider to be the best desktop publishing system around, the Macintosh and the LaserWriter. And, many of the aforesaid publications would never have seen the light of day without such a system.

TWO POINTS BEYOND

I lived through the changeover from what the printing industry called "hot type" to "cold type." I learned to run a Monotype machine being careful not to drop my pens (or hand) into the vat of molten lead, and I also learned how to load fonts into photo-typesetting machines. I knew both technologies.

But there was an enormous group of people who did not. The first reaction of those who do not understand technology is to deny it. The second reaction, when

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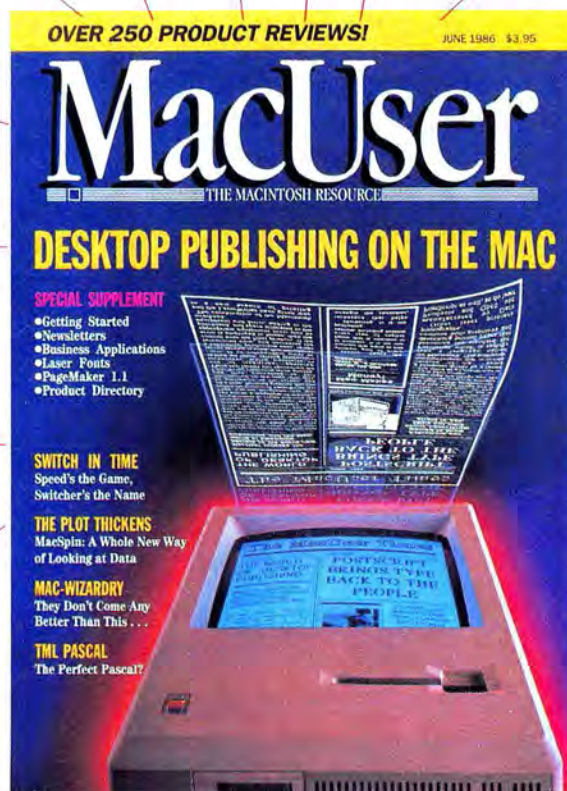
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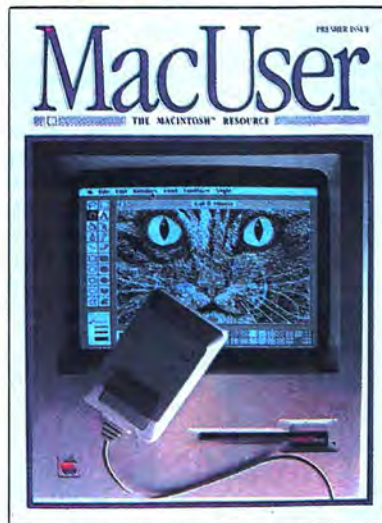
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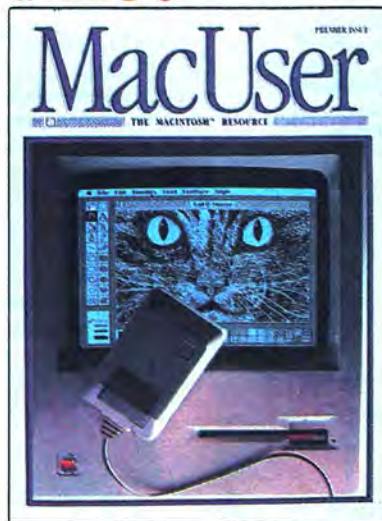
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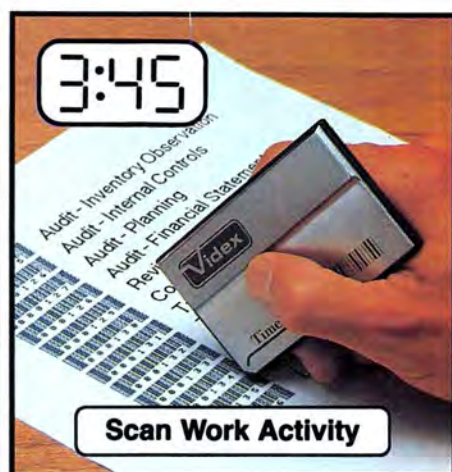
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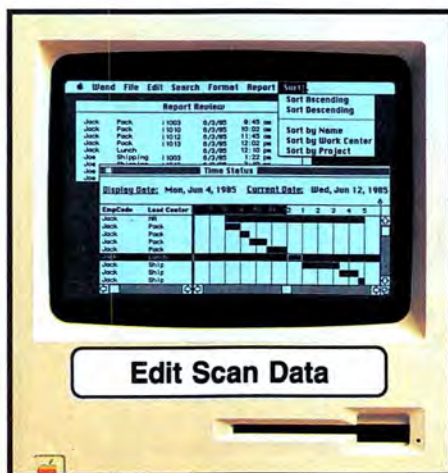
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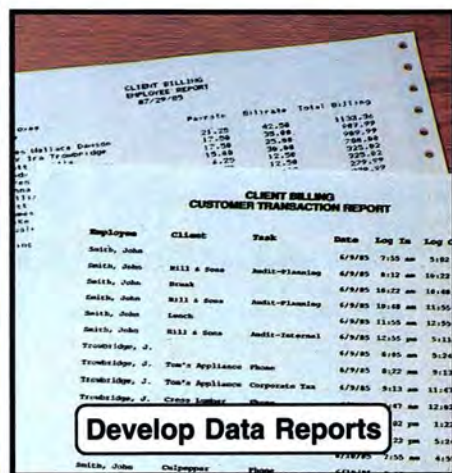
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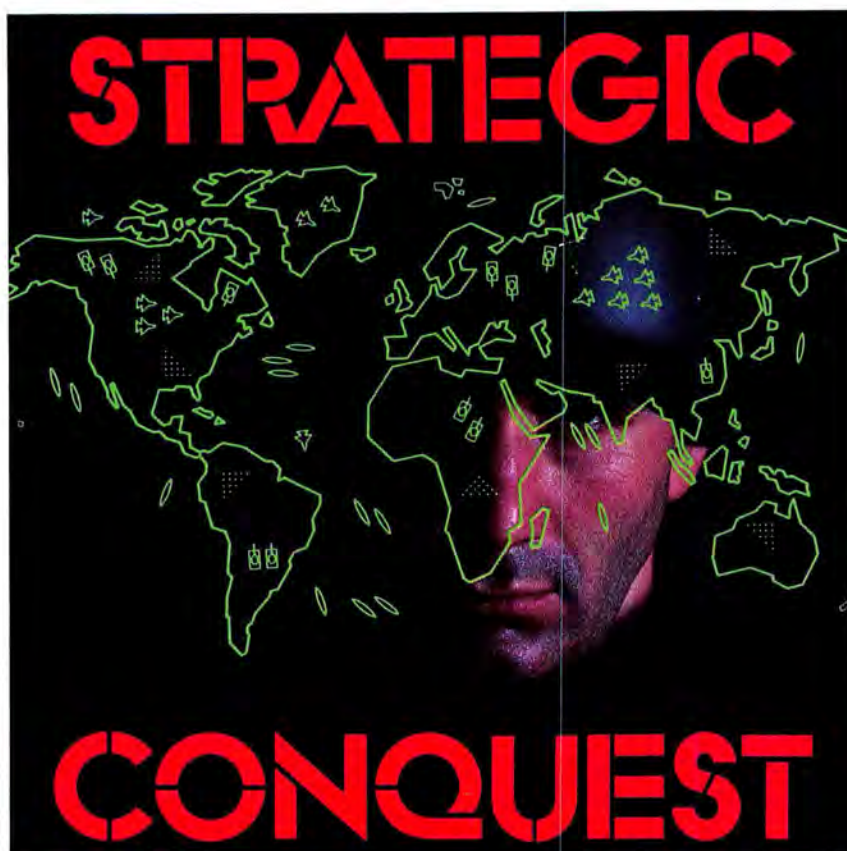
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livelihoods depend on older technology, can often be to suppress it.

But there are two things about desktop publishing that the printing industry had better learn, and they had better learn them right away.

The very first thing is that desktop publishing means that people will, indeed, have the capability of a publishing house on their desktops. Future products, in the very next year or so, will remove almost all, perhaps all, of the present limitations of the machines as to "production quality." Desktop publishing will be the greatest advance in printing — literally — since moveable type. In this case it is not the type that has changed but the number of people who will have personal access to the technology involved.

The second point is that the printing industry is not at all in trouble as long as various priorities and methodologies can be arranged so as to accommodate this revolution. Printers now need to realize that what they will be selling is their own expertise in design and in production. I can go to any art store and buy oil paints. But when I want a beautiful painting I will hire an artist.

Desktop publishing and the printing industry can, and have to, coexist. But there have to be some changes in attitude.


To the printing industry: C'mon guys, wake up and smell the toner!

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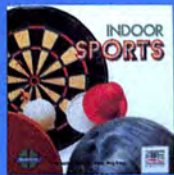
As I said in the September editorial, if you have a revolutionary product for the Mac you can still think about going for it on your own even if the venture capitalists ignore you. Here's an example.

Trapeze is the next step beyond spreadsheets. The beta version that we saw demonstrated at the Apple booth at the recent Boston Expo was little short of amazing. Picture a spreadsheet with user-definable "blocks" or areas. Each block can contain what we now think of as a full spreadsheet. Cells between blocks may be added, subtracted, or go through any sort of simple or complex matrix mathematics. And the fully integrated graphics are there too.

Trapeze's programmers had read the September *MacUser* and so decided that though they couldn't get huge funding right away, they would show at the Expo. I hope they make it. If the finished product lives up to the beta, we're looking at five mice and a whole new way to compute.

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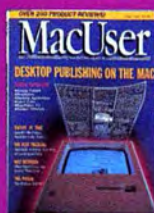
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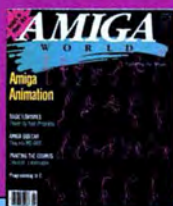
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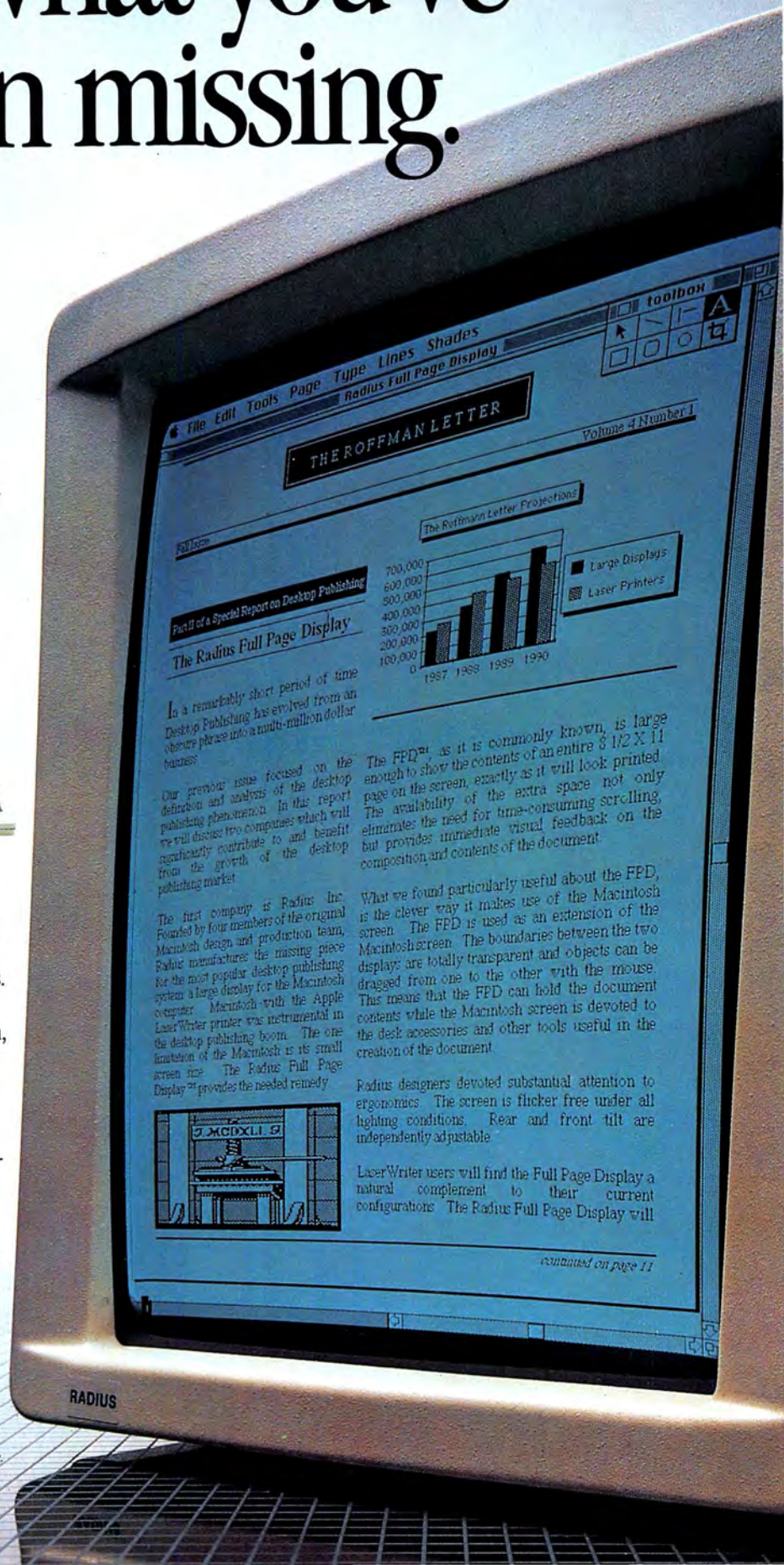
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The Radius Full Page Display

In a remarkably short period of time Desktop Publishing has evolved from an obscure phrase into a multi-million dollar business.

Our previous issue focused on the definition and analysis of the desktop publishing phenomenon. In this report we will discuss two companies which will significantly contribute to and benefit from the growth of the desktop publishing market.

The first company is Radius Inc. Founded by four members of the original Macintosh design and production team, Radius manufactures the missing piece for the most popular desktop publishing system: a large display for the Macintosh computer. Macintosh with the Apple LaserWriter printer was instrumental in the desktop publishing boom. The one limitation of the Macintosh is its small screen size. The Radius Full Page Display™ provides the needed remedy.



The FPD™, as it is commonly known, is large enough to show the contents of an entire 8½ X 11 page on the screen, exactly as it will look printed. The availability of the extra space not only eliminates the need for time-consuming scrolling, but provides immediate visual feedback on the composition and contents of the document.

What we found particularly useful about the FPD, is the clever way it makes use of the Macintosh screen. The FPD is used as an extension of the Macintosh screen. The boundaries between the two displays are totally transparent and objects can be dragged from one to the other with the mouse. This means that the FPD can hold the document contents while the Macintosh screen is devoted to the desk accessories and other tools useful in the creation of the document.

Radius designers devoted substantial attention to ergonomics. The screen is flicker free under all lighting conditions. Rear and front tilt are independently adjustable.

LaserWriter users will find the Full Page Display a natural complement to their current configurations. The Radius Full Page Display will

continued on page 11

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YOU WIN SOME, YOU LOSE SOME

I've read a lot of computer magazines, and so far yours is Number One. Like many people, I don't know what makes a computer tick and don't want to. I like what they can do. Your magazine tells more about what the Mac can do and how to make it actually work than any other that I've read.

Because of your magazine, for the first time I'm beginning to feel there's a computer around that isn't covered with a black cloud of questions. Keep doing what you're doing and don't change a thing.

KENNETH J. BURKART
FORT LAUDERDALE, FL

It is not hard to see why the consumer has taken the IBM PC more seriously (than the Mac). I find the titles and artwork of your articles are frivolous. And I find the names of the software equally as frivolous. And you wonder why people are not purchasing either the computer or the software.

RONNI HANNAMAN
MECHANICSBURG, PA

You seem like exactly the kind of person who prefers her IBM. Enjoy it. — TFH

DESKTOP PUBLISHING DILEMMA

I think desktop publishing is going to be less of a boon and more of a boondoggle for many companies. There is just so much more to it than they know about or have time to learn about. Layout and design are not picked up overnight.

JAMES F. MARTIN
ROANOKE, VA

Neither are writing skills. But does that mean people shouldn't use word processors? — TFH

MISSING MINIFINDERS

Your MiniFinders section seems to lag behind some of the ads for the same software. I suspect this might be because ads are sometimes put out by development companies before the software is actually ready, so you haven't had a chance to test it. Is this an accurate suspicion?

Also, in Doug Clapp's "Secrets of Word" article (May 1986) he concludes that 18-point Chicago font is 18 points, or 18/72 of an inch high. In Mac typefaces, this is true if you count from the

top of a capital letter to the bottom of a descender. The height of an 18-point capital letter is about 75 percent of 18 points, or approximately 13 points.

BILL SCHUHLE

EL JEBEL, CO

Traditionally, type has been measured in the way you describe, from the top of the ascender to the base of the descender. Many phototypefaces, however, are now specified by the height of their capital letters.

And, to answer your question about MiniFinders, we do try to cover software that is advertised in the magazine, since our readers will obviously want to know if what they see will be what they want. But our editorial and ad departments are two separate entities, and we generally don't know who will advertise until after we have completed work on an issue. And you're right — sometimes companies advertise products that don't exist yet, to build interest in the products before they're released. — TFH



EXCLUSIVELY DEVILISH

I was sorry to hear that John Dvorak would no longer be writing for InfoWorld. Lucky for me (and the rest of us), he seems to have found a permanent home at MacUser. Don't make the same mistake they did, okay? There are plenty of us who'd find the computer world a whole lot grayer (or should I say, bluer) if it wasn't for Mr. Dvorak's unusual perspectives.

CHARLES JOHNSON
DALLAS, TX

BIG, BORING BLUES

The July Devil's Advocate column was very thought-provoking. To support his argument, one matter John Dvorak might have raised involves looking closely at what Fortune 1000 companies are doing with computers. I understand that

it is mostly inventory control, budget management and forecasting, memo preparation, customer records management and process control.

If that is what several million IBM PCs have been bought to do, then no wonder boredom has set in! Under such corporate applications the computer becomes a new form of cash register, one that takes filing chores over from human beings. How boring!

L. STONE

OTTAWA, ONT

MS-BASIC'S LIBRARY BASICS

In Ms. Aker's review of Clear Lake Research's libraries for MS-BASIC (July 1986), she stated that the library being used must reside on the same disk as BASIC. This is not true, and CLR's own manual even gives the syntax for the library statement when using the library on any disk. The syntax is library "MyDisk:MyFolder:TooLib", the folder designation being necessary for HFS users. You can also call fonts from BASIC using the TEXTFONT statement directly by their assigned ID numbers. These numbers are not restricted to 0 to 11.

BRIAN MARSHALL
LAKEWOOD, CO

YOU CAN'T (ALWAYS) TEACH A NEW SYSTEM OLD TRICKS

I tried your Power User's Tip #73 ("The Power User's Guide," February 1986) and got a dialog box that said, "You have an old Printer Driver. Put new System on your disk."

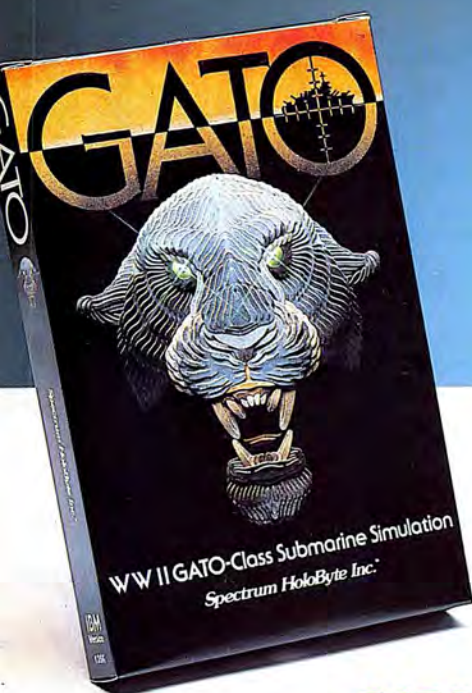
I have a 512E and run System 3.2 and Finder 5.3. Thank you anyway for 85 terrific tips!

GARY C. VAN HANDEL
HIGHLAND, CA

When MacPaint came out (along with the Mac), there was only one printer available — the ImageWriter — and MacPaint knew all about how to print to it. It didn't need a separate driver. When the LaserWriter and other printers appeared, MacPaint had to be modified. The current version, 1.5, requires an external printer driver to print. You'll need the current version of the driver for your printer to avoid getting that message. — SB

ALL REVIEWS MAY NOT BE CREATED EQUAL

All mice are not created equal! Your June 1986 issue reviewed FullPaint and gave it five mice. On the other hand, the MiniFinder review gave it four mice — but gave MacPaint five mice. Yet the



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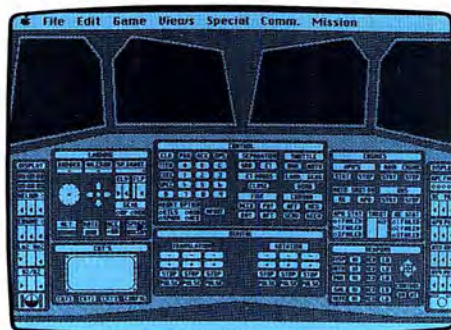
(IBM requires 128K, color graphics card, graphics monitor, double-sided drive. Apple IIe™ or IIc™ requires 128K, single-sided drive. Joystick optional. Macintosh requires 128K.)



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(IBM® requires 256K, color graphics card, graphics monitor, double-sided drive. Available March, 1986. Macintosh™ requires 512K, single-sided drive.)



TELLSTAR

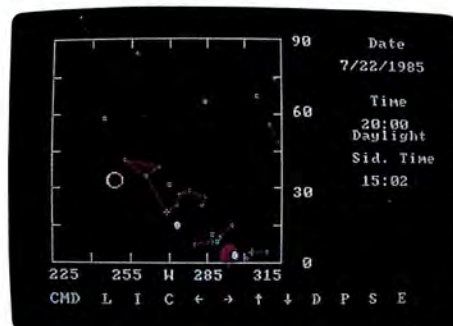
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(IBM requires 128K, color graphics card and monitor, double-sided drive, 8087 version available for faster processing. Apple II series requires 64K, single-sided drive. Macintosh requires 512K.)



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L E T T E R S

Quick Click review says it's much better than MacPaint.

I'll bet if MacUser used some kind of relational database so that MiniFinder reviews were related to Quick Clicks and other reviews, this wouldn't happen.

JAMES F. BURKE, JR
AKRON, OH

In the course of getting out the magazine every month, we don't always have time to check everything against everything else as carefully as we'd like. You're absolutely right that using a relational database would help alleviate the problem — and we'll take the idea into serious consideration the next time we test a database in-house. That way, we'll try to make sure that reviews written by different people are at least consistent in the ratings. Meanwhile, see this month's New on the Menu for some important news about FullPaint's mouse rating. — TFH

WIGGED OUT ON WIGGINS

Thank you for resurrecting your Pin-stripe Mac column. Although it may have looked at first like the Mac wasn't going to turn out to be a business computer after all, those of us who need computers in our offices — but despise the rigid, humorless Big Blue — need somewhere to turn for informative advice on using the Mac office.

Robert Wiggins takes what by all rights should be a dull, stodgy subject and makes it fun to read. If IBM magazines had writers like him, maybe people would actually read them, not just leave them on their desks to look good.

PAT HEINEMAN
NEW YORK, NY

Thanks for the article about "Outfitting Your Office" in the August issue. It couldn't have come at a better time for me. Thanks to you I narrowly avoided spending \$1000 more than I had to.

JENNIFER COLBERN
LANSING, MI

A WRONG NUMBER

In the article "Landmarks On-Line" in our August issue, we gave the telephone number to call for information about the services covered.

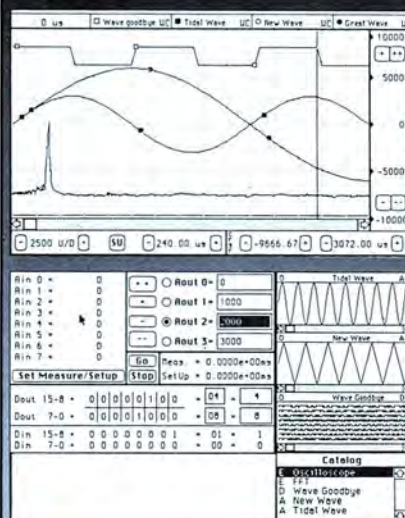
Unfortunately we gave the wrong number for Dow Jones New/Retrieval. The correct numbers are:

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THE POWER DESK

JAZZ
+
MAC



NEW ON THE MENU

MACS HAVE MORE FUN

If *MacUser* were giving out Weird Software of the Year awards, the prize would have to go to the new Infocom/Activision offering, *Leather Goddesses of Phobos* (we're not kidding). The program comes complete with a 3-D comic book, a set of 3-D glasses, and a Scratch-n-Sniff card (don't ask!). The program's documentation mentions three play modes: tame, suggestive and lewd. More on this game, as we work up the courage to "get into it." — DB



DIRECT MAIL SPECIAL

Power is getting cheaper every day. The new *GraphicWorks* program from Mindscape may be just what you are looking for for your desktop publishing needs, and it only costs \$79.95. This powerful program, very similar to *Mindscape's* other great graphics program, *ComicWorks*, is being sold by direct mail only. It handles graphics and text well, and is capable of high-quality

page layout. Art can be directly imported without the use of an external program. Among the many features are a disk of templates for newsletters and storyboards, three levels of FatBits, a wonderful airbrush tool, and the use of independent graphic objects with assignable priorities.

For more information contact Mindscape at PO Box 1167, Northbrook, IL 60065. — SB



MORE MAC PETS

Recently we told you about the Talking Moose, a desk accessory to keep you and your Mac company. Now we have something much better: your own puppy to raise and train. The program is called *Puppy Love*. Its cute little black pup comes to you from a junk yard where it has been abandoned.

Once you get your carefree dog home, you can begin training. The goal is to learn enough tricks to win ribbons, trophies, and, ultimately, the Golden Top

Dog Award at the local dog show. As you teach your puppy tricks you'll also be learning the basics of simple programming. Your dog can do whole routines and react to the environment. There's something in this program for everyone, from the youngest Mac user to the oldest.

Puppy Love was written by Tom Snyder and is published by Addison-Wesley. It lists for a mere \$19.95. Look for a litter on display at your dealer. — Ellen Hiram

BRICKBATS AND ROSES

Ann Arbor Softworks has released a new and unprotected version of their best-selling *FullPaint* program. They've also included a utility program to let users with *ImageWriter* IIs print in color. In our review in the September issue we said that *FullPaint* lost a mouse due to its copy protection. We're extremely pleased to give this fine program its fifth mouse. This news came too late to update this issue's *MiniFinders*, but the five mice will be there in the next issue.

QUED, the super text or program editor from Paragon Courseware, has been upgraded. The new version, 1.5, shows signs of becoming a real word processor. Could the best text editor be on its way to becoming the best word processor?

The latest versions of *MacLightning*, *PictureBase* and *Silicon Press* significantly improved already fine products and were offered free to registered owners. In fact, the new version of *MacLightning* was simply sent right out. If you had registered your 1.0 version, you got 2.0. No fuss, no bother, no need to do anything. That's the way it should be.

Dubl-Click Software has gathered together the most extensive and impressive collection of *ImageWriter* fonts yet seen. They've been packaged on six, yes, six disks and teamed with some really handy font utility software. Check our *MiniFinders* for more details.

A boo and a hiss to Advanced

Logic Systems. They offered their *Word Handler* word processor for an introductory price of \$29.95 if you sent in your *MacWrite* master disk. And claimed you could have it back if you didn't like their program. Turns out you could have it back if you sent them \$25 for "postage and handling." Their current ads now make mention of the \$25 charge. When we contacted them, they said they had upgraded the program (to version 1.5, which includes graphic handling) and offered to return *MacWrite* disks for \$10 if you send in a proof of purchase dated 1 October or earlier. By the way, to get your upgrade, send your master back with a stamped, self-addressed envelope. That's all that will cost.

A loss of a mouse (for a short time only we hope) to *MicroPhone*. This superb program had the normal number of minor bugs a new program will always have when it is first released. The usual procedure is to release a "bug-fix" version soon afterward. That hasn't happened yet and while such a release is much talked about, we can't pin down a date. This is a mouse we really want to give back soon.

Finally, a round of applause for those mail order merchants who have not given any of you reason to complain to us in the previous month. This month we'd like to applaud The Mac Connection, Desktop Software Center and The Savings Zone. — SB

HARD & SOFT

Two very impressive new products have recently arrived in the *MacUser* offices. The first is PCPC's new HD-21 Hard Disk. This 20-megabyte hard disk connects to your Mac's SCSI port. It's based on the excellent PCPC MacBottom 20 serial port hard disk. That unit has earned an excellent reputation. The new unit is the same size, uses the same excellent Rodime drive, and has the quietest fan we've ever seen in a hard disk. For reliability, ease of use (the ID number jumper block is easily accessible on the back), and quietness, this compact unit is going to be hard to beat. List is \$1195, but it's already being advertised at much lower prices by dealers. For more information contact PCPC at 6204 Benjamin Rd., Tampa, FL 33614, (800) MAC-BUTT or (813) 884-3092.

The other great new product is a spelling checker. It's called *Thunder!* and it's from Batteries Included. We've been using beta versions so far, but it will be out just around the time we go to press.

While everyone has different needs in spelling checkers, *Thunder!* is the one I can't live without now. It runs all day, every day. *Thunder!* is primarily an interactive checker, but works very well in selection checking mode. Its Learn feature gives you a high-powered glossary function in any program. It currently lacks a thesaurus function (get *MacLightning* for that) and is not quite the equal of *Spellswell* as a selection checker. — SB

RUMOR MANAGER

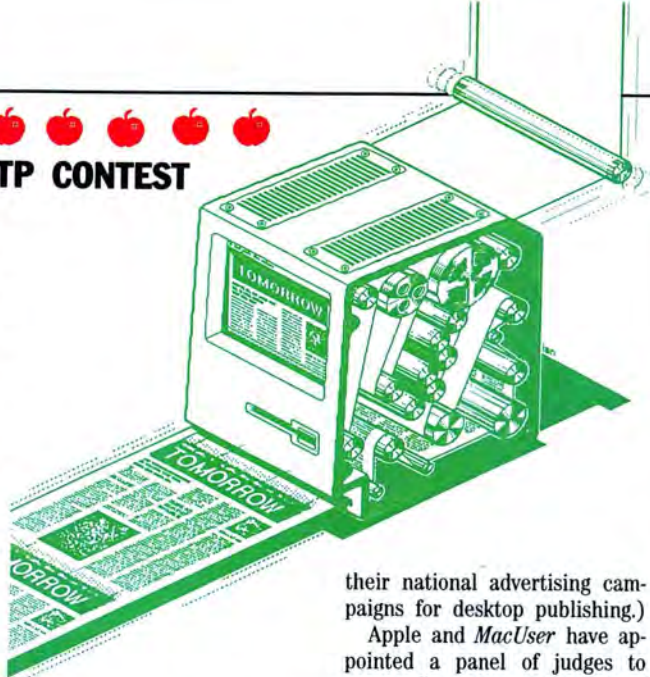
The multitasking *Finder* replacement wars are over! Apple has dropped the *Recognition* project (for good, it is alleged). The *Erato* crew has also given up and is developing new system software for a new 68020-based machine from a major European manufacturer. That leaves Andy Hertzfeld's *Servant* as the clear winner. It's no longer a rumor. You'll have to check the news columns for further information. The only other project still underway is the rather feeble *TaskMaster* from a small West Coast group. . . . The hot category for Christ-

APPLE SPONSORS DTP CONTEST

It's official! We're very happy to announce that Apple Computer has agreed to officially sponsor the *MacUser Desktop Publisher of the Year Contest*, which sharp-eyed readers will have seen announced in our September and October issues.

We have also decided to extend the entry deadline for this contest by two weeks to October 14th — that is, about the time you're probably reading this! (So why are we telling you? Just for the record, folks, just for the record.) The extension was announced on various electronic bulletin boards and through our network of Macintosh User Group contacts in response to requests from many potential entrants.

Winners of the four main categories — Newsletters, Books & Manuals, Advertisements and General — will receive \$500 worth of Mac software each,



together with an individually engraved plaque. The overall winner will receive a LaserWriter Plus with all the trimmings and an even fancier plaque. Plus instant fame in the Macintosh community, of course! (Apple may use excerpts from entries in

their national advertising campaigns for desktop publishing.)

Apple and *MacUser* have appointed a panel of judges to assess all entries on the basis of originality, technical proficiency, aesthetic appeal and effective use of the medium. We will be publishing the results of the *MacUser Desktop Publisher of the Year Contest* in our January 1987 edition. Watch this space.....

□□□□□□□□ CAN YOU TOP THIS? □□□□□□□□

Macs and IBM PCs on the same network can finally share information and resources, thanks to a new networking software package, *TOPS*. *TOPS* permits Macs to communicate with IBM PCs on AppleTalk, and share hard disks, printers, and other peripherals, without any dedicated hardware.

TOPS allows the Macintosh to store files on a PC floppy or hard drive, and retrieve them directly, through the standard OPEN dialog. *Lotus 1-2-3* files can be

opened from within *Excel*, with all equations in the spreadsheet intact. Formatted *Wordstar* files, as well as text files, can be accessed from *MacWrite* and *Word*, complete with most formatting information. The conversion routines are part of the *TOPS* software, and are completely transparent to the user. *TOPS* also works as a network server for multiple Macintoshes, allowing files and programs to be shared between various machines on the network. The sys-

tem runs entirely in the background, so that all the Macs on the network can be used while serving is occurring. The IBM package includes a plug-in card that allows PCs to be connected to AppleTalk.

A version of *TOPS* that supports UNIX machines on the network is in development (we saw it working at the Boston Mac Expo). For more information, contact Centram Systems West, 2372 Ellsworth Ave., Berkeley, CA 94704. (415) 549-5900. — DB

mas will be word processing with new products appearing on an almost daily basis. Look for both word processors and spelling checkers. . . . The first Mac prototype with a 68040 CPU has been seen. It redefines the word "fast." . . . Look for upwards of 50 vertical applications for *dBase Mac* the day it is released. . . . A major Mac magazine has recently beefed up its security. Some staff members are being trained in the martial arts at the magazine's expense. . . . Apple has purchased a large number of very special, very large CRTs from Japan. They're already warehoused on the West Coast

for use in the WorkStation machines. . . . Fewer than 10 major games will be released for the Mac in the next year as developers turn their attention to the IIGS. . . . Look for 20-megabyte external disks to sell for under \$500 by March of 1987. . . . Apple is preparing to release the largest, most complicated micro program ever sold. What does it do? Depending on who you listen to, the answers range from not much to everything. Right now it takes about 3 megabytes of disk space. So get your hard disks ready and look for it in January. . . . One of the largest telecommunications companies in the

world is about to leap into the Mac market with a very major product. . . . Some serious rethinking at Apple has the Color Mac back on the production schedule. The hope is June, but September is more realistic according to the engineers. . . . The IBM desktop publishing programs are proving to be the strongest sales tool for Mac desktop publishing. Apple and third party advertising should be reflecting this "fact" even as you read this. . . . Hayes is about ready to release their custom Mac development environment. Its combination of power and simplicity is astounding.

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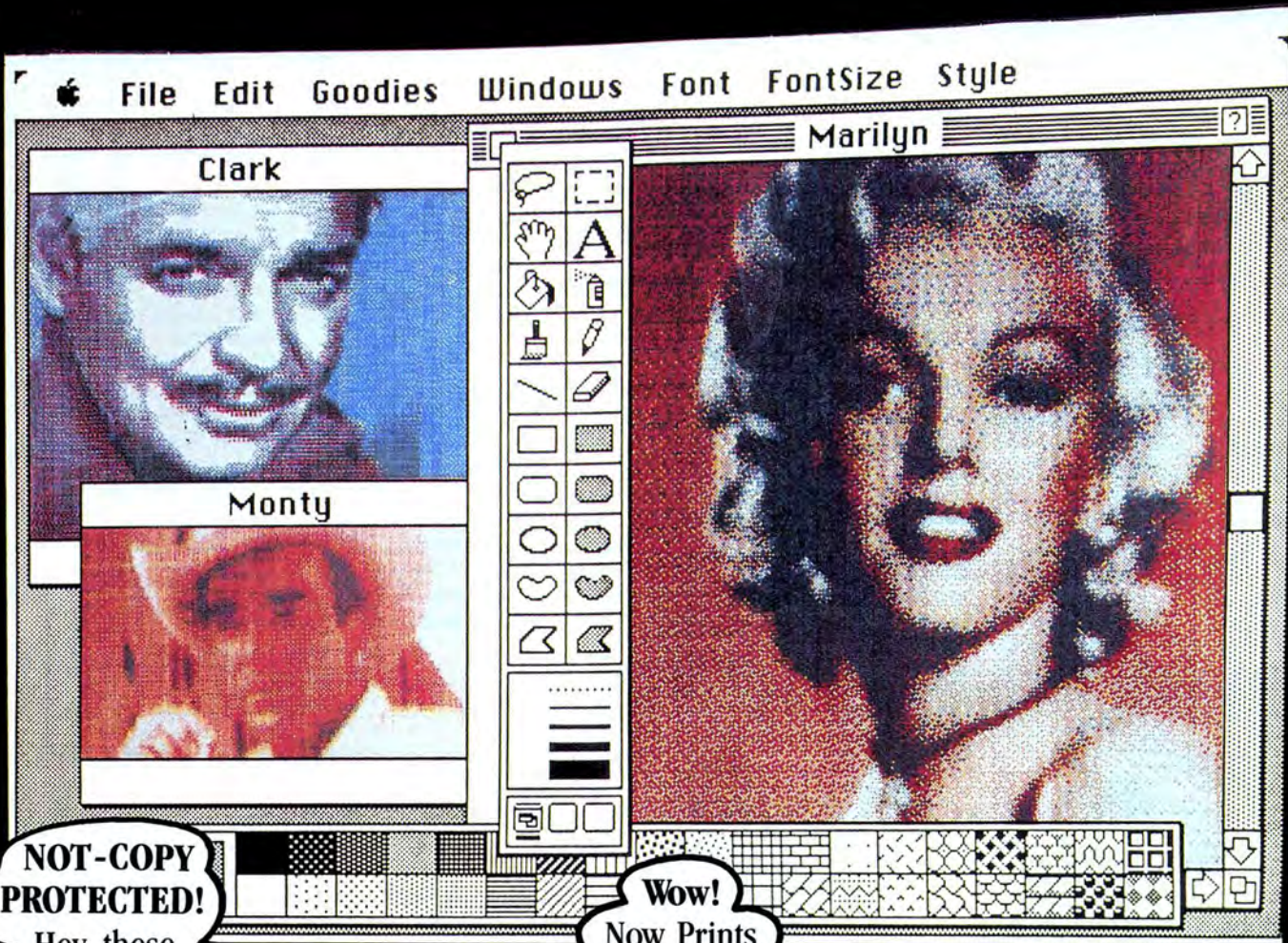


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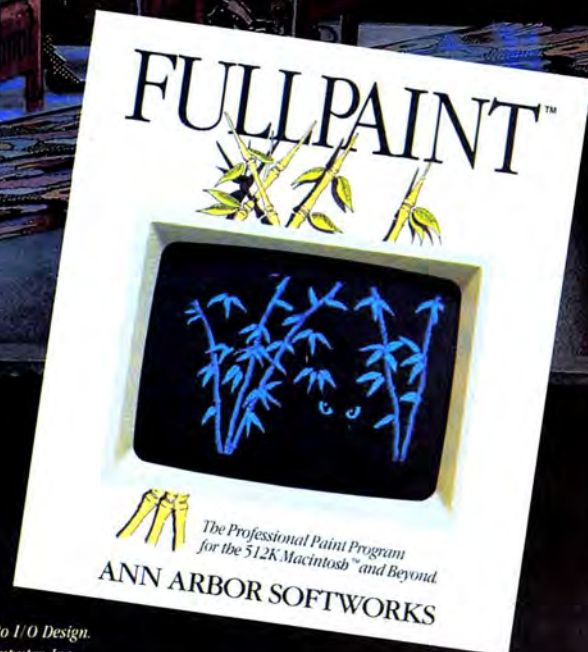
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BUG OF THE MONTH

This month's \$25 winner is Daniel Nign III, from Pasadena, California. Daniel found a major bug in version 1.05 of *Word*.

The bug cropped up when multiple documents are open simultaneously within *Word*. For example, if three documents are open, and the user

decides to quit the program, *Word* responds with a "Save Changes?" dialog. This dialog refers to the active document, and only the active document. If the no button is clicked, the program quits, *without asking if the user wanted to save changes in the other two docu-*

ments, regardless of whether they were new documents that hadn't been saved yet, or previously saved documents that had undergone any editing while open. We haven't heard of any solution to this problem.

Get your bug reports in and you may be the next lucky

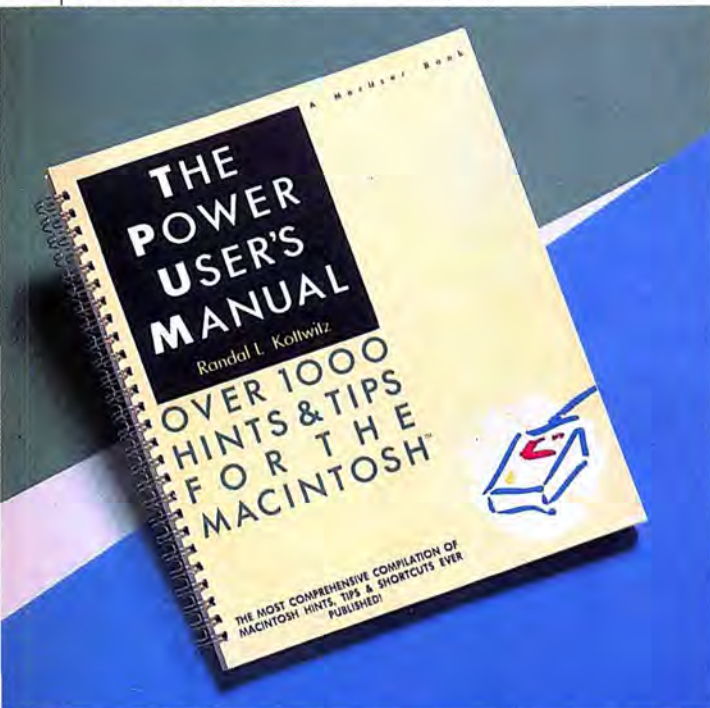
winner. Send your reports to Buggy, c/o *MacUser*, 25 W. 39 St., NYC, NY 10018. Remember to include all the details, such as what *Finder* you were using, which fonts and desk accessories were in the *System*, and exactly how you stumbled on your bug.

THE POWER USER'S MANUAL

One of the most popular regular features in *MacUser* is our monthly *Tip Sheet*. We guess the reason is pretty simple — a single hint, tip or shortcut for a particular application can save hours of work. Or better still, avert catastrophe!

But *Tip Sheet* has two drawbacks: lack of space and lack of an index. (Where *was* that tip on transferring *Multipan* tables

It is designed for speed of access, spiral bound and arranged alphabetically with two detailed indexes for quick cross reference. It is a *tour de force* of Macintosh desktop publishing and will probably save thousands of Mac owners a great deal of time, trouble and grief. It would make a wonderful Christmas present for any Mac user — hint, hint!



into *MacWrite*? Was it in the issue my brother used to line the cat litter box? Or maybe it wasn't in *MacUser* at all?!

OK, problem solved! *MacUser* is very proud to announce the publication of our first book. *The Power User's Manual: Over 1,000 Hints & Tips for the Macintosh*. Maybe not the snappiest of titles, but at least it's descriptive.

The Power User's Manual boasts well over 1,000 hints and tips covering 100 of the most popular Macintosh applications.

You'll see our ads for *The Power User's Manual* begin to appear shortly in *MacUser*. (We intend to sell the book mail order, at first, so don't bother checking your local dealer or bookstore.) For those of you who can't wait or who don't need a full color ad to convince you that having a thousand hints and tips by the side of your Mac is great idea, just send \$17.95 (plus \$2.00 shipping and handling) to: *Power User's Manual Offer, MacUser, 25 West 39th Street, New York, NY 10018*. — FD

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 Mini-Finder section. A special note on Apple System software: If you have a 512K or larger machine and don't have *Finder*

5.3/*System* 3.2 see your dealer for a free upgrade. If you have them but didn't get new printer drivers and a new Control Panel and Chooser with your new *System* and *Finder* see your dealer at once. You need them! Apple System software upgrades are free at dealers as long as you bring your own disks.

