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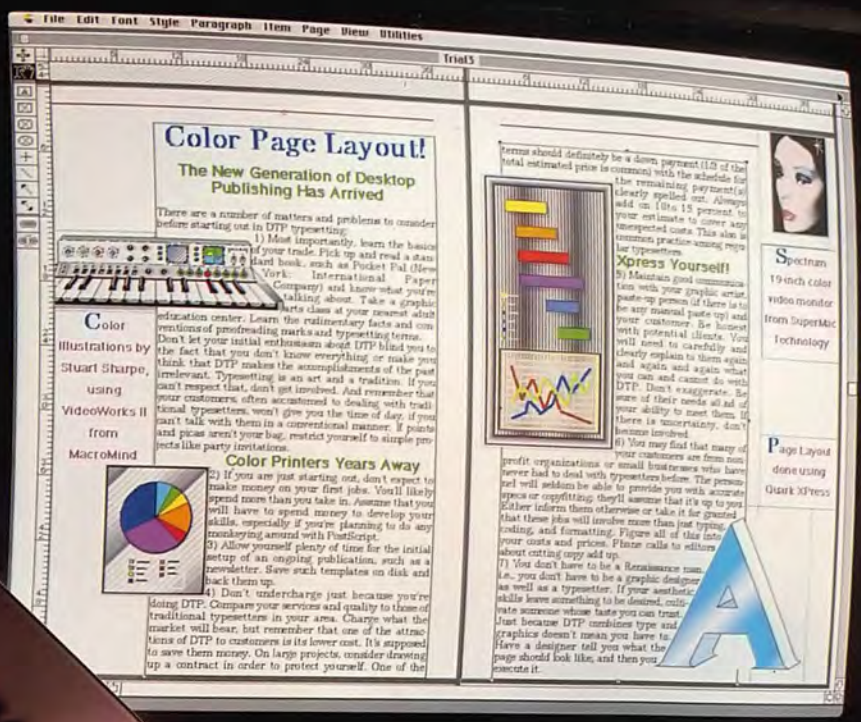

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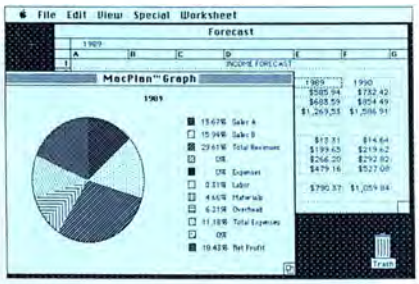

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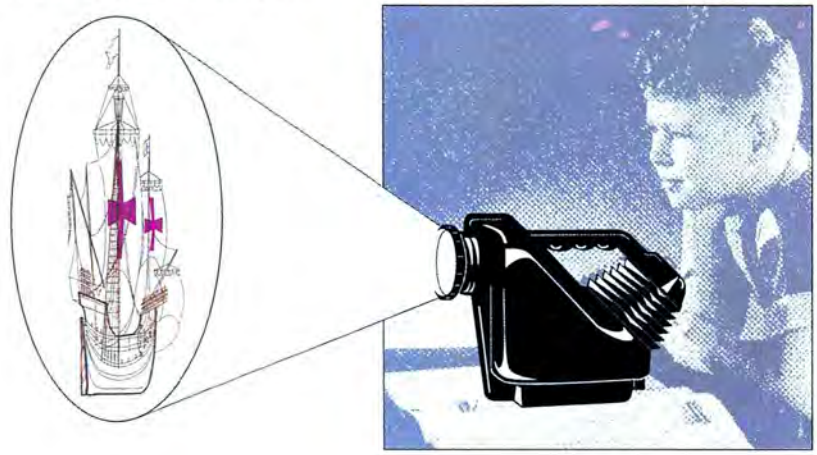

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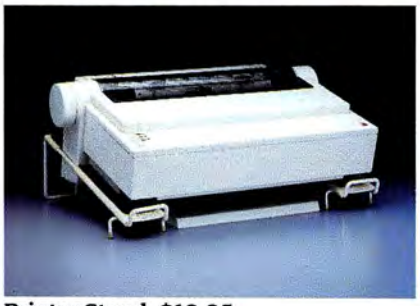

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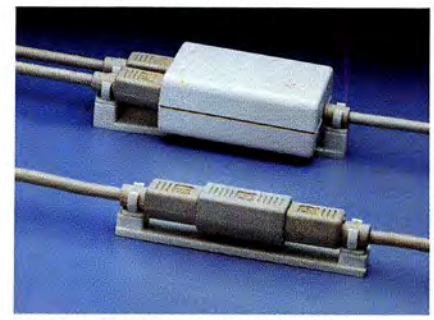

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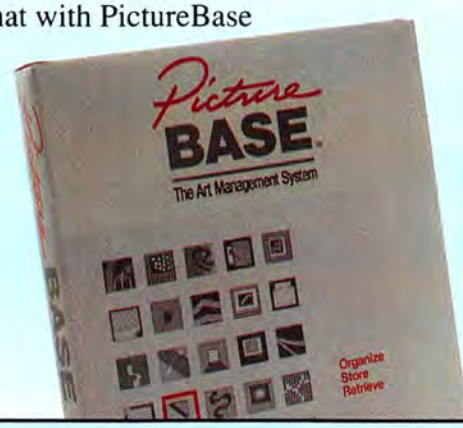

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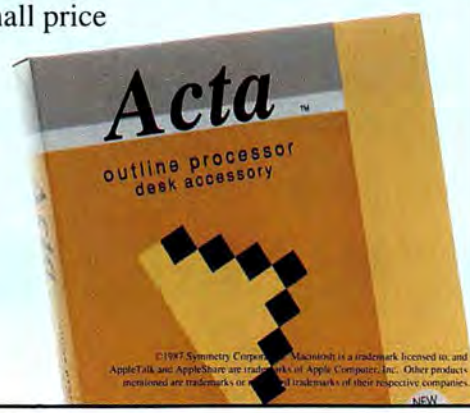

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by Neil L. Shapiro

Look and Feel

Imagine being involved in a "Look and Feel" lawsuit. That doesn't mean you stood too close to Cheryl Tiegs on the IRT subway during rush hour. But, if you're a software programmer, manufacturer or developer, the term "Look and Feel" is no joking matter.

Some people see it as the ultimate doom of creativity in personal computing. Others see it as an intellectual protection that should be afforded to any innovator.

IMITATION DOESN'T FLATTER

Two companies seem to be in the thick of the present round of arguments and of legal and not-so-legal opinions in this controversy. The first company is Lotus Development Inc., which designed and publishes a program called *1-2-3* that runs on an inferior brand of computers. The other company is Apple Computer Inc., manufacturer of a most superior computer indeed.

Divorced as the audiences of these two companies are, the two seem to be arguing similar points at first glance (to me, and not necessarily to a lawyer). But, on deeper investigation, I think that they are really saying two separate things.

Lotus is going after Paperback Software Inc., run by industry figure Adam Osborne, for what they feel is an infringement of the copyright on *1-2-3*. Apple has made it known that they consider the iconographic Mac's desktop to be protected from copycats along the same copyright laws. It seems that imitation is not flattery, not when the results of such imitation threatens to cut into your customer base.

In the case of Lotus vs. Osborne it appears (to this observer) that Lotus feels the menu structure of their *1-2-3* program has been duplicated by Osborne. But Osborne, in a long interview in a recent *Infoworld*, points out that there has always been a tradition in computing of building on older works. Lotus, in the same issue of *IW*, answers that they would have to consider copying the look of a user interface to be quite different from simply reprogramming and adding to functionality.

Apple first raised the "Look and See" issue when they sued another company for an operating system which looked (to me anyway) just about exactly like the familiar Macintosh desktop environment. The operating system in question was changed so as to look less similar. Lately there have been rumblings that Apple is unhappy with developers who are now "porting" many Mac methods of doing things onto other systems.

It seems to me that Lotus is attempting to protect one program from being turned into a commodity market of such programs. But Apple, on the other hand, seems (again, to me) to be protecting what makes their operating system exciting from being watered down by outside confusions.

In fact, when you really consider why Apple is pursuing the protection of The Desktop, it becomes obvious that we are not really talking about a "Look and Feel" issue but, instead, are faced with the problem of when a corporation's responsibility to its customers ends. As an outside observer of events unfolding I would say that Apple has managed to be much misunderstood by many people. And their actions, taken out of a totally legal sense and placed in a sociological milieu, are less in the corporation's own short-term interests and more to the long-term best interests of customers.

Apple has made it known that they consider the iconographic Mac's desktop to be protected from copycats.

PURITY OF THE DESKTOP

What is it that makes the Macintosh the best line of microcomputers in the world? Well, it's not the new color schemes—or even the new color screens. Rather, it is the almost absolute adherence of the Macintosh development community to what is known as the Macintosh interface—the way the user sees and participates in the environment of the Mac.

When you buy a new Mac program, if you're like many people I know, the manual is not the first thing you read. The first thing you read is the program's menu bar and pull-down commands and associated dialog boxes. Most times, doing makes reading the manual totally superfluous.

That's because so many, many things are the same from program to program.

Imagine that you bought a Mac program and it looked OK but maybe you had to click three times to launch a document, or the windows worked totally different from other Mac windows.

If you're like me, you would complain your head off.

Yet, if Apple should ever fail to protect their user interface (the "Look and Feel" of The Desktop) then I think we risk chaos. And, worse than chaos, I think we risk ruining the beauty of that standard.

Why? Because we can't count on developers remaining "loyal" to the Apple guidelines of what the Macintosh interface should be if it, suddenly, no longer is the *Macintosh* interface.

THIS IS LOYALTY?

Let's take a look at some new developments in the field of desktop publishing. The IBM PC can now act a little bit like a Mac if you throw an extra few thousand dollars worth of hardware at it. Now we are beginning to see desktop publishing programs appear on the IBM PC.

Aldus, for example, has ported *PageMaker* to the IBM PC. Most Mac owners might not have seen the ad Aldus ran in *Infoworld*. Basically, the ad was all breathless that now *PageMaker* could be seen "On The Big Screen."

Aldus was quite willing in their ads to

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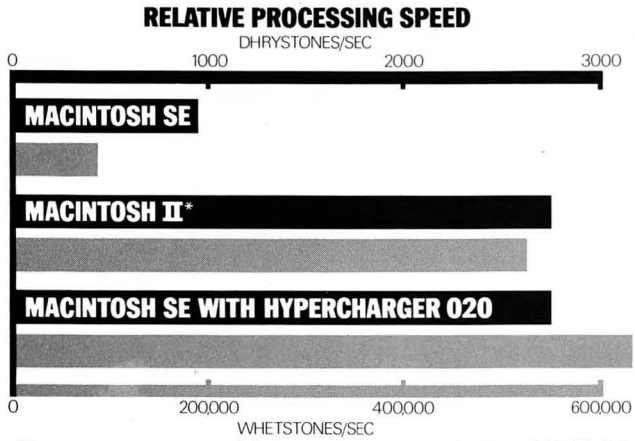

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take an implicit potshot at the Macintosh which had, after all, birthed their entire corporation. Why? Because even though the Renaissance is on the way, there are still more IBM PCs out there than there are Macintoshes. In this time of transition toward the Mac becoming the overall standard, Apple has to be more careful than ever before that the Macintosh way of doing things does not become watered down.

Scenario: A company (and I am no longer talking about Aldus) moves a product to the IBM PC from the Mac. Apple allows a great deal of its user interface to be copied in "Look and Feel." Because the IBM PC is not a Mac certain unMac-like ways of doing things creep into the IBM PC product. Then,

It seems that imitation is not flattery, not when it threatens to cut into your customer base.

the company releases another version.

Some of the Macintosh "Look and Feel" is modified. Want to bet in the next version on both PC and Mac the developer may not simply count users and go with the version that most have—even if it is the weaker version?

If Apple does not protect the "Look and Feel" of the Macintosh interface that way of doing things will be corrupted by its own success.

I have no doubt that in the next few years we will, indeed, see the Macintosh interface become the absolute, established standard throughout all of the Fortune 500 businesses and in personal productivity. At that point in time it will make sense for Apple to begin such things as licensing their "Look and Feel" and even allowing for other manufacturers, under license, to clone products.

But right now the Macintosh interface is like a young oak tree. Someday, relatively soon, it will be the strongest tree in the whole forest. But before a tree reaches full growth its trunk can be bent and twisted by outside forces as it strains to reach the light.

Apple has to make sure that they always head straight and true for that light. For when they reach it the whole world will flower.

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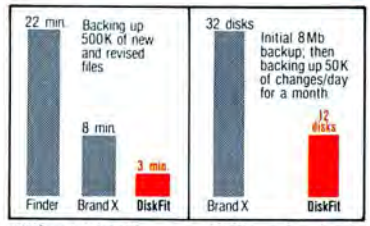

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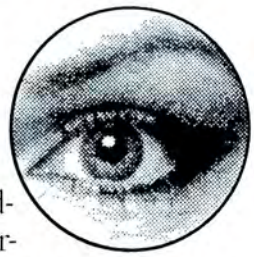

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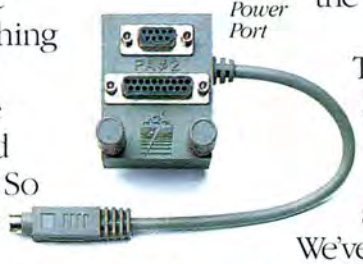

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An Important Message To Every Mac User Who Does Not Have A Degree In Computer Programming

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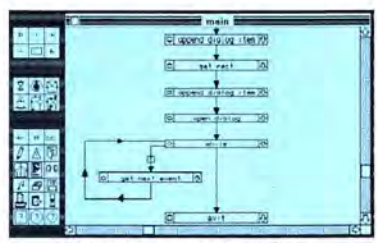

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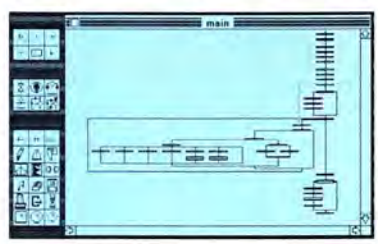

Zoom View of Flowchart

Visual Programming, on the other hand, is done by pointing, clicking and entering expressions and arguments into elements of an on-screen flowchart.

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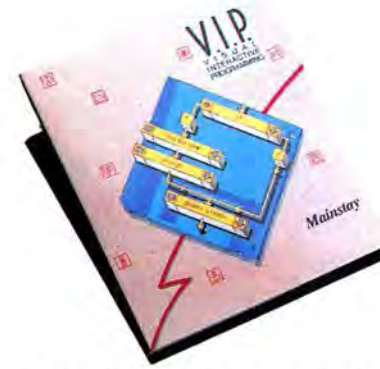

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Steven Bobker

We're always happy to hear from our readers, so keep sending your comments to Letters to the Editor, MacUser, *25 West 39th Street, New York, NY 10018. All letters become the property of* MacUser *and we reserve the right to edit any letters that we print.*

WHAT CAN I SAY?

How come we never see the Atari ST or Amiga mentioned in your magazine? I have several theories on this.

1. It's a Mac magazine, therefore it's not permitted to mention other computers. (Obviously false; you frequently mention the one made by Idiotic Business Machines.)

2. The entire *MacUser* staff have never heard of these machines. (Nah. You live in the US, not Albania.)

3. John Sculley pays you a lot of money to keep quiet. (I really want to believe this one, but you seem too sincere and earnest to be on the take.)

4. The Mac suffers badly in comparison with the ST and Amiga; therefore, silence is necessary to prevent mass MacDissatisfaction and/or MacDesertion. (Bingo.)

I think that the Atari 520 ST is the greatest computer bargain on the market. It is faster than the Mac and has greater resolution and color!

Did you know that many Mac programs can be run on the ST, without modification, by means of an inexpensive ($160) gadget known as the Magic Sac? When can I expect to see a review of the Magic Sac in your fine, slick publication?

JOHN C. DAY
SATELLITE BEACH, FL

Question number 1: You're on the right track with answer number 4, you've just got it backward. Question number 2: As soon as a review of Excel *shows up in your favorite Atari magazine.*— LK

WHAT'S IN A NAME?

While reading the December 1986 *MacUser* and musing on how memorable and vivid are the names Mac and Macintosh, I began to wonder why Apple's marketing people didn't follow through on the Scottish naming of their newest clan member. An idea flashed: The IIGS really should have been called Great Scot. I know you will not have read the above without a change in your facial expression. Perhaps we could go on and nickname the Apple IIC the Clyde, and the Apple IIe the Edinburgh.

Personally, I like names more than numbers; they call to mind a far more vivid mental image than a list of aplha/-numeric designations. The practice is well established in aviation. Even though famous aircraft also have alpha/numeric designations, who can forget Mustang, Phantom or Thunderbolt? I rest my case.

NILES A. CARTER
AUSTIN, TX

Ah, but could you predict exactly what that facial change was?— LK

BUSINESS ON THE MAC

I have to applaud Mr Wiggins' comments in the December 1986 *MacUser*. As a business user of the Mac Plus, I share his disgust with Dvorak's comments. Rather than go down the list ditto-ing Robert's comments re: Dvorak's comments, let me just say that I have the opportunity to work on HP, IBM and other micros, and Data General MV4000 and MV8000 minis. There is no other machine like the Mac for saving time (in CAD) or in the "fun" of using its interface.

But I must ask if any of your readers can explain why, in a business setting, the words "Apple" and "Macintosh" always bring that eye-rolling look that says, "One day you'll grow up and realize you need a real computer, not a toy." I've shown some pretty convincing samples of work on the Mac to others, only to have them walk away after learning they were produced on an Apple.

I, for one, am tired of defending the Apple Corp. to others. While I doubt that the arrogance that Apple seems to exhibit will ever go away, I hope that comments like these in your magazine will help in making some changes. Keep up the quality. It's reassuring that as other magazines get slicker and less useful, yours just keeps getting better.

ROSS FRID
CADILLAC, MI

[The following Letter to the Editor is a special note to John Dvorak and his readers. We were warned not to edit it or the forces of darkness would descend upon us.]

MACMEPHISTOPHELES

Blue vs. platinum image issues aside, the truly asinine attitude of some Mac enthusiasts is amazing. Can't they recognize Dvorak's humor? It galls me to hear from supporters for the Mac who, like the Apple fanatics before them, read only boring Mac centered articles and fawning columns about the latest industry gossip and technical information.

Praise John Dvorak for his Devil's Advocate column, and consider your loss if the next time you open *MacUser* you find your favorite whipping boy does not appear in the magazine. The ridiculous notion that Beelzebub and Dvorak are in league comes from a complete misunderstanding of his writings. Is *MacUser* magazine afraid to print this letter because of the controversy inherent in this issue? Why not leave it to Dvorak? This backward seventh word business insults John!

THOMAS J. DEFAZIO
NEW YORK, NY

DEFAULT, DEAR BRUTUS . . .

I've just finished Philip C. Russell's terrific article "Dressing Your Mac for Success" in the February 1987 issue. It presents clearly the techniques for making changes Apple forgot to tell us how to do.

As I use a variety of software products for a number of purposes, I'm impressed by the frustration inherent in the default settings of controls; namely the prechecked menu items and control buttons, check boxes and radio buttons which have a default setting when an application is opened. In my opinion, the inability of the user to adjust the default setting of these controls constitutes one of the greatest inconveniences in using the Mac.

It would be great if Phil Russell would do an article telling us how to change these various default settings. I think this would have universal appeal.

Keep up the great work; *MacUser* is the greatest!

FLACCUS M. B. STIFEL
PITTSBURGH, PA

Not all the defaults can be changed. The printing and size dialogs could be modified in ResEdit. *We'll have an article on that for you in the very near future. You can change the default font that applications*

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start with quite easily. There are several programs and desk accessories that do this. The DA approach is good, since it allows you to switch back and forth easily. Check with users groups, bulletin boards and the national electronic service (Delphi, CompuServe, etc.). Applications to look for include DefaultFont and PRAM 4.0, *while the DAs are called* Change Apple Font *and* DefaultFont.—SB

UNIX-ESE

I'm writing this because I do not want a lot of people walking around with the incorrect notion that "grep is UNIX-ese for general regular-expression parser," as Fritz Anderson claims in his review of *Lightspeed C*. Two out of four isn't quite up to the high level of the rest of the review.

In fact, grep derives from the UNIX editor **ex** command g/reg-exp/p and stands for global regular-expression print. This command in **ex** instructs the editor to find every line in the file containing the regular expression *reg-exp*, and to print each matching line.

ALLEN HEYDON
PITTSBURGH, PA

WHERE THE BOYS ARE

I have just been (re-)reading old *MacUser* letters to the editor regarding an issue I have not had the pleasure of seeing for myself. The letter writers to a person (I use the word advisedly) complain of sexism in your July 1986 issue. As one of distinctly female persuasion, I have my own row to hoe in this regard.

While I can't say I particularly share the sentiments of the writers, it has not escaped my attention that there is a certain element of "night out with the boys" in almost everything having to do with computers. I am a mathematician-in-training and have witnessed this on all sorts of levels. I would be reluctant to call this sexism, however, if only because that seriously overused word seems not to convey the desired meaning here. The real skinny is that an enormous proportion of the people involved in the development and "serious usage" end happen to be male, and there is a pervasive and insidious sense that the "normal" point of view is male. This is true even of the Macintosh, which, gee whiz, is on our side as these things go. Of course, it is no accident that the demographics go as they do, and I don't intend to pursue that here. The more important thing is that this atmosphere is subtly discouraging to any women who might be contemplating the Mac (as I do) with something like lust in their hearts. I've never

used a computer before, much less written software for one, and now I find myself with a computer which practically begs you to tamper with its workings (if you're of that bent, I guess).

HEY, GIRLS! I can't be the only one out here. Let's stop being offended and get out there and seize the time.

SYBIL SHAVER
NEW YORK, NY

I couldn't agree more, but I must warn you that we'll probably get a few letters from designated "feminists" objecting to your use of "girls." It's always safer to fight indeterminate skirmishes than genuine battles.—LK

BIDIRECTIONAL OVERRIDE

In the Dan Cochran's January 1987 column he printed the "missing table" for bidirectional printing on the ImageWriter II. What is still missing is how you override bidirectionality. That is accomplished by holding down OPTION-SHIFT-CAPS LOCK while clicking the OK button in the print box.

GERALD A. KING
AUSTIN, TX

INFORMATION, PLEASE

My husband and I retired early and settled in Montana (from California). The one regret we had was that we had never had the opportunity to use computers in the workplace. We finally came to the conclusion that there was no reason for us to be penalized just because we had been born too soon. Why we bought a Macintosh was a matter of chance, but now we wouldn't part with it for any amount of money.

We live in the wilderness, 125 miles from the nearest computer store (or anything else, for that matter). *MacUser* is about the only source of information available to us here. We realize that there is so much more that this machine will do that we have no conception of. For that reason, we were delighted with the article "Dressing Your Mac for Success" in the February 1987 issue. The article opened up whole new vistas for us. We were introduced to public domain and shareware, and wrote for catalogs and are now waiting for disks to arrive.

We would like to encourage you to run more articles of this sort. More information about what some of these public domain programs are and what you can do with them would be a great help. We read all the advertising as thoroughly as we do the articles and find that, along with your reviews, we have a good understanding of what we are

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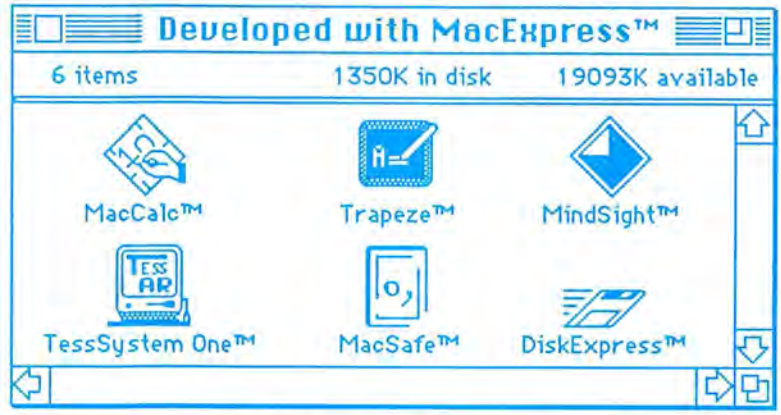

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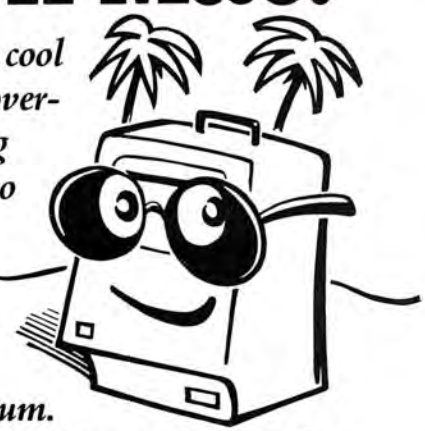

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buying when we purchase a program. We are still puzzled by some of the words used in the computer world, but are gradually picking it up, thanks to *MacUser*.

And what do we do in Montana in the wintertime? We play *MacGolf*.

EDITH R. JESSE
THOMPSON FALLS, MT

DRAFTING MACDRAW

I read with interest your article in the February 1987 *MacUser* "Graphic Description." Although some of the bugs and tips were interesting, I think the article is well below your standards and should have been heavily edited. Here are my reasons:

1. Over 50 percent of the article talks about bugs in *MacDraft* (called "quirks" by the author), yet the conclusion is very favorable to *MacDraft*. Why?

2. I think the older version of *MacDraft* is the one being reviewed. Some of those quirks are not present in version 1.2a (and a few new ones are present). Nowhere in this article is a version number mentioned.

3. The author talks about the "lasso" in *MacDraft*. I could not find any such; I think he means the selection rectangle.

4. The author recommends moving grouped objects to *PageMaker* to resize. *MacDraft* is capable of this.

5. I'd agree with the author about two of the more serious bugs in *MacDraft*, still present in version 1.2a. First, some objects are almost impossible to select without using the selection rectangle (sometimes not possible without selecting other objects also). To compound this problem, holding the Shift key down does not allow deselection of one of a group of objects. Second, the slow speed of *MacDraft* (vs. *MacDraw*, *CricketDraw*, *SuperPaint*) is agonizing!

I only use *MacDraft* for the things that *MacDraw* cannot do. From the examples the author uses, he would be better off with *MacDraw*, too.

WILLIAM F. RUSSELL, JR
BOSTON, MA

SPELLNG CHECK

Uh Oh! You are about to get a flood of notes (like this one) telling you that the spelling checker for *WriteNow* must not work too well.

Check your February 1987 issue, p. 24, with a screen representation that says ". . . performance word processor intendd . . .." "Intended" with a missing "e." How embarrassing!

J. J. ORLANDO
TEMPE, AZ

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EDITED BY LOUISE KOHL

They Said It Couldn't Be Done

We knew you wouldn't believe this without photographic proof, so please direct your attention to the accompanying photo. *Word Tools*, perhaps the most controversial and long-awaited product of this or any other year (beside the open Mac) has finally arrived. You have my word that the box actually contained one (count 'em) disk and a manual. Look for a feature review in *MacUser* soon. And thanks for waiting.—*LK*

Missing Mouse Caper

You may have noticed a glaring anomaly in the Quick Clicks review of *Sidekick 2.0* in our June issue. While the reviewer loved the program and said so in no uncertain terms, the rating showed a paltry two mice. It should have shown *four*, as were shown in the MiniFinders. We have been unable to discover what happened to the other two mice. Our apologies to Borland and all of *Sidekick*'s many fans. If we ever discover the whereabouts of the other two mice, you'll be the first to know.—*LK*

Can I Have a Word With You?

Word Search will generate and print the sort of word puzzles where you have to look forwards, backwards and diagonally to find a given set of words. Even though you can only display and solve a puzzle of 32 X 16 on your screen, larger puzzles can be created for printing. To give you an example of what can be done with the program, a set of 10 puzzles including states, months and composers are on the disk.

Creating puzzles is an easy process. After specifying the size and difficulty of a puzzle, you enter as many words as the puzzle can hold. The program takes a few seconds to generate the puzzle and, presto, a word search puzzle. And printing seems to take a while, but when others sit and fuss over your creation, you'll say the wait was worth it. Printing of the solved puzzle (for reference, of course) is just a menu selection away.

Word Search is part of a larger library of childrens software called *MacKids*. Other programs included in the *MacKids* series are available for $34.95 from Nordic Software, Inc. You may obtain a free catalog or order from Nordic Software at 3939 North 48th Street, Lincoln, NE 68504, (800) 228-0417. — *DS*

GARY BUSS

TONY LIMUACO

Seen, But Not Heard

OK, the ImageWriter isn't a LaserWriter or a Linotronic, but it can still be a pretty handy item to have around. Except for the noise, of course; that can get distracting.

If the buzz saw humming of the ImageWriter sets your teeth on edge, you'll be happy to know that it can be stifled. Kensington Microware makes two printer mufflers to fit both regular and wide-carriage ImageWriters. The Printer Muffler 80 (ImageWriter and ImageWriter II) sells for $59.95; the wide version for $79.95. For more information, call Kensington at (800) 535-4242; in New York, (212) 475-5200.—*LK*

It's Out!

Our February 1987 issue featured a first look at the exciting DynaMac portable Macintosh. The unit we examined was a final prototype unit. The production units, which have started shipping, at least to the government, differ slightly from the unit we examined.

The most obvious difference is the new, larger size screen. The production DynaMac screen is 640 by 400 pixels (a normal Mac screen is 512 by 342 pixels). Most Mac programs will make use of the larger screen area, although some expect to see the smaller, "standard" screen and will not work properly unless they find it. To let you use all your software, the DynaMac contains special software that makes the screen appear to be 512 by 342 pixels to those programs that insist on it.

The other changes are less obvious. Your only internal modem choice is a 1200-baud unit; the 2400-baud option will not be made available at this time. The back panel video out ports now include a composite video port in addition to the E-Machine Big Picture connector. There's only one RJ-11 phone port now (the prototype had two) and the modem volume control has been eliminated.

The weight of a fully configured production unit, including a 40-megabyte internal hard disk and internal modem, is just about 18 pounds. Pricing begins at just $5,000, while a fully configured unit will cost you $6,785. For more information contact DynaMac Computer Products, 1536 Cole Blvd., Suite 252, Golden, CO 80401, (303) 233-0305. — *DS*

Howdy Partner

Partner, the newest telecommunications wonder, will allow you to do something no other telecommunications application allows: real time remote access of an application. *Partner,* a desk accessory, allows someone to call into your computer and control it just as if they were there. With *Partner* you can now have two people, miles apart, interactively making changes to the same document.

Partner allows remote sessions to occur at 300-, 1200- or 2400-baud, but it is only when you are working at 2400-baud that the interaction appears in true real time. At the other speeds there is a slight lag, but all operations still work. A typical session begins with both Macintoshes preparing by running the same application/document and calling up *Partner* from the Apple menu. After that is done, a simple Dial command initiates the session.

Only one person can control an application at a time. You gain control of the application by rapidly shifting the position of the cursor. At the moment this is done, if the other user is not typing or moving the mouse you become the controller of the two machines. To promote communications between the users, *Partner* has a CHAT mode where each user can type messages to the other.

Partner introduces a few idiosyncrasies. They can be overcome if both users concentrate on avoiding them. Any commands that are position independent, such as desk accessories or fonts, will not function properly between the two users. For example, when one user appears to be choosing Geneva from the font menu, New York is actually being chosen on the remote machine. This will lead to differences in the documents on each machine. Another problem lies in using disk specific commands such as the Open command. When choosing OPEN, each machine will only display the files that are locally on-line. Thus, precautions must be taken if both parties want to make changes on the same document.

The immediately apparent uses of *Partner* are for consultants to provide their clients with remote assistance and training. My first use of *Partner* was doing "interactive painting" on a *FullPaint* document. In New York, I drew a box, and a few moments later, in California, my *Partner* partner selected the eraser and erased a little bit, went into FatBits and added a few dots. Then when I didn't like his changes, I selected UNDO. Truly incredible. It is something that must be seen to be believed, and when you finally see it, you still won't believe it.

Partner is available, for $50, from Arts & Farces, 316 South Fourth St., Stillwater, MN 55082, (612) 430-2944.—*DS*

RUMOR MANAGER

The Rumor Manager is on vacation this month. Reliable reports have had the Rumor Manager variously and simultaneously in Boca Raton, Cupertino, Ann Arbor, Peoria, San Jose, Seattle, St. Louis and New York City.

Upon returning next month, the Rumor Manager promises some truly extraordinary revelations.

MacMarriages

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Connect more things to your Mac. Break your Mac's two port barrier. Now one port becomes four ports to connect any four of these: modem, laser, dot matrix, scanner, daisywheel, color plotter, IBM PC and other computers, AppleTalk and more. All at the same time, completely mouse controlled. The new driver software lets you marry both Apple® and non-Apple devices. And it's now Mac SE compatible. Plug it in and use your applications as you normally do. Apple's Chooser lets you switch instantly between devices. There's also a powerful, comprehensive communications software package included. Jointly developed by SoftStyle® and Microsoft® Complete with hardware and software for $245.

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Now in three versions, Printworks is the first high performance printer driver software to walk down the aisle with the Mac. Fast print spooling lets you work and print at the same time. Flash previews of pages to the screen, then skip or print. Print color automatically from MacDraw, Chart, Excel and other object oriented applications. Even merge printer text and graphics on the same page. You'll print happily ever after, and as easily as with Apple's standard ImageWriter driver. Only better. Dot Matrix Version for ImageWriter and over 40 other dot matrix printers, just $75.
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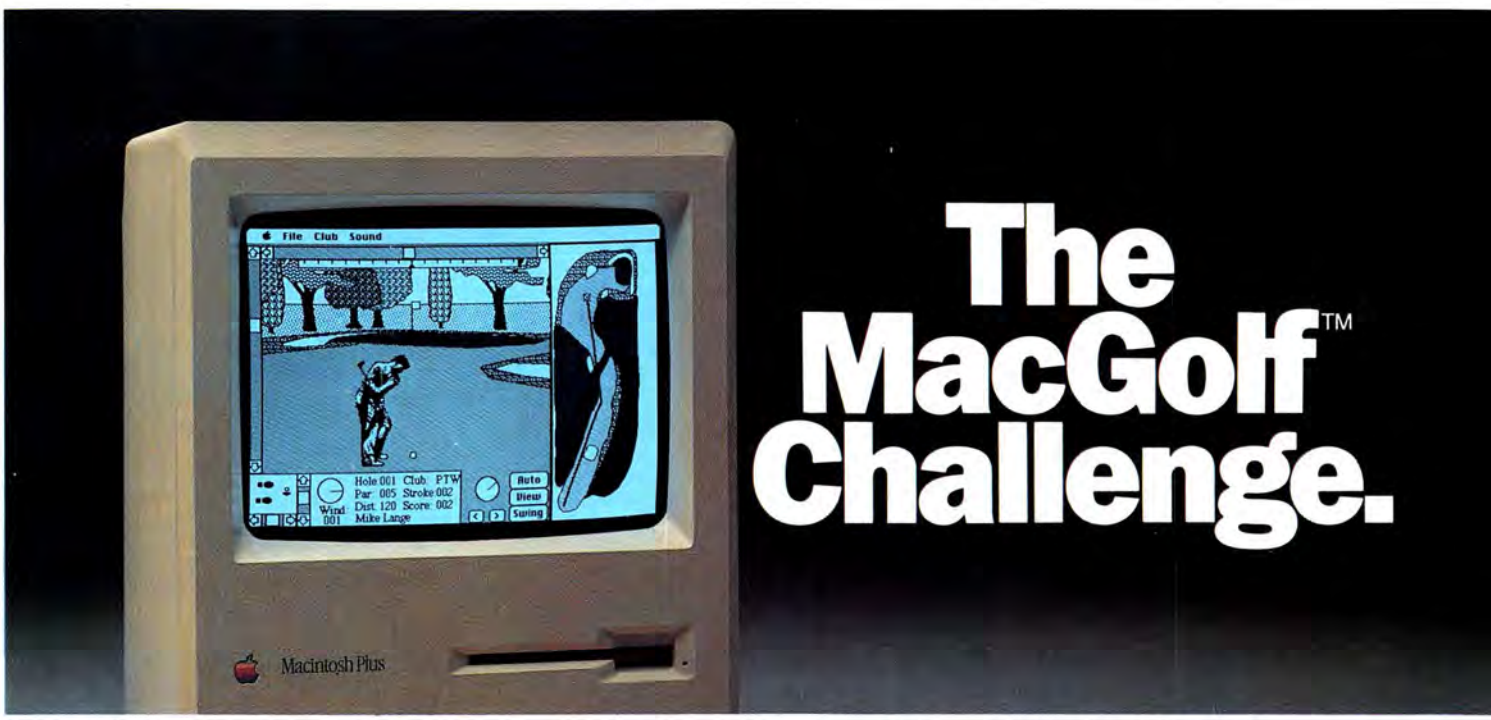

The MacGolf™ Challenge.

Sit down, boot up and find yourself surrounded by the sights and sounds of the fairway – with MacGolf, the premier simulation golf game for Macintosh™ users.

MacGolf challenges beginners and experts with 3-dimensional animated golfers and graphics, realistic (digitized) sound effects, and two 18 hole golf courses. Up to four people can play.

MacGolf works on a 512K or Macintosh Plus and costs only $59.95. Get MacGolf at your nearest dealer today. Or call Practical Computer Applications at (612) 427-4789.

MacGolf™

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HOW TO DRIVE THE NEW MACS AT FULL THROTTLE.

It's becoming rather obvious that Mirror Technologies is the large drive expert. Why else would Apple™ choose *our* 172 meg drive to demonstrate the incredible power of AppleShare™ when they introduced it to the market? How else can you explain why we're shipping so many big drives to so many big companies? Companies like AT&T, 3M, Honeywell and Apple, just to name a few.

And now with the introduction of the 2 awesome new Macs (the Mac SE™ and Mac II™) the storage and speed of our drives is more crucial than ever. Because to harness and fully employ the power of these 2 new stallions, you need the best drive team.

FEATURES, FEATURES AND MORE FEATURES.

Our big drives use voice coil technology, making them lightning fast. They come with THINK Technologies LaserSpeed,™ a $99 value.

All our big drives come standard with QuickPrint™ (our imagewriter print spooler), a $79 value. Plus SafetyNet™ Manager and SafetyNet Personal backup software, a $150 value.

What's more, our drives are inexpensively upgradeable. Only with us can you double or triple storage capacity within the original cabinet. Plus we've worked side by side with Apple well prior to the introduction of the Mac SE and Mac II to assure the finest performance and compatibility available. And all our drives are covered by a full-year warranty.

You've just read through quite a few reasons to buy your drive from us.

So give us a call today.

From left to right, the Mirror family: Magnum 800, Magnum Tape 20, Magnum Tape 40, MagNet 20X (not pictured), MagNet 30X, MagNet 40X, New MagNet 85/40, MagNet 85X, MagNet 172X, MagNet 340X, MagNet 40/40.

MIRROR TECHNOLOGIES Inc.

2209 Phelps Road, Hugo, Minnesota 55038 (612) 426-3276

Macintosh SE, Macintosh II, AppleShare are trademarks of Apple Computers, Inc., LaserSpeed is a trademark of THINK Technologies.

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Tilting At Macs

What does the word "ergonomics" conjure up for you? Probably not your new Macintosh SE, but maybe it should. Ergonomics is an increasingly popular buzzword that refers to the "application of engineering to the physical interaction between man and his machines." What *that* means is that computers should not only be WYSIWYG; but what you see shouldn't give you a bad back or a crick in the neck.

My SE is at present sitting atop a MacTilt SE from Ergotron, a company that obviously takes ergonomics seriously. The new MacTilt is a stand for the SE that lifts it off the desk about 4½". Once your SE is mounted, you can easily turn and tilt the unit (±15 degrees) until the screen is just where you want it. (The mounting is a simple and sensible procedure: just fit the SE's "feet" through holes in the mounting plate.) The stand has a plastic base that is an exact match for Apple's new corporate gray, so the look stays business-like.

This may not sound like much use to you, but if you normally end your day with eyestrain or aching neck and shoulders, MacTilt could make a positive difference. (I speak from experience here.) And from the less serious side of things, it makes your SE look suspiciously like the friendly computer in "Bloom County"—if less ambulatory.

The MacTilt SE sells for $89.95, making it probably one of the less expensive toys you'll get for your new machine. For more information you can write to the people at Ergotron at 1621 East 79th Street, Suite C-133, Bloomington, MN 55420; or call (800) 328-9839.—*LK*

UPDATES

Programs, like people, change over time. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version number (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the About... item at the top of the Apple menu.

Apple System software is special. Unless you have a 128K Mac, you should be running *System* 4.0 and *Finder* 5.4 (128K owners should continue to use *System* 2.0 and *Finder* 4.1). If you don't have the latest *System* and *Finder* you can get them, along with the versions of other Apple software, free from an authorized Apple dealer. Be sure to bring in a blank disk or two.

The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; +, known to be HFS compatible; −, known not to work under HFS; S, shareware (try before you buy software); and 5, requires at least 512K of RAM.

Acta	1.2	NCP,+
Aztec C	1.06H.1	NCP,+
Back to Basics	1.03	NCP,+
Balance of Power	1.03	CP,+
BatteryPak	1.23	NCP,+
Business Filevision	1.1	CP,+
CalendarMaker	2.2.1	NCP,+,S
Chooser	3.0	NCP,+
ColorChart	1.3	NCP,+
ColorMate	2.1	NCP,+
ColorPrint	2.03	NCP,+
ComicWorks	1.0	NCP,+
ConcertWare+	3.1	NCP,+
Copy II Mac	6.4	NCP,+
Copy II HD	6.4	NCP,+
Cricket Graph	1.1	NCP,+,5
DesignScope	1.14	NCP,+,5
Disk Express	1.10	NCP,+,5
Disk First Aid	1.0.1	NCP,+,5
DiskInfo	1.45	NCP,+,S
Disk Ranger	2.6	NCP,+
DiskTop	2.0	NCP,+,S
Dollars & Sense	1.4	CP,+
Dungeons of Doom	4.0	NCP,+,S
Easy3D	1.01	NCP,+
Edit	2.0	NCP,+
ExperLogo	1.1	NCP,+
Fedit Plus	2.0	NCP,+
FileMaker	1.0	NCP,+
FileMaker Plus	2.0	NCP,+
Filevision	1.0	CP,+
Finder (MFS-128K)	4.1	NCP,+
Finder (HFS)	5.4	NCP,+,5
FlashBack	1.4	NCP,+
Flight Simulator	1.0	CP,+
Fokker Triplane	1.0	CP,+
FONTastic	2.7	NCP,+
Font/DA Mover	3.4	NCP,+
Fontographer	2.1	CP,+,5
Front Desk	3.02	NCP,−
FullPaint	1.0	NCP,+,5
Gato	1.42	CP,+
Hard Disk 20	1.1	NCP,+
Hard Disk Utility	2.0	NCP,+,5
Helix	2.0r11	NCP,+,5
Helix, Double	DH1r35	NCP,+,5
HFS Backup	2.0	NCP,+,5
HFS Locator Plus	1.4	NCP,+
ImageWriter	2.5	NCP,+
ImageWriter, Apple-Talk	2.5	NCP,+
InTalk	2.1	CP,+
Jazz	1A	CP,+,5
Laser Prep	3.3	NCP,+
LaserWriter	3.3	NCP,+
Lightspeed C	2.01	NCP,+
Lightspeed Pascal	1.0	NCP,+
Mac-3D	2.0	CP,+
MacASM	2.0	NCP
MacBillboard	4.01	NCP,+,S
Mac C	5.0	NCP,+
MDS	2.0	NCP,+
Mac Disk Catalog II	2.1.1	NCP,+
MacDraw	1.9	NCP,+
MacDraft	1.2a	CP,+
MacGolf	2.0	CP,+
MacInTalk	1.1	NCP,+
MacLabeler	2.2	CP,+
MacLightning	2.0	NCP,+
MacLink	1.14	CP,+
MacMoney	2.02b	NCP,+
MacNosy V2	2.41	NCP,+
MacPaint	1.5	NCP,+
MacPascal	2.1	CP,+
Mac +][	3.0	NCP,+
MacProject	1.1	NCP,+
MacProof	2.0	NCP,+
MacSafe	1.03	CP,+
MacServe	2.1	CP,+
MacSpec	1.3	CP,+
MacSpin	1.1	CP,+
MacTerminal	2.0	NCP,+
MacTools (MFS/HFS)	6.4	NCP,+
MacWrite	4.5	NCP,+
Mac Zap Copier	4.52	NCP,+
MailManager	1.0	CP,+
Measure Test	7.2	CP,+,S
MicroPhone	1.0	NCP,+
Micro Planner Plus	5.7	CP,+
MindWrite	1.0	NCP,-
miniWriter	1.3	NCP,+,S
MockPackage+	4.3.4	NCP,+,S
MORE	1.1	NCP,+
MS BASIC	3.0	NCP,+
MS Chart	1.0	CP,+
MS Excel	1.03	NCP,+
MS File	1.05	CP,+
MS Fortran	2.2	CP,+
MS Word	3.0	CP,+
MS Works	1.0	NCP,+
Multiplan	1.1	CP,+
MusicWorks	1.1	CP,+
myDiskLabeler	2.11	NCP,+
Omnis III Plus	3.24	CP,+
OverVUE	2.0d	NCP,+
PackIt III	1.2	NCP,+,S
PageMaker	2.0	CP,+
PictureBase	1.2	NCP,+
QUED	1.54	NCP,+
Quick & Dirty Util., Vol. 1	1.6	NCP
Quick & Dirty Util., Vol. 2	1.0	NCP,+
Rags to Riches	3.0	CP,+
Ragtime	1.0	CP,+
RagTime	1.1	CP,+
Ready, Set, Go! 3	3.0	NCP,+
Record Holder	2.1	NCP,+
REdit	1.2	NCP,+
Red Ryder	9.4	NCP,+,S
Red Ryder Host	1.4	NCP,+,S
Reflex	1.0	NCP,+
ResEdit	1.1d12	NCP,+
SideKick	2.0	NCP,+
Silicon Press	1.1	NCP,+
Slide Show Magician	1.3	CP,+
Smartcom II	2.2B	NCP,+
SoundCap	4.3	CP,+
SpellNow	1.0	NCP,+
Spellswell	1.4	NCP,+
StatView 512+	1.0	NCP,+
StatWorks	1.2	NCP,+
Studio Session	1.2	CP,+
SuperPaint	1.00	NCP,+,5
Switcher	5.1	NCP,+,5
System (MFS-128K)	2.0	NCP,+
System (HFS)	4.0	NCP,+
Tempo	1.1	NCP,+
ThinkTank 512	1.3	NCP,+
Thunder!	1.0.1	NCP,+
ThunderScan	3.2	NCP,+
TML Pascal	2.01	NCP,+
TMON	2.585	NCP,+
Top Desk	2.1	CP,+
VersaTerm	3.0	CP,+
VersaTerm Pro	2.0	NCP,+
VideoWorks	1.1	NCP,+
Word Handler	1.6	NCP,+
WriteNow	1.0	NCP,+
ZBasic	3.02	NCP,+

50% MORE STORAGE. IMAGINE WHAT IT'LL DO FOR THE MAC SE.

Get 30 or 45 meg storage with our internal drive upgrade.

Until now, there were only 2 ways to buy the new Mac SE.™ You could get it equipped with two 800K floppies. Or, with a floppy and a 20 meg internal drive. Those were your choices.

We thought that was a little limiting. What about all the storage hungry people out there? People who want to outrun, outsmart and outdo the competition? Well, here's your answer.

INTRODUCING THE 300 SE AND 450 SE.

Before you buy your Mac SE, have your dealer replace one of its standard 800K drives with our 30 meg drive (300 SE). That gives you 50% more storage. 50% more, that's nothing to sneer at. And all it will cost you is $100 over the regular 20 meg SE price.* Or if you want more storage, have our 45 meg drive (450 SE) installed.

Our drives come with shock absorbing mounts to manage the hustle and bustle of everyday use. And if you need to chain hard drives or tape drives, you can easily turn termination on or off. Plus, changing SCSI address is as easy as a push of a button. (Apple doesn't offer any of these features.)

So if you're after the most storage a little money can buy, talk to a Mirror Tech dealer. And together, we'll make your Mac SE the best it can be.

FREE SOFTWARE. ANOTHER GREAT REASON TO UPGRADE.

If you choose to upgrade your Mac SE with our 30 or 45 meg drive, we'll give you THINK Technologies LaserSpeed™ (a $99 value) free.

Plus we'll throw in QuickPrint™ (a $79 value) and SafetyNet Personal backup software (a $150 value) too.

Of course, both of these drives are covered by our full-year warranty. So give your Apple dealer a call right away. Because when a deal's this good, the phone lines get busy real fast.

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Macintosh SE is a trademark of Apple Computers, Inc. LaserSpeed is a trademark of THINK Technologies. *With rebate on 800K floppy.

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And The Answers Are...

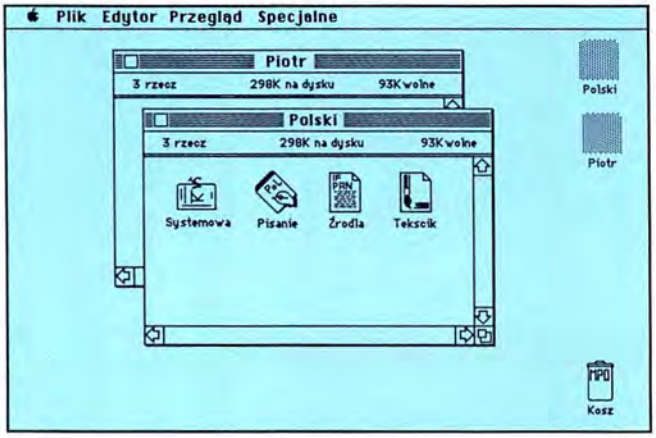
Here, as promised, are the answers to last month's puzzle.

M. MacPaint
F. MORE
B. Excel
I. Helix
K. Finder
J. Word 1.05
E. MacDraw
L. Pinball Construction Set
C. Smartcom
G. Switcher
N. SuperPaint
H. ThunderScan
D. PageMaker
A. MacWrite

DIALOG BOX OF THE MONTH

I don't think we're in Kansas anymore. This screen shot should look vaguely familiar; it is a dump of the *Finder* modified for use in Poland—clearly demonstrating that icons speak louder than words. According to our sources, there are Americans in addition to U.S. Embassy employees who are using the Macintosh in this Soviet bloc nation. (No doubt when the system crashes, you get a "bombe a la Polonnaise.") Since our Macs are native Engilsh speakers, we recreated this box in the office, using an ImageWriter Printout of the original as a guide.

The Macintosh is currently being used in a number of countries, with specially modified machines being used in Japanese and Arabic speaking nations, because of their different character sets. For most foreign users software can be easily modified, using *REdit*, so that dialogs and menus can be read in the local language. The new Macintoshes (SE and II) provide developers with a special set of ROM routines called the Script Manager so that other non-Roman languages can be supported in the future.



Have you come across on any unusual dialog boxes lately? Share them with us by sending them to MacUser Dialog Box, 25 West 39th Street, New York, NY 10018.—*DS*

DEFORMED.

Forms deformed? If producing a presentable form has always been a formidable task, you'll appreciate the scene on the far right. It's TrueForm™—the first and only Macintosh™-based system that lets you deftly deal with any form you feed it.

TrueForm is not just another forms software package, although it does offer you a choice of 20 ready-made forms to use. And it's not just a design-your-own-forms program, yet it lets you do that, too.

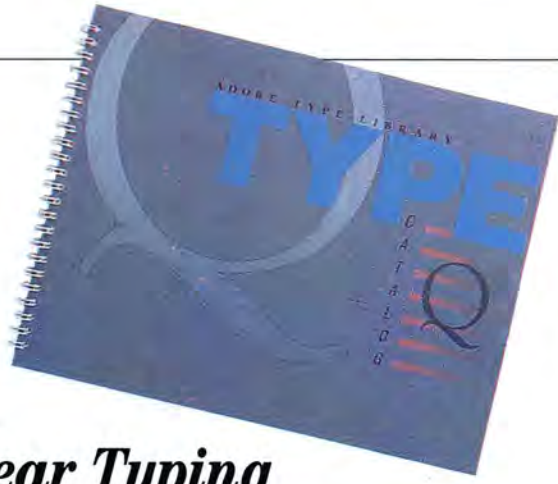
If you fill out lots of forms, lots of different kinds of forms or forms supplied by other people, TrueForm will transform your working world.

Feed any form into TrueForm's Image Scanner, and it's transmitted to your screen. Complete with logo and graphics. In seconds.

Next, you teach your computer how to fill out the form. You can supply information from your keyboard, or merge information from any database, or use TrueForm as an incredible forms-oriented spreadsheet.

Then print your perfect form with your LaserWriter® or ImageWriter®. Print the information on an original form. Or produce the entire completed form—graphics and all—on blank paper. Eliminate the problem of obsolete or out-of-stock forms inventories. Plain paper may be the only form you'll ever need again!

TrueForm makes it easy to set up a form, choosing the type font, size and style for each field. And with TrueForm you can capture and store both the forms you use and the data on them. Recall and reuse them. Save hours every day.



Clear Typing

Adobe Systems, developers of *Illustrator* and the PostScript language has just made two promotional items available for desktop publishers: a calendar and a catalog, both featuring Adobe's typeface libraries.

The Adobe calendar is a large poster that includes tips on designing and using type for desktop publishing. The calendar looks beautiful and includes samples of several typefaces available in the Adobe Type Library. And, of course, a 4-month calendar is provided. This poster is free and may be obtained by calling Adobe's 800 number. The other item is a magnificent catalog documenting all of Adobe's typefaces for PostScript devices. Separated into the packages available, each typeface is shown in use in a sample document along with a display of standard characters. The catalog also points out when and why you might wish to use a particular typeface. The appendices include a listing of the PostScript and screen font names of all fonts included in the library and a quick reference chart of typeface applications. The catalog costs $15 and may only be obtained directly from Adobe Systems.

You can reach Adobe Systems at 1870 Embarcadero Rd., Palo Alto, CA 94303, (800) 29-ADOBE or (800) 85-ADOBE in California.—*DS*

BUG OF THE MONTH

The application which produced this issue's Bug of the Month is Microsoft's *BASIC Compiler*. The following BASIC program works properly when running under the Microsoft's *BASIC Interpreter*, but the *BASIC Compiler* will not produce the correct result.

When running the application produced by the *BASIC Compiler* everything on the line following the second ELSE will be ignored, and, therefore, the output will be incorrect.

```
DEFINT A-Z
A = 0
B = 0
C = 0
IF A THEN IF B THEN GOSUB X
 ELSE GOSUB Y ELSE GOSUB Z
PRINT C
INPUT "WAITING"; X$
STOP

X: C = 1: RETURN
Y: C = 2: RETURN
Z: C = 3: RETURN
```

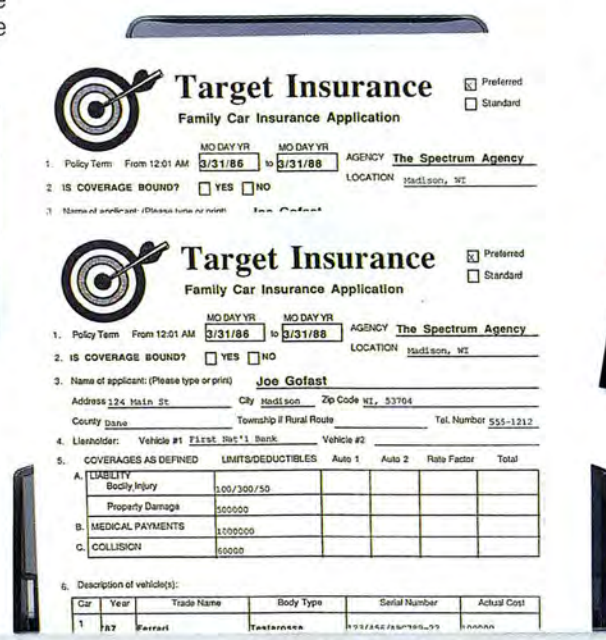
Mr. Richard C. Cohen of Silver Spring, MD will be receiving a $25 check for finding this bug.

Have you found a bug in the *BASIC Compiler?* Maybe you've found a bug in another application. We'd love to hear about it. If we print your bug, you will receive a $25 check, just like Mr. Cohen. Send any bugs that you may have stumbled upon to Bugsy, c/o MacUser, 25 W. 39th St., New York, NY 10018. Always remember to include all of the gory details, including *Finder/System* versions, what additional DAs, etc., and exactly what you had to do to have the bug rear its ugly head.—*DS*

TRUEFORMED.

The TrueForm system consists of the TrueForm software package, Image Scanner and TrueScan™ software. It's just $1,995 with an unconditional 30-day money-back guarantee.

You can buy the TrueForm software separately for $495, and design your own forms with any of a variety of Macintosh graphics programs. Or Spectrum Digital Systems will scan your forms.



Target Insurance
Family Car Insurance Application
☒ Preferred ☐ Standard
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2. IS COVERAGE BOUND? ☐ YES ☐ NO
3. Name of applicant: (Please type or print) Joe Gofast
Address 124 Main St City Madison Zip Code WI, 53704
County Dane Township if Rural Route Tel. Number 555-1212
4. Lienholder: Vehicle #1 First Nat'l Bank Vehicle #2
5. COVERAGES AS DEFINED | LIMITS/DEDUCTIBLES | Auto 1 | Auto 2 | Rate Factor | Total
A. LIABILITY — Bodily Injury 100/300/50; Property Damage 500000
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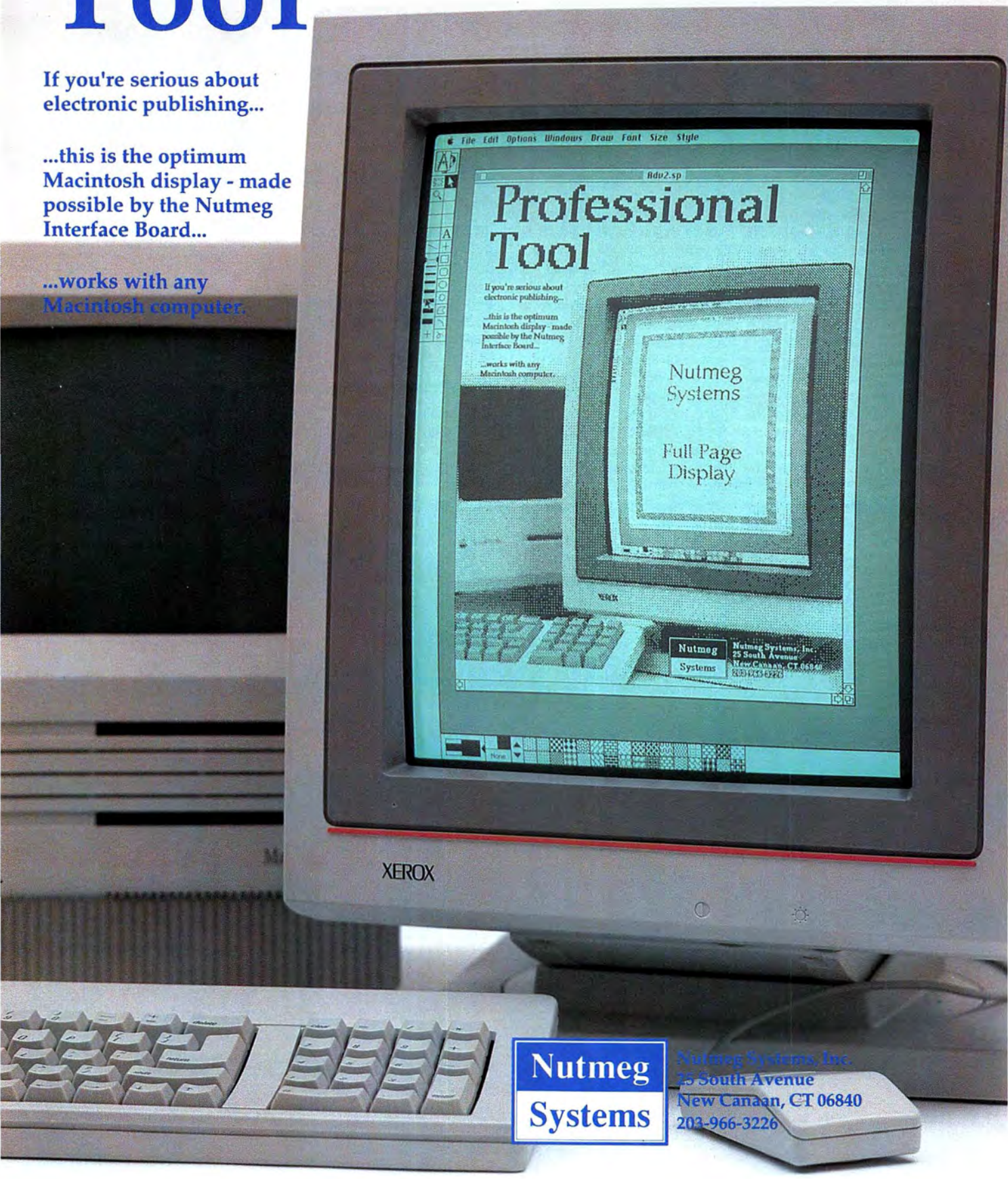

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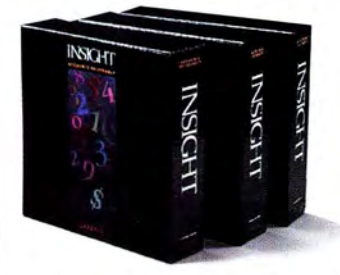

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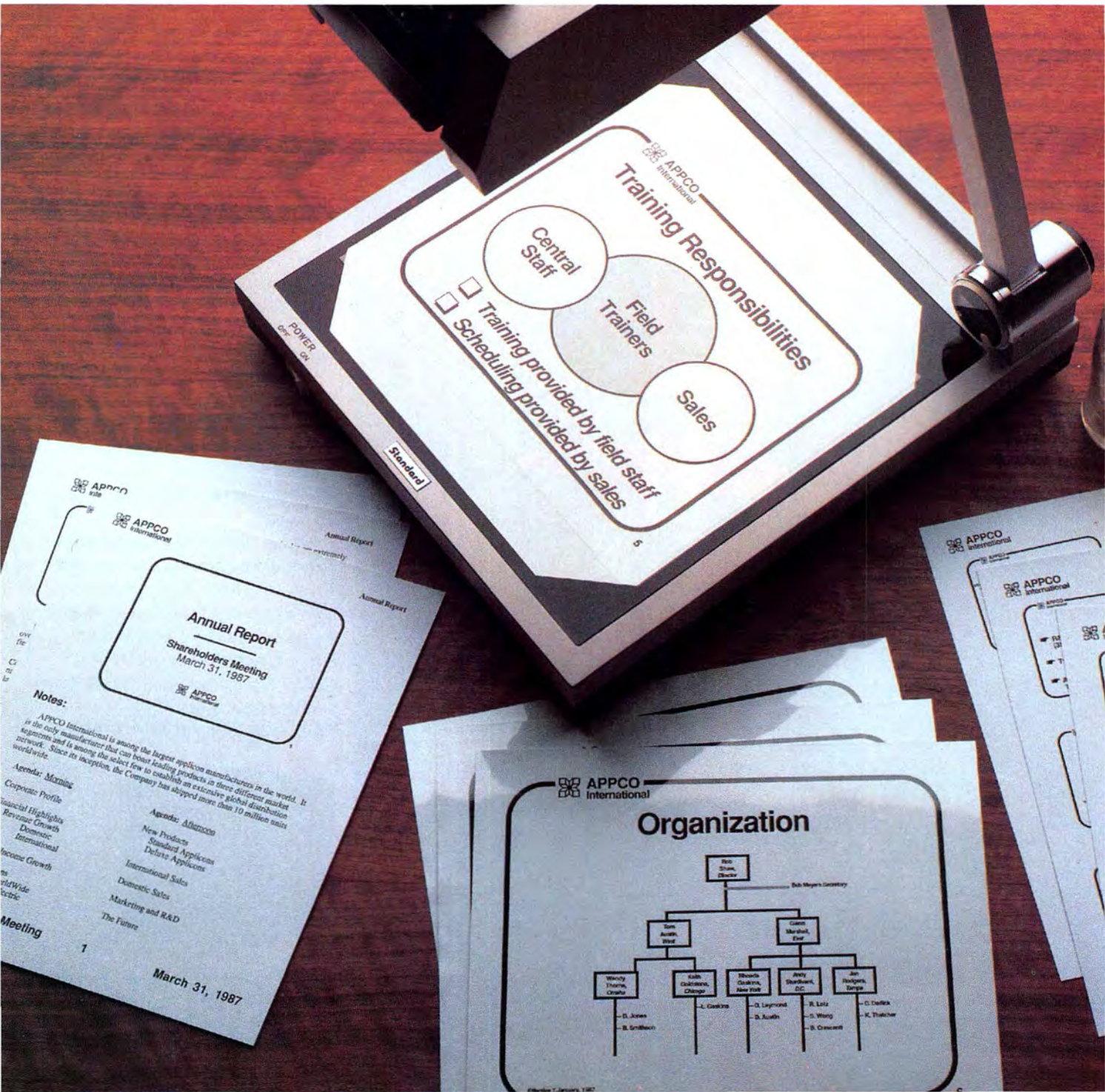

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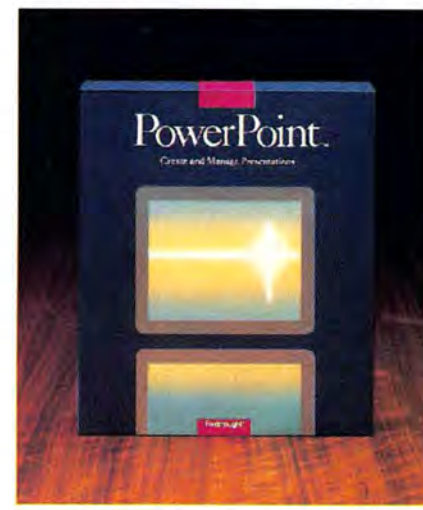

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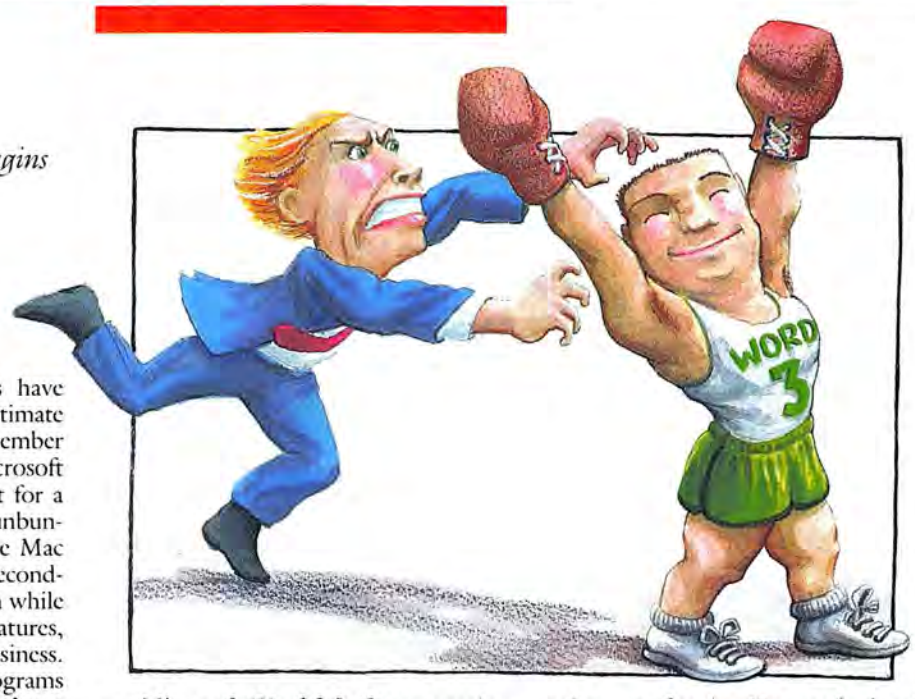
Word 3 – Users 0



Since 1984, Macintosh users have waited and waited for the ultimate word processor. You all remember the story of *MacWrite* and Microsoft *Word* 1.0, who shared the market for a long time, until *MacWrite* was "unbundled" with the introduction of the Mac Plus. You remember the early second-generation word processors, which while they offered some additional features, didn't exactly do a land office business. You remember page layout programs becoming the rage, so if you couldn't get quite what you wanted out of a word processor, you could fiddle around with your text in *PageMaker* or *ReadySetGo*.