Here's our list (as of press time). — SB

Aztec C	1.06h	Mico Planner Plus	1.1
BatteryPak	1.23	MORE	1.00A
Click/On Worksheet	1.3	MS BASIC	3.0
ColorChart	1.3	MS Chart	1.00
ConcertWare+	3.1	MS File	1.02
Copy II Hard Disk	5.5	MS Fortran	2.1
Copy II Mac	5.5	MS Word	1.05
Cricket Graph	1.0B	MS Works	1.0
Crunch	2.0	Multipan	1.1
DiskInfo	1.43	MusicWorks	1.1
Dollars & Sense	1.4	myDiskLabeler	2.11
Edit	2.0d1	Omnis 3	3.10.MAC
Excel	1.00	Omnis 3+	3.21
ExperLISP	1.5	OverVUE	2.0d
ExperLogo	1.1	PageMaker	1.2
Factfinder	1.1	PictureBase	1.1
Fedit Plus	1.0.7	Quartet	1.1
Finder (128K only)	4.1	QUED	1.5
Finder (all others)	5.3	Quickset	2.0
FONTastic	2.7	Rags to Riches	2.6
Fontographer	1.5	ReadySetGo	2.1
Hard Disk Utility	1.26	Record Holder	2.1
Helix	2.0	Red Ryder	9.4
InTalk	2.1	Resource Editor (Resedit)	1.0A1
Jazz	1A	Resource Editor (Redit)	1.2
Just Text	1.0i	Sidekick	1.1
Lightspeed C	1.02	Silicon Press	1.1
MacDraw	1.9	Slide Show Magician	1.3
MacBase	1.0	Smartcom II	2.2B
Mac Disk Catalog II	2.1b	SpellNow	1.0
MacDraft	1.3	Spellswell	1.2d
MacGolf	2.0	StatView 512+	1.0
MacLabeler	2.2	StatWorks	1.2
MacLightning	2.0	System (except 128K)	3.2
MacPaint	1.5	Switcher	5.0
MacServe	2.1	Tempo	1.1
MacSpell+	1.1	ThinkTank 512	1.3
MacTerminal	2.0	ThunderScan	3.2
Mac Tools	5.5	TML Pascal	1.2
MacWrite	4.5	Top Desk	1.4
MeasureTest	9.8	TurboCharger	2.0
Megamax C	1.42	VersaTerm	2.00
Microphone	1.0	Word Handler	1.1
Micro Planner	1.1		

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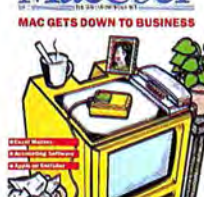
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MacUser has accomplished what it set out to do: become the *de facto* Macintosh resource, where you can find out about the best software, hardware, and how to use your Mac. It's not unusual that one of our readers stated, "When I have a problem with a program, I don't reach for the manual—I reach for **MacUser**."



ity dossiers like the kind you'd find in astrology books, but it does print out a full wheel chart complete with astrological symbols for your Sun, Moon, Ascendant, Mars, etc. Unless you're a professional astrologer, you'll still need a book to interpret the chart, but it does save some charting chores.

Graphic Astrology is for sale by mail order for \$39.50, and *Advanced Graphic Astrology* (which does more types of charts) sells for \$79.50. For more information, contact Time Cycles Research, 27 Dimmock Road, Waterford CT 06385.—TFH

THE 'IT HAD TO HAPPEN' DEPARTMENT

First there was *Mind Prober*, which charted people's personalities by way of a series of yes/no questions. Then came *The Luscher Profile*, a program

that revealed people's inner conflicts and secrets by asking them to choose favorite and least favorite colors.

Now, there's finally a bona

FILEMAKER GETS BIGGER AND BETTER

FileMaker from Forethought is one of the best file managers for the Mac (we rate it at five mice). File managers don't have the power and programmability of relational databases, but can fit the needs of a great many users. Forethought looked at the wish lists put together by many of its users and found that there was a gap between *FileMaker* and products like *Omnis 3* and *Helix*. Some people need more functionality than

a file manager can provide, but don't want the hassle of a true, programmable relational database.

To fill the gap, Forethought has added a bunch of new features and increased power to *FileMaker* and created a new product, *FileMaker Plus*. The program looks and functions exactly like *FileMaker* and will convert all existing *FileMaker* files, but this one has a slew of extra functions and capabilities.

fide astrology program that charts people's complete natal horoscopes from their time and place of birth. *Graphic Astrology* won't create thick personal-

While it's not relational, *FileMaker Plus* will "lookup" values from one or more files, display multiple records on screen in a "list" view and show multiple files.

FileMaker Plus has added flexibility in field definitions and contents, which can now include graphics fields. Every word and number in a record is indexed for quick searching. New layout capabilities and math functions make it simple

to create invoices, expense reports and other forms. One of the hottest features is called a "script." Although not exactly macros, scripts provide an easy way to automate common operations.

FileMaker Plus will sell for \$295, compared to \$195 for *FileMaker*, which will continue to be sold. Current registered *FileMaker* owners are being offered an upgrade (for \$75) to the new product. —MDW

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By the way, that's Apple's User Group evangelist, Ellen Petry Leanse, standing behind the woman holding the basset hound's leash. I guess this is a California group. — SB

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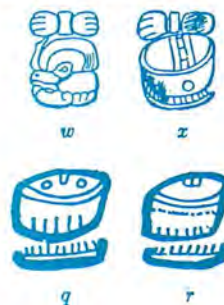
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THE MAYA MAC

Deep in the jungles of the Yucatan, Maya high priests used an icon-based Mac thousands of years ago — not a computer, but hieroglyphics like this one. Carved in stone and painted into their books, it represents Mac, the 13th month of the Maya calendar. During the month of Mac, which runs from December 6th to 25th of our calendar year, the Maya burned the hearts of animals to ensure plentiful rain for their crops.

We're still looking for a glyph representing the Mac Plus, but haven't had any luck so far.... — Shay Addams



TML UPDATE REPORT

TML Pascal has quickly gained a place of one of the most popular Mac development environments. To help both new and experienced users, **TML** has released several new and powerful toolkits.

The Development Tools package consists of three disks packed with source code demonstrating how to add things like pop-up, graphical and hierarchical menus, as well as scrollable windows, speech,

and special window definitions. Altogether there are 18 example applications. Also included is a complete manual that covers both theory and application. This package sells for \$79.95.

The Database Toolkit lets programmers create their own ISAM database. Everything needed is here. The kit also contains 16 tutorial examples and the source code to a simple name and address database. It sells for \$89.95.

Finally, TML Systems has licensed and is selling the Pascal version of **MacExpress**. This generic application shell (originally created by ALsoft) was reviewed in the February 1986 **MacUser**. It's an excellent tool, and the best news is the price has dropped from \$495 to \$195.

For information on any of these products, contact TML Systems at PO Box 361626, Melbourne, FL 32936, 305-242-1873.—SB

Introducing a new series on Macintosh desktop publishing...

This new series of books by John Baxter on Macintosh desktop publishing covers typography, design, and production. **Macintosh Desktop Typography** covers the basics of typography. Type fundamentals are covered as related to the new laser fonts available. Typographical design concepts are presented, providing a foundational understanding of the effective use of type. A comprehensive type directory is included covering all standard PostScript ROM fonts.

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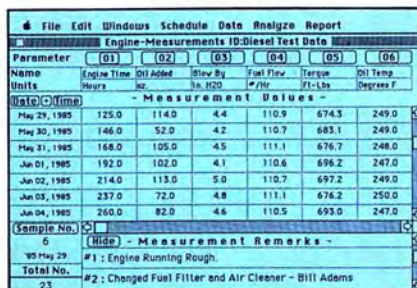
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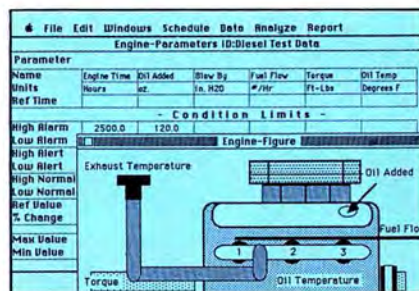
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- Measurement Values -						
Date/Time	125.0	114.0	4.4	110.9	674.3	249.0
May 29, 1985	146.0	52.0	4.2	110.7	683.1	249.0
May 30, 1985	168.0	105.0	4.5	111.1	676.7	248.0
Jun 01, 1985	192.0	102.0	4.1	110.6	696.2	247.0
Jun 02, 1985	214.0	113.0	5.0	110.7	697.2	249.0
Jun 03, 1985	237.0	72.0	4.8	111.1	676.2	250.0
Jun 04, 1985	260.0	82.0	4.6	110.5	693.0	247.0
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by Michael D. Wesley

ENTER THE IIGS

Jim Novice, first-time computer buyer, walks into a computer store to check out what they have to offer and find out whether one of these high-priced boxes will really help him organize his business, household and social life, all of which have been falling apart lately because he just has too much work to do. Jim is surprised not to find any IBM PCs or clones, only Apple equipment. The dealer explains that since Apple's product line now offers a solution for virtually every need they decided to drop all the other lines. (Now you know for sure that this is fiction, right?)

The dealer then shows Jim Apple's carefully structured product line, all coordinated in Apple's corporate color, platinum. First is the IIC, a simple, nonexpandable machine ideal for kids and game players and great for light dusting around the home. Jim is non-committal on the IIC, so the dealer continues. The next step up, Jim is told, is the IIE, an "open" box with slots so it can be customized. Jim's mind formulates an image of an Apple II with oversize tires, heavy chrome detailing and mag wheels. Somehow this is not quite what Jim is looking for.

The dealer, feeling that Jim is slipping away from her, quickly moves on to the new Apple IIGS, the pinnacle of the Apple II line. Like the IIE, this stylish new box has slots, "but" the dealer explains "you don't have to use them. The slots are mapped to ports at the back of the machine so if you want a hard disk or modem you just plug it in." Only the last five words in this statement make any sense to Jim, but they sound appealing so he begins to perk up a bit.

The dealer plunges into a demo of Activision's *Paint Works*, and then *Fantavision* or *Newsmaker* from Broderbund, to show off the new machine's high-resolution RGB color display. The software Jim sees uses a mouse, menus, and windows and seems very easy to use. The dealer tells Jim that the IIGS is very fast and powerful and can be expanded to 8 megabytes of RAM. Again, automotive images creep into Jim's mind.

Jim is interested in the IIGS, but has heard a lot about the Macintosh and wants to see one. The dealer gracefully escorts him across the store to the tastefully decorated "business" section, and introduces Jim to the Macintosh En-

hanced 512 as the "low-end" Macintosh, a basic starter system for the business user. Like the program Jim saw on the IIGS, the Mac software utilizes a mouse, pull-down menus and windows. The dealer launches into a lengthy explanation of the benefits of the Mac for desktop publishing, a concept that Jim knows and cares nothing about.

Jim gets a bit confused at this point and asks the dealer to explain the difference between the IIGS and the Macintosh. The dealer says that the IIGS is a "high-end consumer" machine, while the Macintosh Enhanced 512 is a "low-end business product." After a short demo of *FullPaint* on the Mac, Jim is quickly maneuvered over to the Mac Plus, the current "high-end" business tool. ("Until," the dealer says secretively, "the open Mac comes out.")

Jim ponders all of this for a moment. He is not sure whether his end is high or low, but he knows that he is a consumer who needs a machine primarily for business use. Jim stops for a moment to ponder the beautiful simplicity of the marketing plan that has put him into such a hopeless muddle.

The Mac Plus seems too powerful and expensive for Jim, so he concentrates on the IIGS and the Mac. Looking back and forth across the floor of the computer store, Jim sees that both machines appear to be easy to use, have good graphics and claim to be very powerful. Jim wonders why he should pay extra for the Mac when he can do the same kinds of things on a IIGS in color. He looks at the attractive gray on gray display of the Mac, then sees a similar design in 16 colors on the IIGS. For Jim, in this situation, the Mac would be the hard choice. Forget the fact that very few products on the IIGS will initially use the mouse and windows interface. Seeing a Mac-like machine in color is impressive.

When I went to a press rollout at Apple for the IIGS, then named the

Cortland but at one time known as Rambo, my immediate concern was what the machine might do to sales of the 512K Mac. I was fortunate to have the opportunity to put the question to John Sculley, who restated, very nicely, what Apple sees as a clear distinction between its consumer products, the Apple II line, and the business machines in the Mac family. He did agree, however, that the introduction of the IIGS could have an impact on Mac sales. More significantly, though, Mr. Sculley also said that Apple did not want to follow IBM's lead (whatever happened to PCjr?) and shortchange the IIGS just to keep it from competing with the Mac.

What Apple has with the IIGS is a fast and powerful color machine, with some of the capabilities of Macintosh. It uses a central processing chip that makes it possible to expand the machine's memory up to 8 megabytes. It runs existing Apple II software up to 2.5 times faster than a IIE. The IIGS has window, menu and font managers and a complete "tool-box" so developers of new products can access QuickDraw. The IIGS is the first computer to reflect Apple's commitment to bring the Apple II and Macintosh lines closer together. And it has color and sound that have to be experienced to be believed.

APPLE II ON A CHIP

In order to accomplish a tough set of design goals — keep the IIGS compatible with existing Apple II software; keep the system board the same size as the IIE's so IIE owners can upgrade, and provide increased power, speed and memory — Apple was forced to do some amazing tricks of engineering. Tops on the list: an Apple II on a chip. Apple's engineers created a single custom chip called Mega II that contains virtually everything that makes an Apple II an Apple II.

This neat bit of wizardry in the laboratory should be of more than passing



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HyperDrive FX/20 not only runs all software programs developed to Macintosh or Macintosh Plus standards; it runs them faster than any other external hard disk.

Plug it into the Mac Plus' SCSI port, and it will reduce power-up time by 66%. It will load Aldus' PageMaker over one and a half times as fast as a Mac Plus. And Microsoft's Excel two and a half times as fast.

But unlike other external disks, HyperDrive FX/20 brings both speed *and* sophistication to the management of information.

A program called Backup, for example, lets you quickly make back-up copies of files onto diskettes—and checks to make sure each copy matches its original.

A print spooler program lets you use your Mac for other documents even while your LaserWriter is still busy printing the one you just finished. And it reduces by up to 90% the time you might otherwise have to wait.

A security program protects your files from unauthorized entry. It scrambles data so that it's indecipherable to everyone who doesn't know the password you assign it.

The FX/20 also *stores* information intelligently. Its 20-megabyte capacity accommodates the data that would otherwise occupy up to 50 diskettes. Files are structured hierarchically. So your data is dynamically stored and



THE NEW HYPERDRIVE FX/20 EXTERNAL HARD DISK.

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In short, with the FX/20, as with the Macintosh itself, elegance is more than cosmetic; it is designed into the system, and measured by functionality rather than just appearance.

NEW WITHOUT THE PENALTIES OF NEWNESS.

HyperDrive FX/20 arrives with the paradoxical advantage of being both new and proven at the same time.

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interest to Mac users for two reasons. First, the feat is, in itself, remarkable, and serves as a strong indication that Apple is willing to go the limit technologically to try to support a growth path for existing customers. (Did someone say Apple III? Was it Lisa?)

In addition, Mega II has tremendous implications for future Mac products. A Mac on a chip? An Apple engineer implied (and subsequent rumors strongly support the implication) that the animal *already exists*. My understanding is that the chip is a 1-inch cube (with a square 68020 processor at the base). This could mean a portable Mac in the near future (although it *probably won't*), but more likely it will be the starting point for high-powered workstations that can perfectly emulate a Mac.


Also of more than passing interest: a Mac with one slot (the Mac Plus Plus?) will probably debut in January. Some developers will have been seeded with prototype units by early September.

MORE OF THE FUTURE

Beyond the 68000 lies a region as yet unexplored but with almost staggering potential. The next generation — the 68040. The Mac's 68000 is a 16/32-bit processor and the 68020 is a 32/32 (or "true 32-bit") cruncher. Well, according to rumor, the 68040 is designed to be a 64/128-bit processor, and I am told that the design specification calls for it to run at 100 MHz (about 12 times faster than the Mac Plus). Unfortunately it will probably be 2 years before completion but then, who knows?

APPLE BUSINESS FORUM

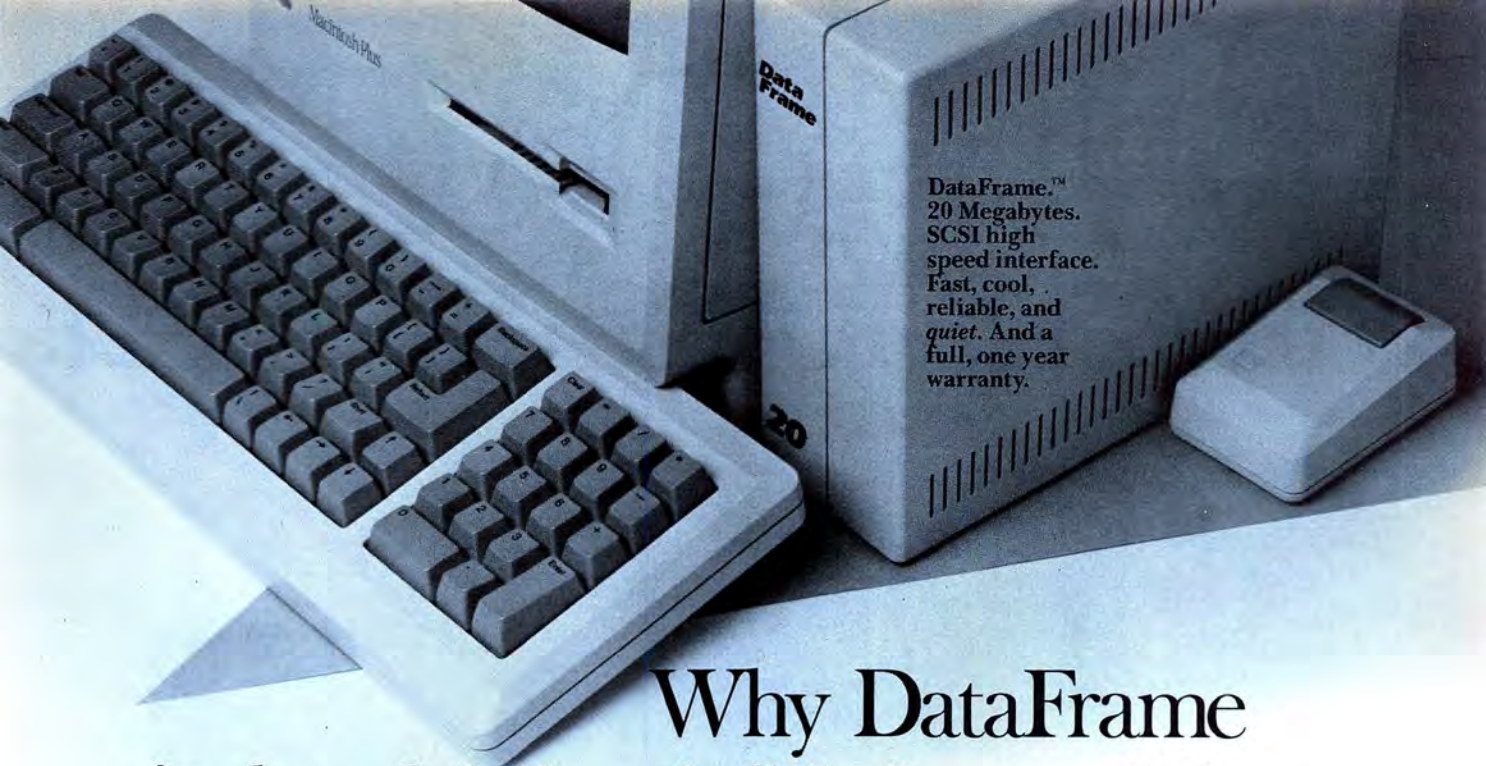
Apple had mixed success with the Apple Business Forum touring road show this summer. The 12-city tour featured products in the categories Apple is focusing on for its marketing push this fall: Desktop Publishing, Desktop Communications, Desktop Engineering and Desktop Productivity. Products ranged from CAD software for engineering drafting to page layout to high-powered databases.

While the San Francisco show was well publicized and extremely well attended, I heard that the shows in places like Kansas City and Denver were pretty dead. One of the developers placed the attendance in Denver at about 400 over two days. It's a shame because the forum was an excellent introduction to the Mac as a business machine, and I heard a lot of people wandering through the Hyatt Union Square muttering about buying a Mac. 

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Why DataFrame is the *right* hard disk for any Mac:

Because we looked carefully at what Users need in a hard disk system for the Mac, and made the right design decisions. Decisions that give you significant benefits over any other Mac hard disk. They are:

Decision: Floppy disk port or SCSI?

Hard disks that use the serial or floppy disk port, such as the Apple hard disk, are *slow*. The SCSI interface (introduced with the Macintosh Plus) is considerably faster. The DataFrame uses the SCSI interface, and consequently runs *much* faster than hard drives that use slower ports. Yes, even faster than non-SCSI internal drives. It really makes your Mac *fly*.

◀ (If you own a Mac 512, you can get DataFrame performance too, with our \$99 SCSI adapter.)



Decision: Internal drives versus external drives?

Internal drives save desktop space, but there are serious trade-offs. First, you lose your system while the drive is installed. Worse, you lose your system if the drive needs repair. (Internal drives have earned a not undeserved reputation for frequent breakdowns.)

Then there's heat—the enemy of reliability. Internal drives add heat to the system. You either use a fan—which means you listen to an annoying whine while you are working—or you use no fan, which means your system gets too hot.

DataFrame is external, so it adds no heat to the system. Because the drive is preformatted, you can take it right out of the box, plug it in, and be *working* in minutes. And if your hard disk should ever need service, you just unplug the DataFrame (you can *still*

use your Mac) and get a replacement *immediately* from your dealer.

Decision: Under-system or beside-system?

A drive under your Mac has the same heat problems as a drive inside your Mac. The drive must either have a fan (*noisy*) or it sits under your Mac like a little hotplate (*unacceptable*).

DataFrame sits *beside* the Mac, uses a vertical 'chimney' design to vent heat, needs no fan, and therefore stays cool *silently*.

What else?

SCSI means easy expansion—you can 'daisy chain' up to seven additional drives or other SCSI peripherals, using DataFrame's second SCSI port. Plus, DataFrame boots your system directly from disk, saving you time. And we used Apple's Hierarchical File System, so all 20 megabytes are available on line at all times. Most important, DataFrame is so reliable, we back it up with a full, one year unlimited warranty. That's confidence you can't even get from Apple.

The result of all these decisions:

DataFrame has been chosen by more professionals, more Macintosh software developers (including many in Apple Computer, Inc.), more dealers, and in fact, *more people* than any other SCSI Macintosh drive, *by far*.

So before you commit to *any* hard disk for your Macintosh, you owe it to yourself to see DataFrame in action. You'll find it at any of the hundreds of qualified SuperMac™ dealers. They're listed next to this ad.



950 N. Rengstorff Avenue, Mountain View, CA 94043
(415) 964-8884

**New Price
\$1099.**

Finally, The Drive That Matches Your Ambition.



To succeed in business, you bought an ambitious, hardworking Macintosh™ Plus. Now you need mass storage that can satisfy your need for speed and convenience. AST delivers the solution with two high-performance storage subsystems—the AST-2000™ and AST-4000™.

AST-2000 For 20 to 60 MB of High-Speed Storage. The AST-2000 SCSI subsystem eliminates the need for tedious floppy disk swapping so that you can spend more time accomplishing your goals and less time waiting. Our 20 MB disk drive with 20 MB tape backup provides the speed and storage to increase productivity in a wide range of business and personal applications, including data base management, word processing, spreadsheet analysis and desktop publishing. For additional storage, simply plug in an expansion unit with single or dual 20 MB hard disks.

Fast and Easy Data Insurance. Archiving files and backing up information from disk drives is no longer a chore. In less than nine minutes the AST-2000 backs up 20 MB of data onto a single 20 MB tape cartridge.

AST-4000 for 74 to 370 MB of High-Speed Storage. The AST-4000 picks up where AST-2000 capacity ends with a 74 MB disk drive and 60 MB cartridge tape. And with its 30 millisecond average disk access time, 5 MB per minute tape transfer rate, SCSI interface and expandability to 370 MB, the AST-4000 provides unparalleled performance in single-user or multi-user AppleTalk™ network environments.

One Clear Choice—AST. Consider your alternatives: 1. Internal drives: if service is required, you must give up the use of your computer. 2. Floppy drives or drives connected to serial ports: painfully-low performance. 3. Plain wrap drives: don't include essential features, such as a tape backup. 4. Here today, gone tomorrow drives: offered by companies that have no history, or may soon be history.

No other disk and tape solution comes close to offering the same performance, features or product reliability as the AST-2000 and AST-4000.

AST Quality and Reliability. AST Research, Inc. has earned a worldwide reputation for reliable, high-quality products that

ensure customer satisfaction. And every AST-2000 or AST-4000 subsystem comes with a six-month warranty.

For more information about the clear choice for data storage, contact your nearest AST-authorized Apple® Dealer or call the AST Apple Products Group at (714) 553-0340. BBS: (714) 660-9175. FAX: (714) 660-8063. AST Research, Inc., 2121 Alton Avenue, Irvine, California 92714-4992.



Yes, I want more information about AST's ultimate storage solutions for the Macintosh Plus.

☐ AST-2000 ☐ AST-4000

Name _____

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Phone _____

AST Research, Inc. 2121 Alton Avenue, Irvine, CA 92714-4992
ATTN: Apple Products Group MU11/86

AST
RESEARCH INC.



by Doug Clapp

THE REAL COSTS OF SOFTWARE

I just reread the first part of this two-part column. The columns are about how much it costs to produce a software package.

Last month we pegged the price of software at about \$10.50 per package, give or take. Royalties, disks, manual, a box for everything; that sort of thing. Not too complicated.

And, considering you can charge...well you can charge a lot more than \$10.50 for each one! Maybe \$79.95? Or \$125.43? Or \$325.99? If you can get it, go for it! Riches. Yachts. Porsches. Groceries.

But maybe not. There are a few other expenses we didn't discuss. And "a few" is a euphemism.

First and worst (or best, depending on your point of view) is advertising. Got any idea how much advertising costs? Ever thought about it?

ADVERTISING COSTS A LOT OF MONEY!!!! REALLY!!!

Take the magazine snuggled in your warm little hands. Let's say you buy a full color, full-page ad in *MacUser*. Just one. If so, you'll pay \$5,385, less 15%, or \$4,577. (The 15% is a discount called an "agency discount" — for advertising agencies — but everybody gets the discount, so it's essentially an automatic knock-off.)

Naturally, if you run the same ad more than once, the cost for each "insertion" is lower than the one-time rate. Let's say you purchased a 12-insertion contract in *MacUser*. The price for each ad drops to \$4,090. A lot less than \$4,577. Still, 12 times \$4,090 is \$49,080. Which is also known as "Ohmygod that's over AL-

MOST FIFTY THOUSAND DOLLARS!"

Which doesn't mean it's dumb to advertise, only expensive. Apple is lavish (though canny) with multipage, full-color spreads and they've got hundreds of millions of dollars in the bank. Borland International came from nowhere on the strength of full-color, full-page ads that are seemingly everywhere (and often on "inside covers," which cost more than other places in the magazine). And I bet Philippe Kahn only eats hamburger when he really wants to.

And Tandy is firmly ensconced on the back cover of *BYTE*. If you think the *MacUser* rates are high, check out *BYTE*. For that matter, check out *Macworld*.

The rates are a function of circulation. The larger the circulation, the higher the ad rates. Phrases like "cost per thousand" are bandied about with ease. Magazines can also "prove" their circulation is what they claim, by having their circulation audited, in much the same way that business have their books checked out by an independent firm. Start-up magazines can also guarantee advertisers a given circulation. It's like this: "We promise a circulation of 50,000, regardless of anything. We won't stop the presses until 50,000 copies are printed. And we'll distribute them, even if it means sending out free copies." And sometimes they do.

Just to leave no unturned stones: *MacUser* guarantees a paid circulation of 100,000, but actually has a paid circulation of about 130,000 (or did when I wrote this; it's probably somewhat higher as you're reading this). Their audit, probably complete as you read this, should confirm those figures.

But owning a magazine isn't like printing money. Magazines flicker out like July fireflies. And competition for advertisers is fierce.

Then there's distribution of your product. You've got three choices. You can sell it yourself, by mail order. Or you can sell direct to dealers. Or you can sell to distributors, and let them sell to dealers. Or you can do some combination of the three.

If you sell direct, you get to keep the

most. Of course, there's the price of that toll-free line, and people to take orders, and people to ship the product. And your product won't be "on the shelves" anywhere, so you can kiss off impulse buyers. Still, sometimes it's effective. Borland started that way, and many companies, particularly those with languages and other program development products, are direct sales only.

Sell to dealers and you gotta give the dealer a cut. Maybe 40%. If you sell it direct for \$100, you'll probably sell to dealers for \$60. They'll sell it for \$100 and keep \$40.

Forty percent is a big discount.

But wait. Maybe you sell to distributors. In that case, you might have to give up 60%! 60%! That's one reason B. Dalton's and Waldenbooks make big bucks: they don't pay much for each book. You pay "list" and they buy for a pittance.

Of course, if you deal with distributors, you'll probably move more products. You'll get less for each, but you'll sell more. On one hand...and on the other hand... Harry Truman was right when he wished for a "one-armed economist."

Advertising and discounts. Big expenses. And it goes on. We haven't even mentioned traditional costs of doing business. Legal fees. Rent. Telephone (imagine that one). Freight costs (another biggie). Insurance. Office supplies. Interest, if you borrowed money.

Salaries. You're not working for free, right? What are you worth? Or maybe you'll take something out of profits, when the money rolls in. Can you pay the mortgage payment until then? Most people can't.

If you're a bit dazed by the marketing decisions, you can always hire a marketing director. Maybe an MBA. But they aren't cheap. Secretaries aren't cheap. The people in back who write out shipping labels aren't cheap.

All this assumes, of course, that the people you sell to will pay up. Ever seen the cartoon of the gleeful little guy cartwheeling with laughter, holding his stomach, with the caption "You want it when?"

And remember to set aside a big chunk of money for taxes. A big chunk. Nuclear warheads and Contra aid aren't cheap, you know.

But, even after all that, there might — there just might — be something called "profit" left over. And if not....

"Boss, we're losing money on each sale!"

"Don't worry, we'll make it up in volume." ☹



Introducing FileMaker Plus.

Now, the only Mac database ever to get both *MacUser's* and *InfoWorld's* highest ratings does even more, with even more ease.

Humble, ordinary-but-necessary forms like mailing labels, purchase orders, invoices, credit memos or packing lists. Pain-in-the-rear forms like expense reports and insurance inventories. Hard selling forms like proposals and quotations. Indispensable forms like phone messages, address books and sales contact records.

Filemaker™ Plus lets you do these any way you want, or does them *for* you if you want. An extra disk full of templates gives you a whole set of typical formats, so all you have to do is fill in the blanks.

And in addition to doing what a database is supposed to do — calculations, summary reports, sorting — FileMaker Plus does everything you *wish* a database would do. View multiple records on a

screen. Pull information from different files together. Include graphics in your fields and reports. Print mailing labels 3 or 4-up, or more.

Your information takes much more human form. It makes more than sense. It makes an *impression*.

With FileMaker Plus, you can put information *in* any way you want, without arbitrary limitations. It automatically indexes every word, number and date. You design your output right on the screen, so you can see exactly what you (and your clients, staff, suppliers, publishers, board of directors) are going to get.

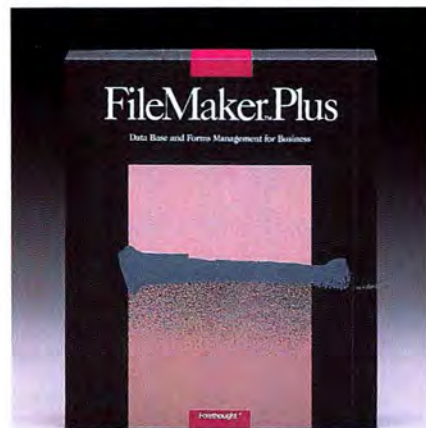
You can exchange information with other programs, like MacWrite™, MacPaint™, MacDraw™, Microsoft® Word and Microsoft Excel. You can share applications or formats you've created with other members of your team, or consolidate group efforts into one database. And FileMaker takes full advantage of the Macintosh™ family, including the Mac Plus, Mac 512, Imagewriter and LaserWriter.

So, for a mere \$295, you can watch as your data takes on all kinds of interest-

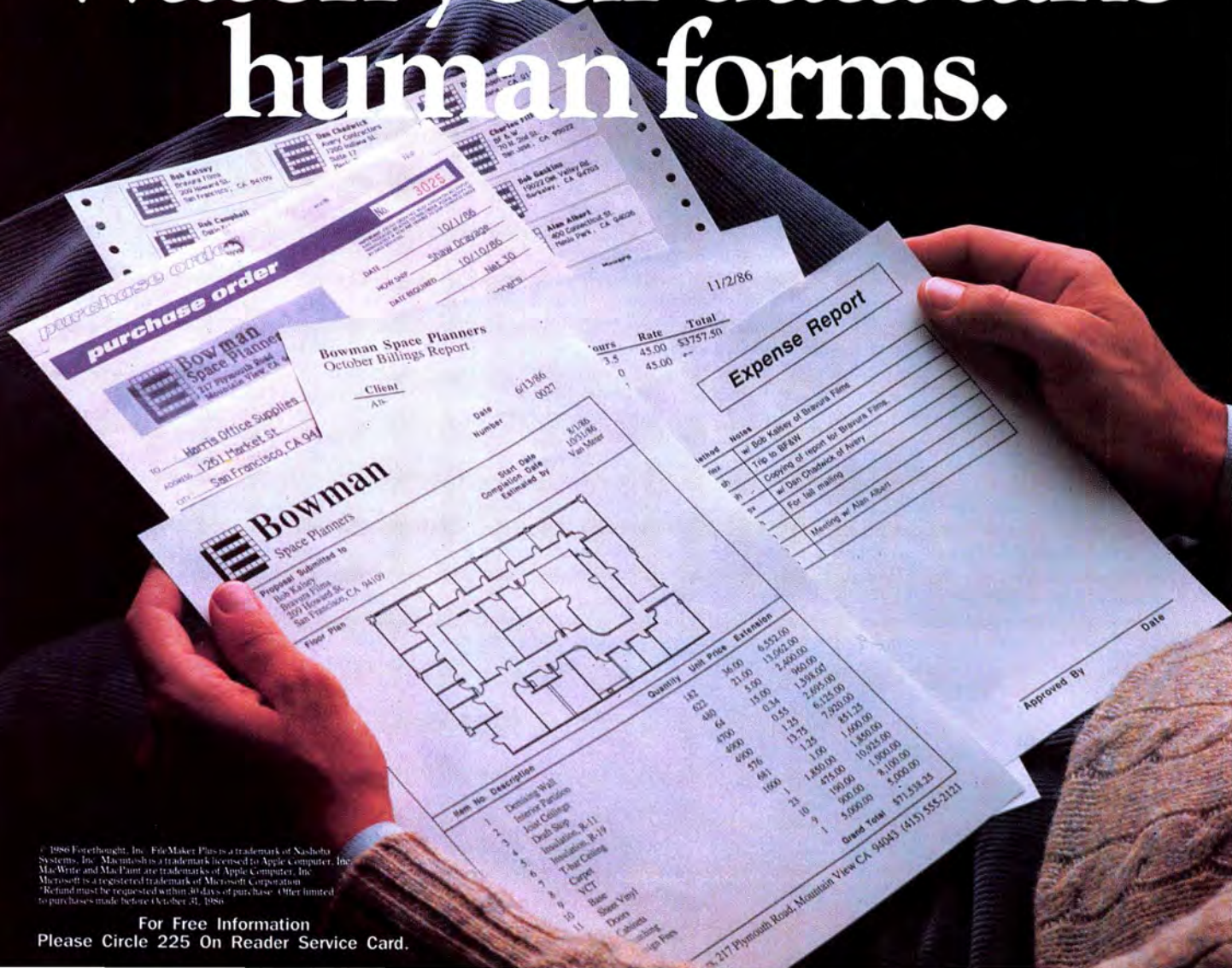
ing and profitable new forms. Call 1 800 MACWARE today for the name of your nearest dealer.

We guarantee it.

If FileMaker Plus doesn't completely fulfill your expectations, call 1 800 MACWARE and we'll solve your problem or arrange a refund.* From Forethought, Inc.



Watch your data take human forms.



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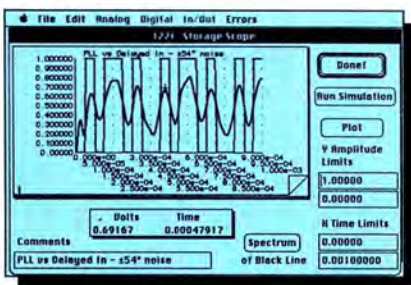
For Free Information
Please Circle 225 On Reader Service Card.

QUICK CLICKS



DESIGNSCOPE **tttt**

List Price: \$249.95. Published by Brain-Power, Inc., 24009 Ventura Blvd., Calabasas, CA 91302. (818) 884-6911. Requires 512K+. Not copy protected.



There was a time, in the deep dark past of humankind, that electronic circuit design was a cumbersome task. Circuits could be mapped with pencil and paper and component values estimated, but the circuit almost always had to be assembled (a task

known as breadboarding) and tested before actual values could be known. Many was the time that a circuit had to be torn up and rebuilt from scratch because it just didn't work as planned. While there were computer programs that could simulate circuits, they tended to run on mini and mainframe computers, and weren't at all intuitive or graphically oriented. Then came Macintosh, a collection of sophisticated electronic circuitry, and DesignScope, software that utilizes the power of Macintosh circuits to simplify the design of electronic circuits.

DesignScope is an interactive tool that lets you plan a circuit as a block diagram, placing components on the Mac screen in their respective positions without having to know their values. Values can then be estimated and a simulation run to test the circuit. The resulting waveforms are viewed on-screen. If the simulation produces the desired result, the circuit can quickly be designed. If not, just tinker with the values or change the design and run the simulation again. DesignScope's output Storage Scope can store up to four simulations at a time. Once a circuit is working it can be

saved as a module and incorporated into other, larger circuits.

DesignScope has a large collection of components just a menu selection away, including amplifiers, comparators, filters, switches, integrators, differentiators, logical AND, NAND, OR, NOR, and XORs, noise generators, phase-locked loops, etc. Double-clicking opens dialog boxes that hold the values you want to experiment with. To establish connections simply draw lines between components. When a circuit is complete, run a simulation over time and the program will plot the waveform generated. To check the value at any given point, move the cursor over the plot. Two boxes appear below the plot with precise measurements of voltage and time.

DesignScope is intended to be a tool for engineers, advanced students of electronics or serious hobbyists. This program is not really for newcomers to electronic circuit design or very casual tinkerers. However, it is very easy to use if you understand electronics and circuit design. Both the manual and the program assume a thorough knowledge of the subject. —MDW

COMICWORKS **tttt**

List Price: \$79.95. Published by Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. (312) 480-7667. Not copy protected.

ComicWorks is a new entry into the already crowded category of Macintosh graphics software, and although the name implies that this program is specifically suited to creating comic books, ComicWorks has a lot of potential to be used as an alternate page layout program. It pushes the limits of Macintosh graphics just a bit farther than many thought possible, thanks to some unique tools.

Pages are divided into panels and easels. Each panel is a window in which a number of easels exist. Each easel contains a separate bit mapped graphic. Easels can be moved around and edited individually, even after positioned. Graphics can be pasted in from the usual sources (Clipboard, Scrapbook), or Art Grabber + (included with the program) can be used to copy sections of MacPaint documents. The fun begins when you start to create graphics in the program.

A unique airbrush (with adjustable spray width, air pressure and dot randomization) replaces the familiar MacPaint spray can. Any portion of a graphic can be scaled, and the scaling factor is adjustable. And you'll wish that the editable grid was standard in all Macintosh graphics programs.



Text is entered in the form of text balloons. The text remains fully editable, and multiple fonts and styles can be used in a balloon. Of course, there's a balloon shape palette, allowing a variety of text enclo-

tures. Text can also be entered as a graphic element.

More ComicWorks power surfaces when INK makes its appearance. INK allows special effects to take place between the graphics in two easels. XOR, BIC, matte, and other modes create exotic visuals that are reminiscent of VideoWorks. This feature alone will justify the cost of the program for many graphics designers.

The art disks (mostly created by Mike Saenz) lean heavily toward BEM (bug-eyed monster) art, and are spectacularly executed. Unless you plan on creating an outer space epic, though, you'll find the files of limited usefulness.

All is not perfect with ComicWorks itself. LaserWriter support is less than satisfactory: panel shapes beyond the standard rectangle will not print correctly, and pasted in graphics sometimes don't print at the expected size, requiring some fiddling to get it right.

ComicWorks is a smooth, slick program that should find its way into every graphics enthusiast's hands, comic book fan or not. —DB

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QUICK CLICKS

THE TOY SHOP

List Price: \$64.95. Published by Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. (415) 479-1170. Runs on 128K, copy protected.



The Toy Shop is a unique bit of software, a construction kit whose end result is an actual physical model, not just an image on a computer monitor. The Toy Shop is not for everyone, (it's not even for kids, exactly), but it's perfect for people who like to build

model cars, planes or other toys.

The Toy Shop consists of three disks, a program disk and two very full data disks. The data disks contain extraordinarily detailed design files for 20 different toys, ranging from a simple spinning glider to a working steam engine. The simplest toys have only one page of densely packed graphics, while the most complex models require as many as five full pages.

The program screen displays a scrolling, "file card" database. Each file card shows a picture of the finished toy and carries a brief description. The toys begin with a complete design that includes paint patterns, decals and text. All of these items can be edited to customize the toy, although these changes are not reflected in the picture on the screen. You only see the results when you print the toy file.

When you have finished editing a toy, you print it out on any paper that your printer can use — standard pin feed, letter bond, colored stock or even foil. You then glue the printout to card stock, cut out the pieces

and assemble the toy. The kit includes building materials — heavy card stock, rubber bands, dowels, balloons — enough for one of each of the models. Replacement materials are easily available, so there is virtually no limit to the number of toys that can be built.

The manual gives very clear and detailed instructions for every step in the process, but most of the toys are too complex for a child to build. The program is intended to be used either by an adult or an older child with considerable model building experience. The finished toys are great for all ages, though, and are very durable.

The toys all work. Turn a hand crank on the carousel for example and the horses actually go up and down as the carousel goes 'round and 'round. Some of the toys are balloon powered and others can be driven by the steam engine.

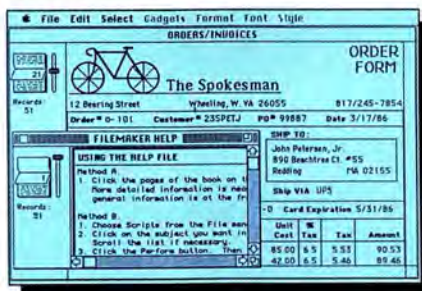
The Toy Shop would be a little easier to use if you could make changes directly to the toy itself, but it provides a wonderful workshop for do-it-yourselfers. — MDW

FILEMAKER PLUS

List Price: \$295. Published by Forethought, Inc., 250 Sobrante Way, Sunnyvale, CA 94086. (415) 737-7070. Requires 512K+. Not copy protected.

FileMaker, an excellent, forms-based filing system, has been around for some time, and has attracted a wide following. Its users appreciate its ease of use and flexibility, but many have requested more features. In response primarily to the comments of users, Forethought has created a new product, FileMaker Plus.

FileMaker Plus retains all the features of FileMaker so anyone who has been using the original product will feel very much at home with the new one and will be able to access all existing FileMaker data. But FileMaker Plus is much more than an upgrade product. Besides incorporating some basic design enhancements, FileMaker Plus enters a whole new arena by adding features that have previously been the exclusive domain of complex relational databases.



As with FileMaker, all fields are automatically indexed so there is no need to bother with key fields and searching on any criterion is very fast. Fields can be formatted to hold multiple values, such as line items on an invoice. FileMaker Plus also lets you examine multiple records on screen in a "list" view and scan quickly from record to record.

FileMaker Plus will display up to eight files at a time, and can use a spreadsheet-style "lookup" command in one file to retrieve data from another file. While not fully relational, this feature does make it

easy to draw data from a parts file for inclusion in an invoice. FileMaker Plus also has enhanced calculation capabilities with many additional functions.

Another aspect of FileMaker Plus that trends on the territory of relational databases is the use of "scripts." FileMaker Plus scripts resemble a macro language, except that they require no direct programming or recording — they simply remember a sequence of actions, can be saved and used at any time to automate the same sequence.

Improved printing functions let users generate flexible headers and footers. Users can also manually enter the dimensions of the paper they will be printing on and print multiple records across a page for mailing labels.

FileMaker Plus is fully HFS and Mac Plus compatible, includes a thorough on-line help file and has a very clear manual. FileMaker Plus incorporates a multitude of new features and enhancements beyond those mentioned here. The result is an outstanding product made better and a new product designed to meet the needs of a wider range of database users. — MDW

MARKET PRO

List Price: \$395. Published by Pro Plus Software, Inc., 2830 E. Brown Road, Suite C-12, Mesa, AZ 85203. (800) 992-2919. Requires 512K+, external drive and Hayes-compatible modem. Not copy protected.

Market Pro is a slick, quick portfolio management program of formidable proportions. Commodities, stocks, options, bonds, currency and money markets can be followed from both technical and fundamental points of view. The ease of use of this program is startling.

Market Pro utilizes a built-in telecommunications (download only) tool in order to obtain data from CSL Data Corp., which is connected to I.P. Sharp/Infoservice of Vancouver, BC. This is a highly efficient database for the purpose of downloading market quotes and fundamental data. The system operates flawlessly and performs at least four times faster than Merlin Dial/Data. Users are charged for each quote received, so the cost between the two databases is similar, but using CSL is much quicker. It is possible to manually add data to a file, and you may choose to download data from Dow Jones Retrieval Service.

Chancery Software, the program's actual authors, provide technical support through a toll-free number. However, little support is likely to be needed, because of the thoughtfulness and attention to detail inherent in the program's interface.

Market Pro is very strong on fundamental analysis. Users may select among approximately 160 facts for any year and any quarterly period and may also combine these facts. Thus you can define formulas or ratios which the program will check for validity. Once the fundamental data is obtained it can be sorted, charted and printed in various ways. It also can be saved as a

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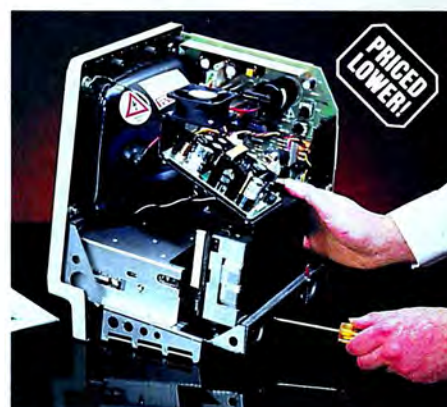
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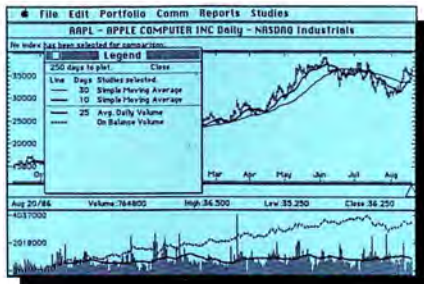
SYLK file for use in *Excel* or *Multiplan*, although such files cannot be ported back into *Market Pro*.

There is one limitation in the area of fundamentals. You cannot add additional fundamental categories of data to an established file, requiring that new files be established for any afterthoughts. There is a similar lack of integration of portfolio files in the technical area. If the same stock is listed in two portfolios, updating data in one will not automatically add the new technical data to the other portfolio. In the technical area you can avoid this limitation as you can cut and paste investments between technical files. This cannot be done between the fundamental files.

Unique to *Market Pro* is its "Prospector" feature, which permits you to search the database for companies which meet your specified fundamental criteria.

In the technical arena, stocks can be charted instantaneously. Various moving averages, volume, momentum and advance/decline lines are provided for up to the last 250 days, daily or monthly. The speed

with which you can move between each stock and each chart is remarkable. You can superimpose several graphs on your charts, each written with a different pen, with a good selection offered. For most



investors the technical data accessible in *Market Pro* will be more than adequate.

Professional technicians, however, may not find sufficient technical versatility in this program. Some important charts, such as point and figure charts, are not avail-

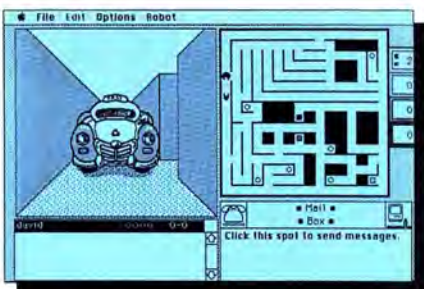
able. And you cannot access weekly data or any data prior to the last 250 days. Unfortunately for technicians, most stock quotes for U. S. stocks are not available through CSL Data until the morning after the close of the market. Of course, Dow Jones is likely to be able to fill that gap. In spite of these drawbacks, some technicians may prefer to utilize this program for their basic charting, perhaps to supplement another program, because of the speed, beauty and flawless operation of this application.

Market Pro provides an automatic update of the monetary value of your portfolio and the percentage of gain/loss since purchase date of each investment. The program prints data in an organized fashion, providing both details and summaries of your investment positions.

Although it has far too many typos, the manual is comprehensive. It provides a good summary of technical and fundamental issues for the beginner and covers in a cogent manner what users need to learn in order to utilize the unique features of *Market Pro*. — Linda Joan Kaplan

MAZEWAR+ 🚗🚗🚗🚗

List Price: \$49.95. Published by MacroMind, Inc., 1029 W. Wolfram, Chicago, IL 60657. (312) 871-0987. Requires 512K+, AppleTalk network or 1200-baud, Hayes-compatible modem. Not copy protected.



When AppleTalk was first introduced, Apple's Bert Sloane wrote and released (into the public domain) the first game specifically designed for multiplayer use on an AppleTalk network. That version of *MazeWars* enjoyed a brief spurt of populari-

ty, but not lasting success, since people with AppleTalk networks were usually too busy LaserWriting to stop and play games. MacroMind has taken the original idea a step further, added a number of unique features, spruced up the action with some VideoWorks animation, and released the first commercial AppleTalk game, *MazeWars+*.

MazeWars+ can be played in three different ways: through AppleTalk, as in the original version; over telephone lines, using modems; and in single player mode against the computer. The premise of the game is simple: You are a character in either a one- or four-level maze, and together with your remote-controlled robot friend (or enemy), you must fight your way through waves of attacking opponents. Those opponents are other players on the network, or a friend on the other end of a modem link.

Each player chooses a character type (yellow cab, Macintosh, boot, eyeball and others) and a type of robot (does it follow your orders, or will it be a blind, ruthless killer that destroys whatever gets in its way, including you?). Both overhead and head-on three-dimensional views help keep the enemy in sight, as well as monitor your own

position. Player movement can be accomplished through either the mouse or the keyboard, and the response time is incredibly fast, even when communicating through modems. When an opponent is in sight, press the space bar to launch an animated missile, which explodes in a cloud of smoke upon impact. During the course of the game, messages can be sent to other players; for example, to thank them for blowing your character to smithereens. Various status windows keep players informed of what player is on what maze level, what messages are being sent to you from other players, and your current score.

MazeWars+ has an unusual licensing agreement: You're allowed to give one copy of the program to a friend, in order to have someone to play it with. An extra printed disk label is even enclosed for the copy. Although it can get a bit dizzying coordinating everything that can be controlled, the game can become quite addicting once you have the hang of it. If you want a game to play solo, there are better choices than *MazeWars+*. If you want some entertainment for an AppleTalk bash, or want to have fun with a modem friend, *MazeWars+* is the only game in town. — DB

GRAND SLAM 🎾🎾🎾🎾

List Price: \$49.95. Published by Infinity Software, 1331 61st St., Suite F, Emeryville, CA 94608. (415) 420-1551. Requires 512K, runs on Mac Plus. Copy protected. Version 1.1 reviewed.

Grand Slam started life as a simple tennis game with initial programming done by MacroMind (*MusicWorks*, *Art Grabber*, *VideoWorks*, etc.). But Tom Maremaa, a

former professional tennis player, took the product over and decided to create a true tennis simulation. The result is a game that in many ways approaches the feel and look of a live tennis match, and is filled with more than enough fun to justify spending an entire afternoon playing tennis instead of working.

Four Mac-controlled "robot" players, all with different styles of play, are designed into the game. Although it would have been nice to have the robots represent actual professional tennis players, the legal and

financial complications of doing so would have prevented the game from ever being finished. Instead, the four players have styles similar to some current world-ranked competitors but with names like Demon, Warrior and Chiphead.

Grand Slam can be played in two modes: practice or tournament. In practice mode the effects of court surface (clay, grass, asphalt), racket tension and type (wood, metal, graphite) can be gauged and the differing talents of the four robots evaluated without the pressure of scoring. You can



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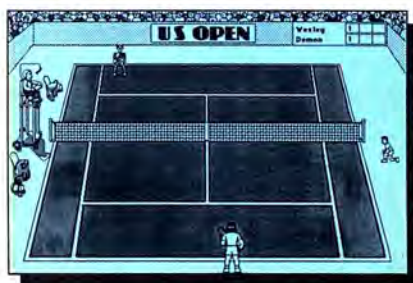
also experiment with keyboard controls that add slice or topspin to a shot, send a lob over your opponent's head or a smash (figuratively) down his throat. (Yes, I meant his: the initial version of the game, at least, is all male.)

In tournament mode, the game records each point and scores a match as the best of three sets. The tournament draw is generated randomly each time a tournament is started. The name *Grand Slam* comes from the series of four major tournaments on the professional tour: Wimbledon and the French, US and Australian open competitions. Because of different playing

surfaces, each tournament requires a unique set of tactics in order to compete successfully.

Grand Slam incorporates digitized sound, for ball bounces and shots and crowd noise, and some fairly sophisticated animation techniques for the play itself. In fact, the disk is completely full because of the graphics and sound information.

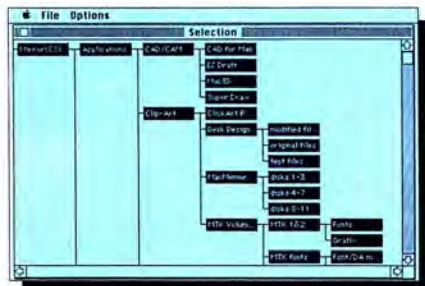
In general, once you learn how to control the players' movements with a mouse, the game plays very well. The graphics are occasionally a bit choppy and it is sometimes difficult to tell exactly what will happen on a given stroke. Even so, *Grand*



Slam succeeds both as a simulation and a highly addictive game. — MDW

FLASHBACK

List Price: \$59.95. Published by Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. (818) 991-6540. Not copy protected.



Now that cheap hard disks are a reality for the Macintosh Plus, a race is on to provide utilities to backup all the expensive information that lives on those discount

devices. Each program has a different way of letting the user specify which files are to be backed up, and which are to be ignored. *FlashBack's* approach to this selection task should appeal to first time hard disk owners as well as more seasoned users.

Once in *FlashBack*, the user is presented with various on-screen controls for determining which files are to be backed up onto floppy. Applications can be ignored (this is the default setting), since they aren't likely to change on a regular basis. The user can specify a time range (files changed within the last x days) for file selection. The primary device for selecting files is the Selection window, which displays a graphic tree of the HFS directory. Folders and sub-folders are specified by clicking on them with the mouse. This feature will particularly appeal to HFS newcomers, as it clearly defines the structure of an HFS directory. The tree can also be printed out, with or without individual file names. We ran into a LaserWriter bug when attempting to print the tree with file names (this was the only bug that surfaced). A useful command

reads the directory and determines how many single- or double-sided floppies are needed for the backup.

Once the files to be backed up are specified, the program prompts the user to begin inserting floppies. The program can be set to verify disks that are already formatted to ensure media integrity. While the backup is in progress, folder and file names appear in a window as they are written to floppy. The amount of total information processed is also displayed. A control can be toggled to ask the user for backup verification on a folder-by-folder or file-by-file basis.

FlashBack backs up files larger than 800K, which is necessary for large System files, spreadsheets, text, graphics and animation files. Files are saved to floppy in a compressed format, to minimize storage space. The backup and restore process is also reasonably fast (about 1 megabyte per minute, about twice that speed to restore the files onto the hard disk). All in all, *FlashBack* is a good candidate to secure the contents on your hard disk. — DB

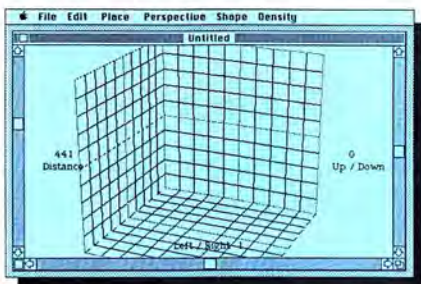
GRIDMAKER

List Price: \$49. Published by FolkStone Design, Inc., PO Box 86982, North Vancouver, B.C. V7L 4P6, Canada. (604) 986-8060. Not copy protected.

Some programs claim to do the world, and then some. Some programs actually live up to their claims, others don't. *GridMaker* makes one claim: it easily and quickly produces three-dimensional perspective grids to use as guides when drawing to perspective. Nothing more, nothing less. It delivers well on that promise.

GridMaker's main window (also its only window) displays a set of XYZ axis lines when the program is first opened. Above it is a smaller set of lines, the alignment mark, which displays the three-dimensional orientation of any type of shape that is drawn in the program. The shapes are really the meat of the program: they represent different stages of a three-dimensional box. The bottom of the box represents a two-dimensional plane with depth. Three

sides of the box constitute a corner shape. The full box would be three-dimensional and opaque, while the box and corner represent a translucent cube. The user can specify the grid line density: at the lowest setting, all that is drawn is the shape's



outline, while at highest density, the grid lines are very tightly packed.

After the shape is drawn, it's placement, size and the viewing vantage point can be modified by manipulating the main window's three scroll bars. You can position your vantage point to be inside of a cube

looking out, or looking down on a corner. All movement is registered in ticks, and the axis/tick settings can be viewed on-screen while moving the object. The shape can also be stretched on any of the three axes, to make full screen width planes, or high boxes. The perspective effect can be changed to reflect the effects of a telephoto lens (shape appears flat), normal eye (orthographic view), and wide angle (true perspective view).

Grids can be copied and pasted into *MacDraw* or *MacDraft*, where they will exist as object graphics. If printed on the LaserWriter, they will appear fully smoothed. A grid may also be reshaped in order to change its vanishing point. After using the grid to create a perspective drawing, it can be selected and deleted from the picture.

Creating grids manually isn't the most difficult endeavor known to man. Accomplishing the task quickly and painlessly, with the ability to instantly change the number of planes and vantage point, is something that many artists have always wanted to do and couldn't. With *GridMaker*, they can. — DB

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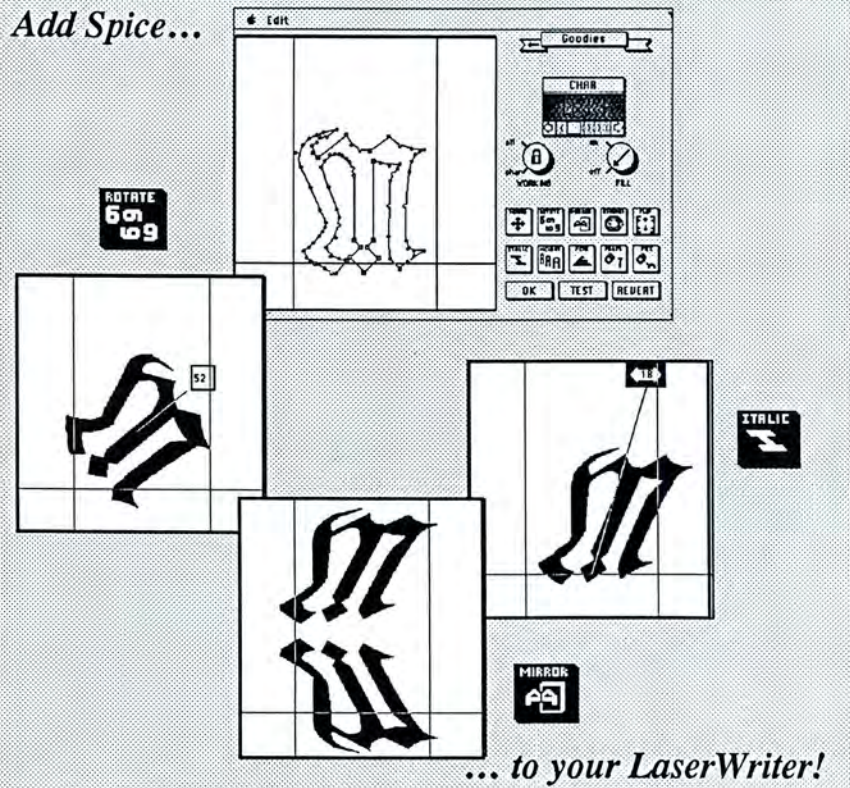
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The Full Page Display offers more than a bigger screen. It's the most exciting Mac add-on yet.



by
Steven
Bobker

THE BIG

HENRIK KAM

ONE OF THE MOST PERSISTENT criticisms of the Macintosh has been that its screen is too small. Of course, those of us who actually had and used Macs knew differently. The screen was just fine, and anyone who said otherwise was just a stuffy old IBM user. A nitpicker. The Mac's nearly flicker-free, high-res screen set new standards in sharpness, clarity and readability for microcomputers. A bigger screen was just required by inefficient old-technology machines.

It turns out the critics were not entirely wrong. A big screen does make a big difference in usability. The Mac became the success it is because, in part, of its small size. But many more would have been sold more quicker if a big screen had at least been available as an option. Big screen add-ons are finally starting to become available. So far, most of them function as replacements for the Mac's screen. If the software has followed the rules, applications can and do take advantage of the larger area. The first units (for example, the Megascreeen from Micrographic Images) have been very impressive, but somewhat limited. All they offered was the bigger screen. And they are very expensive.

BURRELL'S WIZARDRY

A new add-on, called the Radius *Full Page Display* (FPD), changes that. The FPD places a box just slightly larger than the Mac to either the left (preferred) or right side of the Mac. It connects to the Mac via a shielded cable that exits the Mac through a connector that's mounted in the security slot. The Mac that is

the master unit has to be modified by Radius also. The FPD is intended to be used with current Macs and Mac Pluses. While it might work with future Macs, open or otherwise, it's designed for the current installed base.

What you get is a new screen that can show a whole printed page. It's 640 pixels wide by 864 pixels deep. While a normal Mac has a pixel density of 72 pixels per inch, this screen operates at a very slightly greater 75 pixels per inch. That means that its active area is just about 8.5 x 11.5 inches. And since this is a portrait mode screen (that is, the longer axis is vertical) a whole page is visible at all times.

If that was all the FPD did it would simply be another me-too large screen. However, it does much more. Its revolutionary hardware and firmware (ROM) design (by Burrell Smith and Andy Hertzfeld, respectively) not only gives this big screen a slightly higher quality than the Mac's screen, but let's you use the Mac's own screen in conjunction with it. It operates as though there was no gap or space between the two physical screens. You might call the two separate screens one virtual screen. When you drag your mouse off the FPD display toward the Mac screen, it doesn't stop. If the cursor's position is high enough on the screen it simply moves right over to the Mac's screen.

You say that you need to see 20 or so columns of your spreadsheet at once? No problem. You have 1152 pixels to use horizontally, at least for the depth of the Mac screen. Click

on the grow box and stretch out the window right across both screens. Just like that. The single window is on both screens, but acts as though it is on only one. Select a row in a spreadsheet and the selection area will highlight on both screens.

The first time you do it or see it done, it's amazing. So's the next time. That excitement may never wear off. The quality of the firmware is staggering. So is the hardware design.

If you're thinking this is for you, your next thought is going to be: OK, how much damage to the wallet? It's not cheap, what with its state-of-the-art 15-inch square tube monitor. List is \$1995. That's a lot to pay to see whole pages of your letters at once, but not very much if you routinely work with whole pages in page layout programs, large spreadsheets or large graphics. If your work involves lots of manual scrolling, the FPD will be a real time-saver. And working on a full page is different than working in chunks. You don't have to remember what was where, or do check prints to see if everything is lining up OK. You can see it all now (if all is less than 8.33 x 11.25 inches).

FLICKER, OH FLICKER

The Mac screen used to be as good as you could get on a micro. Its noninterlaced, high (50-megahertz) sweep rate design makes for a great screen to look at for long periods of time. (Normal CRTs usually use a sweep rate around 22 megahertz.) But it's not perfect (aside from the obvious lack of color capability!).

PICTURE

THE BIG PICTURE

There's "chewing flicker," for example. Haven't had it happen to you? Try this. Back off a few feet from the screen. Four or five feet is usually enough. Then chew, or make believe you're chewing. There it goes! Did you see that screen flicker? How'd that happen. You didn't even touch the Mac. Well, maybe you have supernatural powers. Sure you do. What is really happening is that the motions of your jaws cause your eyes to get out of synch with the screen sweep rate, and so the screen appears to flicker. It's really all in your mind. A higher sweep rate would help. Something on the order of 65 to 70 megahertz will always prevent the appearance of flicker, even if you're far away (where the effect is much more noticeable). Using newly available components, the FPD achieves a sweep rate of 67 megahertz. And ends flicker.

The CRT itself is a brand new, square corner design. It's so new that the first circuit board prototype was completed before a tube was even

available. Burrell worked it all out without having the actual screen on hand!

ANDY'S TRICKS

Since Andy Hertzfeld did the FPD's programming, you wouldn't expect run-of-the-mill results. And the code is anything but simple or staid. Andy is the programming wizard responsible for a lot of the original Mac software and firmware (including lots of the original ROM code). He's also the genius who created *Switcher*, and now is working on *Servant*, a multitasking *Finder* replacement.

The FPD will not only include Andy's firmware, but also the latest available *Servant*. Eventually the FPD will contain a special version of *Servant* that will allow users to have a different menu bar on each part of the screen. (The normal mode of operation only puts a menu bar on the FPD portion of the screen.)

The various options available to FPD users are accessed through a

custom control panel. Here users can select either a normal sized (16 pixel by 16 pixel) cursor or a double size (32 pixel by 32 pixel) cursor. The larger cursor is very useful, indeed, necessary, on the bigger screen.

The menu bar and the type in the menus can also be enlarged. Having a larger menu bar and type makes these items easier to read and use. Of course, the standard size bar and 12-point type can be chosen, but they look small and out of proportion on the big screen.

The final item on the left hand side of the FPD control panel adds zoom boxes to the windows of applications that do not currently support this useful feature of the 128K ROM. Actually very few programs other than the *Finder* currently support this feature, so Andy's patch is very handy. This feature works with most programs, but not with *MacPaint*. It was added because, as Andy said: "There was some empty space in the control panel and since my code has to take a good look at applications when loading them, I thought I'd put this feature in. I thought people would like it and find it useful."

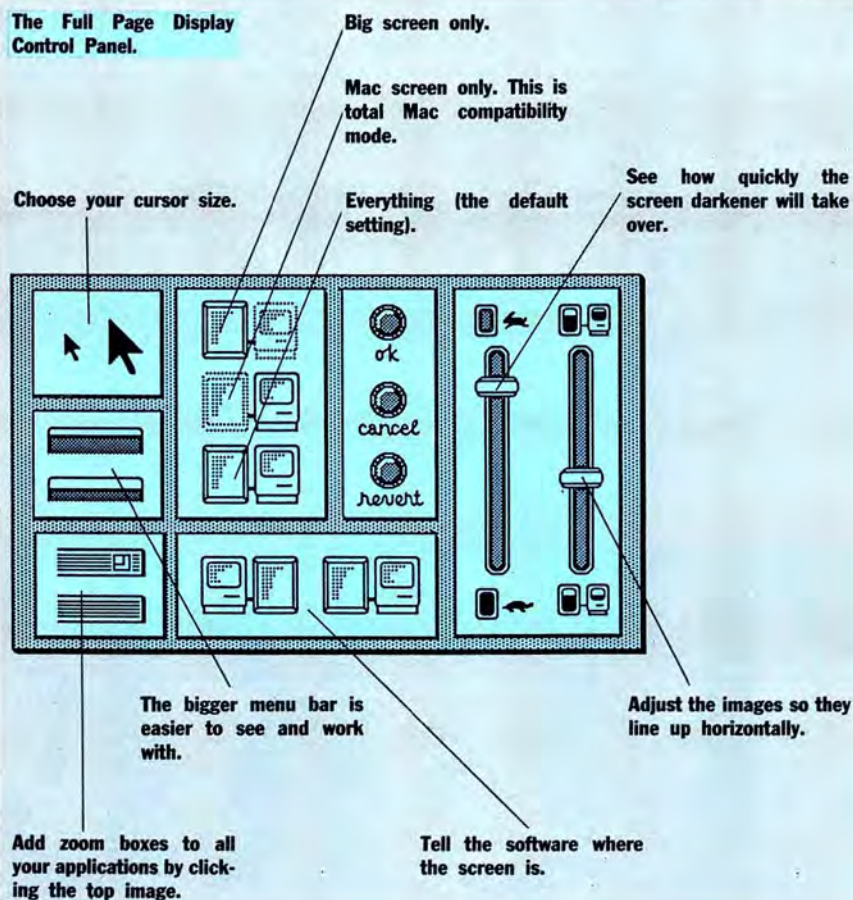
The center section of the control panel lets users select both the physical and software configurations they want to use. The bottom selection tells the firmware where the FPD is actually placed. Normally it will be placed to the left of the Mac, but it can work to the right of it.

The top center controls let users select either the FPD screen only, the Mac screens only (this choice is total Mac compatibility and also disables all the Radius firmware) or both screen working as one (the default choice). The radio style buttons confirm or cancel your choices.

There are two sliders on the right. The one towards the center controls the built-in screen blackening feature, determining how long it will wait before darkening the screen. This feature is necessary to reduce wear and tear on that big, expensive CRT.

The other slider controls the height of the top of the image on the larger screen. Sometimes, particularly if the Mac is raised up off the desk

The Full Page Display Control Panel.



(sitting on a hard disk, for example) the tops of the images on both screens won't align properly. And they must, so you can have a window appear correctly while partially on one screen and partially on the other. Also, if the images are misaligned, the cursor will appear to jump when crossing over. This slider lets you rectify such problems without resorting to the FPD's built-in leveling and raising legs.

To sum up the firmware, I can only say that it is extremely slick. And the highest compliment I can pay it is to say that it is totally transparent. You couldn't ask for more.

SOFTWARE QUESTIONS (AND ANSWERS)

The FPD does not require changes to your software. All the code needs is built into its ROM chips. Thus all software *should* work with it. Of course, some programs won't. As has happened with all recent Apple products, some software that does things in unusual or simply wrong ways, will cause problems. Games are particularly prone to these problems. To deal with these very rare situations, the FPD has a total Mac compatibility mode. Click on the icon that shows only the Mac in solid lines and all of the FPD circuitry is bypassed. If the software ran on your Mac before the Radius modifications were made, it will run when the FPD is in Mac compatibility mode.

The benefits of a larger screen area will be obvious with many programs. The ability to see more of a document at once may be the major



Jazz is an application made for big screens. Here's a spreadsheet and a chart. Yes, that rather wide spreadsheet is only one window.

benefit when working with spreadsheets, but there are other, extremely useful ways to gain more productivity when working with graphics programs.

Consider a high-powered graphics program like Mindscape's *GraphicWorks* or *ComicWorks*. There are lots of tools and you have to keep pulling them up to the screen and then hiding them. The FPD way of working not only lets you have a full page of your graphic creation, but also lets you set up all the tool menus and dialogs on the smaller screen. Since as far as the software is concerned, it's all one screen, just mouse over to change tools and zip right back onto the document. The time and frustration savings are awesome.

WHY BUY FPD?

Should the fact that the Radius Full Page Display is nearly as revolutionary and exciting as the first Macs were be a justification for spending nearly \$2000 on one? No, of course not. But if you remember your first sit down session with a Mac, you're in for more of the same with FPD. That first time is awesome.

The actual decision will have to take many factors into account. Do you use a Mac in your business? Do you regularly do page layout or other large graphics-intensive work? Do you find yourself often scrolling long distances, or needing wider spreadsheets, or bigger charts? Then the FPD may be for you. The added productivity that will result will cover its cost in a short time.

On the other hand, if you frequently move your Mac around, be aware that while the Mac and the FPD both are around the same size and both have built in handles, the combination is slightly less portable than a 60-lb "portable" TV. You can do it, but you're not going to enjoy its "portability".

I do have a final thought on the Full Page Display now that I've used one. It's very simple. I want one! ☒

Steven Bobker is the Editor in Chief of MacUser.

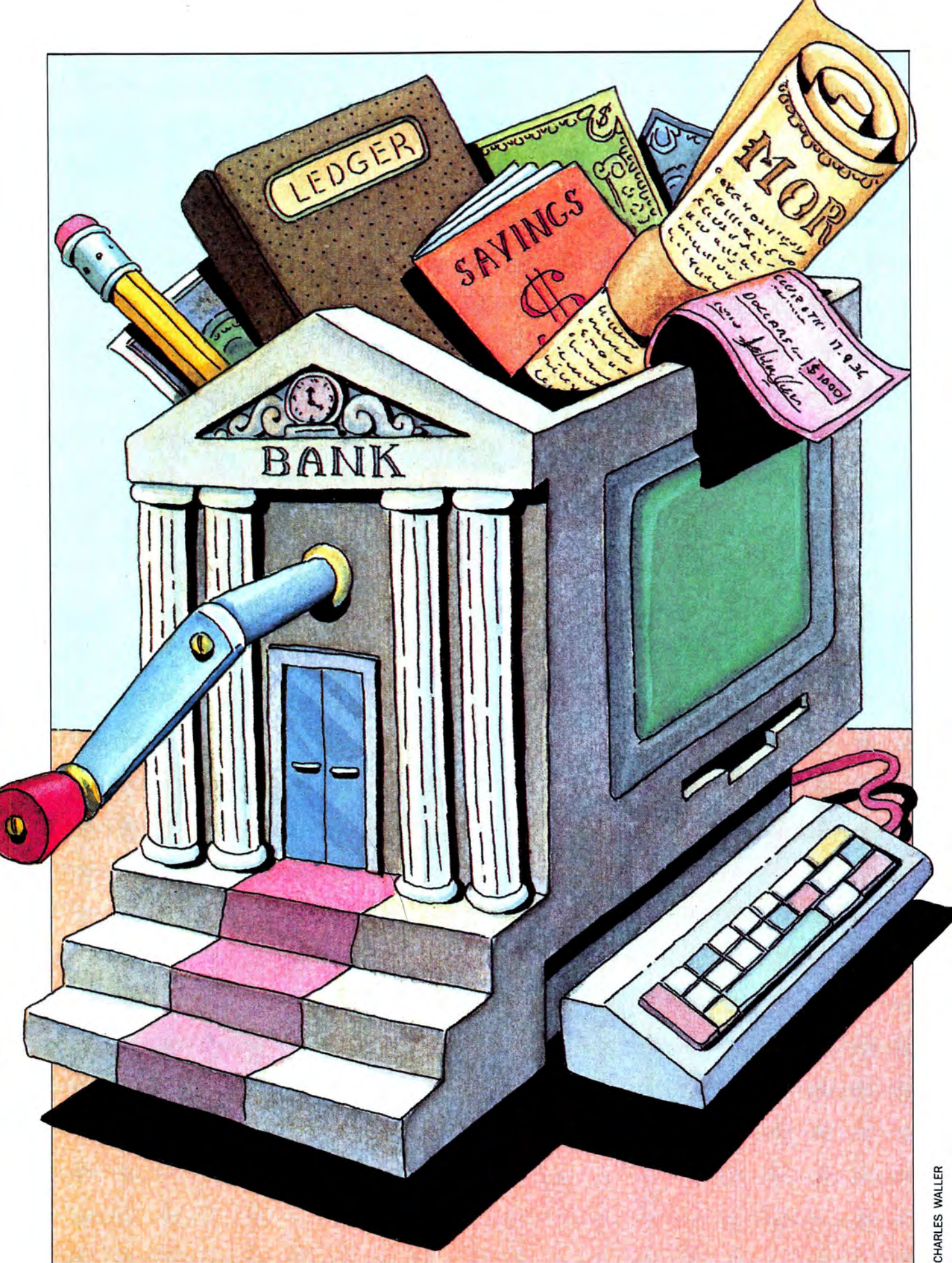
AT YOUR SERVICE

What's the big deal about *Servant*? Well, Andy Hertzfeld wrote it and he's excited about it. Apple was excited enough to buy the rights to distribute it. And everyone who's seen it has been very excited.

But that doesn't answer the question. OK, *Servant* is a replacement application for the *Finder*. It will do everything the *Finder* does and a lot more. You'll be able to have several applications running at

once (multitasking). You'll have a resource editing facility better than anything yet seen. You'll be able to customize each individual folder and icon. And lots more.

Andy was showing and giving out version 0.79 in mid-August. That might be what the final product will look like, and knowing Andy, the release version may be very different. We'll be keeping you informed about *Servant*'s progress.



CHARLES WALLER

THE MONEY'S IN THE

WORKS

by Sharon Zardetto Aker

**Get the most value
from Microsoft Works'
powerful financial
functions.**

SOMETIMES SOME THINGS GET overlooked. In a big, multifaceted program like *Microsoft Works*, the manual can't cover everything. It comes close, but there are some things that the program can do that are really useful and not explained well at all.

For example, the spreadsheet has eight financial functions that at first glance seem so specialized as to be intimidating. Yet, five of these functions handle some very basic financial calculations that come in handy for everyone sooner or later.

These five basic financial functions are:

Pmt—payment; the amount of the payments made or received.

PV—present value; this might be the initial amount of a loan, or the starting value of an investment.

FV—future value; this is usually the amount your investment will be worth after a period of time.

NPer—number of periods; this represents how many payments are involved for the investment or loan.

Excerpted and adapted from *Mastering Microsoft Works* by Sharon Zardetto Aker, published by Compute! Books. Reprinted by permission of the publisher.

Rate—interest rate per period for the investment or the loan.

These five functions are interdependent: given the three or four items of information, *Works* can calculate the others. So, if you know how much money you want to borrow, and what the interest rate and length of the loan will be, you can find out the amount of your payments. Or, if you know how much you can afford to pay each month on a loan and what the current interest rate is, you can find out how much you will be able to borrow. With information like this available in *Works*, you can handle your budgeting and financial planning with a few clicks of the mouse.

FUNCTIONS AND ARGUMENTS

Functions are operations that take information you supply, manipulate it and give you an answer. The information you supply (the stuff that goes in the parentheses of a function) are the *arguments*.

Any time a number is needed as an argument, you can substitute any item that represents a number. So, "4+8" is a number argument, as is a reference to a cell that contains a number; a function that evaluates to a number can also be used as an argument.

THE MONEY'S IN THE WORKS

Most functions "return" a number; that is, the cell in which you enter the function will display a number that is the result of the function's calculation.

We'll take a look at each one of the financial functions separately, but first, there are three general rules to observe when using any of the financial functions.

- *Works* uses negative numbers to indicate payments you *make*—an initial deposit in a savings account, or monthly payments on a loan, for instance. Positive numbers are for payments you *receive*—a mortgage or other loan, or income from an annuity.

to stand for the number of months, then Rate must be the monthly interest rate. The Pmt parameter is also in the same unit as NPer and Rate—it may refer to monthly or annual amounts (or any other interval), depending on the NPer and Rate units.

Because interest rates are usually given in terms of the annual rate and you may be concerned with monthly payments, you can make *Works* do the necessary conversions. Just use the annual rate divided by 12 as the Rate parameter in any function argument: "12.5%/12" is sufficient—you don't have to type in "1.04%," and the figure *Works* calculates is slightly more accurate.

If you do not enter a *future* value, *Works* enters a zero for it, as it does for *type*.

The formula may appear in the edit bar with numbers as arguments:

Pmt(9.75%/12,48,9000,0,0)

or, more likely, with cell references as some of the arguments.

Pmt(D2,E2,F2,0,0)

If you know the amount, term and interest rate of a loan, you can determine the payments you will have to make. With annual interest at 9.75%, you'll find that a 4-year, \$9000 car loan requires payments of \$227 a month:

Pmt(9.75%/12,48,9000,0,0)

returns a -227.18 in the spreadsheet. The result is a negative number because it's money you'd be paying each month. Note that the Rate is given as "9.75%/12" to change the annual interest to a monthly rate; the number of periods is given as 48 months rather than 4 years. No future value is supplied in the argument because there is no future value: at the end of 4 years, all the money will have been paid back. The

Using the Abs function on a financial function will turn the negative result into a positive number.

File Edit Window Select Format Options				
A1		=Pmt(9.75%/12,48,9000,0,0)		
Untitled (SS)				
	A	B	C	D
1	-227.18			
2				

File Edit Window Select Format Options				
A1		=Abs(Pmt(9.75%/12,48,9000,0,0))		
Untitled (SS)				
	A	B	C	D
1	227.18			
2				

If you need a negative number to plug into the argument of a financial function, but you're referencing a cell that contains that number as a positive number, you can put a negative sign in front of the cell name: if D4 holds 122, then -D4 represents -122.

When your final answer is a negative number—for the amount of a monthly payment, for instance—and you want it to appear as a positive number in the cell, use the Abs function to do the conversion. Abs gives the absolute value of its argument. For example,

Pmt(9.75%,12,48,9000,0,0)

returns a -277, but you can put the entire financial function as an argument to the Abs function so the answer appears as a positive number:

Abs(Pmt(9.75%,12,48,9000,0,0))

returns a 277.

- In all financial functions, it is important to keep Rate and NPer referring to the same amount of time. If Rate is interest per year, then NPer must be the number of years. Conversely, if NPer is going

= Pmt(9.75%/12,48,9000)



= Pmt(9.75%/12,48,9000,0,0)

Works inserts the necessary zeroes for certain items in financial functions.

- Whenever *type* is available as an argument, you can ignore it unless you want to be really picky. "Type" defines when a payment is made: a type of 0 indicates payments are made at the end of a period, while a type of 1 means payments are made at the beginning of a period. You don't have to fill in the type at all; if you leave it out, *Works* fills in a 0 for you.

THE PMT FUNCTION

The syntax of the Pmt function is:

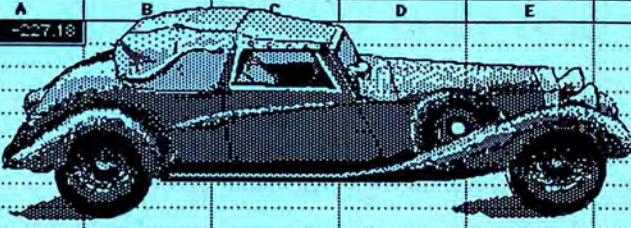
Pmt(rate, periods, present value, future value, type)

present value is the \$9000 loan amount, and it's a positive number because it's a sum you receive.

If, on the other hand, you'd like to figure out how much you have to save each month to get your current \$2000 savings account to reach \$10,000 in 2 years at an interest rate of 6.5%, you would use:

Pmt(6.5%/12,24,-2000,10000,0)

The interest rate is again given as a monthly figure, as is the number of periods. In this example, *present value* is a negative number because it is a payment you make into an account, while *future value* is positive

File Edit Window Select Format Options Chart						
A1	=Pmt(9.75%/12,48,9000,0,0)					
	CarLoan (\$\$)					
	A	B	C	D	E	F
1	-327.18					
2						
3						
4						
5						
6						
7						
8						
9						

You can figure out what your car payments would be before you even talk to the bankers.

because it is, in effect, a payment you'll be receiving.

You'll find that you'd have to save \$302.20 every month—the answer shows up as a negative number because it's money you'd be paying.

THE PV FUNCTION

The syntax for the Present Value function is:

PV(rate, periods, payment, future value, type)

If you don't enter *future value* or *type*, *Works* will enter zeros for those values.

If you know you can spend \$215 a month on a car loan, and the going rate is 9.8% for a 4-year loan, you can find out how much you can borrow:

PV(9.8%/12,48,-215,0,0)
returns 8509, or \$8,509.

The rate and the number of periods are both given in monthly terms; the payment is a negative number because it's money you're spending, and the result is positive because it's money you'd be receiving.

If you want to know how much you should invest now at 12.2% so that it will reach \$30,000 in 10 years, you can use the PV function with 0 as the payment parameter:

PV(12.2%,10,0,30000,0)
gives -9488.39, so you know you can more than triple your money in a decade with this investment.

This investment example shows the advantage of having the financial functions available. You can rough out the same scenario year-by-year with straight math in the spreadsheet, but you'd have to do it in 11 cells, one holding the original investment, and one for each year.

THE FV FUNCTION

The Future Value function is in many ways the inverse of Present Value, and its syntax and usage is similar. The syntax is:

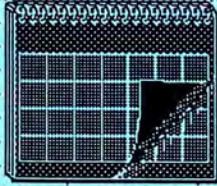
FV(rate, periods, payments, present value, type)

and an example might appear in the spreadsheet as:

FV(.1275,10,A15,0,0)

Present value and *type* can be left out and *Works* will fill in the zeroes.

Say you decide to put aside \$50 a

File Edit Window Select Format Options				
A1		=NPer(1%, -125,5000,0,0)		
<input type="checkbox"/>		Untitled (\$\$)		
	A	B	C	D
1	51.34			
2				
3				
4				
5				
6				
7				
8				
9				
10				

It's easy to figure out how long you'll be in debt if you know how much you're borrowing at what interest rate, and how much you'll be paying every month.

month for your daughter in an account that will earn 8.9% interest. To find out how much you will have at the end of 10 years, use:

FV(8.9%,10,-600,0,0)
and you'll see that you'll have just under \$9100.

You might want to use FV with a present value included in the argument. If you have \$5000 in a special account that is drawing 10.5% interest, and plan to deposit \$100 a month, you can calculate the amount of money you'll have at the end of 5 years:

FV(10.5%,5, -1200, -5000,0)
returns 15,636.63.

Note that the rate, period, and payments are all given as annual figures in this example; and the payments and present value are negative numbers because they are payments you are making. The future value is a positive number because it is a payment you will receive.

THE NPER FUNCTION

The syntax of NPer (number of periods) is:

NPer(rate,payments,present value, future value,type)

Works will fill in *future value* or *type* with a zero if you don't fill it in.

If you want to pay off a 12%, \$5000 loan with monthly payments of \$125, you can calculate how long it will take by using NPer:

NPer(1%, -125,5000,0,0)
returns 51.4

Note that the interest rate is given as 1%, which is the monthly interest rate, since the periods are also months. The payment is represented as a negative number, because it is money you are paying; the present

value is a positive number, because it is money you received. The answer 51.4 refers to the basic unit of months.

THE RATE FUNCTION

The syntax for Rate is:

Rate(periods,payment,present value-, future value, type, guess)

Future value and *type* can be left out, in which case *Works* inserts zeroes. *Guess* is a value that *Works* begins with when it tries to solve the problem; you can leave it out, and *Works* will insert 0.1 (10%, which will work almost all the time.

If you know the initial value of an
(continued on page 172)

Mac marvels,

SOFTWARE

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Type Fonts for Headlines (*req. 512k*) 42.

Layered

Notes...For Excel (*tips & templates*) 42.

Notes...For Jazz (*on-line help DA*) 42.

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Linguist's Software

Tech (*1000 different symbols*) 59.

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LaserGreek 79.

MacGreek/Hebrew/Phonetics 89.

Living Videotext

ThinkTank 512k (*outline processor*) 99.

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MacroMind

M.U.D. (*Art Grabber+, CheapPaint*) 29.

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Natural Sound Effects 27.

Natural Sound Cable & Editor Disk 89.

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McPic - Volume 2 (*req. MacPaint*) 28.

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The Lusher Profile (*personality profile*) 24.

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QED Information Sciences

Typing Made Easy (*instruction*) 36.

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Toshstart (*Toshiba printer driver*) 27.
Laserstart (*Hewlett-Packard Laserjet*) . . . 59.
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ClickOn Worksheet (*spreadsheet DA*) . . . 46.

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Mac Plus to Imagewriter II cable . . . 21.

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Curtis Manufacturing

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Emerald (6 outlets; 6 ft cord) . . . 36.
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MacBuffer 512k . . . 389.
MacBuffer 1 Megabyte . . . 569.

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Smartmodem 1200 . . . call
Smartmodem 2400 . . . call
Transet 1000 . . . call

IOMEGA

Bernoulli Box (dual 10-MB w/SCSI) . . . 1995.
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10 Meg cartridge . . . 51.

Kensington

External Disk Drive Cover . . . 8.
Mouseway (mouse tracking pad) . . . 8.
Mouse Pocket (for your idle mouse) . . . 8.
Mac (Plus) Dust Cover . . . 9.
Imagewriter (II) Dust Cover . . . 9.
Mouse Cleaning Kit w/Mouse Pocket . . . 16.
Universal Printer Stand . . . 17.
Disk Case (holds 36 Mac disks) . . . 19.
Disk Drive Cleaning Kit . . . 19.
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Starter Pack (includes Tilt/Swivel) . . . 53.
A-B Box (specify Mac or Mac Plus) . . . 62.
Control Center . . . 62.
System Saver Mac (complete with fan) . . . 65.