Meanwhile, over in the MS-DOS world, lots of word processors were coming out that were really getting people excited. Built-in spell checking, table of contents generation, indexing, footnoting, and a host of other features were sweeping through the market. And Mac users looked at their PC cousins with a twinge of envy. Of course, the PC users didn't have the range of fonts, or the glory of LaserWriter graphics, but they were able to output fairly nice prose.

And at the end of 1986 came the third wave of word processors. *WriteNow* took a lot of the simplicity of *MacWrite* and added multiple column support, a built-in spelling checker, footnoting and improved line and character spacing (especially for LaserWriter users). *LaserAuthor* took off in another direction, blending page layout and word processing into an amazingly complex program that could produce some absolutely gorgeous output. But neither of these programs offered all the features that those IBM folks were merrily using. So heads began turning towards Seattle. Microsoft offered *Word* on both the Macintosh and the IBM PC. But the new IBM PC version they released in 1986 was one of those full-featured extravaganzas that PC owners were gloating over and Mac users were drooling over. Microsoft just had to be working on a Mac version.

And they were. Anticipation began growing as whispers from beta testers revealed the amazing new features. The Macintosh magazines couldn't wait to rush to press with glowing reports of the wonders of what everyone now knew was Microsoft *Word* 3.0. One magazine jumped the gun as early as December with a feature comparison of *Word* and other word processors (some of them also unreleased), and later reviewed a pre-release copy of *Word* 3.0 as though it were the finished product. And in the heat of excitement, even *MacUser* violated its policy of not reviewing pre-release software and published two feature articles/reviews and a comparative review in the March issue (but *MacUser* did at least mention that it was not the release version being written about). And everyone raved about it, listing the features in wide-eyed adoration, and brushing aside for the most part the problems encountered, saying they would be fixed in the final version. **Not all of them were.**

Even yours truly was caught up in the excitement. The features offered by *Word* 3.0 are enough to excite any serious word processing user. And when the actual *release* version hit my hands, I fooled around with it a little and was impressed enough to make it a Pinstripe Pick for June. Sure it wasn't perfect, but those features were just too good to be true. **And they were.** Fortunately, I was able to get to my editor in time to change the thumb up to a thumb down.

I began using *Word* in a big way. I was working on a project for which it was the perfect choice. I needed variable width columns (which *Word* can do with "side-by-side" paragraphs), a table of contents and an index. It seemed like a perfect fit. **It was a nightmare.**

At first it went well. Sure, the lack of "What-You-See-Is-What-You-Get" (WYSIWYG) is ridiculous in a Macintosh program that came out *three years* after the Mac's introduction. But there is the "Page Preview" mode which *sort of* makes up for it. Yes, and the font handling is inexcusable, showing only the 32 lowest *numbered* fonts, no matter how many you have installed. (Do you know what your font numbers are? I didn't think so.) And even in the font menu (new in 3.0) they are shown in *numerical* rather than alphabetical order. But there were all those *features* to make up for it. And things were going well. **For a while.**

Then the trouble began. Pagination. How hard can it be to get page breaks where you want them? *Impossible*, if you use side-by-side paragraphs containing graphics. *Word* seems unable to figure out how big graphics are. So pages would be too long or too short, and page breaks would be put in seemingly random places. So I went back to the old standby of forcing page breaks (which, by the way, can*not* be done from a menu, only with a keyboard command). But *Word* would put a page break right after my forced break, or a line or two later, resulting in blank pages or pages with one or two lines on them scattered through my document. Not only that, but I had to constantly choose "Repaginate" or flip to "Page Preview" mode (which, by the way, would sometimes select *different* page breaks than the "Repaginate" command). While all this is going on, *Word* is continually screwing up the screen display, like showing a graphic then half of it again (a minor quibble by this point).

After considerable contortions, I did get the page breaks *almost* where I wanted them. Some pages were still way too long (going almost an inch below the bottom margin), but I figured I'd live with them. So I went to print, and out came my output, absolutely beautiful.

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Until I proofread it and discovered parts of paragraphs (which show up just fine on screen) completely gone, and large gaps which also do not show up on screen between other paragraphs.

I also start to grow annoyed at having to type ".i." before and ";" after each word I want in the index, then make them into "hidden" text. It would be *so* much easier to select the word then select a menu option. (But of course, the IBM PC doesn't have menus, which may explain not only this, but also the page break problem and other annoyances.)

I've now had enough problems to convince me that Word is not for me, and it's time to move my project to a word processor that I can rely on.

I've now had enough problems to convince me that *Word* is not for me, and it's time to move my project to a word processor that I can rely on to produce output the way I want it. Fortunately for me, *Word* 3.0 has a "Save As *MacWrite*" option so I can salvage my twenty-odd pages (since *Word* keeps changing them around, I have no idea how many it really is). I move over to *MacWrite*, only to find that *Word* has put in "killer" rulers, that when clicked on cause *MacWrite* to bomb.

At this point I have to remind myself that this is the release version and not a beta-test copy. But still I figure all these problems may be due to the side-by-side paragraphs and the graphics. So I head off to CompuServe's Macintosh Users Forum, hoping to find someone with suggestions. I join in some existing discussions on *Word*, only to discover that it is *not* me, it is *not* my copy, and it is *not* the side-by-side paragraphs. Other people are complaining about the fonts, and problems with pagination, and I even find someone else who's experiencing the vanishing pieces of paragraphs.

What does all this mean? It means that *Word* 3.0 is an MS-DOS program in Macintosh clothing, with ugly bits and

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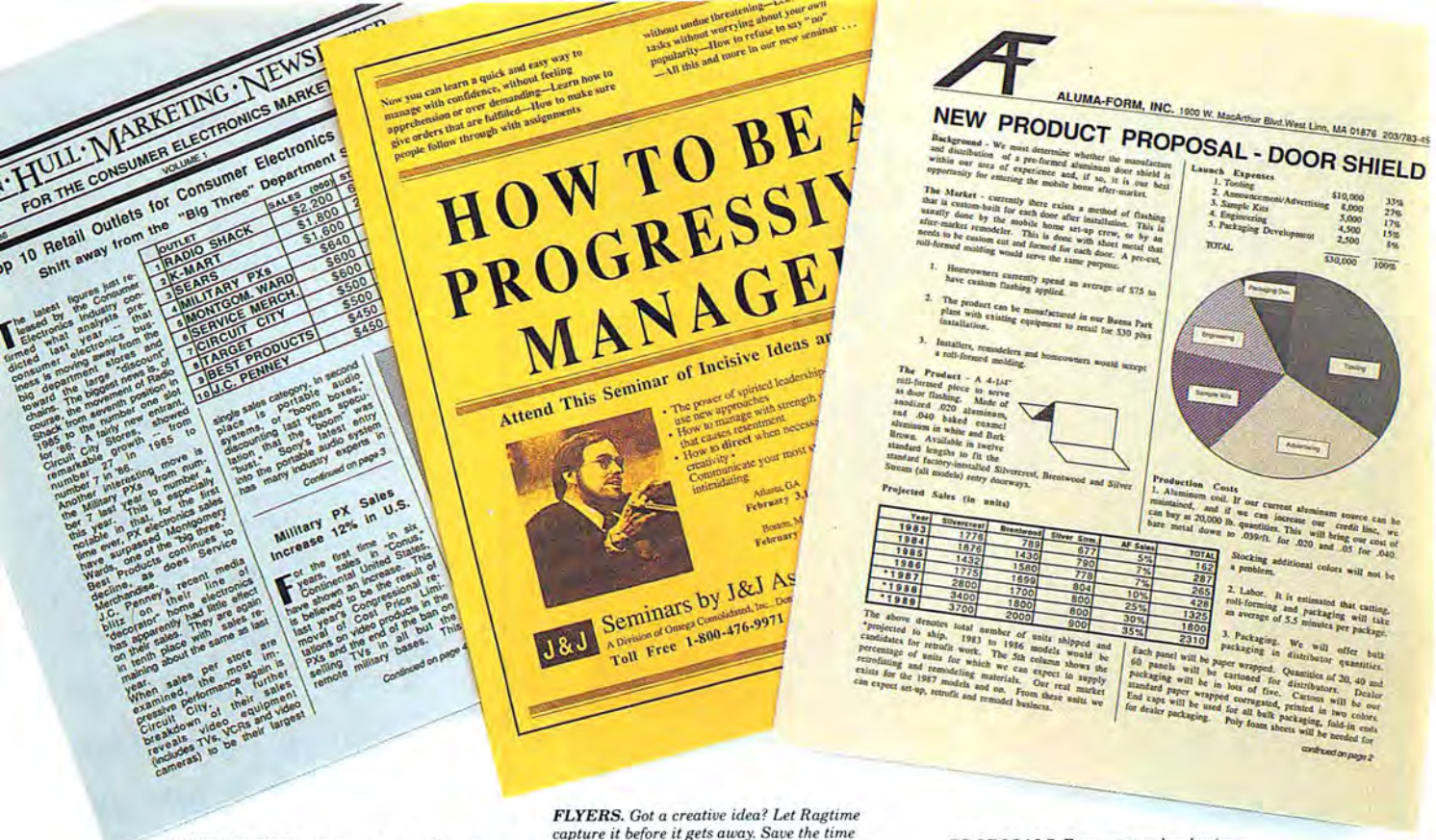

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pieces of the IBM way of doing things sticking out here and there. *Word* should get the Tease Award of 1987 for the most fantastic features promised with the fewest number of them implemented in a useful manner. It's almost impossible to believe that this is from the same company who gave us *Excel*, which is possibly the single greatest program ever written for *any* microcomputer. I'd go on, but I have to stop talking about *Word* before the veins in my head start exploding.

Word 3.0 is an MS-DOS program in Macintosh clothing, with ugly IBM bits and pieces sticking out here and there.

Needless to say, Mac users have to wait for the ultimate word processor. It's not here yet.

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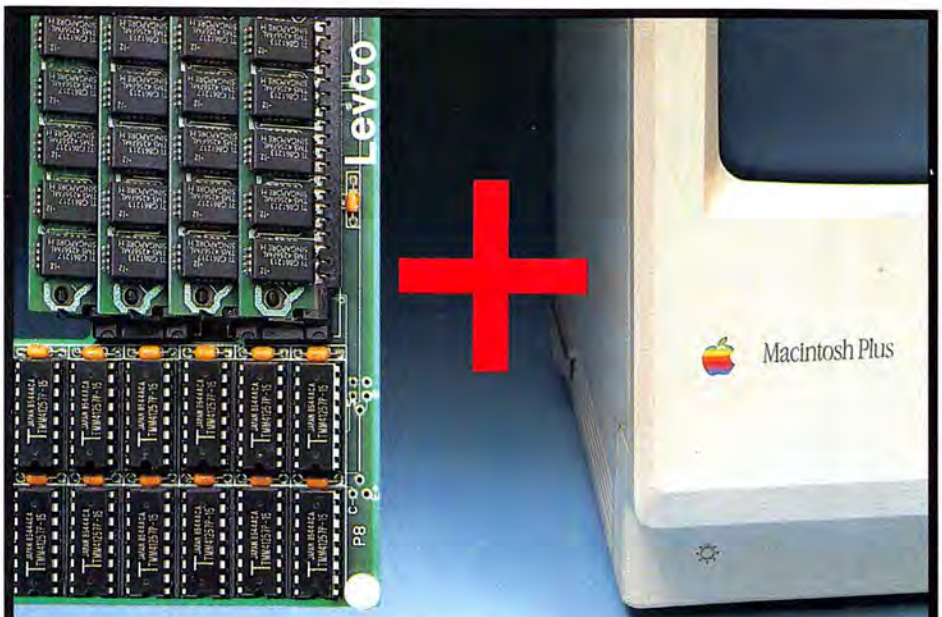

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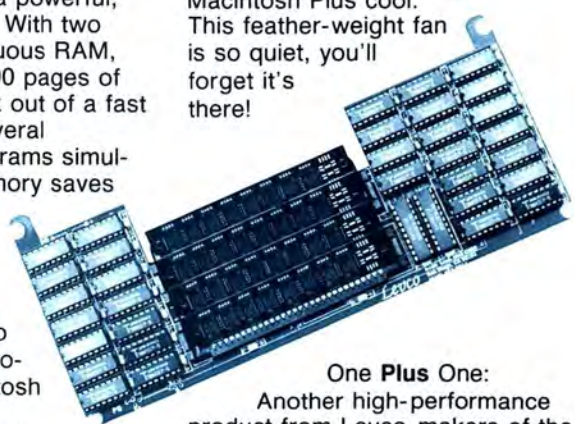

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If you recognize yourself in that definition, we'd like to introduce you to a family of peripherals from General Computer.

Because each was created not simply to tap the Mac's resources as a tool for business, but dramatically enlarge them in the process.

HYPERDRIVE LENGTHENS ITS LEAD OVER THE LATECOMERS.

HyperDrive was the first hard disk to be installed inside the Macintosh—and it gave the Mac unprecedented increases in speed and capacity.

Now General Computer extends these increases to the Macintosh SE with a new internal hard disk—HyperDrive FI/40.

Given its heritage, it should come as no surprise that HyperDrive FI/40 is extremely fast. Once installed, an FI/40 will speed power-up time by 57%. Load Microsoft's Excel two times faster. And Aldus' PageMaker three times faster.

These and other reductions in work time are matched by a correspondingly vast increase in the capacity for work. An FI/40 will enable the Mac to store the data that would otherwise occupy an astonishing 14,000 pages.

But all this isn't to say that HyperDrive's elevated performance is denied those who prefer an external hard disk.

HyperDrive FX/20 and FX/40 provide the same speed and capacity to any Macintosh with an SCSI port. And like all internal HyperDrives—which is to say unlike any other hard disk—the FX drives come with a complete array of software.

Including a back-up program that lets you make quick back-up copies of your data onto diskettes. LaserWriter and ImageWriter print spoolers that queue up documents for your printer, so you can go on to other jobs while your printer is printing. And a security program that protects your files from unauthorized entry.

NETWORKING SOFTWARE THAT OUTWORKS THE OTHERS.

If networks exist to promote the free exchange of information, it follows that the freer the exchange, the better. By that standard, HyperNet 2.0 creates new possibilities for desktop communications.

HyperNet enables up to 32 Macintoshes to read, edit or transfer files from any hard disk in an AppleTalk network. Even if everyone wants to refer to the same information at once.

Unlike other networking software, HyperNet allows a direct, virtually uninterrupted flow of information between users. Without need of a dedicated Macintosh to run the network. Or a network administrator to maintain it.

In fact, HyperNet doesn't even require

*In Illinois, (800) 854-9737. In Canada call (800) 263-1405. © 1987 General Computer. HyperDrive, HyperNet, HyperTape, HyperCharger 020, and the General Computer logo are trademarks of Blyth Software, Inc. AppleTalk, AppleShare, LaserWriter, ImageWriter and Macintosh are trademarks of Apple Computer, Inc.

Macintosh Plus,
HyperDrive FX/20

Macintosh SE,
HyperCharger 020

HyperDrive. It works with any Macintosh and any hard disk made for the Macintosh. Not to mention all the software compatible with AppleTalk.

Which means you can take full advantage of multi-user programs for electronic mail such as Think Technologies' InBox. Or powerful database managers such as Blyth's Omnis 3.

The resulting network provides a flexible and fully compatible complement for people who use AppleShare. And for people who don't, HyperNet provides an extremely fast, easy-to-use network on its own.

INTRODUCING TWO NEW EXPANSIONS OF THE OUTERMOST LIMITS.

If you bought the Macintosh because it delivers "the power to be your best," then more power should make you even better.

That's the mission of the two newest additions to the General Computer family—HyperTape 40 and HyperCharger 020.

HyperTape 40 may not make diskettes obsolete, but it can greatly decrease your dependence on them.

Plugged into any Macintosh with an SCSI port, HyperTape can back up the equivalent of 50 diskettes of data onto one compact 40-megabyte cartridge. HyperTape can be programmed to back up automatically—even when you're away from your Macintosh. And you have the peace of mind that comes with knowing your documents are stored using the most advanced and reliable method for protecting data from accidental loss.

Even greater economies of time and effort are available through HyperCharger 020—a powerful enhancement board which, installed inside the Macintosh SE, delivers the processing prowess of the Macintosh II.

A Macintosh SE thus equipped not only runs most software up to an incredible four times faster. HyperCharger's optional floating point co-processor also allows it to handle financial modeling, statistical analysis, and other tasks which ordinarily would require a much larger, more complex and more expensive computer. And since HyperCharger is internally installed, the SE remains as compact and portable as before.

In sum, no other family of peripherals leaves the Macintosh so thoroughly equipped for superior performance. Or so thoroughly qualified for a career in business.

For a detailed review of those qualifications, stop by an authorized General Computer dealer, where you can see a demonstration of our complete family of products for the Macintosh. For the name of a dealer near you, call (800) 634-9737.*

GENERAL COMPUTER

General Computer. PageMaker is a trademark of Aldus Corp. Microsoft and Excel are trademarks of Microsoft Corp. InBox is a trademark of Think Technologies, Inc. Omnis 3 is a trademark of

Macintosh Plus,
HyperDrive FX/40

Macintosh SE,
HyperTape 40

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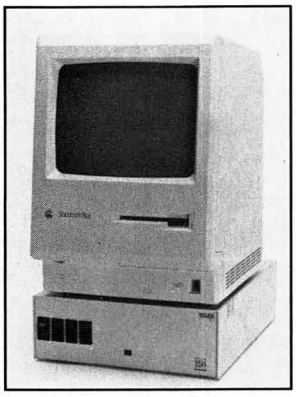
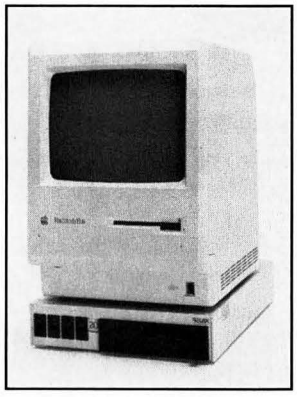
The multi-user solutions.

Relax Hard Disk 150 Plus™ Power Controller.



This is the product that addresses networks and the Appleshare environment like no other. A very serious 150 Mg of pure computing power teamed with our famous Power Controller in one sleek unit. Allows up front fingertip control of everything from power to peripherals, and can be networked to up to 64 Macs! Fan-cooled. Complete utility package. Platinum or Beige for every Mac from 512 to Mac II. See your dealer for price or call us.

Relax 20 Mg and 60 Mg Tape Back Ups™



No muss, no fuss. This is absolutely the easiest, most reliable way to automatically backup all your data. Featuring TEAC's finest quality tape and an automatic timer system that can back-up your data at the same time every day, whether you're there or not. Both 20 and 60 Mg are SCSI compatible with every Mactintosh from the 512 to the Mac II. Available in Platinum or Beige. At fine dealers everywhere.

RELAX TECHNOLOGY

Relax. We'll do the driving.

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A GOOD STORY IS WORTH REPEATING...

Especially if it's about your product!

Why let your story remain hidden in a back issue of one of the world's leading computer magazines?

Let us take your article to its highest level of marketing potential with a reprint! This is one of the most valuable marketing tools you have on hand because:

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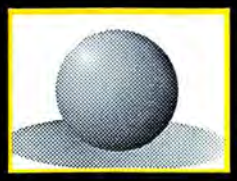

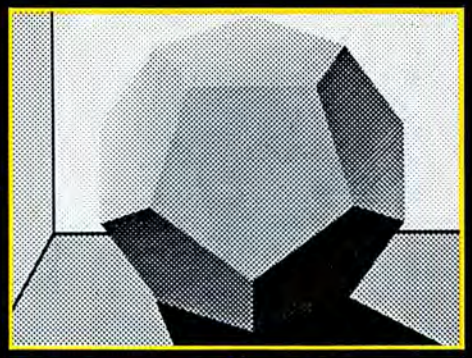

You've probably felt the frustration. All of that graphic power just waiting to be tapped, without software to unleash the potential. Frustrate no longer — Cricket Draw is here.

cricket DRAW

Runs in color on the Mac II!

Please circle 132 on reader service card.

Cricket Draw is an object-oriented drawing program that brings a whole new dimension to the WYSIWYG environment.

WYSIWYG is great but the end result is limited by the Mac's display resolution (approximately 5,000 dots per square inch). Cricket Draw, through the magic of PostScript,™ lets you take full advantage of the LaserWriter's superior resolution of 90,000 dots per square inch. The final product is sensational artwork that will bring a new level of professionalism to your work. With Cricket Draw **WYGIBTWYS** (What You Get Is Better Than What You See).

Unrestricted Creativity. Cricket Draw liberates your creativity by providing an unprecedented range of tools, like tilting and free rotation of any object. You can shade with a gray scale (0-100%), create shadows, fountains (graded tints), starbursts, grates, and smoothed curves. And that's just the beginning.

Precisely set type then add any of a number of special effects. Place type on any arbitrary path, rotate, tilt, shade, shadow — the possibilities are limitless.

Achieve Your Ultimate. Settle for nothing less than your ultimate. It's within your grasp with Cricket Draw.

Requires Macintosh Plus or New ROMS

cricket software *Anything Less Isn't Quite Cricket*

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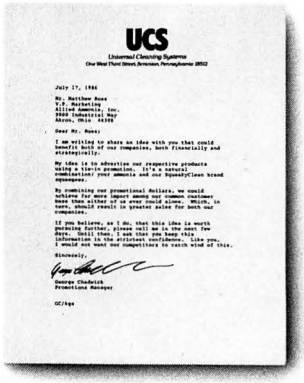
LaserWriter is a trademark of Apple Computer Inc.
PostScript is a trademark of ADOBE Systems, Inc.

SIX REASONS TO TEACH YOUR MAC TO READ.


UCS
Universal Canvasing Systems
One West Third Street, Jamestown, Pennsylvania 28552

July 17, 1986

Mr. Matthew Rose
V.P. Marketing
Allied Chemical Inc.
5500 Industrial Way
Akron, Ohio 44308

Dear Mr. Rose:

I am writing to share an idea with you that could benefit both of our companies, both financially and strategically.

My idea is to advertise our respective products using a tie-in promotion. It's a natural combination: your ammonia and our SqueakyClean brand squeegees.

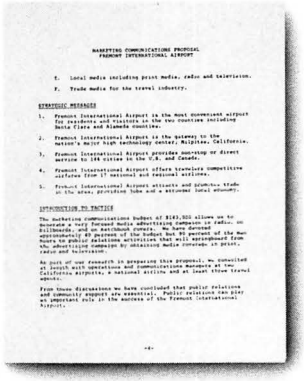
By combining our promotional dollars, we could achieve far more impact among our common customer base than either of us ever could alone. Which, in turn, would result in greater sales for both our companies.

If you believe, as I do, that this idea is worth pursuing further, please call me in the next few days. I'd like to keep this confidential, so any information in the strictest confidence. Like you, I would not want our competitors to catch wind of this.

Sincerely,

George Chadwick
Promotions Manager

GC/kpe


MARKETING COMMUNICATIONS PROPOSAL
FREMONT INTERNATIONAL AIRPORT

1. Local media including print media, radio and television.
2. Trade media for the travel industry.

STRATEGIC MESSAGES

1. Fremont International Airport is the most convenient airport for residents and visitors in the two counties including Santa Clara and Alameda counties.
2. Fremont International Airport is the gateway to the nation's major high technology center, Milpitas, California.
3. Fremont International Airport provides non-stop or direct service to 194 cities in the U.S. and Canada.
4. Fremont International Airport offers travelers competitive airfares from 17 national and regional airlines.
5. Fremont International Airport attracts and accommodates trade-in the area, providing jobs and a estimated total economy.

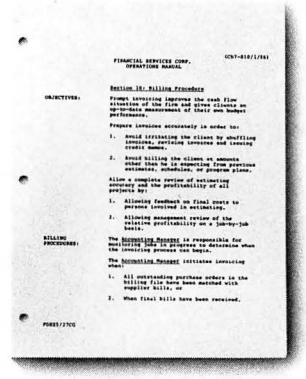
INTRODUCTION TO TACTICS

The marketing communications budget of $183,500 allows us to accurate a very focused media advertising campaign in radio, on billboards, and on mailbook inserts. We have determined that these media will be the most effective in reaching the segment of the mar-kets to publish relations activities that will spotlighted from the, advertising campaign by obtaining media coverage in print, radio and television.

As part of our research in preparing this proposal, we consulted at length with operations and communications managers at two California airports, a national airline and at least three travel agencies.

From these discussions we have concluded that public relations and community support are essential. Public relations can play an important role in the success of the Fremont International Airport.

-4-


(CNT-810/1/86)

FINANCIAL SERVICES CORP.
OPERATIONS MANUAL

Section 10: Billing Procedure

OBJECTIVES:

Prompt invoicing improves the cash flow situation of the firm and gives clients an up-to-date measurement of their own budget performance.

Prepare invoices accurately in order to:

1. Avoid irritating the client by shuffling and resorting invoices and issuing credit memos.
2. Avoid billing the client at amounts other than he is expecting from previous estimates, schedules, or progress plans.

Allow a complete review of estimating accuracy and the profitability of all projects by:

1. Allowing feedback on final costs to persons involved in estimating.
2. Allowing management review of the relative profitability on a job-by-job basis.

BILLING PROCEDURES:

The Accounting Manager is responsible for monitoring jobs in progress to determine when the invoicing process can begin.

The Accounting Manager initiates invoicing when:

1. All outstanding purchase orders in the Billing File have been matched with shipping slips.
2. When final bills have been received.

FS0815/27C

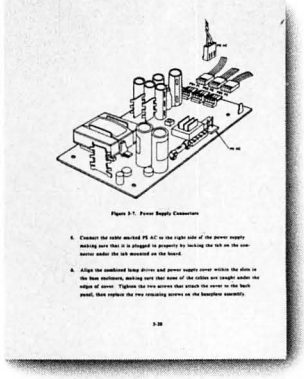
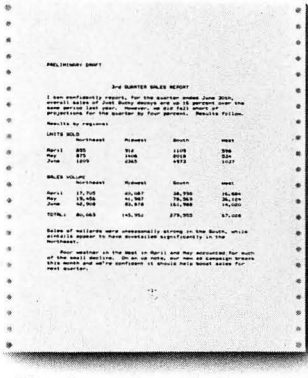


Figure 3-7. Power Supply Connectors

4. Connect the cable marked P5 AT to the right side of the power supply making sure that it is plugged in properly by locking the tab on the con-nector under the tab mounted on the board.

5. Align the combined lamp driver and power supply cover within the slots in the base enclosure, making sure that none of the cables are caught under the edges of cover. Tighten the two screws that attach the cover to the back panel, then replace the two remaining screws on the baseplate assembly.

3-38


PRELIMINARY DRAFT

3rd QUARTER SALES REPORT

I am confidently reporting for the quarter ending June 30th, overall sales of our Fremont division are up 18 percent over the same period last year. However, we did fall short of projections for the quarter by four percent. Results follow.

Results by regions:

UNITS SOLD

	Northeast	Midwest	South	West
April	895	912	1,105	556
May	873	1408	2018	524
June	1,015	1363	1972	1127

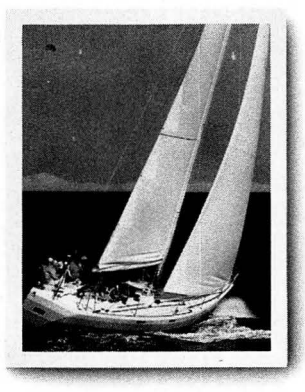
SALES VOLUME

	Northeast	Midwest	South	West
April	17,710	45,187	38,750	15,564
May	19,456	41,987	70,563	24,124
June	42,908	83,416	161,968	14,160
TOTAL:	80,065	145,952	279,953	57,008

Sales of rollarms were unseasonally strong in the South, while minirolls appear to have dwindled significantly in the Northeast.

Poor weather in the West in April and May accounted for much of the shortfall there. We are, however, on a campaign there this month and we're confident it should help boost sales for next quarter.

-1-



There's no smarter, faster input device than PC Scan Plus. It can read words, illustrations or photographs into your Macintosh word processing or desktop publishing programs in seconds. At the click of a mouse. And it can do the same for an IBM® PC.

If these look anything like the papers piling up in your office, you need PC Scan Plus,™ the new intelligent scanner from DEST.

It's the fastest way to get information off your desk and into your Macintosh™ Plus, where you can use it.

You see, PC Scan Plus can read a typed page into your Macintosh's word processing program, completely formatted, in less than a minute.

PC Scan Plus works with MacWrite,™ Microsoft™ Word, and the others. It can read most office typestyles, including dot matrix, with accuracy no other scanner can touch.

What's more, if you're a desktop publisher, PC Scan Plus can do even more.

Besides words, you can scan photographs, line art, logos and other images into all the top desktop publishing software. PageMaker,™ Ready, Set, Go!™ and the rest.

And if all this isn't reason enough to take a closer look at PC Scan Plus, just give your in-box a quick scan.

Then call us for a free brochure or a demo.

DEST

800-538-7582

In California, 408-946-7100.

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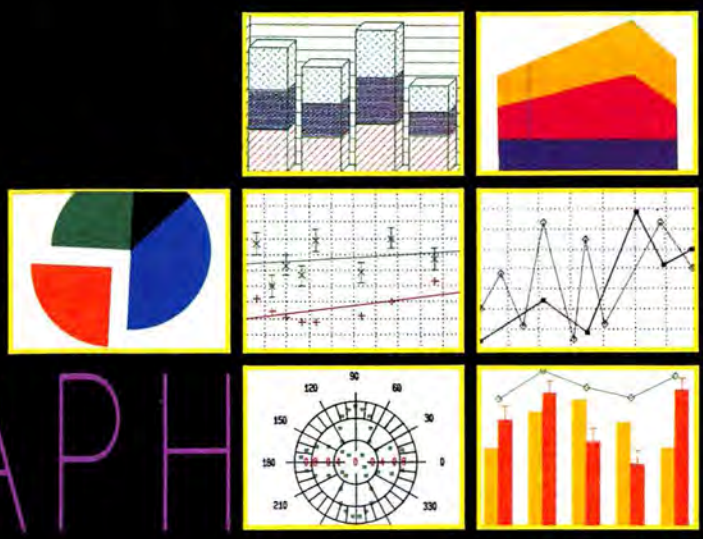

Your data is everything. It represents the culmination of all of your efforts. . .your accomplishments. So when it comes to turning your data into graphic presentations, you can't afford to settle. You need the power to achieve the ultimate. You need Cricket Graph.

cricket GRAPH

Runs in color on the MAC II!

Only Cricket Graph gives you the abiliity to transform your data into brilliant color presentations. Choose from **12** of the most popular graphs and charts. Plot **2000** data points per series. Import data in many popular formats. Then enhance your graphs with text and a full range of patterns, symbols, and colors. Even add a three dimensional look. When completed, you can print your work on any of the popular Mac compatible printers.

It's elegance defined - powerful, yet easy. No wonder Cricket Graph was voted "Best Business Graphics Package of 1986" by the Editors of MacUser.

Don't allow the limitations of your software to prevent you from achieving the ultimate. With Cricket Graph, your potential is limitless. Only $195 at dealers everywhere.

Requires a 512K Enhanced Macintosh or a Macintosh Plus

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cricket software *Anything Less Isn't Quite Cricket*

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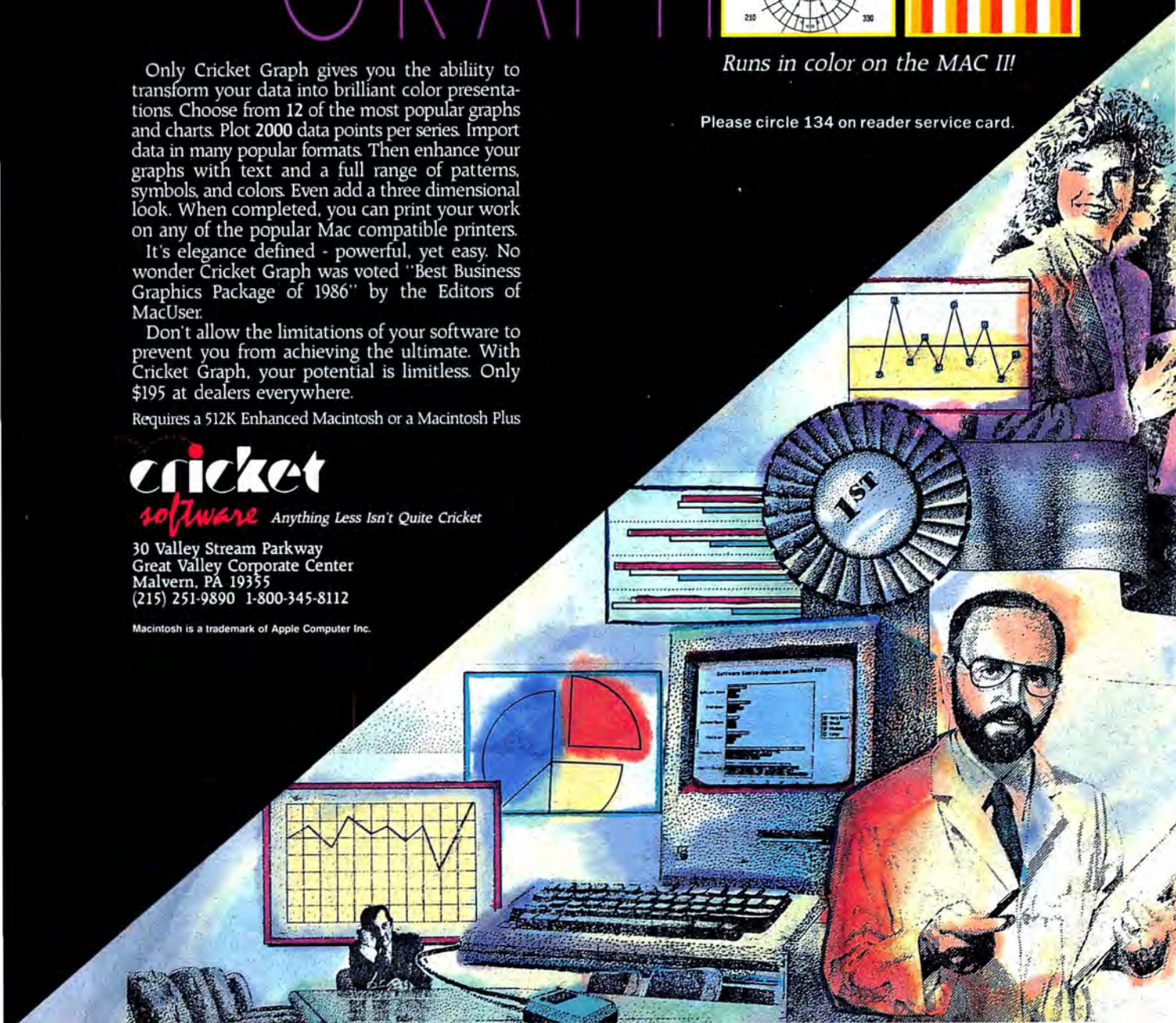
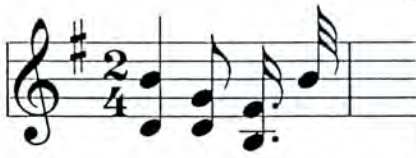
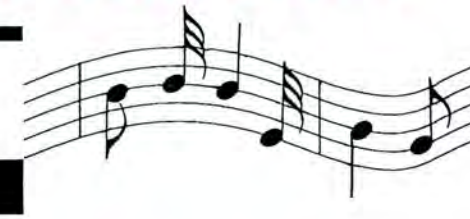


What You See Is What You Hear



ConcertWare+™
ConcertWare+MIDI
Version Four



Just For Fun

Some of you with Macintoshes may ask, "Why buy a music program if I'm not a musician?" The answer is simple—it's enjoyable. Millions of people who can't play a note on an instrument attend concerts or buy records. Music is part of our lives. You too can enjoy conducting your own concerts with ConcertWare+. There are hours and hours of music already available for you to listen to and to have fun with. You can select your own orchestra from a wide selection of instruments. With a little musical background, you can enter your favorite songs from sheet music and your Macintosh will play them for you. If you're adventuresome, you might even try composing your own tunes.

Just For Work

ConcertWare+ provides professional, amateur and hopeful musicians with the creative tools to quickly and efficiently arrange or compose music. Version 4 includes powerful features such as real time and step time recording available right in the notation module, staff rulers, text for lyrics and special symbols, Adobe's Sonata font for the LaserWriter™ and flexible editing and transposing. With ConcertWare+MIDI you can record chords in step time or real time and use MIDI Macros to control your synthesizer in ways you never imagined. ConcertWare+MIDI is a must for the software library of anyone who owns a Macintosh and a synthesizer.

Just For Learning

There are many ways to learn with ConcertWare+. Music students and beginning musicians can explore musical theory and systems. Accomplished musicians can experiment with music in a way that was not possible before. Students can explore the physics of sound with the InstrumentMaker™ With supplemental music disks, you can learn from great works like Bach's Art of Fugue or Praetorius' Terpsichore with your own orchestra at your fingertips.

Just For Everyone

ConcertWare+ and ConcertWare+MIDI are the perfect programs for those who wish to add a little music to their lives, or to create a little music for others.

ConcertWare+ Still Only $69.95 Suggested Retail

ConcertWare+MIDI $149.95 Suggested Retail
(MIDI Adapter to connect Macintosh to synthesizer not included.)

Both Programs are compatible with the Macintosh 512K, the Macintosh Plus, the Macintosh SE and the Macintosh II (with some color support on the Macintosh II)

ConcertWare+ Awards

1987
A+ Reader's Choice Award for Best Music Program
1986
Macintosh 100 Award (Macintosh Buyer's Guide)
1985
MacUser Editor's Choice Award for Best Music Program

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Surge Supressor $32.00
Maccessories starter pak $53.00
Mouse cleaning kit & pocket . $16.00
N2 Cables $call for price & configuration

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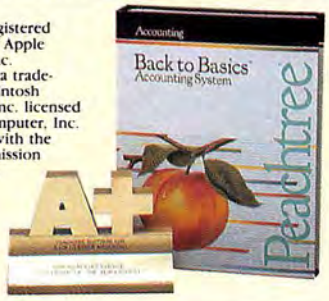

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by Michael D. Wesley

Playing It By Ear

It was only a matter of time before the high concentration of Macintoshes in major universities led to the development of some unique and very interesting consumer software and hardware. Kinko's, a chain of print service centers, has linked up with Apple and the university consortium to publish academic software under the Academic Courseware Exchange banner. Professors at Reed College developed a color display system for the Macintosh that received quite a lot of attention at Mac shows in 1986. And a group of people at the University of Waterloo have put together an outstanding networking application, *MacJanet*, for classroom use.

These and other software programs designed at universities have a fairly clear academic or vertical market focus, and it's unlikely that the average Macintosh user would have a personal interest in them. Toward the end of March, though, I had the opportunity to look at a program that appeals to university level students and to a broad range of consumers in the Mac marketplace. It's called *Practica Musica*, and it's a marvelous piece of software.

THE MUSIC MAC

Music applications have been around almost since the introduction of the Macintosh, starting with programs like *MusicWorks* and *ConcertWare*, and growing up to professional level packages like *Studio Session* and the *Total Music* system. These programs have made it possible for almost anyone, from rank beginner to accomplished professional, to *compose* music on the Mac. Although you can learn quite a bit about music by playing with these programs, none of them is really intended to *teach* music skills.

In fact, the quality of Macintosh sound has made it difficult, if not impossible, to use the Mac to do ear training or to teach music theory. The way computers process sound makes it hard to distinguish between two separate voices, and adding a third or fourth voice can really muddy the sound.

Practica Musica is a program that effectively uses the Macintosh to train a student's ear to hear distinctions between two notes and identify the interval. You can also hear and identify chords and variations and are challenged to hear and properly transcribe a melody. The program accomplishes this using a custom sound driver, sampled sound (digitized pipe organ, to be exact) and quite a bit of native intelligence.

TROUBLE WITH A CAPITAL TA

Because computers are infinitely patient, they don't mind repeating the same information over and over and over. This is not true of graduate teaching assistants (TAs) who are often assigned the repetitive task of playing intervals on a keyboard for students to listen to. Consequently, TAs complain bitterly. But, because computers have finite RAM and processing power, the TAs could do with a keyboard what computers couldn't do—generate a perfectly consistent tone quality across several octaves.

Computers don't mind repeating the same information over and over and over. This is not true of teaching assistants.

Jeff Evans, an associate professor at UC Santa Barbara, wrote *Practica Musica* to teach ear training to students in his class. In order to make the right sounds, Jeff had to write a custom sound driver and use sampled sounds, instead of the tones generated electronically within the Macintosh. Jeff experimented with several different types of instruments, including the trumpet, but found that only the pipe organ generated a full range of sound within the limits of a 400K disk. Even when he knew he was working on a commercial product, Jeff thought that fitting all the data onto a 400K disk was important because many university and student Macintoshes still only have single-sided disk drives.

Armed with his custom driver and sampled sounds, Jeff proceeded to build an intelligent drill and practice program using assembly language. There are several games in the program, starting with simple interval practice. The computer plays a tone, then asks the student to identify the note that represents a perfect fifth. The student can either drag a note to its correct position on an on-screen staff or play the note on a graphic keyboard that sits along the bottom of the screen. If the student gets the note correct but places it in the wrong octave, the program scores it as a correct answer, but lets the student know where the note should have been placed.

This kind of ear training is very valuable, not only for serious musicians but for anyone who enjoys music and wants to develop a keener ear. I played the trombone all through school, but I rarely practiced properly, much to my teacher's chagrin. When I saw *Practica Musica* in action, I have to admit I got rather excited because it presents an entertaining, easy way to train the ear.

If this were all *Practica Musica* did, it would still be a useful educational tool, but have little commercial value. But Jeff added several levels above simple interval training. The program also teaches chord recognition.

NAME THAT TUNE

In the melody section, the Macintosh plays a short (roughly four to six bar) strain of a melody, again ranging from the easily recognized ("Oh Say Can You See," for example) to the obscure. It is then up to the student to correctly transcribe the melody as heard. The program knows the correct note values, so the student only has to get the right sound. It is here that Jeff has added an interesting bit of intelligence. The program knows the notational difference between enharmonics (F# and Gb, for instance) that have essentially the same sound. If a student places an F# where there should have been a Gb, it will be scored correctly. However, the program

TONY LIMUACO

will highlight the error and give the student an opportunity to correct the notation.

Practica Musica is tough, as befits a program intended for university students. A correct answer in a drill scores one point, but an incorrect answer reduces the score by half. This may be too rigid for people who approach the program as a casual learning exercise and not a class requirement, but there certainly are incentives for succeeding at a drill.

I'm excited about *Practica Musica* not only because it looks, at first glance, to be an interesting and well crafted piece

Practica Musica is tough, as befits a program intended for university students.

of software, but also because its truly interactive approach—the kind educational software should take—makes using it enjoyable.

CHANGING THE SUBJECT

While I was writing this column, I recognized in a flash—of what I'm not sure—a feature that I need in a word processor. I don't think I've ever seen this ability, and I don't think I ever really identified it as a valuable thing to have until just now. Anyway, for all you budding developers just waiting to craft a word processor especially for me, here's the feature: I want to be able to select a word, phrase or section by dragging the mouse, (which I can do now), then pick up the selection with the mouse, drag the selected text to another position on the screen, and drop it into place.

This occurred to me when I was editing a particularly poor sentence I had just written, and wanted to swap the positions of two words in the sentence. In *MacWrite* 4.5, I had to select one of the words, cut it, reposition the cursor and paste. If I could just pick up the word I wanted to move and put it someplace else, it would save a lot of time. In fact, it seems to me that this might represent the next step in mouse editing—a word processor with a fluid page that would let me move text around as easily as I can move a picture in paint programs. Just a thought.

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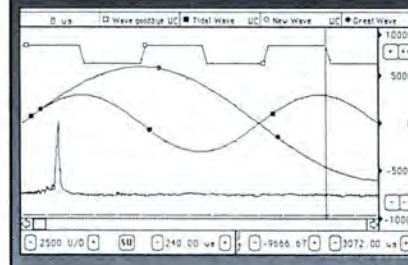

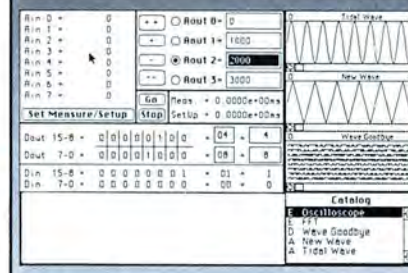

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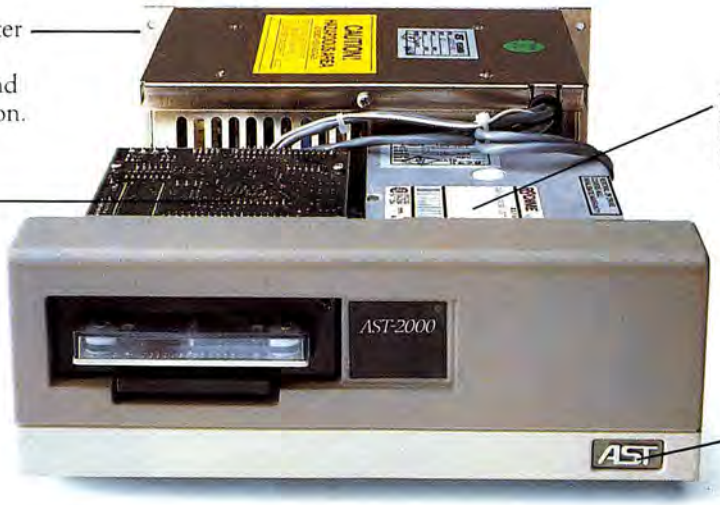

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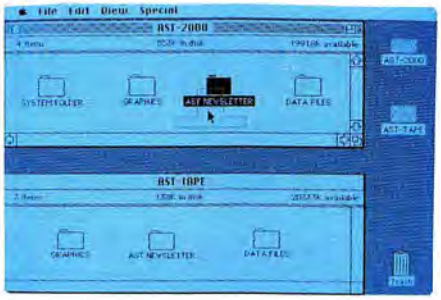

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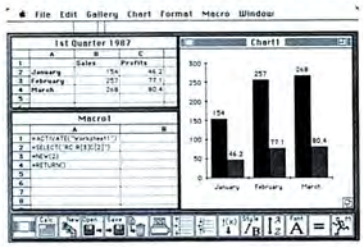

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by Doug Clapp

One Man's Opinions

"My goal was simple. To create the most readable column ever devised. I don't mind saying, I failed." Oh sorry; just thinking out loud. I am organized this time, though. Subheads, even.

WORD 3.0

Boy, have I been getting calls about *Word* 3.0! Those darn users aren't happy with *Word* 3.0. Hey, I didn't write it, okay? I did make one mistake, though: I thought the pre-release bugs would be gone when it shipped. Live and learn. Shame, shame, Microsoft. (By the way, Bill: my offer to redesign the beast still holds. I'll do it for half my normal fee: lunch.)

MACBOTIA

The last resort of a weak writer is "all caps," but I'M THRILLED ABOUT MACBOTS! Remember the MacBots column? It resulted in great letters from tremendously qualified people who want to create a Macintosh robot! People with specialties like machine vision, infrared communications and such. You should see the resumes.

So the project is underway. The coordinator is an extremely qualified engineer with maniacal enthusiasm: B. W. Lightsey. If you'd like to participate in this extraordinary endeavor to create a public domain MacBot, sign up with B. W. Lightsey, 3434 Santee Road, Baltimore, MD 21236. Talent is helpful, but not required.

A MacBot SIG may exist on GEnie as you read this. A newsletter has been started. Soon to come, I'll bet, are rousing discussions over features and specs.

What B. W. now needs most (other than warm willing bodies) are donations: large plotters (C size minimum; D or E size would be better), CAD/CAM software, hard disks, BBS software, T-shirts that read "MacBot: all dressed up and somewhere to go"—you name it. Contributors will be immortalized, or at least publicly thanked profusely.

Even Apple has permission to contribute. We'll see if, as Jean-Louis Gassée says "We still wear jeans in our mind." (Wonder what Mae West would say to that?)

I can't remember a funner, neater idea than MacBot. The entire project has a great 50's pulp sci-fi feel to it. Sign up now. It's for real. You could be first on your block to send your Mac to its room.

PATTON VS. ROMMEL

MacUser recently gave a sorta so-so review to Chris Crawford's game *Patton vs. Rommel*.

I dissent. I lost two months of my life playing *Patton vs. Rommel*. A superb, masterful, fun game. I seldom play games because I'm lousy at games. Never finished *Zork*. Can't get far in *Deju Vu*. Can't beat *Sargon*. If I want puzzles, I'll use *MPW*. *Patton vs. Rommel* is the most playable Macintosh game I've ever encountered. It probably just wasn't "whizzy" enough for the reviewer. These days, products need to "one up" everything else to get the attention of feature-snob journalists. Hence *Word* 3.0, probably.

BESIDES SUPERPAINT

You know that *SuperPaint* is amazing. But Silicon Beach's killer product isn't *SuperPaint*. It's *Silicon Press*.

If you do business, *Excel* is okay, but what you really need is *Silicon Press*. Here's what it does: it makes mailing labels. Sure, you can do mailing labels with Microsoft *Word* or *File*, but it's painful. Real Business doesn't need 1,000,000 spreadsheet cells; they need mailing labels. *Silicon Press* does mailing labels, disk labels, cassette labels, shipping labels, lapel labels ("Hello! I'm Morty"), keycap stickers, you name it.

Silicon Beach has a strange habit of creating useful products. Maybe it's a marketing ploy.

SIDEKICK

Anyway, like you probably, I've got disks and disks full of desk accessories. Some I bought, the rest are public domain. Twenty "clock" DAs; that kind of thing.

So when Borland sent me *SideKick Release 2*, it moldered in the corner. Do I need another *Calculator* DA? But I finally stuffed it all onto my hard disk.

And it's wonderful. A treasure chest of useful DA's. *Outlook* alone, the outliner desk accessory, is worth the price of the package. *Outlook* is a beautiful outliner. A thing of joy. Use it with *Word* 3.0 and pretend *Word*'s outliner doesn't exist; you'll be better for it. *MacPlan*, the spreadsheet DA, is terrific, and it does charts. *MacTerm* now transfers XModem MacBinary (if you know what that means you know it's meaningful). And so on. A great value.

It reminds me of Macintosh prerelease days. At one time, Apple thought Macintosh buyers needed only *MacWrite*, *MacPaint*, *MacTerminal*, *Multiplan* and *Chart*. Get those and you wouldn't need any other software, ever. A silly idea that didn't last long. Still, with a Macintosh and *SideKick*, you could go a long, long way.

WHY SOFTWARE ISN'T CHEAP OR AVAILABLE

Why software isn't cheap: You can't sell many copies without distributors and dealers. And both want a healthy cut of the action. The higher the price, the better for distributors and dealers.

Why many stores have the same old stuff: Distributors often won't carry "single product" companies.

What to do: Bitch and nag. I love these subheads. Maybe my readership will go up.

WORD TOOLS

This is the Jerry Pournelle emulation mode where I self-aggrandize with tacky unblushing abandon. No, I can't do it. Well I can, but I won't. No, maybe I will.

Here's my first in-print utterance on the subject: Sorry it took so long. If it's any consolation, I can say this: If I programmed it, you'd still be waiting.

I did get a kick from the *Word Tools* ad that ran—egregiously, prematurely—last year. I wrote the ad. Needless to say, Aegis Development (who wrote and now market *Word Tools*) received many red-penciled copies of the ad, marked-up by better grammarians than I—faint praise indeed.

That's okay. I never said I was a good writer. I'm not a good writer. But I want to be. Hence *Word Tools*. If I didn't need it, I wouldn't want it. So there.

And sorry about the delay.

GARY HOVLAND

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	Time required to format a 5-page Word file.	Time required to format a 5-page MacWrite file.
BackPrint	16 seconds	44 seconds
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QUICK CLICKS

Quick Clicks are short reviews of released products, not beta releases, pre-release products or vaporware. If it appears here, it is available commercially. Products reviewed here will often be the subject of a longer review in a future issue.

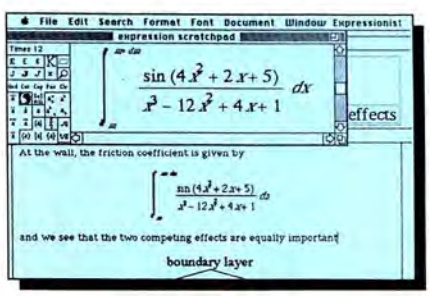
EXPRESSIONIST ★★★★½

List price: $54.95. Published by Allan Bonadio Associates, 1579 Dolores Street, San Francisco, CA 94110. (415) 282-5864. Not copy protected.

Mathematical equations are difficult to work with and understand. But at least they won't be a pain to get into print if you use *Expressionist*, a new equation processor that creates and edits professional-quality equations in no time.

No matter which word processor you use regularly, you can add to it the ability to include equations with the *Expressionist* desk accessory. Point and click your way through even the most difficult matrices, summations, multi-dimensional tensors and limits. Then cut the equation and paste it into your document as you would any picture. Paste equations back into *Expressionist* any time to edit them. *Expressionist* equations will enhance more than just word processing documents—they'll go anywhere pictures will, into outlines, data base reports, spreadsheets and the like. (*Excel*

Equations are automatically aligned and formatted properly as you enter them. Click on the integral icon and you'll see a perfectly formed integral sign and boxes for entering the upper and lower limits and the integrand. Integral signs are adjusted to the right size for the expression that follows, and the integration limits are offset, with the upper limit being slightly further to the right than the lower limit, as in textbooks. With fractions, the division bar can either be a straight horizontal line or the more comfortable slash. Almost any size matrix can be accommodated, and the matrix cells can be pasted in from a spreadsheet. If you need to create an expression that doesn't follow normal typographic rules, *Expressionist* lets you freely move characters and symbols anywhere and control alignment of objects with respect to other objects. Almost any numerical expression in a typeset book can be duplicated exactly with little effort. Although *Expressionist* is specifically tuned to work best with the LaserWriter and the Times, Helvetica and Symbol fonts, it can also use any bit-map or PostScript font and can print to the ImageWriter.



Expressionist is both a desk accessory and an application. Both are packaged together on the same disk, but they're independent. Most of the time, you only need the desk accessory. Move the DA into your working system with *Font/DA Mover* and use it to paste any equations you create directly into your documents. The application works identically to the DA, but supports printing equations alone when another program isn't handy.

The author, Alan Bonadio, has a background in both physics and computer science. He went to great pains to study equation typesetting systems on mainframe computers and in personal computer word processors and looked through hundreds of textbooks in the physical and engineering sciences to be sure he hadn't left out any needed functions. He distilled what he learned into a reference manual that is 100 pages long and includes everything you'd ever want to know in an easy-to-use alphabetical format. *Expressionist* is one of the most well-documented Macintosh DAs.

Expressionist is a quintessential Macintosh application from the ground up. It's easy to learn and to use, makes excellent use of the mouse and keyboard for selecting and entering items, and never requires you to translate your equation into English words or encoded symbols as many word processors do. Simply click on the desired formula types and type in the text. The screen always displays the expression the way it will look when printed. The more you use it, the more impressed with it you'll be. It's exactly the equation processor you'd write for yourself.—*Linda Custer*

CMS S-140 SCSI HARD DISK ★★★★

List Price: $2995. Manufactured by CMS Enhancements, Inc., 1372 Valencia Avenue, Tustin, CA 92680. (714) 259-9555. Compatible with all SCSI-compatible hardware and software.

Many hard disk manufacturers claim that their systems provide the best performance, the best price or both. In the rapidly changing market for high-capacity drives, any comparison is likely to be short-lived, but the CMS S-140 is an outstanding unit, both fast and cheap.

This drive is fast, thanks to its 11 interleave and a claimed average access time of only 18 milliseconds. Connected to a Mac Plus, it makes the typical 20M SCSI hard disk seem slow. And on the SE and Mac II, it will run even faster.

The CMS holds 140M formatted. The raw capacity is 172M, the same size as the Peripheral Land and Mirror 172 megabyte drives. The difference is not only in the speed, but in the price. The other two sell for about $6000, but the CMS goes for an astonishing $2995.

PRODUCT PHOTOS BY GARY BUSS

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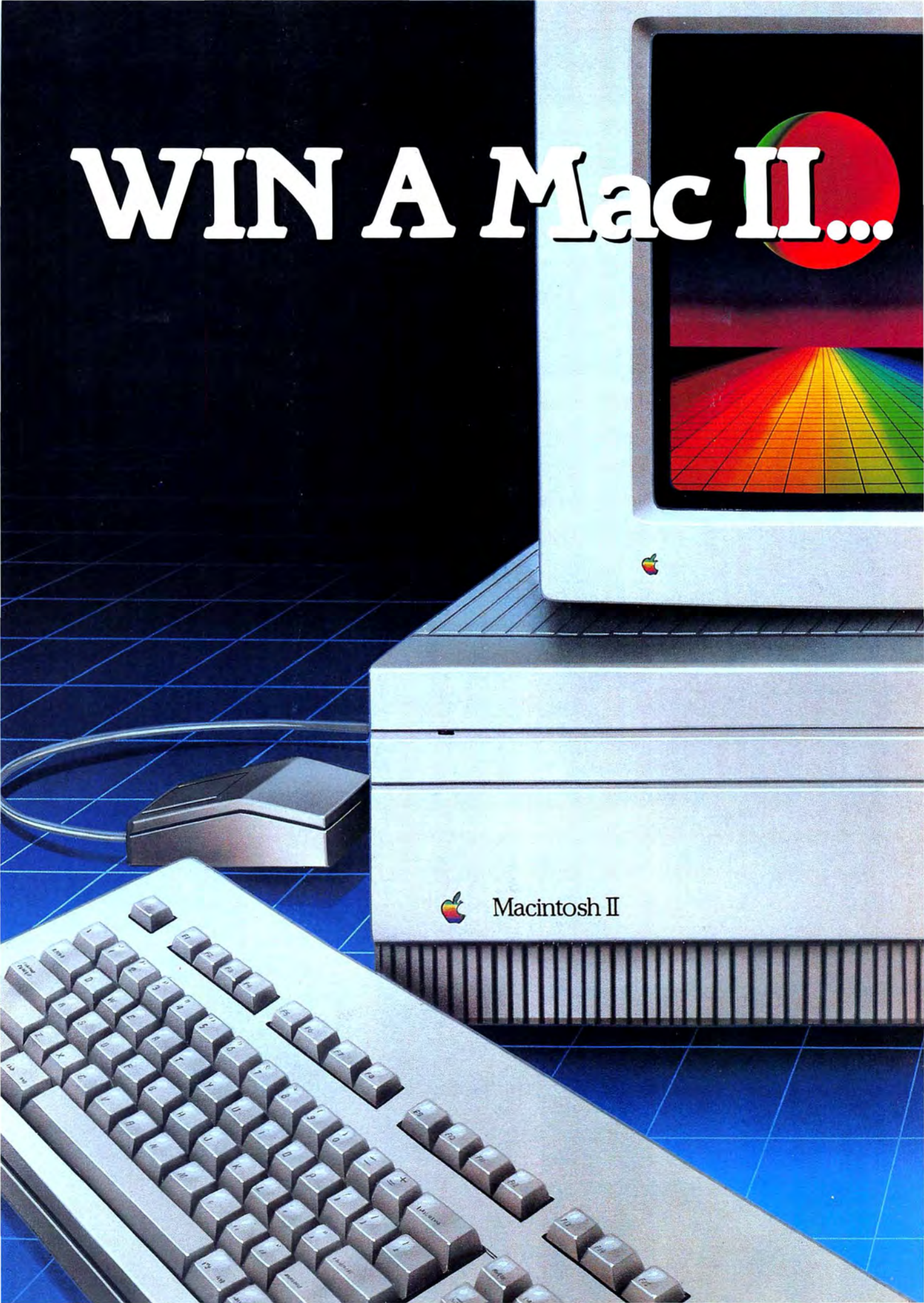

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OFFICIAL RULES

1. All phone orders will be automatically entered in the Mac II giveaway. **2.** To enter without ordering, complete the attached Official Entry Coupon and mail it to: "Mac II Give-a-way," 1690 Oak Street, Lakewood, NJ 08701. No mechanically reproduced entries will be accepted. Enter as often as you wish, but you must mail each Official Entry Coupon separately. Entries must be received on or before October 31, 1987. **3.** Additional entry coupons are available by sending a stamped, self-addressed envelope to "MacWAREHOUSE™ Entry Coupon Request," 1690 Oak Street, Lakewood, NJ 08701. **4.** Winners will be selected in random drawings by the attorneys of MacWAREHOUSE, whose decisions in this regard are final. The validity of any entry coupon is subject to verification by these attorneys, and must be completely filled out to be valid. No winner will be awarded multiple prizes. No prize substitutions will be allowed except as and where necessary due to availability. Taxes are the responsibility of the winner. Odds of winning are dependent upon the total number of entries received. All prizes will be awarded. **5.** MacWAREHOUSE will announce the winners on or about the 15th day of November 1987 and will notify the winners by mail within a reasonable time thereafter. These dates are subject to change at the sole discretion of MacWAREHOUSE. If MacWAREHOUSE is unable to contact a given winner, an alternate winner will be selected by random drawing. **6.** The Mac II Give-a-way is open to residents of the United States except where prohibited by law and regulation. Employees of BSA Inc., Micro Warehouse Inc., MacWAREHOUSE and any of its suppliers, are not eligible. **7.** The prizes consist of: 1 grand prize — an Apple Macintosh II computer with color monitor; 1 first prize — a trip for two to either the Winter or Summer Macintosh Computer Expos; 1 second prize — a Xerox/Nutmeg Full-Page Display monitor; and 150 third prizes. **8.** For a list of prize winners, send a stamped, self-addressed envelope to "MacWAREHOUSE Winners List," 1690 Oak Street, Lakewood, NJ 08701.