Koala Technologies

KAT Graphics Tablet . . . 139.
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Kraft

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Mirror Technologies

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MagNet 20x External Drive w/cable . . . 939.
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MagNet 30x External Drive w/cable . . . 1095.

N² Products

Mac (Plus)-Printer cable (6 feet) . . . 19.
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It's a relatively minor problem to transfer data from a *dBase* application into a Mac data base because *dBase* allows data to be stored in a variety of standard ASCII formats, which can be easily read and converted by Mac systems. But what about those thousands of lines of *dBase* program code you agonized over — or that someone else, who has since moved to Hawaii, wrote 5 years ago? Who wants to pore through them, figure out what they're doing, and then rewrite them as *Omnis 3* scripts or *Helix* tiles? Nobody in their right mind.

So, is the wait over? Yes, and no. *dMac III* from Format Software, a *dBase III* workalike for the Mac, is a promising new product. It fills a valuable niche in the library of Macintosh software and could be the program to provide this much-needed

bridge. In fact, the target market for *dMac III* is precisely those people who either want to convert an existing *dBase* system, or are fluent in *dBase* programming and want that capability on the Mac. If the data base system you want to create on the Mac doesn't exist yet, and if you don't know *dBase*, you're probably better off with one of the products designed specifically to exploit the Mac's capabilities.

d...

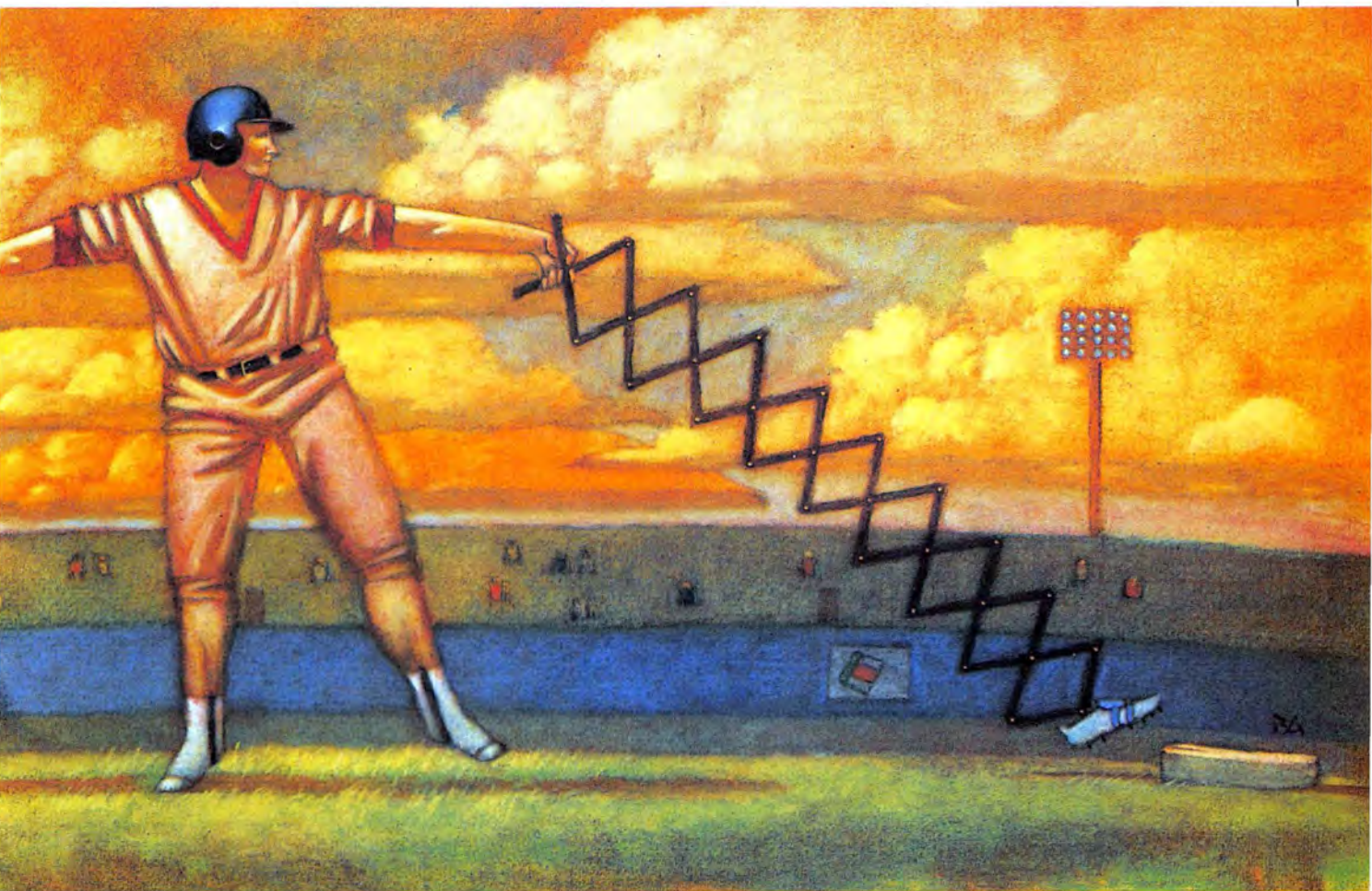
dMac III is designed to allow you to transfer existing *dBase II* and *III* systems directly to the Mac, and run them with a minimum of difficulty. Specifically, .PRG (program files) can be transferred directly; and .DBF (data) files can easily be converted using the *dMac III* CONVERT command; .FMT (report format),

.LBL (label format), .MEM (memory variables) and .NDX (data base index) files must be recreated. None of this presents any serious difficulty—in theory.

A dWORKALIKE THAT WORKS — MOSTLY

To test the theory, I tried converting three sets of data and program files, one each from *dBase II*, *dBase III* and *dBase III +* systems. By far the easiest was the *dBase III* system. I used the sample data and programs from Ashton-Tate's *dBase III* tutorial. They worked. The system didn't crash. It didn't hang up. It didn't lose data. There were a few minor code changes required, but for the most part the transfer was completely straightforward.

dMac III has provided a hybrid user interface. Much of the work of



COVERING dBASES

programming or manipulating data can be done from the Command menu (see Figure 1). The ASSIST command adds an additional menu and dialog box, which make even more *dBase* commands available via the standard Mac interface. But the original command line prompt has also been retained. Some people may dislike this and consider it unorthodox, or unMac-like. I feel exactly the opposite.

While the Mac interface is much more user friendly than PC-DOS, I often prefer to keep my hands on the keyboard and type commands directly. I'm used to the *dBase* command prompt; for me it's more efficient than using the menus. Format is planning to enhance *dMac*'s interface to make it more Mac-like in future releases. That's a fine idea, but I hope they don't decide to eliminate the command prompt in the process.

One nice touch *dMac III* offers is that its *dBase* interpreter presents an error message in a dialog box whenever it encounters an error (see Figure 2). The dialog box shows you the offending line of code, and points to the trouble spot. Unfortunately, it doesn't tell you which of your programs was running when the error occurred, so you may have to hunt a little. Format Software has promised an enhancement that will automatically switch to the editor when an error occurs, with the cursor pointing to the error. It's scheduled for late summer.

An extensive help utility is also provided, which reproduces virtually the entire command and function reference section of the manual as a series of easily accessible screen displays (see Figure 3).

The best thing about *dMac III* is that it is fast. To see just how fast, look at the table. I performed an identical set of COUNT, COPY, SORT and INDEX commands, working from an 800K floppy, an HD-20 and a RAMdisk. My file contained 1230 records of 225 bytes each. While I don't have specific comparison figures for *dBase II* or *III*, the speed of *dMac III* is more than satisfactory. A hard disk provides significant improvement over an 800K floppy. Likewise, a RAMdisk

provides significant improvement over a hard disk, but *don't* put your data files on a RAMdisk — it is too easy to lose them there.

dBUGS

A serious bug in the program presented itself during these time comparisons. When indexing, *dMac III* creates an index file separate from the data base file itself. If there isn't enough room for this second file on the disk, an error message appears, and you are invited to click on the OK button. But when you do, nothing happens. In fact, nothing further happens until you turn off the machine and reboot.

Until this bug is fixed, don't attempt to index unless you are certain there is enough free space on your disk to handle the index file. How do you know how big your index file is going to be? You don't. When you estimate, err on the side of caution. And if you were planning to ignore the earlier warning about putting your data on a RAMdisk, reconsider.

dCISIONS, dCISIONS...

Converting *dBase II* and *dBase III+* systems presented more difficulties. Ashton-Tate made some major changes to the *dBase* programming language going from *II* to *III*. The functions work differently, the screen-clearing command was changed, string handling was modified — and the list goes on. Each of these changes requires changes in your code. Just how much changing depends on how much you rely on the parts of the language that were modified.

Fortunately, since all of the functionality of *dBase II* is present in *dBase III*, converting *dBase II* files requires a fairly simple, albeit tedious, task of substitution. However, despite the fact that the data conversion command refers to both *dBase II* and *III*, Format offers absolutely no information on the differences between *dBase II* and *dMac III*.

I had similar problems converting from *dBase III+*. Here, I again used the Ashton-Tate tutorial samples. *dBase III+* presented additional problems because it provides functionality that has no counterpart in

dMac III. Portions of *dBase III+* code either have to be deleted or implemented in another way. *dMac III* lets you know the problems are there by generating errors. But again, Format Software should have, and didn't, provide any information about what to look out for.

A more serious problem with the *dBase III+* conversion was that the cursor got hopelessly hung up in certain data fields that used the PICTURE command. I still don't understand why. The code didn't generate any errors, but there was no way out of one particular field except the reset switch. After two or three reboots, I gave up.

I believe that most of these problems can be worked around or lived with. Conversions always require some hacking. It's part of the cost of progress. And Format seems seriously committed both to working out bugs in their code and to enhancing the product. I still remember how *Helix* worked when it first came out....

WHAT'S dPROBLEM?

There is one area in which *dMac III* flunks—documentation. Not that there isn't a lot of it. There is, including a tutorial, a reference section with information on all the commands and functions, a full set of on-line help screens and a series of appendices. Unfortunately, it is both inaccurate and inadequate.

For starters, the *dMac III* documentation is a translation from German to English (the program was developed in Germany). At times this is amusing. But technical writing must be very precise. Getting a rough impression of how something is supposed to work isn't good enough. For example, the Tutorial, in the context of discussing how to display different columns of data on the screen, talks about "drawing the borders of the output." You might expect to learn how to display a box around the data, but instead it's a lesson on how to narrow selection parameters for a query. It's confusing, and it could have been avoided by applying the talents of a good technical writer to a solid edit of the translation.

Moreover, the tutorial that came with the version I tested, 1.06, had so many errors in it that I found it easier to learn the program by playing around with it myself. For example, during a discussion of entering new data with the Append command, the tutorial tells you to type a COMMAND-S to save the current record and leave the Append mode, or COMMAND-A to leave it without saving. It doesn't work that way. Instead, COMMAND-S takes you to the next record. Only COMMAND-A gets you out. You can't save the current record and leave the Append mode directly. You first have to go to a blank record, and then use COMMAND-A.

Some crucial information is also completely missing. All *dMac III* programs have file names that end with ...DBF, ...PRG, ...FMT, etc. Not too tough, right? But those three dots are not periods. They are the elipsis character, created by holding down the OPTION key and typing a semicolon. If you name the files the way you'd expect to, with three periods, *dMac III* will tell you

it can't find your files. There is no warning about this.

The tutorial also informs you that "the editor is built in." In addition, there is an appendix devoted to how to use the editor. But they're not talking about the same editor. There's an internal one and an external one. You don't get told about that. It gets better: suppose you edit a program file with the internal editor (faster), and later in the same session you use *Switcher* to work on the same file with the external editor (more powerful), dutifully saving your changes to disk when you're done.

When you try to run your program, *dMac III* will use the last version you created with the internal editor and ignore the changes you made externally. It does this because, in the interest of speed, as much information as possible is stored in memory, including your programs and data. Unfortunately, memory doesn't get informed when the external editor saves a newer version of a program to disk. So you make changes, which you can verify by

closing and reopening your program file with the external editor, but you keep getting the same errors over and over again. The only way out is to push the reset button and start again. This is a bug that deserves immediate attention. If there are going to be two editors, the user should be informed about what type of work each is best suited to, and should definitely not have to reboot to switch from one to the other.

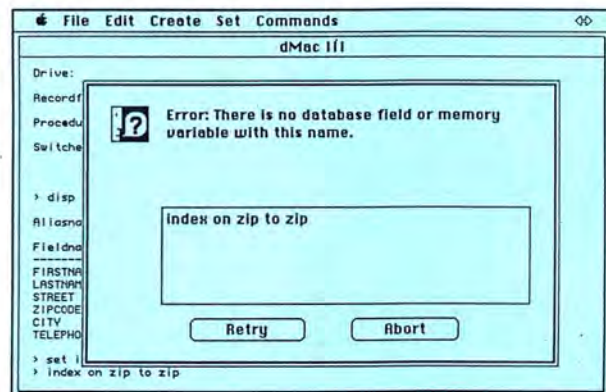
Putting the tutorial aside and given that the most likely user of *dMac III* is someone who is converting from *dBase*, it's fair to assume that moving your files into *dMac III* will be thoroughly covered in the documentation. Foiled again. There are eight appendices listed in the Table of Contents, including one entitled "Tips on Data Transmission." But only two of the eight were present, and "Tips" wasn't one of them. Instead, there were six pages that read: "This Chapter is missing in this version. You will receive it with the update."

This omission, coupled with the flaws in the tutorial, makes the documentation package decidedly unprofessional. The user should be taken, step by step, through the conversion process, with all the potential pitfalls pointed out. There should be an explanation of data transmission, cable pinouts and a list of "what ifs." A precise strategy for how to convert or recreate all the different types of files in a *dBase* system should be presented. The differences between *dBase II* or *dBase III* + and *dMac III* should be exhaustively explained—or, at the very least, a list of secondary references should be given. None of this is done.

Fig. 1: The Command and Assist menus, together with the Assist dialog box (partially shown in the background), provide the user with a powerful Mac-like interface to the most commonly used *dBase* commands.



Fig. 2: A dialog box provides detailed information about the nature of syntax errors in *dMac III* programs. However, it does not tell the user in which program the offending line was found.

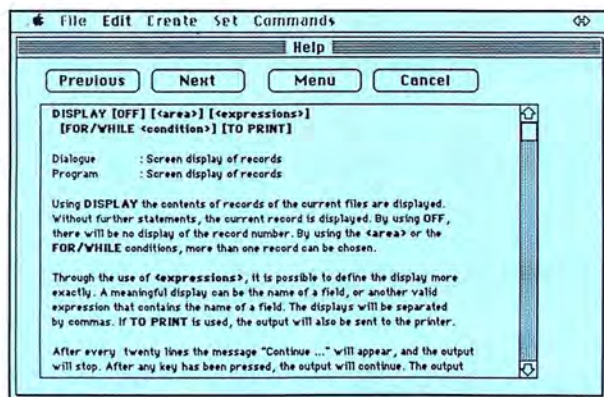


MAKING dCONVERSION

Fortunately, the technical aspect of converting files is not very difficult. Here's what you need to do. Before you start, print out all of your .MEM, .FRM and .LBL files. Then, for each .DBF file, open all its indexes and type DISPLAY STATUS TO PRINT. You'll need all this stuff later. Then, hook up a the serial port of a PC to the Mac's modem port using a null modem cable, set the baud rate, transfer protocol, etc., and send all

COVERING dBASES

Fig. 3: All of *dMac III*'s commands are thoroughly explained in its on-line help facility. One example is shown here.



of the .DBF and .PRG files straight across.

I used three different programs to do this: *MacLink*, *PC to Mac and Back*, and a combination of *Microphone* (on the Mac end) and *IMP* (running on an Apple IIe CP/M system). They all worked. If you're not sure how to do this, ask someone who knows. The folks at Format Software will walk you through it.

The second step is cleanup and renaming files. The .DBF files need to have their .DBF extensions deleted, and then each of them needs to be CONVERTed in *dMac III*, which will automatically append the new ...DBF extension. You will have to manually change the .PRG (or .CMD) files to ...PRG files (remember, use OPTION-SEMICOLON for the ellipsis!). This is most efficiently done on the desktop.

Both *MacLink* and *PC to Mac and Back* left garbage characters in the .PRG files. These are line feeds that didn't get stripped out during transmission. They appear as rectangles at the beginning of each line. They're harmless; the programs will run even if they're there. But if you want to get rid of them, you can do so easily with a search and replace in the external editor.

Now refer back to the files you printed out earlier. Using them, you will be able to manually recreate your .FRM and .LBL files in the editor. Memory variable values can be entered directly at the *dMac III* prompt, and the SAVE TO command will create the necessary ...MEM files. Finally, recreate all the indexes, using the information you printed out with DISPLAY STATUS as your

guide to which key fields to use. Then run your programs, and correct any errors that occur.

ABOUT dSYSTEM

These days there are so many configurations of Mac hardware and system software around that some qualifications are in order. I used *dMac III* on both the 512K and the Mac Plus, with both 400K and 800K drives, and both with and without an HD20. I was running *System* 3.1.1 with *Finder* 5.2. None of these variations caused a problem. However, a few points are worth mentioning—specifically, version 1.06 is not fully HFS-compatible. It will run on HFS, but the application and all of your data, program and other files have to be in the same folder. The next release is supposed to cure this problem.

The program is memory hungry. It wants 512K and will gladly take more if it's available. This means that it's not practical to use it under *Switcher* with anything less than a Mac Plus.

dMac III appeared to be *Switcher*-compatible (I gave it 640K), but I had trouble switching it with the external editor, *MDS Edit*. In fact, as soon as I typed a character in the editor's text window, the menu bar started flashing and the system hung. Several times. Other editors I loaded with *dMac III* under *Switcher* worked fine. (Make sure, if you use *MacWrite* or *Word*, that you save your program files as Text Only.)

As the deadline for this review approached, Format Software was promising upgraded software and improved documentation free to all

registered owners. The software, they said, was in hand, the documentation at the printer. They sent me several revised pages of the tutorial, and they appear to have at least corrected some of the grosser inaccuracies. By the time you read this, many of the problems I refer to may have been solved. Still, those who use an early version of the program will have a pretty rough time—and without seeing the complete set of new documentation, it's hard to say how much better it will be.

dEND

Overall, I would say that if the lack of a *dBase* product on the Mac has kept you from leaving Big Blue for the Apple orchard, you can stop waiting. *dMac III* can do the job. This is particularly true if you are converting from *dBase III* to *dMac III*. However, be aware that it is not bulletproof, and back up frequently.

If you're planning to convert a *dBase II* or *dBase III* + system, you're in for an adventure. I suspect that anyone who has programmed in *dBase* is used to adventure. But don't say no one warned you.

For the faint-hearted, I'd say wait a while longer. Format has said they are committed to fixing and enhancing their product—the documentation as well as the software. For \$495, you have a right to a product that not only works, but is easy to use. ☐

Henry Bortman is a San Francisco area writer.

DMAC III

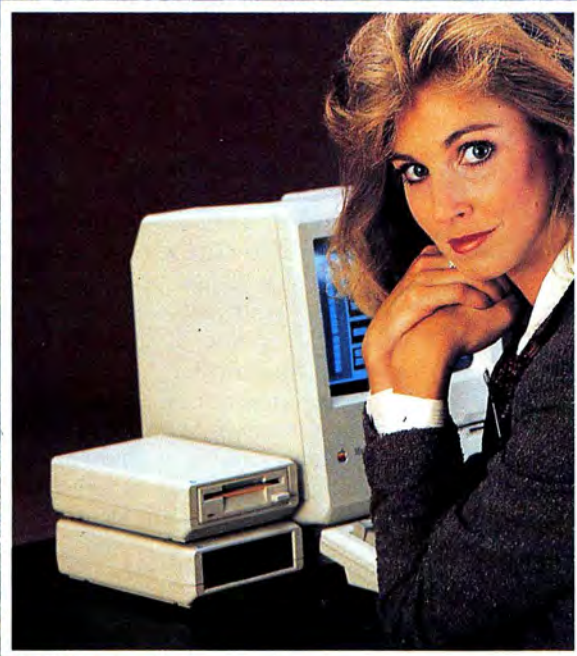
Overall Rating

Follows Mac Interface
Printed Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: Much-needed *dBase III* work-alike, but still needs work. **Best Feature:** Fast. Good hybrid of Mac and command line user interface. **Worst Feature:** Poor documentation, program still buggy. **List Price:** \$495. Published by Format Software, 11770 Bernardo Plaza Ct., San Diego, CA 92128. (619) 487-6946. Version 1.06 reviewed, Copy protected.

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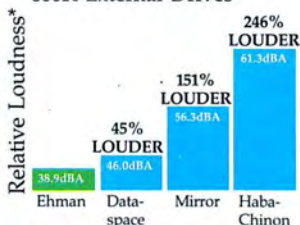


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BRINGING PAGEMAKER TO LIFE

BY PHILIP C. RUSSELL

***Make PageMaker into the creature you always
wanted to command.***

PAGEMAKER IS THE MOST IMPORTANT piece of software for many desktop publishers. It's usually described as vital. And it does provide enormous publishing power for even the smallest operation. But for every happy and productive *PageMaker* user, there seems to be an unhappy and frustrated owner. Many people start out loving *PageMaker* and end up frustrated. While it's very easy to get started in *PageMaker*, the ease of use is deceiving. Once you start plumbing the program's depths there are going to be problems. That's a promise, not a prediction! However, there are tricks, shortcuts and no-nos that will help all users, from the rankest beginner to the most advanced "pro."

Some of these tricks are buried away in that big manual, some are not. Everyone out there who didn't know that you can toggle from any other view to 200% view with COMMAND-OPTION-CLICK, raise your hand. That one is in the manual, as is the COMMAND-CLICK to toggle back and forth between Actual view and Fit on Page.

THE PRICE OF FANCY

Sooner or later, some other problems will crop up, as you get a little fancier in your layouts. Here's one for LaserWriter users. Do you some-

times wish you had a little more room on your disk to work with? Those laser drivers and prep files sure do take up a lot of space. Open up *Font/DA Mover* and look and see if you have all the sizes of each LaserWriter font in your *System*. They're simply not necessary. Unlike the *ImageWriter*, the *LaserWriter* knows how to make every size of every LaserWriter font. It doesn't require each size in your *System*. Try removing all but one small size of each LaserWriter font you will be using (Figure 1).

The end result will be that the on-screen appearance of those sizes not in the *System* will be rough, but the *LaserWriter* output will be letter perfect. And you'll have lots more room to work with.

OVER AND OVER

Do you always reenter your favorite margin settings in the Page Setup box? If you use the same settings time after time, pull down Page Setup from the gray desktop and make your selections there. You can also pull down Preferences from there and specify picas and points instead of inches, if you prefer. These choices, made from the gray desktop, will become your default choices every time you open up a new *PageMaker* document.

Of course, another way to do the same thing is to establish blank template documents with all your preferred settings, plus a starter page with your column rules. Open this template and choose Save As... to begin each new job.

Perhaps you have typed or imported (Place command) text into a 20-pica column (Figure 2). A little later you decide the column has to be 14 picas wide — or 24 picas wide. Do you have to retype or reposition the text to make it conform to your new column width? No. Just "roll up" the windowshade until no text shows (Figure 3).

Now set your new column width. Then click on the + sign on your rolled up windowshade and pour the text between your new column margins. Just pour your text into the 14-pica column (Figure 4), or the 24-pica column (Figure 5) or any other size column you want to pour it into.

BORDER MATTERS

Have you ever drawn a nice box to border an advertisement, announcement or other block of text? When you started typing text into the box, the box obscured part of the first letter (Figure 6A). If you attempt to remedy this situation by moving the entire windowshade, you'll never get your document to print out just right. The correct procedure is:

1. Draw the box in the correct location.
2. Now move your margins in from the left and right to indicate an area for the text.
3. Place or type text between your newly located margins.

The result is seen in Figure 6B.

STANDING OUT

White text on black backgrounds looks nice. However, if you have ever tried "grabbing" either the text or the black box to move it a bit you've run into problems. The best solution is to make the box a little too wide or too high (Figure 7). Now it's easy to grab it if you need to move it. When everything is just right, reshape the box to its exact size.

Another way to make changes in shapes beneath text is to roll up the



BRINGING PAGEMAKER TO LIFE



Fig. 1: Reduce your System to only one small size of each font.

windowshade halfway into the shape. Now you can grab the shape and move it. When you are finished, pull the windowshade down again (Figure 8).

LIFE AIN'T ALWAYS WSYIWYG

What you see is not always what you get. One way to goof in *PageMaker* is to take your last "look" in other than Actual View. The text in Figure 9 looks as if it is not justified. But it is. If you look at it in Actual View, you will see that it is all right.

Another common mistake made by new users of *PageMaker* is creating too many blocks of text (Figure 10). The fewer blocks of text you have in your document, the easier it is to adjust when needed.

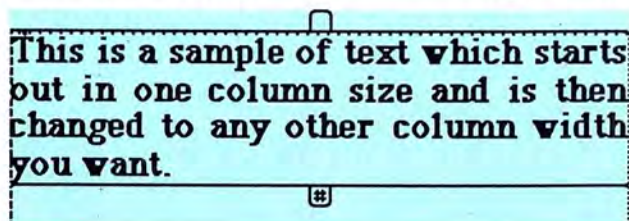


Fig. 2: Start out with a 20 pica wide text column.



Fig. 3: Start your resizing by "rolling up" the windowshade.

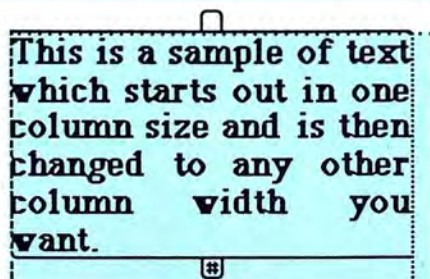


Fig. 4: Set a new column width and pour in the text. This column is 14 picas wide.

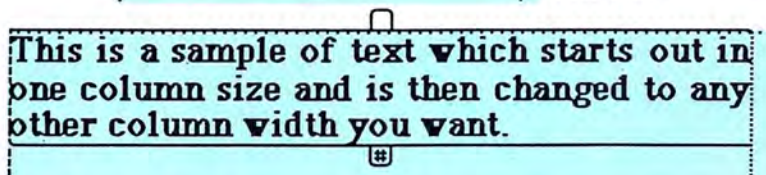


Fig. 5: This column is 24 picas wide.

This line of type is partially obscured by the box.

This box is 16 picas wide. The boldface type above was typed without moving the column rules.

Fig. 6: A. The border often obscures text.

This line of type is not obscured by the box.

This box is also 16 picas wide, however, after drawing the box, the column guides were pulled in one pica on each side before text was typed into the box.

B. The fix.

Ah, you say, but I need this text larger and flush right, and then this text small and centered and then this text on and on.

That's all right! Use the Tab... command to put things where you want them. Anything you highlight immediately prior to a Tab... command will be affected by the tab stops you set — no more, no less.

The other tool you can use to keep all text in a single block is the series of Flush Left, Right, Centered and Justified menu items. Highlight the lines you want to change and use one of these menu items.

Never, never, never do your positioning with the spacebar. The results are guaranteed to be poor.

Try not to do your positioning by

moving windowshades around. It is much better to set the margins in the correct location, close the windowshades, click on their + signs, and pour the text between the newly placed margins.

BIGGER AND BETTER

The *PageMaker* manual says you are limited to 127-point type. There's a way around that. Type your letter(s) in *MacDraw*. Save the image as a PICT file. Import this image into *PageMaker* using the Clipboard or the Scrapbook. Then grab a corner and stretch to your heart's content. If you simultaneously hold down the Shift key, the letter(s) will remain proportional. For special effects, stretch in any



Fig. 7: White on black text can be very hard to grab.



Fig. 8: But not if you make the box a little too high or too wide.

Fig. 9: This text is actually justified. Only an Actual Size view shows exactly what will print.



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BRINGING PAGEMAKER TO LIFE

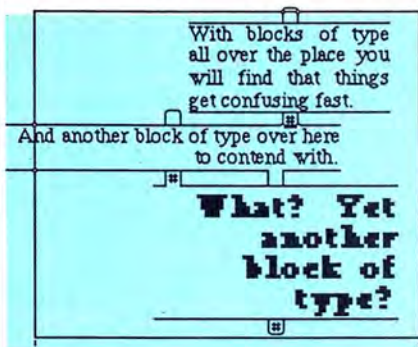


Fig. 10: Too many type blocks make the job much harder.

direction without using the Shift key. In any event, the LaserWriter output will be as smooth as any other LaserWriter font output.

BETWEEN THE LINES

Another common problem is leading. Leading is the space between the bottom of letters like y and g and the top of the capital letters on the next line. When you type or Place text in *PageMaker*, the leading is automatic. But if you require more space between lines (to fill a certain space) or less space (to fit more material in), the leading must be changed.

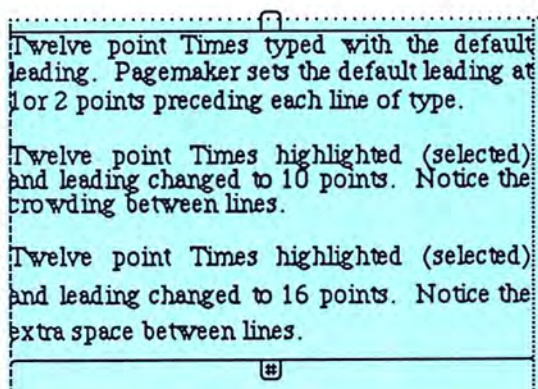
Changing leading is simple. Highlight the lines which need more or

Leading:

16 Points
☐ Auto leading

Fig. 12: You don't have to accept the programs leading. Set whatever you want.

Fig. 13: The amount of leading makes a big difference in the final appearance. You will probably have to experiment to see what works best.



less leading. There are many ways to select text:

- Hold down the mouse and sweep through it.
- Click the cursor at the start or end, and shift-click at the other end of the selection.
- Double click on a single word to select it.
- Triple click anywhere in a line to select it.
- Command-click anywhere in a paragraph to select it.
- Command-double-click anywhere in a text block to select it.
- Click with the pointer anywhere in a text block to select it.

Once all the lines that need new leading are selected, use COMMAND T to get into the Text Specification dialog box. Double-click on the word AUTO and type in the number of points of leading you want (Figures 12 and 13).

TAB ISN'T ONLY FOR DIETERS

Many *PageMaker* users have never used the Tab... menu item. If you tab text in *MacWrite* or *Word*, you may have never needed to use *PageMaker's* Tab... tool. But if you have attempted to Place heavily tabbed text in *PageMaker* and then reduce

the point size to less than 9 points, you surely have run into some tabbing problems. Get acquainted with the Tab... tool now, not when a deadline is approaching (Figure 14).

The first time you have to Place a tiny table with six tabs in a 14-pica column and change the type size to 5 points, you will learn in a hurry. If you don't think so, just try it. Type some multi-tab columns in *MacWrite*, PLACE the material in *PageMaker* and select Tab.... The *PageMaker* manual addendum for version 1.2 is the best source of Tab information.

Finally, we know the Macintosh owners like to boast that "I never even had to read the manual." That's nice. But for 90 percent of us, reading and rereading manuals will help. This is particularly true of *PageMaker*. You will learn something useful if you read the manual. I guarantee it. And if you read it when you got *PageMaker*, browse through it again now. Most of you will "discover" something that will help you.

Philip C. Russell of Waldport, Oregon is the editor of *Mouse Droppings*, the superb journal of the Macintosh Users Group of Corvallis.

127
 127 point Palatino

BIG

Palatino text imported as PICT document from MacDraw and stretched with the Shift key held down to retain proportion.

BIG

Palatino text imported as PICT document from MacDraw and stretched without the Shift key held down.

Fig. 11: There's no limit on type sizes.



Fig. 14: Use *PageMaker's* own tabs, especially with small type sizes.

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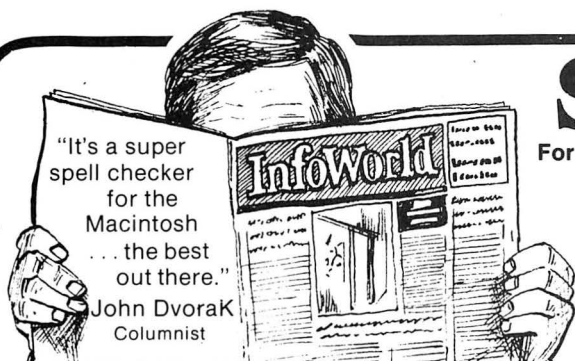
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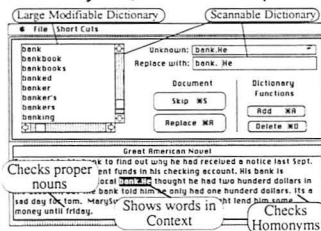
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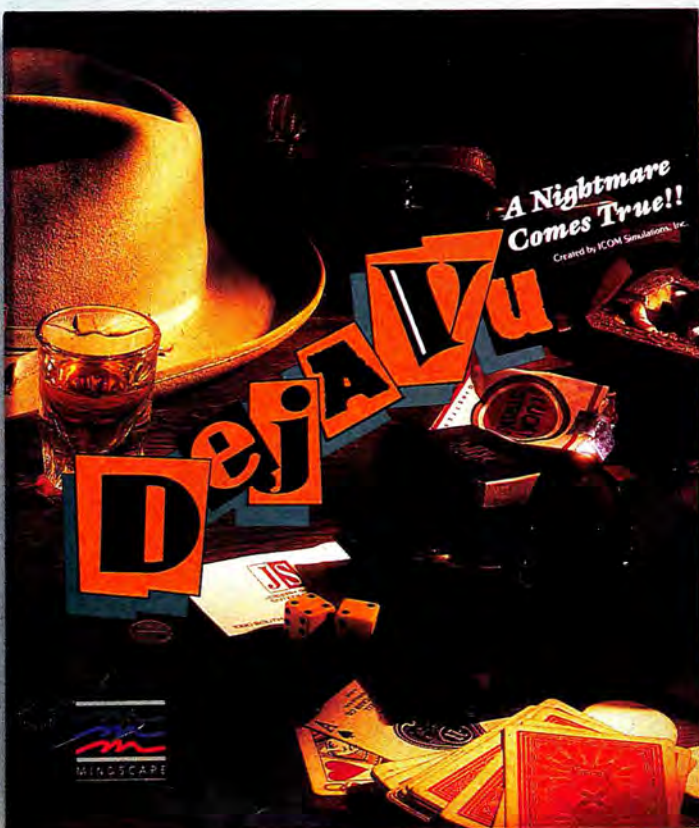
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BY CARLOS DOMINGO MARTINEZ

DISSECTING CRICKET GRAPH

*Drawing conclusions is
easier with good
charts, and Cricket
Graph's are among the
best.*

LUDTKE

EVERYONE KNOWS THE SHORT-comings of "raw" data. Disorganized collections of facts and figures may contain a lot of useful information, but it's hidden by its surroundings. Even after data has been "cooked" for many hours over the low fires of a spreadsheet, its meaning may still be obscured.

Graphs and charts can provide a solution. By reconstituting your figures into graphic images, their significance can be brought into sharper focus. And the visualization of data is a powerful analytical tool. Graphic representation can impart both form and substance to data, helping to define its meaning and discover hidden relationships.

Cricket Graph Science and Business Graphics is both an excellent graph and chart generator and a useful data analyst. *Cricket Graph* can accept data directly entered via the keyboard, or imported from a spreadsheet or data base.

IF YOU START ME UP...

Cricket Graph comes on two 400K disks. One disk holds the program and sample files, while the other has the System software and some device drivers for several plotters, version 4.4 of the *Switcher* program, and a "Switcher Set" file that launches *Switcher* and loads *Cricket Graph* automatically. Note that version 4.4 of *Switcher* is not HFS-compatible, but at the time of production was the "official," releasable version. Now that Apple has released *Switcher* version 5.0, we expect that *Cricket* will be including that version in newer packages.

Cricket Graph requires a 512K or larger Mac. Both disks are needed to get started, so a two-drive system is essential. On a Mac Plus or on an Enhanced or upgraded 512K Mac with 800K drives, you can simplify the issue by transferring all the files on to one disk.

FIGURE IT IN

When you open *Cricket Graph* the first screen shown is the Data Entry window. This window allows users to enter data in a row/column spreadsheet-like format that can grow as large as 40 columns by 2700

rows, depending only on the amount of memory available. Either text or numbers may be entered into the columns, with new columns and rows automatically being created and numbered by the program as they are needed.

Cricket Graph columns may not be resized, but the program permits entry of up to 15 characters per cell. Within each column, editing functions may be performed in the same fashion as in *MacWrite*. Scroll bars permit movement within the Data Entry window and clicking on the "Home Box" at the upper left corner below the Close Box will speed you back to row 1, column 1.

Cricket Graph also supports multiple data windows. However, to create a graph from a particular data set, its window must be clicked.

INSIGHTFUL IMAGES

To begin the transformation from numerical data to insightful images, pull down the Graph menu. Twelve graphing and charting possibilities are available. You'll find the common bar, line, column and pie charts, as well as the less common scatter, area, stacked bar, stacked column, polar, double Y, and quality control (QC) charts. Also included here is a text generation option.

Selecting a chart option brings up a dialog box that leads you through the creation of the graph itself. The type of plot being created is displayed in the upper left of the dialog. The items that users must attend to are the variables. Choose them from the two smaller windows (with vertical scroll bars). Your options are determined by the type of plot to be produced. Once your choices have been highlighted, click on the New Plot control button and begin the generation of the graph. Usually within seconds (this program is *quick*), the chart is displayed in its own window.

There's no dynamic link between the plot *Cricket Graph* creates and the data from which it springs. If you return to the Data Entry window and change a variable, the change is not automatically reflected in the Graph window. If you want to change the plot of the data in a

graph, you must alter the data in the Entry window and plot the graph again. However, the extraordinary number of cells (for a graph generator) available in the Data Entry window means that *Cricket Graph* can plot several times more data points than other programs.

The image produced by *Cricket Graph* represents the program's best guess as to how the graph should look. But each of us will have his or her own idea as to how the data may best be represented. Once a graph is created, altering it to suit your taste or changing it to a more expressive guise is literally as easy as pointing and clicking.

Everything on a graph can be customized on the spot. A single-click on any label allows you to drag it to a more pleasing location. A double-click on a label opens a dialog box in which the font, its size, and the orientation of the label may be altered. A double-click on a vertical or horizontal scale opens a dialog that facilitates the recalibration of the chart. In each case, clicking OK in the dialog box returns you to the active window.

If you are still unsure as to whether your changes present the best portrait of your data, simply save this graph and start again. With *Cricket Graph*, saving is *extremely* important because closing an *unsaved* Graph window wipes out all the work done on that graph. You don't get any warning. You're *not* asked if you want to save the changes or for that matter, the graph. The graph simply disappears and can't be recovered. There is no Undo for a closed graph. The data, however, stays intact in the Data window, and so the graph could be recreated, but you'll have to make all the changes again. This "feature" will be fixed in future versions.

Another saving possibility is to just save the format of the graph by choosing SAVE FORMAT from the Formats menu. These "graphic macros," as they are called in the *User's Guide*, consist of all the instructions needed to create a graph. Customizing work is included in the format; only the data is left out. A dialog box asks you to name the Format and

DISSECTING CRICKET GRAPH

adds it to the list available in the Formats menu.

The many options available in *Cricket Graph* and the ease with which they can be invoked gives users a great deal of flexibility. Look at the double Y graph shown. It illustrates the relative popular vote performance of the major parties. This sort of graph can bring new and different insights. And it (and the other types) are so easy to create that you'll find yourself looking at your data in many different ways, often viewing alternatives you would never have otherwise considered.

MORE PRESENTABLE PRESENTATIONS

The graphs and charts generated by *Cricket Graph* are uniformly excellent, with a crisply defined professional look. However, more enhancements are available.

The easiest way to add pizzazz to your graphs is to pull down the Goodies menu, from which a number of interesting and useful options are accessible. You'll often want to Add Depth. This selection trans-

forms a normal "flat" image into a more interesting three-dimensional graph. You might want to add error bars on both the X and Y axes and add value labels, such as percentages, of each section of a pie chart.

The Show Tools selection gives you the opportunity to add emphasis to your images with a number of arrows and frames that may be used to set off important elements of the chart. Switch Axes provides a quick way to change the overall look of the graph by rotating its orientation. This command can, for example, change a bar graph to a column graph without having to begin again. And, if after all this adornment, you find your image too cluttered, the Goodies menu also allows you to simplify your graphs by selectively removing such elements as the legend, the frame surrounding your plot, or the value labels.

The Goodies menu also unlocks the color capabilities of *Cricket Graph*. Just because your Mac can't display color doesn't mean your printer or plotter can't produce a

rainbow. The Show Colors selection toggles on the color palette. Clicking once directly on an item in a graph will highlight the color currently assigned to this item. A click on another color on the palette will change the assignment for that item. Virtually anything that is displayed on a *Cricket Graph* can be assigned a hue for polychromatic output on printers and plotters. Finally, even more embellishment is possible if the images created with *Cricket Graph* are moved to *MacPaint* or *MacDraw* for further body-and-fender work.

NOT JUST ANOTHER PRETTY FACE

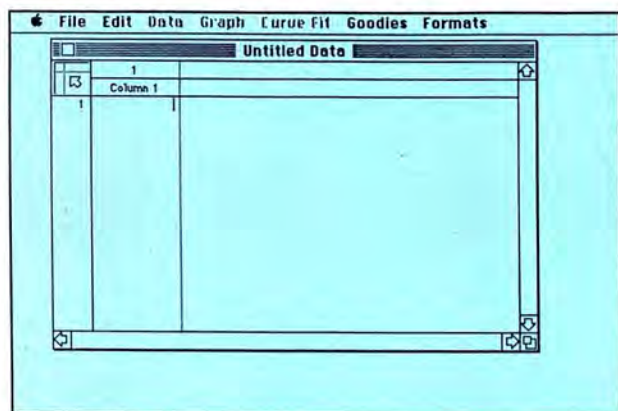
Charts and graphs are not only vehicles for conveying information; they're also analytical tools. *Cricket Graph* has more analytical capability than can be found in virtually any other microcomputer-based graphing package.

Even before you begin to create graphs, the Data menu gives you access to some sophisticated tools for data manipulation. The Sort command allows users to reorganize the data in an Entry Window column. Sorts can be made in alphabetical, ascending or descending order, preserving the order of tied (linked) values. The Recode command permits you to change the value of any variable within a specified range, replace it with another, and place the recoded data in a separate column.

The Transform command performs a variety of mathematical calculations. Exponentials, running sums, percentages, standard deviation, Z scores, as well as, n^{th} derivatives, X^n power, sine, cosine, and logarithmic computations are possible. The results of these functions may, in each case, be delivered to a target column. Simple Math and Count Frequency commands are also available.

The Smooth command averages out irregular data, making for less confusing plots. Taken all together, these features give the *Cricket Graph* Data Entry window the capabilities of a mini-spreadsheet.

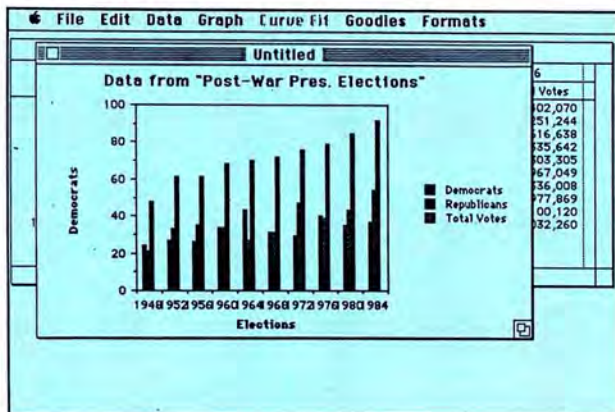
Curve Fit allows users to calculate and draw simple, polynomial, logarithmic and exponential regression curves on graphs. Also available is a



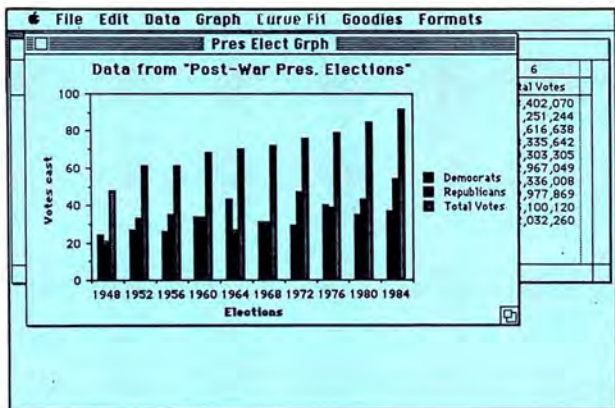
An empty Data Entry window is the starting point for *Cricket Graph*. As data is entered, more columns and rows are automatically created by the program.

Post-War Pres. Elections						
1	2	3	4	5	6	
Elections	Democrats	Republicans	3rd Party	Others	Total Votes	
1 1948	24,105,812	21,970,065	1,157,172	1,169,021	48,402,070	
2 1952	27,314,992	33,936,252			61,251,244	
3 1956	26,031,322	35,585,316			61,616,638	
4 1960	34,227,096	34,108,546			68,335,642	
5 1964	43,126,506	27,176,799			70,303,305	
6 1968	31,275,166	31,785,480	9,906,403		72,967,049	
7 1972	29,170,774	47,165,234			76,336,008	
8 1976	40,828,929	39,148,940			79,977,869	
9 1980	35,481,435	43,899,248	5,719,437		85,100,120	
10 1984	37,577,185	54,455,075			92,032,260	

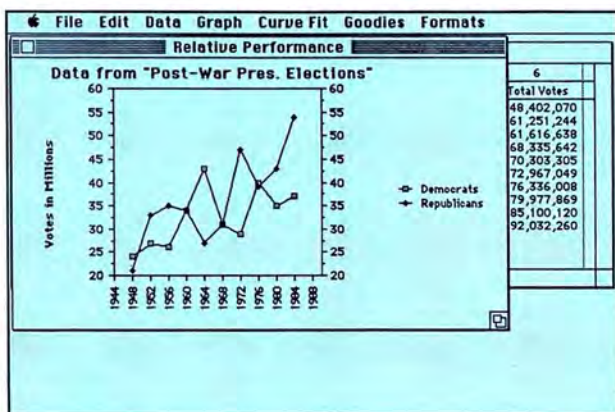
A Data Entry window with figures representing the popular votes cast in presidential elections. This data serves as the basis for all the graphs shown here.



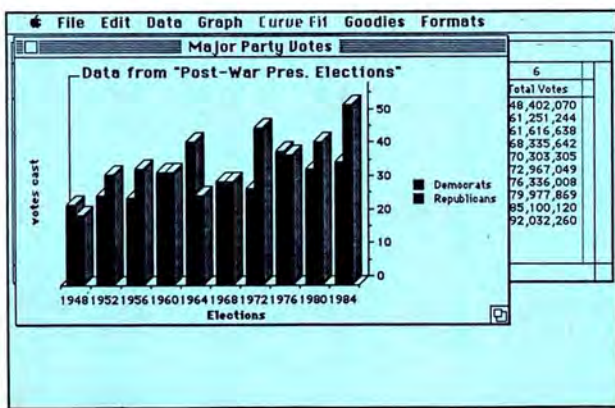
Cricket Graph's first try at graphing data is sometimes less than perfect. Pointing and clicking on the image itself will allow users to change a label of the Y scale, move a legend, and enlarge the graph to better accommodate the election year labels on the X scale.



A little nip and tuck works wonders. The same graph of election data altered for a better fit.



A double Y graph, illustrating the relative performance of the major parties, plotted from the same data. Cricket Graph allows you to view the same data in a variety of ways.



The Add Depth option from the Goodies menu adds a three-dimensional look.

Stineman Interpolation routine, which differs from an ordinary regression curve in that it plots through all the points in a graph. Whenever a curve is fitted to a graph, its underlying equation is shown at the top of the graph. This equation may be included with the graph, moved about like any other label, or be deleted entirely from the image. Once plotted, any of these curves can be erased without disturbing the rest of the graph by using the REMOVE option.

IMPORT/EXPORT

Cricket Graph accepts data from a variety of sources and, conversely, both the graphs and data sets generated with Cricket Graph may be easily moved to other programs. Data saved by Cricket Graph is stored in a standard text file format. The data is stored by rows. Tab characters separate the columnar entries, and a carriage return separates each row of information. Transferring these files to other programs that accept text files is a straightforward process.

Import and export of small amounts of data can also be done using the Clipboard. Bringing in larger data sets, however, is more efficiently accomplished by importing the entire file directly. Cricket Graph can read files stored in either text or SYLK format, but it must be "forced" to do so. "Forcing" here simply means that the icon of the data file and that of Cricket Graph must both be selected and then opened together.

Data from other sources (mainframes, minis or other micro systems) can be telecommunicated to your Mac. If these ASCII text files do not arrive in the necessary columnar form, transfer the material to an editor or a word processor first to add the proper tab and carriage return characters, and then bring the information back to Cricket Graph.

Exporting the graphs and charts created in Cricket Graph is also a simple process. Programs that accept bit-mapped graphics, such as MacPaint, or MacWrite, can only receive Cricket Graph output via the Clipboard or the Scrapbook. For programs that employ the PICT format

DISSECTING CRICKET GRAPH

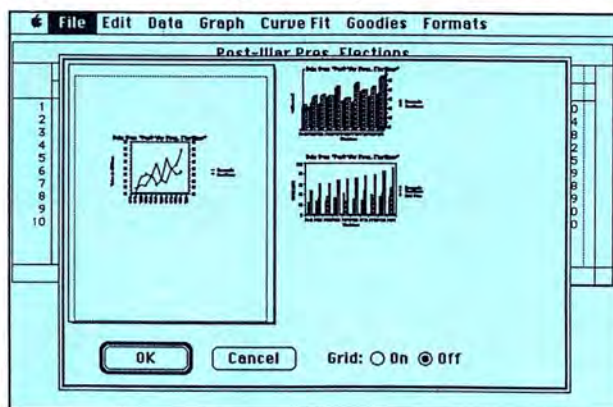
(such as *MacDraw* or *MacDraft*), *Cricket Graph* allows you to store your graphs in this format when you save them to disk.

GET IT IN WRITING

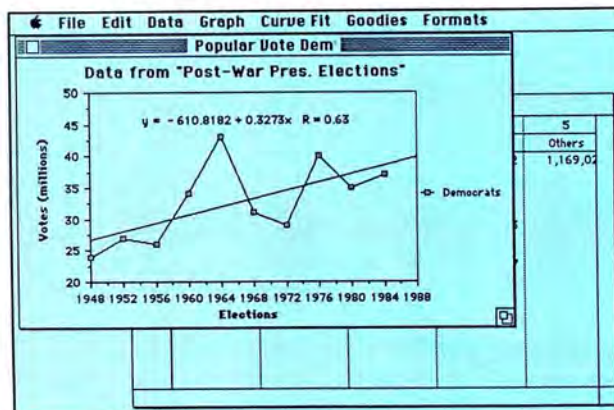
Since it is so easy to move *Cricket Graph* images to other programs, printing the graphic results will often take place in a different application. However, sometimes full integration within another document is not only unnecessary, but undesirable. At those times, the simple, but more than adequate, page composition capabilities of *Cricket Graph* will seem invaluable. When you select the PRINT or PLOT option from the File menu, you are presented with a Page Layout window. This window displays a scaled-down image of the page about to be printed with a miniature version of the graph in the forwardmost active window superimposed on the page. Any other graphs on-screen (possibly buried several windows down) are also displayed alongside the page shape. All the available graphs may be moved on or off the page, resized, or overlaid one atop another. If you have created more than one version of a particular graph, the Page Layout window will allow you to see how the different versions will look with each other. When the page is composed, clicking OK begins the printing or plotting process. However, page layouts must be set individually for either printer or plotter. If you change your mind and decide to use the other output device, you must lay out the page from scratch again.

Naturally, *Cricket Graph* offers direct output to the ImageWriter printers. If you're using an Image-

Cricket Graph's Page Layout window showing three graphs generated from the election data. These graphs may be moved on or off the page at will. Only those left on the page will be printed.



A line graph illustrating the popular vote tallies of Democratic candidates. A Simple Curve, from the Curve Fit menu has been superimposed. The equation used to generate the curve has been applied as a label.



Writer II, color printing is supported. And, since the color information is an integral part of the graph itself, *Cricket Graph* output may be reproduced in color even when it is embedded within otherwise monochrome files like *MacWrite* documents. *Cricket Graph* output also prints both quickly and well on the LaserWriter.

Along with the ImageWriter, *Cricket Graph* supports a number of popular plotters. Drivers for the Apple Color Plotter and for the Hewlett Packard 7470A, 7475A, 7550A, and Color Pro, are included. Even if the plotter you are currently using is not on this list, contact Cricket Software. They may have a driver available for your hardware. There are also several customized versions of *Cricket Graph* available for particular system set-ups.

IT'S HOW YOU SAY IT

Writing good documentation is something of a black art. Finding the proper balance between clarity and brevity is never easy. The *User's Guide* accompanying *Cricket Graph* is exceptional because its au-

thor has managed to achieve this balance. This manual, at 270 pages, might at first glance appear to be too long. But, in this case, the length is the result of a combination of large easy-to-read type, numerous illustrations, and a well thought-out organizational structure.

The manual begins with a short tutorial. Chapters 2 through 13 present a complete discussion of each facet of the program. Every menu selection is detailed, virtually all the dialog boxes are illustrated, and the consequence of each selection or option is explained.

The final section of the manual consists of appendices. A short discussion counseling the judicious use of the many features available in the program is followed by useful technical information concerning file transfers, plotter interfacing, the use of *Cricket Graph* with *MacDraw* and *Switcher*, and the internal organization of the program itself.

WHAT'S IN A NAME

These days, one would expect applications such as *Cricket Graph* to be called *Business Plan Graphs* or some such pseudo-serious name. In fact, the microcomputer industry has begun to take itself so seriously that were Apple to be founded today it would probably be called *Pomme Business Machines*. So it is, to say the least, refreshing to again encounter a program with a "lighthearted" name. Still, I cannot help but wonder whether with a name like *Cricket Graph* this program might not be perceived as being too frivolous for corporate use.

(continued on page 175)



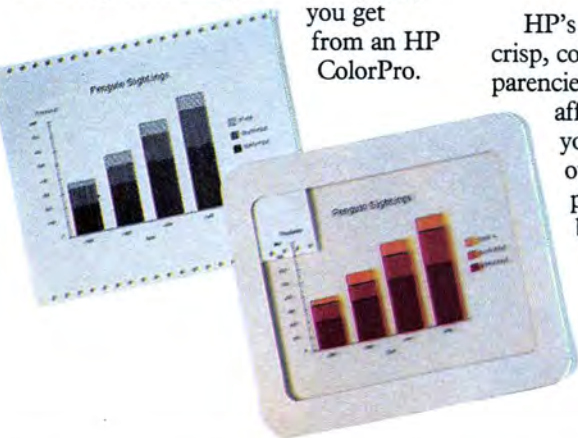
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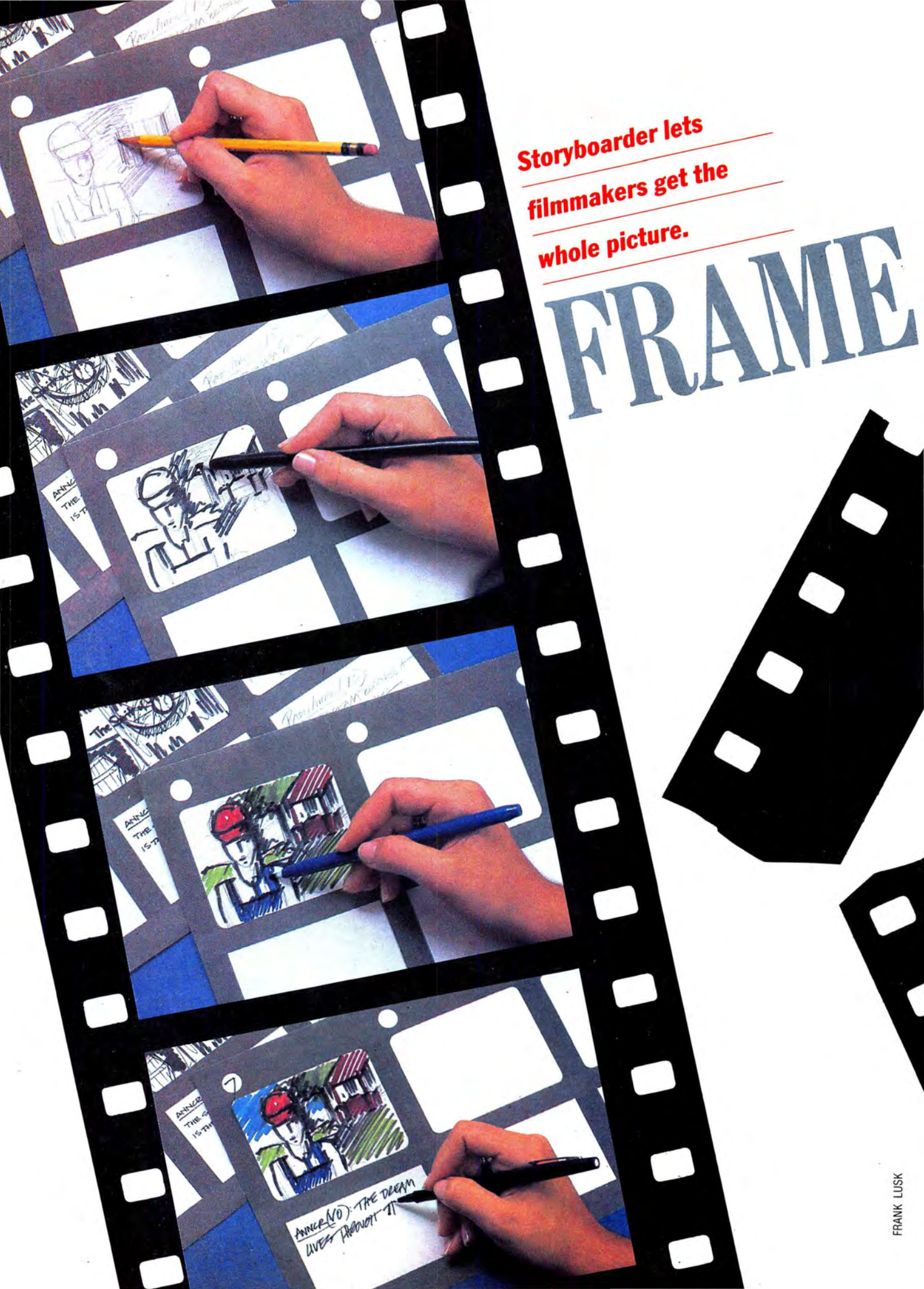
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Storyboarder lets
filmmakers get the
whole picture.

FRAME



BY FRAME

HITCHCOCK DID IT. SPIELBERG still does it. And so does anyone who works with film or video production. A picture is worth a thousand words, and when you're working on a film, video or even a computer game, that picture — in the form of a storyboard — can save thousands of dollars in otherwise wasted time, effort and material costs. Storyboards are to visual media what outlines are to written words — a rough draft of what the finished product will look like.

The Mac's built-in graphic capabilities make it a natural for working with storyboards. Because it's the first microcomputer that lets users easily create, modify and retrieve graphics, it seems only natural that it would be the computer tailor-made for storyboarding. Now, with the help of a program called *Storyboarder*, the Mac's potential for creating and modifying storyboards is realized. Add the fact that *Storyboarder* accepts *MacPaint* pictures (or any documents saved in PICT format) and the combination is nearly irresistible.

INSTANT ART

Storyboarder automatically imports *MacPaint* graphics through its Library menu. Pulling down this menu reveals the name(s) of all the disks that have been loaded into *Storyboarder's* memory upon startup. (This is accomplished simply by having an image or data disk present either in the external drive or on your hard disk. While the company claims that a single-drive Mac is capable of running the program and image files from a single disk, they specifically mention that disk memory is too limited for much work on a single-drive system.)

Images can be previewed from the image library by double-clicking the radio button next to the document's name in the Library window. Make

sure, though, that the disk containing your image is unlocked before you try to open it, because attempting to open a locked graphics disk causes the system to lock up completely, ending the session for the time being. You'll see the old "dire straits" error message, the cursor arrow disappears, and the system completely locks. This was unquestionably the most disappointing part of the program — that the developers didn't foresee such problems, and at least program in an alert message asking users to unlock their disk and try again. The prospect of losing an entire work session over such a trifling oversight is amazing, and especially irritating in a package this expensive.

You can't create new graphics within *Storyboarder*. However, the program offers a very limited set of drawing tools which can be used to alter existing *MacPaint* files. These modifications can be saved via the SCREEN TO MACPAINT option that allows users to automatically save their changes as a new *MacPaint* document.

Documents can't be saved to your back-up of the master; they have to be on a separate disk, so an external drive or a hard disk is highly recommended. The menu allows for up to four external drives to be recognized, which really isn't necessary in a Mac application. (How many Mac users do you know who daisy-chain external drives like Apple II owners do?)

CONSTRUCTING A BLUEPRINT

The master list screen displays a blueprint of the entire storyboard. This is where users enter which images will be used, in what sequence. Special transition effects, such as dissolves, wipes or fades to black, are specified on this screen. The display also shows whether or not a particular frame features animation.

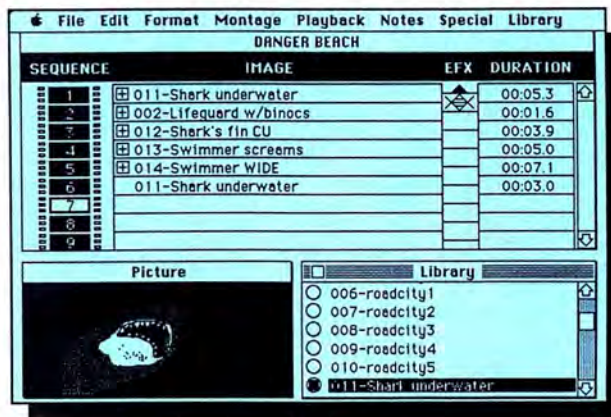
BY TRACIE FORMAN HINES

FRAME BY FRAME

The length of time that each frame is displayed automatically defaults to 3 seconds. But that duration can be set to minutes, seconds, and even tenths of seconds just by double-clicking on the sequence's duration box. Each frame can be individually timed.

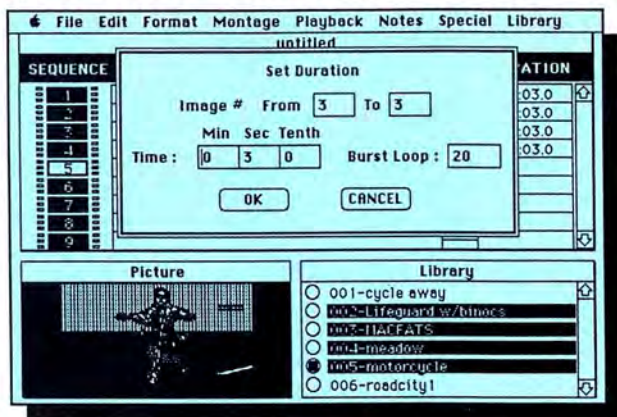
Repositioning specific frames is easy and quite Maclike. Just select what you want to move, either CUT or COPY it, and paste it wherever you want to. The same frame can be used as often as you like in the storyboard. And the UNDO command is intact, just in case you make a mistake.

Editing the sequence in which each frame will be shown is done from the master list screen. Whole scenes are arranged in sequence on the main list, and they also can be



The main screen. Here, users preview and choose images and decide how long each frame will remain on-screen. Special effects, such as dissolves and wipes, are also selected here.

The Duration dialog box allows users to alter the amount of time each scene will be shown on the screen.



cut, copied or pasted into different sections. The duration of each scene can be set up easily as well, with the entire process controlled by menus and dialogs that leave little to chance.

MOVING PICTURES

Storyboarder is not an animation tool in any sense of the word, although the program does allow artists to create limited special effects in the program's Animatic mode. Here, fields can be flipped, erased, moved around on the screen, enlarged, zoomed in or out on, or panned, all with a few clicks of the mouse button. With a little creativity, the effects can be quite good. Up to four effects can be chosen per scene.

The animatic icons are used to access each effect. Some of them are self-explanatory; but in other cases, a

word, such as Erase, would do a lot more good than the icon's poor visual clue. Why does everyone who designs for the Mac assume that, just because we want simple to use programs, we're a bunch of illiterates?

The flip sequence is a bit bizarre,

vertical flip; clicking at the right or left center gives a horizontal flip. If you want to vertically and horizontally flip the image, click in any of the screen's corners. Finally, the number of times the object will flip is determined by how many times the mouse button is clicked. A simple dialog box with a few radio buttons would have been far more efficient and would significantly reduce the program's learning curve here.

The drag move is much more straightforward. To move an object around on the screen, just select it with either the rectangle or heart-shaped freeform tool and move the cursor to where you want the picture to move. *Storyboarder* faithfully tracks the cursor movement, and replays the image to follow it exactly, pausing where it pauses and stopping where it stops. An object can even be moved off the screen entirely, just by dragging the selection tool until it disappears off the top or side.

Although *Storyboarder* is not an animation package per se (if you need that, get a copy of *VideoWorks*),



The Effects dialog box is where users choose any transition effects they'll want between scenes.

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Ted Benhari is Public Information Officer at Dominican Hospital in Santa Cruz, CA. He is very much into Desktop Publishing. He produces numerous publications for the hospital, including "The Dominigram," a magazine for the general public, "The Scanner," a newsletter for employees, and a catalog promoting various classes at the hospital's Education Center. Ted likes having the ability to digitize

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DOMINICAN HOSPITAL EMPLOYEE NEWSLETTER
VOLUME 1, NUMBER 7 AUGUST, 1986




Alphonse Castaneda...Blooming Genius

The gorgeous orchid bouquets at the Hospital's Employee Service Award Dinner came not from some South American jungle, but from the carefully tended plants grown locally by Alphonse Castaneda, the instrument technician in the Surgery Department.

Alphonse has been growing orchids for seven years. Bloomed from a hobby into a part-time vocation, his orchids are in great demand by local flower shops for retail to the public.

Orchids' delicate beauty belies their durability. They make great gifts - a cut stem

laden with flowers, called a spray, can last for one to two months, Alphonse says.

He grows his plants by cloning them in peat dishes, or combines varieties through hybridization. The work is exciting, as is his delicate adjustments of the sophisticated surgical equipment.

"My job here is to make sure everything used in an operation is working properly," says Alphonse. "It requires great care and the ability to troubleshoot during a procedure if something isn't working as well as it should."

Alphonse's expertise goes beyond mere

maintenance. He redesigned a surgical saw used for cutting bone blocks for synthetic havers. "The improvement makes the procedure go a lot faster," Alphonse says with justifiable pride.

Alphonse was a prime mover in organizing the Hospital softball team, although his schedule doesn't permit him to play this year. "The team boost morale by helping people from different departments get to know each other as people," he says, "not just as functions."

This is very important to Alphonse, who, as anyone who knows him well attests, is a real "people person," with a well-deserved reputation for kindness and generosity.

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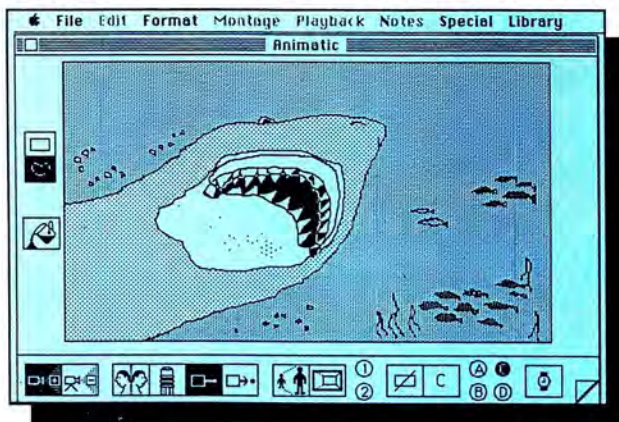
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FRAME BY FRAME

limited full-screen animation is possible through the use of the Burst mode. This plays back approximately 24 images per second. When not in Burst mode, the shortest duration you can have a single frame on the screen is 0.8 seconds. A hard disk

first image will immediately replace the second, making frames 1 and 2 contain the same image.

Storyboarder accommodates four different screen widths: standard television, *MacPaint* format, theatrical motion picture, and wide screen



The Animatic mode gives users easy access to limited animation effects, such as zooming in or out, flipping images or moving across the screen.

brings the screen duration down to 0.3 seconds, if you need it. The program is not optimized for the Mac Plus, although it works just fine on one.

THE EDITING DECK

Up to nine images can be displayed, montage fashion, on the screen at once, thanks to the montage option that lets users choose single, two-frame, four-frame, six frame or nine-frame display. (The Widescreen display format is too large to accommodate nine images, though.)

In montage modes 6, 2 and 1, there is space provided below each graphic for typing in description or dialogue. Just select SHOW NOTES from the Notes menu and a small note window appears beneath each frame displayed. Just type in what you want. To view only the picture, choose HIDE NOTES.

In montage displays, you can rearrange frames through the START SHUFFLE option. When chosen, this puts small numbers in the upper left corners of each graphic. For example, the first frame displayed would have two boxes, each numbered 1, the second image's boxes would each contain a 2, and so on. To swap the position of the first and second images, you would drag the small box on the right into the second frame and release the mouse button. The

motion picture (the latter gives the effect of a 70-mm projection). Each (except *MacPaint*) is included on the disk as a *MacPaint* template, which makes it easy to design your images to whichever screen specification you choose. (If you choose not to use the templates, *Storyboarder* automatically crops the screen to reflect the type of screen selected.)

PLAYBACK

There are three different playback options included in *Storyboarder*. Normal mode plays back the images in sequence as they appear on the master list, obeying all the rules you've set up for time, animation and special effects. When the entire storyboard has been shown once, the playback stops.

The ROLLING option plays back the entire sequence, but when it reaches the end of the storyboard it automatically starts again.

The QUICK option plays back the storyboard in rapid sequence, but it only captures the bare bones of the concept — animation, frame duration and special effects are ignored.

PUTTING IT TO PAPER

Finished storyboards (or works in progress) can be printed out through the ImageWriter, or, if you take the time to install its driver in the System, on the LaserWriter. The print mode is unique, allowing users to


print out specific frames and formats, but it isn't optimized for use on the LaserWriter.

Any of the montage types (from one image per page to nine) can be printed out, and the notes window (which contains dialog or camera notes) can be printed out or ignored.

All formats, including wide screen, can be printed, and masking can be a full mask, an outline, or nonexistent.

THE WHOLE PICTURE

If you need to create storyboards, this program will definitely cut down the time it takes you to do so — and eliminate the need for art direction, typesetting, and other time- and money-consuming chores. The manual is enough to get even the most computerphobic user started, although it doesn't mention possible problems or explain how to deal with them. As we've said before, this is not an animation tool — rather, it's a professional-level vertical application aimed at people who have to storyboard professionally.

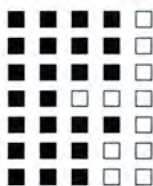
Storyboarder is the first of an anticipated MacFats series meant for television and film industry users. If American Intellware can work out the few bugs, *Storyboarder* is an indication that the series could just help those of us who work with both words and pictures. 

Tracie Forman Hines is the Senior Editor of MacUser.

STORYBOARDER

Overall Rating

Follows Mac Interface
Printed Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: A quick and dirty *MacPaint* file editor that allows users to create working, semianimated storyboards. **Best Feature:** Intuitive, easy to use and understand. If you need to make storyboards, this program shaves hours off the process. **Worst Feature:** Trying to open a locked disk results in a total crash. **List Price:** \$395. Published by American Intellware, 330 Washington Street, Marina del Rey, CA 90292, (213) 827-0803.

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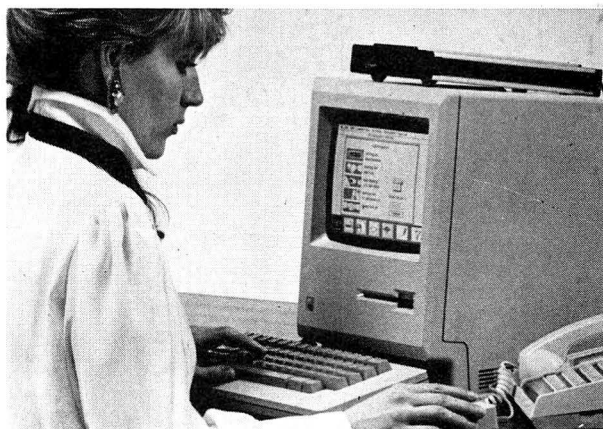
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LET'S TALK TELECOMMUNICATIONS

**An opportunity to ask an expert's
advice about getting connected.**

PEOPLE WHO, UNTIL RECENTLY, knew very little about using a computer are now communicating across the country to other computers and computer users. They are saving time and money by *not* preparing and taking packages to the post office nor waiting for pick up by the express service messenger. Communicating by computer sounds like something worth doing, but what does it all mean? How is it done?

A good way to learn any new subject is to find an expert and sit and talk to that person. Since telecommunication experts are still a bit rare in most areas (although you'll be one soon enough), we've put together a conversation like one you might have with such an expert.

YOU, THE READER: I'm interested in learning about communications — what is it? What can it do for me? What equipment do I need to communicate? I don't know anything about communications — can you help?

THE EXPERT: Those are the right questions to begin with!

Then you can help me?

Yes. I'll start with basic information. Very simply, communications is the transfer of information between computers at the same location or different locations.

Why would I want to communicate between computers at the same location?

Because you might have two or more different kinds of computers with different operating systems,

which unfortunately means you can't simply move a data disk from one computer and use it in another computer. The disks might be the same, such as 3-1/2-inch single density and the programs might be the same, such as *Multiplan*. However, if the operating systems are different, that is, the instructions that tell the computer what to do with the program instructions, then you can't make the transfer of data without a communications program and the appropriate hardware.

Why not just have the same type of computer in an office?

Sounds like a logical idea, but many offices have purchased different computers at different times and for different reasons and uses. Some computers are purchased because of how the keyboard feels, how easy it is to look at the screen for long periods of time, that is, good resolution, how easy the software is to use, the price and the software available. These are all good reasons, although some are better than others. The computer is purchased to do a particular job and the user needs to be comfortable using it.

However, because of the variations of computer systems available, the speed with which computers are being developed and changed, and the variety of personal computing tastes, it is easy to fill an office with incompatible computers. That is, computers that don't work directly together.

OK, I understand, but what about transferring data between the computer on my desk at home with my computer at the office? The same type of computer, but a different location.

That can be done in a number of ways. One way is to have a direct connection between the computers



BY PAMELA J. ROTH

over the telephone lines. Another way is to use an electronic mailbox service. You send information to a mailbox and then the person who owns the mailbox transfers the information to his or her computer at another time.

Let's consider the direct communications link. The computer at home is hooked to a modem that is hooked to a telephone or directly to the phone line. On the other end, the computer at the office is hooked to another modem, which is also hooked to the telephone or directly to the phone line.

In this type of communication process, one computer sends and the other computer receives. Someone on the sending end gets the communication system going by hooking the modem to the computer and the telephone. Once the hardware is ready, the user gets and makes sure the file to be sent is properly formatted or unformatted as the case may be.

What does that mean?

It means that commas and line end characters are in the correct place, and special formatting characters are either correctly coded or not there at all.

Sounds technical, time consuming and prone to aggravation.

The process of checking a file, especially if there are more than a couple of pages, can be time consuming and frustrating if you do it manually. There are special programs that you can use to check a program to make sure it is formatted correctly before sending it over telephone lines.

Also, the more file handling options a communications package has, the less likely you will have to check your files manually.

Hmm, I'll keep that in mind. What happens next?

The sender follows the instructions to send, or *upload*, a file to the computer at the other end. But there are a few steps in between.

The sender dials the number of the other computer, or if he has a modem that dials automatically and software that stores telephone numbers, the computer will dial the number.

The receiving computer must be

hooked up and ready to receive. If it isn't, the computer operator must hook up the computer and get it ready to receive the information. When both computers are ready, transmission can begin.

If the receiving computer has the required hardware and software, the computer can answer the telephone and get ready to receive the information automatically by preset instructions.

That's great. That automatic process sounds wonderful.

Yes, but at this time it's considerably more expensive than the basic communications hardware and software.

However, there are times when having the ability to automatically dial up another computer becomes less expensive. I'm thinking of when commercial databases are used regularly.

What difference does that make?

Commercial databases can be expensive during prime hours, usually regular working hours between 8 AM and 6 PM. The actual prime hours vary from database to database. Communicating also ties up

the computer and telephone lines during regular business hours when others need to use them.

By using a system that automatically dials at a specified time, you can have the computer and telephone lines free for regular business use *and* get the information you need while you are away from the office.

Certain precautions must be taken with this system.

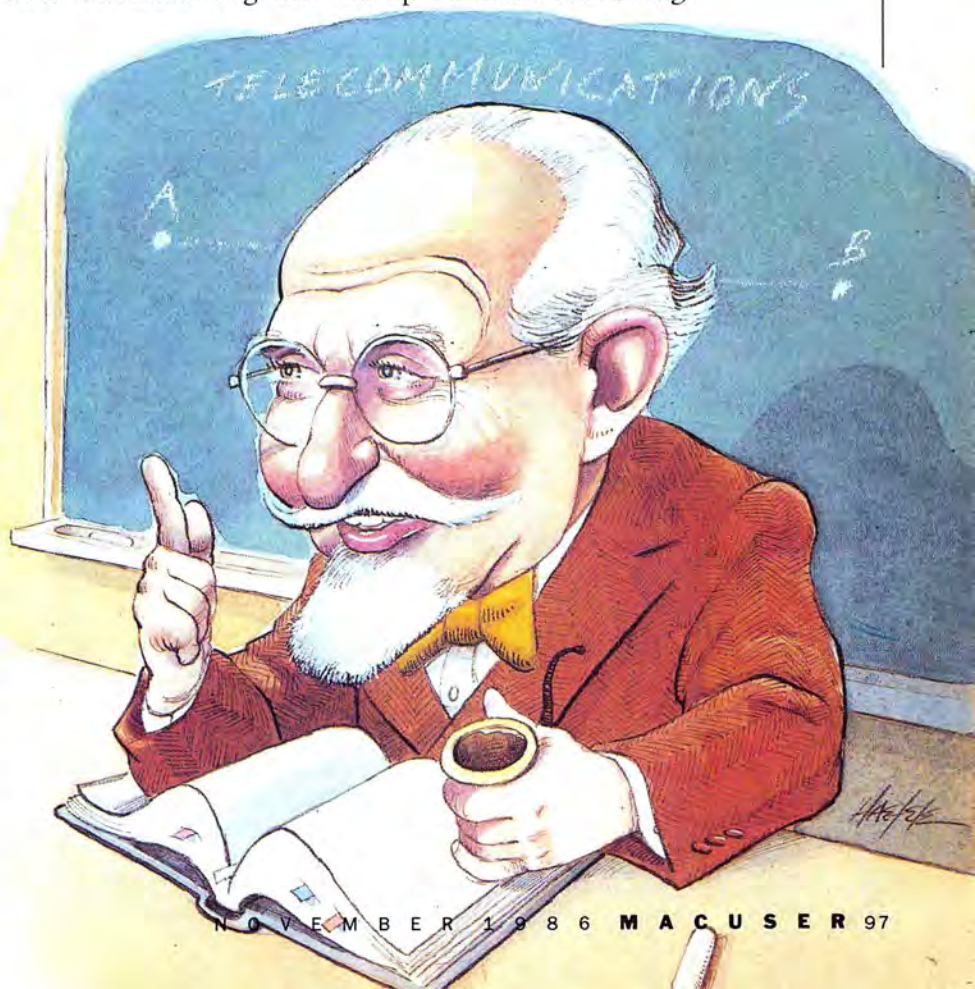
Oh? Such as....

You must make sure that the system has an automatic disconnect that is correctly working. Since most databases charge by the minute or fraction of an hour, if the computer is not disconnected after finishing its search, you could get back to the office and find you are charged for several hours of database time that you didn't intend to use.

Ouch!

Yes, but now we're getting too far into advanced topics. Let's get back to the basic information.

Basic communications consists of sending information from one end and receiving at the other end. Sending is called *uploading* and receiving is called *downloading*.



LET'S TALK TELECOMMUNICATIONS

The terminology is a bit strange.

I find it easier to comprehend if I think in terms of a constant wavelength that travels overhead. When I want to send information, I put it up into the wavelength, thus uploading. When I want to receive someone else's transfer I take it down from the wavelength, thus downloading.

Back to communicating directly. When sending and receiving information over the telephone lines you must use software on each end that understand each other.

Does that mean I have to use the same communications software package as the computer I am sending to or receiving from?

That might make it easier, but not necessarily. You must however, use software that has the same *handshake* and *error correction protocol*.

Could you explain that?

Certainly. This is where we get into technical aspects of communications. First of all, a *handshake* makes sure the receiving computer gets everything that the other computer is sending. Sometimes one computer sends faster than the other computer can receive. A *handshake*, such as XON/XOFF, simply slows down the transmission so that it is received without getting lost.

Next, an *error correction protocol*, such as XMODEM, checks to make sure that the information received is correct. If there is an error in the transmission, the protocol sends a message back to the sending computer to retransmit the part of the transmission that was muddled.

To remember the difference, think about a handshake as a connection and an error correction protocol as what happens after the handshake, after the connection is made. The error correction protocol answers the question: "Is the received information correct or have uninterpretable characters been received because of *noise* on the telephone lines?"

What about sending to an electronic mailbox? How is that different?

Using an electronic mailbox has a number of advantages and disadvantages over using a direct modem link.

First, electronic mailboxes are often commercial services that you

need to subscribe to, such as Western Union's EasyLink. Even after you have paid the subscription fee, which is most likely a yearly fee, you sometimes have to pay a minimum monthly usage fee. You also pay for each minute that you are connected, which means such activities as uploading information to someone else's mailbox or downloading information to your mailbox.

Next, you and the person you want to communicate with must subscribe to the same service. If you communicate with a number of different people or organizations that could mean you will need to subscribe to a number of services, which could become costly.

Finally, although there are passwords so that only you can read the information in your mailbox, the longer information stays in your box, the more time a competitor or a cracker has to break into your mailbox.

Those are the disadvantages, but the advantages are strong enough to balance the disadvantages for many users. The biggest advantage is that you can send a simple message or document of several pages to the mailbox without having your intended recipient ready to receive. You can use almost any modem and communications software, and the intended receiver can use different equipment. Just as long as it works with the service.

Hmm. So, communications is more than just sending information to a computer at another location?

Very much so. Communications also includes *transferring* and *translating* files between otherwise incompatible systems at the same location; *searching databases* for data required for clients or internal use, such as finding precedents for a lawsuit or distributors for selling a product; as well as *sending* and *receiving information fast*, *having conferences* with people in different locations, and *leaving information* where someone can retrieve it at a later time.

This all sounds pretty expensive, especially paying by the minute for databases. How do I know if communications is worth it?

Using commercial databases defi-

nately requires knowledge of logon procedures and skills in defining search criteria to minimize costs, but with practice you can use a database efficiently with great savings in the long run.

To determine the net value of adding communications ability to your computer system you must weigh the initial cost of purchasing the software, hardware, and any required membership fees along with monthly minimum fees and actual usage fees against predicted savings. Savings come in the form of less time expended searching and re-searching, less paper to manage, less time producing, sending and receiving reports, less time to get answers to important questions. In short, potential for more profit.

How do I shop for communications software?

Before shopping for communications software make a list of your communications needs. Ask yourself these questions.

- Do I need file translation between different brands or versions of word processors, database managers, and spreadsheets?

- What extra features do I need, such as auto-dialing and auto logon?

- What handshake and protocol does the intended receiver use?

Then when deciding which software package, apply your list of needs and ask these questions.

- Does the software have the standard handshake and protocol?

- Does the software have the extra features that I need?

- Is it compatible with the modem I intend to use?

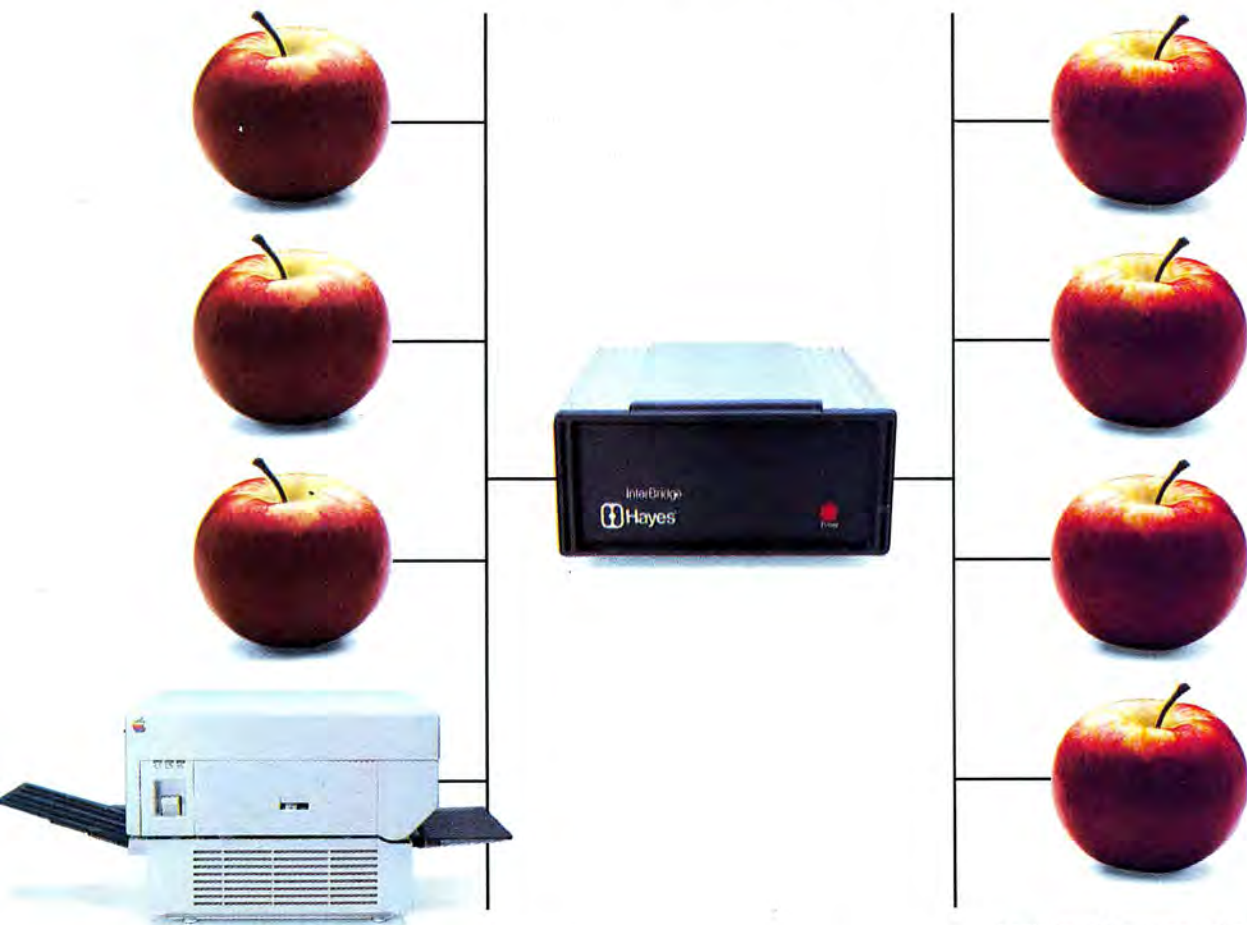
Having communications software features without matching features on the modem you use is akin to having cursor key features in a word processor but no cursor keys on your keyboard; you have useful features, but no way to use them. So, for example, if you purchase software with an auto-dial feature, make sure the modem you plan to use has an auto-dial feature.

Thank you very much. This conversation has been very helpful.

My pleasure. ☺

Pamela J. Roth is a Boston-based technical writer and documentation author.

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UP AND AWAY

The latest generation of flight programs truly soar.

TIME IS ALWAYS CRUEL. PARTICULARLY for gamers. If they're not racing the clock, the passage of time makes game programs less powerful, less topical — and less exciting. Programs that were state of the art a year ago are also-rans now. The \$1000 you spent on 384K of RAM last year will buy you over 2 megabytes now.

In our February 1986 issue we reviewed three good flight simulation programs. Now there's a new generation that surpasses these older, but still good, programs in all aspects. The new programs are better simulations, better games and better examples of using the technology. And they're no more expensive.

IN THE AIR

Microsoft's *Flight Simulator* is the standard flight simulation in the IBM PC world. It's so much a standard, that it's used to test the graphics compatibility of PC compatibles. It uses a variety of colors to help the digital pilot visually distinguish between the sky and the ground, and to pinpoint crucial landmarks, such as cities, airports, runways and other structures.