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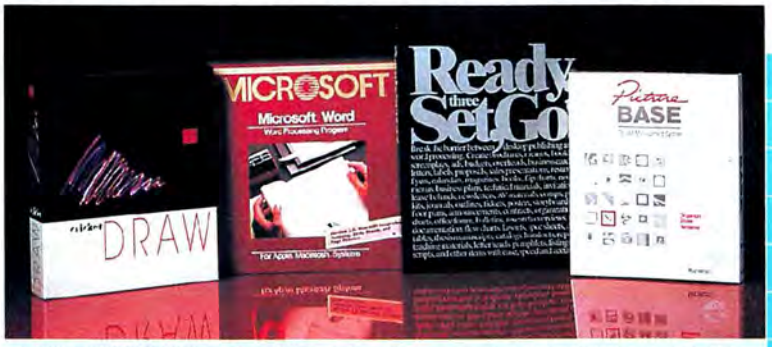

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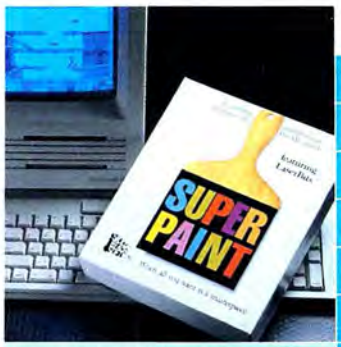

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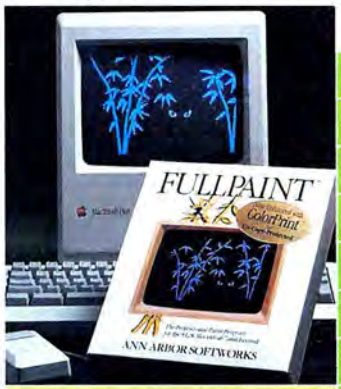

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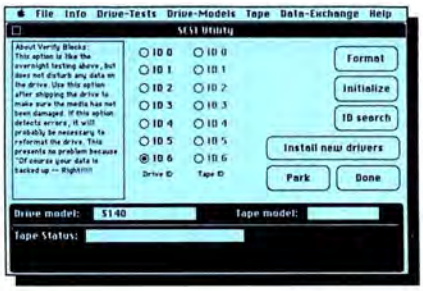
All this speed and capacity is worthless if the drive is shoddy. The S-140 is reassuringly sturdy, with a rugged case and good shock resistance. It withstands normal jostling without any problems. The S-140 uses reliable plated media, and comes with a 1-year warranty.

The quality of the S-140's construction is strongly reflected in the software provided by CMS. The SCSI utility is comprehensive. It has help, cross-operating-system file transfer and tape backup commands built in. I could not test these last two functions for lack of the necessary additional hardware. (It doesn't exist yet.) The S-140 also comes with *Hard*



Disk Partition — a useful desk accessory which mounts and creates partitions on the drive.

The manual is unquestionably a rush job, yet manages to be clear, informative and concise.

The S-140 was obviously created with the user in mind. Unlike many other drives, this one comes with a 6-foot SCSI cable, so the drive can be located out of the way, not taking up valuable desk space. This also spares the user the drone of the fan inside the drive. The fan is loud, but not as loud as other high-capacity drives (such as the AST 4000).

The cable ports on the back of the S-140 are both DB-25's. This is a nice touch since it means that any other Mac SCSI device can be plugged into the S-140 without getting a special cable to connect the two. I have tested the CMS drive with Apple's HD-20 and HD20SC, and with the Mirror MagNet 30x. There were no problems with any of these devices.

CMS is a $100 million-plus company with almost 4 years experience selling drives in the IBM market. They are moving into the Mac market and will likely be around for years to come.

CMS prints on all its literature "Best Performance—Best Price." Others make that claim, but CMS backs it up.—*Alexis Rosen*

MENU FONTS

List Price: $15. Published by Beyond Software, 3865 N. Oracle Rd., Tucson, AZ, 85705, (602) 323-4547. Desk accessory, requires 512K+. Not copy protected.

Desk accessories fit in one of several conceptual categories. Some are cute, clever and highly creative but have little practical value. *Talking Moose* falls into that category and springs quickly to mind. Others are designed for more hardcore use and as a result are utterly indispensable. DAs such as *DiskTools, HFS Locator* and a well-designed calculator fit into this pigeonhole. Still other desk accessories fall into a murky range somewhere in the middle. They take a clever idea—one that is instantly recognizable—and assemble a quick and easy DA that actually has a measure of practical use.

MenuFonts fits into this last category. *MenuFonts* displays the names of all the fonts in your fonts menu (thus, all the fonts in your *system* file) in the font proper instead of the Mac's standard Chicago. Thus, the name Geneva is spelled out in Geneva, Helvetica in Helvetica, and so on. This gives the font menu an interesting look, especially if you carry fonts like Symbol or Zapf Dingbats in your system.

When you're looking for a particular typeface but you can't remember which of the 22, 34 or more fonts it is, *MenuFonts* makes it easy because you can see the style of each typeface in the menu. Of course, you could open *KeyCaps,* if you've kept it in your system, or simply experiment until you get just the right look. *MenuFonts* just shortens and simplifies the looking process.

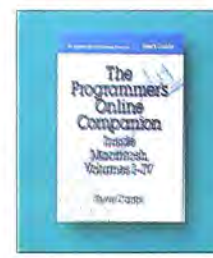
MenuFonts has limited value if you only use a small number of easily remembered fonts or if you have a very thorough knowledge of typefaces and happen to know all X number of installed fonts immediately. On the other hand, *MenuFonts* is very useful for people who like to play art director with fonts but without developing the knowledge of a typographer.

MenuFonts has a couple of drawbacks. It won't work with *Word 3.0, Jazz* 1.0, *MacDraw* 1.9, *MacDraft* 1.2a or any other programs that have a nonstandard font menu or no font menu at all. It also requires reinstallation every time you open an application. It would be nice, especially on hard disk systems, if *MenuFonts* could install itself automatically. And some of the fonts are difficult to read in the 12-point size used in the font menu.

Still, *MenuFonts* is useful enough to more than justify its $15 price. Here's a product that really provides value for money. Beyond also includes two "freeware" desk accessories on the disk—*LockOut*, a utility that gives you password access to your Macintosh and *FastFormatter*, a utility for formatting multiple blank disks in a single sitting.

If you like to play with fonts, give *MenuFonts* a look.— *MDW*

PROGRAMMER'S ONLINE COMPANION



List Price: $39.95. Published by Addison-Wesley, Route 128, Reading, MA, 01867, (617) 944-3700. Not copy protected.

The *Programmer's Online Companion* is an idea whose time has come. The only question is: Will programmers find it useful enough to justify putting up with its decidedly non-Macintosh-like interface? This programmer's utility was written by the legendary Steve Capps—if the name doesn't ring any bells, check out the credits in the About Finder... dialog box (For *Finders* 5.3 and earlier.)

The Online Companion essentially places a much abridged version of *Inside Macintosh* at your fingertips for instant electronic reference. The program comes in three parts: an installation program, a text file that contains a succinct alphabetic summary of much of *Inside Mac*'s technical information, and the Online data base, an encrypted form of the above text file. The installation program is easy to use and installs an INIT

PRODUCT PHOTOS BY GARY BUSS

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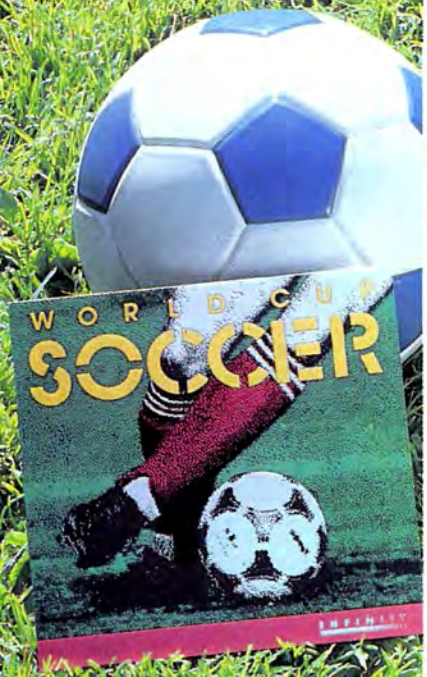

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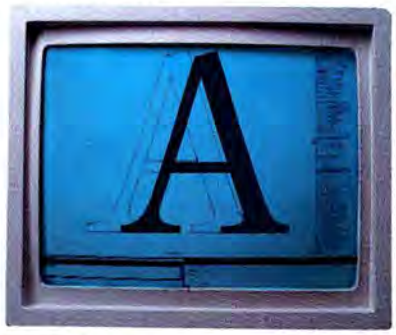

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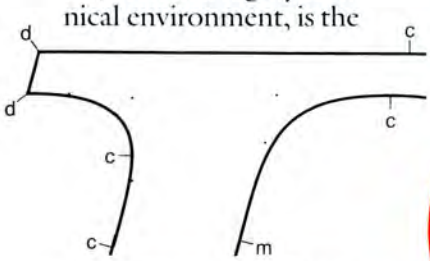

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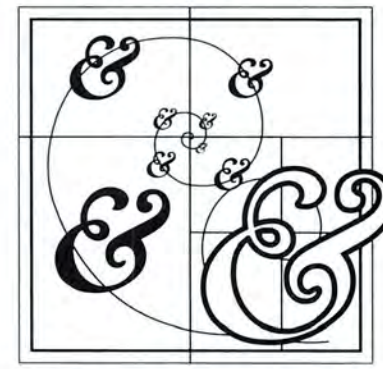

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resource in your *System* file. You then have to place the Online data base into your System folder.

Once installed, you can invoke the *Programmer's Online Companion* at any time from within your favorite development environment with a Command-` (back apostrophe) key combination. A small text-input window appears at the bottom of your screen; you enter the name of the ROM routine on which you want further information. Press the Return key, and a condensed summary of relevant technical info appears in a reference window on your screen.

This window contains such information as parameter types and the addresses and constants of low-memory globals. You can simply read the text for reference purposes or press another keystroke combination to transfer some or all of this text into your normal editing window. Transferred text writes into your window at what seems like 110 baud.

To make full use of the *Online Companion*, you'll have to memorize about ten keystroke combinations (called "chords," for whatever reason) that invoke its various features—no helpful menus or dialog items here. One keystroke combination brings up the Online text-entry window as mentioned; another keystroke combination advances the selection in the reference window to the next word; another combination writes that selection into your editing window

at the current position of the insertion point. And so on.

Initially, it's somewhat confusing as to whether the text you enter will appear in the *Companion's* text-entry window or in your own document. A little experimentation should clarify how the program works—whether you like it or not is a question you'll have to settle for yourself.

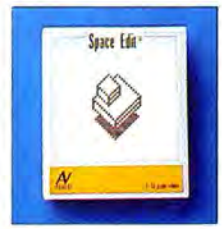
Be warned: The Online data base used by the program is rather large. Since it has to reside in your System folder, you might have difficulties fitting it on a disk with your development environment if you're floppy-based. The data base is just under 160K in size; you'd be wise to check how much room you have available before you buy.

You can also customize the text file or create one of your own, using one of the options in the installation dialog. You can also change the key combinations that invoke the program's options.

The manual is small but adequate. It carries the statement that the main reason for the nonstandard interface is to make its operation "fast and footloose" for programmers.

The *Online Companion* has its drawbacks, but if you're a programmer who needs to make frequent trips into *Inside Macintosh* during development, you may find it a very useful tool.—*Howard Katz*

SPACEEDIT PROFESSIONAL 3D CAD ★★★½



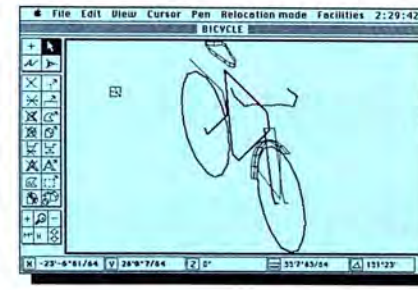
List Price: $625. Published by Advent, 9903 Santa Monica Blvd., Suite 268, Beverly Hills, CA 90212 (213) 659-5157. Requires 512K+. Version 1.5 reviewed. Copy protected.

The word "professional" in *SpaceEdit Professional 3D CAD* is an appropriate choice for this two- and three-dimensional Computer Assisted Drafting (CAD) program. Designers can use it to create and simulate single or multiple objects in space for such diverse applications as tooling (industrial design), engineering, the sciences, architecture, interior design, urban planning and so on.

SpaceEdit simultaneously displays four interactive windows that show the top, front, side and axonometric views of an object. The manual does an excellent job in explaining each perspective. A thicker border singles out the active window in the quartered screen. The perspective you are working with can be enlarged to the screen's full size. In normal use, all four windows show a drawing in the same scale, and changes automatically update all the views. You can, however, "untie" the four windows.

A "geometry bar" is displayed across the bottom of the screen to indicate the cursor position in X (width), Y (depth) and Z (height) coordinates. The geometry bar also shows the angle of a drawn segment relative to true horizontal.

Three sets of tools allow you to create, modify and visualize *SpaceEdit* images. Each set of tools has its own collection of action icons in a palette on the left side



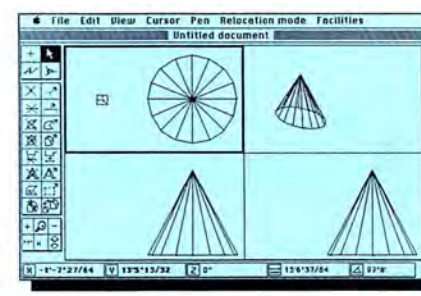
of the screen. There is also a set of "screen" tools (such as a magnifying glass) at the bottom left of the screen, which makes a total of 53 icons. Furthermore, the cursor takes on at least 28 shapes, appropriate to its action.

Despite the many modes there is little confusion because the icons are well designed and well explained in the manual. Once the icons are learned, they provide quick access to the program's functions. The manual is quite complete, and a thorough reading is necessary to make the best use of the software.

SpaceEdit permits designs to range in size from a tenth of a millimeter to over 6 miles, so the manual recommends using real dimensions (1:1) in your drawings. The zooming capabilities are amazing (from a tenth of a millimeter up to 20 kilometers), and the magnifying factor can be any positive or negative value. You can also store ten 2-D points of view and ten perspective points of view, then quickly switch among them to check the progress of a complex image.

SpaceEdit has all the features one expects to find in a CAD package: dimension (interactive vertical or horizontal dimensions); grid (user defined independently on the X, Y and Z axes); multiple layers (the number of layers is limited by memory only); libraries (the creation of 2- and 3-D library parts for further use is unlimited) and text.

In addition, though, *SpaceEdit* has some unique features. You can, for instance, get an "exploded view" of an object. The exploded view is ratio dependent. Input a positive or negative ratio and the object's components will move



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outward or inward accordingly. You can also see a heliodonic view, which simulates perspective views along the axis of the sun according to the season, latitude and the time of day. One of the program's most dramatic features is the Path of Visualization. This lets you define a path in space, then look at an observed point in continuous motion from the points along the path, as if you were doing an animated flight over or around the drawn object. *SpaceEdit* also offers perspective views, with either 0, 2 or 3 vanishing points.

The only problem I encountered was that the suppression of hidden lines took a long time. The company is working on the problem, but hidden line views put an extraordinary demand on the Mac. An upcoming Mac II version, which takes advantage of the 68881 math coprocessor, will handle hidden lines and other complex views at least four times faster than the current version.

SpaceEdit documents can be transferred to a paint or draw program for sprucing up or the addition of textures. Hard copy can be output to either an ImageWriter, LaserWriter or any of several supported pen plotters.

SpaceEdit is a very good, interactive three-dimensional CAD program, particularly suited for architects, engineers or designers.—*Ernesto Moran*

SMARTSCRAP AND THE CLIPPER ★★★★½

List Price: $59.95. Published by Solutions International, PO Box 989, B4, Montpelier, VT 05602. (802) 229-9146. Not copy protected.

If you use the Macintosh for desktop publishing or are constantly drawing, transferring or manipulating graphics, *SmartScrap* and *The Clipper* may soon become two indispensable desk accessories that you will use daily.

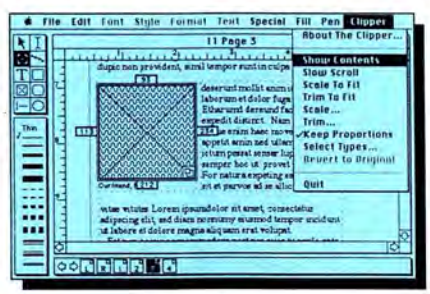
SmartScrap, the most useful at first, replaces the *Scrapbook* desk accessory and addresses most of the problems and limitations found in that standard Apple DA. *SmartScrap* provides the flexibility that the lumbering Scrapbook never had. You are no longer limited to a single Scrapbook file. Using *SmartScrap,* you can switch between different Scrapbook files and even create new ones. You can

easily segment a clip-art collection by categorizing the art into different Scrapbooks. Need to resize the *SmartScrap* window? No problem. Horizontal and vertical scroll bars are also at your command.

When it comes to manipulating images, *SmartScrap* is also a winner. Have you ever wanted to copy only part of a Scrapbook picture? *SmartScrap* has a "grab" feature that does just that. Using a marquee just as in *MacPaint,* you select the area, choose COPY and the Clipboard picks up the piece. *SmartScrap* also has an overview feature that easily manipulates several images in one file. By choosing TABLE OF CONTENTS from the *SmartScrap* menu, all of the images are miniaturized in a *MacPaint* Show Page fashion. Going from one image to another is just a matter of a click. No more paging one image at a time through the file. Now you can view multiple images in seconds.

The Clipper is a triumph for desktop publishers. Its innovative transparent window lets you properly scale and trim whatever is in the Clipboard before pasting it down. Just resize the window to fit the exact dimensions. Because the window is transparent, resizing to fit the area is simple. Once the window is at its proper size, ask *The Clipper* to show the image and then determine if further scaling or trimming is needed. When the image is ready to be pasted, save it (back into the Clipboard) and paste.

Another useful *Clipper* feature is the ability to filter unnecessary resources. Within some applications, choosing Cut or Copy brings not only PICT resources



to the Clipboard, but anything at all. Usually these applications need these resources for internal reasons. But when you unknowingly paste an image that has these resources into another application you can get strange and often bad results. Some of the newer drawing programs are good examples; a few will copy the PostScript code in addition to the PICT image of a drawing. If you then transfer to a word processor and PASTE, you will see a lot of "garbage" beside the graphic. With *The Clipper* you can specify only the PICT resource from the Clipboard.

The manual is short and to the point. Every procedure is discussed with walkthroughs, but you'll still wonder how *SmartScrap* and *The Clipper* apply to specific programs. The only application discussed is *Glue,* another product from Solutions International.

SmartScrap and *The Clipper* each stand on their own as extremely useful desk accessories, and the package is one of the better utility bundles of 1987.—*DS*

BUREAUCRACY ★★★★

List Price: $39.95. Published by Infocom, 124 Cambridge-Park Drive, Cambridge, MA 02140. (617) 576-3190. Copy protected.

Before reading this review, count down to line 893, fill out form 4A25-c7 found there, and submit it to the receiving agency for conundrum approbation—in triplicate. Wait two weeks and no phone calls. Sorry, but I'm only doing my job.

If you've ever filled out an income tax form, filed for insurance, applied for a credit card, tried to cash a check at a bank (especially one in New York City) or, in other words, if you're any sort of mammal short of a llama or hermit, you have an inkling of what to put up with in *Bureaucracy.* In this latest Infocom text adventure, Douglas Adams, of *Hitchhiker's Guide to the Galaxy* fame, takes us on a witty *tour de force* of a society drowning in its own paperwork.

As the story goes, you've landed a new job with the Happitec Corporation and moved to a new house. Okay, so the movers haven't showed up, and there is that slight problem with the bank. Big deal. You're on your way to France for a training seminar/vacation at company expense.

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But before you've even had a chance to fill out a change-of-address form, you're forced to confront lost mail, rude clerks, computer literate aborigines and Muzak so homogenized that even the "twiddly bits" have even been taken out of "Do You Know the Way to San Jose?" You'll also be asked to fill out numerous forms—more than you like and less than you need.

All of these hassles tend to drive up your blood pressure. In fact, the game cuts you no slack in this respect. Make a typo or use an unrecognized word and you'll be penalized with a higher blood pressure—a situation that raised my real-life heart rate a few counts. As in real life, if it gets too high, you die.

But merely coping with society isn't the only problem in this game. Paranoia, a byproduct of bureaucracy, runs rampant. The media picks up on this schizo fever by exposing plots (like that leftist organization, the NFL) in such respected periodicals as *Popular Paranoia*. Not as silly as you think: there really *is* someone out to get you. And at times it

seems like it is everyone from your former employers, the mysterious Deep Thought Corporation, to waiters and a wily nerd who wants a date with your sister.

In *Bureaucracy*, Infocom once again delivers all of what we've come to expect—clever puzzles, impossible mapping and fantastic devices (like the typical Swiss Army knife complete with an assortment of blades, corkscrews and food processors). There are not a few slightly veiled references to previous Infocom games. At one point you'll even find yourself "west of a white house standing in an open field...." And remember "no tea" or Prosser's digital watch? A lot of this is irrelevant to playing *Bureaucracy*, but it doesn't detract from the game.

Like Joseph Heller's *Catch-22*, *Bureaucracy* makes its point with biting satire. Adams clearly has a bone to pick with what he would no doubt call Beadledom. In fact, filing a change-of-address card (and all that that entails) is what prompted Adams to write it. As in Heller's novel, the final solution is using all that red tape against the rule-bound society that generated it. If you have to wait in line to buy this game, do it. And if you don't like it, well, that's not my department.—*Ben Templin*

FERRARI GRAND PRIX

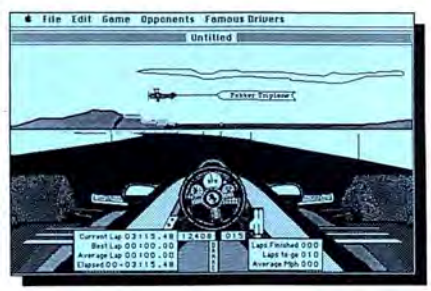
$$\$\$\$\$$$

List Price: $59.95. Published by Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. (702) 831-2523. Requires 512+. Copy protected.

"Start your engines!" the announcer blares. The deep roar and pulsating power of a Ferrari Grand Prix racer surrounds you. Every nerve in your body is attuned to the machine. It becomes an extension of yourself as the race is about to begin.

A red light (you can tell the color from the position) off to your left glows solidly for what seems like an eternity. Your total concentration is on gaining even a hundredth of a second on your two world class opponents, Whistle McGee and Stockton Stockman. Then, suddenly, the lights shoot down the "Christmas tree" and you get the green for "Go." Just as quickly, McGee and Stockman scream by you, leaving you at the starting line trying to figure out how to accelerate.

The first (and possibly second or even third) time you play *Ferrari Grand Prix*, you'll be lapped quickly and frequently by your speedy opponents. This is especially true if you don't make a somewhat serious study of the manual before playing. *Ferrari Grand Prix* is an exciting race car simulation that can be a lot of fun once you learn some of the finer points of computerized racing. But, as should be the case with any good simulation,



mastering *Ferrari Grand Prix* takes some time and effort. If you enjoy racing games, the effort is worth it.

Ferrari Grand Prix starts you out with a course slightly longer than a mile, that consists of two long straightaways, a couple of bends and several interesting curves. The background appears to be a desert scene in Nevada. Once a race starts, the arrow cursor changes into a solid black rectangle that is used to steer along the horizon. Moving the mouse *gently* to the right or left (up and down motions have no effect in driving mode) causes the racer's front wheels to turn. You select a gear by entering a number (1 to 5) from the keyboard, starting in first gear of course, and moving upward as you increase your speed.

The manual recommends learning the course in second gear before trying to run a race. If you're impatient and either bypass the manual or ignore this instruction, you may find yourself sending that expensive Grand Prix racer off the course and into the sagebrush. The manual contains excellent starting instructions

and a lot of hints and tips that will help you master the game.

If you tire of the start-up course, there are four other courses built into the program which are faster and more difficult. One added attraction is that you can design your own courses and use virtually any *MacPaint* screen for a background.

The manual is very thorough yet light—it is written with a sense of humor. The manual's warnings about incompatibilities, however, should not be taken lightly. If you have the Mac Plus' RAM cache normally on, turn it off before running *Ferrari GP*. The program will also crash and burn if you run it with any memory resident programs, so don't try it with *JClock*. *Ferrari Grand Prix* is heavily copy protected and cannot be run off a hard disk.

While you may have to take a crash course to learn all the subtleties of *Ferrari Grand Prix*, its realistic race car simulation is worth the effort.—*MDW*

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Parameter Manager takes the tedium out of the laboratory notebook.

LET'S SEE. WE HAVE DESKTOP publishing, desktop communications, desktop engineering, desktop presentations. Will the next Trojan niche market please step up? You got it—desktop analysis. The power of the Macintosh brought to the laboratory. Investment bankers have their *Excel* spreadsheets, newsletter publishers their *PageMaker* master sheets, and middle-level managers their *More* bullet charts and *PowerPoint* slides. Now, if you collect data about experiments, machines, weather patterns—almost anything—you can have intelligent documents as well. You'll gain the power to see right away what's really *behind* all that data for which you pay so much to gather: to see whether that turbine on the second floor will need to be replaced in the next few months, or whether your second laboratory experiment is behaving statistically the same as the first did. *Parameter Manager* replaces your notebooks and machine logs and does away with the calculator, graph paper, math book and pencil that went with them, too.

Parameter Manager is a complete system for coordinating data collection and analysis. It has most of the spreadsheet, data base and calendar functions you'll need. A program like *SuperPaint* or *MacDraw* is useful as well—but certainly not necessary—so you can customize some of the reports generated. And should *Parameter Manager* prove to be a little weak on some fancy graphics or spreadsheet modelling that you'd like to use, a very flexible Export function will save you from having to retype anything. Of course, if the technicians down the hall insist on using *Lotus 1-2-3* or *Excel* (or almost any other spreadsheet, data base, or organized text file), *Parameter Manager* can bring in and analyze that data using its Import command. But be careful to teach everyone else how to use *Parameter Manager,* or else as soon as they see what it does for your work you'll be analyzing *everyone's* data!

DEFINE YOUR TERMS

To use *Parameter Manager,* start by defining the items involved: for example, a turbine, a laboratory experiment, a dental patient or an automobile. Next, list the measurements you'll be taking on that item—vibration level, temperature, number of cavities, engine RPM and the like. Also include the frequency of the measurements, which can vary from one second to many years.

Parameters can either be entered directly or calculated from other entered values. You also can define the units of each parameter and indicate a normal range, an alert state or even an alarm state. These "condition" ranges can be defined absolutely or calculated based on standard deviations.

Once you have defined the measurements, *Parameter Manager* does the rest. It prints out a schedule listing what to measure and when, and gives you worksheets for recording the data so nothing is forgotten. It even lets you include a *MacDraw* or *MacPaint*-type picture with the item to illustrate how and where measurements are taken. When you've gathered the numbers, type them into a spreadsheet-like document for data entry. Plug in the data, time or sample number plus the values you collected. *Parameter Manager* then lists items that require immediate attention or collates data according to your criteria. It can also graph results and calculate correlations and covariances for the gathered data.

POWER POINTS

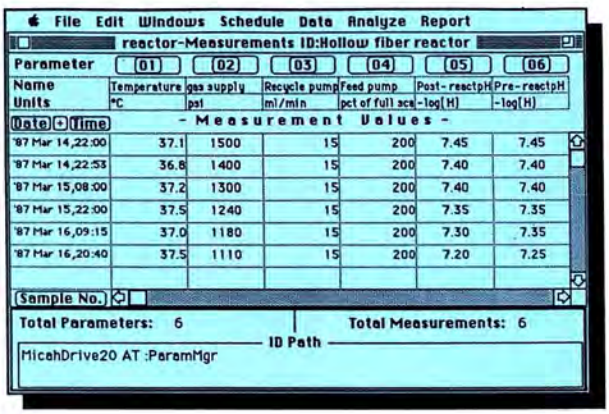
If you keep your data in a spreadsheet and have had to write your own formulas and macros, you're in for a treat. *Parameter Manager* doesn't eliminate the need to write formulas—artificial intelligence hasn't come quite that far yet—but it does come complete with some very sophisticated functions. These built-in functions make writing formulas easier and macros are less necessary.

BY LINDA CUSTER

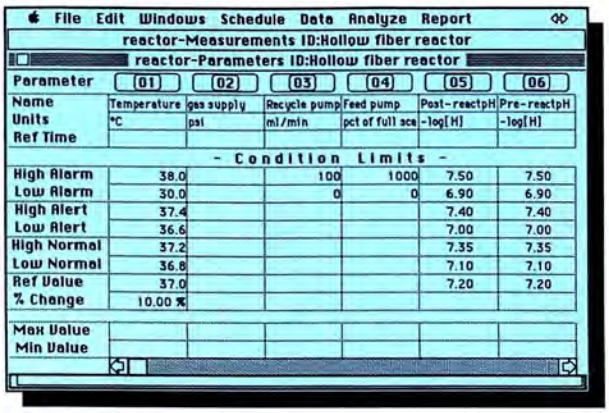
PATRICK KERNAN

KERNAN

Stats Incredible



The entry form for defining parameters is very spreadsheet-like. Use it just as you would your favorite spreadsheet.



The main worksheet, where experimental data is entered, also uses spreadsheet-like cells. In fact, future versions of *Parameter Manager* will be able to import data directly from major spreadsheets.

Along with standard arithmetic and text operations, *Parameter Manager* is especially strong in manipulating data that rely on a sample number or time/date quantities within formulas. Any calculation can use many different values, including the total number of measurements taken, the number of parameters defined, the values of alerts and alarms for any parameter, constants in parabolic or exponential data fits, and many other quantities. (See the sidebar listing the more unique functions.) In fact, the formulas you can build are so powerful that the operating manual includes Pascal-like syntax diagrams to describe their construction.

Once the data is entered, analyzing it is a breeze. A few clearly labeled commands, can dissect any parameter or set of parameters. Produce a simple time plot of values, or predict how those values will look in the future. Print out high-low charts or compress time to show "the big picture." View any parameter against another, or against the correlation and covariance of two or more parameters. Make a histogram of the frequency of values versus the values. When you're finished, export any of these reports and dress them up with your favorite drawing program.

QUALITY TIME

Of course, numbers alone don't tell the whole story. Many important observations in science, engineering, health care and business are qualitative rather than quantitative. *Parameter Manager* doesn't ignore qualitative data. Instead subjective analysis peacefully coexists with hard numbers. Text comments can be written into an item's notebook at any point during the research. With the click of a button, you can time-stamp comments from the Mac's internal clock. You can also stamp observations with user-definable codes. Each available code number, from 0 to 99, can hold a descriptive phrase that may be clicked into any notebook a number of times. Codes make qualitative information easier to handle because similar conditions are described in standard ways. For instance, all leaks might be noted with code 10. A simple search for code 10 then turns up every note of a leak without missing any other cases where terms like "oozing" or "egress" were used.

THE WRITTEN WORD

Documentation comes in two parts: an operating manual and a user's guide. The user's guide gets you up and running quickly and describes all the major features. The operating manual is a detailed account of how the more powerful commands work. It lists all available functions, and is essential in understanding all of what's "under the hood." The operating manual index is very complete. Both manuals are well-written and easy to use. A tutorial would be a welcome addition to either manual, but the screen shots and command descriptions are thorough. A sample data disk (included along with the program/system disk) has excellent examples of how *Parameter Manager* can be used effectively for diverse types of analysis.

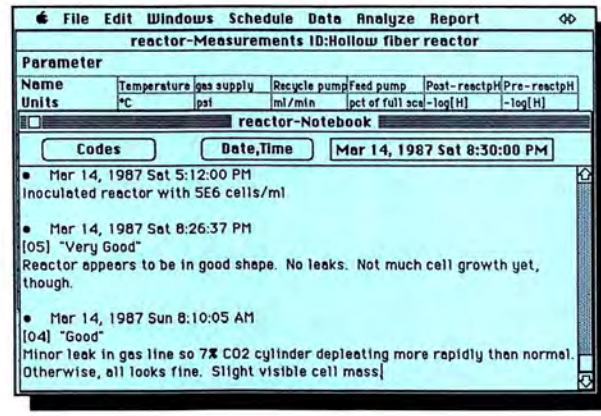
PARAMETER OUT OF RANGE

Despite its good points, *Parameter Manager* doesn't have the polished look of most Macintosh programs. When it first appears on your desktop, you'll note that it has a generic "pencil and paper" application icon. Start it up, and you still have to enter a "gateway" or set of entry choices rather than immediately browsing through the menus. (Menus are available after using the gateway.) Many IBM applications have gateways to guide users through a host of separate functions and files, but on the Mac this kind of assistance is overkill. Also, *Parameter Manager* (the program itself) resides in not one but *two* files — one for the resources and one for the code. Many Macintosh applications need preference, temporary or help files, but *Parameter Manager* is the first I've seen that has its resources in a separate file. The program is *large*— 382K for the code, 57.5K for the resources. Most likely, the program was divided up because otherwise it will not fit on a 400K floppy. If you install *Parameter Manager* on a hard

disk without the resource file, it simply quits and returns to the Finder. New users could easily be confused by this split identity.

Some of the problems I encountered while using *Parameter Manager* are cosmetic. There are menus with dotted lines that do nothing but can still be selected. Some dialog boxes have a tad too much clutter, and the screen is updated piece by piece in a distracting way.

The statistical reports are ready for use with a LaserWriter and take full advantage of Macintosh fonts and styles when imported into a graphics program. In contrast, though, the data entry worksheet can be displayed only in a single font and style. Important information cannot be highlighted in bold type or underlined. Only limited control over data alignment is possible. The formulas used to calculate parameters (if used) must be entered and viewed through a dialog box instead of switching between formula and value modes like most spreadsheets.



***Parameter Manager*'s Notebook feature is always available to record your comments about data collected and entered.**

Some additional problems arose when I attempted to use *Parameter Manager* in *Switcher*. I found that *Parameter Manager* contains no *Switcher* Size resource. Since it couldn't run in a 128K partition, I configured it to use 350K. Even this was not enough memory in the midst of some operations on a very small data set. At this point, I had no nasty bombs and lost no data, but got annoying dialog boxes saying, "That operation could not be completed." Saving my documents and trying again usually cleared up the problem. Commanding the program to disable measurement remarks also helped, but it is frustrating to run this program in *Switcher* or on a 512K Macintosh with a large system heap or with any sizeable RAM

A few other minor annoyances — not critical flaws—also crept up. First, all formulas are limited to 64 characters, though involved formulas will require many more. Currently, the only way to work around this limitation is to define parameters for parts of formulas, and use a final parameter that combines the parts. Second, each of an item's parameters must be placed on the same schedule. While you might want to check your car's spark plugs every 6 months, for example, your oil might require changing every 4 months. You could create separate files for spark plugs and oil, but then the spark plug data and the oil data could never be linked. You can leave cells in the worksheet blank, but you would lose the ability to see where data is missing. More flexible methods of scheduling each parameter would enhance the program significantly. And third, the statistical reports created are saved in a *MacDraw*-type document, so individual results are difficult to export into other text, data base or spreadsheet programs without using a number of copy and paste commands.

(continued on page 194)

Special Functions

Here are some of the unique functions contained in *Parameter Manager:*

Spreadsheet Global Variables	
MEAS#	number of measurements taken to date
PARAM#	number of parameters defined for item
ITER#	number of iteration that *Parameter Manager* is currently performing
Variables About an Item or Group of Items	
ALARMHI, ALARMLO, ALERTHI, ALERTLO, NORMLHI, NORMLLO	values of an ITEM's condition limits
CMPRAVE, CMPRBEG, CMPREND, CMPRHI, CMPRLO, CMPRMED, CMPRNUM, CMPRRNG, CMPRSTD, CMPRSUM	for datapoints over a specified period of time, returns the average, beginning, ending, high, low, median, range, standard deviation, or sum of all sample values or number of samples taken over that time
PERCHNG	percentage change of a specified variable
SGAVG, SGDEF, SGMRG, SGRNG, STSTD	from a specified subgroup of parameters, returns the average, number of defectives, moving range, simple range or standard deviation of the measurements
Curve-fitting	
C0, C1, C2	return parameters in the parabolic equation $y = A + Bx + Cx^2$
EXP0, EXP1, EXP2, EXP3	return parameters of the equation $y = a + be^{c(x-d)}$

We've got the

SOFTWARE

NCP denotes not copy-protected.
CP denotes copy-protected.

Affinity Microsystems ... NCP
Tempo *(power user's macro utility)* ..... $55.
ALSoft ... NCP
DiskExpress *(maximize disk performance)* 27.
Altsys ... NCP
FONTastic *(create your own fonts)* ..... 27.
FONTastic Plus *(advanced font editor)* .... 49.
Fontographer *(Laserwriter font editor)* ... 245.
Ann Arbor ... NCP
FullPaint *(open four documents at once)* .. 53.
Batteries Included ... NCP
The Mac BatteryPak *(9 desk accessories)* 27.
Thunder! *(50,000 word spelling checker)* .. 29.
Isgur Portfolio *(investment manager)* .... 105.
Berkeley System Designs ... NCP
Stepping Out *(requires 512k)* ..... 64.
Blyth ... NCP
Omnis 3 Plus ..... call
Omnis 3 Plus *(multi-user versions)* ..... call
Borland International ... NCP
Sidekick 2.0 ..... 59.
Reflex *(information management analysis)* 59.
Turbo Pascal *(HFS compatible)* ..... 59.
BPI Systems ... NCP
General Accounting *(full-featured)* ..... 129.
BrainPower ... NCP
StatView *(statistics package)* ..... 35.
Graphidex *(DA graphics organizer)* ..... 69.
Designscope *(electronic circuit design)* .. 129.
StatView 512+ *(req. external drive, 512k)* ... 179.
Bravo Technologies ... NCP
MacCalc *(easy to use spreadsheet)* ..... 85.
Broderbund ... CP
Print Shop *(create cards and memos)* ..... 39.
Geometry *(over 350 problems!)* ..... 64.
CAMDE ... NCP
Nutricalc *(diet & nutrition analysis)* ..... 49.
Nutricalc Plus *(dietician's delight)* ..... 175.
CasadyWare ... NCP
Fluent Fonts *(two-disk set)* ..... 29.
Fluent Laser Fonts *(Vols. 1-15)* ..... *each* 48.
Central Point Software ... NCP
Copy II Mac *(includes MacTools)* ..... 20.
Challenger Software ... NCP
Mac3D *(3D graphics, CAD features)* ..... 119.
Chang Labs ... CP
Rags to Riches Ledger or Payables ..... 125.
Rags to Riches Receivables *(req. 512k)* ... 125.
Rags to Riches Three Pak ..... 299.
Inventory Control ..... 243.
Professional Billing ..... 243.
Cortland ... CP
TopDesk *(7 new desk accessories)* ..... 34.
Cricket Software ... NCP
Statworks *(statistical package)* ..... 77.
Cricket Graph *(multiple windows)* ..... 127.
Cricket Draw *(advanced draw capabilities)* 177.
Data Tailor ... NCP
Trapeze *(spreadsheet, reqs. 512k)* ..... 173.
DataViz ... NCP
MacLink Plus *(transfer Mac/IBM data)* .... 159.
Desktop Graphics ... NCP
DrawArt *(MacDraw artwork, req. 512k)* .... 28.
DrawArt Vol. 2 *(MacDraw clipart, req. 512k)* 42.
DrawForms *(requires MacDraw)* ..... 30.
Digital, etc. ... NCP
Turbo Maccountant *(GL,AP,AR,Payroll)* .. $262.
Dove Computer ... NCP
RAMSnap *(RAM Disk/Disk Cache)* ..... 36.
Dow Jones ... CP
Market Manager PLUS 1.5 ..... 159.
Dreams of the Phoenix ... NCP
Day Keeper Calendar ..... 35.
Quick & Dirty Utilities ..... *each* 35.
Twelve-C Financial Desk Accessory ..... 35.
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Dubl-Click Software ... NCP
World-Class Fonts! Vol. One or Vol. Two .... 28.
World-Class Fonts! *(both Volumes)* ..... 49.
WetPaint Vol. One or Vol. Two ..... 29.
WetPaint Clip Art *(both volumes)* ..... 49.
Calculator Construction Set ..... 39.
Electronic Arts ... CP
Deluxe Music Construction Set 2.0 ..... 63.
Enabling Technologies ... NCP
Easy3D *(create solid 3D objects)* ..... 69.
Pro 3D *(3D shaded modeling)* ..... 199.
1st Byte ... CP
Speller Bee or First Shapes ..... 27.
KidTalk or Mathtalk ..... 27.
Smoothtalker *(speech synthesis)* ..... 27.
Forethought ... NCP
Factfinder *(free-form info organizer)* ..... 49.
FileMaker *(custom forms & reports)* ..... 79.
FileMaker Plus *(feature-packed database)* 159.
PowerPoint ..... special
FWB Software ... NCP
Hard Disk Backup *(protect hard disk info)* .. 38.
Hard Disk Partition *(speeds up hard disk)* .. 38.
Hard Disk Util *(program backup)* ..... 56.
Great Wave Software ... NCP
KidsTime *(educational, ages 3-8)* ..... 28.
TimeMasters *(learn about time, ages 4 & up)* 28.
ConcertWare+ *(music composition)* ..... 29.
ConcertWare+ MIDI ..... 75.
Hayden Software ... CP
MusicWorks *(songs for your Mac)* ..... 29.
Home Design *(NCP)* ..... 49.
Score Improvement for the SAT ..... 59.
Score Improvement: Achievement Test .... 59.
VideoWorks *(animation)* ..... 59.
Ideaform ... NCP
MacLabeler *(print disk labels)* ..... 29.
DiskQuick *(catalog floppies & hard drives)* .. 29.
Imagine ... NCP
Smart Alarms *(DA reminder system)* ..... 38.
Impulse ... NCP
Comic Strip Factory *(create cartoons)* ..... 65.
Industrial Computations ... NCP
Powermath *(equation solving tool)* ..... 59.
Infosphere ... CP
LaserServe *(network software)* ..... 65.
MacServe *(network software)* ..... 175.
Innovative Data Design ... NCP
MacDraft *(new updated version, 512k)* .... 159.
Kensington ... NCP
Type Fonts for Text *(16 new fonts)* ..... 29.
Type Fonts for Headlines *(req. 512k)* ..... 41.
Laserware ... CP
Laserworks *(requires 512k, Laserwriter)* ... 229.
Layered ... CP
Notes for...Excel, Microsoft Works,
or PageMaker ..... *each* 42.
Legisoft/Nolo Press ... NCP
WillWriter 2.0 *(prepare your own will)* ..... 31.
Linguist's Software ... NCP
Tech *(1000 different symbols)* ..... $59.
FOREIGN LANGUAGE FONTS
MacCyrillic ..... 39.
SuperFrench/German/Spanish ..... 39.
MacHieroglyphics, MacKana/Basic Kanji,
MacSemitic/Coptic/Devanagari, MacKorean,
MacGreek, MacHebrew ..... *each* 59.
SuperGreek New or Old Testament ..... 79.
MacGreek/Hebrew/Phonetics ..... 89.
LaserGreek or LaserHebrew ..... 79.
LaserFrench/German/Spanish ..... 79.
LaserCyrillic ..... 115.
Living Videotext ... NCP
ThinkTank 512k *(outline processor)* ..... 99.
More *(outlines, windows, & tree charts)* .. 158.
Lundeen & Associates ... NCP
WorksPlus Spell ..... 39.
MacMemory ... NCP
MaxRam & MaxPrint *(Ramdisk, spooler)* .. 33.
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Natural Sound Effects ..... 27.
Natural Sound Cable & Editor Disk ..... 89.
McPic - Volume 1 or Volume 2 ..... 29.
The Slide Show Magician 1.3 *(CP)* ..... 35.
Microsoft
Flight Simulator *(the Mac takes flight, CP)* 32.
Learning Multiplan and Chart *(2 disks, CP)* 39.
Basic Interpreter 3.0 *(NCP)* ..... 64.
Chart 1.02 *(42 chart styles, CP)* ..... 72.
Multiplan 1.1 *(63 col. by 255 rows, CP)* ... 105.
File 1.05 *(flexible data manager, NCP)* ... 111.
Basic Compiler 1.0 *(NCP)* ..... 119.
Fortran 2.2 *(compiler, NCP)* ..... 169.
Works 1.0 *(integrated tool, NCP)* ..... 189.
Excel 1.04 *(power spreadsheet, NCP)* ... 224.
Word 3.0 *(word processor, NCP)* ..... 239.
Miles Computing ... NCP
Mac the Ripper *(req. Paint program)* ..... 27.
Orchestra of Fonts Vol. 4 *(30 different fonts)* 27.
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The Luscher Profile *(personality profile)* ... 24.
The Perfect Score: SAT ..... 47.
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GraphicWorks 1.1 *(newsletters & posters)* 48.
Monogram ... NCP
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New Canaan MicroCode ... NCP
MDCFinder *(requires 512k)* ..... 20.
Mac Disk Catalog II *(requires 512k)* ..... 31.
Odesta ... NCP
Double Helix *(relational, custom menus)* 275.
OWL International ... NCP
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Palantir ... CP
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General Ledger or Accounts Receivable .. 49.
inTalk *(communication to emulation, NCP)* 99.
PBI Software ... NCP
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HFS Locater *(DA organizer for HFS)* ..... 26.
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Personal Computer Peripherals ... NCP
HFS Backup ..... 34.
ProVUE Development ... NCP
OverVUE 2.0 *(power-packed database)* .. 149.
Mail Manager Template ..... 29.
Personal Finance Template ..... 29.
Rubicon Publishing ... CP
Silver Palate Collection *(NY's finest!)* ..... 28.

Whistle While You Works

Microsoft Works hard to merge and purge the information you need.

SLOGGING THROUGH A QUAGmire of data doesn't necessarily require the precision of an accountant coupled with the patience of Job. You can handle your information management needs quite well yourself with a little help from *Microsoft Works*. Avoiding the program's pitfalls, however, may take some fancy keyboard work.

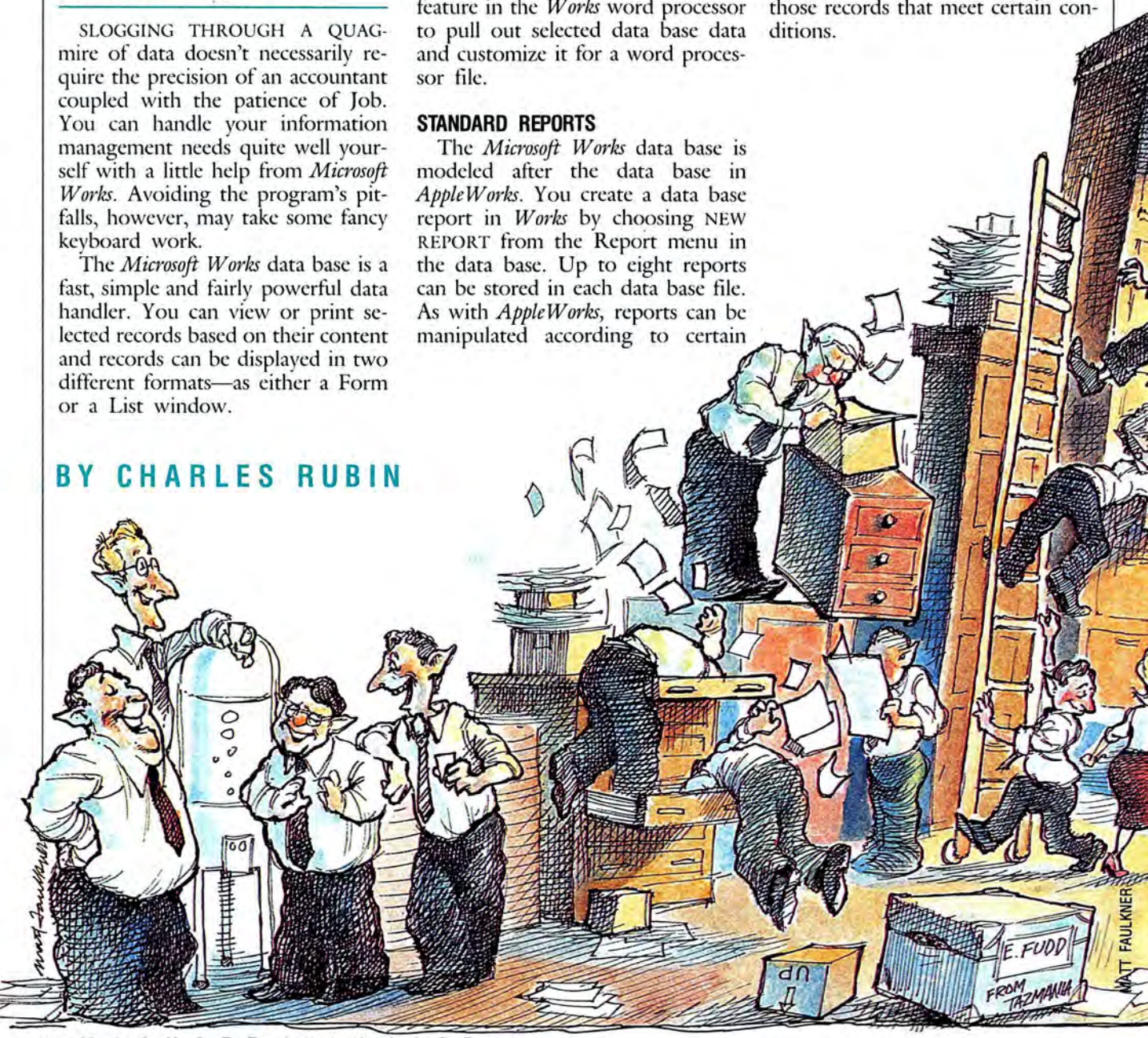
The *Microsoft Works* data base is a fast, simple and fairly powerful data handler. You can view or print selected records based on their content and records can be displayed in two different formats—as either a Form or a List window.

BY CHARLES RUBIN

However, you can only print out reports in a matrix-like list that resembles a spreadsheet. Fortunately, there's more than one way to report data base information with *Works*. Along with the data base reporting function, you can use the merge feature in the *Works* word processor to pull out selected data base data and customize it for a word processor file.

STANDARD REPORTS

The *Microsoft Works* data base is modeled after the data base in *AppleWorks*. You create a data base report in *Works* by choosing NEW REPORT from the Report menu in the data base. Up to eight reports can be stored in each data base file. As with *AppleWorks*, reports can be manipulated according to certain fields of information by establishing rules to select specific records. The record selection feature collates a report based on rules containing field names, logical conditions and comparison information, so you can have the program select out only those records that meet certain conditions.



Macintosh solution

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Dinner At Eight-Silver Palate Bundle . . . . . 54.
Satori ... NCP
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BulkMailer Plus *(up to 90,000 names)* . . . 225.
Legal Billing *(attorneys to accountants)* . . 385.
Legal Billing II *(full trust accounting)*. . . . . 575.
Project Billing *(architects to engineers)*. . . 445.
Silicon Beach Software ... NCP
Silicon Press *(printer utility, 512k)* . . . . . 41.
SuperPaint *(advanced graphics program)* 54.
Simon & Schuster ... NCP
Mac Art Department *(req. Paint program)* 24.
Paper Airplane Construction Kit. . . . . 24.
Typing Tutor III *(learn to type!)*. . . . . 35.
SoftStyle ... NCP
Colormate Art *(Colormate images)*. . . . . 27.
Colormate *(color printing utility)* . . . . . 48.
Printworks *(print faster & in color)*. . . . . 49.
Laserstart *(Hewlett-Packard Laserjet)* . . . . . 58.
Decision Map *(make better decisions, CP)* 75.
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Macinuse *(time-use manager)* . . . . . 35.
Software Discoveries ... NCP
Record Holder *(data manager)* . . . . . 41.
Software Ventures ... NCP
Microphone *(communications)* . . . . . 58.
Solutions, Inc. ... NCP
SmartScrap & The Clipper . . . . . 41.
Glue *(creates "print to disk" capability)* . . . 41.
Springboard ... CP
Art a la Mac Vol. 1-People & Places *(NCP)* 23.
Art a la Mac Vol. 2-Variety Pack *(NCP)* . . . . 23.
Easy as ABC *(ages 3-6, letters, CP)* . . . . . 28.
Early Games *(ages 2-6, counting, CP)* . . . . 28.
Certificate Maker *(CP)* . . . . . 35.
State of the Art ... CP
Electric Checkbook *(print checks)* . . . . . 28.
SuperMac Technology ... NCP
SuperSpool. . . . . 39.
Diskfit *(backup & restore utility)* . . . . . 49.
SuperLaserSpool . . . . . 99.
Multi-User SuperLaserSpool . . . . . 259.
Survivor Software ... NCP
MacMoney *(financial planner)* . . . . . 42.
Symmetry ... NCP
Acta 1.2 *(outline/writing desk accessory)* . . 38.
PictureBase 1.2 *(clip art manager, 512k)* . . 44.
T/Maker ... NCP
ClickArt Personal Graphics . . . . . 28.
ClickArt Effects. . . . . 28.
ClickArt Publications. . . . . 28.
ClickArt Letters Vol. 1 or Vol. 2. . . . . 28.
ClickArt Holidays *(Easter)* . . . . . 28.
ClickArt Business Image. . . . . 28.
Bombay, Plymouth, or Seville Laser font . . . 46.

MacConnection Special of the Month
through July 31, 1987

FORETHOUGHT
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PowerPoint is for people who need to plan, compose, and manage complete presentations including overhead transparencies, flip charts, speaker's notes or audience handouts. With its built-in graphics editor, word processor and layout tools, PowerPoint makes it easy to create the kind of presentations you've always wanted.

- Integrates smoothly with other programs
- Powerful design capabilities
- Produces professional looking slides
- Not copy-protected

PowerPoint *(reqs. 512k Mac)* $249

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Telos Software ... NCP
Business Filevision *(512k, external drive)* 199.
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MacEdge II or Mind Over Mac. . . . . 28.
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Lightspeed Pascal *(includes debugger)*. . . 87.
Lightspeed C *(top-rated C Compiler)* . . . . 127.
TML Systems ... NCP
TML Source Code Library . . . . . 58.
TML Database Toolkit . . . . . 64.
TML Pascal *(compiler, req. 512k)* . . . . . 68.
TrueBasic ... NCP
True BASIC *(fast, flexible & portable)* . . . . . 59.
Algebra II, Pre-calculus, Calculus, Trigonometry, 3D Graphics, Discrete Math, Probability & Chippendale utilities . . . *each* 35.
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Read-A-Rama *(reading, ages 5-8)* . . . . . 32.
William & Macias ... NCP
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myDiskLabeler w/Color *(req. Imagewriter II)* 33.
myDiskLabeler w/Laserwriter option . . . . . $35.
Working Software ... CP
Spellswell *(spelling checker)* . . . . . 45.
Spellswell Medical Dictionary. . . . . 59.

GAMES

Accolade ... CP
Hardball *(baseball simulation)* . . . . . 24.
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Championship Star League Baseball. . . . . 22.
Shanghai *(Mah Jongg strategy)*. . . . . 27.
Tass Times in Tonetown . . . . . 27.
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Hacker II *(breach Russian computer)*. . . . . 30.
Addison-Wesley ... CP
Puppy Love *(your dog will love it!)*. . . . . 15.
Ann Arbor Softworks ... CP
Grid Wars *(3D graphic arcade)* . . . . . 22.
Artworx ... CP
Bridge 4.0 *(sharpen your skills)* . . . . . 20.
Avalon Hill ... CP
MacPro Football *(req. 512k)*. . . . . 30.
Blue Chip ... CP
Millionaire *(stock market)* . . . . . 35.
Tycoon *(commodities)* . . . . . 35.
Baron *(real estate)* . . . . . 35.
Squire *(personal finance, req. 512k)*. . . . . 35.
Broderbund Software ... CP
Lode Runner *(over 150 levels)* . . . . . 24.
Ancient Art of War *(military strategy)*. . . . . 27.
Toy Shop *(create working models)* . . . . . 39.
Bullseye ... CP
Ferrari Grand Prix *(Formula One racing)*. . . 34.
Fokker TriPlane Flight Simulator . . . . . 34.
Electronic Arts ... CP
Archon *(arcade strategy, req. 512k)* . . . . . 27.
Skyfox *(3D graphics)* . . . . . 27.
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One on One/Dr J vs Larry Bird *(req. 512k)*. . 27.
Patton-vs-Rommel *(req. 512k)* . . . . . 27.
Pinball Construction Set. . . . . 27.
Chessmaster 2000 . . . . . 30.
Epyx ... CP
Sub Battle Simulator . . . . . 24.
Winter Games *(Olympic events)*. . . . . 24.
Rogue *(strategy dungeon classic!)*. . . . . 24.
Hayden Software ... CP
Perplexx *(scrabble-type game)* . . . . . 24.
Sargon III *(9 levels of chess)*. . . . . 29.
Infinity Software ... CP
Grand Slam *(tennis, req. 512k)*. . . . . 27.
Infocom ... CP
Leather Goddesses of Phobos
Hitchhiker's Guide, Trinity, Moonmist, Ballyhoo, Bureaucracy *(standard)*. . . *each* 24.
Zork Trilogy . . . . . 45.

1-800/Mac&Lisa 720U

MacConnection™

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

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

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MacroMind ... NCP
Maze Wars+ *(play via modem or network)* $32.
Miles Computing ... CP
Harrier Strike Mission *(3D flight simulation)* 27.
MacWars *(3D space simulation)* 27.
Mindscape ... CP
Racter *(converse with your Mac!)* 27.
Balance of Power *(world politics)* 30.
King of Chicago *(req. minimum 512E)* 30.
Bataccus *(great graphics, req. 512k)* 30.
Uninvited *(mystery adventure)* 30.
Deja Vu *(murder mystery)* 32.
PBI Software ... CP
Strategic Conquest *(multi-user)* 35.
Psion ... CP
Psion Chess *(3D and multi-lingual)* 31.
QWare ... CP
Orb Quest *(graphic fantasy adventure)* 29.
Rainbird ... CP
Pawn *(fantasy adventure)* 27.
Sierra On-Line ... CP
Championship Boxing *(knock 'em out!)* 25.
Silicon Beach Software
Airborne! *(CP, the classic!)* 20.
Enchanted Scepters *(CP, over 200 scenes)* 21.
Dark Castle *(NCP, arcade action)* 28.
World Builder *(NCP, program creator)* 41.
Simon & Schuster ... CP
Star Trek—The Kobayashi Adventure 24.
Sir-Tech ... CP
Mac Wizardry *(high-rated fantasy)* 35.
SPHERE, INC. ... NCP
GATO *(submarine simulation)* 26.
Orbiter *(space shuttle simulation)* 27.
Tellstar II *(No. & So. hemispheres, req. 512k)* 32.
XOR ... NCP
NFL Challenge *(be the coach!)* 79.

HARDWARE

Manufacturer's minimum limited warranty period is listed after each company name. Some products in their line may have longer warranty periods.

Apricorn ... 1 year
ApriCord Mac *(for your Mac 512k)* 75.
ApriCord Mac *(Mac Plus parallel interface)* 75.
AST Research ... 2 years
AST 2000 *(20 MB, 20 MB tape)* 1695.
Curtis Manufacturing ... lifetime
Diamond *(6 outlets)* 29.
Emerald *(6 outlets; 6 ft cord)* 36.
Sapphire *(3 outlets; EMI/RFI filtered)* 47.
Ruby *(6 outlets; EMI/RFI filtered; 6 ft cord)* 55.
Dove Computer ... 90 days
SCSI Interface Port 125.
MacSnap Memory Upgrades
Mac Snap 524 *(512k to 1 Meg)* 139.
Mac Snap 524S *(incl. SCSI interface)* 239.
Mac Snap Plus 2 *(Mac Plus to 2 Meg)* 249.
Mac Snap 548 *(512k to 2 Meg)* 369.
Mac Snap 548S *(incl. SCSI interface)* 499.
Ergotron ... 1 year
Mouse Cleaner 360° 15.
MacTilt *(includes external drive bracket)* 74.
MacBuffer 512k 329.
MacBuffer 1024k 429.
Hayes ... 2 years
Smartcom II *(communications software)* 88.
Smartmodem 1200 $369.
Smartmodem 1200 Package 425.
Smartmodem 2400 569.
InterBridge *(connect Appletalk networks)* 599.
IOMEGA ... 90 days
Bernoulli Box *(dual 10 MB w/SCSI)* 1579.
Bernoulli Box *(dual 20 MB w/SCSI)* 1879.
Bernoulli Box *(dual 10 MB, Appletalk)* 1995.
Kensington ... 1 year
Appletalk Cable Clips or Connectors *each* 1.
Mouseway *(mouse tracking pad)* 8.
Mouse Pocket *(for your idle mouse)* 8.
Mac Plus/Mac SE System Saver Cover 9.
Imagewriter (II) Dust Cover 9.
Mouse Cleaning Kit w/Mouse Pocket 17.
Disk Case *(holds 36 Mac disks)* 19.
Disk Drive Cleaning Kit 20.
Tilt/Swivel 22.
Universal Copy Stand 24.
Polarizing Filter *(Mac Plus or Mac SE)* 34.
Surge Suppressor 34.
Printer Muffler *(80 column)* 39.
Control Center 64.
System Saver Mac *(platinum or beige)* 64.
A-B Box *(for the Mac Plus)* 65.
Turbo Mouse 85.
Koala Technologies ... 90 days
MacVision *(digitizer)* 175.
Kraft ... 1 year
3 Button QuickStick 49.
Mirror Technologies ... 1 year
Magnum 800 External Drive 229.
MagNet 20x *(w/cable & backup utilities)* 779.
Magnum 20 Tape Backup 899.
MagNet 30x *(w/cable & print spoolers)* 949.
MagNet 40x *(w/cable & print spoolers)* 1299.
MagNet 40/40 *(40MB, 40MB tape)* 2395.
MagNet 85x *(w/40MB tape)* 3995.
Personal Computer Peripherals ... 1 year
MacBottom Hard Drive 20MB *(serial)* 865.
MacBottom Hard Drive 20MB *(SCSI)* 865.
MacBottom Hard Drive 45MB *(SCSI)* 1295.
SoftStyle ... 90 days
MacEnhancer *(for plotters to printers)* 179.
Summagraphics ... 90 days
MacTablet 6" x 9" *(stylus driven)* 289.
MacTablet 12" x 12" *(sketching)* 379.
Systems Control ... 2 years
MacGard *(surge protection)* 55.
Thunderware ... 90 days
Thunderscan *(high-resolution digitizer)* 175.
Powerport 29.
Western Automation ... 1 year
DASCH RAMdisk 2000k 459.

DISKS

Single-sided Diskettes

Sony 3½" Disks *(box of 10)* 14.
MAXELL 3½" Disks *(box of 10)* 14.
Fuji 3½" Disks *(box of 10)* 14.
Verbatim 3½" Disks *(box of 10)* 15.
3M 3½" Disks *(box of 10)* 16.

Double-sided Diskettes

Sony 3½" Disks *(box of 10)* 21.
MAXELL 3½" Disks *(box of 10)* 21.
Fuji 3½" Disks *(box of 10)* 21.
Verbatim 3½" Disks *(box of 10)* 23.
3M 3½" Disks *(box of 10)* 24.

INFORMATION SERVICES

Compuserve
Compuserve Information Service $24.
Dow Jones
Dow Jones News/Retrieval Membership Kit 24.

ACCESSORIES

Clean Image Ribbon Co.
Clean Image Ribbon Kit 12.
Computer Coverup
Imagewriter (II) Cover 8.
Mac (Plus) & Keyboard *(two covers)* 10.
Diversions
Underware Ribbon *(iron-on black transfer)* 9.
Multi-color Transfer Ribbon 19.
I/O Design
Imageware II *(Imagewriter II carry case)* 49.
Macinware Plus *(Mac Plus carry case)* 69.
Macinware SE *(Mac SE carry case)* 89.
Innovative Concepts
Flip & File Micro *(holds 25 disks)* 9.
Flip & File *(holds 40 disks)* 18.
Innovative Technologies
The Pocket Pak *(holds 6 disks)* 9.
The Easel *(holds 20 disks)* 13.
The Disk Directory *(holds 32 disks)* 18.
The Library *(carousel, holds 80 disks)* 29.
Kalmar Designs
Teakwood Roll-top Case *(holds 45 disks)* 14.
Teakwood Roll-top Case *(holds 90 disks)* 21.
Teakwood Roll-top Case *(holds 135 disks)* 29.
Magnum
Mouse Mover *(let your mouse ride!)* 14.
Moustrak
Moustrak Pad *(standard 7" x 9")* 8.
Moustrak Pad *(large 9" x 11")* 9.
Smith & Bellows
Mahogany Disk Case *(holds 90 disks)* 28.