A Mac version was a very long time in coming and there was much talk that it couldn't be done; that for once the Mac's lack of color would be fatal. Microsoft finally rose to the challenge and, in doing so, has

proved the Mac to be a true flying machine.

The Mac version of *Flight Simulator* is every bit as playable as the original. In fact, some Mac-unique features make it a bit better. The main game window consists of a half-screen window showing a three-dimensional view corresponding to what would be seen from a plane's cockpit. The lower half of the screen displays a cluster of gauges and controls, very similar to those on a real plane. You won't find laser cannon, missiles, or magic super thruster buttons here. What you will find are most of the controls that are in the cockpit of a real Cessna light aircraft. The mouse serves various functions: as a control yoke (controls thrust and direction), and as a selector (for menu and control selection).

A second three-dimensional window can be opened. This window can be set to display one of a selection of views out of the plane (back, front, sides or midpoints between these) at the same time that the forward (cockpit) view is active. The main view can also be switched to various other vantage points, such as the control tower of the airport that you took off from, or a tracker plane that follows at a specified distance (the PC version doesn't have this feature). There is also a Track view that starts out at the control tower, and zooms along the plane's trajec-

BY MICHAEL D. WESLEY AND DAVID BIEDNY

UP AND AWAY!

tory, bringing you right up to the back of the plane in flight.

Pilots have a choice of aircraft. There are two (actually, three, if you have at least 512K of RAM) types of planes that can be flown. The first is a Cessna 182 single engine propeller-driven plane, the second is a Gates Learjet 25G jet. The Cessna offers a truly realistic flying experience, while less attention has gone into making the jet fly like the real McCoy. The jet is fun to fly, and maneuvers much more smoothly than the Cessna. The third plane is an advanced WWI fighter, ready to fight enemy Fokkers to the death. There are hostile airbases to destroy, fuel depots to blow up and factories to bomb. It's a nice addition to the Mac version (it's not in the PC version), but not the main thrust of the program.

The geographical database in *Flight Simulator* is its most incredible feature. The "world" in which you can fly measures roughly 10,000

by 10,000 miles. The area consists of the continental United States, with extensions into Canada, Mexico and the Caribbean. There are 118 airports, located mainly in New York, Boston, central and northern Illinois, Seattle, Los Angeles and San Francisco. These can be used to refuel, or as VOR beacons by which to navigate the plane. Major and not-so-major airports are included, so don't worry about finding an airport. Worry about landing. That's the hard part (just like real flying).

Because this simulation is in real time, it actually takes hours to fly from one location to another. Take off from Oakland Airport in the morning, set the autopilot for New York, and when you come back from a late lunch, your jet will be approaching JFK. For impatient pilots who want to see most of the scenery in the *Flight Simulator* database without the wait, a Slew mode allows you to fly at very high speeds. Make believe that you're in the Air

Force's newest experimental plane, zipping along at 40,000 miles an hour. In *Flight Simulator*, it can be done, and with full maneuverability. The phrase "hard bank to the left" takes on a new meaning.

All the graphics in *Flight Simulator* are shaded, and there is also a wire-frame mode that updates the screen quicker, resulting in smoother out-the-window views. The details of objects will probably disappoint most Mac people (New York City consists of the World Trade Center, Empire State Building, Manhattan Bridge and Statue of Liberty), but it's a big country, and in order to get the whole database on a single disk, some of the finer details of the landscape had to be omitted.

The sound effects in *Flight Simulator* will perk up your ears. They're digitized from real airplane engine sounds. The Cessna's prop spins around noisily, the Learjet's engines hum smoothly, and the WWI fighter sounds suspiciously like the Cessna. As you vary throttle, the pitch of the engines changes accordingly. This is yet another place where the Mac version outshines the PC offering.

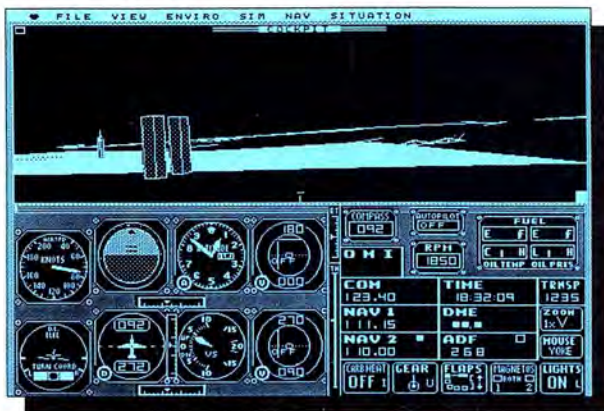
As a pilot, you have full control over environmental conditions such as the season (summer, winter, fall or spring), time of day, cloud covering, ground fog and wind. (That's a feature real pilots would like to add to the real world.) Two cloud layers and four wind levels each have independent controls; using combinations of these factors, virtually any type of weather situation can be accurately reproduced.

The reliability of the plane can be set between 0 and 100 percent. A 0 percent setting will introduce many quirks into the plane's operation: instruments randomly fail or display incorrect information, or the engine will die in midair (not a happy prospect).

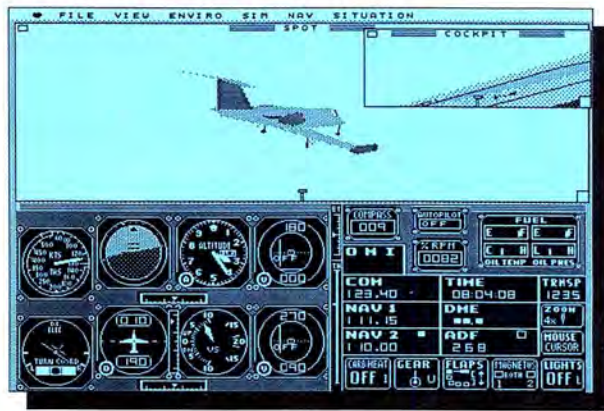
Start off at 100 percent. That's real enough. At 100 percent your engine will die out if the throttle is increased too quickly, or the plane's lights will burn out if left on for too long.

The various planes in *Flight Simulator* can all be controlled through the keyboard, with diagrams in the

New York City by night, approaching from the general vicinity of the Statue of Liberty. Note the World Trade Center in the foreground, the Brooklyn and Manhattan Bridges to the right, and the Empire State Building in the left background.



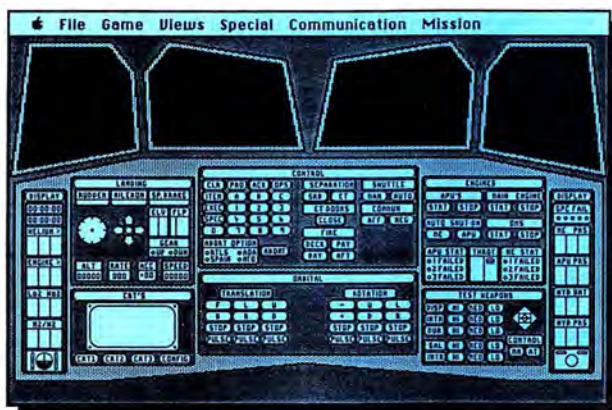
The main window displays the view from the Spotter plane following the Learjet, while the smaller window shows the Learjet's front cockpit view.



Flying over San Francisco on a sunny day. This is what can be seen several minutes after taking off from Oakland Airport.



This somewhat overwhelming screen appears only at the beginning of the program to show what the control panel of the shuttle really looks like.



manual illustrating all of the keys and their respective functions. This is the way that the plane is flown on the PC version. Mac people will probably want to use the mouse to fly, although you may prefer to do some things using the keyboard (turning the overhead map on and off, or to zoom in and out of a view, for example).

Flight Simulator gives you the chance to work with some of the standard navigational instruments that are likely to be found on any real plane, including VOR (Very high frequency Omnidirectional Range), ADF (Automatic Direction Finder), DME (Distance Measuring Equipment), and an autopilot. Each airport has its own VOR beacon number, so that the autopilot can be set to home in on one and guide your plane in the direction of it. VORs can also be used as marker points on which to determine your location. A brief discussion of the operational aspects of VOR is included in the manual.

A COM radio supplies information about weather, airport and approach factors. Each airport has its own ATIS (Automatic Terminal Information Service) frequency, which is reached via the COM radio. The NAV radios are used to tune in to an airport's VOR beacon. Two NAV radios are provided, making it easy to cross check the plane's position against more than one beacon.

Flight Simulator has what is probably the strangest version of the Mac interface seen to date. Yes, there are pull-down menus, but they don't seem quite as smooth as they should be. Windows work, but the go away box is tiny. There's a noticeable lag in the response of the interface in general. Until you're accustomed to it, it can be a hindrance.

Although the program will work on a 128K Macintosh, some of the features aren't present. The WWI fighter game mode isn't accessible, there's no sound and no prerecorded situations library. Both the manual and the 128K help screen mention

that other features don't work as well, but don't detail which these are.

The documentation does a more-than-adequate job of explaining all of the program's functions and numerous controls, as well as providing maps with the VOR headings of all the airports, and diagrams of most of the landing strips you're likely to try to land on.

At any point, the flight in progress can be saved to disk, to be continued at a later time. Included on the disk are some prerecorded situations, such as a flight in New York harbor (the Statue of Liberty is the first thing you see), a take-off from Meigs Airport in Chicago, and others. Another menu selection allows individual situations to be listed and deleted.

This is considered a game in the IBM PC world, the best-selling game on the PC. But it isn't really a game. The Macintosh version is every bit as serious as the PC version, if not more so (and even has a larger terrain database). In order to fully take advantage of *Flight Simulator*, you have to learn it to the point where you'll probably find yourself looking for a way to test out your newfound skills in something more than a microcomputer simulator. The controls and feel of the simulator will be enjoyed most by real pilots. The graphics are good, but not up to the expectations of most Mac owners, who will be looking for their little summer house on the New Jersey shore. All in all, *Flight Simulator*, Macintosh style is the way to fly.

INTO SPACE

Orbiter is a space-shuttle simulation. It's an overwhelmingly wonderful introduction to space flight, sans danger.

The designers and programmers of *Orbiter* have used books, tapes and other materials, many of them provided by NASA, to construct an extraordinarily real simulation. With painstaking effort, the *Orbiter* crew duplicated the intricate control panels and operating mechanisms of a shuttle; built in detailed and accurate launch, orbiting and landing proce-

UP AND AWAY!

dures and used Apple's *MacInTalk* speech program to simulate voice communications with Mission Control. The result is a simulation that feels very real, as real as one can when you are actually driving a Macintosh and not a space shuttle.

A great deal of care was taken to make sure that *Orbiter* is fun to play as well. Toward this end, there are 16 missions built into *Orbiter*, ranging from a training mission that involves deploying a space telescope

to the step by step construction of a space station. Several of the missions require you to manipulate the shuttle's robot arm or to leave the ship and use a Manned Maneuvering Unit (MMU) to "walk" in space.

Although you learn fairly early into the first mission that a real-life pilot actually has very little control over a shuttle, you can disable the automatic computer controls and take over operation of the shuttle manually. This adds an extra dimen-

sion to the play of *Orbiter*. You also have the convenient option, generally not available in actual flights, of picking the portion of a mission you want to simulate (launch; orbit, which includes in-flight activities; landing — or all three).

Another feature designed to make the game more playable is Time Compression, which lets you speed up the passage of time as much as 40 to 1 when nothing is happening that requires action or attention. Time Compression kicks in automatically at several potentially boring points, or it can be accessed any time the shuttle is not accelerating. Even with these accommodations, the program's goal is to be a simulation first and game second, so sometimes the complexity and sophistication of *Orbiter* gets in the way of playability.

When you first load *Orbiter*, you see an astoundingly complex array of instruments, controls and gadgets called the Forward Main Station. At one point in the design stage it was thought that this panel might work as the actual playing screen, making the simulation even more realistic. However, cooler heads prevailed so this somewhat overpowering screen only appears once. Whenever a new game is started, the screen is divided into four display windows and the controls of the Forward Main Station are split out into panels.

It's vitally important to select the TRAINING MISSION option the first time you play *Orbiter*, or when you first come back to it after a long absence. The training mission is designed to introduce novices to the basic controls and procedures in a simple way, and to offer a good chance for success in your first mission. The *Orbiter* manual takes you through the training mission step by step, suggesting that you pause at certain points to read a description of what you can expect to happen next. Following this "tutorial" is a great way to learn when the most significant periods of a mission occur and which screens need to be displayed at crucial points so you can find the information you need in order to maneuver or land the shuttle successfully.

As you prepare for launch, an

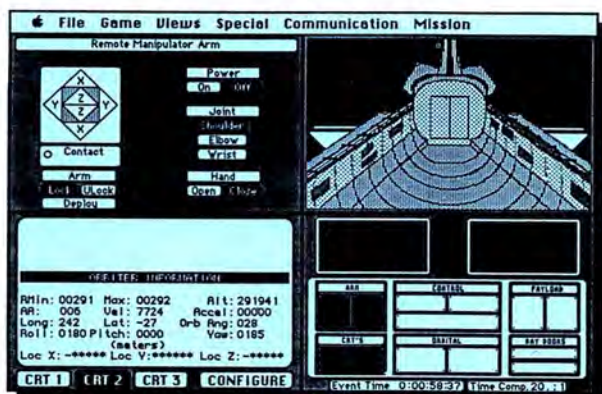
The control panel displays can be replaced by this world map. The black dot over Australia indicates the shuttle's current position in relation to the Earth.



This configuration of the display lets you compare the view out the window with a map showing true position. The display in the upper right corner indicates the Orbiter's orientation — black on top means the Orbiter is currently upside down in relation to Earth.



The back view out of the shuttle with the bay doors open. The controls in the upper left window operate the Remote Manipulator Arm.



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UP AND AWAY!

outline of the Forward Main Station sits in the lower right window. Any portion of this control panel can be brought to the screen by selecting it in the outline window, then selecting a window where you want it to appear. Initially, the windows display the Control, Engines and CRT sections of the Main Station, the ones that must be on screen for a launch.

The CRT displays a log of the messages transmitted by Mission Control and specific instructions — to load computer programs, close vents, start engines and so on. There are actually three CRTs which can be configured to display a variety of data. At some times during a mission, it is necessary to switch back and forth among the three. If the message screen is not displayed when a message comes through, the program will beep to warn you.

You can also display the Aft, or rearward view, where you will find the controls that open the bay doors, deploy payload and operate the robot arm.

Control panels are not much fun to watch, especially if you're supposed to be in outer space with a whole universe to look at. Fortunately, you can look out the windows of the shuttle, both front and back. The front view becomes available about 10 minutes after liftoff. You can't look out the back until you have achieved a stable orbit and you open the bay doors. *Orbiter's* window view graphics have a nice level of detail, but they don't move very smoothly.

In addition to the window views, you can fill the entire screen with a map of the world. A large black dot indicates the position of the shuttle with respect to the Earth below.

One interesting way to pass time during a slow part of the game is to display the map on one of the CRTs and have a window view of the Earth above it. In this way you can see your position in relation to the Earth from both vantage points at the same time.

After you have been through the training mission and you feel fairly confident about your skills as a shuttle pilot, the next step is to try a

more taxing mission, one that requires a little more initiative and less hand-holding. You might try a Satellite Repair mission, for example, which requires you to match the shuttle's orbit with that of a defective satellite, leave the safety and security of the craft in the MMU to retrieve the damaged hardware, and repair it in mid-spacewalk.

The *Orbiter's* special equipment, the robot arm and the MMU, can be operated in a couple of ways, depending on your skill and motivation. Special menus appear when either of these units is in use, an Arm Grabber menu and one for the MMU. If you are within a certain distance of an object, such as the wayward satellite mentioned above, you can simply select the name of the object from the appropriate menu and it will automatically be grasped.

On the other hand, you may want to try your hand at actual space maneuvering and use pitch and yaw motions to bring you to the object, or X-Y-Z coordinates to control the arm. Walking in space can be a lot of fun, but you need to keep in close visual contact with the *Orbiter*, (the MMU has a window view) or follow its movements carefully on one of the display screens. The manual provides an excellent set of instructions for controlling the MMU.

Finally, when you think you're ready for the ultimate test, try to handle launches and landings manually. The computer still handles many operations, but you have to monitor a variety of data very closely. For instance, when landing you have to know approximately when to begin burning the Orbital Maneuvering System (OMS) engines to deorbit and at what throttle level. Otherwise you will find yourself out of fuel and unable to complete the landing cycle. On landing, keep a very close eye on the drop rate, angle of descent and angle of approach if you want to avoid "crashing a very expensive *Orbiter*," as the program so nicely puts it. Even with all your skill you may run into difficulties because technical problems and other surprises can crop up at random.

Orbiter is a brilliant simulation, and a very good game. It would be a

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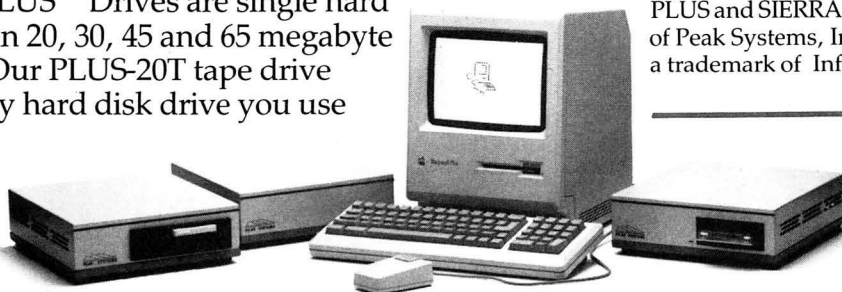
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SHANGHAI SURPRISE

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ACTIVISION'S NEW STRATEGY game is just full of surprises. Surprise Number One is that it uses mah-jongg tiles. That's right — mah-jongg. The most popular housewives' game since canasta. Surprise Number Two is that, although it looks a lot like mah-jongg, get just below the surface and you'll realize *Shanghai* is a completely different game. But the real surprise about *Shanghai* is just how addictive a solitaire game can be.

Although *Shanghai* has more than a passing surface resemblance to mah-jongg, it bears very little resemblance to the game that hooked all those housewives in the '50s. The only element it downright steals are the tiles themselves, taking its other cues from games like concentration and dominoes.

As in any good solitaire game, there's never a guarantee you'll win any particular *Shanghai* game, no matter how well you play. But playing skill counts for a lot, and knowing the right strategies and tricks is more than a little useful. So read on to get as much of an edge as you can have.

PLAYING THE GAME

The object of *Shanghai* is to clear the game board of all its 144 tiles, two by two. Simply choose exact matches and remove them from the board.

Not necessarily. If there were only two of each type of tile, things would be pretty straightforward. But there are four tiles to each set. And when the game begins, quite a few of those tiles are hidden in stacks.

Players can tell how deep a stack is by looking at the border around each square tile. A thin line means the tile has nothing hidden underneath it. The thicker the border line, the more tiles remain under the bordered tile.

Real strategy comes into play in choosing which tiles to remove, and when. For example, it may not make sense to remove a particular set of matching tiles when you can see three out of the set of four. That's because you never know where the fourth matching tile will show up, and take a chance on trapping it, possibly under its own exact match, unless you try to figure out your strategy logically.

MAKING MATCHES

There are three different suits of tile: Bam, for Bamboo; Crak, which represents "characters"; and round Dots.

In addition to these "suits," there are Seasons (one of each), Flowers (one each of four different kinds), Winds (North, South, East and West) and Dragons (four of each type). Suits must match exactly — only the four of bamboo can be paired with another four of bamboo — but Flowers match any other Seasons, and Seasons match any other Seasons. This is all well explained by an illustrated dialog box accessed through the game's Help menu.

UNRAVELLING THE DRAGON

The game board is laid out in what the manual calls a dragon formation. And if you look, you can almost see it — the dragon's feet are the long, unstacked rows at the very

by Tracie Forman Hines

top and bottom of the formation. Its head is the thick collection of tiles at the right, and its tail is the group at the left. Of course, the thickest part of the formation represents the dragon's body, in the very center of the game board.

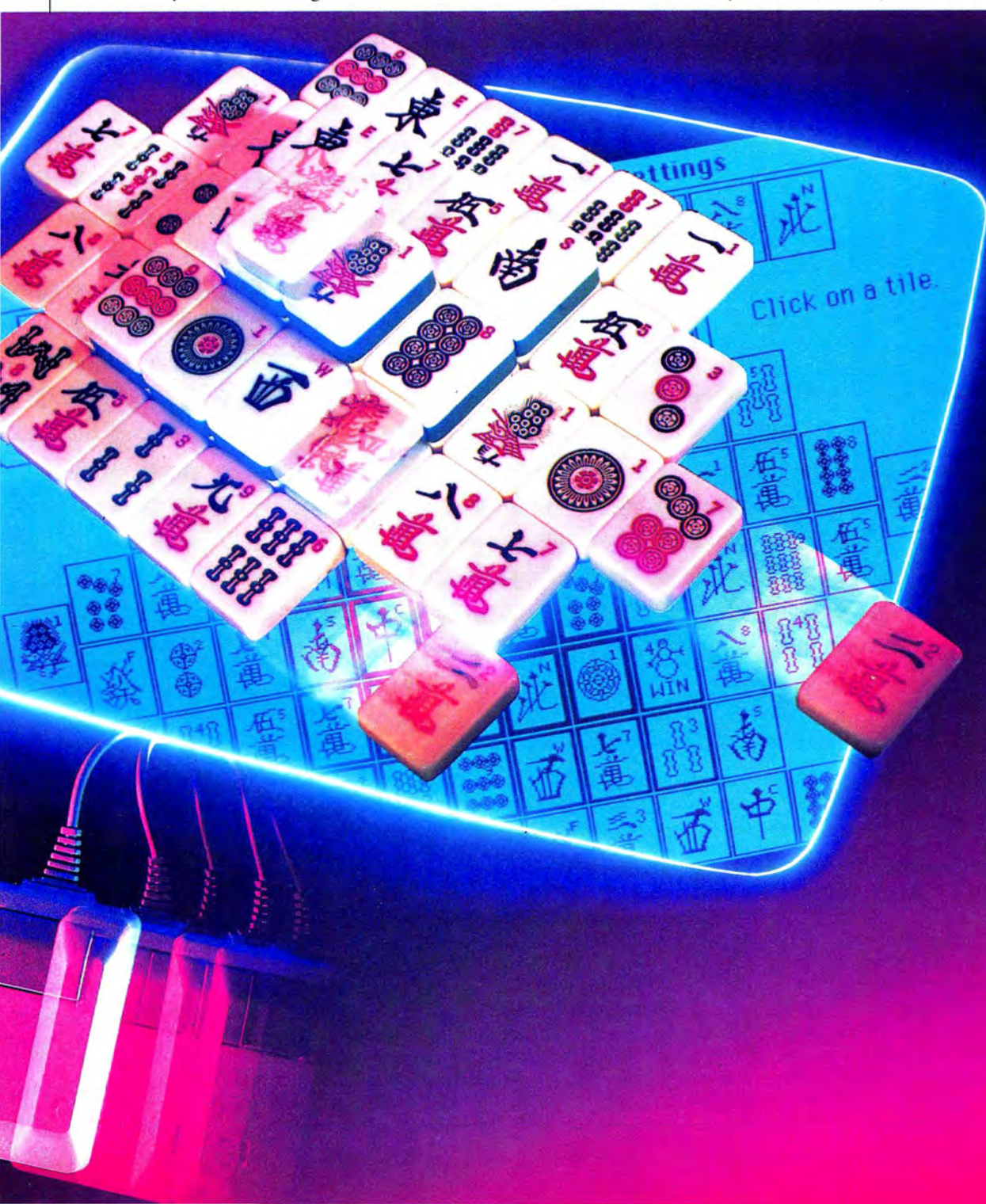
The opening moves in any game should center on uncovering the four center stacks by removing the middlemost tile. This frees up the top tiles on the four thickest stacks, which usually contain enough criti-

cal matches to keep the game moving along for quite some time afterwards.

Your second objective is to concentrate on removing the two tiles that obstruct the entire right side of the game board's movement. Third, remove the one tile that holds the left side in check, and finally, try to whittle the top and bottom rows down to size.

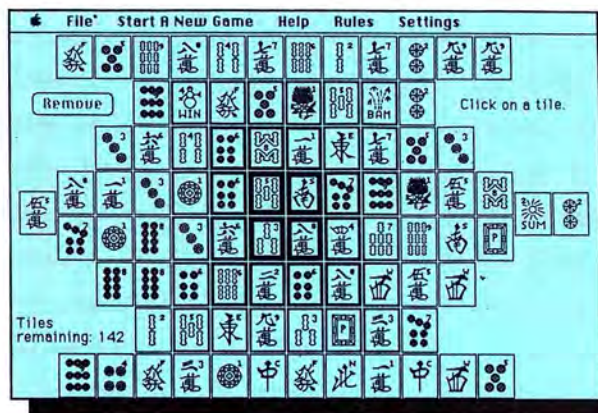
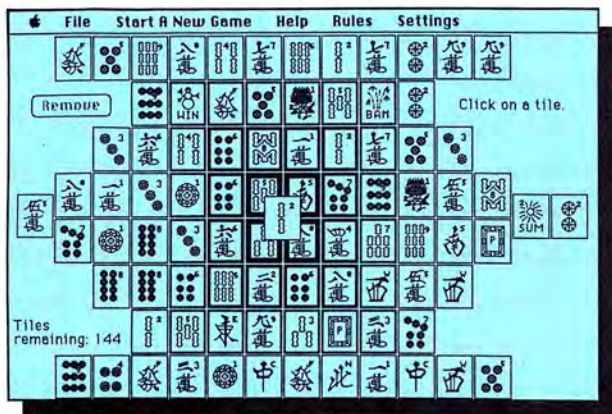
In many new games, you won't be able to make those crucial early

matches easily. When that's the case, concentrate on digging your way through to whichever tiles you need to uncover the pinnacle of the dragon's spine and either of its two sides. If, say, a four of craks blocks the four thickest stacks in the center, and you can't find another four of craks anywhere on the board, it means that the three tiles which can remove that four of craks are buried somewhere beneath the stacks. Just play through as much as you can, concentrating



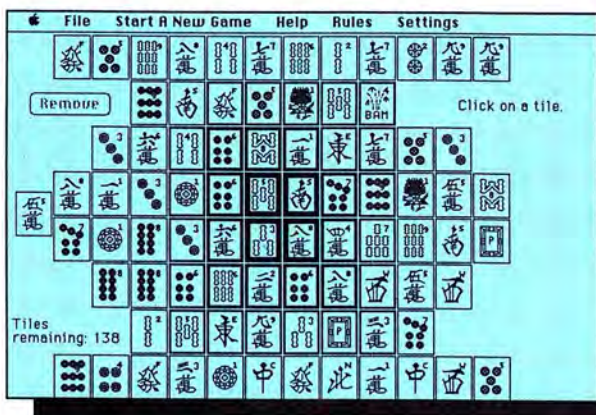
SHANGHAI SURPRISE

A randomly generated game board. The first thing on the agenda is freeing up the center stack. Luckily, all four two of bamboos are showing on the screen.



We chose the closest two of bamboos because we don't think it will be that hard to "dig" through the top row for the other two. Of course, the double nines will probably pose a real problem later in the game.

The next step is to free up the right side of the screen by removing the dragon's head, the two tiles farthest to the right.



on removing tiles from stacks to free up what's underneath, and you should find the tile you're looking for without too much trouble.

DEALING WITH THE DREADED "SHANG-EYE"

Shanghai's tiles are each very small, and although they're quite pleasing to the eye, too much of a good thing can make you almost dizzy with eye fatigue. This is especially true when the game first begins, since there are so many tiles to look at. You can tell you've been

staring at the screen too long when you stop caring which of those tiny tiles is the right match, and start removing whichever ones you can at random, just to clear the screen a little.

The best way to alleviate *Shang-eye* is to stop looking at the screen for a little while. That's right, stop playing for a little while. (If you're playing a timed game, pull up one of the dialog boxes from under the Help menu. It pauses the timer.) Get a drink of water. Call your mother. Or just look out the window. When

you sit down to the game again, you'll be surprised at how much better it will all look.

And you'll probably see four or five matches that you hadn't noticed before.

THE THREE-TILE DILEMMA

Because so many tiles are stacked one on top of another, you can't see where all the matches might be. And it's not uncommon to play all the way through until you have only six or eight tiles left, only to lose in the eleventh hour because a critical tile is still hidden beneath another one.

Whenever you can avoid it, don't remove tiles from a threesome. Try to wait until the fourth tile shows up, so you'll at least have a good idea as to what will be involved in removing it. Sometimes you'll be forced to make the move against your better judgment, either because it's the only thing left open on the board, or because it's blocking another tile that you need to reach immediately. When this happens, shrug your shoulders and do it. Just realize that it's a move of last resort.

"LEGAL" CHEATING

There are several built-in cheat options available, and those of us who peek under the cards in solitaire games will appreciate the ways they can skew the odds in our favor.

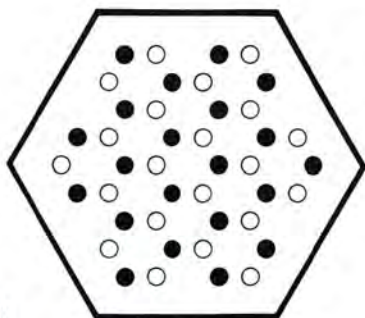
Here's a prime example: a neat little option called **BACKUP A MOVE**. When you select it, the computer automatically reverses the last move you made. Select it again and the game board backs up again. You can keep selecting **BACKUP A MOVE** until the entire game board is restored to its original position. (Of course, the easiest way to fully restore the game is to select the **REPLAY SAME GAME** menu option instead.) **BACKUP A MOVE** can be used to help restore a move you belatedly realize you shouldn't have made. Or, you can use it to peek under a specific tile without being forced to commit to that particular move.

The **SHOW ALL MOVES** option is useful when you're pretty sure you've played every move on the board. Sometimes, selecting it will show you something you hadn't re-

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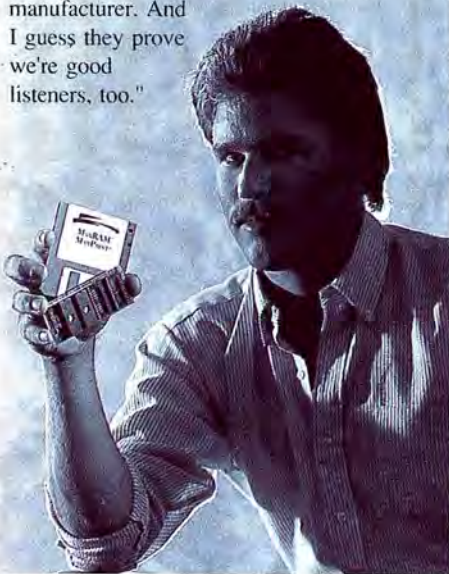
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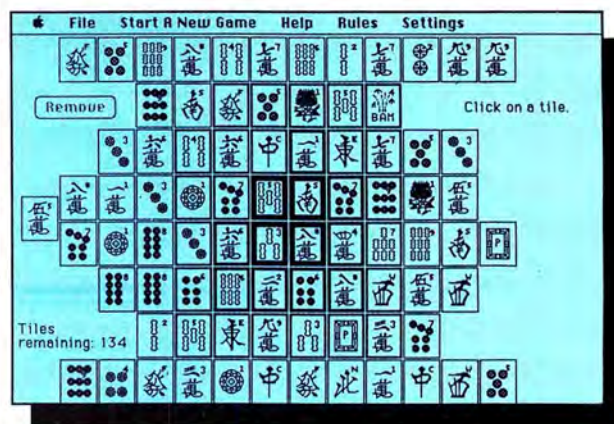
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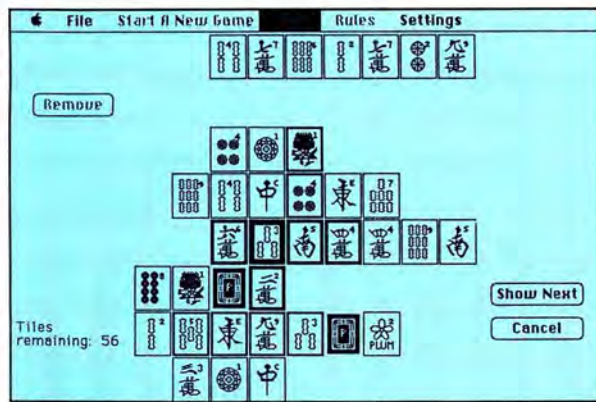
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SHANGHAI SURPRISE



Here, we're digging through the tiles to find the five of craks, which matches the five of craks that immobilizes the far left.

Stuck? Select **SHOW ALL MOVES** from the **Help** menu. It's cheating, but it can save you a lot of frustration. Not to mention eye strain.



alized you could do. Lazy players can also use this option to shortcut through a confusing array of tiles, especially when they're about to succumb to the dreaded *Shang-eye*. Be warned, though: you can't use this option during tournament play.

PLAN AHEAD

Like chess, *Shanghai* is played best when you try to plan your actions several steps ahead. Do you need a three of dots that's buried in the center of the upper or lower line? Don't curse your bad luck in drawing such a difficult board — do something about it. Track down the match that will free up the first tile in the line, then the second and third, until you've worked your way in far enough to make your critical match.

PLAY IT AGAIN, CHAN

The best thing about *Shanghai* is that you'll never be able to play through every single possible game board, no matter how hard you try. When you've finished working your way through each of the game scenarios included on the disk, try selecting **NEW** from the **File** menu.

This randomly generates a completely new game, which can be saved to disk if you like.

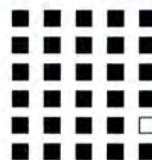
Just be warned: spend one night with *Shanghai* and you could be spoiled to other solitaire games for a very long time.

Tracie Forman Hines is the Senior Editor of *MacUser*.

SHANGHAI

Overall Rating

Follows Mac Interface
On-Screen Help
Performance
Support
Consumer Value



Comments: Easy to learn solitaire game that challenges players to match all the pairs and clear the game board of tiles.

Best Feature: You can learn how to play the game just by checking out what's under the **Help** menu; cheat features were built into the program; completely addictive! **Worst Feature:** Tiny tile graphics cause eye strain during extended play sessions. **List Price:** \$39.95. Published by Activision, PO Box 7286, Mountain View, CA 94039, (415) 960-0410. Copy protected.

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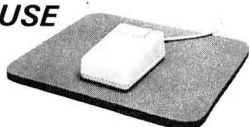
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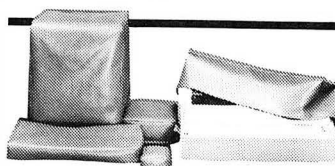
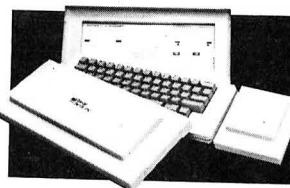
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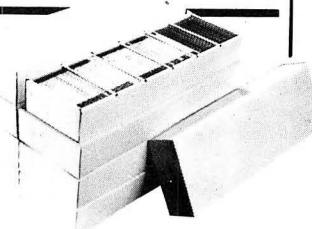
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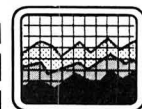
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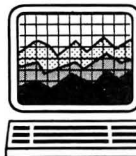
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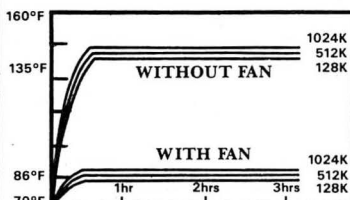
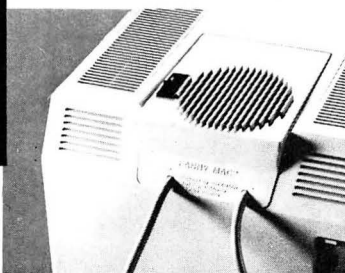
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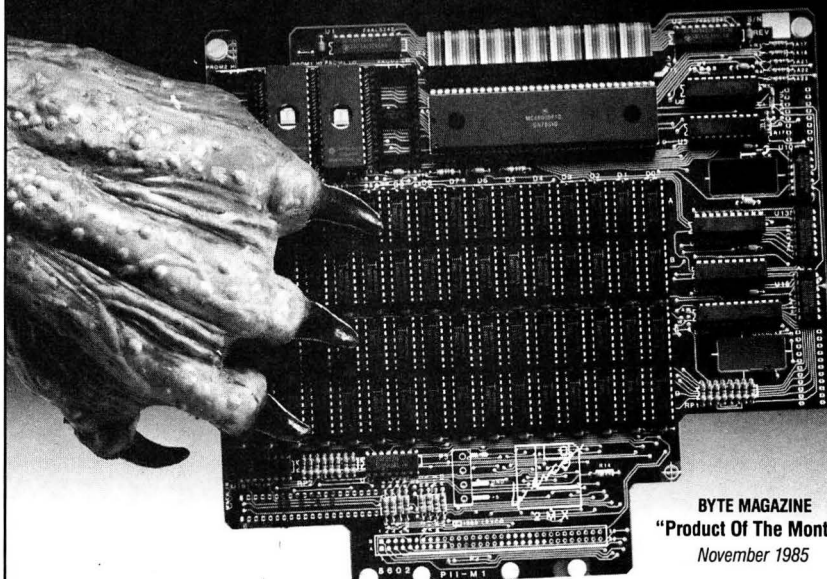
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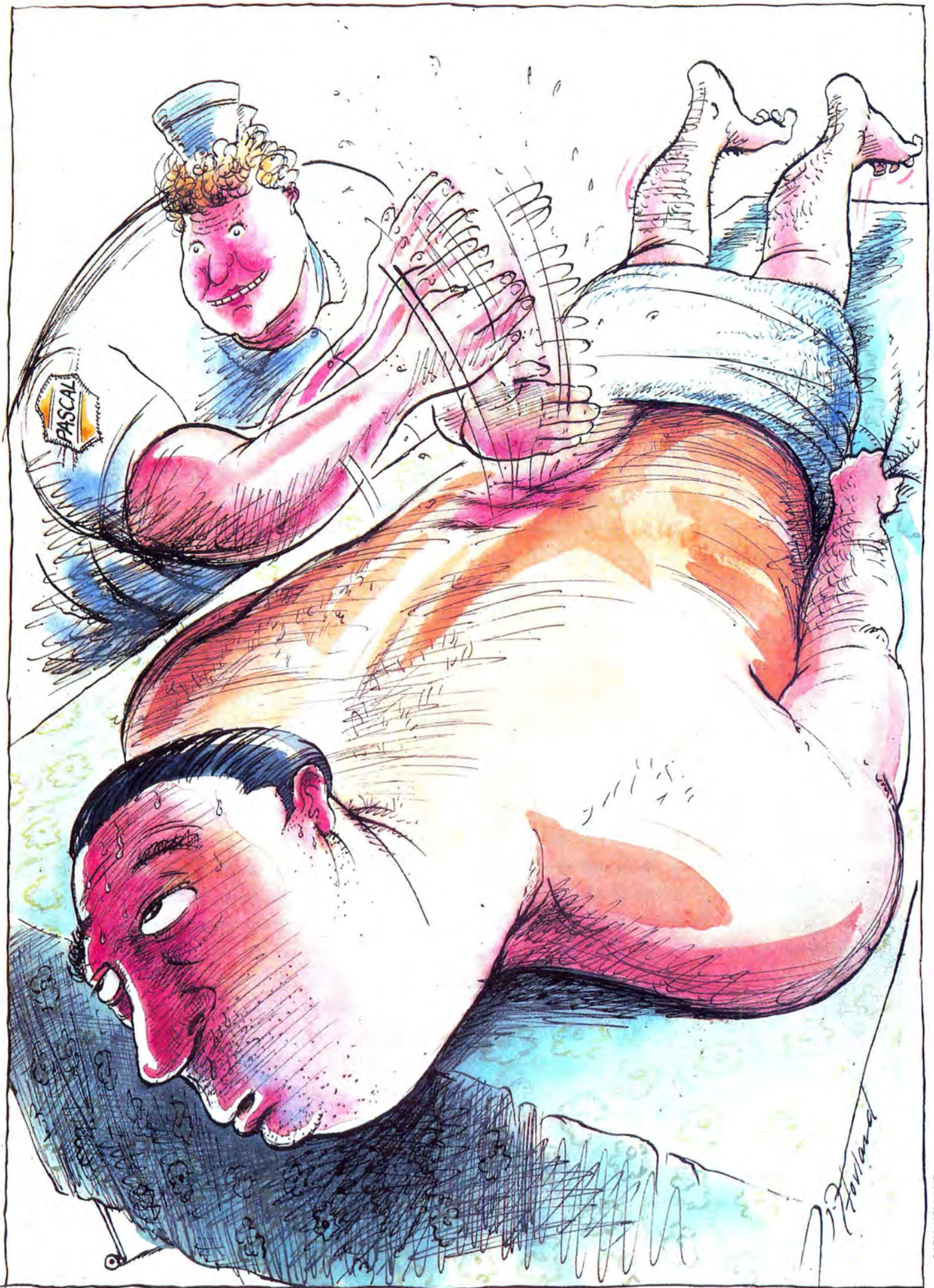
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THE FEEL OF PASCAL

ONE OF THE KEY FEATURES OF the Macintosh is its high-resolution graphics. The ability to output these graphics to the ImageWriter or LaserWriter printers is crucial for your programs. However, the Mac's unusual interface makes printing information somewhat complicated.

To illustrate this, consider sending text output to a printer on another microcomputer. This would normally be done by opening the printer as a text file for output, and sending the character stream with a series of calls to the standard procedure `Writeln`. This is nearly identical to the method used for sending output to the computer's screen. On the Macintosh, however, we don't simply send streams of characters to the screen; instead, characters and graphics are literally drawn to the windows that our program uses. Naturally, a document may have more information in it than appears in a single window. So how do we get all of this printed out?

The Mac has two sets of routines designed for printing; they're referred to as low-level and high-level routines. The low-level routines are the simplest to understand and utilize. With them we can create our own procedures that do printing in a fashion similar to other computers. Fortunately, the low-level routines work for outputting both text and graphics.

The high-level routines are intend-

***When you have to
see it on paper, here's
how to do it.***

ed for outputting formatted files in a fashion that duplicates a document's appearance in a Macintosh window. In fact, the high-level routines simply incorporate a special form of `grafPort`, and use standard QuickDraw routines to produce the image on the printer. Text output with the high-level routines can be in any font used by the Mac, but will be printed in a graphics mode, which means it will be slow. Low-level routines, on the other hand, use the ImageWriter's internal font to print draft quality text very quickly. *Inside Macintosh* points out that the low-level and high-level drivers cannot both be open at the same time. We'll keep this fact in mind when creating our program.

LOW-LEVEL ROUTINES

As usual we'll be working *TML Pascal*. The first listing shows sample procedures that demonstrate the low-level procedures for text-streamed and bit-streamed output. `PrintText` demonstrates how to open

a text file and print it. In order to avoid the problem of which printer driver is open, call the `PrDrvOpen` procedure at the first part of `PrintText` and `PrDrvClose` at the end. Then make a call to `PrCtlCall` with the instructions to Reset the printer.

Our own routine `getMyfile` calls the Macintosh toolbox routine `SFGetFile` to present the standard selection dialog with only TEXT files displayed. In order to make the program compatible with HFS use `SetVol` with the volume reference number (`vRefNum`) of the selected file. If this is not done, then the file manager would just look at the folder our application is in, and the file might not be found, resulting in a system error.

If the filename is valid, `PrintText` proceeds to read each line of the text file and print it to the screen. Note the `PrCtlCall` (printer control call) routine to define some simple procedures that function as string and character printers. The procedure `CRLF` uses the predefined value of `IPrLFSixth` which sends a carriage return and standard one-sixth inch linefeed to the printer. Formatting of the output is simple in this example; we only convert tab characters to five spaces. With a little work this routine could be used to create a nice printing application for formatted text files.

The other primary procedure that makes use of the low-level printer

BY STEVEN MARTIN

THE FEEL OF PASCAL

driver is ScreenDump. This routine simply sends a bitmapped image of the Macintosh screen to the ImageWriter in the same manner as the COMMAND-SHIFT-4 key. Note that PrCtlCall is passed the message iPrBitsCtl, which defines a bit-streaming mode of printing. It is then passed the pointers to the bitmap we wish printed, as well as the rectangle that contains this bitmap. Two modes of bit-streaming are supported: lPaintBits and lScreenBits. lPaintBits justifies the graphics for the taller dots used by the ImageWriter so the picture looks identical to that on the screen. lScreenBits does not do this, so the picture will

appear slightly squashed. This low level routine can be used to make hard copies of windows and dialog boxes.