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Winner.
And still a champion.

Dear MacPeople,

My name is Martha Finch and I am 25. Three years ago, I was in a serious running accident. I was jogging in Aspen, Colorado up a mountain road and a motorcycle was coming down the same road and hit me badly. I was in the hospital for an entire year with head injuries and broken bones in both of my arms and both legs. My progress is very slow. Today I can't even walk and can barely talk.

Before my accident I was very athletic. I was a national swimmer in college. I also qualified for the Boston Marathon in 3 hours and 17 minutes. Now I have to switch from all my physical capabilities to only mental activities, and the Mac really helps me. The Mac has enabled me to express myself in letters to my friends. I write all my letters with "MacWrite" and make my own cards with "Print Shop". I am also in the process of writing a book about my experiences.

Mac is a saving grace for me. It is a very good friend.

Sincerely,
Martha Finch

Despite an accident which confined her to a wheelchair, Martha Finch is overflowing with creativity. All with a little help from her Mac.

Contest Winner #8

Name: Martha Finch

System: Mac 512

Applications: Writing, card design, and all around companionship.

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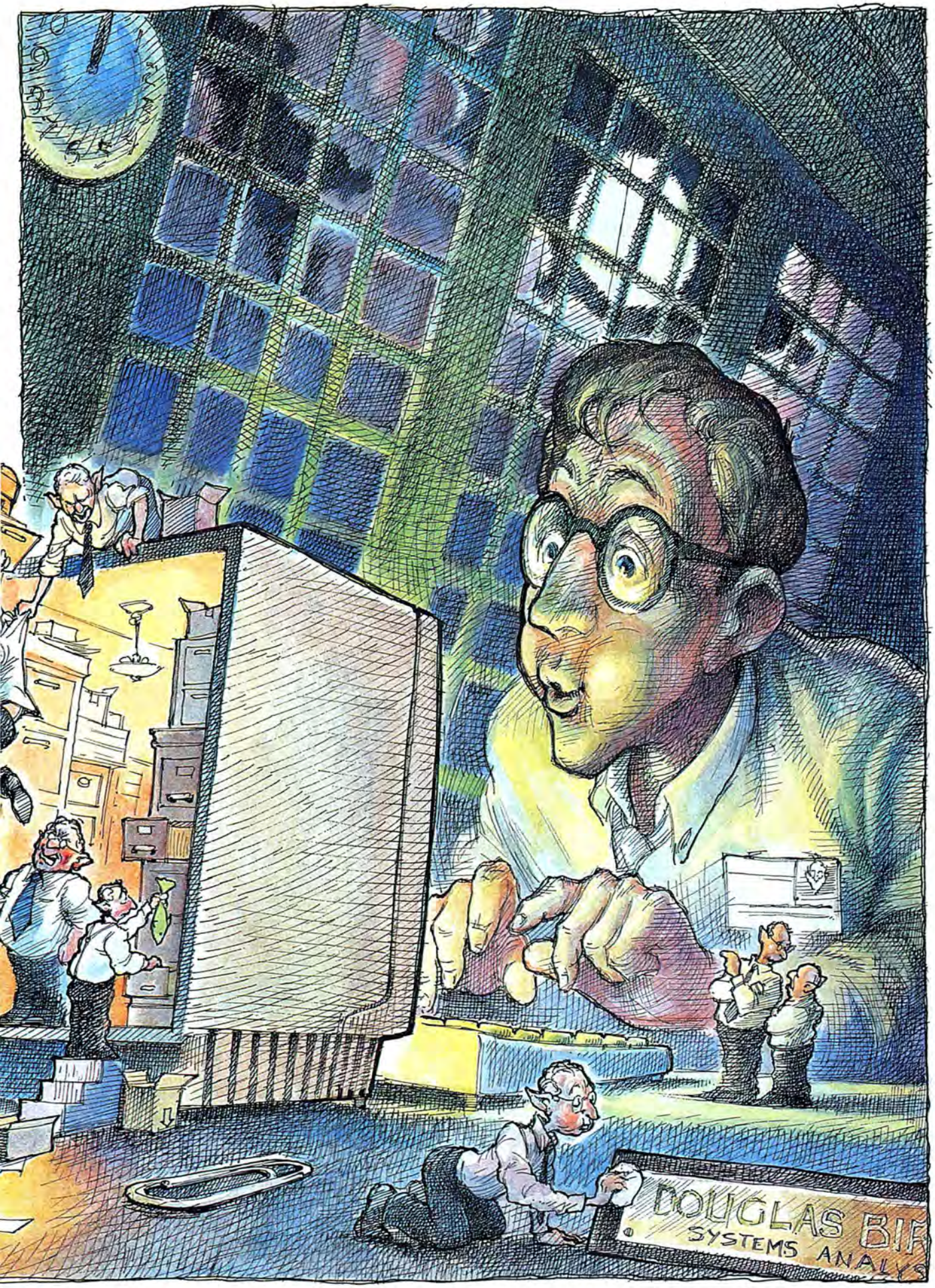

DOUGLAS BIF
SYSTEMS ANALYS

pare to Merge feature in the word processor, you can pull all these fields from selected records into individual pages of a word processor document, which can be printed.

Open both the Houses data base file and a new word processor document. Working with the word processor, design a one-page form called House Form to display the information from the Houses file. To help yourself remember all the data fields in the data base file, use the PRINT WINDOW command from the data base's File menu to print a copy of the Form window from the Houses file.

Because of the formatting flexibility in the word processor, you can rearrange the merged information any way you want. In this case, we'll put in some data headings to identify the merged data.

Headings identify the information for the customers, and the blank spaces will be used to present the merged data. To merge the information, you simply move the insertion point to each blank space in this document, then use the PREPARE TO MERGE command to merge the appropriate field from the Houses data base file. Here's the procedure:

1. Make sure the Houses data base file is on the desktop.

2. Display the House Form word processor file.

3. Move the insertion point to the blank space after the Property Address heading.

4. Choose the PREPARE TO MERGE command from the Edit menu. A dialog box will appear showing the data base files available on the desktop. If the Houses data base isn't the only open data base file, choose the Houses file from the list on the left by clicking on it.

5. Choose the Address field from the Houses data base file from the list of fields displayed on the right.

6. Click the Merge button. The dialog box disappears, and a placeholder for the Address field appears in the House Form after the address heading.

The insertion point is now blinking to the right of the Address field's placeholder.

7. Type a comma (because you usually put a comma after a street address), then leave one blank space.

8. Merge the City field from the Houses data base on the same line.

9. Put a comma and a space after the City field's placeholder.

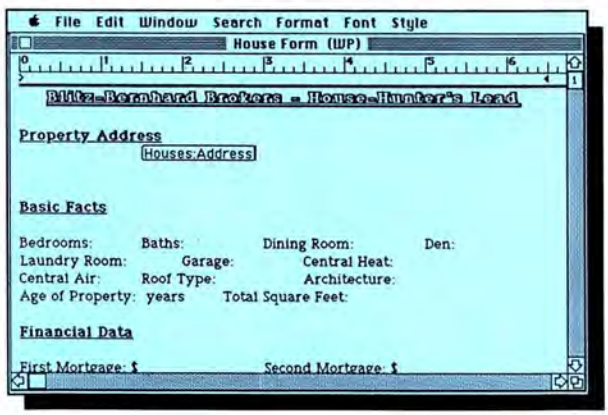
10. Merge the State and Zip Code fields on the same line.

Now that you have the general idea, go through the rest of the House Form and merge the appropriate fields from the data base in the appropriate positions on the form.

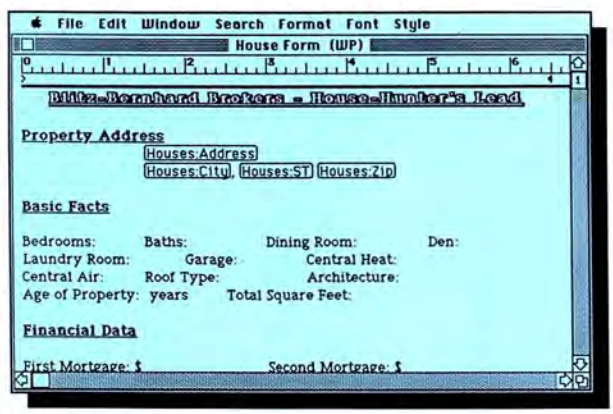
You may notice that some of the data headings have been moved around on the screen because field place markers were inserted between them. Although the text headings move around to accommodate the place markers when the place markers are displayed, the text will move back to its original position when the actual data is inserted. To see this, choose the SHOW FIELD DATA command from the Edit menu. The field place markers will be replaced by actual data from the currently selected record in the Houses file, and the text headings will return to their normal positions.

Using SHOW FIELD DATA is a good way to make sure the text in the form is exactly where you want it to be. When *Works* inserts data into a merge document like this, it creates as much space as is needed for each piece of merged data. If the data being inserted is longer than the amount of space you've left in the form between two text headings, the right-hand heading is moved farther to the right (or even wrapped around to a new line) to make room.

In this example, the data in most of the blanks will be about the same length with each record (except for the address and comments), so you don't have to worry too much about having text wrap down to a new line. If you think the length of your data will affect the text in a merge document, check it out with the SHOW FIELD DATA command. The data being shown is always from the record that is currently selected in the source data base file.



After you click the Merge button in the Prepare to Merge dialog box, a placeholder box appears on the first selected field. This indicates both what data will be merged and where it will go.



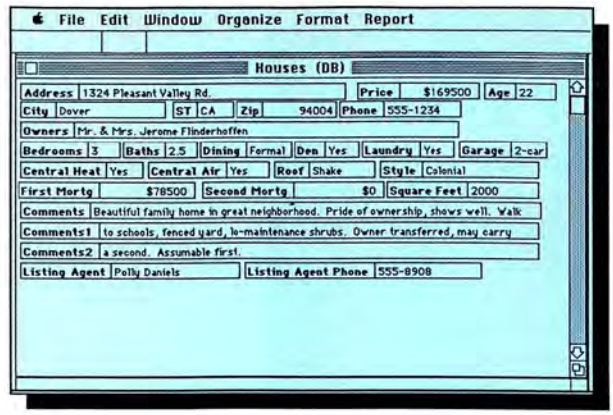
Select as many additional fields as required. You can type in characters, like the comma here, that will appear in all copies.

MERGING SELECTED DATA

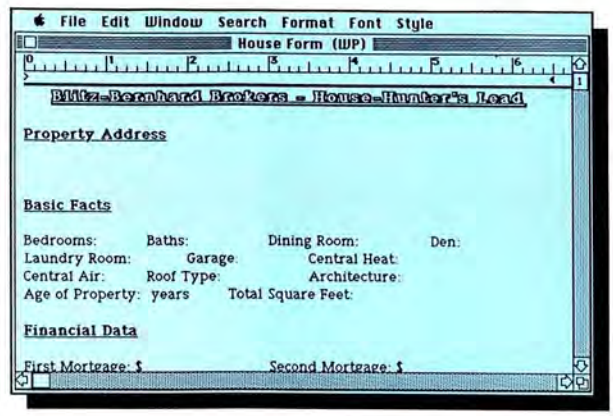
Once you're happy with the layout of text in the merged document (the

If you want to send a promotional letter to your customers in the Zip Codes 90001 through 90005, for example, define two linked record selection rules that say, "Zip Code is greater than 90000 and Zip Code is less than 90006." With the *Works* data base, you can define up to six linked record selection rules to select records that contain specific text, numbers, dates, times or ranges of data in certain fields.

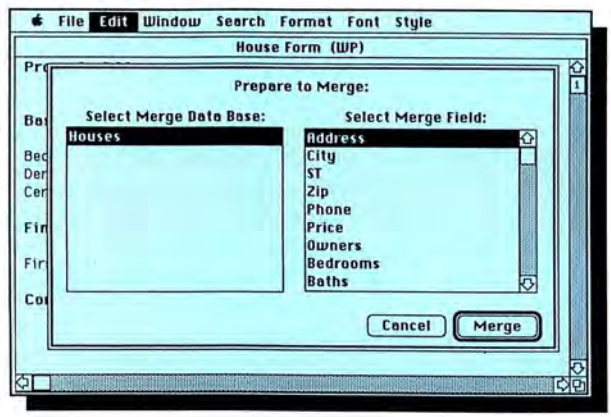
Along with record selection, you can also use the data base's report formats to produce grand totals or subtotals of fields, and calculations of two or more fields together. If you have an inventory file that contains part names, quantities, and costs, for example, you can multiply the quantity field by the cost field to produce a total value field. Then, using the TotalsPage menu, you can sum a field (to find the total number of parts in inventory, for example), or you can create subtotals of part quantities by part class.



A sample record from a *Works* data base file. This multi-field record could be for an individual house in a realtor's listing.



This is a portion of a word processor document before the information in the sample record is merged in. The data headings identify the merged data.



The Edit menu's Prepare to Merge command lets you select both the data base and the particular fields you require.

LIMITS OF LIST REPORTS

Between the record selection rules, calculated fields and field totals, you can report all or part of the data in a data base file, or any subgroup of records you like. The problem with the *Works* data base is that you can only produce reports in what *Works* calls a List format—a table that looks like a spreadsheet. Each record occupies one row, and each field is a column.

This format has many uses, but it doesn't let you lay out data base data in alternate ways—all reports are arranged in rows and columns, and all reports are printed in 9-point Geneva, since this is the only typeface available in the data base. And, since the fields are arranged in columns, you may well run out of horizontal space on your paper before you run out of fields you want to print. There just isn't enough room on a page to lay out all the fields in a data base file side by side on one piece of paper.

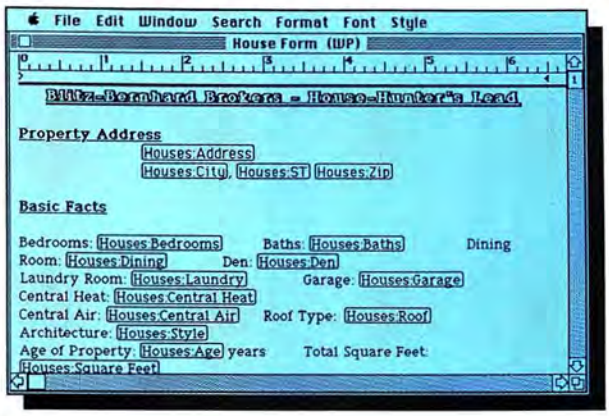
FORMATTING THE DATA

Fortunately, the word processor's data-merging features let you overcome the formatting limitations of data base reports. The Prepare to Merge command in the word processor lets you combine data base fields in a word processor document. The information from the data base file is merged into the document when the word processor file is printed. This *Works* feature gives you some powerful data-handling capabilities.

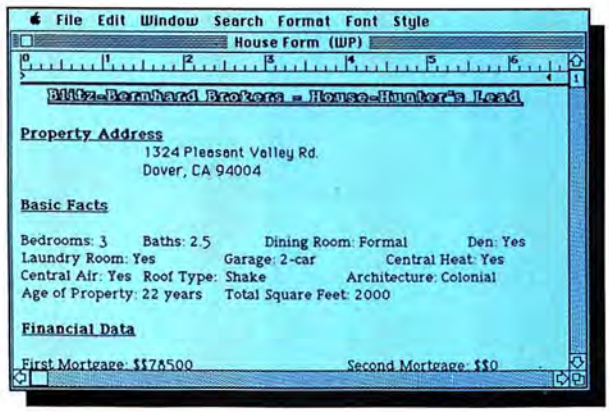
One simple example of this feature is described in the *Works* manual. It shows you how to merge name and address data into a form letter. But form letters and mailing labels are only the beginning of what you can do with the Prepare to Merge feature. Let's look at a more complex example.

Suppose you're in the real estate business, and you have all your property listings in a *Works* data base file. You'd like to be able to print records of selected houses to give to prospective buyers, but the file contains too many fields for you to print the data in a normal data base report. The only way to display all this data is by merging the data base with a word processor document. Using the Pre-

Whistle While You Works



The finished document, all set up and ready to merge.



This is what will print out when the sample data record in the first illustration is merged.

House Form), you can use the data base's record selection features to print out only selected records. If one of your customers only wants to look at ranch-style houses with 3 bedrooms and 2 bathrooms selling for between $100,000 and $150,000, you can set up some record selection rules in the Houses data base file to find only those houses that meet these criteria.

To print a word processor file containing merged data, you have to use the PRINT MERGE command from the File menu—not the regular PRINT command. If you use the normal PRINT command, the field place holders will be printed, instead of the merged data.

IMAGINATION IS THE KEY

By using word processor forms and merging data from the data base, you can create data base reports in just about any format you want. The merge feature can take data from any data base file that is open on the *Works* desktop. Theoretically, you can have nine data base files and one word processor document open when merging data. Since each data base file can contain up to 60 fields of data, your data-merging opportunities have no real practical limits. Also, you're not limited to a one-page document in the word processor. The document can have dozens of pages, each of which contains some merged data.

Any data you can create, display or select with the *Works* data base can be printed out in a custom word processor form. Here are some examples of different projects you can tackle with the merge feature:

Pre-printed forms: Use the word processor to format data base data so it prints properly on pre-printed forms. The real estate data in the example above could be formatted to print out onto pre-printed listing sheets. If you regularly fill out any printed form—insurance claims, overnight express forms, routing slips, inventories, equipment check-out forms—you can merge data from one or more data base files into the appropriate word processor format to eliminate filling the forms out by hand.

Calculated data in letters: Since the merge feature can merge data from any field, include calculated data in a form letter. If you have a file of customers who have made partial payments, create a calculated field that subtracts the payments to date from the purchase amount to produce a new balance due field. Merge the balance due field into a form letter asking the customers to pay up.

Name Tags: Reports from the data base data can be printed only in 9-point Geneva type, but you can merge it with the word processor to use different fonts or styles. If your company is having a reception, take an employee data file, select out the Name field and merge that field with a word processor document. In the word processor document, format the field's placeholder for a larger type style. Use the Page Setup menu to specify a custom paper size that matches the size of the name tags you want to make, then print the file. You can also use a similar technique to create Rolodex cards, name cards for a conference table and other items.

Monthly Reports: Often, you'll have the data you need in a report already stored in a data base file. If you have a multi-page monthly report that has the same basic format every month, you can merge data from the data base file to periodically update the report. Even if the report is a one-time project, it's still easier to merge needed data from a data base file than it is to copy it over by hand.

These are just a few of the possibilities for the data-merging feature in the *Works* word processor. Between the selecting and calculating abilities of the *Works* data base, the ability to pull data from up to nine different files at a time and the flexible formatting features of the *Works* word processor, you have a lot more data base reporting power than immediately meets the eye.

CHARLES RUBIN IS THE AUTHOR OF SEVERAL BOOKS PUBLISHED BY MICROSOFT PRESS. HIS LATEST IS MICROSOFT WORKS, TO BE PUBLISHED THIS FALL.

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Memorandum by Target Software

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Memorandum 62.00

MacBottom SCSI Hard Disk Drives By PCPC

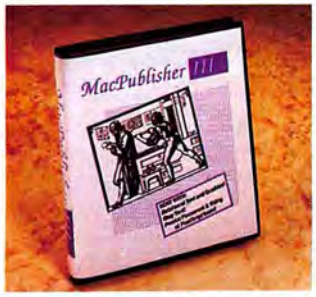
The MacBottom arrives completely formatted and ready to use. It comes with easy-to-use software including a print spooler for the ImageWriter and the LaserWriter; HFS Backup, the popular archive and restore program; and Eureka, the desk accessory that locates misplaced files. The cables, terminators, push-button SCSI address selection, and an additional SCSI port are built right into the compact case, as is the quiet fan that helps you keep your cool. The MacBottom weighs less than five

pounds, and it's just two inches tall but no other hard disk stacks up!

MacBottom 21 MB
Hard Drive 869.00
MacBottom 45 MB
Hard Drive 1289.00

MacPublisher III by Boston Publishing Systems

MacPublisher II was the first desktop publishing system to offer microjustification, kerning, depth justification, and hyphenation. MacPublisher III now offers *built-in hyphenation* and a new toolbox that allows users to both edit & create text and graphics directly on the page. MacPublisher III also contains a number of additional unique features including: Gray text *(10% increments)*, Rotated text and graphics, Precise placement and resizing of PostScript items, Color Printing using the



ImageWriter II, and Color display with the Macintosh II.

MacPublisher III 199.00

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Stepping Out *The Macintosh Screen Extender* by Berkeley System Design

Stepping Out is essentially a software big screen that fools the Macintosh into thinking it has a bigger screen than it actually does. The view of that big screen follows the cursor wherever it goes. Wide tables, big spreadsheets and full page layouts are no longer limited by small viewing windows and slow scrolling. Users can choose their screen size and key commands are available for 2 and 4 times reductions and 2 to 16 times enlargements of area pointed to

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Programs, Peripherals,

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Infosphere MacServe *(Network Software)*	169.00
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ComServe *(Modem Sharing Software)*	199.00
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Nevins Microsystems TurboCharger *(Version 2.0)*	39.00
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Eureka! *(File Finding Accessory)*	18.00
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Laserstart	59.00
SuperMac Software SuperSpool *(ImageWriter Print Spooler Utility)*	39.00
SuperLaserSpool	99.00
Think Technologies LaserSpeed *(Single User)*	69.00
Williams & Macias myDiskLabeler	25.00
myDiskLabeler w/Color	34.00
myDiskLabeler w/LaserWriter Option	39.00

Desk Accessory Programs

Affinity Microsystems Tempo	56.00
Batteries Included Battery Pak *(9 Desk Accessories)*	27.00
Borland SideKick V2.0	59.00
Cortland Top Desk *(7 New Desk Accessories)*	35.00
Imagine Software Smart Alarms & Appointment Diary	39.00
Silicon Beach Software Accessory Pak #1	21.00
Solutions, Inc. SmartScrap & The Clipper *(New Scrapbook DA)*	42.00

Languages

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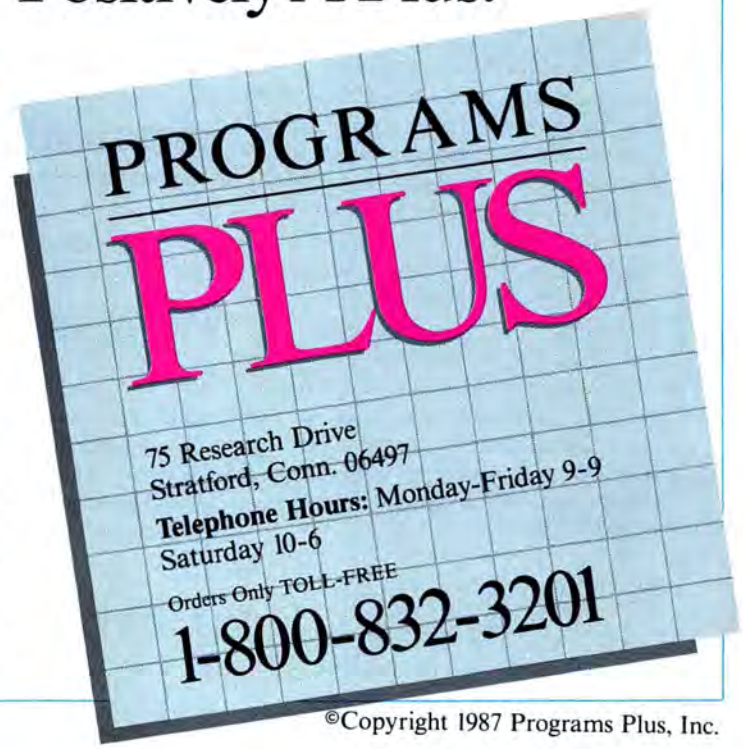

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Let The Mac Win

The Chessmaster 2000 features enough strength and playing modes to make any chess player swoon. How does it stack up against a dedicated chess machine?

BY NEIL L. SHAPIRO

IN CHESS CIRCLES, I AM WHAT IS affectionately (or not) known as a *patzer*. This colorful word (pronounced pah-tzer) is what the truly good chess players call all other chess players. Of course, truly good chess players account for well under five percent of all the people who play chess.

So odds are, you're a patzer too.

Recognizing the fact that we are all patzers on this particular bus is very important to any review of a chess program—particularly one that runs on a microcomputer such as *The Chessmaster 2000* from Software Toolworks for the Macintosh.

We patzers don't really care if the program can beat a chess master like Yassar Seirawan (now rated America's number one player) or even if it would give him a tussle. Shoot, most of us wouldn't recognize Yassar if he rode next to us on the subway and offered us a game at 5 to 1 odds. No, we're more interested in whether the program is fun, easy to use and if it will help us to improve our own chess game to the point that we can someday beat our good buddies. A chessboard that is surrounded by pretzels and conversation is more important than TV cameras and national flags.

The Chessmaster 2000 scores high on all of the above counts.

A SQUARE DEAL

To say that *The Chessmaster 2000* uses the Macintosh interface is an understatement. On the basis of the display and the mechanics of how the program is played, *The Chessmaster 2000* is about as "Mac-like" as a chess game can be.

The chessboard can be displayed in either two-dimensional (2-D) or three-dimensional (3-D) views. The 2-D view shows a chess diagram of the position, much like the diagrams in chess books or newspaper chess columns. The 2-D viewpoint is enhanced by razor-sharp highlighting of the pieces, and the pieces themselves are among the best designed "flat" representations I've seen. But this pales beside the achievement of the 3-D view.

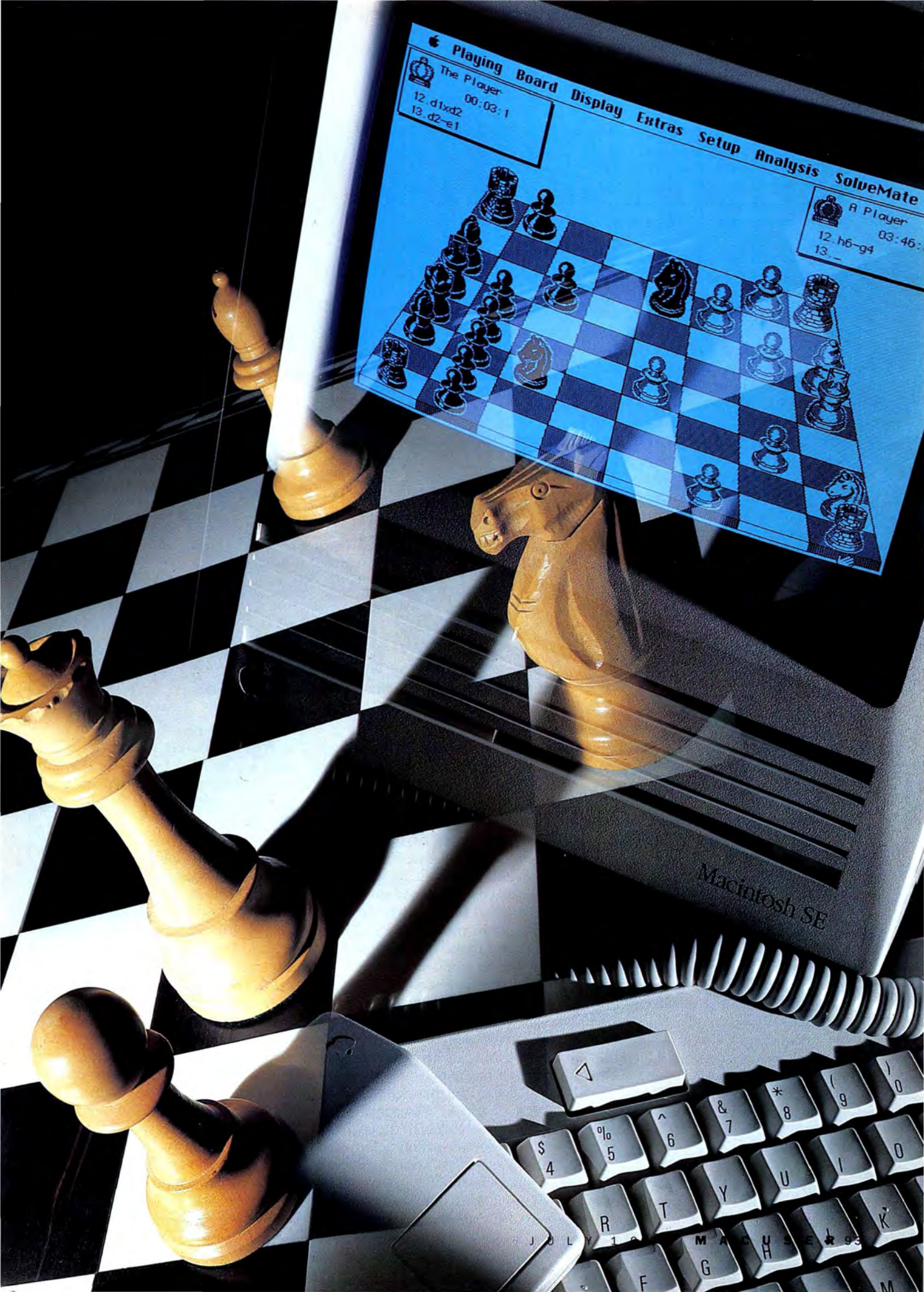
Have you ever played chess on one of those beautiful black-and-white, onyx chessboards? *The Chessmaster 2000*'s 3-D view of the game comes close to that experience.

Forget all about other 3-D views that you may have seen. This one has been done the way chess players might have hoped. The pieces are perfectly proportioned representations of the so-called Staunton chess pieces. The board's perspective is tilted to give a truly *trompe l'oeil* feel of authenticity to the screen.

Shift quickly from 2-D to 3-D. If you're like me, you will feel your eyes actually try to refocus beyond the flat glass pane of the CRT. The illusion is perfectly handled.

Although you can rotate the board in quarter-turns, I never needed to

CHARLES PURVIS


Playing Board Display Extras Setup Analysis SolveMate
The Player
00:03:1
12. d1xd2
13. d2-e1
A Player
03:46:
12. h6-g4
13. _
Macintosh SE

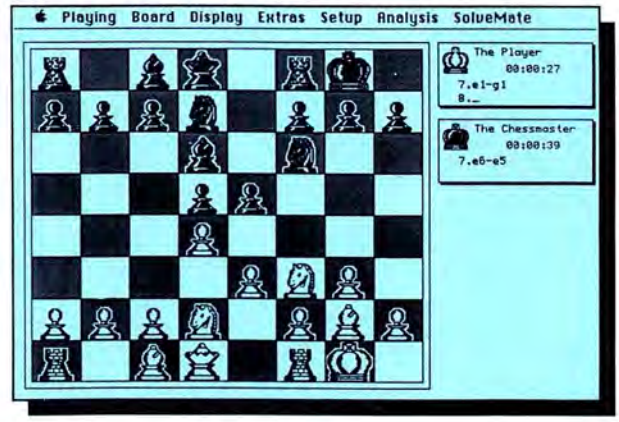
do so. Even in the beginning moves of the game, the pieces and board position are such that one piece seldom blocks another. And the illusion is never broken by a loss of proper perspective due to a piece's position.

This is the first 3-D chess display that I found I could play a game with from start to finish. It's the next best thing to a real chessboard and pieces.

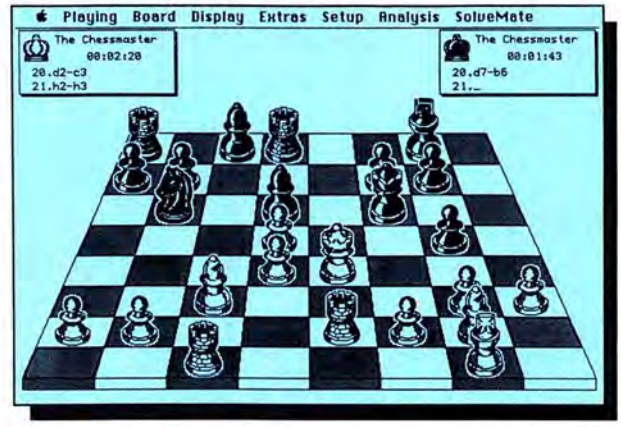
Moving a piece on both the 2-D and 3-D displays is easy and intuitive. Simply move the hand-shaped cursor onto the piece to be moved. Click (the hand closes in a grasping motion!), drag the piece to its new square and release the mouse button.

By the way, both the 3-D and 2-D displays feature on-screen chess clocks. Whether you are a world-class tournament player or just another patzer, you will appreciate the ease of tracking not only your time but the computer's.

For non-tournament players, both the 2-D and 3-D views allow board coordinates to be On or Off. When On, the algebraic labels for row and file are displayed along the edges of the board—quite useful if you are just learning chess notation.



The two-dimensional display of *The Chessmaster 2000* will be familiar looking to anyone who has played other chess programs or who has studied chess books or magazines. Chess clocks for each side flank the display.



The three-dimensional view is breathtaking. In the reviewer's opinion, *The Chessmaster 2000* features the best 3-D display of any chess program currently on the market. The highlighting, attention to detail and to perspective effects all combine to make this display both realistic and playable.

ON THE LEVEL

However, the clocks are quite handy when you use them in conjunction with setting the level of play. *The Chessmaster 2000* offers twelve *levels* of play and three different *styles* of play.

The twelve play levels are presented in a dialog box that appears when you choose the "Play Level Is...." command in the Playing menu. The levels are defined in terms of the number of moves that will be played in a set amount of minutes.

From lightning-quick "blitz" games of 60 moves in 5 minutes to an unbelievably stodgy, long-term analyses mode of 1 move in 6000 minutes (100 hours!), the choices are clearly defined. Obviously the longer the computer has to make a set number of moves, the more time it will "think" and the better game it will play.

There are a good number of very playable levels. I found the 40 moves in 60 minutes level to be particularly close to the timing of an everyday game of chess. And the computer plays a very respectable game at that level.

The three styles of play may be applied to any of the twelve levels. In its "Normal" style the program will mix both best and random moves. The "CoffeeHouse" style leads to more random moves, and its "Best" style always makes what it considers to be the best move.

All of the Level and Style combinations can be further modified by the Easy command. When Easy is activated the computer will not think on your time. This, of course, is hardly fair to the poor computer but does allow for further handicapping.

There is also a "Newcomer" style that must be considered separately because it does not allow selection of levels of play. In Newcomer mode *The Chessmaster 2000* purposefully turns itself into the cybernetic version of a drooling idiot. If you can beat it at this level you have nothing to be proud of, but it does come in handy when you are first learning the game.

MORE ACCOMMODATING THAN BOBBY

The Chessmaster 2000 can be a chess-for-blood opponent when you unleash all of its strengths and powers but it never forgets who pays the electrical bill. No matter what unfair advantage you take, it never complains or demands international arbitration.

At any point you can take back any number of moves. You can even return to the set-up position and replay the game to just shy of that disastrous Knight fork and then choose a more felicitous route.

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But the most friendly of *The Chess-*

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MacUser April 1987

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MACWORLD May 1987

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master 2000's features is its willingness to share its innermost thoughts with you. At any point you can open a window to display the Chessmaster's "thinking."

Three lines of play are shown in that window. The first, or "Best" line, shows the best series of moves the program has yet discovered. If you choose to force a move, the "Best"move at that point in time will be used. The "Current" line displays the move the program is presently considering. The "Previous" line will show you the analysis behind the last move that the program made.

Other information includes Score and Search Depth. The Depth is the number of plies (half-moves) ahead that the program is thinking. The Score is based on a pawn being worth one point, other pieces being worth so many pawns, and a few fractional points here and there for positional judgements.

If all of the above analysis is too much, you can choose just to have the "Best Variation" shown. This is equivalent to the information in the "Previous" line.

Why, *The Chessmaster 2000* will even go so far as to suggest a move for you and, in Teach mode, show the squares pieces can move to. (But a word to the wise: *The Chessmaster 2000* doesn't always give hints that are completely top-drawer.)

Oh, and you can also play at work. If the boss walks in there's a Panic Button that turns the screen into a real-estate spreadsheet! Of course, if your business doesn't happen to be real-estate you might be in just as much trouble.

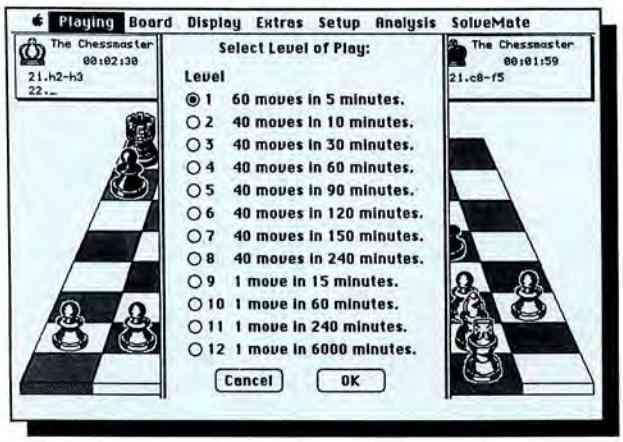
ADVANCED STUDY

If you're beyond learning how the pieces move and are into learning esoteric openings and hounding the mailman for this month's *Chess Life,* this program will prove to be a valuable asset in your pursuits of the goddess Caissa.

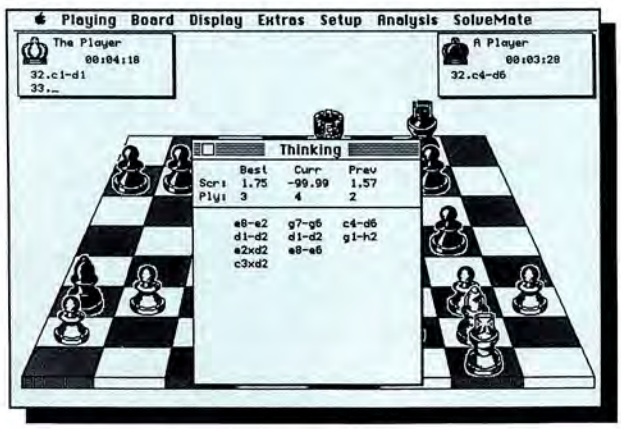
To analyze an esoteric move, for example, set up the board by just picking the pieces from a "box" and placing them on the board. Select the side to move first and enter moves from your printed analysis. At any point, you can turn on the program and it will play either side and analyze the moves available for White, Black or both. The analysis can be saved to disk.

It will also solve for Mate in 3 or Mate in 4. Or, you can leave it on in a SolveMate mode until it comes up with the mate.

Full print out facilities also help you study. Every move may be printed as it is made: the game list, board positions, whatever you need. A separate disk contains 100 "great" games for your perusal.



Levels of Play indicate approximately how long the computer will take to make a certain number of moves. The player should also use his or her own chess clock to operate under the same time pressure as the computer. As time runs out, tension builds.



For less than a penny above list price, *The Chessmaster 2000* will share its thoughts with you. The Best, Current and Previous lines of play are always ready to be displayed. Or, if you're fearless, close the window and see if you can beat the program without this advantage.

THE LAST MOVE

It's hard to find anything not to like about *The Chessmaster 2000*. Although the program is copy-protected, a backup may be ordered and, for hard disk owners, there is a real treat. For $10 a registered owner can buy an unprotected version that contains a serial number and other ID information which can be easily placed on any hard disk.

The only problem I encountered with this fine program was that it refuses to work with *Switcher*. Too bad; otherwise, I'd probably always have it running.

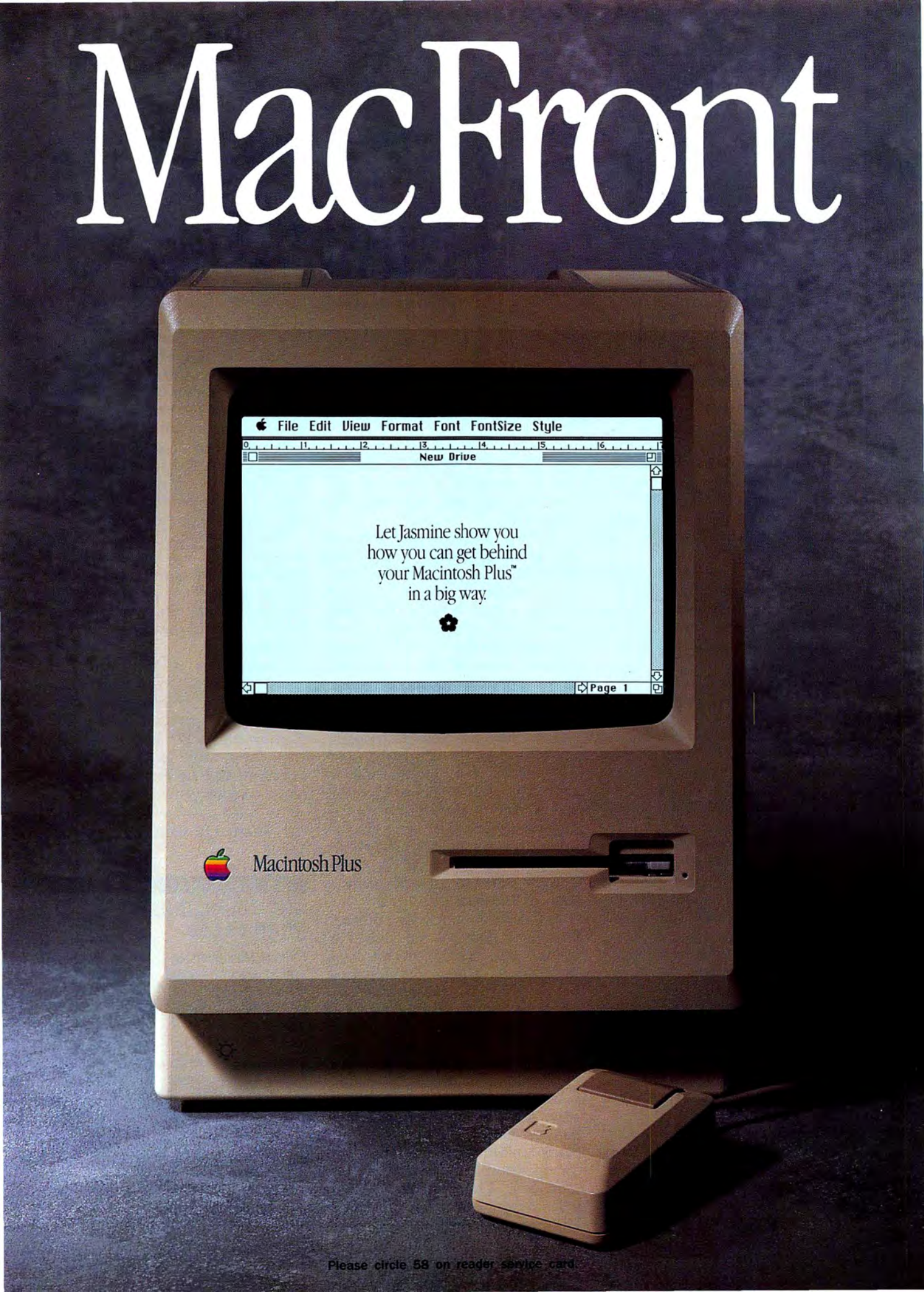
For the beauty of its graphics, the clarity of its user interface, the depth of its play and its overall worth to any chess player, we award our highest five-mouse rating to *The Chessmaster 2000*. Whether you're a patzer or a Master, it's a dream come true.

BATTLE OF THE TITANS

While chess-playing programs are getting better and better, so are the so-called "dedicated" chess computers. The dedicated chess computer is basically a chessboard with brains. All it can do is play chess, but it does that with a vengeance.

The Constellation Forte machine from the Novag Corporation is considered by some to be the strongest

MacFront



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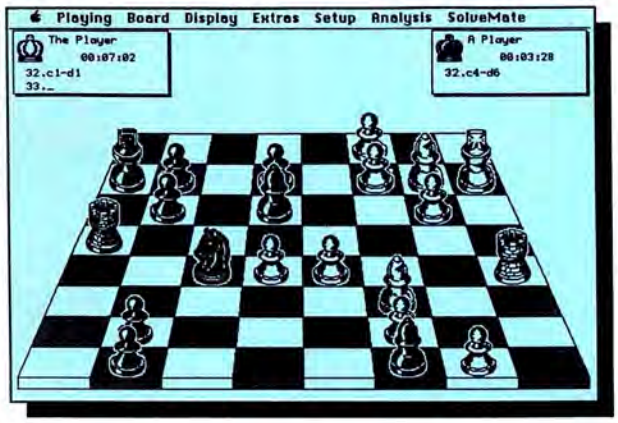
Let The Mac Win



The Chessmaster 2000 **will allow you to rotate the board in both 2-D and 3-D views. In the 3-D view, as shown, the player may rotate the board by quarter-turns (or by half-turns). The actual on-screen rotation flashes on very quickly so that the effect is very similar to a board turning in space.**

such machine available. While it has yet to be officially rated by the United States Chess Federation, most estimates place its playing strength at 2100 or above—the Master level.

We decided to stack it up against *The Chessmaster 2000*. If money was no object, we wondered, which would it make more sense to own, a chess program or a chess computer?

A LIGHT TOUCH

The Forte uses a sensory chessboard. Press down on a piece to move, and the LEDs on the file and column of that piece's square light up. Move the piece to where it is going, press down again. The LEDs on the new square's column and file light up, and the computer beeps and accepts the move (or gives you a raspberry for an illegal move).

The computer will show you its own move by first lighting the column and row of the square that contains the piece it wishes to move. Press on the piece, and the computer lights the destination. Move the piece and press again.

After the first game, the method of play becomes extremely natural. And, there's no doubt that a real chessboard and real pieces are about the only form of display that could succeed in bettering *The Chessmaster 2000*'s 3-D display.

Although the Forte's sole display is one row of LCDs, it packs a lot of information into what can be seen there. Some of the things it will show are: The move it is considering, the depth of search, the line being considered, number of positions analyzed and chess clocks for each side.

As far as levels of play, there are 32 pre-programmed levels. And there are three styles of play; Random, where it selects randomly among moves it rates the same; Tournament, where it plays only the strongest possible moves it sees; and Normal, where it uses its complete opening book and does not discriminate against unsound openings or gambits.

The Forte also adds a "programmable opening book" to the brew. This allows the person studying openings to either choose his or her favorite line to play or to key in (by moving the pieces) openings that are not in the computer's own ROM. This is a feature we believe simply must be added to chess programs as soon as possible.

The Forte also includes a personal computer interface—an RS-232C output. But, brace yourselves, only the IBM PC is presently supported. On the IBM PC, you can attach the Forte via a serial interface card sold by Novag. Then, you can use the PC's disk to store and recall games. There is also a graphic chessboard display.

Obviously, it would make a lot of sense for this company to support the Macintosh. For one thing, the Mac's built-in serial interface would mean support could be done in software alone. I have gone so far as to write a letter to the company in Hong Kong requesting they make available the RS-232C protocol they are using. Who knows, if they pay attention, we may see some non-commercial Mac software to enhance this computer.

THE BIG MATCH

I played *The Chessmaster 2000* against the Forte at two different time-control levels. The Forte won five out of five games.

But while that was, more or less, expected, the games indicated a much better report on *The Chessmaster 2000* than the bare results themselves might indicate.

A number of times *The Chessmaster 2000* would fall behind in material and then almost succeed in equalizing. *The Chessmaster 2000* played a very human-appearing game.

Losing to the Constellation Forte is nothing for any program to be ashamed of. For one thing, the Forte has a faster clock speed than the Macintosh and so was able to "think" more in the same period of allocated time.

Speaking as a very dedicated patzer, there's no doubt in my mind that the Macintosh-owning chess enthusiast will appreciate having *The Chessmaster 2000*. But it appears that, for a while at least, there's a reason to save up for the dedicated chess computers too.

NEIL SHAPIRO IS MACUSER'S EDITOR AT LARGE.

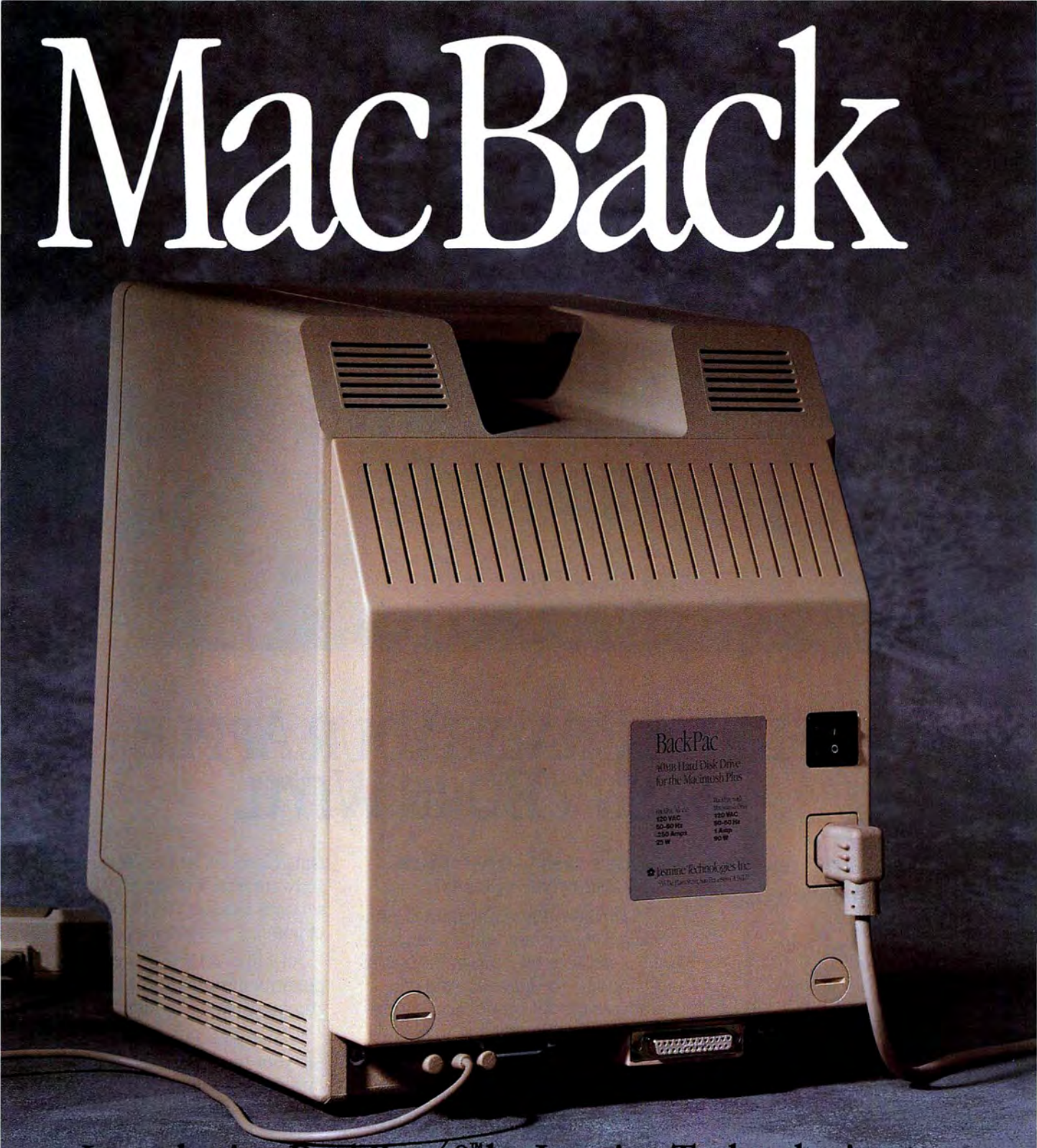
MACUSER RATING

The Chessmaster 2000 ♜♜♜♜♜

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

Comments: A chess program that will satisfy both the novice and the more advanced player. **Best Feature:** Superb three-dimensional view. **Worst Feature:** Manual might be expanded to explain why the 100 sample games were chosen. **List Price:** $39.95. Published by The Software Toolworks, 9713 Santa Monica Blvd., Suite 214, Beverly Hills, CA 90210. (818) 907-6789. Copy protected.

MacBack



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Air Freight $20.00 CA residents add 6.5% sales tax. C.O.D. orders add 5% + shipping. Same day/rush shipments available at extra charge.
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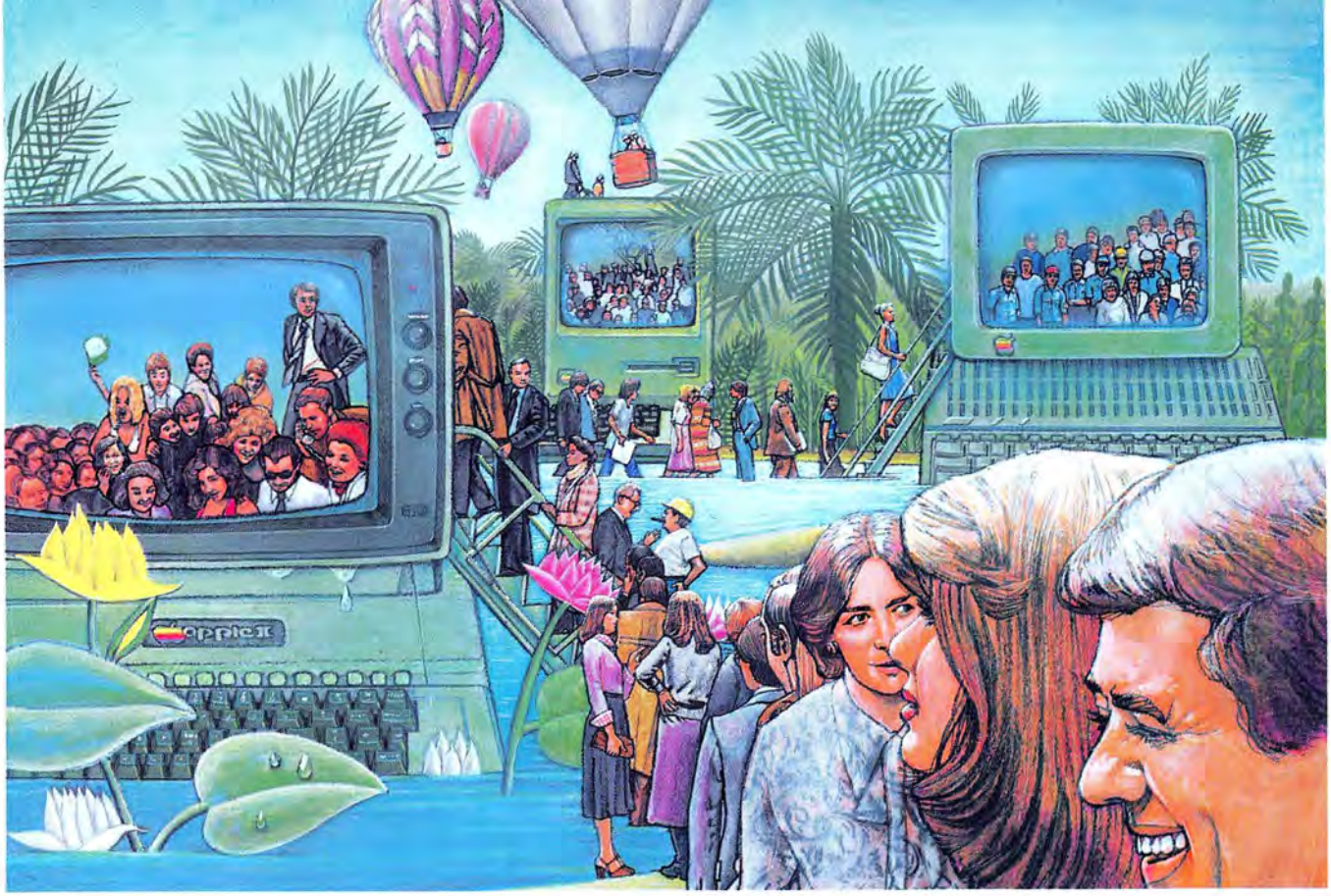

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MacUser Special
SUPPLEMENT 5

Desktop Publishing

THE NEW GENERATION

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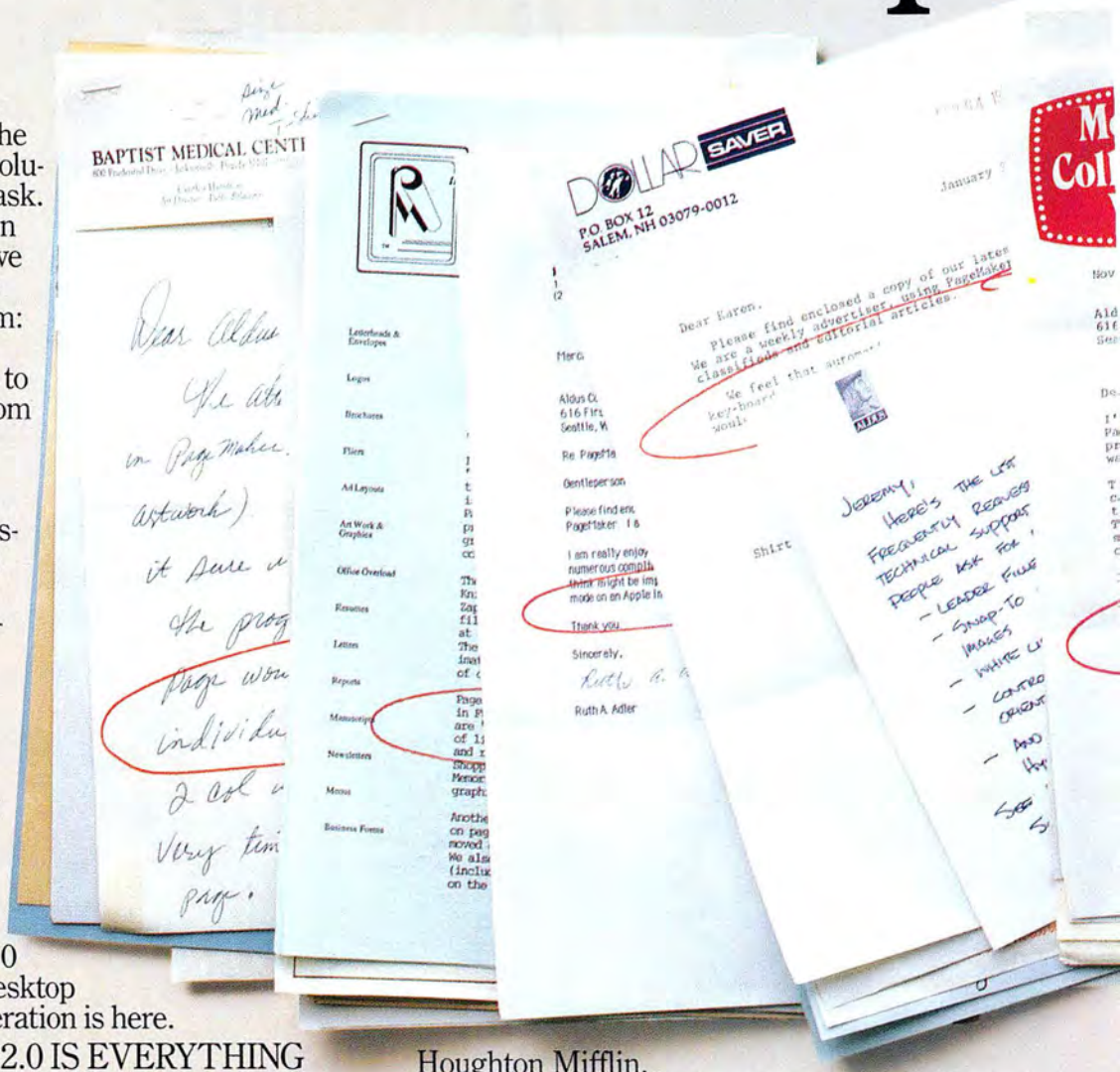
It Took Over 50,000 How To Impro



Improving on the program that started the desktop publishing revolution was not an easy task.

So, before we even began working on it, we added a few people to our programming team: the 50,000 or so folks who use PageMaker® to produce everything from annual reports to zoo brochures. Many of them took the time to write to us with suggestions on how we could improve PageMaker. We took the four most-requested features, added quite a few of our own, and made them all a reality.

The result is a program that sets new standards for ease of use and professional-looking output.

Introducing PageMaker Version 2.0 for the Macintosh.™ Desktop publishing's next generation is here.

PAGEMAKER 2.0 IS EVERYTHING YOU'VE HOPED FOR. AND MORE.

Like the version it replaces, PageMaker 2.0 lets you work from a screen resembling a layout table. But now you have even more control over the finished page.

To make double-page spreads easier to design and lay out, the new PageMaker 2.0 allows you to work on the text and graphics of two facing pages at once.

We've added automatic hyphenation and justification with a 110,000-word dictionary from Houghton Mifflin.

So now PageMaker can hyphenate your text to tighten up pages.

New kerning and typographic controls let you adjust spacing between the letters or words in your copy. Which means everything from headlines to fine print will look like it's been set by a professional typesetter, without any accompanying type bills.

You'll also be able to put even more work in a file, up to 128 pages. Plus, a new four-digit page numbering system allows you to combine files into publications of up to 9,999 pages.

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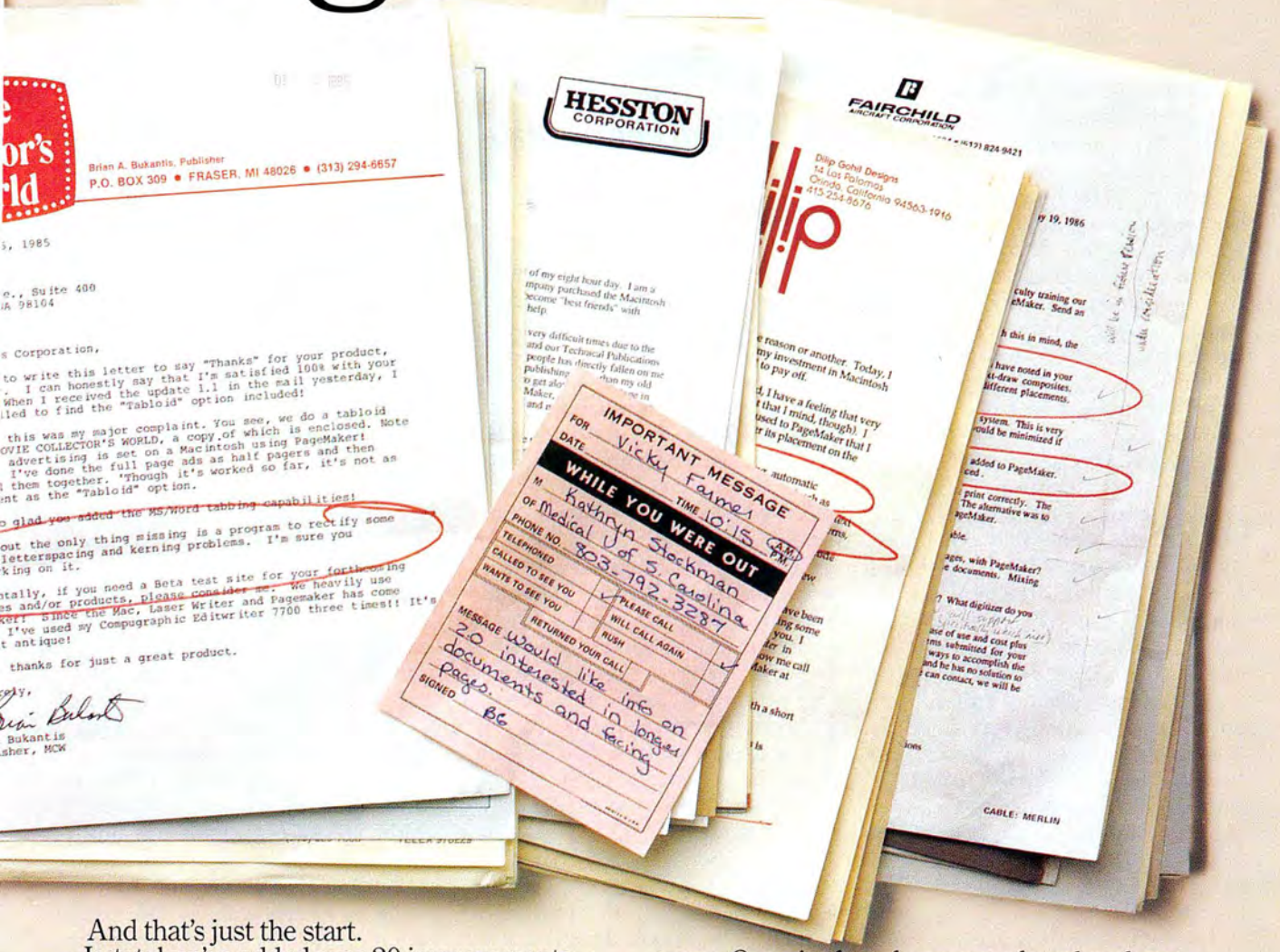
People To Figure Out ve PageMaker.



And that's just the start.

In total we've added over 20 improvements, all with the same benefit: they make desktop publishing easier and more professional than ever.

So, if you've been waiting for desktop publishing software to get more sophisticated, stop waiting.

WE EVEN HAVE A VERSION THAT RUNS ON YOUR VCR.

You won't need to go any farther than your TV set to see a full demonstration of what PageMaker can do. Just call toll-free 1-800-33-ALDUS and for $9.95 we'll send you a 20-minute VHS tape that shows how easy it is to put PageMaker through its paces. Or write for a free copy of our brochure.

And, of course, the best way to experience PageMaker's power for yourself is to visit your authorized Aldus dealer.

So get your hands on the new PageMaker today. And see what happens when 50,000 people put their minds to making something good even better.

ALDUS PageMaker®

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So What's New?

DESKTOP PUBLISHING, A SUBJECT that no one would even know about if the Mac hadn't been invented, is starting to take on a life of its own. Desktop publishing software is *de rigueur* on all micros, whether or not they are fast enough or graphics-oriented enough for it to work.

Desktop publishing has sold a lot of computers recently, and will sell a lot more in the future. There are several monthly magazines devoted to the subject. All the computer magazines, not only the Mac magazines, talk about desktop publishing endlessly. And in all the hoopla, something important is usually overlooked.

What's overlooked is that the results of most desktop publishing efforts are not of professional quality. Often that's fine; they don't need to be. But when truly professional quality work was required, either traditional (not DTP) techniques were used, inferior material was accepted (because it was the best that could be produced) or extraordinary efforts were made to produce nearly professional quality work. The entries in the First Annual MacUser Desktop Publishing contest ran the gamut from incredibly amateur to not quite professional, but appropriate to the job at hand, to truly professional.

The first desktop publishing programs concentrated on ease of use and on providing a functionality that had been totally missing in micro computers. Graphics and text could be mixed on the same page, but only in certain ways and never well or elegantly. The first DTP programs tried to solve that complex set of problems. Early solutions showed promise but were also bug ridden—a result of the rush to market a program, any program, in what was clearly a booming market. I bought very early copies of both *MacPublisher* and *Ready, Set, Go* and remember being both mightily impressed with their potential and appalled by their bugs and unfriendliness. I could do flyers and newsletters but at a large cost in time and effort. They really weren't much better than traditional methods, although they seemed much more accessible.

Real professional quality typesetting is now a good deal more available.

Output was (and still is) a major problem. ImageWriter resolution (roughly 72 dpi) is awful from a professional standpoint. LaserWriter resolution (300 dpi) is OK, unless your customers and readers expect traditional typesetting quality. For that you need at least 600 dpi and 1200 dpi is much better. (Most commercial type is in the 1500 to 2500 dpi range.)

The output problem has been solved, in a manner of speaking, by the introduction of the Linotronic printers. They hook directly to the Mac and do output professional quality material. Their drawbacks are price and complexity. They are very expensive and require the dedication of substantial resources to support them. Fortunately, service bureaus, where you can take a disk to be printed, are starting to spring up.

That brings us back to the software. Your final results can be no better than what your software can produce. In recent months several new programs have appeared along with entirely new versions of all the old standbys.

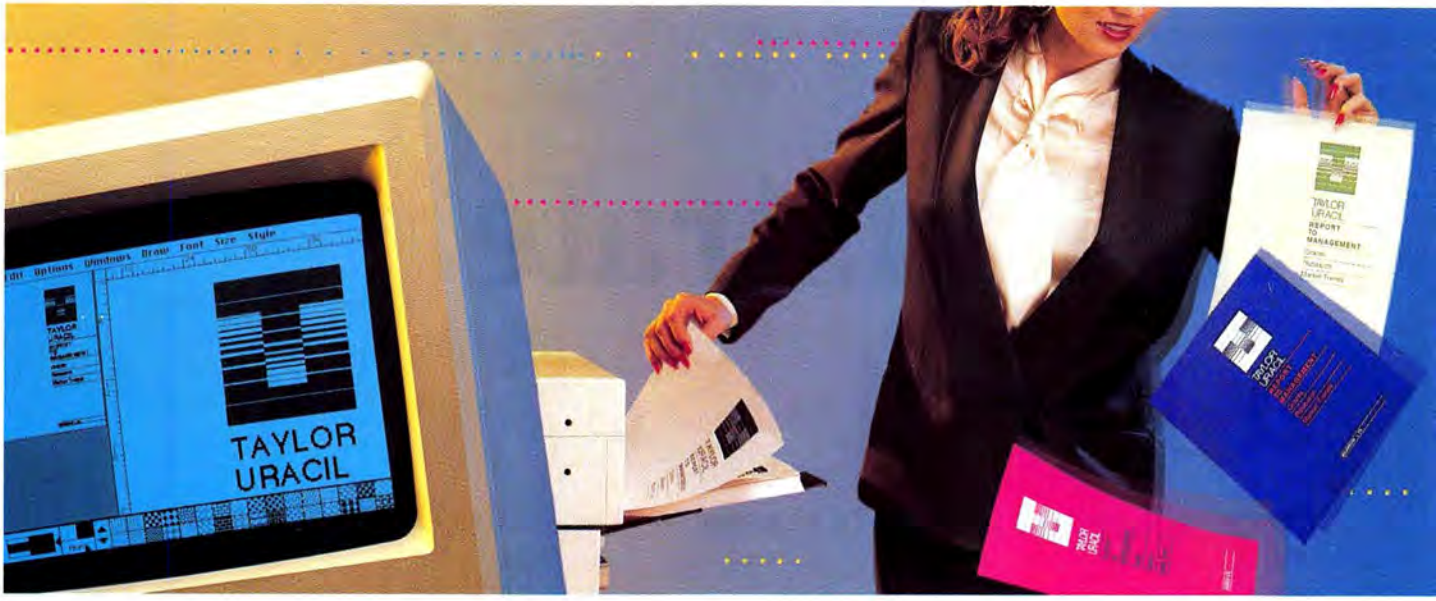
These programs all feature speed and new power. They can handle bigger documents, faster and more efficiently. They have many new features and some of these are directly aimed at producing more professional output. You can now output directly in PostScript (the language the best printers use) to obtain the highest possible quality and most precise control the printer is capable of. The import and export of both graphics and text is much improved with the support of an ever-increasing number of formats so that all of your work can be used at full quality.

The most spectacular advances have been in the handling of text. One of the signs of professional work has always been how the text looks. If you notice the appearance of the text then it is not good enough. Professional work features smooth, regular spacing and excellent word breaking (hyphenation).

The new programs all have much improved text processing sections. Given the text handling ability of some of the first programs, that might not be not saying too much. But this is where the new programs really shine. No matter how they do the H & J (hyphenation and justification), either by algorithm or dictionary, they're good at it. And they handle text much more smoothly. In fact, the text processing section of *Ready, Set, Go! 3* is better than some current standalone word processors.

So finally you have programs that can do professional work, and do it relatively quickly. They can handle just about anything you throw at them and handle it smoothly and efficiently. And that's the mark of the professional.

BY STEVEN BOBKER



The Power of Color.
Until now desktop publishers could only dream of it.

Great minds create powerful ideas in color: Their thoughts may be blue sky, wave a red flag or make the competition green with envy. But, somehow the reports and graphics that spring from these color ideas rarely convey the life and energy of the original thoughts.

Kroy® brings the power of color to desktop publishing and business communications with a simple process compatible with virtually every laser printer, including the Apple™ LaserWriter, and most photocopiers that apply dry toner to the page.

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The matte and gloss colors range from a cool blue, to a blazing, fire-engine red.

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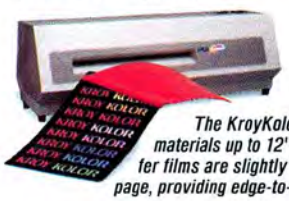

The KroyKolor processor accepts materials up to 12" wide. KroyKolor transfer films are slightly larger than an 8½-11" page, providing edge-to-edge coverage.

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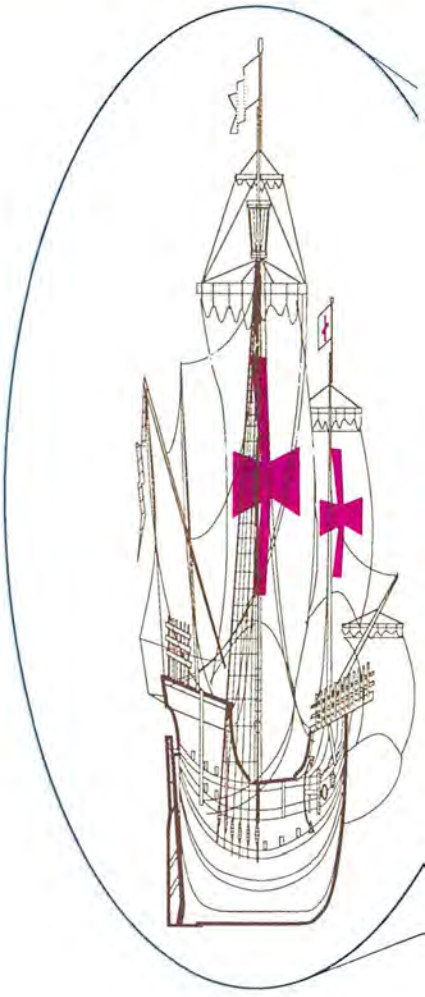
To Illustrate a Point



Adobe's Illustrator is going to change the whole way you look at computer graphics. Sit back and be amazed.

ON RARE OCCASIONS, A PIECE OF software breaks entirely new ground. It inspires some people to find all new uses for their computers, and others buy a computer just to use the program. *MacPaint* was revolutionary, as was *PageMaker*. *Illustrator*, from Adobe Systems, the creators of PostScript, now joins them.

Illustrator is primarily a tool for professional graphic artists who spend a lot of time sketching and re-sketching, inking and re-inking—for logo designers, textbook illustrators, cartographers and architects. But its value isn't limited to professionals. Even though it sports a high price tag, it will probably find fans in the general Macintosh-using public.

A NEW LOOK AND FEEL

Illustrator doesn't work like other drawing programs. Most sketching tools (*MacDraw*, *MacDraft*, *Cricket Draw*) start with a blank screen, on which you place lines, arcs, ellipses and circles, rectangles and squares and maybe a little text. The freehand movement of the mouse simulates drawing with a pen or pencil.

It's tough reproducing an existing art work unless you have a digitizing pen. Even then, it's challenging to accurately outline complex curves. Sketching an original piece is even more troublesome.

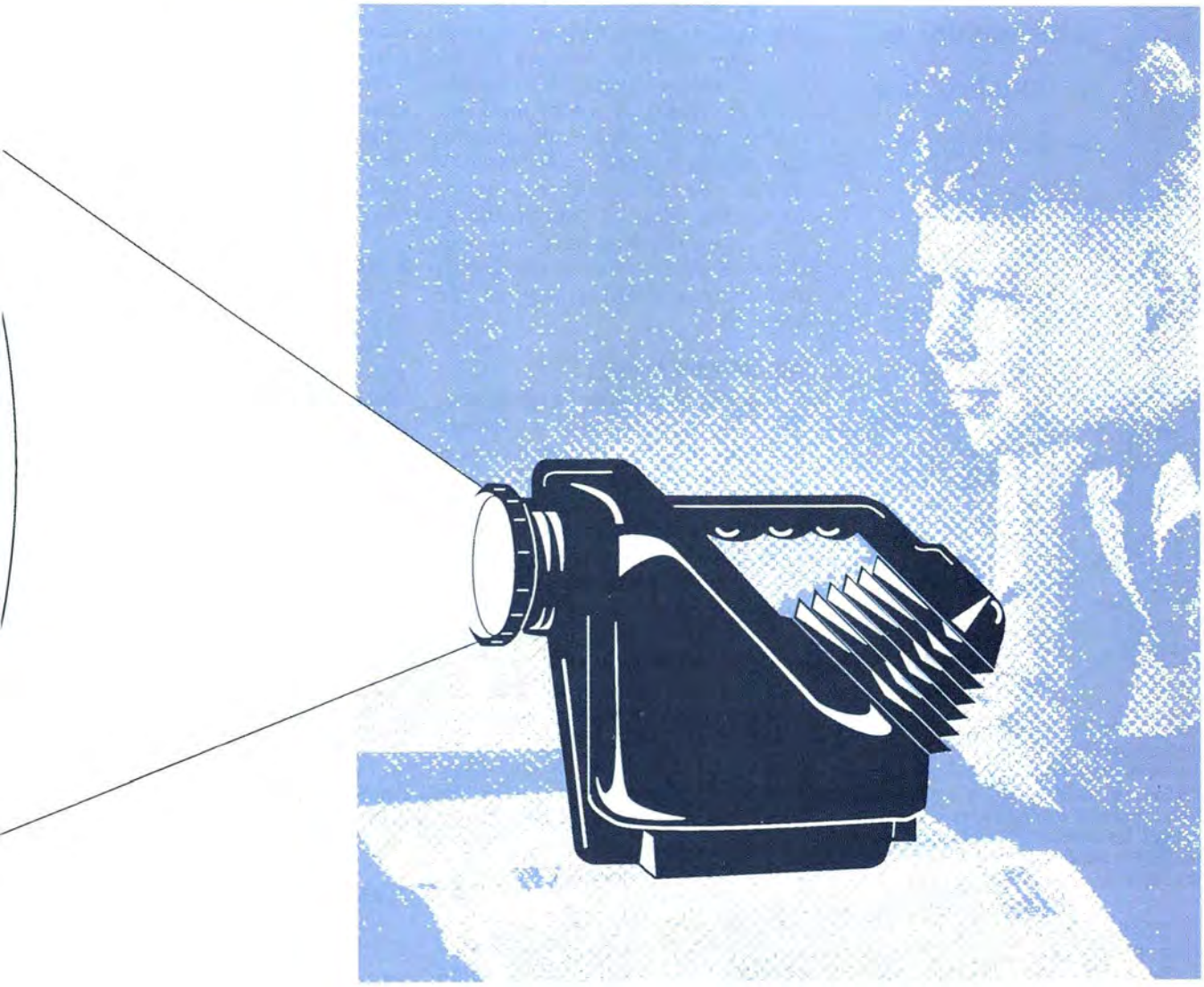
A freehand curve in "traditional" drawing programs is really a polygon containing a myriad of small line segments. When editing, you have to move dozens of points to make a minor change. This is not the case with *Illustrator*. Reshaping an outline, adding or deleting new segments, squaring off a point where two curves join or smoothing out a corner—it's all a snap.

Illustrator primarily uses "templates"—background images imported in *Paint* or PICT format. These do not become part of your art work; rather they are a guide with which to draw, like a painter's "cartoons." Virtually any Macintosh graphics program creates files in one of these two formats. However, the most versatile sources for *Illustrator* templates are scanners and digitizers. You don't need anything expensive; the templates are only 72 dots per inch (dpi) resolution. ThunderScan, MacVision or Magic will do the trick. You can also use *Illustrator* to draw from scratch, but it's easier to first sketch a simple outline on paper and digitize it in.

The tools you'll use to manipulate your template are a bit unusual. Instead of the familiar set of QuickDraw tools, *Illustrator*'s toolbox palette only has a pen, a circle and a square. The pen does the lion's share of the work. It draws curves, Bezier curves and, oh yes, straight lines.

Other tools "transform" shapes by scaling (changing the size), rotating, shearing (shifting an object's underlying coordinates so the X and Y axes are no longer perpendicular) and reflecting (making mirror images). In addition, a pointer tool selects, a hand tool scrolls, a magnifying glass zooms from 1/16 of actual size to 16 times actual size and a page alignment tool places art where you want it.

BY HENRY BORTMAN



IAN McKINNELL

THE SHAPE OF THINGS TO COME

I use a scanner whenever possible. But one of the drawbacks of scanners is that it's difficult to align a page properly so that the X and Y axes are on target in the scanned image. To compensate, use the Draw layer of *SuperPaint* to place a horizontal baseline, and then use the Free Rotate feature of the Paint layer to line up the image or images correctly. This is not always necessary, but it makes it easier to work with images that contain straight vertical or horizontal lines.

In *Illustrator*, you use the pen tool to "anchor" the endpoints of curves and lines. You then drag direction lines—thin rules with little black-filled circles on the end—out of the anchor points to establish the direction of the curve. This feels strange at first, and it will take practice before you get the knack. Once you do, shaping even the most complex curves will be quick and easy.

Adding new anchor points usually yields oddball curves. You will have to reshape nearly every curve by dragging direction lines. But the response of the screen is very smooth and virtually instantaneous. It's also fun to watch—one of the better Macintosh shows.

FOLLOWING THE PATH

When drawing with *Illustrator* you are actually defining a "path"—PostScript's term for the outline of a shape. This path-construction approach is even more flexible than *Cricket Draw*. It makes the task of modifying a drawing effortless.

Corners are also easy to create. Normally when you drag direction lines out of an anchor point, the two endpoints move as a single straight line. This guarantees smooth transitions from one curve to the next. By holding down the Option key when dragging a direction line, the line it makes "folds" in the middle to make a corner. Once a corner is created, you cannot smooth it out. You have to remove the two corner segments and redraw them as one or more curves. But this is a trivial task since

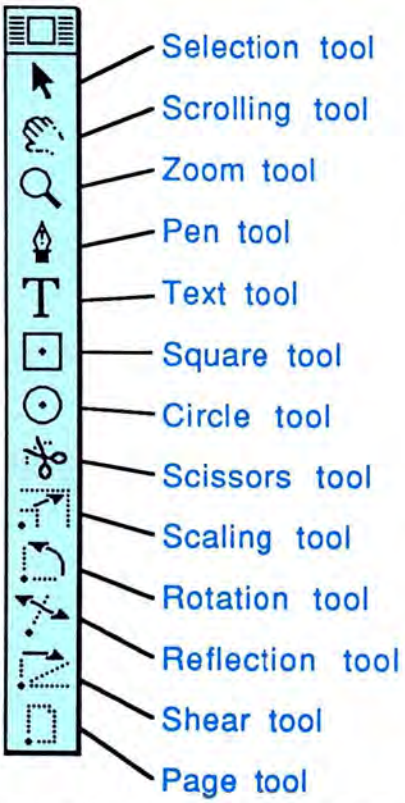


Figure 1. The *Illustrator* Toolbox. The first three tools are used for navigating throughout an *Illustrator* document. Most drawing is done with the pen tool, while the text, square and circle tools are used to create their respective objects. The remaining "manipulation" tools are used to maneuver existing objects into desired form.

removing and adding segments to a path is so easy.

Other path manipulation tools include: a Snap-To-Point feature that aligns two points that are already close to one another; a Join command that fuses those points into a single point combining the previously distinct line/curve segments into one continuous path; and an Average command that moves two points to a point halfway between them.

Once you have drawn the path, the Paint dialog box can be used to flesh out the sketch. Paths can be either stroked (outlined) and/or filled. Control over lines include: setting the gray shade of an outline ("% Black"), the thickness in points ("Weight"); whether its open-ended segments are round or square at the ends ("Caps"); whether segments join with a miter, a rounded corner, or a beveled corner ("Joins"); and several other attributes.

Illustrator's Artwork modes allow you to draw with or without templates. But the Artwork modes only reveal your paths. You cannot view the effects of any of the Paint dialog settings. Since all drawing and editing is done in the Artwork modes, you must use Preview mode to see the effect of your modifications. You can also have two windows on-screen simultaneously, each displaying a different view of the same file.

THE OPTIONS MARKET

Unlike other drawing programs, *Illustrator* lets you specify a reference point for resizing, reshaping or otherwise transforming an outline. For example, if you are rotating a square, you are not stuck with the center of the square as the center of the rotation. You can rotate it from a corner, or any other point on the page.

To transform something, select a path, or portion of a path, click a tool and then click on the reference point. Hold down the Option key when you click on the reference point, and a dialog box will allow you to enter precise values for the transformation. Otherwise, use the mouse to manipulate the object. Again, the response is rapid.

Illustrator leaves the original lines on the screen when scaling (or rotating, shearing or reflecting). This can be annoying. I don't find it useful and would prefer that the original path disappear, or at least dim, while dragging. If the drawing doesn't fit the template, simply use the scaling tool to stretch it to a new size.

The operations of the transformation tools are not always obvious or intuitive. It's easy to accidentally produce major and unexpected changes in your art work with very small motions of the mouse. Here's a tip to help retain control: The farther you are from the reference point when you click the mouse to start dragging, the finer your control will be over the changes. It's also generally best to start the drag at a point on a line at a 45-degree angle from the reference point. The tendency is to click on some part of your drawing when you start dragging, but cursor proximity to a spot on the drawing is irrelevant; what matters is where the cursor is in relation to the *reference* point. It just takes a little practice.

To make a quick copy of your path, hold down the Option key while selecting a path with the pointer tool. Drag the path to a new position and a quick copy is made in one operation.

X MARKS THE SPOT

Illustrator's scissors are the ideal tool for cartographers. They can cut a path at any point, and can select and copy any portion of that path. When drawing state maps as separate paths for example, you can duplicate shared borders for use in both documents. The southern border of one state—with X's to indicate the endpoints of *Illustrator* paths—becomes the northern border of its neighboring state. Other drawing programs cannot split off a piece of an outline and make a copy. *Illustrator* saves a lot of time by duplicating intricate freehand shapes that are shared between two objects. Incidentally, maps drawn with *Illustrator* don't have that computer-generated straight-line look because they are composed of smoothly joined Bezier curves.

A WORD'S WORTH

Illustrator takes a decidedly non-WYSIWYG approach to placing text on a page. Text is not typed directly onto the page, as it is in other drawing programs. Instead, you use the text tool to position the baseline and origin point of your text. This automatically brings up a dialog box for entering text and setting the font, point size, leading, kerning and alignment. Once you click OK, the text appears on-screen and can be manipulated with as much ease and flexibility as the paths discussed above.

Illustrator allows you to scale text to any size you like. A 24-point type can be resized closer to 50 points. However, the legibility of the screen display depends on both the point size *initially* chosen and the amount of scaling you do.

Illustrator doesn't tell you what your available screen font point sizes are, so look them up in the *System*

file before working. You get the best results when you start with an installed size that is as close to the scaled size as possible. None of this will affect the final PostScript printer output in any way. It's strictly a matter of screen legibility. However, if you print to an ImageWriter, what you see is what you get.

To resize type, use the scaling tool with the bottom left corner of the first letter as a reference point. Drag the text until it fits the template more precisely. As with path transformations, the original stays onscreen as you drag. Sometimes this is annoying. When you reduce or enlarge type only slightly, the original and the modification interfere with each other and make it difficult to see what you're doing.

One interesting graphic trick is to make a circle of text. Select the shear tool while holding down the Option key. Click on the alignment point of the text to make it the reference point for the shearing operation. A dialog box allows you to enter precise values to angle the text 30 degrees. Copy it. Use the rotation tool with the Option key in order to turn the text precisely in a succession of 30 degree rotations. By copying after each rotation, you create a circle of text.

Other refinements include adding contrast by "painting" text in different shades. Black text set against gray text will highlight your art work.

A GLITCH IN TIME

Although *Illustrator* has been available for only a short time, many of the graphic artists I know already rely on it exclusively for producing computer-generated art work. But it has shortcomings.

For one thing, *Illustrator* doesn't fully support the standard Clipboard. You can freely cut and paste objects to the Clipboard in and between *Illustrator* files. But when you need to export those files to another program, things get sticky.

Illustrator saves files in EPSF (Encapsulated PostScript Format). EPSF is a standard proposed by Jim Von Ehr of Altsys (makers of *FONTastic* and *FONTographer)*, and adopted by Altsys, Aldus and Adobe. It passes PostScript code from one application to another more easily than the standard Macintosh PICT format. As such, EPSF is a valuable new standard, because the export and import of complex PostScript code is becoming more desirable in graphics and page layout software.

You can only export *Illustrator* documents to applications that can import EPSF files. At press time, there is exactly one program that accomplishes this on the Mac: Quark *Xpress*. By the time you read this, *PageMaker* 2.0 will also be on the list. (*PageMaker* 1.0 for the IBM PC already supports EPSF.) Applications planning future support for EPSF include, on the Mac: *Ready, Set, Go!, Scoop, MacPublisher III, Ragtime, FullWrite Professional, Word 3.0* and *MORE;* and *Ventura Publisher* 1.1 for the PC.

However, *Illustrator*'s Clipboard can't handle EPSF files. There is a way around this. An EPSF file has two parts, the PostScript code itself and a bit-map image. Although you can't transfer the PostScript code via the Clipboard, you can transfer the bit-map. Hold down the Option key prior to selecting CUT or COPY from *Illustrator*'s Edit menu, and you'll place a bit-map image of your drawing on the Clipboard in a form that can then be pasted into the Scrapbook. This image will look exactly like the one you see in *Illustrator*'s Preview mode. If this bit-map image is subsequently printed on a LaserWriter or a Linotronic, it won't get any better. It will be like printing a *MacPaint* document on a high-resolution printer. To get the full benefit of a PostScript printer, you need to send it PostScript—not bit-map. The only way to do that is to print directly from *Illustrator* or a PostScript downloading program, or use one of the applications that can import EPSF files.

I'm sure Adobe has its reasons for not supporting the standard Macintosh Clipboard, but it seems ludicrous that the most advanced drawing program available for the Macintosh produces art work that can't be imported into most other

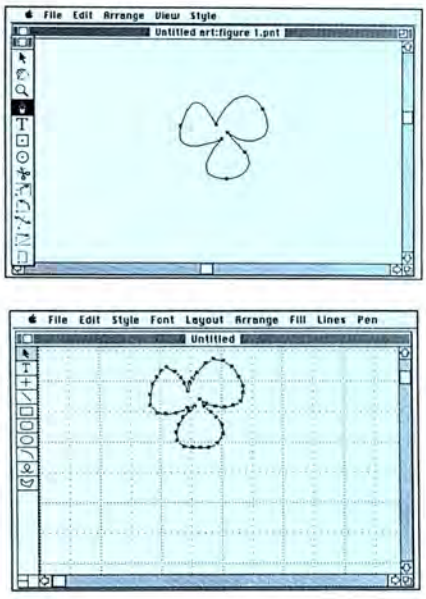


Figure 2. Because *Illustrator* uses Bezier curves to describe an object's outline, it requires fewer definition points. Notice how the same object drawn in *MacDraw* requires over 40 pieces to the shape, while *Illustrator* requires seven.

programs. You aren't even warned about this in the manual. There is a half-page section on "Pasting Preview images into *non-Illustrator* documents," which is buried in a chapter entitled "Merging *Illustrator* Documents." But nothing is said anywhere about *Illustrator*'s lack of support for one of the Mac's most basic features: the ability to cut and paste between programs via the Clipboard. Tacky.

Another surprising deficiency in *Illustrator* is the lack of a grid. You can draw your own grid lines by using the Paint dialog to set Stroke to None so that they don't print. But this is a tedious task. Even with your own hand-drawn grid, getting things to line up can be difficult. *Illustrator* would be more efficient, especially for mathematically precise designs, if an invisible snap-to background grid could be set to the desired spacing.

Adobe also left out an alignment function and a show size feature. The lack of alignment tools can be worked around by drawing your own alignment lines, but I'd rather have the computer do it. Likewise, it's possible to draw a circle to a precise size by carefully using rulers,

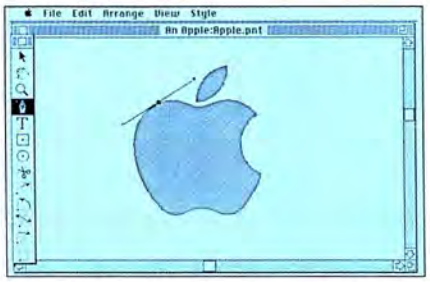


Figure 3a. In *Illustrator*, you draw shapes by placing anchor points and dragging direction lines out of the anchor points to define the shape of the curve segments that connect them. Here, an anchor point was placed along a curve and a direction line was dragged from it.

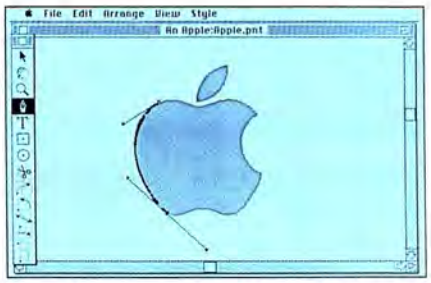


Figure 3b. The curve is shaped by specifying another anchor point and dragging the direction point so that the curve fits the underlying template.

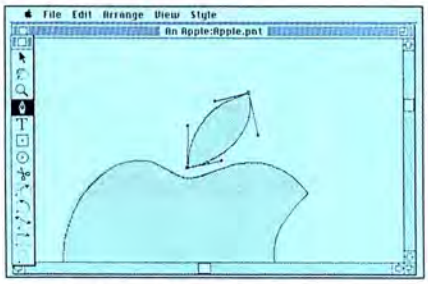
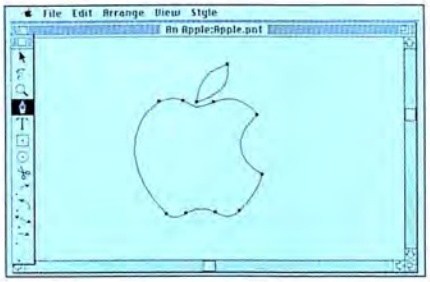


Figure 3c. Normally curve segments join together in a smooth transition. If you hold down the Option key while dragging the direction point, you can make a sharp corner.



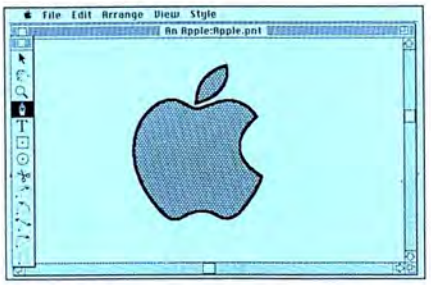


Figure 3d & 3e. You can view the art work with a template behind it (as the other figures show), as art work only (as shown here) or in Preview mode which shows you the gray shades of lines and fills, and the widths of lines.

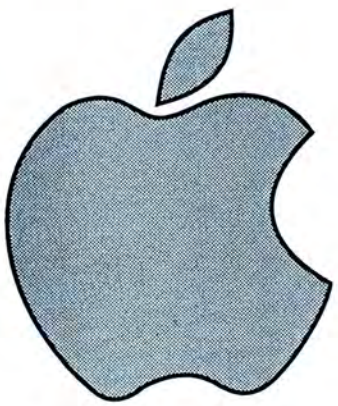


Figure 3f. The final LaserWriter output.

but it would be easier if its size showed up on-screen as you drew it. Or if there were a dialog box to ask for the radius of the desired circle.

Layering is difficult. Layering may be one of *Illustrator*'s most powerful features, but it is also one of the most difficult to control. Adobe separated the drawing of an image's outlines from the previewing of its final appearance. When you are in Artwork Only or Artwork & Template mode, you see only the outlines of paths, with no clue as to any stroking or painting characteristics. This has the advantage of letting you view multiple layers of a drawing at once, and of manipulating layered paths with relative ease.

In many drawing programs, it's sometimes impossible to "get at" the bottom layers without undoing your drawing. In *Illustrator*, it's easy to get at the layers, but harder to tell what's on top of what, unless you go into Preview mode. And Preview is slow. Very slow.

It's possible to have both Artwork and Preview views on-screen simultaneously. But this instant feedback makes a small screen very crowded.

The cut and paste approach that *Illustrator* uses complicates layering even further. To change the order of layered art, *Illustrator* requires you to cut it to the Clipboard, select the object in front of or behind it and then use either the Paste In Front or Paste In Back command. In a complex drawing it can get extremely difficult to tell what's in front of what.

The next version would benefit from, at a minimum, adding the standard Bring To Front and Send To Back commands. Even better, how about duplicating a *GraphicWorks* feature that lets you "nudge" an object up or down one layer at a time? Or an optional numeric readout that lists the front-to-back position of a selected object?

Scrolling is jumpy. Fortunately, *Illustrator* does have automatic scrolling. Unfortunately, it takes place in rather large increments. It's not hard to have your drawing go flying away while you are trying to drag a direction point to fit an uncooperative curve. You can't even scroll in small increments by using the scroll bar arrows or the hand tool.

Text handling could also use improvement. *Illustrator*'s text handling abilities are surprisingly limited, considering what PostScript is capable of. Scaling, shearing, rotation and reflection of text are all handled masterfully. But just try placing a string of text along a path—something *Cricket Draw* does with two or three keystrokes. In *Illustrator*, you must create, rotate and place each character as an individual text block.

More surprising than the lack of automatic text-along-a-path capability is the program's weak kerning. Considering the fact that Adobe built very powerful kerning features

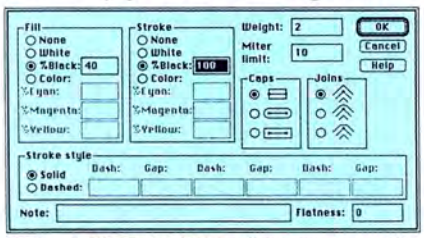


Figure 4. The Paint dialog allows you to set all the characteristics of the "paths" you draw that affect their final appearance. Here, the settings for the apple (in Figure 3) are shown: Fill is set to 40% black (gray), and Stroke (outline) is set to 100% black with a Weight (line width) of 2 points.

True Stories in Typesetting

"Linotype and Macintosh™ gave us the edge in text and graphics."

Bert Monroy

Weissberg Associates, in New York City, is a growing ad agency which specializes in retail advertising. Bert Monroy, technical consultant, tells how an in-house text and graphics system gives Weissberg a competitive edge.

"In our business, time is of the essence."

"We specialize in retail advertising, where fast turnaround time is an absolute necessity.

"You can have a sale or some kind of special event, it's Tuesday afternoon and you have to have finished material to the newspaper by that Friday so it can run on Sunday. That's a tremendous time constraint and if you use outside suppliers, you have to pay 100% overtime. Small agencies just can't afford to have those kind of costs.

"We needed a faster, more economical way to service our clients."

"We decided to automate our production."

"Weissberg Associates wanted an in-house computer-text-and-graphics system to cut down on production costs and to enhance the quality of their output. I primarily started with Macintoshes because of their graphics capabilities.

"Then I had to choose output devices that could produce extraordinary text and graphics, and were still completely compatible with the Macintoshes. I knew Linotype had the right equipment available but it had only recently been introduced.

"We purchased the Series 100 equipment including the PostScript™ RIP, the ML-314 Processor and of course the Linotronic 300 laser imagesetters, which can set both text and graphics."

"We got much more than we bargained for."

"Naturally we had high-quality output immediately. But with Linotype's Series 100 system, our artists could cut down on time and materials, too. Before, the artist only prepared the layout, but now he can do his own mechanicals – on screen! He can see the type, play with it, rejustify it – even move it around a million ways if he wants to.

"Our artists create images on the computer and do the work in one to two days at the most, with no outside cost. And if they want to make revisions, it's easy. Everything is internal so we have more control, and cost- and time-savings are phenomenal. And because we can offer lower costs to clients as a result, we have an edge on the competition.

"With in-house output, our clients profit from savings in time, cost and materials, and we come out one step ahead of other agencies. Linotype has helped us bring our production in-house very economically, and that 'one step' has become the foothold for our future growth."

If you'd like to know more about the Linotronic 300, 100 or the Linotronic 500 wide-line (108-pica) laser imagesetters, contact: Linotype Company, 425 Oser Avenue, Hauppauge, NY 11788. Or call (516) 434-2016. In Canada, (416) 890-1809. And let our quality speak for itself.

This ad was composed on a Macintosh computer and output on a Linotronic 300 laser imagesetter.

Linotype

Please circle 23 on reader service card.

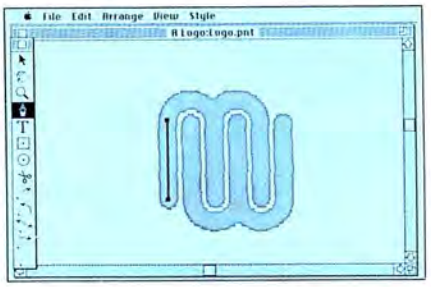


Figure 5a. The reconstruction of a logo, *Illustrator* style. When creating *Illustrator* art, the first thing you must do is plan your approach. Often a minute's thought will save you several minutes work. We will begin this logo by creating a straight line.

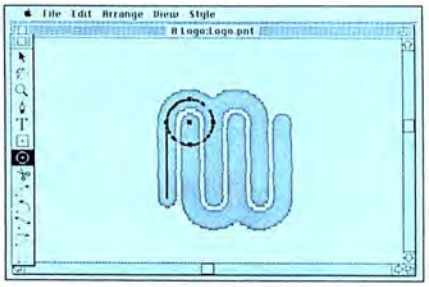


Figure 5b. Next, create a circle with the desired arc.

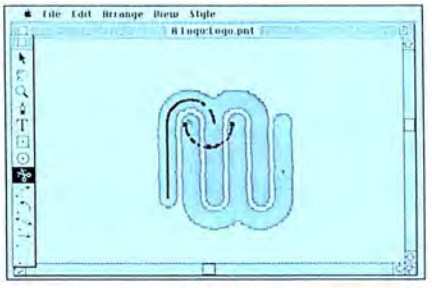


Figure 5c. And then use the scissors tool to move the bottom piece of the path.

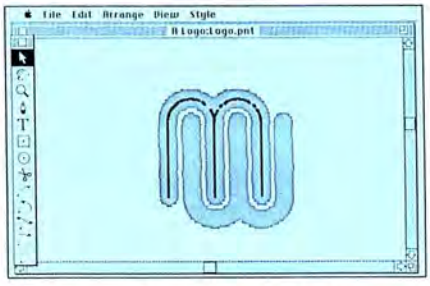


Figure 5d. After some cutting and pasting, the top portion of the logo is finished

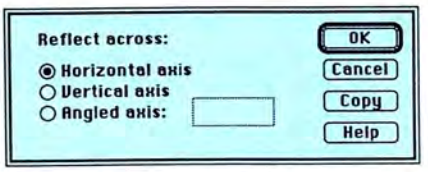


Figure 5e. By using the reflect tool, you can create a copy of the path and place the copy on the other side of a specified horizontal axis.

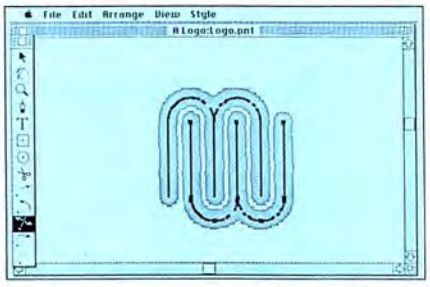


Figure 5f. Now you can position the path to fit the desired space.

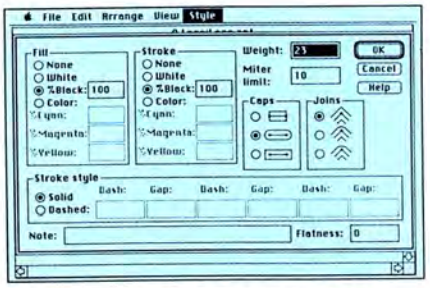


Figure 5g. Giving both paths a weight of 23 and rounded caps will give the logo the desired dimensions.

Figure 5h. Here is the final LaserWriter output. Notice how the final logo appears with the fine curves.

into PostScript, it's a mystery why they didn't take advantage of them in *Illustrator*. The Type dialog specifies a value for track kerning (adding or subtracting an equal amount of space between all characters), but pairwise kerning and manual kerning are not supported.

When certain pairs of letters, such as AV or To, appear next to each other, they can look too spaced out. Pairwise kerning automatically reduces the space between such pairs each time they occur in your text. Kerning is an important feature for high-quality graphic arts design. Somewhere in the neighborhood of 90 kerning pairs are encoded in each PostScript font produced by Adobe. This information is even loaded into your *System* file whenever you use the *Font/DA Mover* to install an Adobe font. Since a number of applications are now providing support for pairwise kerning, it seems strange that *Illustrator* does not.

But even a kerning pair table, which contains only a predetermined set of letter pairs, is insufficient. An artist working with type wants to control the space between every pair of characters with a great deal of manual precision. I expected *Illustrator* to lead the pack in this area. The only workaround is to make each character a separate text block and drag it into place. The absence of alignment tools makes this a formidable task.

POSTSCRIPT APPENDIX

Since *Illustrator* was created by the same people who wrote the PostScript page description language, it's not surprising that *Illustrator* uses PostScript efficiently. The relationship is quite simple: *Illustrator* generates PostScript. Period. Its default file type is simply a text file, with PostScript code in it. You can download these files with a PostScript downloader just like you can any other PostScript file. And you can edit them! *Illustrator* can also save files in either of two EPSF formats—one for the Mac, one for the PC. These are also PostScript files, although not editable; and they contain a bit-mapped image of the art work that the PostScript describes.

Illustrator not only generates PostScript as printed output, it also uses PostScript to draw to the screen. *Illustrator* does not use QuickDraw with one minor exception—the black dots on the ends of the direction lines. Does that mean that you can write your own PostScript program, feed it to *Illustrator* and have it display your image on the screen? Unfortunately not—unless you can write PostScript the same way that *Illustrator* writes it.

Most people will be satisfied with

Illustrator and won't want to modify the PostScript code it generates. But for those of you who do, you'll need to understand *Illustrator*'s PostScript "header." This is a set of procedures (macros) that *Illustrator* places as a preamble to each document. The *Illustrator* header was designed for maximum efficiency, i.e., quick printing. The point is that efficient code is not necessarily easy-to-read code. Since it is not easy to read, it is not easy to modify, either.

But some people won't be able to resist trying. If you are in that category, there are two things that will make your job easier. The first is that the Paint dialog has a text box labelled "Notes." Any text placed in this box becomes a comment in the PostScript file *Illustrator* generates. The comment appears just above the PostScript description of the object it refers to. If you like, you can have a comment for each object in your drawing.

The second aid to modifying *Illustrator*-generated code is a document available from Adobe which fully explains the mysteries of the *Illustrator* header. If you are going to wade around in an *Illustrator* file, this document will be invaluable. Liberal use of comments together with the header description document will enhance the art work you create. You could, for example, apply custom screens to gray-shaded areas in your art work. Or fill an object with a fountain (graduated gray scale).

A warning is in order. If you modify a file generated by *Illustrator*, *Illustrator* will no longer be able to read it, unless you correctly use the macros in the PostScript header. If you add your own effects, *Illustrator* will generate an error trying to read PostScript code it can't understand.

WRITE ON

Illustrator is not an easy program to learn, but Adobe has eased the burden with excellent documentation—among the best I have seen. The user manual is well illustrated, and difficult concepts are explained in simple and clear language. There is a lengthy tutorial that takes you step by step from the simple to the complex. Numerous sample documents provide practice and the manual anticipates potential problems that first-time users are likely to encounter.

But even the best-written tutorial would have a hard time teaching you how *Illustrator* works. You really have to see it to understand, so Adobe includes a video tape (VHS) of John Warnock, president of the company, showing off the product. Warnock displays some of the art work produced with *Illustrator* and demonstrates the program's main

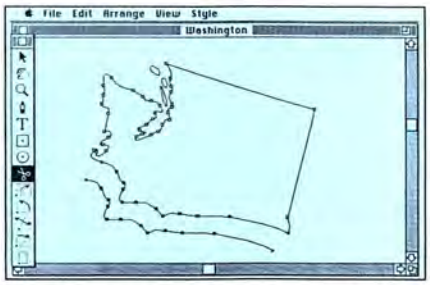
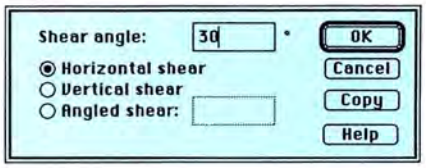


Figure 6. *Illustrator*'s ability to cut, copy and rejoin portions of a path makes it an ideal tool for cartography. Here, Washington state's southern border is copied and forms the basis for drawing the outline of Oregon, without sacrificing the ability to treat each state's outline as a closed, fillable object.

Figure 7a & 7b. Text in *Illustrator* is entered in a dialog box, not directly on the drawing. Type, point size, leading, alignment and limited kerning information are established here. After clicking OK, the text will appear.

Figure 7c. Use the scaling tool to resize the text to the desired size.



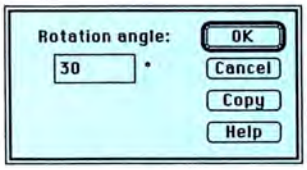


Figure 7d. Shown are the two dialog boxes for the Shear tool and the Rotation tool. You get to these dialogs by first clicking on the tool, and then while holding down the Option key, clicking on the reference point.

Figure 7e. The results of doing both manipulations as shown in Figure 7d.

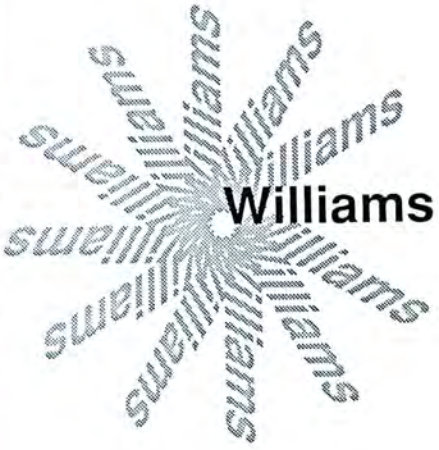


Figure 7f. After rotating the text a number of times and shading the text, you can easily produce some eye-catching results.

features by creating a few simple drawings. The video is not really a tutorial; it goes by too fast. But it does let you see how *Illustrator* works, which helps you get a feel for the product.

Illustrator also has extensive online help. While the information contained here is thorough and well-illustrated, the method of access is clumsy. When you click a Help button, a standard file dialog asks you to find the topic you are interested in. This is too time consuming. A program as sophisticated as *Illustrator* deserves more context-sensitive online help.

Adobe's support for their new venture into software publishing is excellent. While writing this review, I called their technical support number several times without identifying myself as a reviewer. I asked both basic and very technical questions. Each time I got a thorough and patient answer. If the person I was talking to didn't know the answer, I was transferred to someone who did, or was called back promptly.

On the down side, *Illustrator*'s copy protection requires the use of a key disk. If you send in your registration card, you get back an unprotected copy of the program. As a scheme for increasing registered users, this might work. As a method of protecting the product against illegal duplication, it is ridiculous. But as a tactic for annoying users, it is sure to succeed.

Illustrator is a unique drawing program that no professional graphics designer or technical artist will want to be without. It's so good that I will not be in the least bit surprised if people start buying Macintoshes just so they can use *Illustrator*. Non-professionals who do a lot of graphics work will also want to consider *Illustrator* seriously. But it is *not* for casual use. The interface, while well-designed and very easy and efficient to use once you know it, is not easy to learn. Unlike *MacPaint*, you won't want to give it to your 5 year-old.

If you decide to buy it, the odds are slim that you'll be disappointed with its performance. If you don't decide to buy it, treat yourself to an experience: make a trip to your local computer dealer and just watch it. After you do, you might change your mind.

Figure 8. The power of *Illustrator* is most evident when artwork is printed on a high-resolution device such as the 1270 dpi Allied Linotronic L100. These samples are from Adobe's Gallery, a collection of *Illustrator* artwork which registered users receive free on two 800K disks.

HENRY BORTMAN IS A FREELANCE WRITER IN SAN FRANCISCO. HE IS A FREQUENT CONTRIBUTOR TO MACUSER.

MACUSER RATING

Illustrator ★★★★½

Follows Mac Interface	■■■□□
Printed Documentation	■■■■■
On-Screen Help	■■■■□
Performance	■■■■■
Support	■■■■■
Customer Value	■■■■□

Comments: A professional drawing application ideally suited for high-quality technical illustration, cartography and graphic design. **Best Features:** Makes drawing complex shapes easy; provides great flexibility for editing art work; well written tutorial. **Worst Features:** Doesn't support standard Clipboard/Scrapbook; no alignment grid; no pairwise or manual kerning. **List Price:** $495. Published by Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. (415) 852-0271. Requires 512K+. CP; requires key disk.

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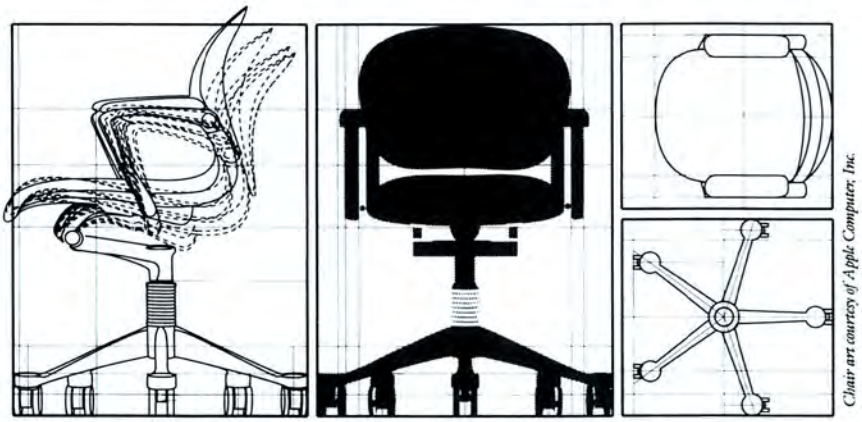
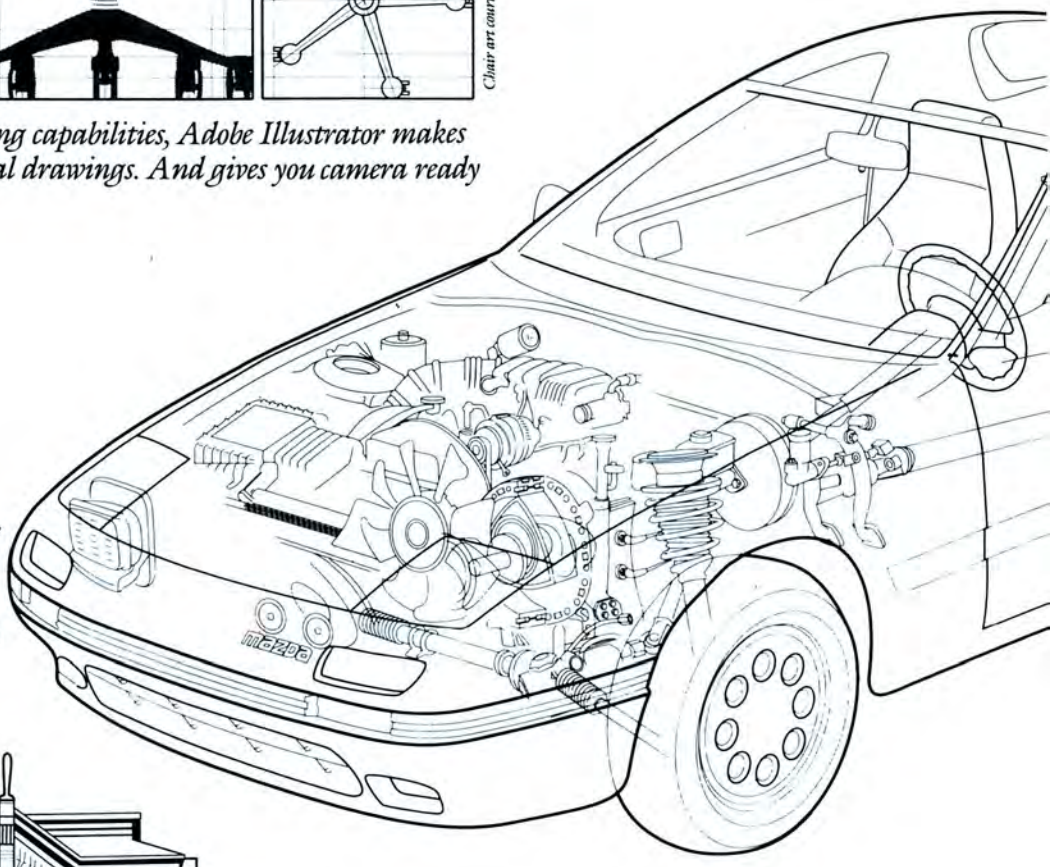


Chair art courtesy of Apple Computer, Inc.

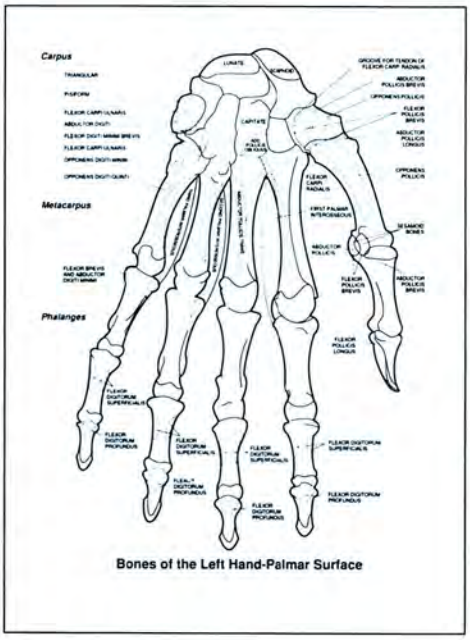
Other draw and paint programs also let you add captions. But none of them can put those captions next to the sharpest, cleanest lines and curves on the map.

With its powerful curve drawing capabilities, Adobe Illustrator makes short work of the most technical drawings. And gives you camera ready output right at your desk.



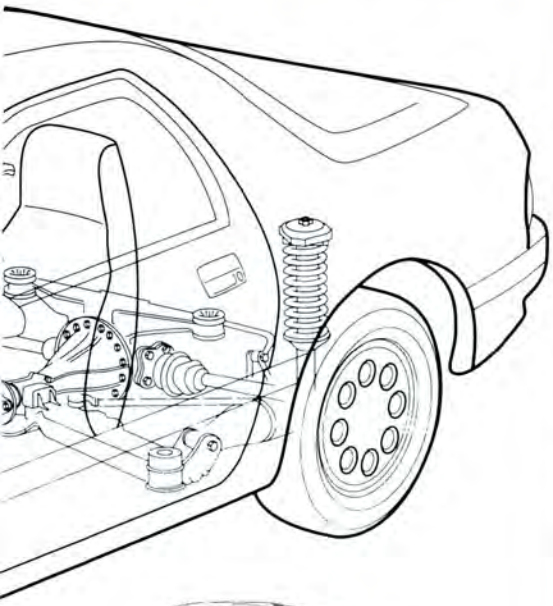
Share your drawing with other users. And if anyone wants to change it—no problem—the Adobe Illustrator can give you another perfect original. Fast.

Start with a blueprint or just a dream and the Adobe Illustrator can help you build out the rest. Straight and true.



Bones of the Left Hand-Palmar Surface

For producing the finest details, all kinds of line weights, even typeset captions with precise control, no other program can touch it.



Unlike other draw and paint programs, the Adobe Illustrator uses lines and curves to form an image, instead of dots. So there's really no limit to the ideas you can hatch. Or cross-hatch.

GRAB A BITE TONIGHT

Change is the name of the game in logo design. And the Adobe Illustrator can make changes in a fraction of the time it would take by hand. And not a big fraction, either.

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Here's how it works.

Unlike other programs, the Adobe Illustrator doesn't build an illustration dot by dot. It uses precise *lines and curves* instead.

Secondly, nothing has to be drawn from scratch. You and your Macintosh Plus,™ SE™ or II,™ can start with the scanned image of a photograph, logotype, blueprint, something from your scrap file, even a rough sketch.

Once in the computer, this scanned image becomes your guide. You trace over it to construct the new image. Then, once you have the image you want, you can manipulate it in ways possible only with a computer—scale it, rotate it, even combine it with other Adobe Illustrator images.

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But it's also a powerful new production tool. One that automates the art production process.

Imagine, if you will, getting camera ready art out of a Macintosh. (We did. You're looking at it.)

Or being able to change that art radically—as easily as you'd edit a letter—and getting new art, literally, within minutes.

Imagine keeping every image in small electronic "art files," and being able to recall, refine, combine or change images, at any time, in any way.

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Typecasting

Have you ever thought of going professional with desktop publishing? Better read this first.

BY GREGORY WASSON

NOT ANOTHER ARTICLE ABOUT desktop publishing! Well, yes. And here's why.

A great deal of attention is being paid to the corporate/big business applications and potential benefits of desktop publishing (DTP). *Publish!*, one of the first magazines devoted exclusively to DTP, is increasingly targeting that market to the exclusion of individual users and entrepreneurs. In some ways, it's hard to blame them. Money talks. And money resides with the corporations. The IBM monolith and its entrenched position in big business are at least partly responsible for this attitude.

The coming months, especially after the long-awaited release of the IBM version of *PageMaker*, will doubtless see this editorial slant strengthened throughout computer publications, even Macintosh publications, that deal with this new tool for inexpensive typesetting. Everybody is scrambling for a piece of the pie.

But DTP, a multifaceted beast, includes many creative individuals doing their own thing outside the pale of corporate America—people who, to put it bluntly, are trying, or thinking of trying, to make a buck in the expanding field of freelance DTP typesetting.

GETTING STARTED

Back in mid-1985 I first caught wind of what was about to become the most important development in the future of the Macintosh since it first appeared in 1984: Aldus' *PageMaker* and desktop publishing. At the time I was doing grunt work for a San Francisco-based non-profit organization. I quickly saw the advantages of the new technology, especially for similar non-profit groups who could barely afford their rent, much less the exorbitant costs of typesetting their newsletters and promotional literature. A friend and I purchased a Mac, *PageMaker*, and eventually added on a hard disk and *Just Text*. In November of 1985, I quit my job and cheerfully, somewhat naively embarked on a career in DTP as a freelance typesetter.

HOSTILITY TO DTP

One of the first lessons you'll learn as you try to get involved in DTP freelancing is that not everyone shares your enthusiasm. Resistance to innovation isn't new, particularly in the typesetting and printing industries. Gutenburg had run-ins with ecclesiastical and civil authorities when he introduced his method of setting type. Linotype, offset and photo typesetting all met with considerable, sometimes violent hostility.

My father, a typesetter and printer for many years, remembers speaking to a representative of Heidelberg, a company that once produced some of the best letterpress equipment. The conversation was about the growing popularity of offset presses. The representative replied by pounding the table and declaring: "Ve vill nefer make offset!" Today Heidelberg is one of the leading producers of offset presses in the world.

The present hostility of traditional typesetters and art directors to DTP, the latest "new kid in town," helps create and encourage the hesitation of potential clients. One of my first bids on a typesetting job was turned down when the company's resident art director persuaded management that I could not kern the type with my equipment. Despite my assertions that I could indeed do kerning (with *Just Text*), the bosses would not reconsider my bid and suggested that perhaps I did not understand what their art director meant by kerning. Needless to say, it was the management that didn't understand.

This example points up something worth remembering. At the moment DTP is associated closely with *PageMaker*. The two words are virtually synonymous in many people's minds. And the defects of *PageMaker* color the public's perception of DTP as a whole. Nearly every negative comment I've heard about DTP over the last several months has ultimately boiled down to the shortcomings of this program. I've heard the phrase "But *PageMaker* can't do this" so many times that it's easy to forget that there are other software options, or that *PageMaker* 2.0 will soon apparently overcome some defects of version 1.2.

LINOTRONIC TO THE RESCUE

There are a number of ways to diminish initial hostility from poten-

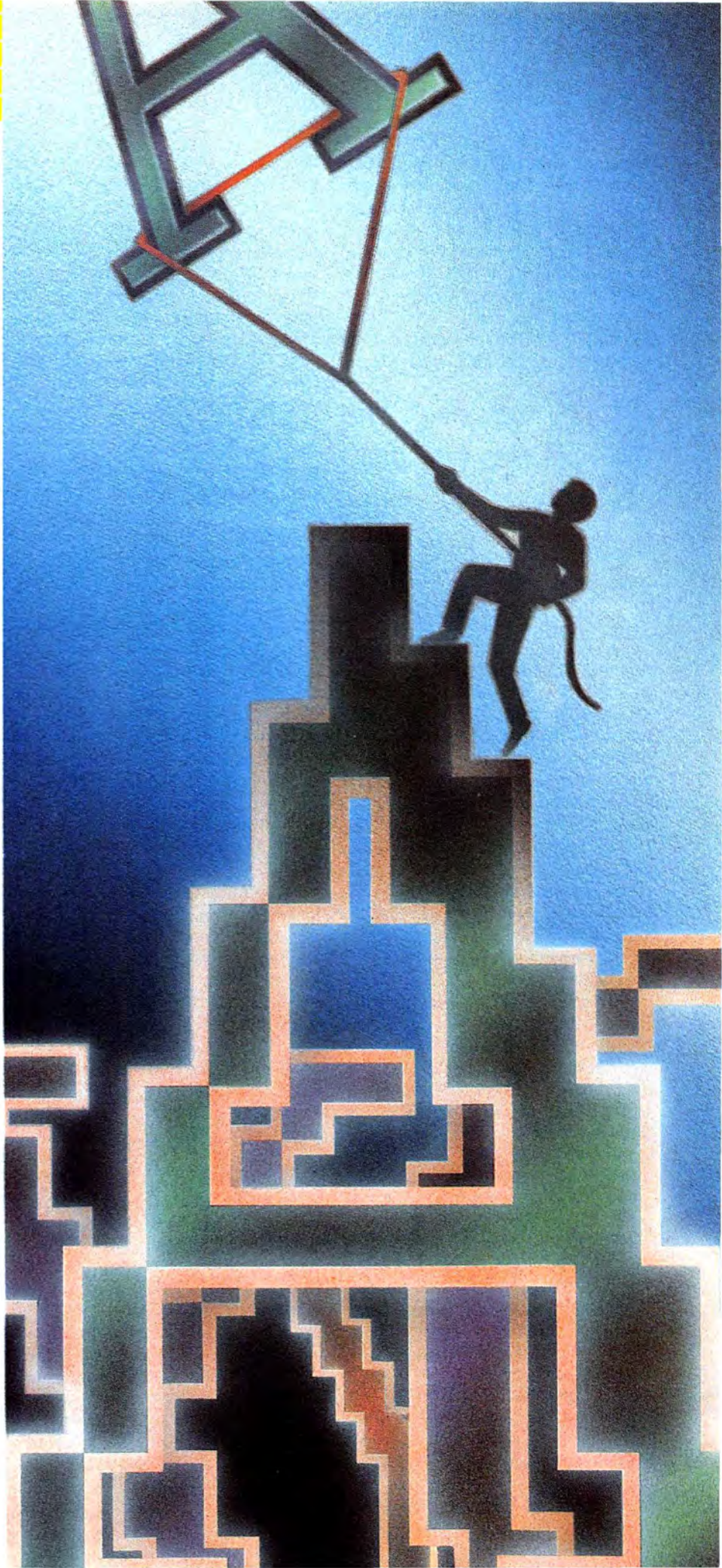
tial customers. If you have access to a Linotronic 100 or 300, make this clear. Some clients might never consider LaserWriter output, but will readily accept that of the Linotronic. If you don't have access to a Linotronic, don't despair. Try to convince prospective customers that the quality of the LaserWriter *is* sufficient for *some* types of jobs, or that the somewhat inferior quality is more than outweighed by the savings involved. Or send your jobs long distance via modem to one of the various DTP typesetting services throughout the country (they often promise one-day turnaround).

Also remember that LaserWriter output improves, sometimes considerably, when reproduced by offset. Show the customer a sample original output alongside the final printed job. The latter is usually sharper. Its enhanced quality may be enough to convince the client to settle for LaserWriter material. Remember also that outputting on the Linotronic, especially if you use downloadable fonts such as Garamond, can drastically increase your expenses. Outputting on a Linotronic with just two downloaded fonts can sometimes increase your output time ten-fold.

If a client has an art director, also bear in mind that the latter might well regard you as a threat or interloper. One way to work around this attitude is to offer typeset material in the form of traditional galleys, rather than page composition. Let them do it the hard way if they want to. Just because you *can* provide page composition, doesn't mean you *have* to.

SOFTWARE/HARDWARE BLUES

So you have the software. You've spent considerable money. But it still won't work for a particular job or task. Or a client's specs seem impossible to execute due to shortcomings in your software. Don't give up. Just because there are some apparent problems with a popular product (e.g., lack of kerning or of hyphen-



ation and justification), don't throw in the towel. Other software might solve it, or the program you already own might have some capabilities you haven't uncovered.

For example, my first project was producing a 12-page newsletter that included articles written in Esperanto. This is a language written in the Roman alphabet, but some letters require unusual accents (e.g., a breve over the "u"). The accents are found in the standard LaserWriter fonts, but there was no way I could place them over the right letters. I solved the problem because I took the time to press the issue with software developers. One of them, William Bates, creator of *JustText,* listened and told me about an up-to-then undocumented feature of his program that would allow me to do what I wanted. If I hadn't persevered, I would still be pasting in the accents with Letraset.

If you are just starting out, don't expect to make money on your first jobs.

A LaserWriter is a LaserWriter is a LaserWriter? Not necessarily so. Just because a job initially came out perfect doesn't mean that the next pull on a different printer or even on the same printer in the same shop will come out just as good. Quality on individual LaserWriters changes at the shops from day to day due to excessive use, overheating and the normal deterioration of the toner cartridge. You cannot count on consistency. This can cause problems, particularly when you are outputting a long job or trying to impress a hostile art director.

An 154-page book I typeset earlier this year was initially to be output entirely on the LaserWriter. The author and publisher had already given their approval to the initial examples of LaserWriter material. After four complete pulls, however, the project almost had to be junked. The output pages differed wildly in terms of darkness and legibility. Generally speaking, the type on the first pages was crisper than that on the last pages. Most seriously, the graphic designer, who was doing paste-up work on the book, discovered that the leading was inconsistent in the job. It slowly crept as you read down the page. It wasn't always perceptible to the naked eye. It became very apparent, however, when the designer attempted some manual paste-up. The lines simply did not always line up across the page.