HIGH-LEVEL ROUTINES

Our program contains one example of the high-level routine calls. PrintHigh first creates a handle to the print record that we will use. It then opens the high-level driver with a call to PrOpen, and sets the value of the print record to the defaults for the particular driver being used.

There are two dialog boxes that everyone is used to seeing when printing on the Macintosh. The first is the Style Dialog box, which re-

quests information about the size of paper being used and whether to print lengthwise or along the paper's width. This dialog box is usually associated with a Page Setup... menu item under the File menu. The second box is the Print Job Dialog, which asks how many pages we want, and which pages of the document are to be printed. If the Draft check box is selected, only text will be output. The PrJobDialog usually appears when the Print... menu item is selected. In order to simplify things our program will call each of the printer dialogs when a single menu item is selected. If the user presses the CANCEL button for either

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```
(-----
                        Include files needed:
-----)

($I  L0DOWN:Applications:Pascal:PascalSystem:MemTypes.ipas )
($I  L0DOWN:Applications:Pascal:PascalSystem:QuickDraw.ipas )
($I  L0DOWN:Applications:Pascal:PascalSystem:OSIntf.ipas )
($I  L0DOWN:Applications:Pascal:PascalSystem:ToolIntf.ipas )
($I  L0DOWN:Applications:Pascal:PascalSystem:PackIntf.ipas )
($I  L0DOWN:Applications:Pascal:PascalSystem:MacPrint.ipas )

(-----
                        Low Level Routines:
-----)

Procedure getMyfile( var fn:Str255);

{ Function to get file name through SFGetFile routine. Also
  sets the volume to that of the selected file so that the Open
  procedure works properly with HFS. }

Var
  rply:      sfreply;
  typelist:  sfTypelist;
  where:     point;
  result:    OSErr;

Begin
  where.v := 90;
  where.h := 80;
  typelist[0] := 'TEXT';

  SFGetFile( where, '', Nil, 0, typelist, nil, rply);
  fn := '';
  If rply.good Then
    Begin
      result := SetVol( Nil, rply.vRefNum);
      fn := rply.fname;
    End;
End;

Procedure PrintText;

var
  f:      text;
  str:
  filename: Str255;
  i:      Integer;

Procedure CRLF;

Begin
  PrCtlCall( iPrDevCtl, lPrLFSixth, 0, 0);
End;

Procedure PrintString( PS: Str255);

Begin
  PrCtlCall( iPrIOCtl, LongInt( @PS[1]), length( PS), 0);
End;

Procedure PrintChr( ch: Char);

Begin
  PrCtlCall( iPrIOCtl, LongInt( @ch), 2, 0);
End;
```

```
Begin
  PrDrvOpen;
  PrCtlCall( iPrDevCtl, lPrReset, 0, 0);

  getMyfile( filename);

  If filename <> '' Then
    Begin
      Open( f, filename);
      Reset( f);

      while not eof( f) do
        begin
          Readln( f, str);
          For i := 1 to Length( str) Do
            Begin
              if str[i] = chr( 9) Then
                PrintString( ' ')
              Else
                PrintChr( str[i]);
            End;
          CRLF;
        end;
      Close( f);
    End;

  PrDrvClose;
End;

Procedure ScreenDump;

Begin
  PrDrvOpen;
  PrCtlCall( iPrDevCtl, lPrReset, 0, 0);

  PrCtlCall( iPrBitsCtl, LongInt( @screenBits), LongInt( @screenBits.bounds), lPaintBits);

  PrDrvClose;
End;

(-----
                        High Level Routines:
-----)

Procedure PrintGraphix( PrPort: WindowPtr);

Var
  OldPort: WindowPtr;      { To store the correct port to }

  myRect: Rect;
```


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THE FEEL OF PASCAL

of these, then the routine returns a value of false and we don't need to proceed with printing.

Once the dialogs have been answered satisfactorily, we call `PrOpenDoc` to open the document to be printed. This returns a `grafPort`, which we call `ThePrPort`, where the drawing routines can be sent. We then call `PrintGrafix` to make standard `QuickDraw` calls for the print-out. These graphics will be sent to a disk file until the `ClosePage` and `CloseDoc` are called, at which time the file will be spooled to the printer. Note that while this form of printing is referred to as spooled printing, it is not a multitasking, or background

process; the processor must still be used full time until the printing is finished. Normally a dialog box should be put up, which shows that the user may stop the printing by using the `COMMAND-PERIOD` keys.

After the document is closed, we check for the spool file and send it to the printer with a call to `PrPicFile`. This done we can close the printer driver and dispose of the printer record used for the process.

This series has taken us from a simple Shell program developed in *TML Pascal*, and, shown how, by laying in our own functions and procedures, we could create applications for the Macintosh.

Remember that the listings that accompany this article are code fragments. These routines are to be added to the full Shell program created in the first two articles of the series. The first part of this listing shows all of the include files needed by the print program. The second part shows the new routines which are added, as they are shown, directly after the `SetUpThings` procedure in the Shell program. Finally, we show how the `SetUpMenus`, `ProcessMenuIn` and main program blocks are changed to accommodate the new routines. □

Steven Martin is a Denver-based programmer and author.

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```
Begin
  GetPort(OldPort);      { Save the current port }
  SetPort(PrPort);       { Use the printer port for output }

  SetRect(myRect, 50, 30, 340, 300);
  FrameOval(myRect);
  FrameRect(myRect);

  TextFont(Monaco);
  TextSize(12);
  MoveTo(50, 50);
  DrawString('This is an example of High Level printing.');
```

MoveTo(50, 65);
DrawString('These two lines are in Monaco 12 point font.');

TextFont(SystemFont);
MoveTo(50, 85);
DrawString('Now we are in Chicago font (The System font).');

MoveTo(50, 100);
DrawString('Note that we must change line position by using');

MoveTo(50, 115);
DrawString('the MoveTo command.');

TextFont(geneva);
TextSize(9);
MoveTo(90, 130);
DrawString('The name of the game is Move and draw!');

TextSize(12);
MoveTo(50, 145);
DrawString('Thats all folks...');

SetPort(OldPort); { Return output to our window }

End;

Procedure PrintHigh;

Var

 ThePrPort: TPPrPort;
 TheStRect: TPStRect;
 ThePrH: THPrH;
 ThePrint: TPrint;

Begin

 ThePrH := THPrH(NewHandle(SizeOf(ThePrint)));
 PrOpen; { Open the High level driver }
 PrintDefault(ThePrH); { Set to the default settings }

 If PrStdDialog(ThePrH) Then
 If PrJobDialog(ThePrH) Then
 Begin

 ThePrPort := PrOpenDoc(ThePrH, Nil, Nil);
 PrOpenPage(ThePrPort, Nil);
 PrintGrafix(windowPtr(ThePrPort));
 PrClosePage(ThePrPort);
 PrCloseDoc(ThePrPort);

 If (ThePrH^.prJob.bDocLoop = bSpoolLoop) Then
 If PrError = NoErr Then
 PrPicFile(ThePrH, Nil, Nil, Nil, TheStRect);

 End;

 DisposeHandle(Handle(ThePrH));
 PrClose;

 End;

 {-----
 Display our program Title
 {-----}

Procedure CenterText(y: Integer; S: Str255);

```
Begin
  MoveTo((246-(StringWidth(S) div 2)), y);
  DrawString(S);
End;
```

Procedure ShowTitle;

Var

 R: Rect;
 picH: PicHandle;

Begin

 SetRect(R, 0, 0, 492, 300);
 EraseRect(R);
 InvalRect(R);

 picH := GetWindowPic(myWindow);
 KillPicture(picH);
 picH := OpenPicture(R);

 CenterText(40, 'Printer Demonstrations');
 CenterText(60, 'Copyright © 1986');
 CenterText(80, 'For MacUser Magazine');
 CenterText(100, 'By Steven Martin');
 CenterText(160, 'Please make a Menu Selection');

 ClosePicture;
 SetWindowPic(myWindow, picH);

End;

{-----
Changes to File Menu SetUp:
{-----}

MenuTopic := NewMenu(FileMenu, 'File');
AppendMenu(MenuTopic, 'Print Text; Dump Screen; (-)Print High Level; (-)';
AppendMenu(MenuTopic, 'Quit/Q'); {Has a keyboard equivalent.}
InsertMenu(MenuTopic, 0);

{-----
Changes to ProcessMenuIn:
{-----}

FileMenu: begin

 Case Item_No of

 1: PrintText;
 2: ScreenDump;
 3: { Line Item };
 4: PrintHigh;
 5: { Line Item };
 6: Finished := True; (Quit)

 end;

 end; { Case Item_No }

{-----
Changes to The Main Program:
{-----}

BEGIN { Main program }

 InitThings;
 SetUpThings;
 SetPort(myWindow);
 ShowTitle;
 MainEventLoop;
 CloseThings;

END.

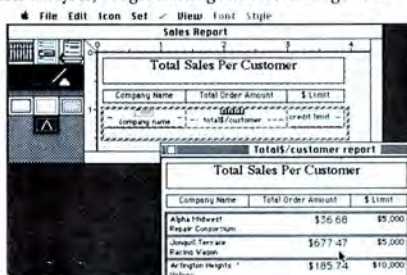
THE ONLY COMPLETE MULTIUSER SYSTEM FOR APPLETALK AND ANY HARD DISK

MultiUser Helix

MultiUser Helix is a shared data-based information management and decision support system that includes a complete application building environment. With MultiUser Helix you can design a system to run a business, office, or department and then share that system to coordinate the efforts of your people.

No programming necessary

Use icons and visual design tools to create all the vital input and report forms, lists, analyses, and mail merge letters needed to run your business. No need to learn a programming language, understand arcane command codes or special formulae. Visual building blocks let you quickly set up data-based calculations to take care of any business need; from order entry, inventory control and invoicing to sales analyses, budget tracking and asset management.



Design forms that reflect the way your business works—from mailing labels to entry forms to presentation-quality reports. All Macintosh fonts, styles and graphics capabilities are supported.

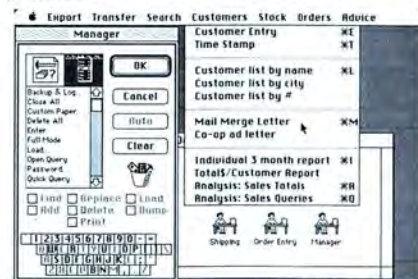
Everything built in

In MultiUser Helix, the multiuser capability—enabling more than one person to work with the same information base at the same time—is built into the software. All other systems require special hardware or extra software. They “force” a multiuser effect with programming tricks like “semaphores,” and rely on external “file servers” to simulate multiple access to files. This results in a complicated, inflexible, slower, and more expensive system. In MultiUser Helix, the whole network functions like a human nervous system, with its own updating and feedback mechanisms as a natural part of the system. There is no reliance on external hardware devices, and no need to worry about programming interlocks and special volume configurations.



A system everyone can share

Connect your Macintosh computers together with the AppleTalk network (the same cables that connect the Macintosh with the LaserWriter) and with MultiUser Helix all screens automatically update and show current results for any changes made on the network. MultiUser Helix handles all network control including record updating and record locking. Because everything is already built in there is no need to worry about special fileserver hardware or software. Best of all, MultiUser Helix works with any hard disk.



Simply type your own menu names into the Macintosh menu bar and drag form names and commands into the menus. Then click user options and permissions on a per form basis before assigning keyboard controls which instantly open forms for entry, automatic reports and printing.

Expandable

This package contains 3 MultiUser Host/Guest disks, so that you can start with a 3 station network. Additional stations are available—up to 30 per network.

Full support from Odesta

This MultiUser Helix package includes: 7 disks (2 Double Helix v.1+ program disks, System disk, Resource/Work disk with sample applications, 3 MultiUser Helix Host/Guest disks), 3 reference manuals, including a tutorial Quick Start guide and an 18 ring project binder with notepad. To Odesta, your business is as important as our own: Call us toll-free with technical questions or to inquire about our Consulting and Application Design Services.

Key Network Features

- Supports AppleTalk Network
- Compatible with any hard disk (no fileserver required)
- Expands up to 30 users per network
- Each user can have his or her own personalized menus and password that relates to that person's function
- Time stamping
- Automatic external data log file to ensure data integrity
- Automatic updating of any record or list—on screen
- Complete control of viewing, adding, deleting, changing, or printing information on a per form/per user basis
- Capability of having multiple “hosts” on one network simultaneously
- Can be used in conjunction with volume servers and file servers
- MultiUser Helix receives the same excellent support Odesta gives to the other members of the Helix family

Requirements

- Network host requires hard disk, with 1Mb memory recommended and AppleTalk Network
- Guest nodes work with the Macintosh Plus, 512E, or Macintosh 512 with external drive

Odesta Corporation 4084 Commercial Avenue Northbrook, IL 60062 U.S.A.
800-323-5423 (In IL) 312-498-5615

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TIP SHEET

MONTHLY TIPS AND TECHNIQUES THAT SAVE TIME AND TROUBLE

MACWRITE

Although *MacWrite* doesn't have footnoting capabilities, the Note Pad desk accessory can be used to accomplish the same function. Type footnotes into the Note Pad as you write, then paste the desired text from the Note Pad into the end of the document, or at the bottom of appropriate pages in the document.

HENRY STEENER
ONTARIO, CANADA

Although text and graphics can't be placed side-by-side in *MacWrite*, footer and header variables (page number, time and date) can be placed on top of pasted-in graphics. This can be used to creative advantage, such as a decorative picture of a clock with the footer/header time icon placed on its face.

GAIL LESLEY
SKOKIE, IL

When printing in Draft mode on the ImageWriter, I avoid using headers; use footers instead. When headers are used in Draft mode, the printer has to roll the paper back after printing each page in order to print the header. This drastically increases the chances of a paper jam in the printer mechanism. By putting pertinent information into a footer instead, the printer doesn't have to wind back, saving time.

JOHNATHAN LINNETT
SOMERSET, NJ

compiled by David Biedny

MacWrite sometimes cuts off the last letter of an italicized word at the end of a line (especially when the line is right justified). To avoid this, hold down the OPTION key when hitting the space bar after writing the word. This will create a "hard space," which will be recognized when *MacWrite* justifies the word, resulting in the last character being a space, not an alphanumeric character.

GLENN DIMONA
AUSTIN, TX

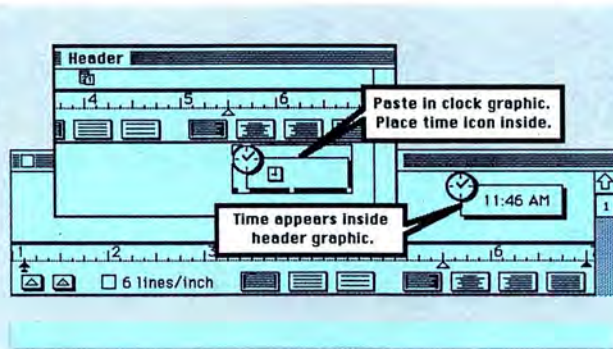
Mac screen. Whatever is under the pointer is turned into a brush and placed into the brush palette.

BURT ROARK
BROOKLYN, NY

HARD DISKS

Hard disks that use the serial ports (non-SCSI units) can be placed a distance from the computer using a Radio Shack joystick extension cable.

PAUL FRIEDMAN
SARASOTA, FL



HFS LOCATOR PLUS

When used from the *Finder*, a file that is searched for or selected with the SPECIFIC FILE command will launch directly from the desk accessory with the LAUNCH NOW command, instead of the LAUNCH AFTER QUIT command (which appears when used from within any other application).

DAVID SCHARGEL
MASSAPEQUA, NY

FULLPAINT

When using the custom brush feature, click the pointer on any part of the

FINDER

Sometimes the heaps and piles of folders on the desktop make it next to impossible to find a particular folder window if that folder is open. To bring a specific folder's window to the foreground, find the folder's dimmed icon (usually easier than finding its window), and double click it.

VYTAS BANIONIS
LOS ANGELES, CA

TEMPO

When creating macros within an application, be sure not to assign macros command key combinations

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, 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!

that are already in use in the application. Combinations such as COMMAND V, X, C (Paste, Cut and Copy) are obvious; check the application's menus before making any new combinations.

ROGER WATERFORD
CAMBRIDGE, MA

THUNDERSCAN

Sometimes a thin horizontal line of distortion appears across a scanned image. This is usually attributable to the white tape strip that is supposed to be wrapped around the left end of the ImageWriter's platen. After extended usage, the end of the strip curls up or frays, and confuses the ThunderScanner. Try adhering the end of the strip back to the platen with a small dab of glue, or replace it altogether.

SHARON EPPELSTEIN
RENO, NV

FILE

Normally, hitting TAB in *File* moves the cursor to the next field. However, Tab characters can be generated by holding down the OPTION key as the TAB key is pressed. If data with embedded tabs is exported to a word processor, for example, the tabs will respond to the tab settings in the word processor, facilitating the creation of formats such as tables. Care must be taken, though, if that same data is to be used in another database program. The receiving database may confuse the Tab characters for field delineators, and garble the transfer.

KATHY RIETER
PHILADELPHIA, PA

Previous field
Same record



Next field
Same record



Same field
Previous record



Same field
Next record

File takes advantage of the cursor keys on the Mac Plus keyboard. The right arrow moves the cursor to the next field (replaces TAB or RETURN). The left arrow key moves the cursor to the previous field (replaces SHIFT-TAB or SHIFT-RETURN). The down

arrow moves the cursor to the same field in the next record (replaces COMMAND-ENTER). The up arrow key moves the cursor to the same field in the previous record (replaces SHIFT-COMMAND-ENTER).

RICHARD KOETZ
MIAMI, FL

When printing reports on the LaserWriter, rules (separating lines) print as dotted lines. If FONT SUBSTITUTION is selected from the Page Setup dialog, these lines will print solid.

CRAIG JONES
RYE, NY

MULTIPLAN

If you've accidentally forgotten the password to an important spreadsheet, there is a way to regain access to it. Using a disk editor (*Fedit*, *MacTools*, *Mac Zap*), open the spreadsheet document, find block 3, part A, position 0079. If the spreadsheet is protected, then this location should contain a 01. Change it to 00, save the changes (write the sector to disk), and the spreadsheet should now be unprotected.

DANIEL SHWARTZ
TEANECK, NJ

Add a new column to a spreadsheet by holding down the SHIFT key while clicking in the head of the column to the right of new column's intended position.

CHRISTIE FRANKER
WEST HARTFORD, CT

FINDER

Many times it's necessary to rebuild the desktop file by holding down OPTION-COMMAND when booting a disk, or after receiving a "This disk needs minor repairs" message in the *Find-*

er. What most people don't know is that any comments entered into the Get Info dialog box are actually stored in the desktop, resulting in the loss of all comments when the desktop is rebuilt.

THOMAS HABER
BOULDER, CO

MS BASIC

Although *MS BASIC* allows the programmer control over different font styles and sizes for the output window, there is no obvious way to change these for the List and Command windows. In order to do so, use the POKE commands "POKE &H985, 4: POKE &H987,9". The 4 represents the font ID number (in this case, Monaco). Substitute the ID of the font that you want things to be displayed in. The 9 is the point size that the

font is to be displayed in — other sizes work here as well.
WILLIAM SCHASEE
SAN FRANCISCO, CA



Version 2.1 displays an error message if it finds a Tab character before a label name.

NANCY PINOLA
DETROIT, MI

SWITCHER

If a startup set of applications has been set in a file named "Switcher.Startup", it can be bypassed by holding down the OPTION key when launching *Switcher*.

FRED REINERT
ATLANTA, GA

If you allocate too small a *Switcher* partition to *MacWrite*, it may truncate text files that you try to open, without any warn-

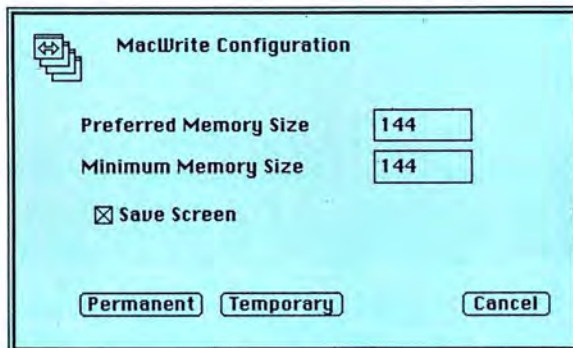
ing. If *MacWrite* runs out of memory, it will simply stop loading the file, and display whatever it can load. If you notice that there are lines missing at the end of the file, try giving *MacWrite* a larger partition.

CAROL MASUR
SALT LAKE CITY, UT

FONTS

It's no longer necessary to go through programming tricks to get the Apple symbol in your work. Simply install any Apple font. The Apple symbol is OPTION-SHIFT-K in all of them. Type in whatever font you want, typing OPTION-SHIFT-K wherever you want an Apple, and then go back and change the square box that appears in most fonts to whatever laser font you've installed.

SUSAN GENIS
NEW YORK, NY



If *MacWrite* is to be used with the LaserWriter, it must be given a larger partition than the default 128K that appears in the

Configure then Install menu. For best results, try a 144K or larger partition.

BARRY SAMONE
DALLAS, TX

MACDRAW

Current versions of *MacDraw* cannot address more than 11 fonts under the Font menu. For those proficient with *Fedit* or *MacTools*, this limitation can be removed. Using one of these utility programs, open a copy of *MacDraw* (attempt this modification only on a copy of the program), and make the following changes to the file:


All fonts in the *System* will now show up in the Font menu, with the size selections appearing at the bottom of the menu (if there are many fonts, you may need to scroll

FIND	CHANGE TO	OCCURRENCES
41ED FAD6	41ED F360	9
0000 0C60	0000 0CA0	1
000B FACE	0016 FACE	2
0014 6F02 7C14	001F 6F02 7C1F	1
70E1	709B	3
0001 00E1	0001 009B	3
10E1	109B	1
0C47 0015	0C47 0020	1
4E56 FFBE	4E56 FF9E	1

down the menu to see the sizes). Note that files created with this modified *MacDraw* may not be fully text compatible with future versions of *MacDraw*.


JON HARDIS
WASHINGTON, DC

TIP SHEET

 When using *MacDraw* on the Mac Plus, the problem of limited font access is compounded by the fact the new ROMs order the fonts alphabetically, thereby forcing specific fonts into the already limited font slots. The solution is to use *ResEdit* to insert a space before the name of each font in the *System* that is to appear in the menu. The renamed fonts appear first in the menu (as they will for all other applications running under that *System*).

HAROLD BRENNER
SEATTLE, WA



 When printing a document containing text on the *LaserWriter*, be careful about selecting more than a 150 percent enlargement, or 75 percent reduction: the Mac may clip the text, resulting in incomplete characters.

STEVEN JENKSEN
HOUSTON, TX

Font

✓**Boston**
Rome
Zurich
Geneva
Helvetica
Monaco
New Century Schlbk
New York
Palatino
Times
Venice

9 point

10


✓12

14

18

24


36

 If the Grid in *MacDraw* has been turned off, it can be temporarily turned back on by holding down the Shift key as you move an object. Be sure to press the SHIFT key *after* you've depressed the mouse button to


select the object to be moved. If you press the SHIFT key before selecting the object, you'll be making a selection "on top of" the object you intended to select.

DAVID BORNE
CAMBRIDGE, MA

DISKS

 Airline security and magnetic diskettes evoke paranoia in the bravest Mac users' heart. Although the potential for damage is questionable, one way to stay safe is to place disks in a lead laminated pouch designed to hold photographic film for the same reasons. The pouches can usually be found at camera supply stores.


MAXWELL RICHARDS
SMITHTOWN, NY

 If you change your disks labels as often as you change your socks, try Scotch Post-It Cover-up tape. It can be written on, will stick

well to the disk and can be easily removed.


THOMAS LANG
TEMPLE CITY, CA

FINDER 5.X

 To eject a startup disk, drag the icon into the Trash. Don't worry: the Mac won't shut down, as you might expect.

JAD DUWAIK
AURORA, CO

MICE

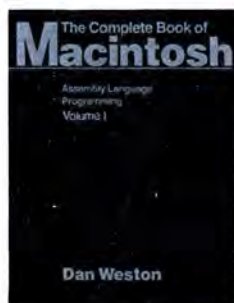
 There's a not-so-new mousing surface that most of you own and haven't considered using yet: a hard-cover Time-Life book. The surface works pretty well, it's got more mousing room than a standard mouse pad, it can be had cheap (check used book stores for best price), and when you get tired of your Mac, it's instant good reading.

ANN LEWIS
MONTGOMERY, AL

HERE'S HELP FOR MAC PROGRAMMERS

"The Complete Book of Macintosh Assembly Language Programming, Volumes I & II, are a *must* for anyone serious about programming the Mac. They contain information not found anywhere else, and cover the real-life problems of a software developer."

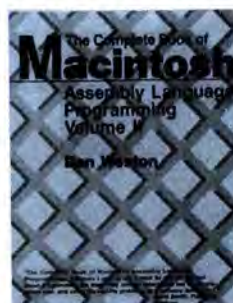
David Smith, Publisher, MacTutor



THE COMPLETE BOOK OF MACINTOSH ASSEMBLY LANGUAGE PROGRAMMING, Vol. I by Dan Weston

Written for programmers new to assembly language, this book provides a wealth of program examples that demonstrate most of the major concepts of assembler. Detailed explanations and dozens of illustrations make this book easy to understand. Learn how to use the Macintosh 68000 Development System, Editor, Assembler, and

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products, shows how to work with Clipboard, write programs that work with Switcher, use the new hierarchical file system, and also explores in detail how to program print manager, vertical trace manager, and the speech drivers. 416 pages, softbound, \$22.95

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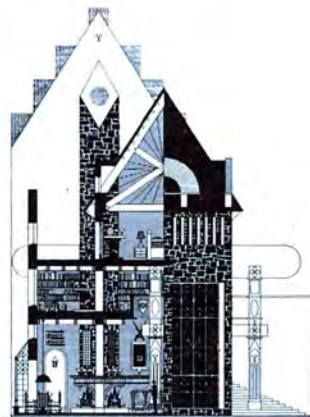
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TIP SHEET



EXCEL

Entering certain text strings into a cell in *Excel* sometimes produces something other than the desired effect. For example, pasting 10A into a cell will result in *Excel* displaying

10:00 AM (the time). The solution is to enter the text as a formula. In the above example, type = "10A", and the cell will show 10A.
DONALD CLARK
HOLLISTON, MA

When entering a formula into a cell, hitting the ENTER or RETURN keys confirms the formula, and the results will appear in the cell, although the formula is saved with the sheet. If the Com-

mand and = keys are pressed instead, the results of the formula are entered into the spreadsheet, and the actual formula is lost (if a new value is entered into a variable cell in the formula, the contents

of the results cell will not change). This results in a small savings in the size of the spreadsheet file.
DAVID BAIRD
CHICAGO, IL

When a group of cells is highlighted, the cursor is confined to moving within the selected area when using the keyboard to control it. Using the cursor keys on the Plus will move the cursor around within the selected cells, and when it hits the bottom or edge of the area, it will wrap around to the other side.
BERT GRIFFIN
BOSTON, MA

ANCIENT ART OF WAR

When an enemy squad with no archers attacks your fort, do not zoom into the battle. The attackers can't retreat and they'll eventually be killed. Why? One of the game's playing rules is that

the squad cannot survive an assault on a fort without archers.
MIKE STEELE
MICHIGAN CITY, IN

LASERWRITER

When using the Manual Feed option on the LaserWriter, you have 90 seconds in which to place a sheet of paper in the feed slot. If the paper isn't inserted in this time, the LaserWriter will time out and cancel the print.
BARBARA PROCT
MASSAPEQUA, NY

When printing ImageWriter fonts on the LaserWriter, always keep the largest available size of the font in the *System* file. The LaserWriter uses the largest size and scales it down. The larger the fonts it scales from, the smoother the appearance of the printout.
ROBERT MORRISON
ANN ARBOR, MI

New

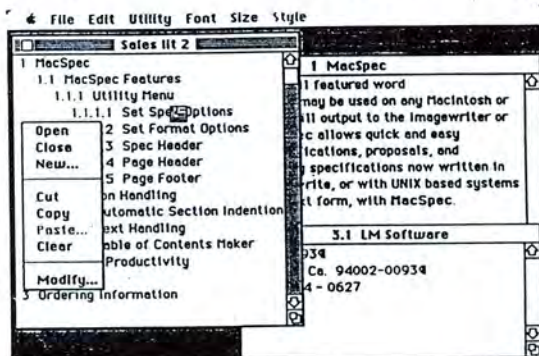
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TOTAL	5785	4980	6185	7535	24485

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COMDEX	11/10/86	Las Vegas
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by Dan Cochran

ANSWERS FROM THE MAC TEAM

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.

512K Enhanced Questions

Q. I recently purchased a Macintosh 512K Enhanced. I also picked up a copy of *MacUser* (July 1986). While reading the magazine many questions were raised.

1. I read a lot about the Mac Plus and the Mac 512K. Nothing was mentioned about the Mac 512K Enhanced. What is the difference between these three assumably different computers?

2. The system tools disk that came with my computer says "Macintosh Plus." My computer is a 512K and not a Plus! Does this make a difference?

3. SCSI was talked about. What is SCSI, and does my Mac 512K Enhanced have it? Also, what is it used for?

JOHN M. CLUFF
PORTLAND, OR

A. First, let me congratulate you on both your excellent taste in computers and in magazines. And now, on to your questions.

1. The Macintosh 512K (aka "Fat Mac") is basically the original Macintosh 128K furnished with 256K RAM chips instead of the old 64K RAM chips. The result is simply four times the memory of the original Macintosh.

The Macintosh Plus, from both a hardware and a software perspective, is a significant departure from the original Macintosh architecture. A new mother board (the

main circuit board in the machine), twice the memory (1 megabyte), mini-din connectors instead of the DB-9 connectors on the back panel, a new keyboard with a built-in numeric pad, an 800K disk drive, and new firmware (ROM's) to support, among other things, the new SCSI port and the new HFS filing system, are the most important differences between the Macintosh 512K and the Macintosh Plus.

Your Macintosh 512K is a hybrid of the Macintosh Plus and Macintosh 512K. Your machine is essentially the same as a Macintosh 512K but you do have two of the Macintosh Plus features: (1) an 800K disk drive, and (2) the new firmware. Of course, the 800K disk drive gives you additional storage capacity and the new firmware allows you to take full advantage of the 800K drives and also provides you with a number of performance improvements and additional features not found in the stan-



dard Macintosh 512K. Should you choose to later, you can always upgrade your Macintosh 512K Enhanced to a Mac Plus!

2. The Macintosh Plus System Tools disk you received with your Macintosh 512K Enhanced will work just fine with your machine. The System Tools disk is married more to the new firmware (which you have) than to the new Macintosh Plus hardware (which you don't have). Go ahead and use it...you've got the right stuff.

3. SCSI stands for Small Computer Standard Interface. SCSI is simply a well-accepted industry standard which defines one of many ways that a computer can communicate with peripheral devices such as hard-disk drives. A SCSI device has the advantage of being relatively fast and inexpensive to design and build. The Macintosh Plus has a SCSI port on the back panel which allows you to hook up compatible SCSI peripherals. You don't have a SCSI port on your Macintosh 512K Enhanced but you can certainly connect non-SCSI peripherals,

such as an Apple HD-20, to your machine and still enjoy the advantages of a hard disk.

1.6 Mb Floppys?

Q. As a Macintosh consultant, I am frequently asked what to do in regard to upgrading from 512K to 1 megabyte, new ROMs and double-sided disk drives. Recently, while attending an Amiga meeting, I heard that Maxell has released a 1.6-megabyte floppy disk on the market. Can you tell us more about this new high-density disk. For example, are these disks single or double-sided? Can our Apple, DataSpace and other Macintosh compatible disk drives read these disks and use all of that space? Are they manufactured by other companies such as Sony or Fuji? And finally where can we buy them and at what price? Thank you and keep up the good work.

DANIEL BOIVIN
MONTREAL, QUEBEC

A. The double-sided, double-density disks you allude to are indeed in limited production by several companies. Advances in media technology allow this higher density to be possible. However, the manufacturing yields are still low, prices are high and reliability unproven. And even if these new disks were available, cheap and reliable you wouldn't be able to use the additional space with any existing 400K or 800K disk drive on the market, including Apple's. The effective amount of space available to you on a disk isn't simply a factor of the media's capacity. It's also a matter of the drive's mechanics, electronics and the software and firmware which controls reading and writing to the drive.

Apple II as a Print Buffer?

Q. I would like to know how to turn my Apple IIe into a print buffer for my Macintosh Plus. My printer is an ImageWriter I. I also have a 400K external disk drive. My IIe has an 80-column card, but no extra memory.

JAMES L. BOETTLE
ORANGEBURG, SC

A. There's really no easy way. First, the way the Macintosh sends data to the printer would require you to have at least 1 megabyte of memory in a print buffer for it to be effective. But your Apple IIe has a disk drive, you say. Why can't you spool the Macintosh print information to your Apple IIe's disk and have the IIe print it from there? Entirely feasible, but you'll need a pretty substantial piece of software to accomplish it and I know of nothing on the market

today that professes that capability. Any suggestions from readers?

Compaq Connection

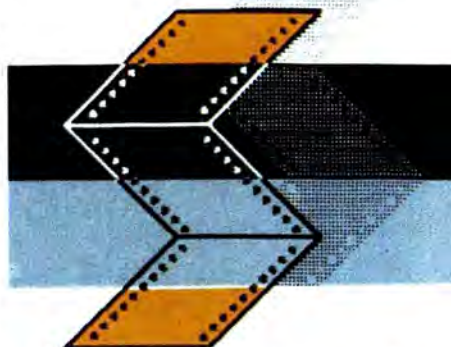
Q. I am a Macintosh user at home and work in an IBM environment. When I have to do some work at home on my Compaq I also find myself carrying a printer home at the same time.

It seems a shame that I have a very good printer with my ImageWriter and cannot use it. Is there any way that my ImageWriter can serve dual purposes and work with my Compaq?

JERRY ALLEN
SANTA CLARA, CA

A. An ImageWriter I, 8" and 15" models, can be used with the AT&T 6300 and other IBM compatibles running DOS 2.1. You'll need a custom cable, such as that from Custom Connection, 4862 Bannock Circle, San Jose, CA 95130, (408) 370-0990.

Set the printer switches for this configuration: U.S. Character set, 66 lines per page, 8 data bits (1 stop bit, no parity), pica character pitch, no LF after CR, 9600 Baud, Data Terminal Ready Protocol.



On your Compaq you must similarly configure the serial port and assign it as LPT1 by running this autoexec program:

```
mode com1:96,n,8,1,p
mode lpt1:=com1
```

This should also be applicable to the ImageWriter II but I won't swear by it. Thanks to Apple Technical Communications for this bit of info.

Multiple Questions

Q. I will ask this question, despite the fact that it will absolutely give me away as a novice Mac user (no pun intended):

How many K's are in a megabyte?

Concerning the care and safety of disks. If I am to understand that disks are to be kept away from motors and magnets, then how far away? How dangerous is a phone, my ImageWriter, or an electric typewriter? I assume it's perfectly safe to transport disks in a car, but how about a motorcycle?

ROBERT FEIN
NEW YORK, NY

A. One kilobyte or "K" contains 2 to the 10th power or 1024 bytes. One megabyte or "M" contains 2 to the 20th power or 1,048,576 bytes. Yours is an interesting question because many people think that a kilobyte is really 1000 bytes and a megabyte is really 1,000,000 bytes. But you really get more for your money.

Within a 4 square foot area where I am now working I have a Macintosh Plus, an ImageWriter, a telephone, a modem, an HD-20, and a plastic box full of disks. I don't think I've ever lost any data because of their proximity (as Bill Murray says "You generally don't see that type of behavior from a major appliance"). It's just a matter of common sense. Don't leave disks on top of your Macintosh or on top of anything with a

ANDY MARTIN

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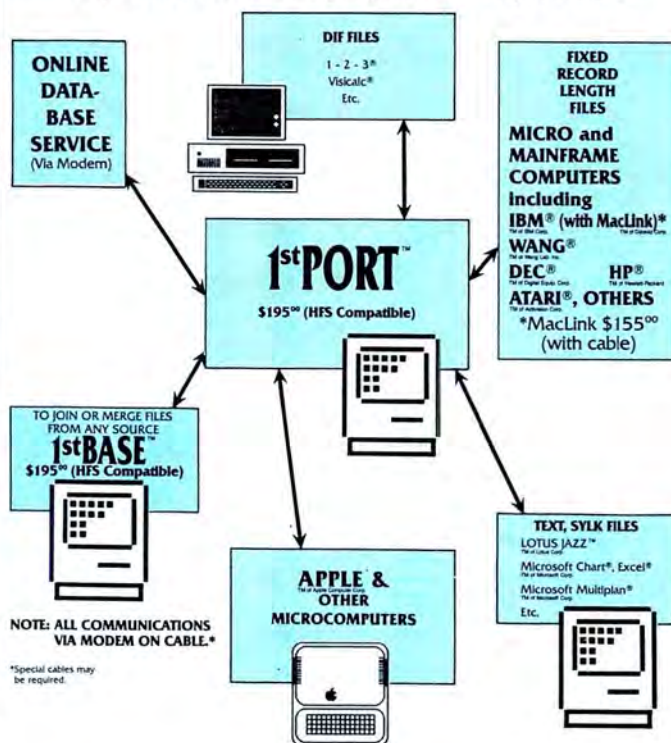
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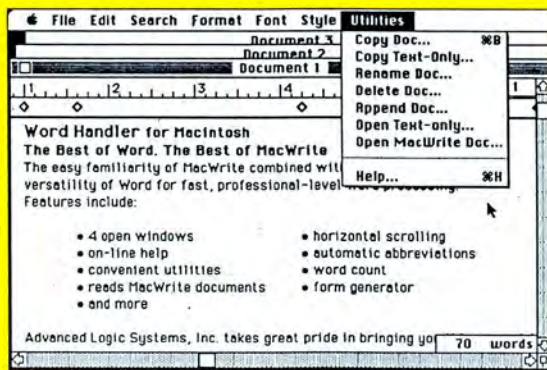
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motor in it for that matter. Cars and motorcycles are cool unless you're strapping the disks to the alternator.

List Manager/3D Quickdraw

Q. I have seen some oblique references to things called the List Manager and 3-D QuickDraw. But where is the documentation? It's not in my copy of *Inside Macintosh*, and if it's on CompuServe, then I can't find it.

JAMES W. WALKER
COLUMBIA, SC

A. The List Manager documentation is now in *Inside Macintosh, Volume IV*, which should now be available from your local bookstore (Addison-Wesley is the publisher). The 3-D QuickDraw documentation can be found in the *Lisa Pascal Workshop* documentation, and will also be included in the upcoming *Macintosh Programmer's Workshop Pascal* product (now available in beta form through the Apple Programmer's and Developer's Association). List Manager documentation is still available on CompuServe's MacDev forum. To the best of my knowledge the 3-D QuickDraw documentation is not.



Unfortunately, the next day I powered up with the intention of logging on to the computer at work and found that my modem had gotten fried. My assumption is that even though the modem wasn't in use at the time, the lightning got into the phone lines and did it in.

Is there such a thing as a surge suppressor for telecommunication lines? I've searched through magazines and reference materials and haven't found anything even resembling such a product. Would it be possible to build one?

I really enjoy *MacUser*. I subscribe to only two computer related publications, the other being *BYTE*. I'll be leaving my computer telephone extension unplugged on rainy days until I find a solution to this problem.

BERNIE LARRIVER, JR.
PROVIDENCE, RI

Telephone Surge Suppressors

Q. During a recent thunderstorm a bolt of lightning hit a power line near my house while my Macintosh was powered up. I had recently installed a power line surge suppressor and wasn't too worried about damage to my machine when the lights went out.

A. The major computer supply distributors such as *Inmac* and *Globe* (check your *Yellow Pages*) carry telecommunications surge suppressors, but not having used any, I can't comment on their reliability or usefulness.