At first I thought that there must be some sort of bug in the software (I was using *PageMaker*), but one glance at the PostScript for some of the worst pages (see page 128 of your *PageMaker* manual for details on how to do this) showed uniform leading. I tried a total of five LaserWriters at two different shops. In every case the leading was inconsistent. As a last resort I decided to try the Linotronic. The pages came out perfect. The leading was an even 10.5 points throughout the job. One DTP typesetter suggested that the cause might be with the page advancing more rapidly than the LaserWriter's drum. Possibly, but I don't have the answer. This is a potential problem, however, that you should keep in mind. For a typical newsletter this uneven leading would not cause a lot of problems. But if you have to do high-quality work or are producing galleys for a graphic designer where precise leading might be needed, go for final output on the Linotronic and charge accordingly.

THE CHECKLIST

There are a number of matters and problems to consider before starting out in DTP typesetting:

1) Most importantly, learn the basics of your trade. Pick up and read a standard book, such as *Pocket Pal* (New York: International Paper Company) and know what you're talking about. Take a graphic arts class at your nearest adult education center. Learn the rudimentary facts and conventions of proofreading marks and typesetting terms.

Don't let your initial enthusiasm about DTP blind you to the fact that you don't know everything or make you think that DTP makes the accomplishments of the past irrelevant. Typesetting is an art and a tradition. If you can't respect that, don't get involved. And remember that your customers, often accustomed to dealing with traditional typesetters, won't give you the time of day if you can't talk with them in a conventional manner. If points and picas aren't your bag, restrict yourself to party invitations.

2) If you are just starting out, don't expect to make money on your first jobs. You'll likely spend more than you take in. Assume that you will have to spend money to develop your skills, especially if you're planning to do any monkeying around with PostScript.

3) Allow yourself plenty of time for the initial setup of an ongoing publication, such as a newsletter. Save such templates on disk and back them up.

4) Don't undercharge just because you're doing DTP. Compare your services and quality to those of traditional typesetters in your area. Charge what the market will bear, but remember that one of the attractions of DTP to customers is its lower cost. It's supposed to save them money. On large projects, consider drawing up a contract in order to protect yourself. One of the terms should definitely be a down payment (1/3 of the total estimated price is common) with the schedule for the remaining payment(s) clearly spelled out. Always add on 10 to 15 percent to your estimate to cover any unexpected costs. This also is common practice among regular typesetters.

5) Maintain good communication with your graphic artist, paste-up person (if there is to be any manual paste-up) and your customer. Be honest with potential clients. You will need to carefully and clearly explain to them again and again and again what you can and cannot do with DTP. Don't exaggerate. Be sure of their needs and of your ability to meet them. If there is uncertainty, don't become involved in the project.

Making DTP Centers Work For You

Your choice of a DTP center can be almost as important as what you do before outputting. Not all DTP centers measure up. It pays to be selective. Below you'll find a summary of hints about what to look for in a suitable DTP center and how to save money when you find one.

Casing the Joint

●The shop should be clean. Are yesterday's "test copies" and rejected pages scattered around the work area? This can cause confusion. Is it dusty? Dust can eventually affect the performance of the machines. It can also soil your output.

●The work area should be well-lighted (and in such a way that there is no glare on the screen or keyboard).

●The furniture should be arranged so that each work station is relatively self-contained. Competing with two or three other people for the same tabletop can be frustrating and lead to temper flareups. Are the chairs comfortable? It may seem trivial, but if you're working at a center for 2 to 3 hours, bad seating can cause back strain.

●Ideally there should be one LaserWriter for every two computers. Otherwise, the queues will more than likely cause long delays.

●The staff should be knowledgeable. At least one person should oversee only the DTP department of the store. A number of DTP centers are springing up in copy shops. The staff may be there primarily to ring up the sales or work with the copiers. They may know zilch about DTP and they may not care. Ask questions about particular applications. Can they give adequate answers? Does the center offer classes in DTP? If it does, you can be fairly certain they know what they're doing and are committed to more than just cashing in on DTP's popularity.

●Do they have the LaserWriter Plus? If you need or want to provide the fonts on the LaserWriter Plus, you obviously will find it worth your while to find a service center where one is available.

Pinching Pennies

●Output at non-peak hours. There'll be less competition for the LaserWriters. Remember: you're charged for time spent on queue. Make appointments early in the morning, when sensible people are still in bed or just arriving at their regular work—that is, before the boss sends them off with something to output at the center. If you output at a center located near a university, try to avoid outputting an important lengthy job near the end of a semester or at midterm when frantic college hordes overtax the resources of the center with last-minute papers.

●Go with your files fully prepared on your own machine. Every DTP center manager I talked to mentioned lack of preparation as the leading cause of unnecessarily high charges. Have your jobs fully formatted and logically arranged on disk *before* you go. Bring your own disks with *your* system files set up as *you* need them, with the fonts you used in the job (a particularly important practice when you need to use *MacDraw*). Don't end up spending time and money on preliminaries.

●Shop around. Prices can vary a lot, even at shops in the same area. Some centers have special, lower rates in the morning. Ask about discounts. Many places offer 15 to 20 percent off for large jobs, depending on the number of pages being output. Some offer special monthly plans where you are charged a single lump sum once a month.

●Avoid downloadable fonts. This is particularly important when you're outputting on the Linotronic. And although fonts such as Palatino and Narrow Helvetica are resident in the LaserWriter Plus, *they must be downloaded to the Linotronic.*

●Consult with the manager. Before embarking on a major project (such as a book), take the time to sit down with the manager or a staffer at the store for an evaluation of the job. Many centers offer this service free-of-charge. Such a consultation can provide you with valuable hints for reducing your costs without cutting corners.

●John Lee, manager of Byting Your Time, an outstanding example of a DP-only center, stresses a factor not often recognized by people blinded by their enthusiasm for DTP: the importance of learning the basics, both of your software and of traditional typesetting. He explained: "Learn the basics first. Learn the traditional methods. That way you're going to know what you're up against. Learn when it's easier to do it traditionally and when it's easier to do it through desktop publishing.... Sometimes it *is* easier just to paste something up...." And easier, in this game, does mean cheaper. That is to say, don't assume, just because of all the hype, that DTP is *always* less expensive or less time-consuming.

6) You may find that many of your customers are from non-profit organizations or small businesses who have never had to deal with typesetters before. The personnel will seldom be able to provide you with accurate specs or copyfitting; they'll assume that it's up to you. Either inform them otherwise or take it for granted that these jobs will involve more than just typing, coding and formatting. Figure all of this into your costs and prices. Phone calls to newsletter editors about cutting copy add up.

7) You don't have to be a Renaissance man, i.e., you don't have to be a graphic designer as well as a typesetter. If your aesthetic skills leave something to be desired, cultivate someone whose taste you can trust. Just because DTP combines type and graphics doesn't mean you have to. Have a designer tell you what the page should look like, and then you execute it.

8) Attracting customers is, of course, important. Although ads placed in local papers or computer-related publications can be effective, don't overlook the importance of networking with friends or with people you meet at DTP centers. This has been my most fruitful source of jobs. Leaving an ad or card on a bulletin board or work area of a DTP shop can't hurt, but I can almost guarantee that the owners will tear it down shortly after you leave the store. Some shops offer typesetting services. That means you're competition.

Check the want ads regularly. Companies, even those with their own DTP set up, sometimes seek freelancers for excess work their staff cannot do. If both they and you have a modem, you can receive format, and return the work without ever leaving your home. And don't forget a business card. I pass mine out to anything that breathes.

The most serious problems stem from one fact: most freelancers and people in general cannot afford the more expensive elements of the DTP system: the LaserWriter and the Linotronic. In response to this, some very enterprising people have set up DTP service centers where such

equipment can be rented on an hourly basis. The freelancer becomes involved in the "Copy Shop Shuffle."

In the San Francisco area, these centers have often initially been associated with copy shops. Costs differ with respect to the type of machine being used (LaserWriter or Linotronic) and the area of the country

If I hear DTP called a revolution in publishing just one more time, I may quit and try for a job at McDonald's.

you find yourself in, but generally run $5 to $6 an hour and 30¢ to $1.00 per page for LaserWriter output. Linotronic rental costs $6 to $8 an hour and $5 to $9 per page. Some shops also require a one-time "registration fee" in addition to the hourly rate for using the Linotronic.

A major attraction at the larger of these centers is the incessant networking that occurs at them. Although some DTP center managers described their shops to me as essentially a roomful of strangers, I find the opposite to be true. The constant sharing of knowledge and experience about DTP hardware and software makes these centers as stimulating and instructive as a meeting of a computer user group. The same give and take, the same helpfulness and almost adolescent excitement often prevails. A few hours at one of these centers can tell you more about the capabilities and hidden resources of your program than the original user manual.

These centers are a godsend, but there is a downside. The most frustrating thing about outputting at DTP centers is their frequent overcrowding. Although you often have to set up an appointment to make use of a center's equipment, the appointment system sometimes breaks down.

The physical set up of the center's available workspace, the way the furniture is arranged, can also play a large part in whether overcrowding is simply an annoyance or an out-and-out obstacle to serious work. When you are outputting a lengthy job, politeness demands that you let others cut in on the queue. All of this can add considerably to your expenses and output time. See "Making DTP Centers Work for You" for ways to avoid or lessen these problems.

SUMMING UP

The writer of a letter in the December 1986 issue of *MacUser* expressed disgust with all the attention being paid to DTP at the moment. Despite my involvement in the field, I must admit that sometimes I have a similar feeling, and that if I hear DTP called a revolution in publishing just one more time, I may quit and try for a job at McDonald's.

When *PageMaker* for the PC blazes forth, the hype and hoopla, I'm afraid, will only worsen. Eventually, though, DTP will stop being the media's darling, and will become instead what it should be: a practical tool, like spreadsheets and data bases, a part of the less exciting, but infinitely more productive drudgery of everyday life and work. I, for one, look forward to that day.

GREGORY WASSON IS A FREELANCE TYPESETTER AND LIVES ON TOP OF A MOUNTAIN IN THE SANTA CRUZ AREA. HE IS A FORMER GRADUATE STUDENT IN CLASSICAL GREEK AND LATIN.

Resources in Desktop Publishing

Publications and services related to desktop publishing appear almost on a daily basis. Some of the more useful are listed here.

●Magazines

Personal Publishing. Monthly. $30 per year. P.O. Box 390, Itasca, IL 60143. As the name implies, emphasis is on personal and small business uses. The magazine is created with the tools of DTP and output on a laser printer. From a technical aspect, an excellent example of what can be done at the low end of the technology. Perfect rebuttal for anyone that claims that all DTP publications are rag right (they manually hyphenate the entire magazine).

Publish! $19.95 per year (six issues). Publish!, Subscription Dept., P.O. Box 51966, Boulder, CO 80321-1966. The slickest DTP publication around. The stress is on high-tech, corporate applications, but contains an occasional nod to "the rest of us." Excellent section on "page makeover," which illustrates the mistakes people commonly make when designing pages. Produced with *PageMaker,* with final output on the Linotronic 300.

●Newsletters

Colophon. Quarterly. Free. Adobe Systems Inc., 1870 Embarcadero Rd., Palo Alto, CA 94303. Adobe's newsletter featuring news about PostScript and PostScript-related products. Produced with *PageMaker, ReadySetGo, JustText,* et al., processed on a VAX 750 (that's how they can use all those fonts, folks!), and output on a Linotronic 100.

Desktop Publishing: Bove and Rhodes' Inside Report. Monthly. $195 per year. Desktop Publishing, 501 Second Street, Suite 600, San Francisco, CA 94107. From the previous publishers of what is now known as *Publish!.* Quite pricey for a 12-page newsletter, but supposedly contains the latest news and rumors about DTP. Borrow it from a rich friend, encourage your doctor to subscribe to it for the waiting room, or just pick up the same scuttlebutt at a good DTP center. Its price reflects its audience: corporate users.

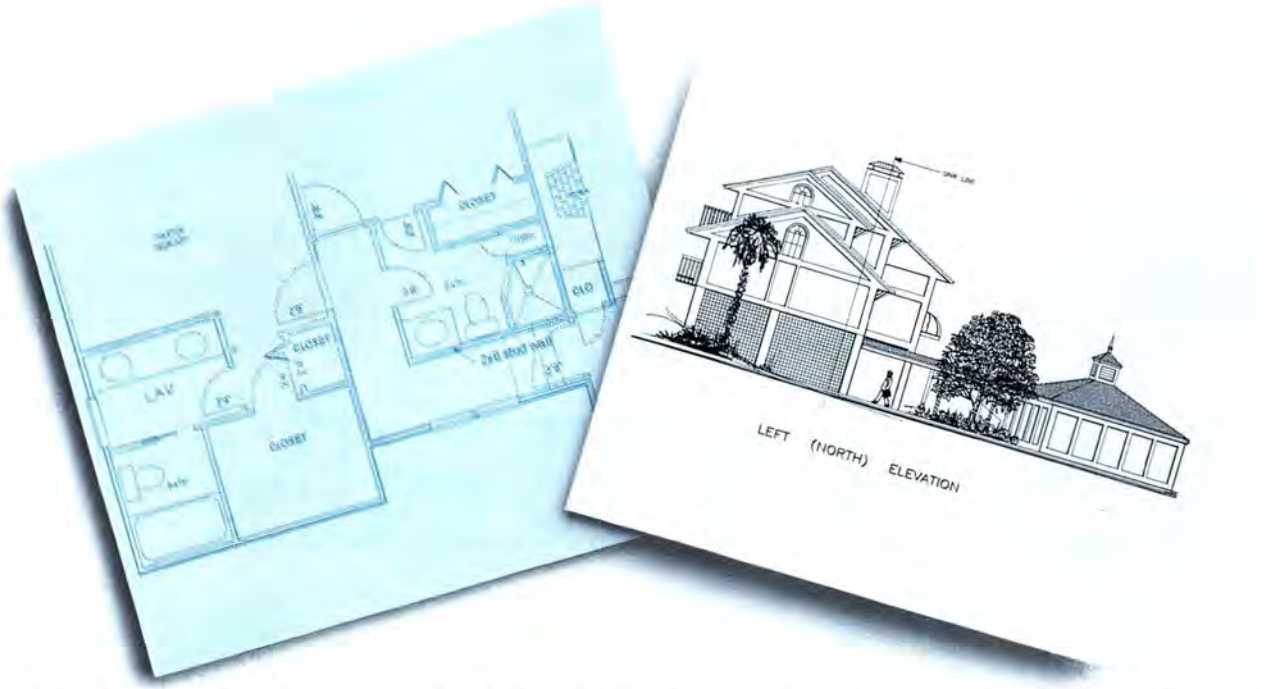
microPublishing Report. Monthly. $175 per year. 2004 Curtis Ave. #A, Redondo Beach, CA 90278. Similar to the *Inside Report,* but only 8 pages. Maybe that's why it costs $20 less. Latest rumors, new products, calendar of events in the DTP world.

●Online

Laser-BBS. (415) 261-4813. 300/1200 baud. 24 hours. Sysop: Tom Allen. No sign-up fee. Located in Oakland, CA. Information and support for desktop publishing. Forums include: DTP support, Mac users, PostScript programmers discussion group, and PostScript files section. Seems most active in the area of PostScript programming. Modest, but promising. Check it out and contribute to its growth.

MacDraft 1.2

It keeps getting better.



Drawing Environment

Choose your scale and units and MacDraft will do the rest. Dimensions of objects, snap grids, rulers, cursor positions, area calculations and auto dimension lines will be computed for you.

New Features:

Resize groups & bit maps proportionally. Bit maps can also be stretched in an X, Y direction independently.

Cursor position indicator. Determines the relative position of an object on the drawing.

MacDraft is now sold with no copy protection.

New drawing scales. Choose from 32, including 2 new engineering scales; 4x & 10x, both in US and metric units.

Increased accuracy. Select from 1 to 4 places behind the decimal point. The values will be rounded off correctly.

Automatic area calculation of any object to scale regardless of complexity. Even trace the boundaries of overlapping objects to obtain net area.

Pict format allows you to save a drawing as well as open a document that has already been saved in this format. Transfer large drawings to a plotter driver that supports the format and conveniently use selected page layout programs.

64 Fill & ink patterns plus dynamically edit, create and save your custom patterns.

Plus:

Create circles by radius or diameter, arcs by radius or defining 3 points. For irregular shapes our polygon and freehand tools offer dynamic editing, auto closure and adding sides to an existing object. Zoom in and magnify a portion of your drawing up to 8x; or zoom out and see as much as 4′ x 4′ in a single window, maintaining full drawing capabilities at any view. Even rotate objects 1° at a time.

Don't Be Deceived

MacDraft is only $269.00, yet it offers the majority of drawing capabilities of CAD systems costing much more. It is the only drafting program that takes full advantage of the Macintosh user interface.

idd inc.

Innovative Data Design, Inc.
P.O. Box 27666
Concord, CA 94527-0666
415/680-6818

Please circle 129 on reader service card.

Hold on to your desk. The Radius Accelerator™ is here. With the Accelerator on board your Macintosh, you can run graphics, word processing and other applications three to four times faster. Which makes it indispensible for serious desktop publishing.

And, with an optional math co-processor, it blazes through floating point computations 50 to 100 times faster.

On-screen performance accelerated.

Not only does the Accelerator dramatically increase your Macintosh's overall speed, it makes all on-screen activities virtually fly by. You'll see significant speed increases when scrolling, designing and manipulating graphics, moving between documents, creating forms and working with a variety of fonts and styles.

The Accelerator performs these remarkable feats with the aid of a 32 bit MC68020 microprocessor and a high speed hardware cache. Thanks to the cache, a technique borrowed from mainframe computer technology, there's no need for additional memory. Which substantially reduces costs, board space and power requirements of the system.

The Accelerator is available for the Macintosh 512 Enhanced, Plus and SE computers.

Go much farther, much faster.

Now that the Accelerator has arrived, you can go much farther in desktop publishing, much faster. But if you really want to go all the way, put the Accelerator together with the Radius Full Page Display.™

This powerful combination gives you greater speed, a full-page display, and a much more productive desktop publishing system.

Ah, the thrill of it all.

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Sunnyvale, CA 94086

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For more information, call us at **408-732-1010** for the name of the Radius dealer nearest you.

Speed Thrills.

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If you already have a Macintosh™ and LaserWriter,™ congratulations. You're using desktop publishing's two most productive tools. But if you really want to get serious, you need one more. The Radius Full Page Display.™

See the whole page.

Since the FPD lets you see a full 8½″ x 11″ page, it virtually eliminates scrolling within individual pages. By seeing the entire page on the screen, you know exactly how it will appear on paper. So, it dramatically reduces the need for printing. Now, documents are much easier to create, edit and layout.

Plus, the FPD lets your Macintosh screen remain active. You can work on the FPD screen while placing additional documents, tool palettes, or desk accessories on the Macintosh screen. Or, treat them both as a single, continuous display to view large, horizontal documents. Even drag text or graphics between the two.

The best by design.

The FPD was designed by six members of the original Macintosh design team. The same designer created the digital electronics for the original Macintosh, the LaserWriter and the FPD. With all of that experience in common, you know you're getting the highest quality product available anywhere.

The Radius Full Page Display. Once you've put it through its paces in desktop publishing, you'll agree that it's the ultimate tool of the trade.

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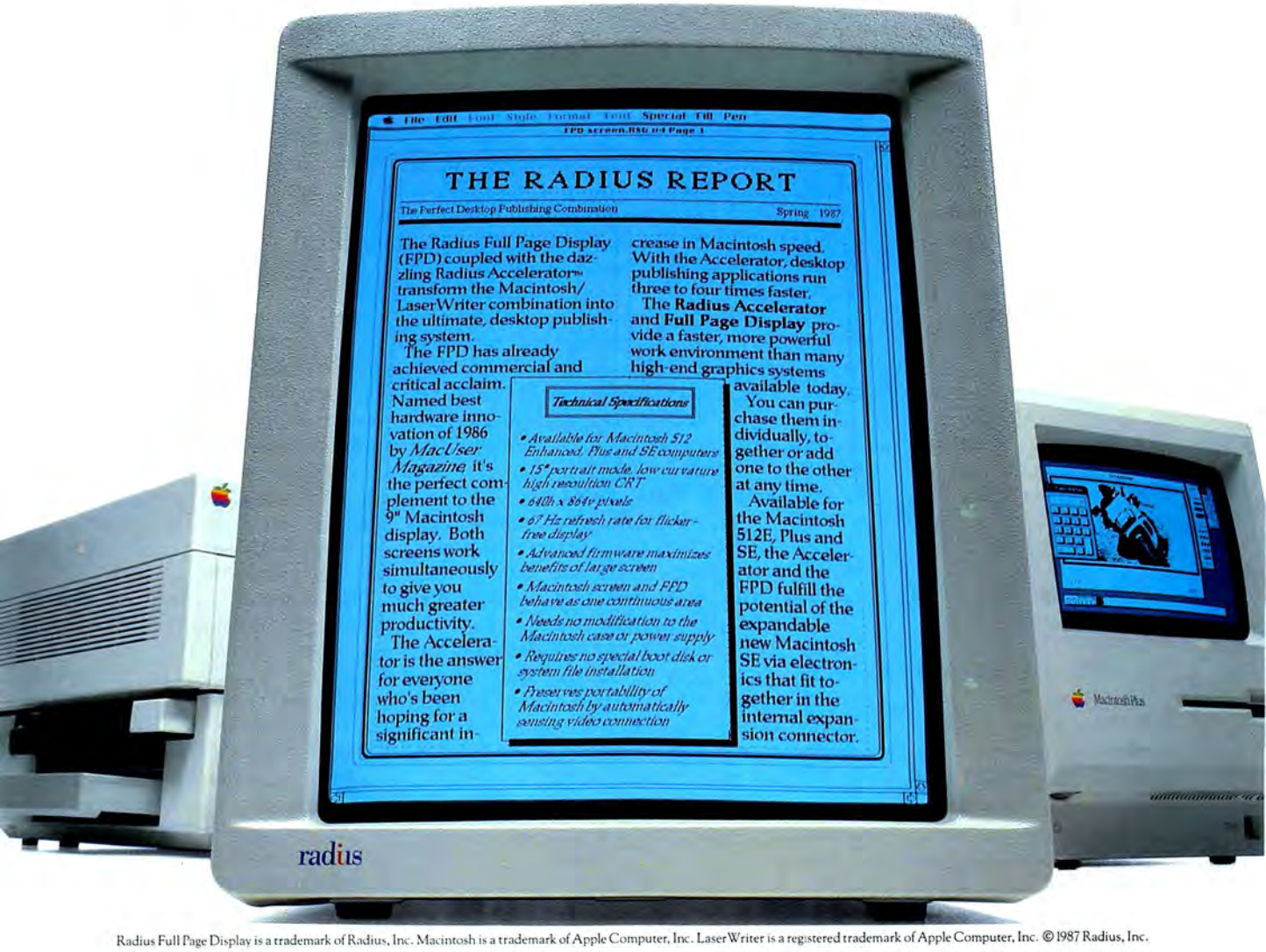
The Ultimate Tool Of The Trade.



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Do Not Pass Go

Ready, Set, Go! 3 makes a valiant effort to be the premier page layout program. And it comes close—maybe close enough for you.

BY DAVID SCHARGEL

IF YOU USE A MACINTOSH, YOU'VE heard of desktop publishing. It was *the* buzzword of 1986, and is still going strong. And as each new desktop publishing application appeared, it claimed to be faster, better and easier to use than the others. However, *PageMaker* has been a constant all along, and still reigns supreme. *Ready, Set, Go! 3* is the first in a new generation of page layout programs attempting to dethrone the king of desktop publishing.

Ready, Set, Go! 3 is the latest version of a program that first appeared in early 1985. Originally released to run on the 128K Macintosh, *Ready, Set, Go!* has gone through a series of major and minor revisions. Each revision has added to the capabilities of this feature-laden product. But features alone do not make a well-designed program. Ease of use, learnability, reliability and many other factors all weigh heavily. *Ready, Set, Go! 3* has too many drawbacks for most people to use it on a professional basis.

THE GOOD, THE BAD AND THE UGLY

On *Ready, Set, Go! 3*'s positive side, its simple, yet powerful word processing capabilities are a welcome addition to a page layout program. And *Ready, Set, Go! 3* closely simulates the drafting board of a layout artist with its "blocking" approach to page design. By incorporating these traditional methods of layout, the designers hoped *Ready, Set, Go!* would be a bridge for layout artists to enter the computer world. Unfortunately, *Ready, Set, Go! 3*'s simplistic manual, numerous bugs, fixed page sizes and long output times limit its usefulness.

If you mostly word process and occasionally require graphics on a page, *Ready, Set, Go! 3* will suit your needs. If your pages are complex and have a rich mixture of text and graphics, either wait for *Ready, Set, Go! 3* to evolve further or check out some other desktop publishing program.

PAGE IT AGAIN, SAM

One reason *PageMaker* made early inroads into the desktop publishing market was that it was easy to use. Most people look at *PageMaker* as a powerful extension of a typewriter. You can place text anywhere on the page. If you change your mind, simply shift the copy (in real time, no less) by moving the mouse. However, all alignment is done by eye using a simulated conventional ruler.

Ready, Set, Go! 3, on the other hand, gives you precise control over the page layout. In addition to the WYSIWYG (What You See Is What You Get) features, numerous dialogs are available for setting exact page, graphic and block dimensions.

The layout of a page in *Ready, Set, Go! 3* starts with a grid. The actual grid is a series of invisible lines that equally divide the page prior to setting down blocks of text or graphics. A dialog box lets you customize the grid to any size, allowing you very advanced page designs.

Once a grid is established, creating proportional text columns is as simple as drawing a rectangle in *MacPaint*. The grid system does not have to be active at all times; you may turn it off by toggling SNAP TO (GRID) in the Special menu.

Most of the necessary tools for page design are placed on the left side of the screen in two palettes. The top palette holds the primary tools, including those used for creating text and picture blocks. A linker tool runs the text from blocks to cross between columns and pages and still maintain the continuity. The top palette also provides simple shapes such as rectangles (or squares), ovals (or circles), rounded rectangles and lines.

The other palette consists of line widths and styles, ranging from hairline rules (which only the LaserWriter can actually print) to various broken and dotted lines. These line widths and styles can be used with the basic shapes in addition to lines.

Other page design tools include: measurement controls (in inches, points and picas or centimeters), a full set of zooming commands, an alignment procedure (for position-

BELINDA MORRISSEY

ing multiple text and/or picture blocks), an extensive list of fill and pen patterns and the ability to view facing pages of a document.

PROCESS THAT WORD

The most outstanding feature *Ready, Set, Go! 3* has over other page layout programs is a fully functional word processor. Even though its power doesn't equal *Word's*, it certainly is a tremendous addition to a page layout application. The *Ready, Set, Go! 3* word processor has features that some standalone word processors do not possess.

There are some basic features that separate word processing from using a typewriter, and *Ready, Set, Go! 3* provides most of these. FIND and CHANGE are just a menu selection away, as is the ability to change fonts, styles and type sizes. The Style menu also customizes any font size.

Simply choose OTHER and you are presented with a dialog box where you can set any font size between 1 and 255 points.

As with most word processors, you have control over a paragraph's appearance. The basic Left, Right, Center and Justify paragraph alignments are provided as menu commands. A feature not often found in word processors is the ability to control leading (line spacing). With *Ready, Set, Go! 3* any text can be set to any leading, allowing for various line spacing within a single block. You can also manipulate the spacing between paragraphs by choosing PARAGRAPH SPACING from the Format menu.

Spacing control in *Ready, Set, Go! 3* is not limited to lines and paragraphs. Text kerning and letterspacing are provided in a menu and may be used for any size text selection. *Ready, Set, Go! 3*'s kerning uses the kerning pairs provided in most LaserWriter fonts. Still, when working with large type, you will want to produce the best text by manually kerning each letter or groups of letters. *Ready, Set, Go! 3*'s WYSIWYG screen is reliable enough for doing precise kerning. Unfortunately for the professional, kerning is done in 1-point increments. Baseline shifting, for superscripting and subscripting, is also provided as a menu selection, making variable superscripting and subscripting a few menu selections away.

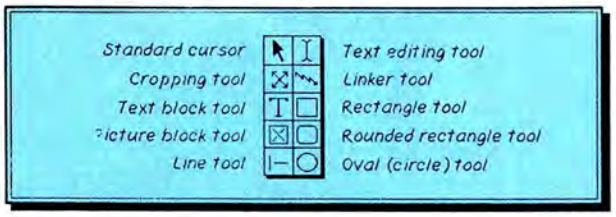
Ready, Set, Go! 3 is the first in a new generation of page layout programs attempting to dethrone the king of desktop publishing.

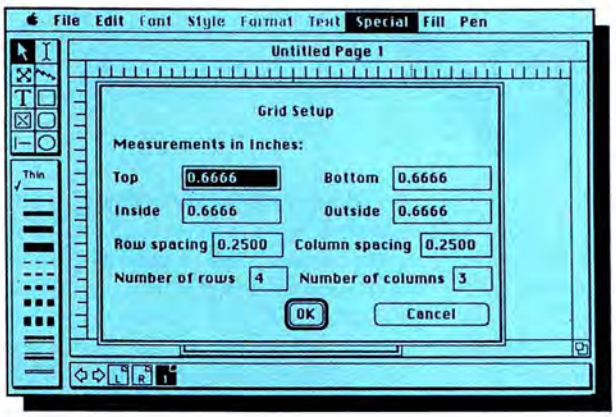
Most power word processors today have built-in spelling checkers. So does *Ready, Set, Go! 3*. This simple spelling checker does have an over 70,000-word dictionary. The spelling checker is not a power house; it merely points out incorrect words. It doesn't suggest any corrections for your errors; you can either add the unknown word to the dictionary or correct the error. Another inconvenience is that it is not an "on the fly" checker that works as you type. You must actually select the text to be checked after placing or writing it.

Three other important word processing features are real-time hyphenation, glossaries and tabular control. *Ready, Set, Go! 3*'s hyphenation is algorithm based; there is no hyphenation dictionary, although provision is made for a user-exception dictionary. Once activated hyphenation occurs automatically; as you type or resize a text block, words quickly and accurately hyphenate and, if necessary, rehyphenate. Hyphenation can also be set for a specified area of the text through a single menu selection. You can place discretionary hyphens.

The glossary feature is straightforward. You can define keywords or a selection of text by using a simple keystroke combination. This not only cuts down on typing time, it prevents you from having to look up the spelling of a proper name each time it is used.

The tabular control in *Ready, Set, Go! 3* is poor. You are able to specify only nine tabs per document. This includes text linked across columns and/or pages. This is woefully insufficient. Could you imagine a fifty-page *MacWrite* document with only nine rulers? A lot more control is required to make tabbing a worthwhile function.





The tool palette has most of the required tools for doing page layout. When preparing a page, the block tools are used to specify the size of the block, while the text editing or the cropping tool become activated for manipulating text and graphics respectively. The grid layout can be customized to precise detail as shown in the dialog. These calculations are shown in inches, but *Ready, Set, Go! 3* also measures in centimeters or points and picas.

PICTURE THIS

No desktop publishing program would be complete without the ability to control graphics. *Ready, Set, Go! 3* is fairly adept here. In addition to the ability to import various types of graphics, you control the picture cropping, size and scaling.

Picture blocks are placed the same way as text blocks; you select the picture tool from the tool palette and draw a picture block on your page. When a graphic is ready to be imported or pasted into the block, first click the cropping tool and select the block where the graphic is to appear.

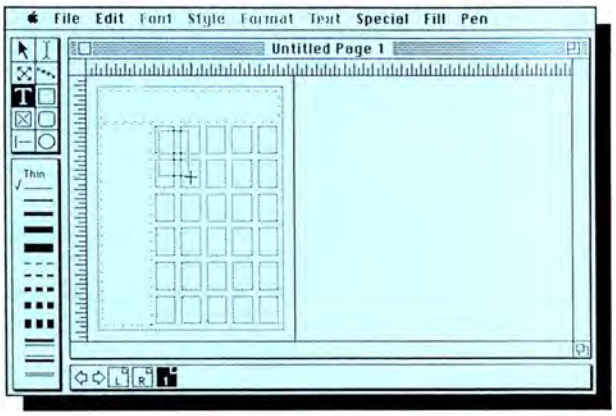
It's easy to manipulate the graphic once it is placed in a block. Cropping doesn't actually cut up a graphic; the block simply hides everything outside of the crop. If you want to see more of a picture, either shift or scale the graphic or resize the picture block.

Scaling of graphics is done through the Picture Block Specifications dialog box. In this box you

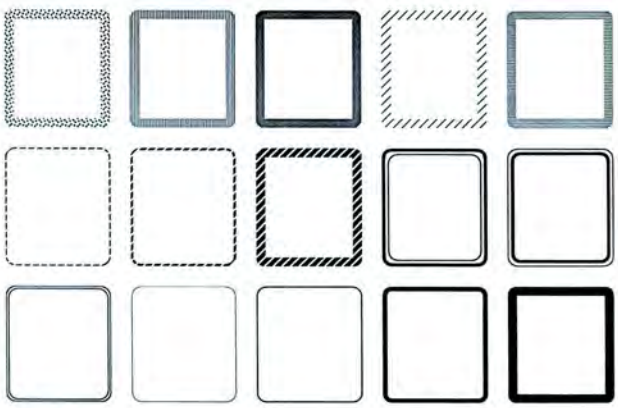
specify exactly where you want the graphic to start (across and down), the width and depth of a graphic and the horizontal and vertical scaling factors. It is also in this dialog box that you specify whether text runs around any particular picture block.

One interesting graphic feature that *Ready, Set, Go! 3* provides is the ability to place PostScript code directly in a document. To do this just identify the text block as PostScript code using the Text Block Specifications dialog. Any PostScript code may be placed in a block, though the PostScript output (depending on the code) will not necessarily fit within the block's dimensions.

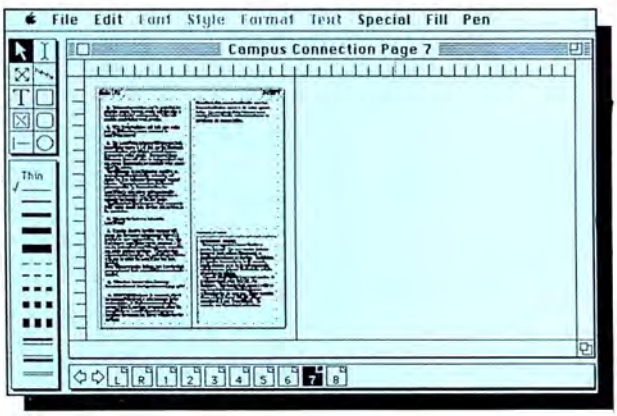
There are basic features that separate word processing from using a typewriter, and Ready, Set, Go! 3 provides most of these.



After specifying a grid, blocks are placed by first selecting the block tool and then dragging the block within the approximate area. *Ready, Set, Go! 3* defaults to a snap to grid function, so placing aligned blocks is simple.



Using the rule palette and the Fill and Pattern menus, you can easily create various line graphics in a document. The Thin selection will produce a hairline rule on the LaserWriter.



A page can be viewed at a number of magnifications. Shown is a sample page of a newsletter after choosing SIZE TO FIT from the Special menu.

GETTING IT TOGETHER

The major problems you'll encounter with *Ready, Set, Go! 3* will occur when you try to put the pieces together. Your page size (with the LaserWriter) is limited to four page sizes: US Letter, US Legal, A4 Letter (8¼" by 11¼") and B5 Letter (7" by 10"). You can't create larger sheets, such as the tabloid size *PageMaker* is capable of. This is a problem that needs to be addressed immediately.

Ready, Set, Go! 3 can import both text and graphics. But importing any type of information takes almost as much time and effort as creating it from scratch. Although you can import "formatted" *MacWrite* and *Word* (not version 3.0) documents, there are often problems. All the text appears, but a good deal of the formatting, particularly the tabs, are lost in the translation. These problems are confined to previously formatted material. There are no problems when importing text-only files. No formats, no problems.

Graphic importing is also limited. You can import *MacPaint* and *MacDraw* (PICT) files. That's it. Any application that can save to a PICT file or a *MacPaint* format file can have its files imported into *Ready, Set, Go! 3*. A serious omission from the graphic importing capabilities is the ability to handle 300 dpi and TIFF images. Now that scanners are becoming common in the desktop publishing world, this problem needs to be corrected.

The text flowing (or continuity) capabilities in *Ready, Set, Go! 3* are extensive. You have the ability to have text blocks link to other text blocks simply by clicking the blocks in the order the text is to be flowed. Although text linking can get a bit hairy when flowing text through multiple pages, *Ready, Set, Go! 3* handles it like a trooper.

Text can run around graphics anywhere in a document. Note, however, that the actual runaround is defined by picture blocks, which are always rectangular. You can't wrap text around irregularly shaped

graphics. This should be considered a limitation of *Ready, Set, Go! 3*, rather than a problem.

EASY IN, HARD OUT

If you think laying the document out took time, wait until you start to print. This is another troublesome portion of *Ready, Set, Go! 3*. Laser printing a page that contains both text and bit-mapped graphics can best be described as a trying experience. A complex document that takes *PageMaker* 10 minutes to print will take *Ready, Set, Go! 3* just under an hour. If you are only printing either text or graphics there are no time-consuming problems. The problem appears to be with *Ready, Set, Go! 3*'s bit-mapped smoothing when there is text on the page. *Ready, Set, Go! 3* does a good job of printing on an ImageWriter. Printing times on an ImageWriter are comparable to printing with any other application. You will not experience any of the LaserWriter delays when working with complex pages.

A terrible disappointment of *Ready, Set, Go! 3* is its "manual." The manual is in the form of a magazine, with separate articles describing each major feature, plus a few on the how-to of page design. It is so much like a magazine that it even has advertising. The paper is glossy stock, and the life expectancy of this cute marketing gimmick is only a few months. (Our manual already has torn edges and a terribly smudged cover.)

The manual clearly explains the basics of using Ready, Set, Go! 3, but if you want to go further, there is nowhere to turn.

The manual clearly explains the basics of using *Ready, Set, Go! 3*, but if you want to go further, there is nowhere to turn. There are no advanced topics or page layout concepts provided. The reference "articles" consist of a sentence on each menu selection and a glossary of desktop publishing terms.

IN THIS CHANGING WORLD

Letraset, a company well known in the art supply industry, recently purchased the distribution rights to *Ready, Set, Go! 3* from Manhattan Graphics, and is now marketing the program. This is Letraset's first attempt at marketing a Mac software product. One of its first actions was to raise the price of the program $100 to $395. While the value of that additional $100 still has to be proven over the long term, the immediate worth of the application did increase with the addition of the wonderful technical support Letraset can and does provide for *Ready, Set, Go! 3*.

Letraset immediately pledged to correct most, if not all, of the known *Ready, Set, Go! 3* flaws, ranging from a new manual to extensive bug fixing. In addition, the program is also going to be updated to support AppleShare. Neither the new manual nor a new version were available at press time. We'll provide you with an update of the changes as soon as they are available.

Ready, Set, Go! 3 has the potential to bring the present generation of desktop publishing software products to new heights, but in its current form (version 3.0 is reviewed), you might be better off looking at other products or waiting for the new *Ready, Set, Go!* to arrive.

DAVID SCHARGEL IS THE TECHNICAL EDITOR OF MACUSER.

MACUSER RATING

Ready, Set, Go! 3 $$$

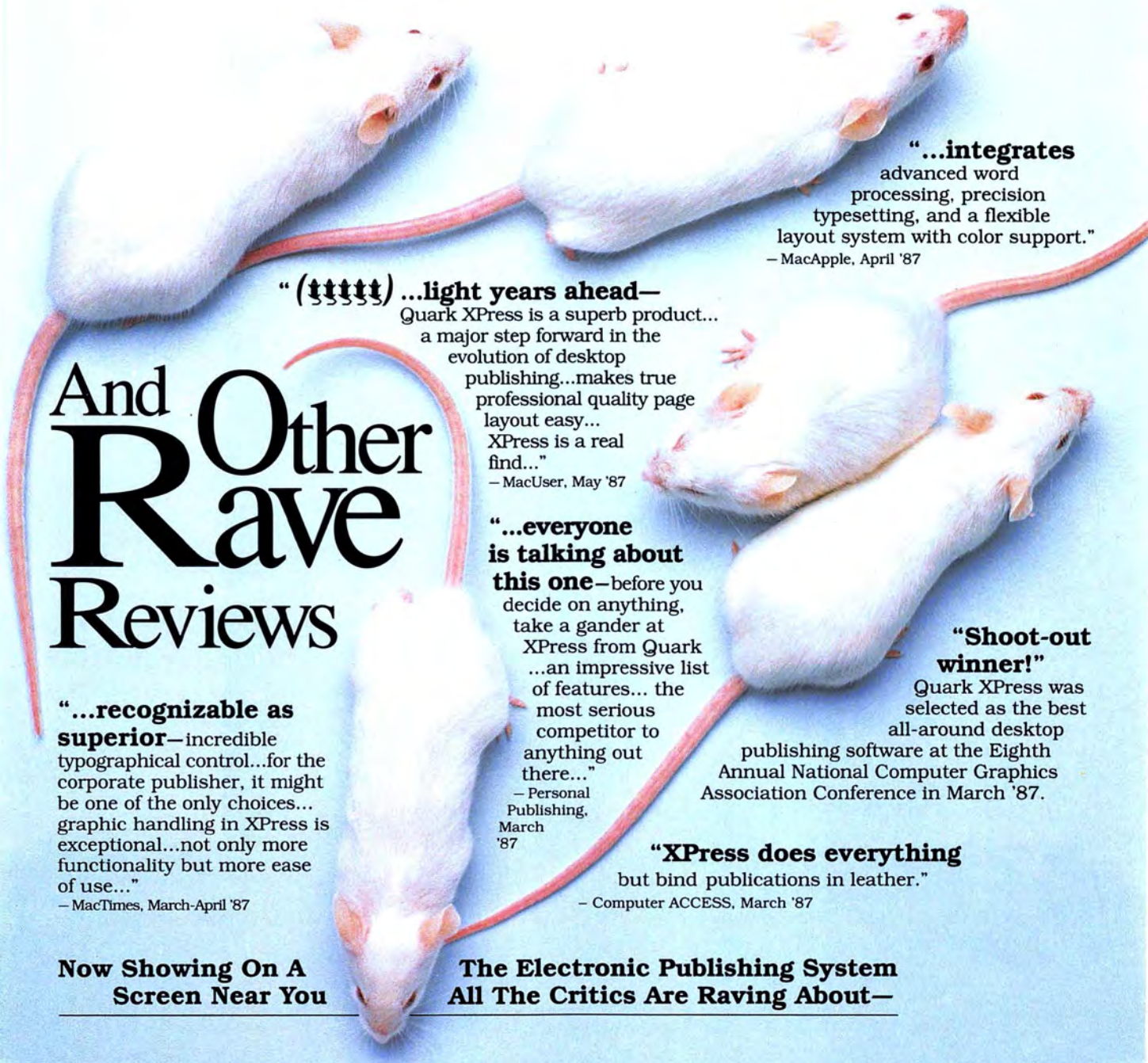
Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ ■ □ □ □
On-Screen Help	None
Performance	■ ■ □ □ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ □ □

Comments: An evolving product that still has a few bugs and limitations. New version and new manual promised soon. **Best Feature:** Powerful word processor with hyphenation and spelling checker built-in. **Worst Feature:** Slow printing, limitation of page size, poor manual. **List Price:** $395. Published by Letraset, USA, 40 Eisenhower Drive, Paramus, NJ 07652. (201) 845-6100. Version 3.0 reviewed. Not copy protected.

To kern or not to kern, that is not questionable. Kerning in *Ready, Set, Go! 3* is done through a menu command. After selecting a range of text, choose KERN and the text will automatically kern. Manual kerning allows for more precise control over how many points to kern. The top word was manually kerned, while the bottom is as typed.

In addition to *Ready, Set, Go! 3*'s kerning capabilities, letterspacing and various degrees of baseline shifting are provided as menu commands.

Five Mice



And Other Rave Reviews

"...integrates advanced word processing, precision typesetting, and a flexible layout system with color support."
– MacApple, April '87

"(ttttt) ...light years ahead— Quark XPress is a superb product... a major step forward in the evolution of desktop publishing...makes true professional quality page layout easy... XPress is a real find..."
– MacUser, May '87

"...everyone is talking about this one—before you decide on anything, take a gander at XPress from Quark ...an impressive list of features... the most serious competitor to anything out there..."
– Personal Publishing, March '87

"...recognizable as superior—incredible typographical control...for the corporate publisher, it might be one of the only choices... graphic handling in XPress is exceptional...not only more functionality but more ease of use..."
– MacTimes, March-April '87

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A Peek Between the Pages

Looking forward to PageMaker 2.0? Here's what we've seen so far.

[This is not a product review.] HOW DO YOU SPELL *"DESKTOP publishing"*? That's right: *P - a - g - e - M - a - k - e - r*. As other articles in this special supplement have made clear, *PageMaker* is the major program in desktop publishing. While it is not universally used and certainly not universally loved, it is, by a wide margin, the dominant software package in a field the Mac dominates.

PageMaker earned its position at the top of the heap. It wasn't the first (or even the second) major desktop publishing program. And it wasn't perfect or very fast. (I dare any of you with long memories to recall version 1.0 without a shudder.) However, Aldus, *PageMaker*'s creator and publisher, fixed many of the problems and provided support and training of the highest order. By the time version 1.2 became available, *PageMaker* had indisputably surpassed the competition.

In September 1986, Aldus announced two new versions of *PageMaker,* a significantly enhanced version 2.0 for the Macintosh, and version 1.0 for the IBM PC AT. The IBM version was released just before press time, but the Mac version was still being fine tuned. We've been looking at beta versions of *PageMaker* 2.0 for some time, and based on what we've seen so far, it should be available at your dealer by the time you read this.

The beta agreement we signed to get an advance look at this product has an unusual clause in it. It specifically forbids reviews of the program based on the beta copies. The reason for this restriction (a sensible one that should find its way into all beta test agreements) is that some magazines obtained illicit early development copies and ran articles that appeared to be reviews of a finished product. Unfortunately, it proved to be a solo scoop. Aldus was not pleased and readers were served a solid dose of misinformation. So you will find no subjective evaluation here, nor any ratings. We'll have both for you just as soon as we can after receiving our shrink-wrapped copy of the release version of *PageMaker* 2.0.

FEATURES ON DISPLAY

The What You See Is What You Get (WYSIWYG) abilities of the program are much improved. Failure to provide true WYSIWYG was one of version 1.2's major drawbacks. Indeed, Aldus issued a desk accessory, called *WYZZY,* to allow users to actually preview the page before printing. In version 2.0, line endings appear on the screen exactly as they will in hard copy. This will simplify tasks like centering a headline within an outline box.

As a corollary to the improved WYSIWYG performance, the accuracy of rulers, line styles and positioning of graphic objects has been improved. This is so in all page views, from the most reduced to the most expanded.

You'll find several new graphics options and abilities. For example, you can now scroll an image that was previously cropped to fit a given space to reveal other portions of the image.

PostScript graphics files can be placed directly into version 2.0. If the PostScript file has a screen image, that image will be displayed, and can be scaled and cropped. If there is no screen image, a precise outline box will appear. Using this feature, whole *PageMaker* pages can be placed as graphics on other *PageMaker* pages.

Version 2.0 will also support scanned images from many high-resolution scanners, including those from Microtek, DEST, Abaton and Datacopy. Any scanner that can output TIFF (Tag Image File Format) material will work with version 2.0.

SPEED, SPEED, SPEED!

The code for many of the basic, often used operations such as Save, Go To Page, Open and Close has been rewritten to run faster. You'll see significant speed increases in those operations. In fact, the entire program has been souped up as much as possible.

PageMaker is now hardware inde-

BY STEVEN BOBKER

pendent. It will work with all the big screens currently available and should have no problems with the slew of monitors sure to follow on the Mac II's heels.

Text editing has never been *PageMaker*'s strongest point. In version 1.2 it is often both slow and clunky. Things are about to get better. Editing text, handling tabs and changing type specifications will be faster. And, to further reduce the amount of time spent on text manipulation, there are a lot of new keyboard commands and shortcuts.

And then there's crash recovery. Did I hear you say, "Wait a second! What's that have to do with speed?" Well, what's more time consuming than rebuilding everything back from the last Save after a crash? This feature will allow files that are damaged due to bad media, power outages or hardware failure to be opened and restored to the state of the last page turn.

IT'S THE HARD COPY THAT COUNTS

No longer will you have to calculate the ideal enlargement and reduction factors when printing bitmapped graphics. These factors are based on the printer's resolution, so the program can easily figure them for you, and it will. Say goodbye to those annoying irregularities in bitmaps with regular patterns.

Laser spoolers will be supported, with one big caveat. That's that the spooler must use or support the new Adobe/Apple print spooling protocol. Hard disk software written to comply with the new protocol will work with *PageMaker* to send multiple files to a printer.

Version 2.0 will also automatically tile (overlap) sheets on documents whose finished size is greater than 8½ by 11 inches, so they can be put together cleanly. You can also automatically add cropping marks (to indicate where off-size pages should be trimmed), collate pages and print out pages in reverse order, last page first (Bravo!).

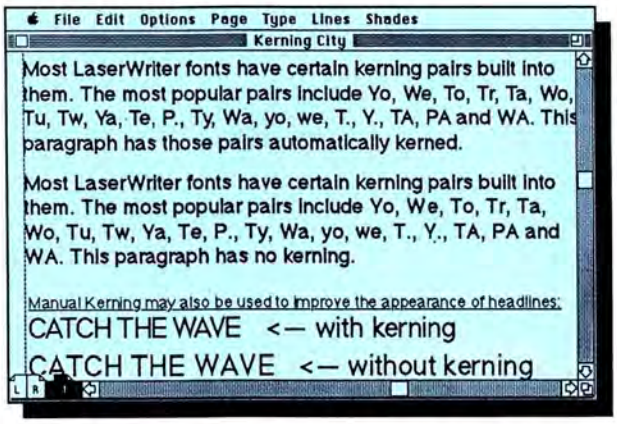
ImageWriter users have not been ignored either (something of a rarity in today's laserprint-or-else world). Now available on the ImageWriter are graphics arts quality dashed lines. Pages can also be printed larger than full size, so they may be reduced for improved quality in the final reproduction process.

SPACES, SPACES, SPACES

Ask a pro what sets amateur printing apart from professional work and the answer is likely to be H & J. That's hyphenation and justification, and it's really just part of the many space elements that the professional typesetter uses. Space control is where *PageMaker* 2.0 looks to excel. There will be three hyphenation options: automatic, prompted and manual. The automatic method will be based on a 110,000-word dictionary licensed from Houghton-Mifflin. Up to 1000 words can be added to this dictionary by users.

The prompted hyphenation mode alerts the user if a word is not found in the regular automatic dictionary. Users can then hyphenate those words on their own. Finally, soft or discretionary hyphens are still supported.

Interword spacing is specified for entire stories. If you are using justified text, you can specify the maximum and minimum space that will be used between words. If your text is ragged, making the overall spacing

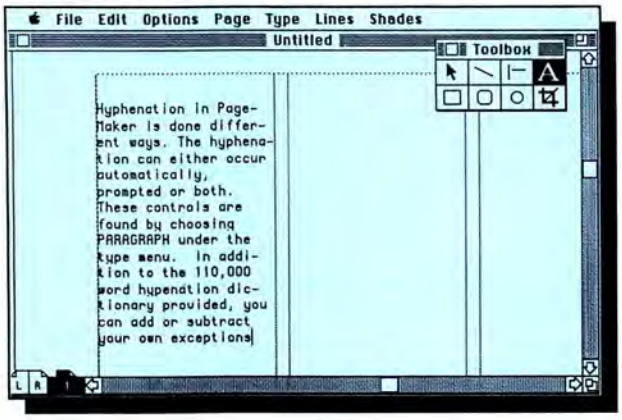


Using *PageMaker* 2.0, you are able to kern text automatically, using a fonts kerning pairs, or manually, in one point increments. *PageMaker* 2.0 will attempt to show you the kerned text on the screen.

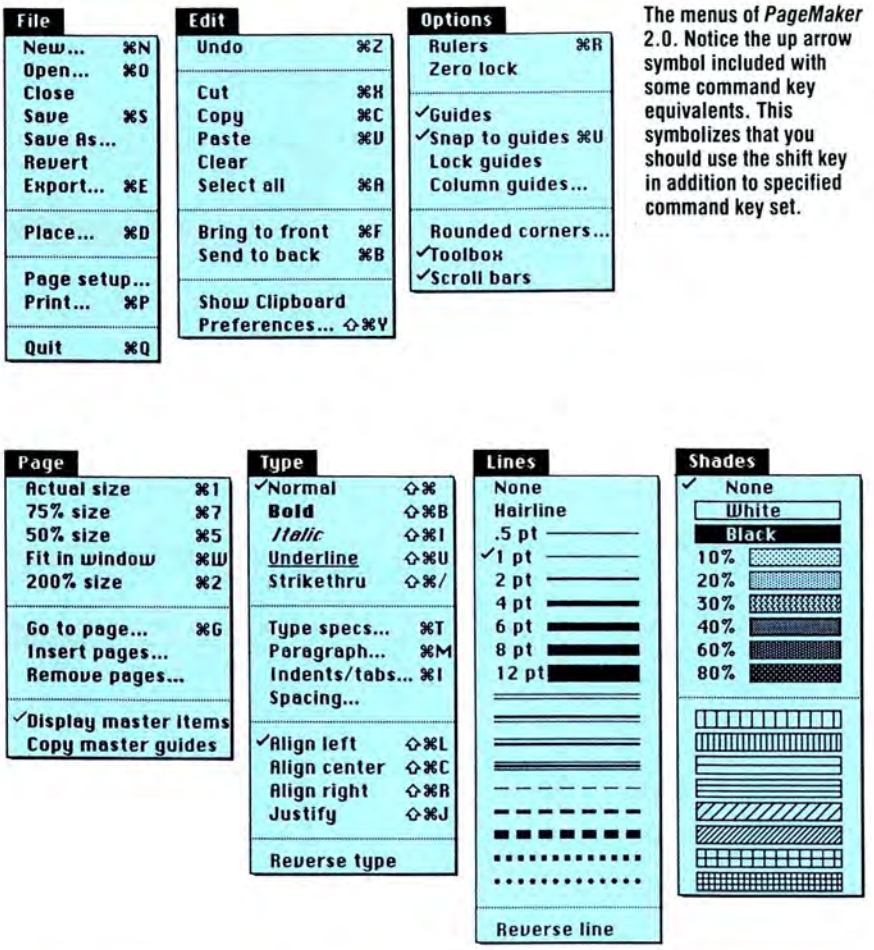
Most LaserWriter fonts have certain kerning pairs built into them. The most popular pairs include Yo, We, To, Tr, Ta, Wo, Tu, Tw, Ya, Te, P., Ty, Wa, yo, we, T., Y., TA, PA and WA. This paragraph has those pairs automatically kerned.

Most LaserWriter fonts have certain kerning pairs built into them. The most popular pairs include Yo, We, To, Tr, Ta, Wo, Tu, Tw, Ya, Te, P., Ty, Wa, yo, we, T., Y., TA, PA and WA. This paragraph has no kerning.

Manual Kerning may also be used to improve the appearance of headlines:
CATCH THE WAVE <— with kerning
CATCH THE WAVE <— without kerning



Hyphenation in *PageMaker* 2.0 can occur automatically, through discretionary hyphens or both ways. When hyphenating automatically, *PageMaker* 2.0 will use a 110,000 word hyphenation dictionary in addition to your supplemental dictionary.



The menus of *PageMaker* 2.0. Notice the up arrow symbol included with some command key equivalents. This symbolizes that you should use the shift key in addition to specified command key set.

tighter or looser can radically change the appearance of the material.

Variable intercharacter spacing for text is also available (this is different from kerning). This feature eliminates excess white space within a line by automatically adjusting the space between letters.

Kerning isn't ignored. In fact there are two types of kerning available. Automatic pair kerning uses the pre-defined kerning pairs available in many laser fonts. Manual kerning is available to loosen or tighten the space between any two letters.

The classic typographic em, en and thin spaces are now correctly shown and supported.

AND YET MORE

Leader-filled tabs are a feature that anyone who has ever prepared a table of contents will appreciate. This feature will automatically fill the space preceding tabs with thin-space periods, dashes, underlines or user-defined leaders (which can consist of any character or any two different characters).

A single menu or keyboard command will now change any selected text from upper and lower case to all caps, small capitals or, as is often required in legal documents and voter's pamphlets, strike through letters for words that have been crossed out and replaced with alternative language.

The maximum size of individual *PageMaker* files is now 128 pages (if you have a hard disk). Since version 2.0 has four-digit automatic page numbering capability, these files can be combined into publications up to 9999 pages long.

Five interactive page viewing sizes are supported which can be displayed either as single pages or facing pages (spreads). The spread view is convenient for doing layout.

New line styles include half point and reversed lines. The half-point line fills the gap between the hairline and the one-point line and becomes the thinnest line printable on an ImageWriter. When the Reverse command is used, any *PageMaker* line style will reverse white out of black on PostScript printers.

Version 2.0 can resize the length or width of a column by simply dragging the mouse. And thanks to its threading feature, the text will be automatically recomposed throughout the story.

Group selection commands have been improved. Version 2.0 can select either an entire story or all the objects on one page with one command. Selecting an entire story allows you to globally change such text attributes as leading or point size in one operation. By selecting all the elements on a page, users can quickly copy the page from one publication to another.

A truly exciting feature is called Fast Move. Text blocks and graphics can be moved quickly on the screen by pointing to an object, pressing the mouse button, and quickly dragging the object to the new position. A box outline provides visual support while the object is being moved. By selecting the object and holding the mouse button down a little longer, users see the complete image as they reposition it.

Finally, several new resource formats have been added to the list of those that can be imported. In addition to all those previously available, you'll now be able to import files created by the *Microsoft Works* word processor and by both *Cricket Draw* and *Cricket Graph*. Aldus says they are working with several other publishers and developers and you can expect this list to grow, possibly even before version 2.0 is released.

Aldus has long been known for superb, industry standard manuals and training materials. Drafts of the version 2.0 manuals promise to be even better than the earlier material.

PageMaker 2.0 looks to be a product well worth the wait.

STEVEN BOBKER IS EDITOR-IN-CHIEF OF MACUSER.

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Directory

SOFTWARE

Graphics

Adobe Illustrator, Adobe Systems, Inc., 1870 Embarcadero Rd., Palo Alto, CA 94303. (415) 852-0271. $495.

CricketGraph, Cricket Software, 3508 Market St., Suite 206, Philadelphia, PA 19104. (215) 387-7955. $195.

Easy3D, Enabling Technologies, 600 S. Dearborn, Suite 1304, Chicago, IL 60605. (312) 427-0408. $149.

FullPaint, Ann Arbor Softworks, 3393 Teller Rd., Suite 106, Newbury Park, CA 91320. (313) 996-3838. $99.95.

GraphicWorks, Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. (312) 480-7667. v1.0, $79.95; v1.1, $99.95.

Mac3D, Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. (312) 957-3475. v2.0, $249.

MacDraft, Innovative Data Design, 2280 Bates Ave., Suite A, Concord, CA 94520. (415) 680-6818. v1.2a, $269.

MacDraw, Apple Computer, 20525 Mariani Ave. Cupertino, CA 95014. (408) 996-1010. $195.

MacPaint, Apple Computer, 20525 Mariani Ave. Cupertino, CA 95014. (408) 996-1010. $125.

Microsoft Chart, Microsoft, 16011 NE 36th Way, Redmond, WA 98052. (206) 882-8088. $125.

Phoenix 3D, Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. (904) 396-6952. $39.95.

Picture Base, Symmetry Corporation, 761 E. University Dr., Suite C, Mesa, AZ 85203. (602) 844-2199. v1.2, $99.

Pro 3D, Enabling Technologies, 600 S. Dearborn, Suite 1304, Chicago, IL 60605. (312) 427-0408. $349.

SuperPaint, Silicon Beach Software, 9580 Black Mountain Rd., Suite E, PO Box 26143, San Diego, CA 92126. (619) 695-6956. $99.

Print Utilities/Spoolers

LaserServe, Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. (503) 226-3620. $125 per node.

LaserSpeed, Think Technologies, 420 Bedford St., Lexington, MA 02173. (617) 863-5595. $99.

MacPalette, CompServCo, 800 Freedom Lane, Slidell, LA 70458. (504) 649-0484. $69.

ModemShare, Mirror Technologies, 2209 Phelps Road, Box 381, Hugo, MN 55038. (612) 426-3276. $199.95. (Anticipated ship date: June 15th).

Silicon Press, Silicon Beach Software, 9580 Black Mountain Rd., Suite E, PO Box 26143, San Diego, CA 92126. (619) 695-6956. $79.95.

SuperLaserSpool, SuperMac Software, 950 N. Rengstorff, Mountain View, CA 94043. (415) 964-8884. $149.95 single user, $395, multi-user.

Clip-Art

ClickArt: Publications, Personal Graphics, Business Image, Holidays, T/Maker Graphics, 1973 Landings Dr., Mountain View, CA 94043. (415) 962-0195. 49.95 each.

DigiArt (*MacDraw art*), Image Club Graphics, 2062915 19th St. NE, Calgary, Alberta, Canada T2E 7A2. (403) 250-1969. **DigiArt** graphics disks (3 disks) $99. 6 disks; $168 **LaserType;** $34 per font, set of 8 for $149, $259 for 16.

DrawArt, Desktop Graphics, 400 Country Dr., Suite H, Dover, DE 19901. (302) 736-9098. $49.95.

Mac-Art Library, compuCraft, PO Box 3155, Englewood, CO 80155. (303) 791-2077. 12 disks, $39.95 each.

Maccessories Graphic Accents, Kensington Microware, 251 Park Avenue South, New York, NY 10010. (212) 475-5200. $49.95.

MacMemories Series, ImageWorld, Inc., PO Box 10415, Eugene, OR 97440. (503) 485-0395. 18 disks, $30 per disk, $130 for blue ribbon set of 5 disks, $340 for 13-disk medallion set.

McPic! and **McPic!** Volume 2, Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311. (818) 700-0510. $49.95 each.

Sunshine Graphics Library, SunShine, Box 4351, Austin, TX 78765. (512) 453-2334. Many at $20 each, sliding scale for multiple purchases.

WetPaint, Dubl-Click Software, Inc., 18201 Gresham St., Northridge, CA 91325. (818) 349-2758. Two volumes, $39 each; both for $59.

Page Layout

DisplayAd MakeUp System, Digital Technology International, 500 West, 1200 South, Orem, UT 84058. (801) 226-1983. $2495.

JustText, Knowledge Engineering, GPO Box 2139, New York, NY 10016. (212) 473-0095. $195.

MacPublisher II, Boston Publishing Systems, 1260 Boylston St., Boston, MA 02215. (617) 267-4747. $195.

MacPublisher III, Boston Publishing Systems, 1260 Boylston St., Boston, MA 02215. (617) 267-4747. $295.

PageMaker, Aldus Corporation, 411 First Ave. South, Suite 200, Seattle, WA 98014. (206) 622-5500. $495.

Quark XPress, Quark, Inc., 2525 West Evans, Suite 220, Denver, CO 80219. (303) 934-2211. $695.

Ragtime, Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. (714) 779-2772. $395.

Ready, Set, Go! 3, Letraset, 40 Eisenhower Drive, Paramus, NJ 07653. (201) 845-6100. $395.

Scoop, Target Software, 14206 SW 136th St., Miami, FL 33186. (305) 252-0892. $195.

Fonts

Adobe Fonts, Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. (800) 29-ADOBE; (800) 85-ADOBE in California; (415) 852-0271 from Canada. 29 disks in all, prices run from $95 to $275 per font, with most around $185.

ClickArt Letters, Vol. I and Vol. II, T/Maker Graphics, 1973 Landings Dr., Mountain View, CA 94043. (415) 962-0195. $49.95. **Laser Letters: Bombay, Plymouth, Seville,** $79.95 each.

Fluent Fonts and **Fluent Laser Fonts,** Casady Co., PO Box 223779, Carmel, CA 93922. (408) 646-4660. **Fluent Fonts** (ImageWriter) $49.95. **Fluent Laser Fonts,** 15 volumes, $69.95 each volume.

FONTastic Plus, Altsys, 720 Avenue F, Suite 108, Plano, TX 75074. (214) 424-4888. $79.95.

Fontographer, Altsys, 720 Avenue F, Suite 108, Plano, TX 75074. (214) 424-4888. $395.

LaserFonts, Century Software, 2483 Hearst Ave., #175, Berkeley, CA 94709. (415) 549-1901. Numerous disks, $34.95 each. Designer series of ITC licensed fonts, $44.95. Discounts for multiple purchases.

LaserWorks, LaserWare, PO Box 668, San Rafael, CA 94915. (415) 453-9500. $299.

LaserPaint, LaserWare, PO Box 668, San Rafael, CA 94915. (415) 453-9500. $495.

Directory

Maccessories Professional Fonts, Kensington Microware, 251 Park Avenue South, New York, NY 10010. (212) 475-5200. $49.95 text, $69.95 headline (2 disks).

World Class Fonts, Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. (818) 349-2758. $39.95 3 disk set, $59.95 for six disks.

Word Processors/Spelling Checkers/Outlining

Acta, Symmetry Corporation, 761 E. University Dr., Suite C, Mesa, AZ 85203. (602) 844-2199. v1.2, $59.95.

Laser Author, Firebird Licensees, Inc., PO Box 49, Ramsey, NJ 07466. (201) 444-5700. $199.95.

MacLightning, Target Software, 14206 SW 136th St., Miami, FL 33186. (305) 252-0892. $99.95.

Memorandum, Target Software, 14206 SW 136th St., Miami, FL 33186. (800) 622-5483. $99.95.

Miriam Webster's Thesaurus for Word 3.0, Target Software, 14206 SW 136th St., Miami, FL 33186. (305) 252-0892. $49.95.

MacWrite, Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010. $125.

Microsoft Word 3.0, Microsoft, 16011 NE 36th Way, Redmond, WA 98052. (206) 882-8080. $395.

MindWrite, MindWork Software, PO Box 222280, Carmel, CA 93922. (408) 625-2720. $125.

MORE, Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. (415) 964-6300. v1.1, $295.

SideKick 2, Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. (408) 438-8400. Especially for *Outlook*, the outline processor that can work as a DA or standalone. $99.95.

Spellswell, Working Software, 321 Alvarado St., Suite H, Monterey, CA 93940. (408) 375-2828. $74.95.

Thunder!, Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. (415) 571-7991. $49.95.

Voila!, Target Software, 14206 SW 136th St., Miami, FL 33186. (305) 252-0892. $99.95.

Word Handler, Advanced Logic Systems, 1283 Reamwood Ave., Sunnyvale, CA 94089. (408) 747-1988. $79.95.

WriteNow, T/Maker, 1973 Landings Dr., Mountain View, CA 94043. (415) 962-0195. $175.

ACCESSORIES/UTILITIES/MISC.

Accessory Pak 1 (including Paint Cutter), Silicon Beach Software, 9580 Black Mountain Rd., Suite E, PO Box 26143, San Diego, CA 92126. (619) 695-6956. $39.95.

ClickArt Effects, T/Maker, 1973 Landings Dr., Mountain View, CA 94043. (415) 962-0195. $49.95.

Glue, Solutions, Inc., Box 989, Montpelier, VT 05602. (802) 229-0368, $59.95. **Smart-Scrap and The Clipper,** $59.95.

Mac Fill-In, Cognitive Concepts, 1219 Phelps Ave., San Jose, CA 95117. (408) 243-6886. $39.

Set & Send, Bree Technologies, 1099 W. 8th Ave., Suite 106, Vancouver, British Columbia, Canada V6H 1C3. (604) 734-0820. $995.

Sizer and **Adjacency** Desk Accessories (for *MacDraw*), Johnson and Johnson Design/-Build, 677 Grove St., Newton, MA 02162. (617) 253-5965. $69.

HARDWARE

PostScript Printers

LaserWriter and **LaserWriter Plus,** Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (408) 996-1010. LaserWriter $4999, LaserWriter Plus $5799.

QMS PS Jet plus, The Laser Connection, PO Box 850296, Mobile, AL 36685. (205) 633-7223. $5495.

2108 Printer, Texas Instruments, 12501 Research Blvd., Austin, TX 78769. (512) 250-7111. $5995.

Large Screens

Big Picture, EMachines, 7945 SW Mohawk, Pualatin, OR 97062. (503) 692-6656. $1995.

MegaScreen II, Micrographics Images, 20954 Osborne St., Canoga Park, CA 91304. (818) 407-0571. $1995.

MegaScreen Plus, Micrographics Images, 20954 Osborne St., Canoga Park, CA 91304. (818) 407-0571. $2495.

Nutmeg Systems Full Page Display, 25 South Avenue, New Canaan, CT 06840. (203) 966-3226. $1995.

Radius Full Page Display, Radius, Inc., 1050 East Duane Ave., Suite F, Sunnyvale, CA 94086. (408) 732-1010. $1995.

Digitizers/Scanners

Scan 300, Abaton, 7901 Stoneridge Dr., Pleasanton, CA 94566. (415) 463-8822. $2495. **Sheet feed scanner,** $1895, **Flat bed scanner,** $2295. Optical Character Recognition option, $700.

Magic, New Image Technology, Suite 104, 10300 Greenbelt Rd., Seabrook, MD 20706. (301) 464-3100. $549 (with camera), $399 (without camera).

MicroTek MS-300A, MicroTek Labs, 16901 South Western Ave., Gardena, CA 90247. (213) 321-2121. $2495

PC Scan Plus, DEST Corporation, 12 Cadillac Dr., Milpitas. CA 95035. (408) 946-7100. $2495.

ThunderScan, ThunderWare, 21 Orinda Way, Orinda, CA 94563. (415) 254-6581. $229.

Graphics Tablets

Macintizer, GTCO, 7125 Riverwood Dr, Columbia, MD 21046. (301) 279-9550. $399.

MacTablet, Summagraphics, 777 State St. Extension, PO Box 781, Fairfield, CT 06430. (203) 384-1344. 6 x 9, $449, 12 x 12, $599.

PenMouse+, Kurta Corporation, 4610 S. 35th St., Phoenix, AZ 85040. (602) 276-5533. $245. **IS PenMouse,** $295.

ORGANIZATIONS

National Association of Desktop Publishers, PO Box 508, Kenmore Station, Boston, MA 02215. (617) 437-6472.

Electronic Directions, 21 E. Fourth St., New York, NY 10003. (212) 533-9651.

The Desktop Publisher Support Group, PO Box 1009, Murphy, NC 28906. (704) 837-3014.

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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 three-dimensional objects. **He can go from live action to his newsletter in seconds.** MacVision™ saves him time and money and gives him tremendous creative flexibility in his publishing efforts. If you need to image three-dimensional objects (building displays, people, products, etc. as well as flat art) you will need MacVision.™ It's that simple. **Send for MacVision™ applications brochure.** MacVision™ is available at Egghead Discount Software and other leading computer dealers.

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DOMINICAN HOSPITAL EMPLOYEE NEWSLETTER

VOLUME 1, NUMBER 7 AUGUST, 1986

Alphonse Castaneda...Blooming Genius

The gorgeous orchid corsages 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 marts for retailing 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 petri dishes, or combines varieties through hybridization. The work is exacting, 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 vertebra fusions. "The improvement makes the procedure go a lot faster," Alphonse says with justifiable pride.

Alphonse was a prime mover in organizing the Hospital softball teams, although his schedule doesn't permit him to play this year. "The teams 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 will affirm, is a real "people person," with a well-deserved reputation for kindness and generosity.

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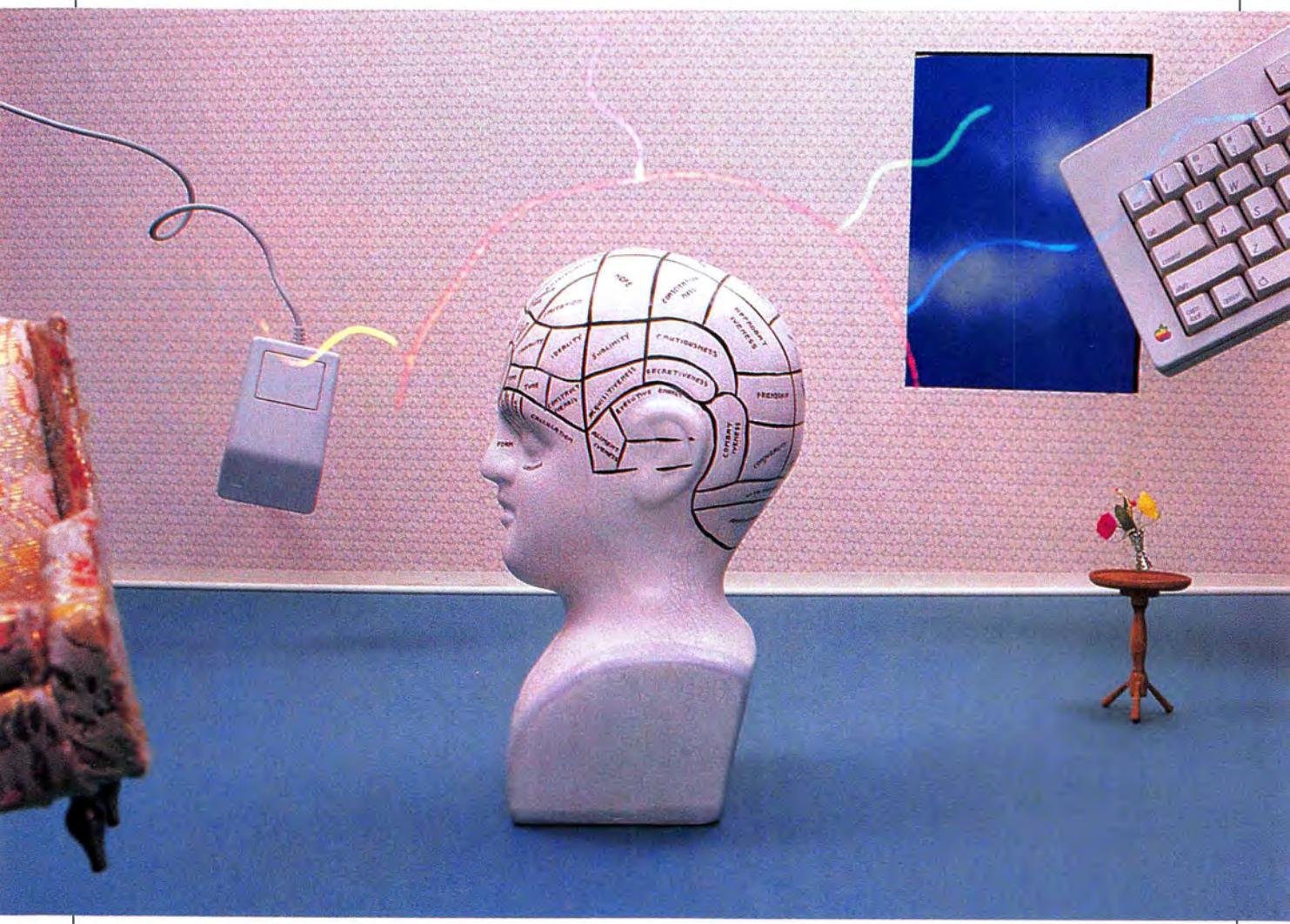
Boarding The Bus

The Apple Desktop Bus is a brand new expansion channel. Here's what it is, how it works and what to expect of it.

APPLE, ALWAYS THE INTELLIGENT computer company, set itself the goal of compatibility between the Mac and Apple II lines of computers. It didn't mean sharing software; that's impossible. But it did mean peripheral hardware compatibility, so that, for example, a single hard



BY PETER BAUM

disk would serve all Apple users, regardless of which machine they had.

The first results of this plan came with the introduction of the IIGS in 1986. It was introduced with a 3.5-inch disk drive that works with both it and with the Macintosh. At the same time Apple introduced a peripheral card that allows the SCSI Hard Disk 20 to work with the Apple II family. However, the IIGS's keyboard and mouse were not only incompatible with the Mac, but also incompatible with the other computers in the Apple II family. At the time this seemed out of place with the goal of shared peripherals. However, the new generation of Macintoshes use these same mice and keyboards, and we can now see what Apple had in mind. Apple had strong reasons to break away from its established keyboard and mouse standards, and in the process it has rendered the old input devices incompatible with the new machines.

A NEW BUS ARRIVES

The new mice and keyboards connect to what is called the Apple Desktop Bus (ADB). ADB provides a standard hardware and software interface for a wide variety of input and pointing devices for the new Macs and the Apple IIGS. While ADB is unique to Apple's computers, third-party developers have already announced a number of input peripherals, and many more are on workbenches and drawing boards.

First and foremost, ADB sets the direction for future growth of input devices in Apple's new line of computers. The direction has three major strengths: expandability, standardization and compatibility.

Adding devices to ADB does not use up any of the limited number of slots or serial ports, and does not require a special expansion adaptor. This eliminates a major obstacle to system expansion.

Hardware developers now have a standardized connection to work with when creating new ways of inputting data. Furthermore, software developers have a standard protocol to talk with, even if they have never seen a particular type of device before.

Finally, ADB allows new input peripherals to take immediate advantage of the existing software base. Developers can design new peripherals which support existing software, even if the original software didn't anticipate the new devices.

FACTORY OPTIONS

ADB brings many new accessories to the Mac, some of which are "borrowed" from the Apple II. ADB opens new avenues for software developers because it furnishes a standard method of connecting that popular game-playing controller, the joystick. While the pointing accuracy of a mouse is very useful for spreadsheets, it just doesn't cut it for arcade games such as *Choplifter!* Expect many game publishers to convert old Apple II favorites into the Mac versions and to develop some original games after the first ADB joysticks hit the market.

ADB generally works faster than the older methods it replaces because it distributes some of the processing into each input device. This means that the computer spends less time determining whether the mouse was moved or if a key was pressed. This distributed processing allows for the design of more sophisticated input devices that will not slow down a program by placing an extra burden on the main processor. Many types of devices can coexist and share the bus. These can be similar devices such as trackballs and mice or different devices such as keyboards and graphics tablets. In fact, the bus will allow nine exact copies of a device to share it.

This feature not only makes the Mac adaptable for multi-player games, but even introduces a new type of mass player game. Imagine an eight-player *Pong*-type game with each player protecting one side of an octagon. The octagon slowly starts spinning, increasing in speed the longer the ball stays in play. Or, imagine a school with a single computer monitoring nine students while they take a quiz.

UNDER THE SKIN

ADB consists of a four-wire cable with a four-pin mini-DIN connector at each end. One of the more popular features of the bus is that it provides the ground and power lines to each ADB device. This means no more wall mount transformers to power individual devices.

ADB is a bidirectional bus. ADB devices can both send and receive information from the system. While ADB has been optimized for input, it also lets the computer talk to each ADB device. This talk feature can be used to customize or fine-tune mouse resolution, keyboard layout or keyboard language.

All devices on ADB are connected in parallel. This is physically accomplished by providing two connectors that allow daisy-chain configurations on every ADB device. Another method of plugging ADB devices onto the bus is to connect everything to an ADB junction box which has a number of ADB connectors wired in parallel. That works just like a telephone line with multiple outlets wired throughout a house. Expect third-party ADB junction boxes to be announced by the time this issue hits the streets.

STANDARD MODELS

Apple has defined five types of standard devices for ADB. These types are broken into some fancy sounding classifications called relative, absolute, encoded, appliance and ADAPSO. However, these are

DOUGLAS HOPKINS

just generic categories for common pointing devices such as mice, tablets and keyboards.

Although anyone who uses a Mac knows what a mouse is, most users probably don't know that it is considered a relative device. A relative device does not tell the computer what its position is on the table top. Instead, it relays the direction and distance that the device has moved since the last time it returned position information. That's why the cursor doesn't move when you pick up the mouse and set it somewhere else on the desk or knock it on the floor.

A trackball, which can be thought of as an inverted mouse, is another example of a relative device. Trackballs are found in many arcade video games. People like trackballs because they can be parked next to the keyboard, don't need a clear work area near the computer like a mouse and rarely need cleaning. The Kensington Turbo Mouse trackball should be available with ADB connectors by now. Another relative ADB device to watch for is a yoke, which is the steering-wheel controller used in arcade games such as *Pole Position*.

Sophisticated relative devices can include intelligent modes of operation, such as "scaling," that have previously required system code. Scaling is like power-assisted steering in a car. When the mouse is moved quickly, the cursor will move further than if you moved the mouse the same distance slowly. Some manufacturers of ADB relative devices will allow the user to customize the cursor scaling control.

To see the effects of scaling on the Mac, move the cursor to one edge of the screen and mark the mouse's position on the table top. Then quickly move the mouse so that the cursor ends up somewhere in the middle of the screen. Slowly move the mouse until the cursor returns to its original position at the edge of the screen. Notice that the mouse has moved well past its original starting position on the table top.

You can turn off scaling for your mouse in the Control Panel of the Mac. In the section labelled "Mouse Tracking" there are icons for a mouse and a tablet. If you select the tablet, the mouse scaling will be disabled.

A graphics tablet is an example of an absolute device. The cursor position on a graphics tablet is in direct correspondence with the position of the pen on the tablet. This allows users to perform simple operations, such as tracing a picture, without keeping their eyes glued to the screen.

Most of the graphics tablets available today use a hand-held pen to control the cursor. Artists usually opt for the pen since they find it unnatural or awkward to draw with a mouse.

Some companies already have ADB graphics tablets available. Kurta Corporation has an interesting product, the Graphics Input System, a graphics tablet that uses a wireless pen or a puck to control the cursor. This product has a scaling mode that lets the user choose a fraction of the tablet's work surface for the complete desktop. The smaller the selected area, the less hand movement is required to move the cursor across the screen. The Kurta PenMouse+ Graphics Tablet for the Mac Plus was reviewed in February's issue. Kurta says that some of the shortcomings found by the reviewer have been fixed in the new GIS tablet.

An absolute ADB device could contain a mode that lets it act as a relative device. For example, a user may want the graphics tablet to operate as an absolute device when tracing a picture, but might prefer the tablet in relative mode when drawing freehand.

The difference between the modes is apparent when the user takes the pen off the tablet and moves it. In relative mode, the cursor will start up where it left off regardless of where the mouse or pen is placed on the tablet. In absolute mode, when the pen is placed back onto the tablet, the cursor will immediately jump to a new position relative to the pen's position.

Another absolute device that should soon be available on ADB is the touch pad. The pad is similar to the graphics tablet, but allows a simple stylus or a finger to be used to control the cursor. The Koala Pad is a popular example of a touch pad. An ADB touch pad can provide some new modes not available on current graphics tablets. It could sense two or more fingers being pressed, which would allow it to act as an ADB keyboard.

Encoded ADB devices provide the standard keyboard features, such as a keypad and cursor control keys, found on the Mac Plus. ADB encoded devices can also provide a capability which Apple has steadfastly ignored in the past, function keys. Apple contends that a mouse is much more useful than function

Why ADB? $ & ¢

The Apple Desktop Bus was originally conceived as a way to lower the cost of connecting a mouse and detachable keyboard to a computer. Apple decided that by adding chips to the design, it could reduce the cost.

Apple discovered that one of the major costs in manufacturing its original (quadrature) mouse for the Macintosh and Apple II was in the cable. The labor cost of connecting the seven-wire cable, along with the cost of the cable and connectors, was running upwards of $5. So a couple of engineers working on the new Macintosh came up with an idea that would both reduce the cost and provide more flexibility for input devices. By including some "intelligence" into each device, a special protocol could be devised to enable the mouse and keyboard to be connected using a three-wire cable. This would reduce the labor cost and the cost of connectors since the new Apple standard mini-DIN connectors could be used.

Later, Apple used four-pin mini-DIN connectors on ADB because three-pin connectors were already used for AppleTalk. They felt using the same connector might confuse the customer. The fourth wire was used as a reset wire. The "intelligence" added to the mouse was accomplished by including one chip, a single-chip microcontroller, for a cost of under $2. However, the new cabling scheme reduced the cost of the mouse more than $2, so the total cost of the new mouse was lower than the old one. The extra flexibility and compatibility of ADB came as an added bonus.

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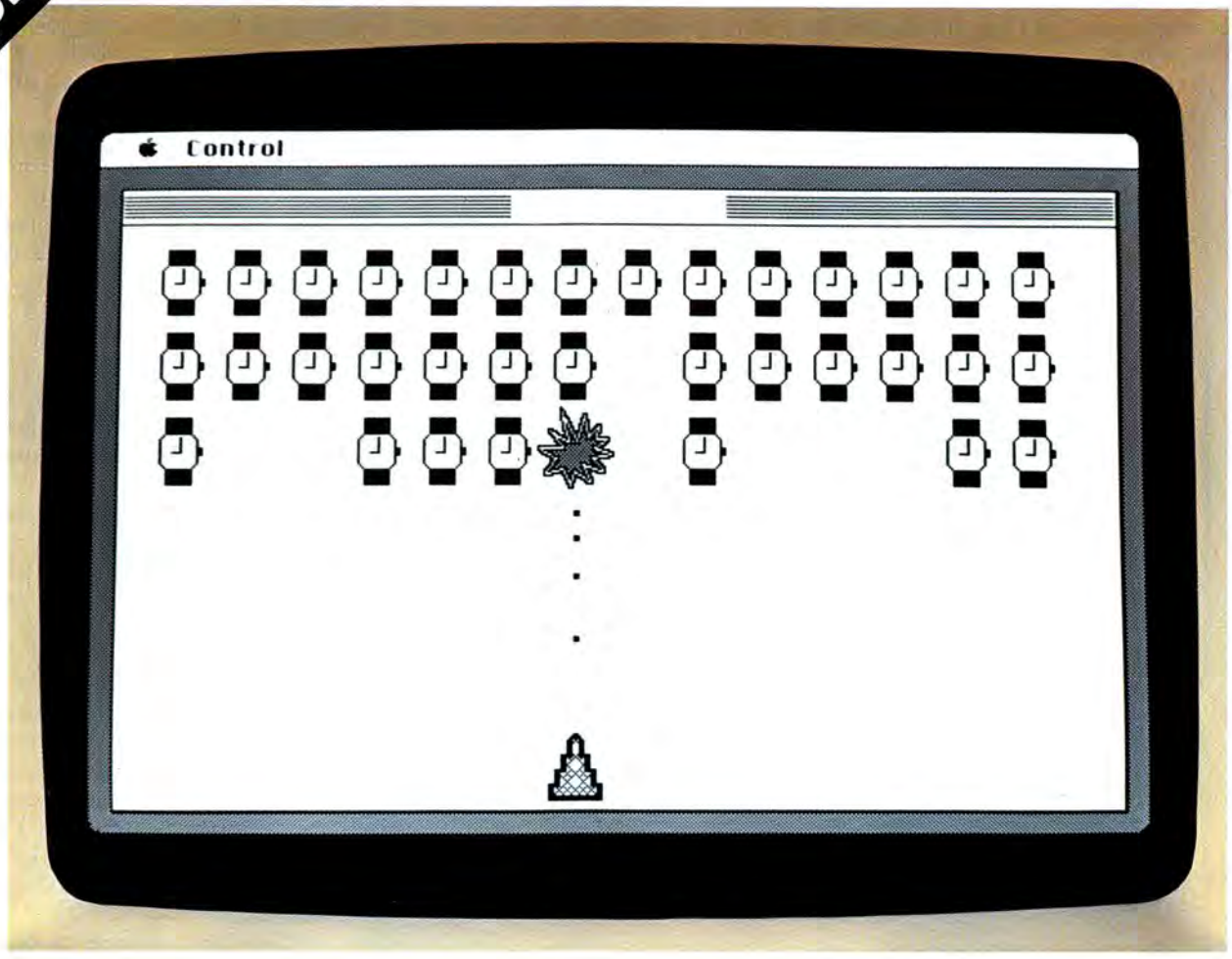

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keys, and they have finally provided the opportunity to test that theory.

Third-party encoded products include IBM PC-AT-style ADB keyboards, such as those announced by Tangent and DataDesk. These will enable people familiar with programs that run on both PCs and Macs to use both machines without switching keyboard styles. People who are forced to use IBM-compatible computers by their bosses will find the keyboard makes it easier to switch to the Mac—which of course they'll do whenever the boss turns his back.

The appliance classification provides a means for ADB to be extended to an almost unlimited number of devices. While a typical ADB device is identified by one of 16 possible addresses, an appliance device will recognize addresses as large as 16 billion billion (not a misprint, but an actual number larger than the national debt). By allowing this type of extension to ADB, a large number of devices can be connected and used by the system, although there are limits.

An example of an appliance device is a temperature sensor. Thirty low-power ADB temperature sensors could be connected to a single computer. The computer reads the temperature from each sensor every second and records it. (A mouse typically updates its current position 60 times a second and still leaves time for other devices to send update information, but an appliance device should never exceed 30 updates/second).

Another application for an appliance device is a sensor for an alarm system. Since each ADB device is connected in parallel on the bus, each of the sensors is daisy-chained to the next, with the last in the chain connected to the computer's ADB port. The computer periodically checks each sensor and sounds an alarm if one fails to respond. With ADB, the sensors can be connected in a string and interrogated individually. This cuts down on the mass of wires and makes adding new sensors simple.

There are a couple of drawbacks when using a large number of appliance devices. First, the total power drawn by all devices on ADB and the total cable length must not exceed the maximum specified for the host machine. Second, appliance devices must be used infrequently, since it takes longer to retrieve data from an appliance device compared to a relative device, such as a mouse.

THE DARK SIDE OF ADB

The fifth type of device Apple has defined for ADB is one which connects a copy-protection key. This device is modeled after a proposal by ADAPSO. However, Apple never pursued it beyond the specification stage and the current documentation for ADB makes no mention of this provision. The idea behind the copy-protection key is to provide a "lock" device, with a removable key, that

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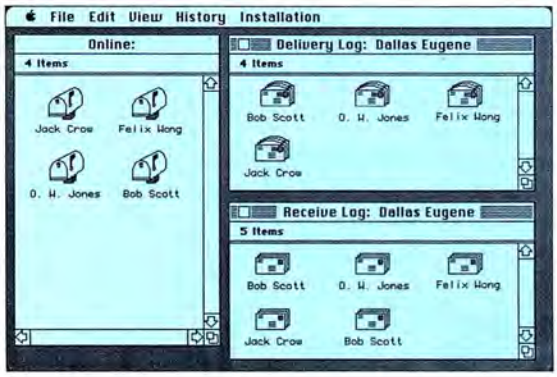

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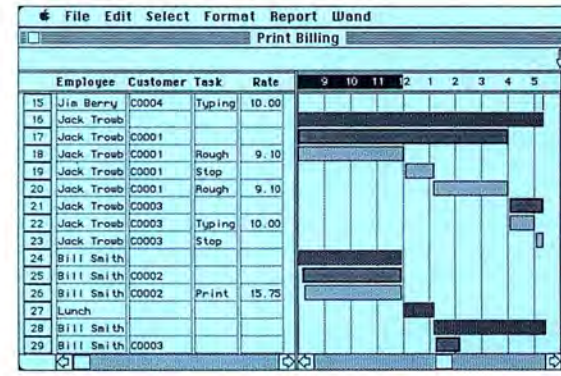

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sits on ADB. The lock could permit more than one key to be connected at a time. The key would have to be plugged into the lock before the program would run. The key, which could be anything from a ROM chip to a piece of plastic, would provide a software-readable serial number.

This copy-protection scenario addresses some of the complaints that arose when Apple put an unremovable software-readable serial number on each Lisa. Some programs used the serial number for copy-protection. The first time the program was launched it would store the serial number and thereafter would only run on that machine. Most offices that had more than one Lisa found this a real annoyance, since it prevented anyone from using a machine other than their own unless they borrowed the other person's software. By using a removable key, a user would only have to carry the key around, not the whole computer. (In fact, the whole ADB lock mechanism would be removable.)

POSSIBLE NEW MODELS

Other ADB products already announced include a bar code reader, a magnetic strip reader and a combination of the two, all from TPS Electronics of Palo Alto, California. Now you will finally be able to see the information that is written on the magnetic strips found on the back of your credit cards.

ADB was not designed to handle all types of input devices, but is optimized for a mouse and a keyboard. Certain products may not lend themselves to ADB because the bus isn't fast enough. For example, it is doubtful that a music synthesizer keyboard will be very successful as an ADB product. Typically, such a keyboard does better when connected through a serial port as a MIDI device, since it can send data approximately six times faster than ADB that way.

Other limitations for ADB are, as mentioned earlier, the sum of the power required by all the devices on the bus must not exceed the amount specified by the host computer (IIGS, Mac, etc.) and software identification constraints. For example, since the mouse (or keyboard) is not an appliance device, there can be, at most, nine of them on the bus at a time. This limits developers to nine-player games.

While Apple has created some present day confusion by introducing Apple Desktop Bus as the new input device standard, they have clearly set the stage for the future. Hardware developers can now design input devices which adapt easily to the existing software base. Software developers now have a standard programming protocol for reading input devices. Finally, users have a simple, flexible and expandable bus for input devices.

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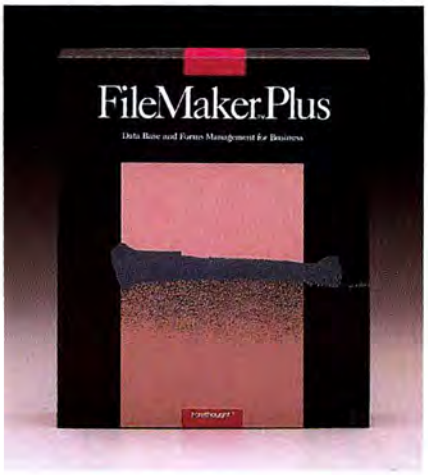

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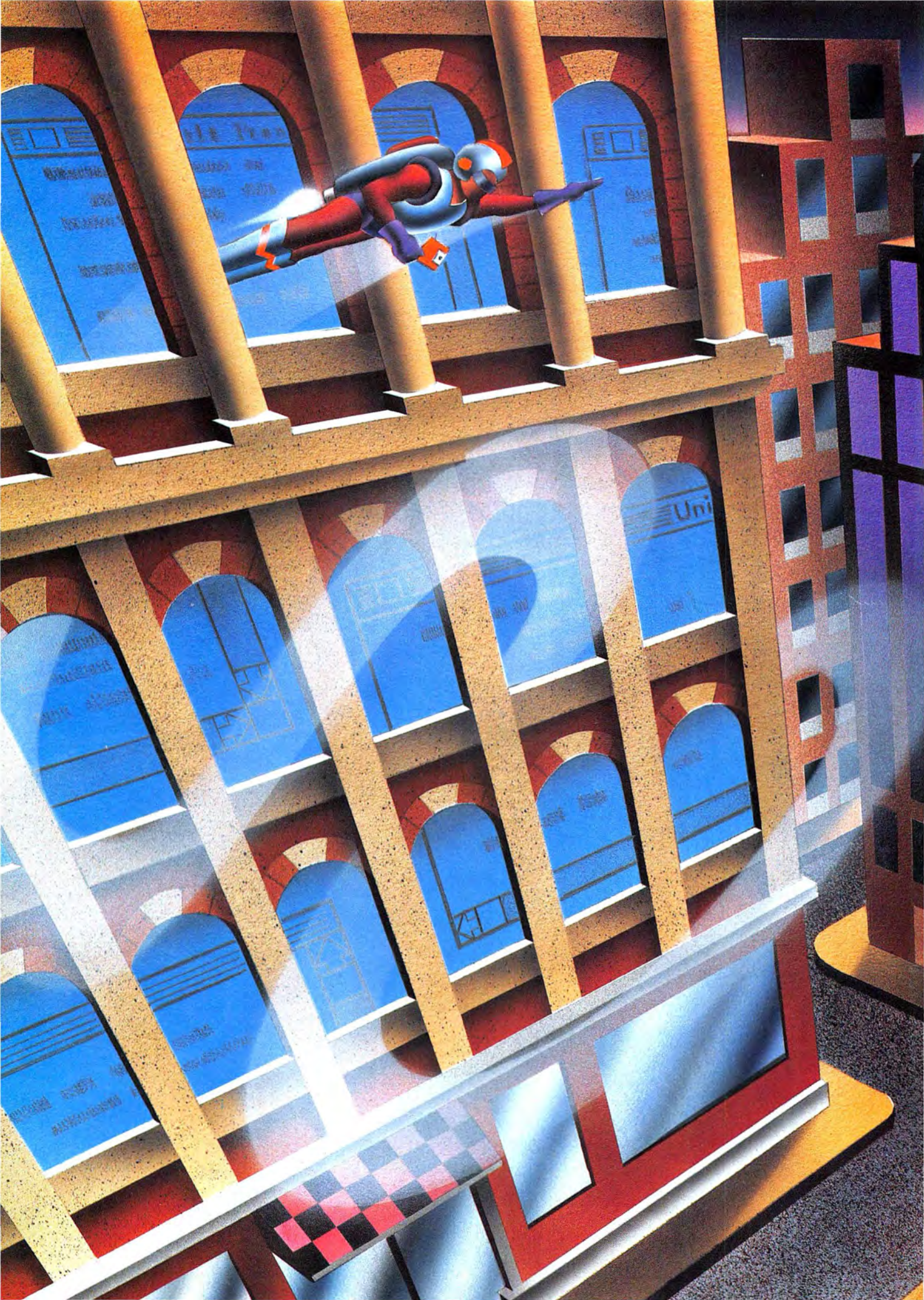

Turbo-Charged

Turbo Pascal is fast: 12,000 lines of good, compiled Pascal code in 60 seconds.

BY HOWARD KATZ

A GOOD COMPILER IS LIKE A HIGH performance race car. It runs well on high octane but spits and coughs on dirty fuel. A look under the hood of *Turbo Pascal* reveals a charged-up compiler that's ready to crunch code as fast as the stockers at Daytona.

Borland International's low-priced *Turbo Pascal* package has done astoundingly well in the IBM-PC market. *Turbo*'s been so successful, in fact, that it might be called the Yuppie compiler of the 1980's. So naturally it's now available on the Mac. And none of us—Borland included—will be the losers by it.

Borland's entry into the Macintosh market marks the latest salvo in the Pascal Wars that began with the introduction of *TML Pascal* nearly 2 years ago. Since then, *TML* has been joined by Think Technology's *Lightspeed Pascal*, and most recently by Apple's own *MPW Pascal* running under the *Macintosh Programmer's Workshop*. These products all differ in one way or another, but Borland's entry is different enough to find its own niche.

I had my first experience with *Turbo* several months prior to its official release. The program was at the final stages of beta testing. I decided to use *Turbo* to make some minor modifications to Cary Clark's *File* program, one of Apple's earliest attempts to provide an example of Mac programming techniques to a then-bewildered programming community.

File, at 40 to 50 pages of highly dense code, is not particularly small, and I was astounded at *Turbo*'s speed. The source code for *File* was loaded from disk and compiled in amazingly short order. I was also impressed with *Turbo*'s lack of bugs, since beta versions of software are not generally noted for their stability. In fact, I encountered only one minor problem with the compiler that required any sort of work-ar ound. I informed Borland of the bug, and was told that the problem was known and would be corrected. My first impressions haven't changed now that I have the release copy. The bug I found earlier was corrected, but I found one new, minor bug—and the compiler still runs like blazes.

Like its PC-based cousin, *Turbo Pascal* for the Macintosh is a self-contained, all-in-one product. *Turbo*'s editor is continually on-screen; in fact, with *Turbo, everything* is on-screen, except when your code is actually executing. All of *Turbo*'s options are either immediately accessible from the menus at the top of the screen or through compiler directives that you insert into the text of your program. This immediacy of the development environment, along with *Turbo*'s compiling speed, are the program's strongest features. Other adjectives that come to mind are simple, unadorned and just plain fun.

The only time you'll have to leave *Turbo* is if you're using resources in your program; you'll need Apple's *RMaker* program to compile these to a separate resource file. (*RMaker* comes supplied on the *Turbo* distribution disk.) *Turbo* can access *RMaker* files by means of a "{$R}" compiler directive near the start of a program.

Turbo makes it fairly simple to get to *RMaker* and back through the use of an editable Transfer menu that can be set up with the names of "outside" applications. Another *Turbo* menu option sets up the names of the directories that *Turbo* will search by default when it has to find resource files—as well as any files that you "include" and any library units that you're using.

COME■PILE■UR OPTIONS

Once you've typed in your program and are ready to compile, *Turbo*'s Compile menu gives you several options. You can have up to eight windows open on your desktop; compilation always affects the topmost window. Figure 1 shows a typical source file on the *Turbo* desktop. This piece of code is from one of the sample programs that Borland includes on a second disk. Note the numerous compiler directives at the

JIM LUDTKE

top of the code. The only one that's absolutely necessary in this instance is the above mentioned "{$R}" directive that tells *Turbo* where to find your resource file. This sample program, by the way, is extremely nice: It provides a fairly representative workout of many of the Mac's various managers in ROM and shows some good programming techniques.

You can compile programs either to memory or disk. The advantage of the first method is that things happen amazingly fast. You'll be pleased at how quickly *Turbo* digests your program and, consequently, how it shortens your development cycle. Borland claims that *Turbo* eats code at the rate of 12,000 lines per minute. I didn't test this but can well believe it. In fact, running *Turbo* on a Mac Plus with a fast hard disk is much like an experiment in spontaneous combustion.

The advantage of the second method—compilation to disk—is that your compiled application hangs around for later use once you've exited the *Turbo* environment. You'll have to do this eventually if you want to produce a standalone application; until that time, you can elect to remain in memory mode for quick and effortless development. A final Run menu option lets you compile your program to memory and then jump immediately into the compiled application. Once you quit the application, you're back in *Turbo* in less time than it took to write this sentence. This is fun stuff.

Turbo might be called the Yuppie compiler of the 1980's. So naturally it's now available on the Mac. And none of us will be losers by it.

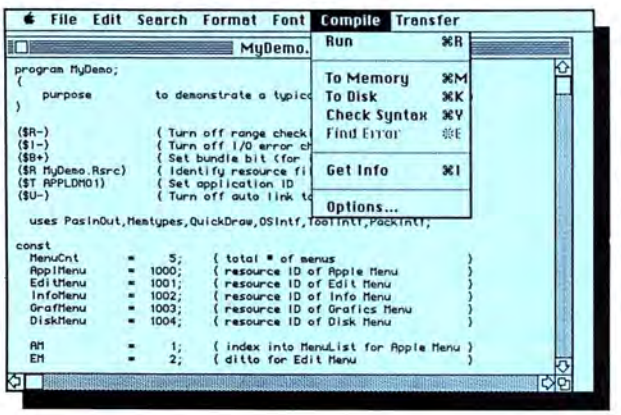

Figure 1: A sample application on the *Turbo* desktop. This program uses a number of compiler directives; strictly speaking, only the "{$R}" directive is absolutely necessary here. The Compile menu shows the various options you have available for compilation.

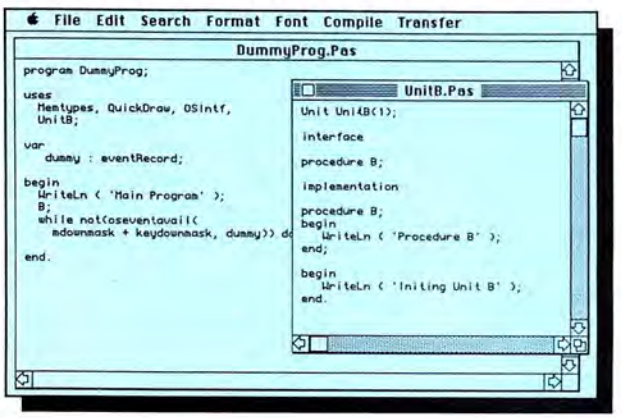

Figure 2: A small application that uses one additional unit. Note the required unit number (any integer) following the name of the unit. This unit has an initialization section, which is optional.

If your program has Pascal bugs—and whose doesn't?—*Turbo* will immediately inform you of the fact. It highlights the offending piece of code and writes an error message to a dialog box on the screen. I generally found these messages helpful in tracking down my bugs. In only one instance did I find a *Turbo* error message to be somewhat misleading. This occurred with a program that imported a subsidiary unit. I made a change to the source code in the unit and then tried to recompile the main program without recompiling the unit first. *Turbo* complained with a "Unit not found" message. What it was really saying was that the unit was out of date and needed recompilation. Once I did this, things worked fine.

UNITS ON PARADE

In general, if you're using multiple units in one program, it's up to you to keep your files in step. *Turbo* does not automatically recompile your files if you make changes in a unit that other units depend on—you'll have to do this yourself. If you've changed a unit at the bottom of the hierarchy, you'll have to open all the files that depend on that unit and recompile them one by one. Given *Turbo*'s speed, however, this shouldn't be too onerous.

Figure 2 shows a small sample program which imports one unit, also shown. This program creates an empty window on the desktop and writes the following three lines to it:

Initing Unit B
Main Program
Procedure B

The "Initing Unit B" message illustrates the use of an initialization section in an imported unit. The last line in the main program simply keeps the window around until you dismiss it with either a keystroke or a mousedown. Once you click the mouse, you're immediately back in *Turbo*.

You'll notice that I didn't use any Macintosh Window Manager calls to set up this window. *Turbo* automatically creates this window and lets you use Pascal's standard Write and WriteLn procedures unless you explicitly turn off this feature with the

"{$U-}" compiler directive. Otherwise, the three precompiled runtime units *PasSystem, PasInOut* and *PasConsole* are automatically linked into your application to provide some basic windowing support.

These three units, as well as the three interface files *memtypes, quickdraw* and *osintf* that are visible at the top of the code, are actually a part of the *Turbo* application itself, along with the other interface files that you'll need to access the Macintosh's ROM routines. Borland provides a full description of these units in its manual and provides a *UnitMover* utility that lets you remove or install these precompiled units as you like. Figure 3 shows the *UnitMover* window: it appears suspiciously similiar to another Macintosh utility.

TURBO DOCUMENTATION

The manual that accompanies the program is superb. I've read many Pascal manuals over the years, and this is the best I've seen, bar none. At 462 pages, the manual is extremely complete and well written. Most Pascal manuals satisfy themselves with a bare-bones, functional description of language syntax and standard procedures. Borland has gone a step further and included a good deal of introductory material on the unique problems of programming the Macintosh—certainly not in enough detail to let you dispense with *Inside Macintosh* altogether, but more than sufficient to get you started.

As an example, one entire chapter deals with the rather esoteric subject of writing desk accessories, and two programs on the disk provide some hands-on examples. Most Mac programmers generally don't get around to writing DAs until relatively late in their programming careers, and this chapter is titled, fittingly enough, "Graduation." I opened to the first page and within 30 minutes had a simple DA up and running on my screen—my first. And I didn't have to refer to *Inside Macintosh* even once. Most impressive.

If all this sounds too suspiciously wonderful, I was dubious myself. I spent several hours skimming through the manual, looking for inconsistencies or mistakes. Finally, in a desparate search to find *anything* to criticize, I was reduced to the lowest form of editorial scutwork: searching for typos. I couldn't find a single one. The worst thing I can say about the manual—and I'm straining here—is that I put it under my pillow for two nights running and woke up in the morning not one bit the wiser. Somehow I'll find it in my heart to forgive Borland this oversight.

Running Turbo on a Mac Plus with a fast hard disk is much like an experiment in spontaneous combustion.

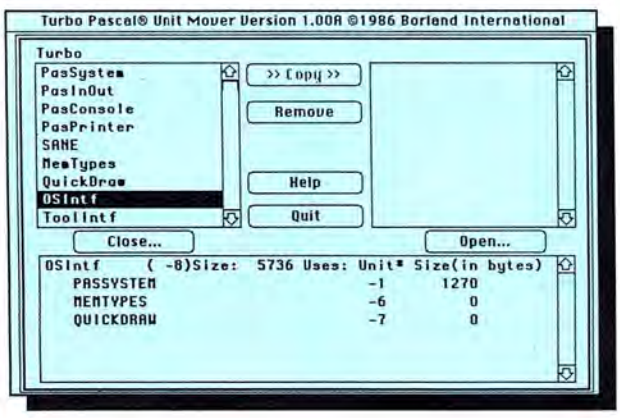

Figure 3: The *UnitMover* window. This looks vaguely similar to another familiar Macintosh utility.

NOT ENTIRELY WITHOUT SIN

The *Turbo* program itself does have one blemish which drove me up the wall. Whether this flaw is fatal or not, I'll leave up to you to decide. It involves a bit of shortsightedness on the part of the program's designers.

There are actually two related problems and both involve tabbing. As in most editors, one of *Turbo*'s menu options lets you set the number of spaces the insertion point will move to the right whenever you press the tab key. That's well and good, but every time you enter a tab, *Turbo* inserts *hardwired* spaces directly into your text, instead of a coded tab setting that tells the editor to move over the number of spaces that have been defined. This means that you'll have to press the backspace key numerous times to remove the single tab you've just inserted. If you set the tab stop to three, for example, you'll have to backspace three times to clear the tab. This is a pain and totally unnecessary; other editors don't do this.

The second problem is a result of the first. Because your tabs are actually hardwired spaces, changing the tab setting has no effect on any of the text you've already entered. This makes it extremely difficult to rework the appearance or format of your program—a cardinal sin for programmers who think that style and format is a religious issue. In Borland's defense, two options in the "Edit" menu let you move entire blocks of text to the left or right at will; this is still less than satisfactory. Borland must have got the same message from other developers: They've promised to fix this problem in the next revision of the program.

THE WRATH OF KAHN

I felt strongly enough about this problem to approach Borland president Phillipe Kahn about it when I encountered him during the last MacWorld Expo in San Francisco. I asked about the bug; he said he wasn't aware of the problem but would look into it; he scribbled something indecipherable on the back of his business card and told me to take it over to the Borland booth.

(continued on page 196)

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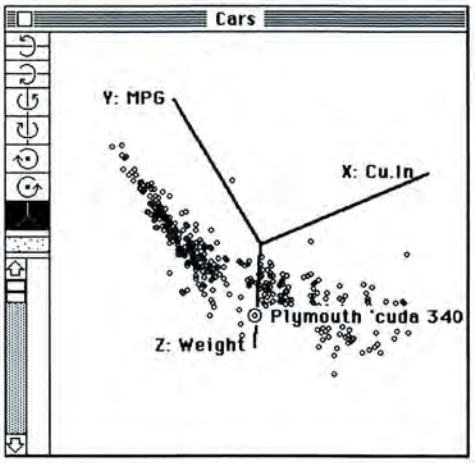

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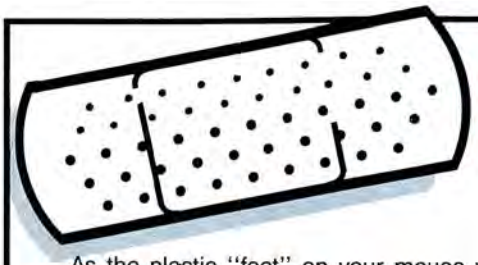

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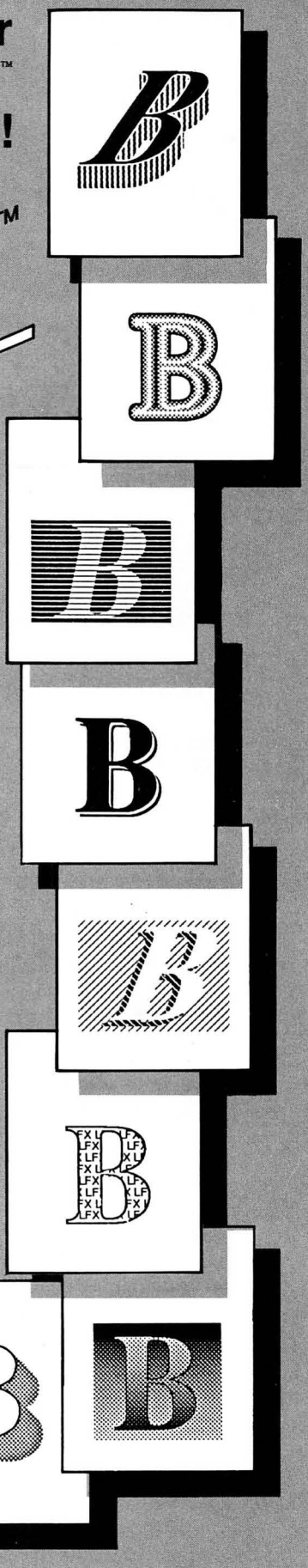

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Has that statistics package you thought was a tiger turned out to be something else?

Most Mac statistical packages call themselves 'professional,' 'comprehensive,' or 'complete.' But feed them some *real* problems, and you'll discover how toothless they really are. ■ They can't do multivariate procedures ■ Or analyze financial time series ■ Or fit nonlinear models ■ Or compute large, multi-way cross tabs

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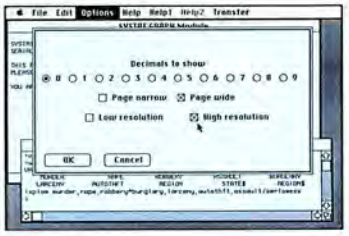
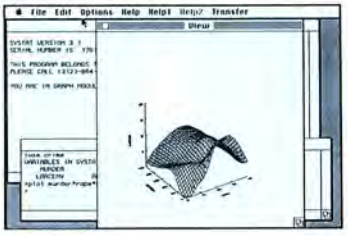
Mac screens





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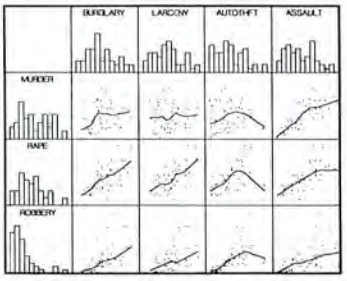

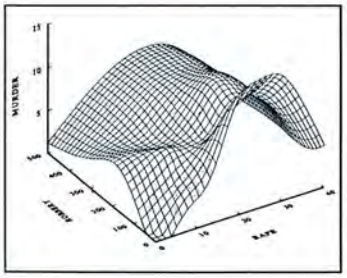

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TIP SHEET

COMPILED BY DAVID SCHARGEL

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MAC SE

Built into the ROM of the Macintosh SE is a short, four-frame slide show showing members of the SE development team. You can have your Mac SE run through the slide show by rebooting the Mac and pressing the interrupt button on the programmer's switch. If you have a modem, be sure it is turned off. Then type the following in the debugger window: "G41D89A." Hit Return and your slide show will begin. The only way to stop these faces from appearing is to reboot the machine.

WILLIAM BARNES
BISMARCK, SD

WORKS

While in the spreadsheet, you can quickly move a selected range of cells by holding down the Command and Option keys while clicking in an empty cell. The cell that is clicked in will be the upper left cell of the moved range.

JOHN STONEHAM
CUPERTINO, CA

FLIGHT SIMULATOR

You can obtain a nearly poster size screen shot of the current *Flight Simulator* screen by pressing COMMAND-SHIFT-5. *Flight Simulator* will then prompt you to insert a formatted disk with at least 200K available. After inserting the disk, click on the close box and twelve large *MacPaint* screens will be saved.

Print the series of dumps and tape them together for a large *Flight Simulator* poster.

ANDY SCHAFER
CHAGRIN FALLS, OH

It is possible to activate five prerecorded situations that do not normally appear by using an undocumented technique. Start by choosing LOAD RAM FROM DISK from the Situation menu. The *Flight Simulator* disk will eject and you will be prompted to insert a disk containing a situation file. Instead, reinsert the *Flight Simulator* disk. In a few seconds a confused *Flight Simulator* will eject the disk and you will be prompted to reinsert it. You can now access situations you previously couldn't obtain.

LAWSON G. STONE
NEW HAVEN, CT

RESET FKEY

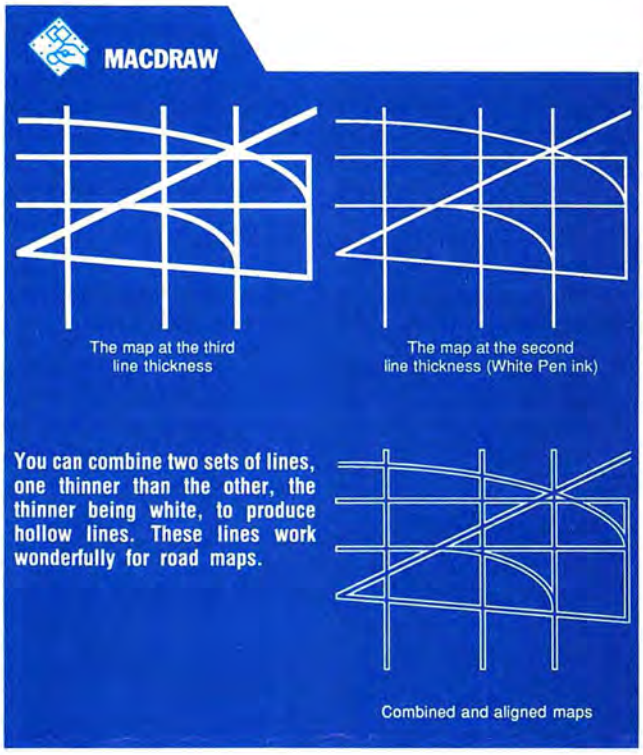
Using the Reset FKEY from *Quick and Dirty Utilities,* Volume 2, by Dreams of the Phoenix can be a timesaver if your program freezes. It performs an operation similar to Shut Down from the older *Finder,* thus saving hard drive users that familiar extended "recovery" time after a system error.

Sometimes, if your mouse freezes, you find you're able to call up the Reset FKEY, but unable to reset the Mac because the default dialog choice only allows you to Cancel the operation from the keyboard. This problem can be solved by patching the FKEY using a disk/file utility application.

Start by opening the FKEY (in its own file) and changing the one hexidecimal occurrence of "6740" to "6640." Then, make an ASCII change of "Reset" to "Don't" and an ASCII change of the occurrence of "Cancel" to "Reset!" Be sure to include the apostrophe in "Don't" and the exclamation point in "Reset!"

Save your changes and install the modified FKEY in your *System* file.

MAT MARCUS
BERKELEY, CA



MACDRAW

If you are using *MacDraw* to produce road maps, you can easily enhance the quality of those maps using the following procedure.

Draw the map, making all lines the third line thickness on the menu. When all lines have been drawn, group all the lines, duplicate that group and set the line thickness of the duplicate lines to the second line thickness on the menu. Then, under the Pen menu, set the pattern of the duplicate lines to white. Select both the original road group and the duplicate and align both centers. The white group will "carve" out the centers of the road, giving you a classy drawing.

KURT J. SCHUMUCKER
COLUMBIA, MD

DISKETTES

A solution to those messy disk labels that you always want to change is to place Scotch Magic Transparent Tape over the disk labels. Write all the labels in a number 2 pencil. Later, when the label is to be changed, carefully erase the tape (brushing upwards as to avoid getting the eraser residue near the disk sliding cover).

WILLIAM J. REYNOLDS
SIOUX FALLS, SD

MORE

Editors Note: We would like to thank the staff of Living Video-

text, developers of MORE, *for providing us with this series of wonderful tips. If you do not have version 1.1, Living Videotext provides free upgrades for all registered users of version 1.0.]*

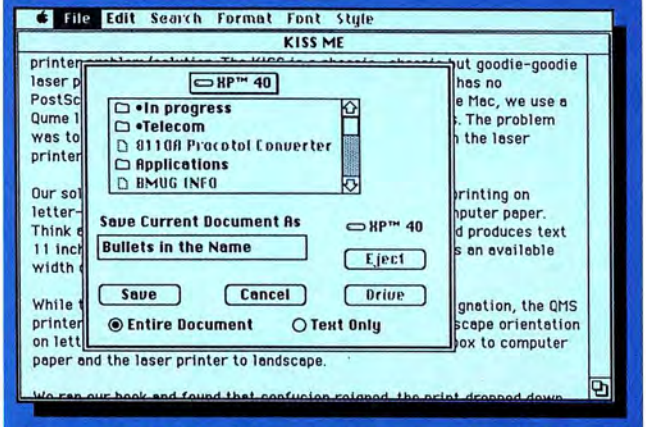
LVT In version 1.1 you can quickly toggle between a headline and its document window by pressing OPTION-ENTER.

LVT For all dialogs where there is no text input you can use "C" for Cancel, "O" for OK, "Y" for Yes and "N" for No. If there are text entry boxes, use the Command key along with the key for choosing the button. In addition, you can cancel any dialog by using COMMAND-. (period).

LVT In addition to using the usual Tab key to advance you through text entry boxes of a dialog, SHIFT-TAB will move you in reverse order.

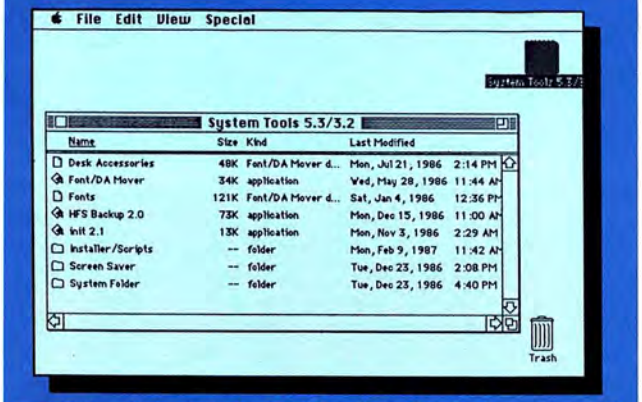
LVT Only when using version 1.1, you have the ability to enter tabs into a headline by typing OPTION-TAB.

FINDER

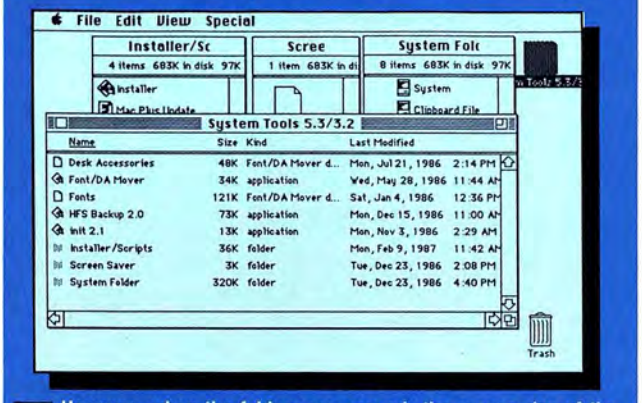


Placing a bullet (Option-8) in front of the name of a file or folder will place it at the top of the standard file dialogs (such as Save As, in this case).

FINDER



1 Notice that when viewing files other than by icons or small icons, the size display for a folder has two dashes in its place.



2 However, when the folders are opened, the proper size of the folder will be shown in its appropriate place under the Size column. You can rearrange things so that you can easily view folder sizes at all times

FINDER

When displaying the contents of a disk using any View option other than Icon or Small Icon, folder sizes will not be shown; a pair of dashes are displayed instead. Opening any folder within that window will quickly reveal the size of the folder where the dashes appeared.

It is possible to organize your windows so you can easily see the sizes of any of your folders without having to continuously choose GET INFO.

GARY D. DAVIS
TOPANGA, CA

There is often a file or folder that you wish to be able to access quickly when using the OPEN command from an application, instead of having to scroll to find it. Add a bullet (Option-8) as a prefix to a file's name and the file or folder will always appear at the top of the list of files.

ROBERT SPOFFORD
BRIARCLIFF MANOR, NY

WORD 3.0

Do not use RAM caching with version 3.0 of *Word*. A number of problems occur, especially when printing. To enhance your speed using RAM, turn on both the Program and File check boxes in the Preferences dialog box, found under the Edit menu. Click in each button (Program and File). This will load both the entire *Word* application and the current document into memory, thus allowing for faster operations.

RODNEY J. DECER
CARO, MI

Currently, most page layout applications will not directly accept formatted *Word* 3.0 documents, while they will take formatted *Word* 1.X files. A handy trick is to save your *Word* 3.0 file in the *Word* 1.0 or *MacWrite* format (using File Types in the Save As... dialog) so that a formatted move is possible. Remember that you must use only the formats provided in *Word* 1.X

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in order for this to work completely.

What about the formats, such as tables and formulas, that can't be saved in a useable format? Select the text and copy it to the Clipboard as a QuickDraw graphic by typing COMMAND-OPTION-D. Now this graphic image can be imported into most page layout applications.

RONALD D. HATHCOCK
PROVO, UT

Word 3.0 will not produce draft print on the ImageWriter using *ImageWriter Driver* version 2.5, which is provided with the Macintosh SE. Use version 2.3 of the *ImageWriter Driver,* which is provided with *Word* 3.0 to get Draft quality working.

FLETCHER GROSS
SALT LAKE CITY, UT

SUPERPAINT

Just as in the *Finder,* hold down the Option key while selecting CLOSE from the File menu to close all of the currently open windows

JUSTIN CONNOR
BINGHAMPTON, NY

Instead of choosing DRAW (PAINT) FROM CENTER prior to drawing one of the QuickDraw primitives (which allows you to paint the shape from a centered point), double-click on the desired palette tool instead of just clicking.

The icons in the palette will now show crosshairs to identify the difference.

JUSTIN CONNOR
BINGHAMPTON, NY

READY, SET, GO! 3

It is not possible to wrap text around other text. If you wish to do so, create the text using *MacDraw,* save it as PICT format, and import the text as a picture into *Ready,-Set, Go! 3.*

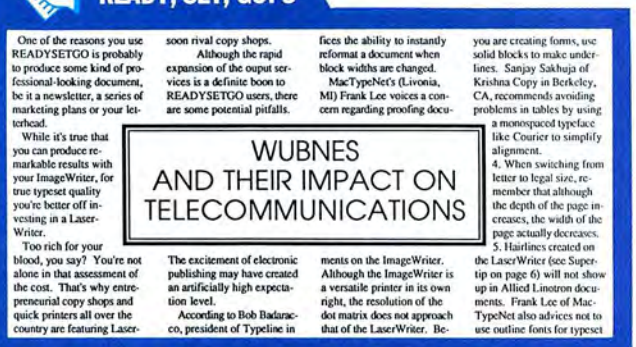
ROBERT ART MORGAN
JULIAN, CA

MACPROJECT

When estimating a project, it is often helpful to know the total hours needed and when the most time will be required. You can do this within *MacProject* by entering a resource cost of $1.00 per hour for each resource in RESOURCE COST ENTRY under the Chart menu. The resulting CASH FLOW TABLE, from the Chart menu, will show both the monthly and cumulative time requirements.

TONI BODENHAMER
SANTA ROSA, CA

READY, SET, GO! 3


One of the reasons you use READYSETGO is probably to produce some kind of professional-looking document, be it a newsletter, a series of marketing plans or your letterhead.

While it's true that you can produce remarkable results with your ImageWriter, for true typeset quality you're better off investing in a LaserWriter.

Too rich for your blood, you say? You're not alone in that assessment of the cost. That's why entrepreneurial copy shops and quick printers all over the country are featuring LaserWUBNES AND THEIR IMPACT ON TELECOMMUNICATIONS

The excitement of electronic publishing may have created an artificially high expectation level.

According to Bob Badaracco, president of Typeline in soon rival copy shops.

Although the rapid expansion of the ouput services is a definite boon to READYSETGO users, there are some potential pitfalls.

MacTypeNet's (Livonia, MI) Frank Lee voices a concern regarding proofing documents on the ImageWriter. Although the ImageWriter is a versatile printer in its own right, the resolution of the dot matrix does not approach that of the LaserWriter. Because it offers the ability to instantly reformat a document when block widths are changed.

you are creating forms, use solid blocks to make underlines. Sanjay Sakhuja of Krishna Copy in Berkeley, CA, recommends avoiding problems in tables by using a monospaced typeface like Courier to simplify alignment.

4. When switching from letter to legal size, remember that although the depth of the page increases, the width of the page actually decreases.

5. Hairlines created on the LaserWriter (see Super-tip on page 6) will not show up in Allied Linotron documents. Frank Lee of MacTypeNet also advices not to use outline fonts for typeset

Using *Ready, Set, Go! 3* to wrap text around text. Sort of. The headline text was created in *MacDraw* and imported into *Ready, Set, Go! 3.* This is how you can have text wrapped around the "picture" block containing text.

PHONE PAD DA

If the Battery Pak's *Phone Pad* DA pages are too small for you, you can use *ResEdit* to alter the size of the pages. Start by using the *Font/DA Mover* and save the *Phone Pad* DA into a new, independent file. Then enter *ResEdit,* open the new file, and locate and open the WIND resource group. After opening the WIND group double-click on the WIND resource that is shown and click on the SET button. Now, draw a rectangle the size of what you wish the *Phone Pad* window to be. Be sure not to draw the rectangle too close to the menu bar or problems will result.

Save the changes to the DA file, quit and install your altered desk accessory. Always remember to work on and use backups when attempting anything with *ResEdit.*

MORELAND G. SMITH, JR.
DALLAS, TX

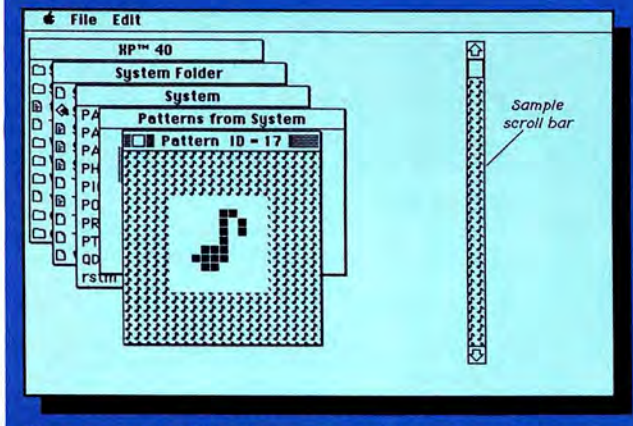
SYSTEM

You can customize the patterns of your scroll bars using *ResEdit.* Open your *System* file and open the PAT resources. Double click on the light gray pattern and make sure that the name of the opened window reads "Pattern ID = 17." If it doesn't, immediately close the window. You are now presented with a FatBits-like environment to edit the pattern.