As far as how to build one, Steve Ciarcia at *BYTE* would be eminently more qualified than myself to suggest possible ways. ☐

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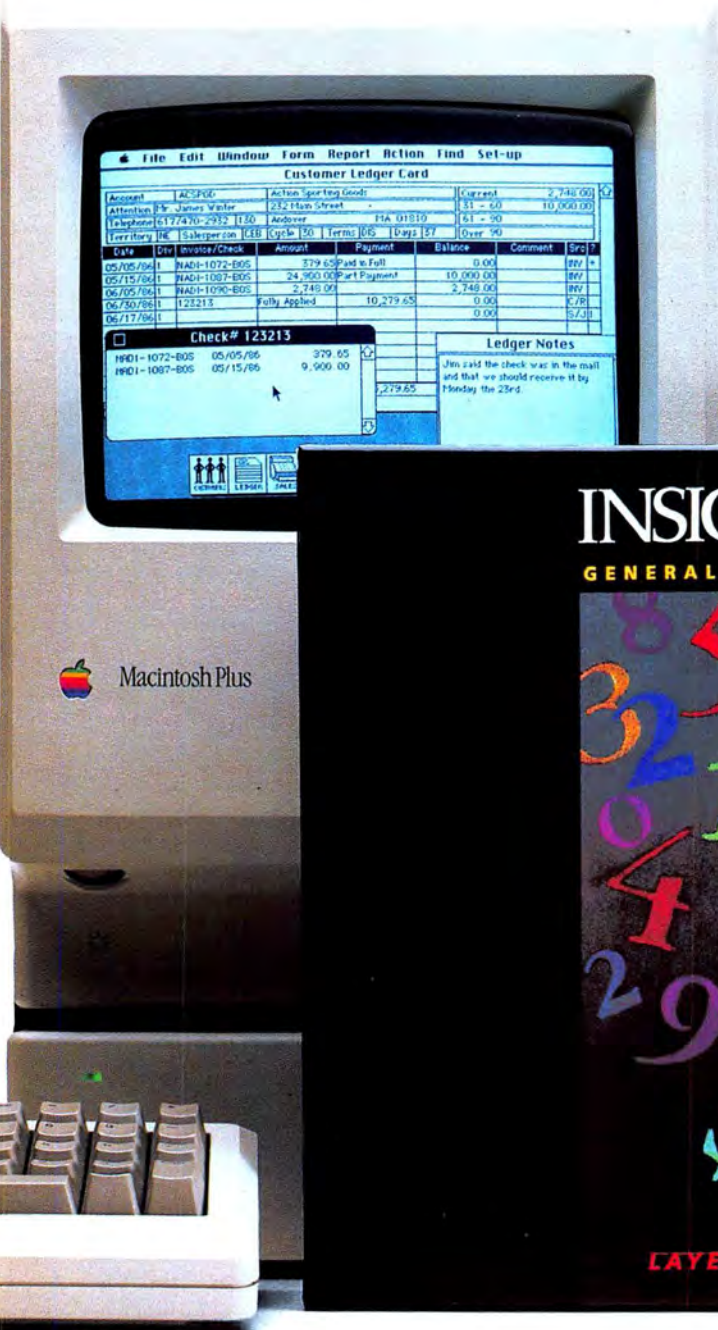


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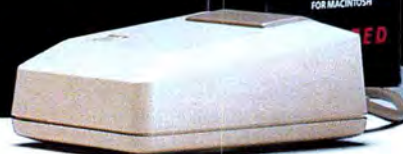
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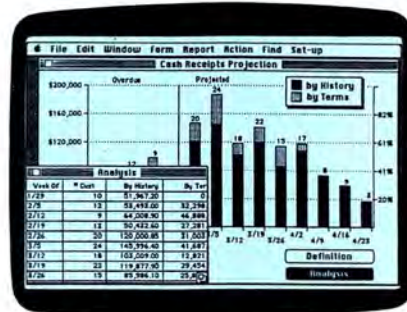
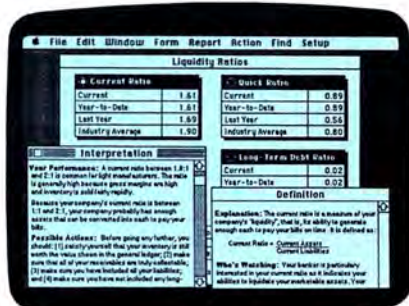
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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features **tttt** 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 **ttt** 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 **ttttt** 256-column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. \$395. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (Prem)

Jazz provides well integrated modules for word processing, graphs, **tttt** worksheets, databases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 800K drive. \$595. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Quartet is an integrated program that works on a 128K Mac, built **tttt** around a powerful spreadsheet with a full range of functions. It can also be used as a database and provides good quality charts from spreadsheet data. Documentation is adequate,

BUSINESS ACCOUNTING

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CheckMark is a Ledger with five preset journals: Cash Disbursements, Receipts, General, Sales, and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built in, but customer and vendor information is very minimal. \$295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP

Gallery Finance is a one-write system with General Ledger, Cash **tttt** Disbursements, Payables and Receivables in a single package. Data entered in a journal is automatically posted to appropriate records. 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 that does not **tttt** use Mac interface. Manual is detailed but complicated, with a few pages that make it Mac-specific. 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 **ttt** 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)

Rags to Riches integrated accounting modules (General Ledger **ttttt** and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. No detailed or flexible reporting. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. \$195 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. CP (Dec 85)

Strictly Business General Ledger features clear, well-outlined **tttt** set-up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each, and customized reports. Program print spools. Requires 512K+, printer and external drive. \$395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a **ttt** good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. \$149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

Electric Checkbook keeps a running account of checkbook **tttt** transactions, balances checkbook to bank statements, tracks bills, and prints out checks. Provides detailed financial statements, calculates net worth, lists expenses by category and tracks 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 **tttt** 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 **ttt** 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)

Profit Stalker II is a program for the generation of charts in order to organize data on stocks, mutual funds and commodities. Data is downloaded to the program or manually entered. Free upgrades and excellent support. Requires 512K+ and a Hayes-compatible modem. \$250. ButtonDown Software, PO Box 19493, San Diego, CA 92119. NCP (Aug 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 onto factsheets in any manner desired and select keywords. Searches are by name or keyword. \$149.95. Forethought, 1973 Landings Dr., Mountain View, CA 94943. NCP (Feb 86)

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, 16011 NE 36th Way, Redmond, WA 98052. CP

FileMaker is a nonrelational database that combines lots of power with ease of use. 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

Hellix is a relational database that makes extensive use of icons. Setup is easy due to adherence to the Mac interface. The manual is clear, thorough and well-indexed. Complicated for simple database applications, excellent where a relational power is needed. Requires 512K+ and 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)

MacBase is a forms-oriented relational database. Unfortunately, precise forms are hard to create. Allows calculated fields and has quick and powerful search capabilities. Best when much data is to be looked up, but not frequently entered. Requires 512K+. \$195. Eqtron Corp., 330 Bay St., Toronto, Ont. M5H 2S8, Canada. NCP (Jul 86)

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

Omni 3 is a power database, featuring concurrent multiple file management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. \$495. 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. It can exchange files with a very wide variety of other programs (including IBM software). \$295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (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. \$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. Changes in the worksheet automatically reflect in charts. \$79.95. T/Maker Company, 2115 Landings Dr., Mountain View, CA 94043. NCP

DesignScope is a construction kit for digital and analog circuits. Up to 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilloscope plots output in real-time. Good for testing basic (and not-so-basic) circuitry without touching a breadboard. \$249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

MacCalc is a fast, competent, full-featured spreadsheet with impressive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. \$99.95. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

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, 16011 NE 36th Way, Redmond, WA 98052-6399. 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 speeds, like old-fashioned flip books. Each film clip plays repetitiously as it is being constructed. A limited animation tool, but a lot of fun. \$49.95. Ann Arbor Softworks, 308½ 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

MINIFINDERS



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. NCP

Chart 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, 16011 NE 36th Way, Redmond, WA 98052-6399. 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)

ComicWorks is a graphics wonder. Manipulate bit mapped graphics as independent objects, with up to 64 layers of matting. An airbrush, multiple page capacity, full-screen drawing, and two disks of gorgeous artwork round out this package. Needs better *LaserWriter* support. \$79.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Nov 86)

Cricket Graph easily generates 12 graph types. Multiple windows can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, *LaserWriter* and plotter compatible. \$195. Cricket Software, 3508 Market St., Philadelphia, PA 19104. NCP (Jun 86)

DaVinci Building Blocks features predrawn blocks of brownstone, garden, and skyscraper portions that can be cut and pasted together to form landscape and architectural drawings. Fun for even non-pro's. \$79.95. Hayden, 600 Suffolk St., Lowell, MA 01853. NCP

DrawArt is the first *MacDraw* clip-art disk. Unfortunately, the assortment of graphics is too ragtag and the quality of images ranges from great to terrible. No image index. \$49.95. Desktop Graphics, 400 Country Drive, Dover, DE 19901. NCP (Oct 86)

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)

Fontographer is a complex, but excellent laser font creator. The fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. \$395. Altsys Corp., PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include full-screen drawing, multiple documents open simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. \$99.95. Ann Arbor Software, 308½ State St., Ann Arbor, MI 48104. NCP (Jun 86)

Home Design is a home planning tool that includes three disks full of *MacPaint* files of household items needed to design a home. *Art Grabber Installer* is included for easy maneuvering

of items. The professional home designer, as well as the amateur will feel at ease using this program. \$79.95. Hayden, 600 Suffolk St., Lowell, MA 01854. NCP (Jun 86)

Human Forms allows users to create perfectly proportioned humans in any posture or position. Contains over 1000 separate body parts. Tiny X marks 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

LaserWorks is a high-resolution font and graphics editor, producing *LaserWriter*-compatible end products. Its numerous well-designed features make it suitable for users of all levels, from beginners to pros. Requires 512K+ and external drive or hard disk. \$299. EDO Communications, 63 Arnold Way, W. Hartford, CT 06119. CP (Sep 86)

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. \$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 required. \$59.95. Shaherazam, PO Box 27731, Milwaukee, WI 53226. CP (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. 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. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. \$40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

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. \$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 slowly on a 128K Mac; a 512K should be considered a requirement. Printer support, including *LaserWriter*, is good. \$99.95. Boston Software Publishers, 19 Ledge Hill Rd., Boston, MA 02132. CP

MacPublisher II is the souped-up version of *MacPublisher*. Allows *MacWrite* and *Word* files to be imported and edited; allows up to 96 pages; supports kerning, borders, cropping, and it runs on 128K Macs. \$195. Boston Software Publishers, 1260 Boylston St., Boston, MA 02215. CP (Sep 86)

Mac3D is a very Macish 3D drawing package. Easy to use, many primitive shapes, good *LaserWriter* support, and lots of 3D goodies. Not a fully professional CAD package, though, and no shading. \$195. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP

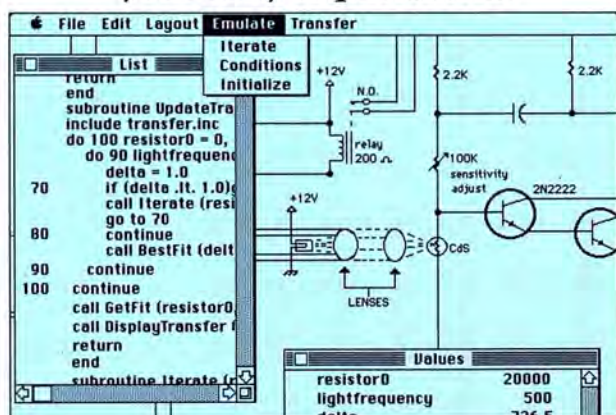
Magic Slate is a graphics and design program with built-in special effects and custom features. Fun but sometimes difficult to use. Great for pattern design, block and geometric graphics

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and watercolor-style "washes." Requires 512K+. \$99. Devionics, PO Box 2126, Covina, CA 91722. CP (Feb 86)

M.U.D. (MacroMind Utility Disk) is a disk of various utilities for **MusicWorks** and **VideoWorks** owners. It also contains **CheapPaint** 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, 411 First Avenue South, Seattle, WA 98104. CP (Jun 86)

Phoenix 3D is an economical 3D drawing package, with features that belong in a much more expensive program. Multiple light sources, fine control over object placement and orientation, and a good selection of shapes. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a program and accompanying desk accessory for organizing **MacPaint** and **MacDraw** files. Graphics are organized into libraries, and can be searched for by keywords. \$69.95. Symmetry Corporation, 761 E. University, Mesa, AZ 85203. NCP (Jun 86)

PosterMaker can enlarge **MacPaint** drawings by up to 3200 percent. Full-screen cut and copy are supported, so any portion of a **Paint** document can be selected and scaled. Borders can be added automatically. Includes some nice digitized graphics files. \$39.95. Strider Software, Beecher Lake Rd., Pembine, WI 54156. NCP (Jul 86)

ReadySetGo is a page makeup program for 512K+ Macs. Users build up pages from blocks of text, graphics and rules. 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)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from **MacPaint**; allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. Storyboards can be printed in several formats. \$495. American Intellware, 330 Washington St., Marina Del Ray, CA 90292. CP (Nov 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**. \$99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Nov 85)

World-Class Fonts comes in two volumes of three disks each. Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: \$39; both volumes: \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP

COMMUNICATIONS

HomePak is a package consisting of **HomeTerm**, an excellent simple telecommunications program with strong macro features; **HomeFind**, an electronic filer as bad as **HomeTerm** is good; and Apple's **Edit**, a simple, non-HFS-compatible text-file editor. \$49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario L4B 1B5, Canada. NCP (Sep 86)

InTalk comes with its own communications command language able to do unattended sessions. Supports Xmodem and MacBinary. 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)

Microphone is a high-powered terminal program that's easy enough for novices. Very powerful command language allows full automation of communications, if desired. \$74.95. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jun 86)

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 (Jun 86)

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. \$149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jun 86)

Telescope is the power telecommunicator's terminal program. Can be configured to emulate any terminal. The documentation does not adequately explain the many features. \$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. \$99. Peripherals, Supplies & Computers, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

WORD PROCESSORS

Document Compare allows users to compare any two **MacWrite** 4.5, ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. \$99. The Model Office Company, Inc., 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. Great for students of Japanese, may find a place in international business as well. \$300. Counterpoint Systems, PO Box 1685, Cambridge, MA 02138. CP (Apr 86)

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 for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. *Willamette* 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

Liberty Spell Checker is a fast, effective interactive checker. The dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. \$59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP

MacIndexer is a good writer's utility that takes much of the mechanical work and time out of preparing an index. Works with **MacWrite** and **Word**. Can generate word frequency counts. \$49.95. Boston Software Publishers, 1260 Boylston St., Boston, MA 02215. CP (Jul 86)

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MacLightning is an interactive spelling checker that is both very fast and has an extensive, well thought out dictionary. Exists in the System as a desk accessory. \$99.95. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP

MacWrite is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. \$125. 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. \$495. Megahaus, 5703 Oberlin Dr., San Diego, CA 92121. CP (Feb 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. NCP

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. Full-featured, easy to use, with keyboard equivalents for menu commands. \$59.95. Greene, Johnson, Inc., 15 Via Chualar, Monterey, CA 93940. NCP (May 86)

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, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (May 86)

Word Handler is a word processor with elements of MacWrite and Word. Can delete, rename, etc., without quitting. Has case

change, flexible printing options and glossary. Slow, and original release does not support graphics or the Clipboard. \$79.95. Advanced Logic Systems, 1283 Reamwood Ave., Sunnyvale, CA 94089. NCP (Oct 86)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practically all the power of a standalone program, and then some. Can save files as Acta outlines, MacWrite or text files. A must-have for those who do outlining. \$59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Calliope is a new type of outlining program. Chunks of information are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for MacWrite editing. \$59.95. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

DecisionMap organizes data to facilitate decision making. Unique weighting abilities make this a powerful tool. The decision analysis process is long and some times complex, but never difficult. \$145. SoftStyle, 7192 Kalanianohe Hwy., Honolulu, HI 96825. CP

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)

MacSpec is a specification writing tool, a cross between word and outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a

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MINIFINDERS



simple word processor. HFS-compatible. \$199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

MaxThink is an outline and idea processor that focuses on thinking skills. Helps you establish priorities, evaluate ideas, synthesize information. Some unique features and an innovative manual. \$89. MaxThink, Inc., 230 Crocker Ave., Piedmont, CA 94610. NCP (Oct 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. MicroPlanning Software USA, 235 Montgomery St., San Francisco, CA 94104. CP (Mar 86)

Mindsight is a professional level decision support and business planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. \$195. Execucom Systems, PO Box 9758, Austin, TX 78766. CP

More is an incredibly powerful outline processor with gobs of great features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. \$295. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. NCP (Sep 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 512 is a very fast and intuitive organizational tool. Full keyboard control is possible. Can store and paste graphics into outlines. Slide show features allows high-quality presentations to be created. Good report formatting and print-

ing capability. \$195. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. CP (Jan 86)

DESK MANAGERS

BatteryPak 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. *Disk Tools* is the best DA currently available. \$49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario, L4B 1B5, Canada. NCP (Dec 85)

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

Mighty Mac is a personal data manager. Features include an on-screen calendar, a Directory, Reminder function (with audio and visual alarm), and an Event function. Very good search capabilities for accessing information. \$59.95. Advanced Logic Systems, 1195 E. Arques Ave., Sunnyvale, CA 94086. CP (Aug 86)

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)

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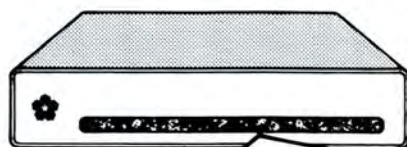
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MINIFINDERS



Quickset is a set of desk management and organizational tools that can be used as desk accessories or applications. Functions include note file, card file, 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 resource files are included modules take up a lot of disk space. \$84.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 85)

Smart Alarms is the best reminder system for the Mac. Easy to use, versatile, and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. \$49.95. Imagine Software, 2000 Center St., Berkeley, CA 94704. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. Menu Key adds Command key sequences to programs. View allows looking at and moving data between up to 8 MacWrite documents, BackPrint, Shorthand, Blank, Encrypt, and Launch. \$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 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. Finished calculators can be saved as installable desk accessories or as clickable applications. \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91321. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. \$40. MacMaster Systems, 939 E. El Camino Real, #122, Sunnyvale, CA 94087. NCP (Sep 86)

Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding. \$89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Locator Plus is the essential HFS desk accessory. It can search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. \$34.95. PBI Software, 1111 Triton Dr., Foster City, CA 94494. NCP (Sep 86)

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. 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 II is a utility that will quickly organize a moderate size disk library. Easy to use with powerful

reporting and label-making features. \$49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

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. Can do special format transfers such as 1-2-3 to Multiplan and WordStar 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

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

Mac + II lets you run Apple II software on the Mac. Emulation speed is only 35 to 45 percent of a real Apple II, so graphics especially suffer. Games also run slow. Runs AppleWorks (Apple II integrated software). Good for ex-Apple II owners who have large software collections. \$149.95. Meacom, PO Box 272591, Houston, TX 77277. CP

MacQwerty is a set of three keyboard utility programs. **Reconfigure** allows users to assign any character to any key, **Standard** sets up a normal qwerty keyboard and **Dvorak** changes the key arrangement to the very efficient Dvorak layout. \$35. Paragon Courseware, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Jul 86)

MacServe converts a Mac and a hard disk into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. \$250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

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)

myDiskLabeler is an excellent label making program. It can read directories, or use large or small icons, or anything else the user desires. Comes with 54 precut labels on pinfeed paper. HFS compatible. \$44.95; with color printing ability (on the ImageWriter II), \$54.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 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. 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 (Jun 86)

PC to MAC and BACK has both Mac and MS-DOS disks. This program efficiently transfers text and other data between PCs and Macs. The documentation is excellent. Does special format transfers such as WordStar to MacWrite. Includes a cable for direct Mac to PC connections. \$149.95. dillithium Press, 8285 SW Nimbus, Beaverton, OR 97005. NCP

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super disk catalogue, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

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. Requires 512K+. \$19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

TMON is the debugger for the Mac. This isn't open to question. **TMON** is simply the best. Comes with the latest version of Darin Adler's Extended User Area. \$100. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. 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

II in a Mac is a graphically oriented Apple II emulator with unique features, such as text and graphics copy from Apple screen to Mac Clipboard. 40 column screen is too small, 80 column better. Suffers speed problems associated with "virtual machine" emulation. \$69. Micro-W Distributing, Inc., 1342B Route 23, Butler, NJ 07405. CP

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. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

Aztec C is a C language 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. \$199 basic system, \$299 development system, \$499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

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. Assembler and linker built-in. \$425. 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. Level 2 supports the Mac Toolbox fully. Level 3 extends the language to allow standalone applications. \$149 (Level 1), \$249 (Level 2), \$499 (Level 3). Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

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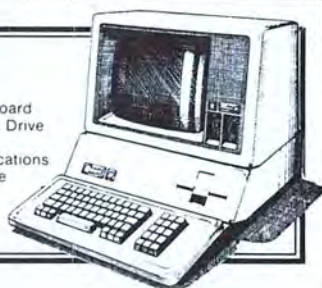
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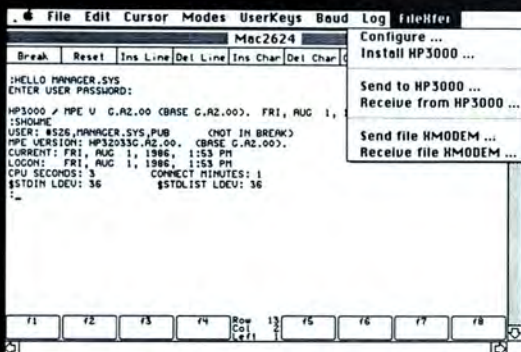
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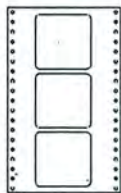
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Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create standalone applications. **||||** Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$99.95. 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 editor (*Edit*), an assembler, a linker, an executive and a resource compiler. \$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 a good tutorial textbook. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities. **||||** Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. \$125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. CP? (Jun 86)

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. NCP

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 to run. \$150. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. NCP

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, 16011 NE 36th Way, Redmond, WA 98052-6399. NCP

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)

TML (MacLanguage Series) Pascal is a good Pascal compiler, **||||** capable of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. \$99.95. TML Systems, PO Box 361626, Melbourne, FL 32936. NCP (Jun 86)

EDUCATION

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

DietMac is a database consisting of about 800 foods with **||||** nutritional information, from which to choose 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, Houston, TX 77090. CP (May 86)

KidsTime is a package of five quality educational programs for **||||** children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. \$49.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. CP (Oct 86)

MacChemistry is a two-disk set consisting of a titration program, **||||** a periodic table program, *MacNest* (a scrapbook with index-

ing), and a disk of *MacPaint* files. *MacNest* is of general appeal. \$145. Fortnum, 31 W. 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. \$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. New version is very fast. \$75. Etlon 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. Mindscape, 3444 Dundee Road, Northbrook, IL 60062. CP

NotePro is an educational package that teaches users to organize **||||** and make best use of their notes. Consists of five well designed parts, which can be used individually or as a whole. \$59.95. Learning Skills, PO Box 8038, Reno, NV 89507. NCP (Jul 86)

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 display numerically or graphically. \$99.95. Industrial Computations, 40 Washington St., Wellesley, MA 02181. NCP

Score Improvement System for the SAT is a no-nonsense drill **||||** and practice session covering practice tests, vocabulary, reading comprehension, math and quantitative comparisons. On-line tutoring for wrong answers. \$99.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (May 86)

Speed Reader II builds skills sequentially to develop faster, more **||||** efficient reading and improve retention. Scores are 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 Mac astronomy programs. Have extensive **||||** databases, quick sky plotting and can locate specific objects. Level II has southern hemisphere star table, Messier objects. \$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 a few puzzles to solve. Requires 512K+. \$44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Apr 86)

Alrborne is a classic arcade-style game with "real" sound effects. **||||** The player defends against an assault from flying enemies. Game noises digitized from actual recordings add to the game. \$34.95. Silicon Beach, 11212 Dalby Pl., San Diego, CA 92126. CP

Alter Ego simulates the entire lifetime of a fictional character. **||||** The player's reaction to each multiple-choice event shapes the

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MINIFINDERS



character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. \$59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (June 86)

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)

Archon pits the forces of Light against Dark in a quest to gain **\$\$\$\$** control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keeps the balance of power ever-changing. One or two players. \$44.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Oct. 86)

Balance of Power is the world's first computer peacegame. 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)

Brataccas is a true action adventure. Terrible, confusing instruction manual mars an otherwise good game. Excellent **\$\$\$** graphics, unusual sentence parser. \$44.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

Bridge 4.0 provides three other players and the cards for a game **\$\$\$** of rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly since it's written in BASIC. \$29.95. Artworx Software, 150 N. Main St. Fairport, NY 14450. CP (Sep 86)


Championship Boxing allows statistical replay involving famous **\$\$\$\$** boxers. Players can modify existing boxers and can create their own fighters. Good sound and graphics. \$39.95. Sierra, PO Box 485, Coarsegold, CA 93614. CP (Mar 86)

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 adventurers. \$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

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 restaur-



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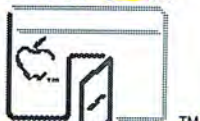
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MINIFINDERS



rants. Users enter number of diners and program scales recipes accordingly. \$59.95. Rubicon, 6300 La Calma Dr., Austin, TX 78752. CP (Jan 86)

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)

Flight Simulator puts you at the controls of a small plane (prop or jet) and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. \$49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98052. CP (Nov 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. \$59.95. 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

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, for those that enjoy shoot-em-ups. Bizarre graphics. \$39.95. Ann Arbor Softworks, Inc., 308½ 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)

Legacy is a two-part text/graphic adventure. A magical orb in Drab Castle must be found through the use of spells and careful adventuring. Well-constructed game. \$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

The Lüscher Profile is a psychological profile generator that bases its conclusions on users' responses to seven different color tests (color charts are enclosed in the package). \$39.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Aug 86)

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. Lets you record your landing attempt and then review it from any of ten camera angles. \$49.95. Aegis Development, 2210 Wilshire Blvd., Santa Monica, CA 90403. CP (Feb 86)

MacGolf is a dynamic simulation of real golf. Players have a choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May 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)

MacVegas contains seven complete casino-style games: baccarat, blackjack, craps, keno, poker, roulette and slots. All are fairly standard, but generally well designed. House rules can

be selected 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. Appeals to the closet capitalist in all of us. \$49.95. Scarborough Systems, 55 South Broadway, Tarrytown, NY 10591. CP

Mind Over Mac features five games. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help. \$49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

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

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)

NewGamon 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. An arcade-like high speed mode is included. \$39.95. Newsoft, PO Box 4035, Newport Beach, CA 92661. CP

Orbiter puts a real space shuttle on the Mac screen. A multitude of controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. \$49.95. Spectrum HoloByte, Inc., 1050 Walnut Street, Suite 325, Boulder, CO 80302. NCP (Nov 86)

Perplexx 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. \$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)

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. \$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 chess program with 9 levels of play, problem-solving modes, take back, hint, etc. Easy Play blocks Sargon from stealing search time during player's move, effectively doubling number of levels. Disk stores 107 classic games for review and replay. \$49.95. Hayden, 600 Suffolk St., Lowell, MA 01854. CP (Mar 86)

Shanghai challenges players to clear a board of all 144 tiles, by matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. \$44.95. Activation, PO Box 7287, Mountain View, CA 94039. CP (Oct 86)

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MINIFINDERS



Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, **||||** planes, and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. \$39.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Oct 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

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

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)

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. \$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

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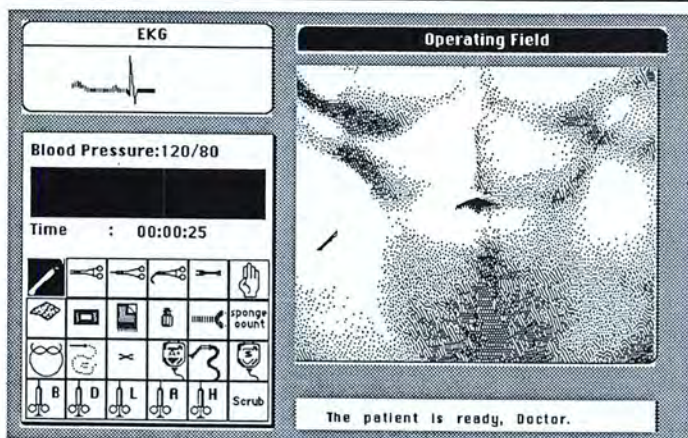
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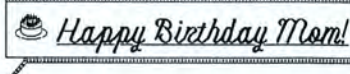


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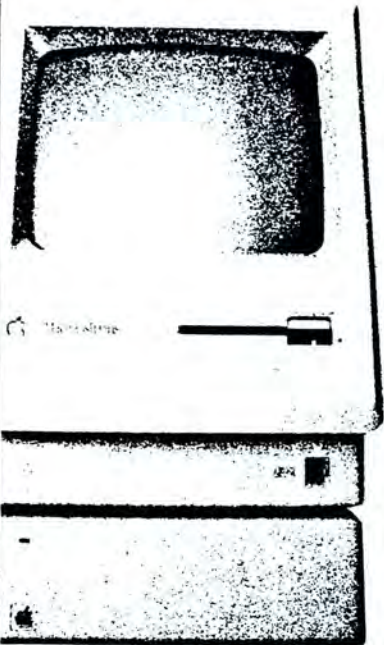
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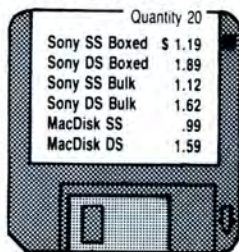
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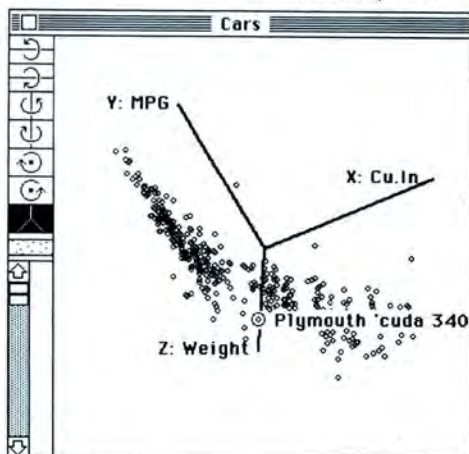
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MINIFINDERS



reliable, but noisy unit. Requires 512K+. \$1595. PCPC, 6204 Benjamin Rd., Tampa, FL 33614.

MacCharlie's components slip around the Mac and convert it into an IBM PC clone. Amazingly, it works well. The enlarged keyboard has a few bugs but is a joy to use. \$795 with 256K RAM and one floppy drive. \$995 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., 7125 Riverwood Dr., Columbia, MD 21046. (Jan 86)

MacNifty Sound Digitizer turns ordinary analog sound input into digital waveforms which can then be manipulated using the *Sound Cap* software it comes with. Capable of truly stunning effects. Requires 512K+. \$129.95. Kette Group, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

MacNifty Stereo Music System converts Mac sounds to simulated stereo by splitting highs and lows between two speakers. User controls bass, treble, balance, and volume. \$79.95. Kette Group, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

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, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

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)

MacVision 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.

Maglc 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.

MouseTop is unquestionably the cutest mouse cover on the market. Gray, plush fur, round felt ears and button nose and eyes make your mouse look authentic. \$5.49; \$5.95 for MouseTop wearing wire-frame glasses. H&H Enterprises, PO Box 2672, Corona, CA 91718.

Moustrak 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, 3047 St. Helena Hwy., St. Helena, CA 94574.

NoLabelSystem is a plastic permanent labeling system in which users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. \$19.45. Weber & Sons, 3468 Hwy 9, Freehold, NJ 07728.

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. \$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. \$229. Thunderware, 21 Orinda Way, Orinda, CA 94563. NCP

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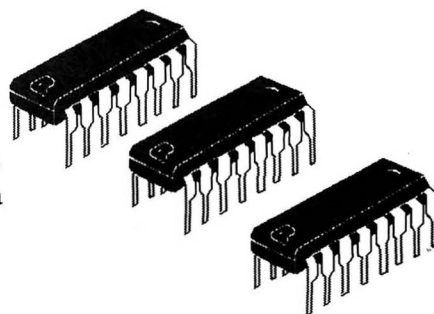
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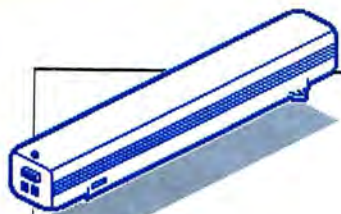
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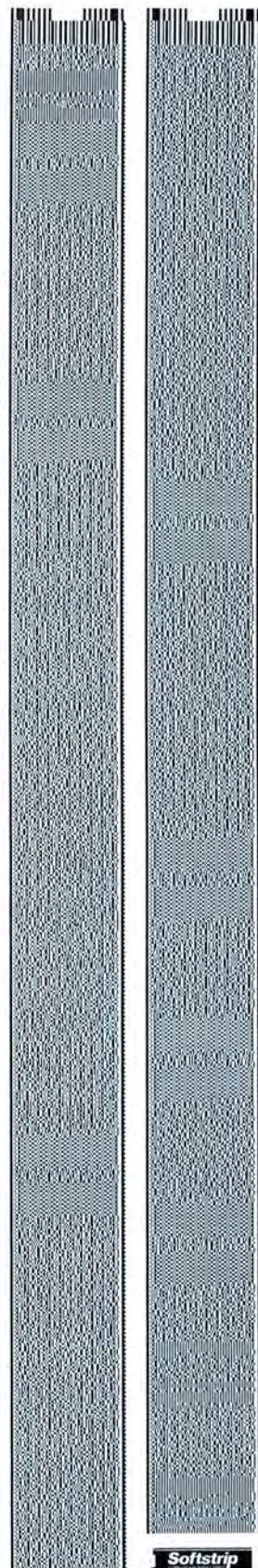
This page contains Softstrips: programs and data in a special machine-readable form. The material can range from straight, unformatted data to full-blown Macintosh applications.

To use this material, you'll need a Cauzin Softstrip reader. Readers are available from your local dealer. Be sure you get the Macintosh accessory kit. They're easy to use, well made, and simple to store.

This month's strips consist of the TML Pascal source code listings from Steve Martin's "The Feel of Pascal." To use these listings you'll need the shell application that was developed in the earlier articles in the series. That code is also available in electronic form on CompuServe, Delphi, GEnie and other telecommunication services and BBSs.

We'd like to know how you are using these strips (if you are!), how you like the Cauzin Reader, and, most importantly, what you'd like to see us publish in strip format.

We will continue to publish strips containing source code from articles, but we'd like to go further. Do you want to see games or utilities? Standalone applications or source code to run or compile? Let us know. Write to S. Strip, c/o MacUser, 25 West 39th Street, New York, NY 10018.



FEEL

1 |

2 |

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THE MONEY'S IN THE WORKS

	A	B	C	D	E	F
1	Date	Check #	Payee	Amount	Category	SubCategory
2						

G	H	I	J	K
Deposit	Balance	Credit	Debit	Memo

Start a checkbook worksheet by setting up these columns.

(continued from page 63)

investment and its probable final value, you can determine the rate at which your investment is growing. If, for instance, you invest \$5000 in artwork that you expect to be able to sell for \$50,000 in 10 years:

Rate(10,0,-5000,50000,0,1) tells you that you'll be getting a 26% return on the investment.

If you had to spend \$1500 each year to store and insure the artwork, you can add that to the formula as the payment parameter:

Rate(10,-1500,-5000,50000,0,1) returns 15%.

THE ELECTRONIC CHECKBOOK

Forget about all the financial functions for a while, because you can use the *Works* spreadsheet to handle a very important financial basic: your checkbook. The advantage of keeping your checkbook on disk is not that it's so easy to balance—a calculator can help you do that with a lot less typing. One electronic advantage is that you can search through a year's worth of checks in seconds when you need to find, for

		Deposit		Credit		Check		Debit	
Cell above									
H3				=H2+G3+I3-D3-J3					
		Untitled (\$\$)							
	A	B	C	D	E	F	G	H	
1	Date	Check #	Payee	Amount	Category	SubCategory	Deposit	Balance	
2	(Beginning Balance)								
3									

Enter this formula into the Balance column and copy it down; keep the first cell under Balance free to enter your beginning balance.

instance, the one you wrote to the plumber. The second advantage is the sorting you can do at the end of the year for tax purposes: with a few keystrokes, you can find the total for child care expenses, or all your medical expenses. And, if you have to do something like figure out a "home office" deduction, getting the allowable expenses and calculating the deductible portion is a cinch.

Being able to search and sort, though, assumes that you made memos in your electronic checkbook all along so you'd have something to look for and sort on. The sample checkbook shown here has columns for the basics of date, check number,

payee and amount. It also has columns for a category and subcategory (Utility/Electric), although the second may not always be necessary; another column serves as a memo holder.

An electronic checkbook has to allow for both checks and other expenses—service charges, or auto-

matic loan payments—to be subtracted from the balance. It also has to allow for the deposits or other additions, such as automatic overdraft loans or interest in an interest-bearing account.

The checkbook here is a very simple worksheet. Only the Balance field has a formula in it: it takes the value in the cell directly above it, subtracts from it any number in the Amount or Expense columns, and adds to it anything from the Deposit or Credit columns. Enter the formula shown and copy it down for the rest of the column; make sure the formula starts in cell H3 because the beginning balance goes in H2.

Rather than putting the category columns to the extreme right in order to keep the numbers together, the check-recording portion of this worksheet is in one section, since it is the area that will be used the most. You can put the columns in any order you want, and you can always shift them by cutting or copying to the new location, although you'll have to make the necessary changes to your Balance formula.

As long as you enter appropriate notes and memos as you use your electronic checkbook, it will be easy to find anything you need, and to arrange things when tax time rolls around.

Sharon Zardetto Aker is a MacUser Contributing Editor and author of many great computer books.

	A	B	C	D	E	F	G	H
1	Date	Check #	Payee	Amount	Category	SubCategory	Deposit	Balance
2	(Beginning Balance)							1297.64
3	10/15	2132	Mrs. Gerard	45.00	ChildCare			1252.64
4	10/15	2133	PSE&G	67.87	Utility	Electric		1184.77
5	10/15	2134	ConTel	143.84	Utility	Telephone		1040.93
6	10/15	2135	Dr. Colfax	50.00	Medical			990.93
7	10/15	2136	ChildLife	235.67	Misc			755.26
8	10/15	2137	HBO	32.00	Utility	Cable		723.26
9	10/20						897.54	1620.80
10	10/25	2138	NJMUG	25.00	Computer	ClubDues		1595.80
11	10/30	2139	Mrs. Gerard	45.00	ChildCare			1550.80
12	10/30	2140	1st National	645.97	Mortgage			904.83

I	J	K
Credit	Debit	Memo
	123.78	Loan Pmt
100.00		Overdraft advance
	7.00	Service charge

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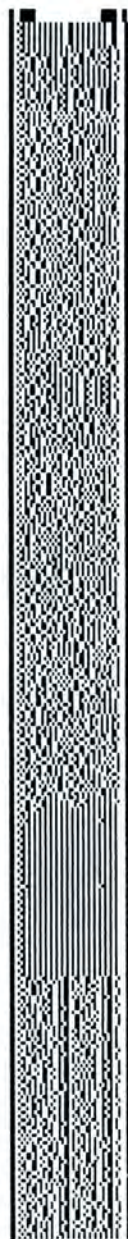
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Pascal and Modula-2 source code are nearly identical. Modula-2 should be thought of as an enhanced superset of Pascal. Professor Niklaus Wirth (the creator of Pascal) designed Modula-2 to replace Pascal.

Added features of Modula-2 not found in Pascal

- CASE has an ELSE and may contain subranges
- Programs may be broken up into Modules for separate compilation
- Machine level interface
 - Bit-wise operators
 - Direct port and Memory access
 - Absolute addressing
 - Interrupt structure
- Dynamic strings that may be any size
- Multi-tasking is supported
- Procedure variables
- Module version control
- Programmer definable scope of objects
- Open array parameters (VAR r: ARRAY OF REALS;)
- Elegant type transfer functions

Mac Plus Benchmarks (secs)	Compile	Link	Execute	Optimized Size
Sieve of Eratosthenes:	7.3	5.8	5.1	1257 bytes
Float	8.0	8.6	10.3	3944 bytes
Calc	6.8	5.7	4.3	1736 bytes
Null program	5.7	5.6	—	1100 bytes

```

MODULE Sieve;
CONST
  Size = 8190;
TYPE
  FlagRange = [0..Size];
VAR
  FlagSet: SET OF FlagRange;
  i: FlagRange;
  Prime, k, Count, Iter: CARDINAL;
BEGIN
  ('$$-$$-$$-$$-')
  FOR Iter := 1 TO 10 DO
    Count := 0;
    Flags := FlagSet(); (* empty set *)
    FOR i := 0 TO Size DO
      IF (i IN Flags) THEN
        Prime := (i * 2) + 3; k := i + Prime;
        WHILE k <= Size DO
          INCL (Flags, k);
          k := k + Prime;
        END;
        Count := Count + 1;
      END;
    END;
  END;
END Sieve.
  
```

```

MODULE Float;
FROM MathLib0 IMPORT sin, ln, exp,
  sqrt, arctan;
VAR x, y: REAL; i: CARDINAL;
BEGIN ('$$-$$-$$-$$-')
  x := 1.0;
  FOR i := 1 TO 1000 DO
    y := sin (x); y := ln (x); y := exp (x);
    y := sqrt (x); y := arctan (x);
    x := x * 0.01;
  END;
END float.
  
```

```

MODULE calc;
VAR a, b, c: REAL; n, i: CARDINAL;
BEGIN ('$$-$$-$$-$$-')
  n := 5000;
  a := 2.71828; b := 3.14159; c := 1.0;
  FOR i := 1 TO n DO
    c := c * a; c := c * b; c := c / a; c := c / b;
  END;
END calc.
  
```

Product History

The TDI Modula-2 compiler has been running on the Pinnacle supermicro (Aug. '84), Atari ST (Aug. '85), Amiga (Jan. '86) and will soon appear on UNIX in the 4th Qtr. '86.

Regular Version \$89.95 Developer's Version \$149.95 Commercial Version \$299.95

The regular version contains all the features listed above. The developer's version contains additional Mac modules, macros and demonstration programs – a symbol file decoder – link and load file disassemblers – a source file cross referencer – the kermit file transfer utility – a Modula-2 CLI. The commercial version contains all of the Mac module source files.

Other Modula-2 Products

Kermit	– Contains full source plus \$15 connect time to Compuserve.	\$29.95
Examples	– Many of the programs from Inside Macintosh translated into Modula-2.	\$24.95
GRID	– Sophisticated multi-key file access method with over 30 procedures to access variable length records.	\$49.95



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CRICKET GRAPH

(continued from page 86)

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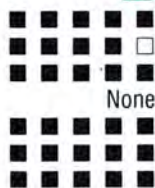
And beneath all the graphic competence lies the analytical component. Of course, *Cricket Graph* is not a spreadsheet. Nor is it a statistical analysis package. It is first and foremost a tool for creating graphics. But the integration of excellent graphics with competent visual and numerical analytical capabilities makes for a powerful combination. With *Cricket Graph* you might find yourself drawing conclusions with greater insight and perspective.

Carlos Domingo Martinez is a freelance writer from Queens, NY.

CRICKET GRAPH

Overall Rating

Follows Mac Interface
Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: A powerful, easy to use graph generator with outstanding analytical capabilities. **Best Features:** The strong integration of program functions; competent data and image handling. **Worst Feature:** Closing an unsaved graph window results in the loss of the graph, without warning. **List Price:** \$195. Requires 512K+. External drive or hard disk strongly recommended. Published by Cricket Software, 3508 Market St., Suite 206, Philadelphia, PA 19104. (215) 387-7955. Version reviewed: 1.0, dated February 18, 1986. Not copy protected.

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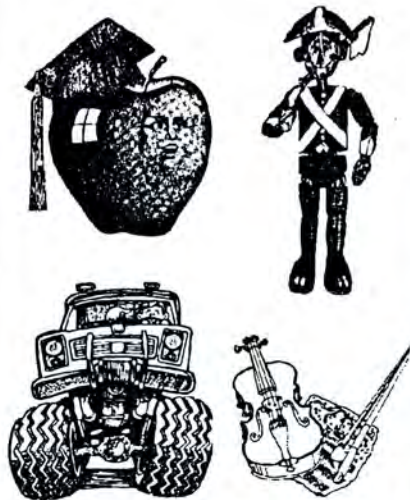
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not even a MOUSE.*

*The children were tucked away in their beds
while visions of software danced in their heads*

S A V I N G

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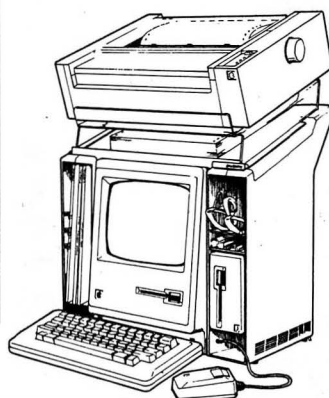
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by John C. Dvorak

THERE IS NO TOMORROW

A Macwimp Saga

I was sitting in the Cafe Micro minding my own business when I was rudely interrupted by an irate Macintosh owner.

"Hey aren't you Dvorak, the anti-editor," he said with a sneer that emphasized the word "anti," saying "aunt-tie" instead.

"It depends," I said not knowing if the guy was crazy and at the same time realizing my answer was idiotic.

"Depends on what? The day of the week, the phase of the moon. Don't B.S. me, Jack. You are Dvorak. Well, I've got some good grist for that mill of yours." Spinning a chair around, he sat down at my table with the back of the chair in front of him so he could lean up against it while straddling the chair and began his story.

"You know how you never say anything good about the Macintosh in *MacUser*? You bitch and moan about everything. You make up stories about aliens and hypnotism and phoney machines and 68000 programming slobs. I used to hate that stuff. But I now agree with most of your complaints, as much as I hate them." He eyeballed my cup of espresso. "I discovered, though, that it's not the machine that's the problem — it's the users. They're uninspired jerks. Macwimps."

I was aghast. "What do you mean — Macwimps?"

"Macwimps. Look at all the great software out there. Products like *MacSpin* — an incredible data analysis program. And what about the fancy database managers like *Helix* and *FileMaker Plus*? Look at the icon-based adventure games like *Deja Vu* and *Uninvited*! That's the first new thing I've ever seen in the game market since *Pac-Man* was cloned. *MacUser* magazine is filled with information about interesting software." He waved his arms and took a slug of my coffee. "Guess what? Nobody cares."

"You're telling me that the Macintosh user doesn't buy anything."

"Absolutely! They're cheap tightwads.

Look, I was a developer and we did a lot of research and discovered that the software business for the Mac stinks. Nobody buys anything. They get the damn computer and spend the rest of their lives with *MacPaint* and *MacWrite*. What a bunch of boring duds. They can't appreciate the Mac because they were wimps to start with. Let's face it, it's a wimpy computer and it attracts wimps."

"Well, I have to admit that the software business for the Mac hasn't picked up even though the machine is selling over 40,000 a month," I said.

"Right! And the software business is stagnant. It sure hasn't blossomed has it? By the way, Ben Jenkins is my name...programming's my game." He extended his right hand while finishing my cup of espresso with the left.

"Glad to meet you."

"So whaddya think about doing a column about the Mac that says..." he spread out his hands as if to outline a large headline "...Macintosh...a wimp computer for Macwimps!"

I rubbed my chin. "Well, you know, the users aren't solely to blame."

"Howso?" Jenkins asked screwing up his face.

"Well, look at my situation. I write about the Macintosh for *MacUser* — the best Macintosh magazine in the world. And I write about the Macintosh for a daily newspaper and I write about the Macintosh for some other publications. I do a lot of writing. Meanwhile I never hear from any of these developers with all these hot products until the thing has been out for a year and the company is broke. Their mentality is all ego. They think that what they're doing is so great that we'll all find out about it through telepathy or the second coming."

I continued. "It's a miracle that anyone finds out about half this stuff. The developers keep everything a big secret and wonder why the stores won't stock

the item. They're rank amateurs. It's an embarrassment. Why should the users be any different. The whole scene is Mickey Mouse. I suppose that's why the mouse is the thing. Now *that's* a column idea. And it all goes back to the notion that 68000 people are simply lazy." I ordered another espresso.

"Hmmm, that's interesting. I never thought of talking to the press about my product. How do I do that?"

"It's called the phone. P-H-O-N-E. You may have heard of it. The least you could do is send a new product announcement to the editors of the magazines and newsletters."

He perked up. "Really? How do I do that? Just mail an announcement, huh? How about that?"

Oh brother, I thought to myself, this guy has a problem. It's like the entire microcomputer revolution started over with this guy and his ilk — started over on square one. The entire Mac community is so unsophisticated, sheesh. No wonder the software isn't selling — nobody knows what they're doing.

To make matters worse, the marketplace isn't like it was several years ago. There aren't any funky enthusiast magazines that are amateurish, but sympathetic to the plight of the buyer with his or her first machine. They said "Golly gee whiz" to everything and reflected a newcomer's mentality. Those days are over. The magazines are slick and polished — there is no allowance for a second wave of gung-ho newcomers to be slowly brought into the fold of experience. We're here — join us or die. Kind of like a third-world country that missed the industrial revolution, but has to modernize. Rough go, I suppose. But what do I know? I'm paid to complain.

Whatever the case, Jenkins shook his head and wandered off. I never saw him again. He never did tell me the name of his product. ☒



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