When you are happy with your new pattern, save the *System* file, quit, reboot and check out your new scroll bars.

CHRIS CALABRESE
MONTEREY, CA

SYSTEM



You can use *ResEdit* to change the scroll bar pattern. The pattern to edit is a PAT resource in the *System* File with an ID of 17.

Don't just sit there waiting for us to get around to your problem or question. Copies of the deluxe, spiral bound edition of *The Power User's Manual: Over 1,000 Hints and Tips for the Macintosh* are now available for a mere $19.95, which includes shipping and handling. The manual has two cross-referenced indexes to help find tips fast and covers over 100 of the most popular Mac programs and peripherals. It's worth its weight in gold mice. Make your checks payable to Power Users Manual and send the order to: Power Users Manual Offer, 831 Federal Road, Brookfield, CT 06804. Bulk rates for clubs, organizations and schools are available from the same address.

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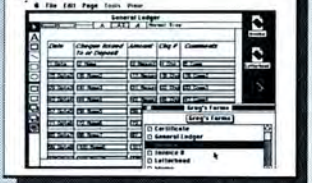

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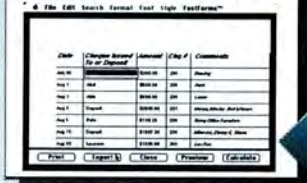

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by Dan Cochran

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 in care of MacUser, *25 West 39th Street, New York City, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries.*

SCSI DILEMMA

Q. At present I'm running an Apple HD-20 with my Mac Plus through the external drive port. Manufacturers seem to be pushing the SCSI drives.

What will happen to my non-SCSI HD-20 if I hook up a SCSI hard drive as well? Do I just throw the HD-20 out? Will the System software handle both at the same time?

The sales pitch for the SCSI seems to be all aimed at speed. Speed might be important if one were re-entering the atmosphere and a braking rocket motor failed. In our operation we don't need to spit bits that urgently. If everyone is going to SCSI drives, our best bet might be to just buy another regular HD-20.
BILL BARRON

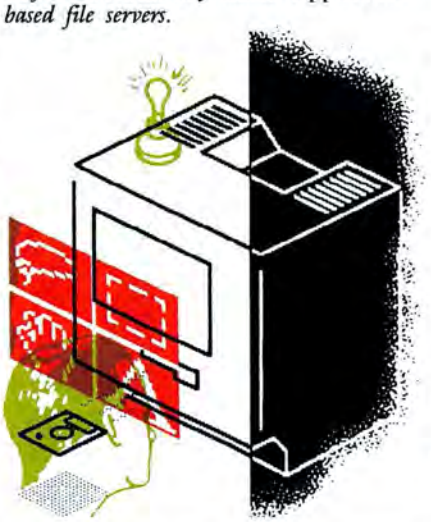
A. *Non-SCSI HD-20 drives can coexist peacefully with one or more SCSI drives. I would, however, configure the hardware with the SCSI drive serving as the default boot volume and System disk for optimum performance.*

The incremental differences in performance between SCSI and non-SCSI drives are significant (even more so on the SE). You might not appreciate the speed improvements until you use one. But if you do use one you'll certainly appreciate the differences.

DUELING SYSTEMS?

Q. Like many folks during these changing times, I use both the Mac Plus and the older 512K machines. I also use a Mac XL with a 5M Profile, running *MacWorks* 3.0. Juggling single and double-sided drives is manageable, but I'm still confused about acceptable versions of the *System, Finder,* etc. Should (or can) I operate the XL and 512K with the most recent versions of system files? Also if updating the XL is desirable, do you have any tips so that I don't do something regrettable to the hard disk?
JEVANA BOUQUIN
PALO ALTO, CA

A. *Mac XL owners should continue to use* MacWorks *3.0 with* System *3.2 and* Finder *5.3. I've heard reports that* Finder *5.4 works properly with* MacWorks *3.0, but I certainly wouldn't recommend it.* System *3.3 and above will bring everything to a grinding halt. The implication here is that you probably won't be able to use your Mac XL on an AppleTalk network in conjunction with any shared* AppleShare*-based file servers.*



COLORFUL LANGUAGES

Q. I am trying to locate a compiler (or interpreter) for the Mac that will allow high level access to ImageWriter II color output. I am *not* looking for a printer driver (like *Printworks*) or an object based graphics program with color options (like *SuperPaint*). I want to write various programs to do extensive computations and print color graphics of the results to the ImageWriter II. I want a language, rather than software, because of the extensive number crunching that I need to do. But no one that I've asked knows if *MS BASIC* or *MS Fortran* can access the color options. If there is a high-level call for color graphics, all the better, but I am most willing to work at the bit level. I don't want to write assembly level routines.

I am very comfortable with both BASIC and Fortran—if any version of these will do the job, that is the answer. The system I'm using is a Mac Plus with an ImageWriter II and an external 800K drive.
D. HARPER MEEK
NEWTON SQUARE, PA

A. *The ImageWriter II is a very flexible machine that supports a thorough set of easy-to-use programming procedures and commands. It really doesn't matter what programming language you use. Any language that will allow you to send data through the Macintosh serial port will adequately suffice (*MS BASIC, MS Fortran, *and* Macintosh Pascal *will work just fine).*

The ImageWriter II's firmware allows the programmer to print special characters, set the number of characters per inch, set line spacing, feed paper up and down, print subscripts and superscripts, select print quality, set page length, print multiple text styles (bold, underline, double-width), control margin and tab settings, print characters or symbols you design yourself, print graphics by plotting individual dots and, of course, print all text and graphics in any combination of six colors.

A clever programmer can create many additional colors by overprinting the standard colors or by printing patterns with dots of alternating colors. You must use a color ImageWriter ribbon. Sending commands to the ImageWriter is as easy as sending regular text. Commands sent to the ImageWriter are represented either by a nonprinting ASCII character (Control character) or by a sequence of ASCII bytes preceded by the ESC character (decimal 27).

You'll need to buy a copy of the ImageWriter II Technical Reference Manual *(published by Addison-Wesley, ISBN # 0-201-17739-0). This book presents all the advanced features of the ImageWriter, describes all the programmatic interfaces and commands, and provides many programming tips for BASIC, Pascal, Logo and assembly language programmers.*

MACWRITE MARGINS

Q. Without using words like resource, code or interface, please tell me why *MacWrite* doesn't support a margin setting less than an inch from the edge of the page.

I know that the ImageWriter I can print much closer to the left edge than *MacWrite* allows me—as demonstrated by the printer test. How can I write and print using the entire width of a page?
MATTHEW FREYTAG
DURHAM, NC

ANDY MARTIN

A. MacWrite *doesn't support a lot of things and flexibility in margins happens to be one of them. Better margin support also requires horizontal scrolling capabilities (for example, how can you even see your document on the screen if the margins are too wide?).* MacWrite *is an older product, and in 1984 was rushed to market so the Mac would have a word processor on introduction. As a result many desirable features didn't get included.*

I know of no workaround to this situation other than positioning your paper in the ImageWriter as far to the left as you require and then stretching out the right-hand margins in MacWrite. *Your best bet is to invest in a different word processor that offers you the functionality and features you require. Take a look at* WriteNow.

MAC TO MIMEOGRAPH

Q. I (and perhaps thousands of others) produce newsletters by mimeograph, the most economical form of printing available. Most editors of small newsletters can't afford the very high cost of printing by LaserWriter or photocopying. I would like to use my Macintosh and ImageWriter II for mimeographed newsletters. Will the ImageWriter print on a regular mimeograph stencil? Will the ImageWriter run without a ribbon? Can multiple columns be printed without the printer doing one column at a time? This causes the printer to back out the paper (or stencil) after it prints a column and then starts from the top again on the second column. This reverse scrolling blotches more paper! No Apple dealer I have talked to knows anything about producing mimeograph stencils on a Macintosh. Can you help?

LLOYD FOWLER
SANTA BARBARA, CA

A. *My last recollections of mimeographs and mimeographed copies were high-school homework assignments. It's good to see they are still around. As I recall, with mimeograph technology the typewriter or printer must actually "punch" holes in the mimeograph stencil to define the characters. The printing process involves manually running blank sheets of paper through a feeder/roller which distributes ink through the stencil and onto the paper.*

The thing that bothers me is that the punched-out stencil material has to end up somewhere—most likely on your ImageWriter printhead or in the mechanical parts of the printer. This is not good. On the other hand if you leave the ribbon on while printing the stencil, potential damage to the printhead could be minimized.

I can't tell you that it's safe to do. Nor will I tell you not to do it. And I can't seem to find anyone who has any experience with this process to give me a second opinion. Perhaps our readers would comment?

As for your other question, the way applications print multi-column documents is completely up to application itself. It has nothing to do with either the printer or the printer driver.

MISSING YOUR NAMES

Q. How can we get missing disk names to show up on our alert boxes when we move information between disks? The screen dump example here shows a blank space where the system disk name "Smartcom/Sys-+WORD" should have appeared. We sometimes get a similar blank with the "Save As" alert boxes and others. What should we do to obtain alert boxes that display the full disk name information?

On another topic, I found your chronicle of the China visit utterly fascinating. In the future, please diverge again from

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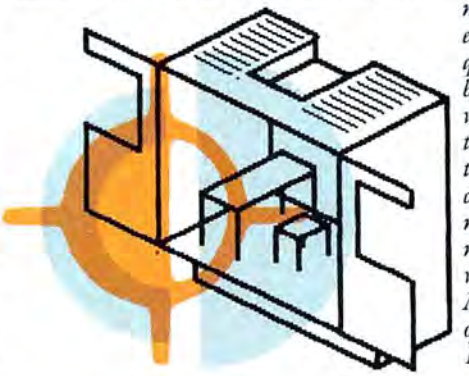
JOHN MCEACHERN
POWELL RIVER, BC CANADA

A. *With complex products like the Macintosh it's often difficult to foresee every problem that may arise. This is nothing more than a polite way of saying we screwed up. The problem is simply one of real estate—there's not enough room in the alert box to print the volume name. So rather than print only part of it we don't print anything at all. Certain alert boxes, like the one you've brought to my attention, weren't properly designed to anticipate the maximum number of characters allowed in file names and volume names. We're older and wiser now, and the problem has been fixed in our newest System software. In the meantime try to keep your volume names and file names a bit shorter.*

I'm glad you enjoyed the China article. If I can convince Apple that we need to evangelize software developers in Bora Bora, another article might be forthcoming.

CHIPS AND THEIR PALS

Q. I have a question which I am sure will be of interest to all those 128K Mac owners who upgraded to 512K. Having had this upgrade I am now ready to move up to a megabyte or two of RAM. Looking over many of the third-party upgrades, I can't help but notice that many involve adding large banks of 64K dynamic RAM chips. It



occurred to me that when I upgraded to 512K, the original sixteen 64K chips (64 * 16 = 1024/8 = 128) were cut out and socketed 256K chips put in their place (16 * 256 = 4096/8 = 512). If I were to pull those 256K chips out and replace them with 1M chips would I get 2M (16 * 1024 = 16384/8 = 2048) of RAM? Is it really that simple or is there something else that would have to be done?
HANK LAVAGNINI
APO, NEW YORK

A. *Your arithmetic is flawless but your assumption is a bit faulty. The original 128K to 512K upgrade not only included replacing the RAM chips but also required the installation of new PALs. I don't believe that the PALs in the Macintosh 512 will permit the machine to address more than 512K of memory. There are some third-party 512K to 1M/2M upgrades that circumvent this problem but I can't recommend any of them. Sure you'd have 2 megabytes of memory but you'd also be stuck with the original 64K ROMs and the old Macintosh 512K motherboard. That's kind of like having a 50-gallon gas tank with a 10-horsepower engine.*

The proper thing to do is to first upgrade your 512K machine with 128K ROMs and 800K drives (or even better to a full-blown Macintosh Plus). If you upgrade to a Plus you'll get 1 megabyte of memory right off the bat, 128K ROMs, SCSI support and if you want to expand to 4 megabytes, it's as easy as swapping the standard 256K SIMM memory modules with 1M SIMM memory modules.

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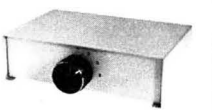

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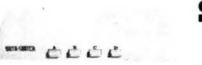

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***Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the* MacUser *editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). CP? indicates that we don't know. If a product has been reviewed or QuickClicked in* MacUser, *the date of the review is shown. Next time you have to find products you can count on, count on* MacUser!

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INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features ★★★★ versatile charting and database capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. Paladin, 2895 Zanker Rd., San Jose, CA 95134. CP (Jan 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has ★★★★★ 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, ★★★★ worksheets, data bases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word ★★★★½ processing, data base, spreadsheet and telecommunications functions. The telecommunications module includes background uploading and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98052. NCP (Oct 86)

Quartet is an integrated program that works on a 128K Mac, built ★★★★ 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, but not too well organized. $199. Haba Systems, 6711 Valjean Ave., Van Nuys, CA 91406. CP

BUSINESS ACCOUNTING

Back to Basics Accounting is a powerful double-entry accounting ★★★★ software package for the small business user with GL, AR and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy to use system. Six journals, ★★★★ AR, AP, Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $425. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disburse- ★★★★ ments, 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

Hardisk is a complex integrated hard disk system that does not ★★★½ 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)

Insight is a high-powered accounting program for the small to ★★★★½ medium size business. At present, three modules are available: Accounts Receivable, Payables and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 86)

Rags to Riches integrated accounting modules (General Ledger ★★★★½ and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Version 3.0 now provides detailed, flexible report options. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. CP (Dec 85)

Rags to Riches Professional Billing tracks and bills profession- ★★★★ al services. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. 512K+, printer. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined ★★★★ 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 ★★★ good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, ★★★★★ easy to use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $99 federal; $45 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87)

MacMoney is a complete and easy to use personal financial ★★★★½ system. Intuitive data entry. Integrates with *MacInTax*. Requires 512K+. $74.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (May 87)

Market Pro is a comprehensive portfolio management program for ★★★★ the generation of fundamental data as well as technical

charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

DATA BASES

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. NCP (Feb 86)

Double Helix is an environment to generate custom applications ★★★★ built around a data base-type framework. Contains enhancements to *Helix* 2.0. Includes custom menus, sub form windows, password protection and a universal dump and load parser. Ability to store pictures as data fields. $495. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Oct 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 Plus retains features of *FileMaker* and reads *FileMaker* ★★★★★ data, also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Mac Plus compatible. $295. Requires 512K+. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Nov 86)

Helix 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)

MacRelax is a relational list manager that stores data in a column ★★ format. Files can be related by sharing a common field. Flexible design for reports. Screen display is sometimes strange. Easy to use but not obvious to learn. $99.95. 512K required. Arrays, 6711 Valjean Ave., Van Nuys, CA 91406. NCP (Jan 87)

Omnis 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 Dr., San Mateo, CA 94403. CP (Mar 86)

OverVUE is a power-packed relational database that has extensive ★★★★½ 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 specialized data base ★★★★ storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

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)

Reflex For The Mac is a flexible relational database. Excellent ★★★★½ report generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk. Highly recommended. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86)

Writer's Workshop maintains orderly records for writers. It can ★★★½ track manuscripts, income and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

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. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphic data analysis program. ★★★★ Handles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D2 Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 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

Multiplan, the first Mac product from someone other than Apple is ★★★½ 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. NCP (Mar 86)

Parameter Manager is a data manager, incorporating integrated ★★★★ scheduling, statistics and graphics. It has solid spreadsheet, calender and data base functions. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. Structural Management Systems, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with ★★★★★ tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast and accurate. Extremely wide range of analyses. Requires a minimum of 512K of RAM & 800K of disk space. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 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)

Trapeze is a very powerful spreadsheet program that functions ★★½ through use of blocks similar to page layout programs aligned on a user-definable grid. Blocks can contain the usual spreadsheet-type cells, rows or columns, text, pictures and any type of special graphics. Includes financial, conversion and transcendental functions. $295. Data Tailor, 1300 S. University Dr., Fort Worth, TX 76107. NCP (Jun 87)

GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats. ★★★★½ Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. $30. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Dec 86)

Chart can easily create area, bar, column, line, pie, scatter and ★★★½ 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. NCP

ClickArt Special Effects is a *MacPaint* enhancement desk ★★★½ 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, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

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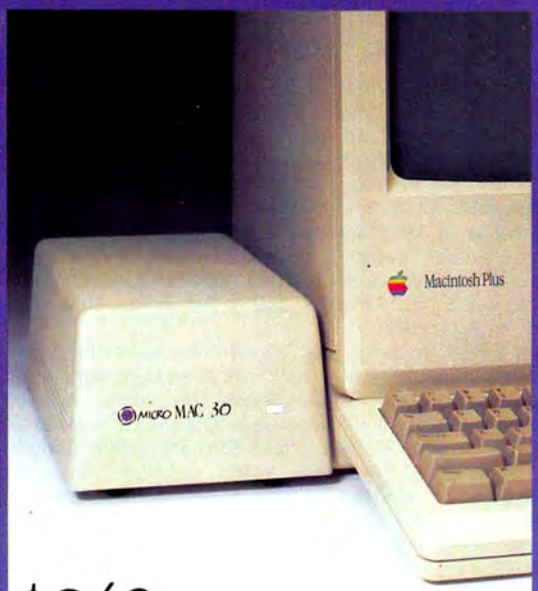

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MINIFINDERS

ColorPrint allows you to print *FullPaint*, *MacPaint*, *MacDraw* and
★★★ *MacDraft* documents in color using the ImageWriter II or ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

ComicWorks is a graphics wonder. Manipulate bit mapped graph-
★★★½ ics 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 Draw is an object-oriented drawing program that will
★★★★★ produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects are just a point and click away. $295. Cricket Software, 3508 Market St., Philadelphia, PA 19104. NCP (May 87)

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)

Easy3D is a three-dimensional, solid modeling masterpiece. Four
★★★★ variable light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EZ Draft is a high-level CAD application. Does things usually only
★★★ found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

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.
★★★★½ 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
★★★★½ fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, 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 Softworks, 308½ State St., Ann Arbor, MI 48104. NCP (Jun 86)

GraphicWorks is a powerful bit-mapped graphics program using
★★★½ easels for drawings, balloons for text and panels to contain both. Confusing interface and the manual could be improved. Requires 512K+. $79.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Apr 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics with-
★★½ out removing them from their original documents. Indexed graphics are retrieved via the *Graphidex* DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (*Paint* format) images but the design is questionable and the execution imperfect. Requires 512K. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program
★★★ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, Inc., PO Box 86982, North Vancouver, BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and
★★★★½ powerful drawing technique. Program uses templates for precise and detailed art work. Requires 512K+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until Registered. (Jul 87)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip
★★★★½ art. Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $69.00 each volume; $149.95 set. Enzan Software, 150 W. Acton Rd., Stow, MA 01775. NCP (Apr 87)

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

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
★★★½ 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 (Jul 86)

MacDraft is an object-oriented graphics program. It sports ad-
★★★★ vanced 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, 2280 Bates Ave., Ste. A, Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can
★★★★½ 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. $295. 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)

Mac3D 2.0 is a feature-laden 3D program with a *MacDraw*-like
★★★★ interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a graphic powerhouse. $249.95. Challenger Software, 18350 Kedzie Ave., Homewood, IL 40430. NCP (Jan 87)

MapMaker produces maps and analyses of related geographical
★★★★½ data. Additional data disks available. Documentation could be better. Requires 512K; second drive recommended. $295. Select Micro Systems, 2717 Crescent Dr., Yorktown Heights, NY 10598. NCP (Jan 87)

MGMS: Professional CAD for Macintosh offers more than 200
★★★½ functions. Very complete, capable program. Powerful tools like Groups, Dimension, Libraries etc. are standard. Sometimes confusing to follow—designed for experienced, professional CAD user, not the novice. Full plotter support. Good manual and tech support. 512K, Mac Plus or Lisa/Mac XL. $799. Micro CAD/CAM, 5910 Noble, Van Nuys, CA 91411. CP (Jun 87)

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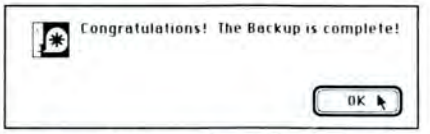

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MINIFINDERS

MockPackage+ is a set of extremely powerful DAs. Includes a ★★★★½ text editor, text printer (supports LaserWriter), charter, terminal and EZmenus. HFS compatible. $35. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Mar 87)

PageMaker is an advanced layout and makeup program. Can ★★★★½ 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 more expensive program. Multiple light sources, fine object placement and orientation control, 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)

Portfolio: Designs for Newsletters provides over twenty tem- ★★★★ plates for 2-page newsletters with pre-set columns, headlines, graphics and captions. Documentation provides excellent tutorial in page design. Includes DA called *Wyzzy* that optimizes screen fonts and copyfit. Requires 512K+; *PageMaker*. $79.95. Aldus Corp., 411 First Avenue South, Suite 200, Seattle, WA 98104. NCP (May 87)

The Print Shop makes it easy to create greeting cards, banners, ★ letterhead and signs in minutes. Offers full access to fonts, styles, graphics. Can pull images from *MacPaint* files or off the Clipboard. Don't get near a hard disk. $59.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Dec 86)

Ragtime is an "Integrated Page Processor" with text, graphics and ★★★★ built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy to use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. CP (Apr 87)

Ready, Set, Go! 3 is the newest of the *Ready, Set, Go!* page layout ★★★ programs. New version offers power word processing and excellent control for text and graphics placement. Poor LaserWriter printing time with complex pages. Letraset USA, 40 Eisenhower Dr., Paramus, NJ 07652. $395. NCP. (Jul 87)

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)

Space Edit is a 3-D CAD program. Display shows top, front, side ★★★½ and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 512K+. $625. Abvent, 9903 Santa Monica Blvd., Suite 268, Beverly Hills, CA 90212. CP. (Jul 87)

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. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SuperPaint is a powerful, easy-to-use graphics program with all ★★★★★ the best features of *MacPaint* and *MacDraw* —and then some. Among the new features, LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $99. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

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MINIFINDERS

World-Class Fonts! comes in two volumes of three disks each. ★★★★½ 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 (Dec 86)

COMMUNICATIONS

AppleShare is the long awaited file sharer from Apple. Software-★★★★ based, *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised *Finder*. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

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 (Aug 86)

InBox is an easy to use mail system. It's called up from a desk ★★★★½ accessory. Has a very slick interface. Current version requires a dedicated Mac to run as storage for the mail. $299 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $75 each. Think Technologies, 420 Bedford St., Lexington, MA 02173. CP (May 87)

InTalk comes with its own communications command language ★★★★½ able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample set up documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

InterMail is an electronic mail system that runs under AppleTalk. ★★★★½ Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Interactive Network Technologies, 20 Amy Circle, Waban, MA 02168. NCP (May 87)

MacTerminal provides basic telecommunications and terminal ★★½ emulation for the Mac user. Doesn't have macros nor auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation. $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 ★★★★½ 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 (Prem)

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MINIFINDERS

Telescape 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 (Jun 86)

TOPS is a file server that is designed to network computers with ★★★★½ different operating systems. The current system will support Macs, MS-DOS compatibles and UNIX. Access to files and subdirectories is transparent to the user, they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). Centram Systems West, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87)

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 ★★★★½ graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several ★★★★½ special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

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, 49 Wellington Street East, Toronto, Canada M5E 1C9. CP (May 86)

Document Modeler can automate much of a professional office's ★★★★½ correspondence. Comes in two parts: *Template Maker* and *Document Maker*. Initial set-up requires time and is complex. $299.95. The Model Office Co., The Gooderham Flatiron Bldg., 49 Wellington St. E., Toronto, Ontario M5E 1C9, Canada. NCP (Mar 87)

Expressionist is a powerful DA that allows you to create complex ★★★★★ mathematical equations from within an application. Equation manipulation has never been easier. $54.95. Allan Bonadio Associates, 1579 Delores St., San Francisco, CA 94110. NCP (Jul 87)

Laser Author is a high-powered, technically oriented word proces- ★★★½ sor. Good math setting capability. Has style sheets, word count and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective interactive checker. The ★★★½ 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 (Oct 86)

MacGAS is a DA spelling checker with both a small and extended ★★★ dictionary. Its best point is the excellent thesaurus, provides antonyms & glossary. A slow checker. $99. EnterSet, 410 Townsend St., San Francisco, CA 94107. CP (Oct 86)

MacLightning is an interactive spelling checker in desk accessory ★★★★½ form. Text can be checked on the fly or by selection. Works within many applications, and options include a thesaurus, medical and legal dictionary. $99.95. Target Software, 14206 Southwest 136th St., Miami, FL 33186. NCP (Oct 86)

MacProof is a grammar, style and spelling checker that's like ★★★★½ having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections. hecking process can be slow if your document is long. $195 for standalone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP

Macspell+ (version 1.10) is a spelling checker that installs as a ★★★★ desk accessory. Works easily with *MacWrite* 4.5 and 2.2 and *Word*, but has some drawbacks. New version just available. Requires 512K+, two drives or hard disk. $99. Creighton Development, 16 Hughes, Irvine, CA 92718. 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

MindWrite is an outliner-based word processor of considerable ★★★★ power. Besides outlining, it allows multiple documents and multiple selections. Excellent if you like to outline your writing first. $125. MindWork Software, PO Box 222280, Carmel, CA 93922. NCP (Mar 87)

QuickWord is a word processing accessory that adds sophisticat- ★★★½ ed glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. NCP

Scriptor is designed for producing standard format scripts. Starts ★★★★ with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

Spelling Champion is a fast and accurate batch-type spelling ★★★★ checker. Backup feature allows you to undo corrections in a paragraph. Works only with *MacWrite* 4.5. $39.95. Champion Software, 5201 South Hill Dr., Madison, WI 53705. NCP (Oct 86)

Spellswell is an effective and powerful standalone spelling ★★★★½ checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. $59.95. Working Software, Inc., 321 Alvarado, Ste. H, Monterey, CA 93940. NCP (Oct 86)

Thunder! is the best spelling checker currently available. Has a ★★★★★ 50,000-word dictionary. Features Learned Words and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95 Batteries Included, 30 Mural St., Richmond Hill, Ontario, Canada L4B 1B5. NCP

Word 3.0 is the most feature laden word processor now available. ★★★★½ Has a spelling checker, hyphenation, some page layout, style sheets and more. Also has Microsoft's somewhat unusual view of what the Mac interface is. Requires 512K+ and at least 1200K of external storage. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073. NCP (Mar 87)

WriteNow for the Macintosh has many of the features of ★★★★½ *MacWrite* and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has ★★★★½ 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 Kalanianole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere ★★★★ flowcharting. Complex, detailed program aimed at software pros. $200. Meta Software, 55 Wheeler St., Cambridge, MA 02138. NCP (Apr 87)

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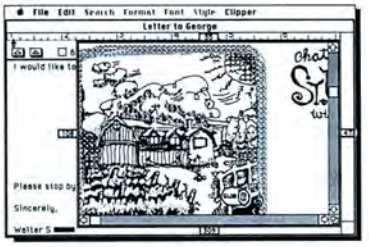

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MINIFINDERS

Guide allows you to "cross reference" from within a document ★★★★½ using hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics and other useful items. The word processing and formatting functions, however, are limited. $135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

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. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

Micro Planner Plus is a great project management system with ★★★★½ major enhancement to *Micro Planner*. Outstanding analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. Uses standard print drivers. HFS compatible. Micro Planning Software USA, 235 Montgomery St., San Francisco, CA 94104. CP (Dec 86)

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)

ThinkTank 512 is a very fast and intuitive organizational tool. Full ★★★½ 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 printing capability. $195. Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043. CP (Jan 86)

Voila! is a full-featured outliner in desk accessory format. Head- ★★★★ lines can be edited like normal text. Reads and writes text files, *Word*, *MacWrite*, *ThinkTank* and *MORE* documents. An excellent value. Requires 512K+, 800K drive or external 400K drive. Mac XL not supported. $99.95. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Mar 87)

DESK MANAGERS

BatteryPak is a set of 9 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. $49.95. Batteries Included, 30 Mural St., Richmond Hill, Ontario, L4B 1B5, Canada. NCP (Dec 85)

Executive Office is a jack of all trades office application. Good ★★★½ data base, word processing, graphics and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. $249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

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. NCP (Dec 85)

My Office lets you handle your files and papers in much the same ★★★★ way you did before you got a computer. Excellent use of graphic symbols makes this program the easiest to use of its type. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools ★★★ that can be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 410 Townsend St., San Francisco, CA 94107. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major ★★★★ new ones—*MacPlan*, (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to ★★★★½ use, versatile, and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file. $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. ★★★★½ Menu Key adds Command key sequences to programs, View allows looking at and moving data between up to 8 *MacWrite* documents, BackPrint, Touch 'n' go, 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, PO Box 216430, 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 multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86)

DiskExpress unfragments disk volumes by reorganizing data into ★★★★ continuous sectors and arranging files to slow down further fragmentation. Works with *MacServe*, floppy drives and most hard drives. Requires 512K+. $29.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files. ★★★★½ Creates a "SmartSet" of floppy disks so incremental back ups only update files modified since the last back up procedure. Backs up to floppies or another hard disk. Requires 512K+. $79.95. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94039. NCP (Jun 87)

Disk Librarian is an easy to use shareware cataloguing program. ★★★★ Criteria selection option for generating subcatalogs. Requires 512K+. $20. Little Bit, 469 Edgewood Ave., New Haven, CT 06511. NCP (Apr 87)

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 per- ★★★★½ sonalized 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 91325. 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. $49.95. MacMaster Systems, 939 E. El Camino Real, #122, Sunnyvale, CA 94087. NCP (Sep 86)

FlashBack is a utility to backup HFS hard disks onto floppies. A ★★★ unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* ★★★★½ installs as printer driver, *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $59.95. Solutions, Box 989, Montpelier, VT 05602. NCP (Dec 86)

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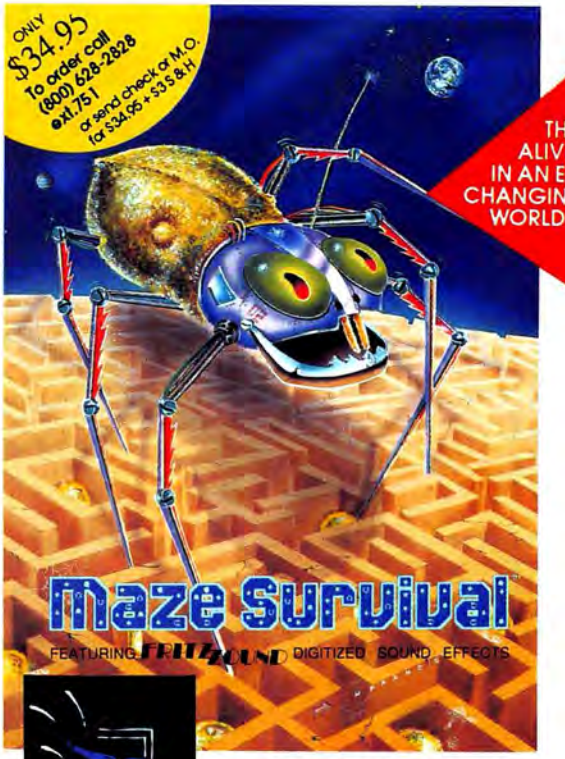

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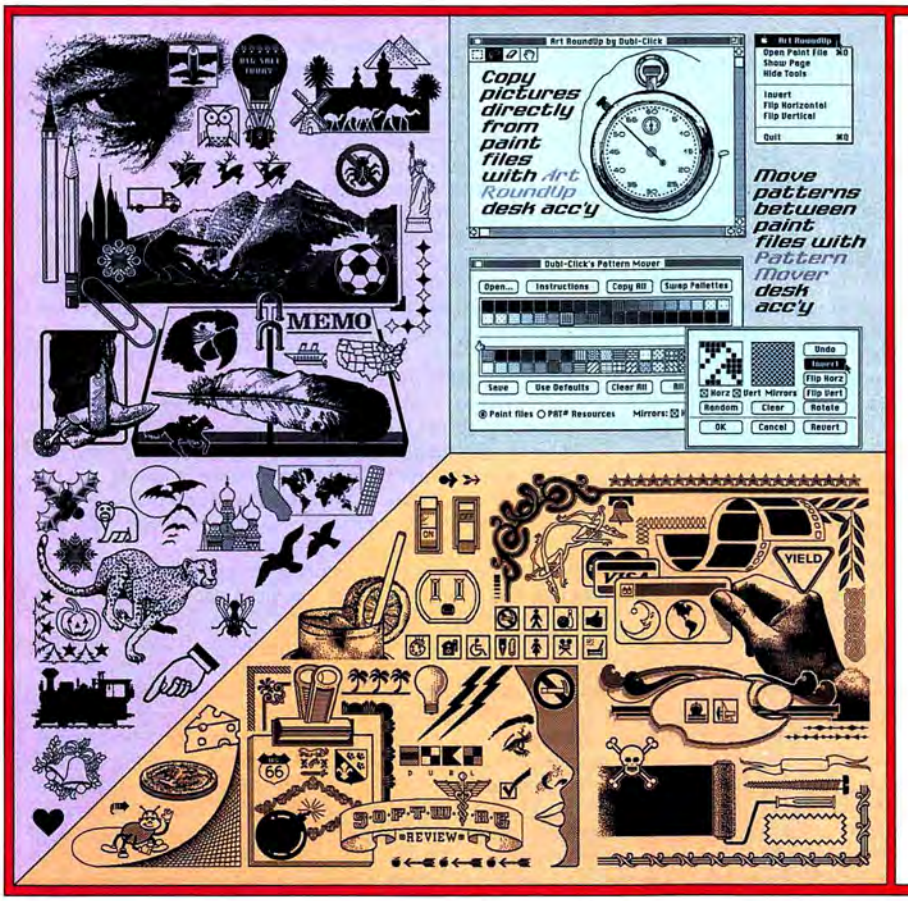

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MINIFINDERS

Hard Disk Util uses patch files to allow users to mount and run ★★★★½ 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 Backup ranks as one of the preferred hard disk backup ★★★★½ utilities. Backup by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 6204 Benjamin Rd, Tampa, FL 33614. NCP (Dec 86)

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 94404. NCP (Sep 86)

LaserServe is a printer spooler for AppleTalk networks. After ★★★★★ installation all operations done via a desk accessory. Works with both *MacServe* and *TOPS*. Requires 512K+ and 800K drive or hard disk. $125 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb 87)

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)

MacFlow is a design tool created for programmers. Traditional ★★★½ flowcharting symbols are linked together, and a symbol can be connected to a separate flowchart file. Symbols can't be edited, precluding using *MacFlow* for other applications. $125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr 87)

MacInUse tracks time spent in applications and saves info as text ★★★★★ files. Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client records, etc. $49. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan 87)

MacLabeler lets users instantly index and print labels for all the ★★★½ 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 ★★★½ 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

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

MacSafe is a data file security program that allows you to place ★★★★ multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. $69.95. Kent Marsh Limited, 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print ★★★★½ 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, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

Menu Fonts displays the names of fonts in the acutal font instead ★★★ of standard Chicago. Limited value if you know all the fonts you commonly use, but useful if you like to play with fonts. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with *LockOut*, a utility that gives password access to your Macintosh, and *FastFormatter*, a utility for formatting multiple blank disks. Requires 512K+. $15. Beyond Software, 3865 N. Oracle Rd., Tucson, AZ 85705. NCP (Jul 87)

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

PackIt III is an essential utility. Primarily used to temporarily ★★★★½ "glue" files together, it can also compress and encrypt. Feeware. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

Programmer's On-line Companion puts an abridged version of ★★★ *Inside Macintosh* in your system for reference. A single keystroke gives you a condensed summary of relevant technical info, including parameter types and addresses and constants of low-memory globals. You can simply read the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $39.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk chock full of the ★★★★½ handiest programs you have ever bought. Included are a super disk cataloguer, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

RamSnap is a RAMdisk and disk cache in one easy to use ★★★★ package. Can store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

Stepping Out is a software virtual screen extender. Lets you ★★★★½ create a screen as large as memory allows. 9" screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Jun 87)

SmartScrap and The Clipper are two useful desk accessory ★★★★½ utilities for graphics work, *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, B4, Montpelier, VT 05602. NCP (Jul 87)

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

SuperLaserSpool is a LaserWriter spooler. Very fast because it ★★★★ does conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95 single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Tempo is a desk accessory that allows most Mac commands to be ★★★★ intelligently recorded and played back. Capabilities include

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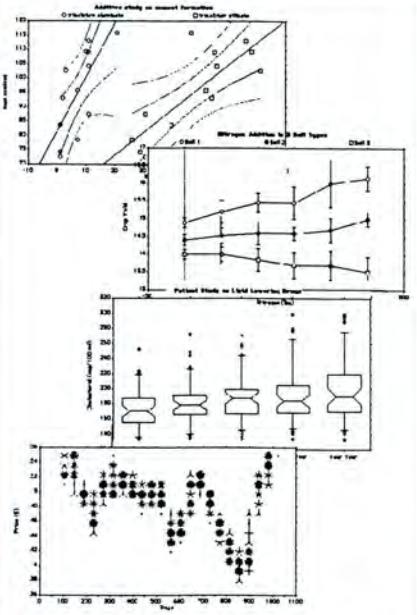

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pausing, conditional branching and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

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

TurboCharger is a RAM cache utility for 512K and larger. Works on ★★★★★ most hard disks and Mac XLs. Dramatically improves any program you use that heavily accesses the disk, like *MacPaint*. $69.95. Microsystems, PO Box 1249, Capitola, CA 95010. NCP (Jan 87)

TurboDownload is a desk accessory designed specifically to ★★★★½ 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. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 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

AAIS Prolog is a fast standard Prolog with excellent debugging ★★★★ and error handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87)

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)

Basic Compiler is the long awaited compiler for *Microsoft BASIC*. ★★★½ The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $199. Microsoft, 16011 NE 36th Way, Redmond, WA 98052. NCP (May 87)

ExperLISP is a very buggy, but still incredibly useful, programming ★★★ language for high-level programmers. The more you use it, the more you'll figure out about it. System crashes are too common for a language this useful and expensive. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. ★★★ Features three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. ★★★ Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation

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is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 33108. NCP (Mar 87)

LAP MacProlog is a flexible program that supports several Prolog ¢¢ syntaxes, producing a rich programming environment. However, the program's implementation and documentation are both poor. $295. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Mar 87)

Lightspeed C provides an integrated environment for the develop- ¢¢¢¢½ment desk accessories, applications and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 420 Bedford St., Lexington, MA 02173. NCP (Apr 87)

Lightspeed Pascal is a fast, powerful development system for ¢¢¢¢¢ Pascal programming. Fully integrated Mac-like environment. Requires 512K+. $125. Think Technologies, 420 Bedford St., Lexington, MA 2173. NCP (Feb 87)

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 included. $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. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth ¢¢¢¢ programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

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. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabili- ¢¢¢ ties. 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. NCP (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

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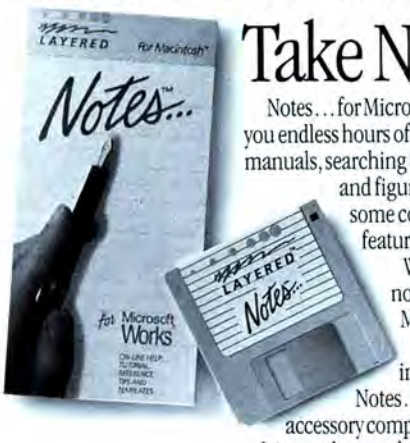

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available to run. $150. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. NCP

Personal Prolog is an inexpensive and well-documented program. ★★★★ Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has ★★★★ extensive debugging facilities, but you may need separate *Toolbox* disk with 58 additional predicates. Only drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

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 Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Database Toolkit is an ISAM type database that provides ★★★★ fast and efficient administration of large data files in applications developed with *TML* compiler. Supports open multiple index files simultaneously. $89.95. TML Systems, PO Box 361626, Melbourne, FL 32936. NCP (Dec 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)

TML Source Code Library shows how to write programs that use ★★★★½ custom definition routines, speech, serial drivers, split bars and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, PO Box 361626, Melbourne, FL 32936. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming ★★★★ system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating stand- ★★★★ alone applications that takes advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker*, and *MacInTalk*. Requires 512K. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)

EDUCATION

ChipWits is a combination game and teaching tool. Players create ★★★½ programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

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. NCP (Oct 86)

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. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

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 Rd., Northbrook, IL 60062. 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)

Alter Ego simulates the entire lifetime of a fictional character. The ★★★ player's reaction to each multiple-choice event shapes the 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)

The Ancient Art of War gives users a chance to refight some ★★★★½ 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 Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain ★★★★½ 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)

Battle Stations is a deceptively simple game based on the pen ★★★★ and paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

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)

Bridge 4.0 provides three other players and the cards for a game ★½ 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)

Bureaucracy is a paranoic text adventure that dares you to move ★★★★ to a new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Doug Adams of *Hitchhiker's* fame $39.95. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. CP (Jul 87)

The Chessmaster 2000 is a masterful chess program that will ★★★★★ appeal to both novices and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. $39.95. The Software Toolworks, 9713 Santa Monica Blvd., Suite 214, Beverly Hills CA 90210. CP (Jul 87)

Dark Castle is an outstanding achievement in action games which ★★★★★ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Deja Vu: A Nightmare Comes True is a graphic adventure that ★★★★★ breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a ★★★★ collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales

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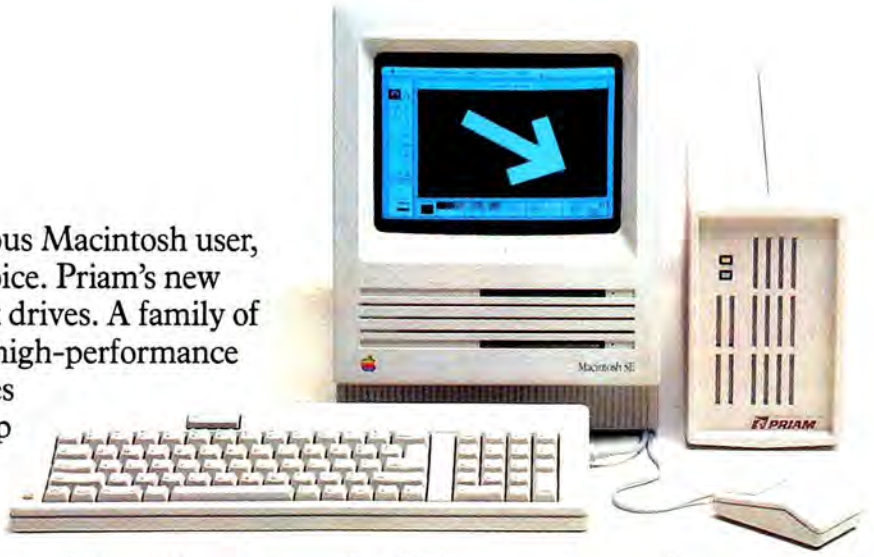

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MINIFINDERS

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. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Ferrari Grand Prix is an exciting race car simulation game. ★★★★ Mastering it takes quite a bit of time and effort. Startup course and four other courses are built into the program. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

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. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World ★★★★½ War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 1050 Walnut St., Boulder, CO 80302. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game. ★★★★ Practice or play tournament against Mac-controlled players with different styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

HardBall is a baseball simulation game complete with umpire's ★★★★ calls and crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 20833 Stevens Creek Blvd., Cupertino, CA 95014. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the ★★★★ famous Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good, "finely wrought and goodhearted game." $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Jun 87)

Leather Goddesses of Phobos is another in the long line of witty ★★★★★ and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3D comic and a scratch 'n' sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. 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

MacCourses adds four very challenging new courses to *MacGolf*. ★★★½ Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf*. $34.95. Practical Computer Applications, 1305 Jefferson Hwy, Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a ★★★★½ 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)

Mac Pro Football is a terrific sports simulation that gives you the ★★★★ chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

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

MazeWars+ is an interactive, multiplayer game to be played on ★★★★ AppleTalk or through a modem link. Chase opponents through a four level maze. Requires 512K+, AppleTalk or Hayes-compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

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)

MoonMist is Infocom's latest introductory level text adventure ★★★ game. This is a typical haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $38.95. Infocom, 125 Cambridge-Park Br., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even ★★★★ good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional ★★★½ football. Comes on two disks, one with program and system, the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of ★★★★½ 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, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-★★★½ average puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Patton vs. Rommel is traditional-style strategic wargame. It ★★★★ covers events in Normandy in 1944. While complex, it's well designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with ★★★½ text and graphics. The unique interface has some drawbacks, but *The Pawn* has humor, social satire, is entertaining and is challenging. $44.95. Requires a Mac+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

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). $40. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Jan 86)

Puppy Love is a combined game and teaching tool. As you teach ★★★★½ your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. $19.95. Addison-Wesley, Reading, MA 01867. CP (Mar 87)

Real Poker is five-card draw against five other players with Old ★★★★½ 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

Seven Cities of Gold is an educational program masquerading as ★★★★ an adventure game; and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. $39.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Jun 87)

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. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 86)

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)

Smash Hit Racquetball is an accurate and entertaining simula- ★★★★½ tion of a day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 33 Norwood Ave., Kensington, CA 94707. CP (Dec 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, 111 Triton Dr., Foster City, CA 94404. CP (Dec 85)

Tass Times In Tone Town is a slightly off-the-wall graphic ★★★½ adventure in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. $39.95. Activision, 2350 Bayshore Pkwy, Mountain View, CA 94043. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working ★★★★ model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child to build. $64.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Ultima III allows up to four characters to cooperate to explore the ★★★★½ vast wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely ★★★★★ haunted mansion. Since you access the parser by double-clicking, command choices are always visible—you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86)

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, 1043 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

WordPlay is a word game with over 50 crossword puzzles for ★★★★ different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what ★★★★½ amounts to its own programming language. The whole program (language including) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach Software, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

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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Requires 512K+. $9.95. Door Openers, 775 Greg St., Sparks, NV 89431. NCP (Jun 87)

Zork II is where the adventure continues in the underground empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Zork III is the final chapter in the trilogy. Players come up against the ultimate enemy—the Dungeonmaster himself. More closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has different instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, PO Box 5847, Stanford, CA 94305. NCP (Nov 85)

Listen is an educational tool for ear training. It has both a piano keyboard and a guitar fretboard for the student to input notes, and offers a wide range of exercises. $69. Imaja, PO Box 638, Middletown, CT 06457. CP (Jan 87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," *Music Mouse* gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. $59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer is a strong contender for the high-end of the MIDI sequencer market. Only those experienced with MIDI should get this. Files can be transported to *Professional Composer* for editing. No direct track or segment looping. $295. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

Professional Composer is aimed at music professionals. Produces performance-quality sheet music; has only limited playback facilities. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Prem)

Studio Session consists of two programs, an Editor and a Player, that produce music with six voices of digitized sound. Excellent program plus good manual make this a good buy. $89.95. Impulse, 6860 Shingle Creek Pkwy, Minneapolis, MN 55430. CP (Dec 86)

HARDWARE & ACCESSORIES

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk with a unity interleave and average access time of 18 msec. Holds 140 M. Help, file transfer and tape backup commands built in. *Hard Disk Partition* is a useful DA that comes with a 6 ft. SCSI cable. $2995. CMS Enhancements, 1372 Valencia Avenue, Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1 and 2M sizes. Connects to a serial port. Speeds up operations 200 to 300%. Can be used as a printer buffer. Works with all Macs. 512K, $395; 1M, $450; 2M, $545. Western Automation Laboratories, PO Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI hard drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. $1995. SuperMac Technology, 950 N. Rengstorff Ave., Mountain View, CA 94043.

Ergotron is a Mac (and external drive) holder that allows a full range of swiveling and tilting. Very strong, this well made unit is also very easy to use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55417.

FX-20 is a good 20-meg external hard drive. Good utility software. Reliable, and reasonably quiet. Sits next to Mac, has a large, oddly shaped case. Requires SCSI port, 512K+, new ROM. $1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly noisy unit. Good utility software, but no backup yet. Requires cable and terminator ($80). Requires SCSI port, 512K+, new ROM. $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

MacBottom HD21 is a very low (about 2 inches high), external 20-meg hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including *HFS Backup*. Requires SCSI port, 512K+, new ROM. $1195. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. (Feb 87)

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. $995. 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.

MacNifty Sound Digitizer turns ordinary analog sound input into digital waveforms which can then be manipulated using the *SoundCap* software it comes with. Capable of truly stunning effects. Requires 512K+. $129.95. Impulse, 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. Impulse, 6860 Shingle Creek Pkwy., Minneapolis, MN 55445.

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. $399. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. (Jun 87)

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. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video cameras. With *LaserMagic* software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with *Magic* software, $399.95; *LaserMagic* software, $49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May 87)

Mouse Mover is a mouse pad-type surface that snaps on to the bottom of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

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.

PhoneNET is an AppleTalk-compatible network. Network can be up to 3000' in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49.95 per node. Farallon Computing, 1442A Walnut St., #64, Berkeley, CA 94709. (Dec 86)

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.

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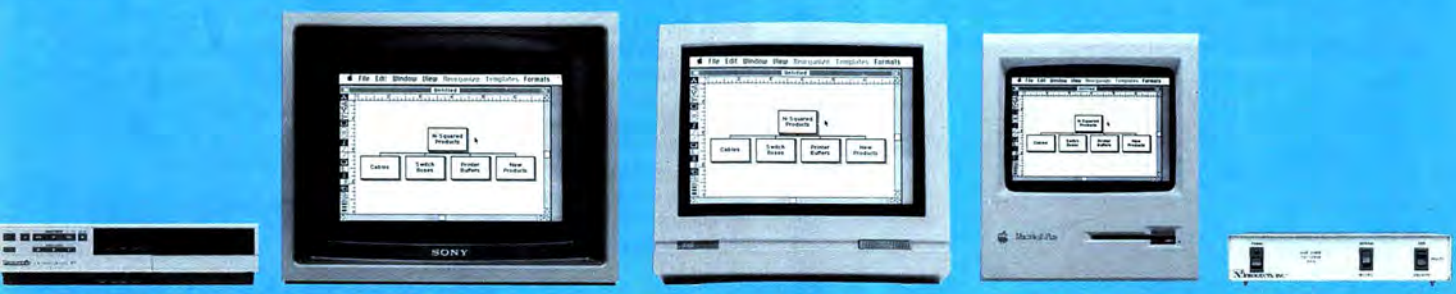

VCR (VHS & Beta) | TV Monitor | Computer Monitor | Macintosh | Mac Video Converter

At a surprisingly low cost, the Mac Video Converter enables video data from the Mac or Mac Plus to be simultaneously presented on NTSC or IBM monitors, TVs and VCRs.

It is intended for use in audio/visual displays such as classroom demos or to provide a convenient portable demo by storing the presentation on a video tape for use with a VCR.

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- **Freeze-frame screen memory*****
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- **Compatibility with all Mac Software**
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Display Device	Video Output	Typical number of devices per output*
NTSC Compatible Monitor	Composite/ Near NTSC Video	10 Monitors*
TV Monitor**	Composite/ Near NTSC Video	10 Monitors*
VCR** (VHS & Beta)	Composite/ Near NTSC Video	2 VCRs
IBM-RGB Monochrome (Switchable)	IBM Compatible Video RGBI/Monochrome	2 Monitors
High Speed Compatible Monitor (22.25 KHZ Horizontal scan rate)	High Speed Composite Video	10 Monitors

Mac Video Converter less than $1000 (sugg. retail.)

Note: The two Composite/NTSC outputs are identical.

Each output will drive a number of specific display types (please see chart on the left) and will operate simultaneously.

*Maximum number of devices per output is a function of device type and impedance.
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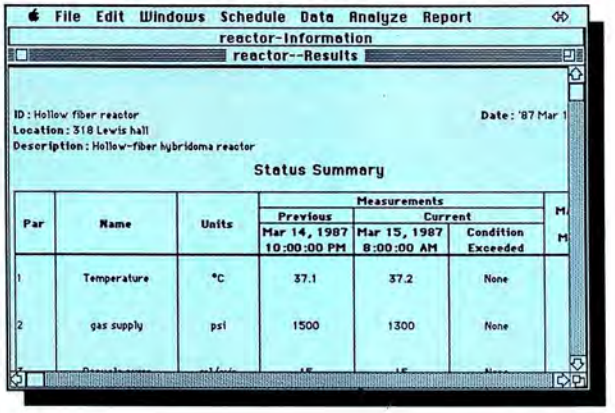
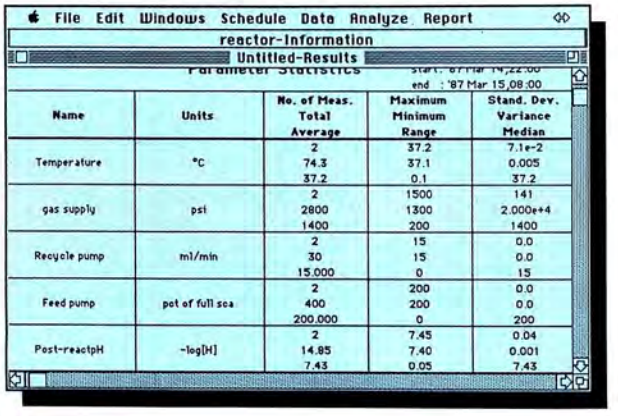
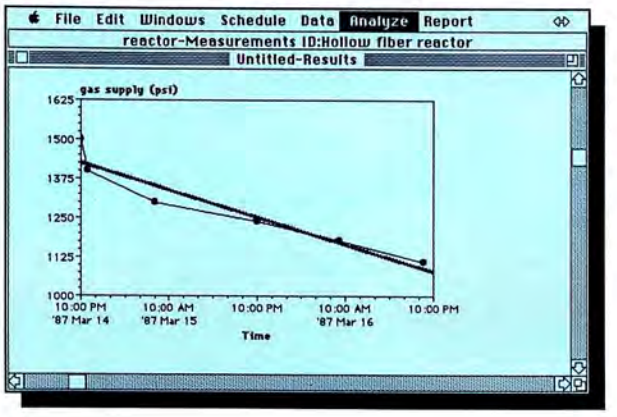


The Status Summary reports provide a quick and simple recap of all measurements in the open file to date.



Generating a report that shows the basic statistics for each parameter studied is simple and easy.



This plot of gas supply versus time shows a (shaded) prediction line. It can be used for modeling future gas supply. This simple chart, which is all *Parameter Manager* can do, can be transferred to and enhanced in any graphics program.

(continued from page 79)

Parameter Manager would also be enhanced if it used the Macintosh serial ports for data acquisition and transmission. Programs like National Instruments' *LabView* can acquire data, and that data can be imported into *Parameter Manager,* so all is not lost. But since *Parameter Manager* already handles everything except data entry, a sampling function would be very useful for automated data acquisition. While we're compiling a wish list, let's throw in macro capability to cut down on repetitive operations. And how about going to work again? Just call the experiment to ask it what's going on. A lab worker's dream come true.

SMS plans to expand the number of characters allowed in formulas and to add linking and joining functions across items in an upcoming release of *Parameter Manager.* They also plan to introduce a new product, *Parameter Manager Plus,* which has full data acquisition and telecommunications capabilities and an elementary macro function. SMS has gathered many good suggestions from users, so the product should continue to evolve and improve.

THE FINAL ANALYSIS

No matter where your numbers come from—stock market charts, company attendance or health records, weather almanacs, maintenance logs or a stack full of envelopes and Post-It notes—entering them all into *Parameter Manager* will organize and track the data. Pages full of numbers won't give you any insight into what is really happening; *Parameter Manager* will let you know almost immediately. It will also free you from the mechanics of data entry, graphing, formatting and organizing data inside of other programs. As soon as you start using it, you'll see when data was taken, how pieces of data relate to each other, and what pieces might still be missing. In short, it will quickly put you and your data on good speaking terms.

LINDA CUSTER IS A PH.D. CANDIDATE IN BIOCHEMICAL ENGINEERING AT UC BERKELEY, A FREELANCE MACINTOSH CONSULTANT AND A MAUG SYSOP.

MACUSER RATING

Parameter Manager ★★★½

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

Comments: A data manager with integrated scheduling, graphics and statistics. **Best Features:** Graphics and statistics are easy to use and powerful. **Worst Features:** Design looks more like a port of an IBM program than a Mac program from the ground up. **List Price:** $495. Published by Structural Management Systems, 651 River Oaks Parkway, San Jose, CA 95134. (408) 263-2200. Requires 512K+. Version 1.2 reviewed. Not copy protected.

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Turbo-Charged

(continued from page 153)

I did, and a friendly salesperson proceeded to load me down with one of everything that Borland has ever produced. I was astounded—what a gesture! Whether this was by way of atonement for a less-than-perfect product or simply superb public relations, I'm not sure. But Kahn certainly knows how to impress, and it's no wonder that Borland's products have done so well.

The worst thing I can say about the manual is that I put it under my pillow for two nights running and woke up in the morning not one bit the wiser.

The above situation immediately suggests a method for building up your software library at little or no cost to yourself. All you have to do is summon up a bit of chutzpah, boldly approach the CEO of your favorite corporation, and complain loudly (or politely—you'll have to be the judge of this) about a bug in one of their products. If you play your cards right, packages should fall into your hands like manna from heaven. And even if the program you want doesn't have any bugs (an absurdity on the face of it), you can probably invent one—busy CEOs can't possibly be familiar with all their products. Did I really suggest this? No, you must have read it somewhere else.

In conclusion, if the question of tab stops is not a major, burning issue in your life, and you want a simple, unadorned Pascal compiler that runs real fast, go out and pick up a copy of this program. At $99.95, the price is right. You'll be joining a large and satisfied semicolon underground. And it's fun to boot (pun intended).

HOWARD KATZ IS A WRITER FROM VANCOUVER, CANADA, AND EDITOR OF MACAPP DEVELOPERS' NEWSLETTER.

MACUSER RATING

Turbo Pascal ★★★★½

Follows Mac Interface	■ ■ ■ ■ ◪
Printed Documentation	■ ■ ■ ■ ■
On-Screen Help	None
Performance	■ ■ ■ ■ ◪
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ◪

Comments: The yuppie compiler of the 1980's. *Turbo Pascal* for Macintosh brings a simple, fast and unadorned Pascal compiler across from the world of IBM-PCs, where it has over 400,000 happy users. **Best Feature:** Runs blazingly fast. **Worst Feature:** Tabs are set in concrete. **List Price:** $99.95. Published by Borland International, 4585 Scotts Valley Road, Scotts Valley, CA 95066. (800) 255-8008. In CA (800) 742-1133. Not copy protected.

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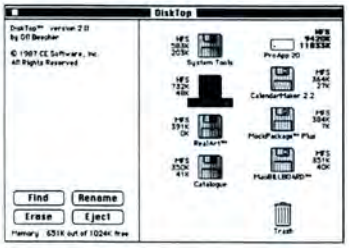

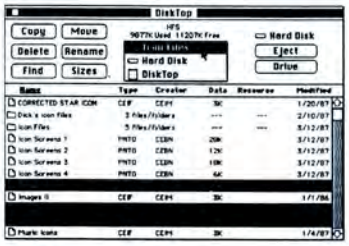

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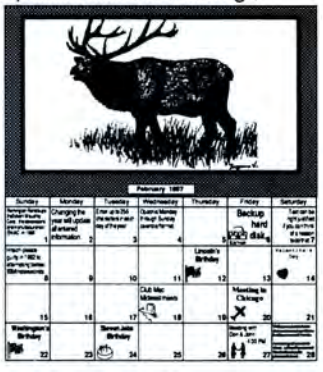

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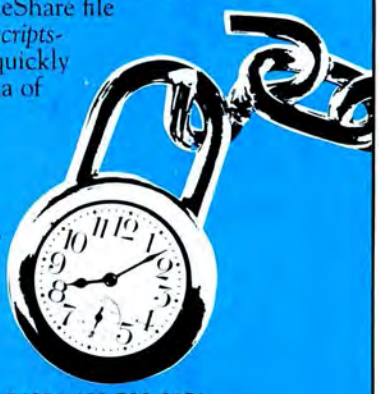

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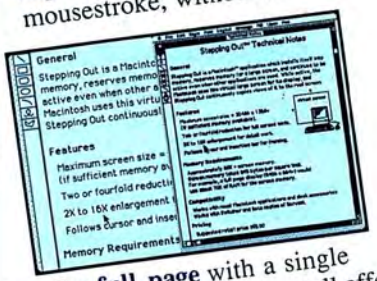

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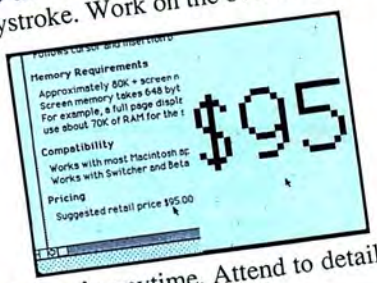

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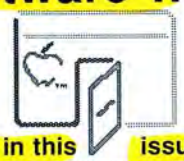

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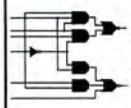

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by John C. Dvorak

The New Priesthood

At first I thought it was a desperation attempt to get me to say good things about the Macintosh when Apple inundated me with the hottest system it could piece together. It was a Mac SE with an internal 20-megabyte hard disk, boxes and boxes of AppleTalk kits, software galore and a LaserWriter Plus. I had, until now, avoided LaserWriter stewardship. It's distracting. You can't have a machine like this around without wasting hours and hours and hours trying to print fancy labels for your videocassette collection.

I was duly impressed by the system and mentioned this fact to a few friends. I rambled about the spectacular output and newfound speed of the printer. I liked the zippy SE, too. Fan and all. I was even impressed by the new Apple colors. This was ironic, since I have ranted about the new Apple non-color, platinum, for months. I thought it would be closer to gray than to eggshell white. When placed next to the older Mac the new machines make the old machines look a sickly green. Heck of a trick to get people to upgrade.

As I extolled the virtues of my new toy, a friend said that I sounded like a fawning Doug Clapp and I'd be fired from *MacUser* as anti-editor if I kept this up. I then realized that there was "something wrong with this picture."

I opened a bottle of Hennessy Paradis cognac in a vain attempt to determine exactly what that "something wrong" was.

The next day, as I nursed a mild hangover, it dawned on me. A typically jaded technology writer, I had failed to realize the expense of this equipment. It was at an office supply dealer showroom that I saw my SE and LaserWriter. It costs about $8000 plus for this killer toy. Hardly in the same league as a Taiwanese 8088 IBM clone and a used Epson MX-80. Figure about $800 total for that sweet combo. Ten to one price differential. No wonder the Apple system is so impressive. It costs a mint. It BETTER be impressive for that kind of dough.

It was then that I realized what a coup Apple had pulled. The company even lulled me into ignoring the fact that Apple does not represent the low end of the desktop computer market. Sure it makes Apple II clones by the truckloads, but even these are expensive when compared, say, to a Laser 128 from Hong Kong.

Simply put, Apple makes high-end gear for people with a fat bankroll. The cost conscious buyer who simply needs computer power and is not so concerned with the absolute necessity of typeset memos and typeset labels for videocassettes (in other words, Joe or Jane Normal) will buy an IBM clone. There is no other alternative. It's the IBM clone that is the computer "for the rest of us." An Apple Mac, the ultimate yuppie blunderbuss of prestige, is for the elite—the technological shock troops that would care less for "the rest of us." I guess the better phrase is "the rest of THEM."

Furthermore, the Macs require far more sophistication than the company or its fanatical devotees like to admit.

Don't get me wrong. In many ways the Mac is a marvel for the novice. But the need for expertise is not immediately obvious. I was shocked at how easy it was to set up the SE, AppleTalk and the LaserWriter. Before I knew it, I was downloading fonts. Each and every step of the procedure was done without turning a page in the documentation. The maze of cables snapped together in the one and only one way they connected. Software was pick and click. You could figure it all out. Let me say, "I" could figure it all out. "I" was also nonplussed when the LaserWriter failed to cough out its paper wasting test sheet that it does each time it's turned on. You see, "I" have been around the block a few times. "I" simply don't count. The newcomer is who counts. What does that person find?

There were a lot of idiosyncratic bugs: downloads that didn't work, peculiar crashes, screwball and unexpected results from various procedures. But to complain about any of them, to me, was like complaining about the enunciation prowess of the dog that talks. The fact that the dog talks is enough already. This is a not-so-subtle point that is poorly communicated by Apple.

Apple handles it all wrong. Or does it? Instead of humanizing the scene and dehumanizing the computer, Apple does just the opposite. The machine is a god—a mystical being. People are robots and drones. Just look at their ads for the Mac. None of the businessmen shown have ever even heard of the Mac if you are to believe Apple. But that's the way Apple wants it. They paid mucho dinero to push this image.

Apple is out to reestablish the computer priesthood. That's what it's all about. Perhaps the complexity of the machine demands it. This is a very powerful system. It's better to keep it all a mystery to the users so they won't discover the ugly truth. That truth is that the computer isn't quite finished. It has bugs, glitches and gotchas. It may never be finished. And the company doesn't want to use the talking dog analogy so it lets the priests take over.

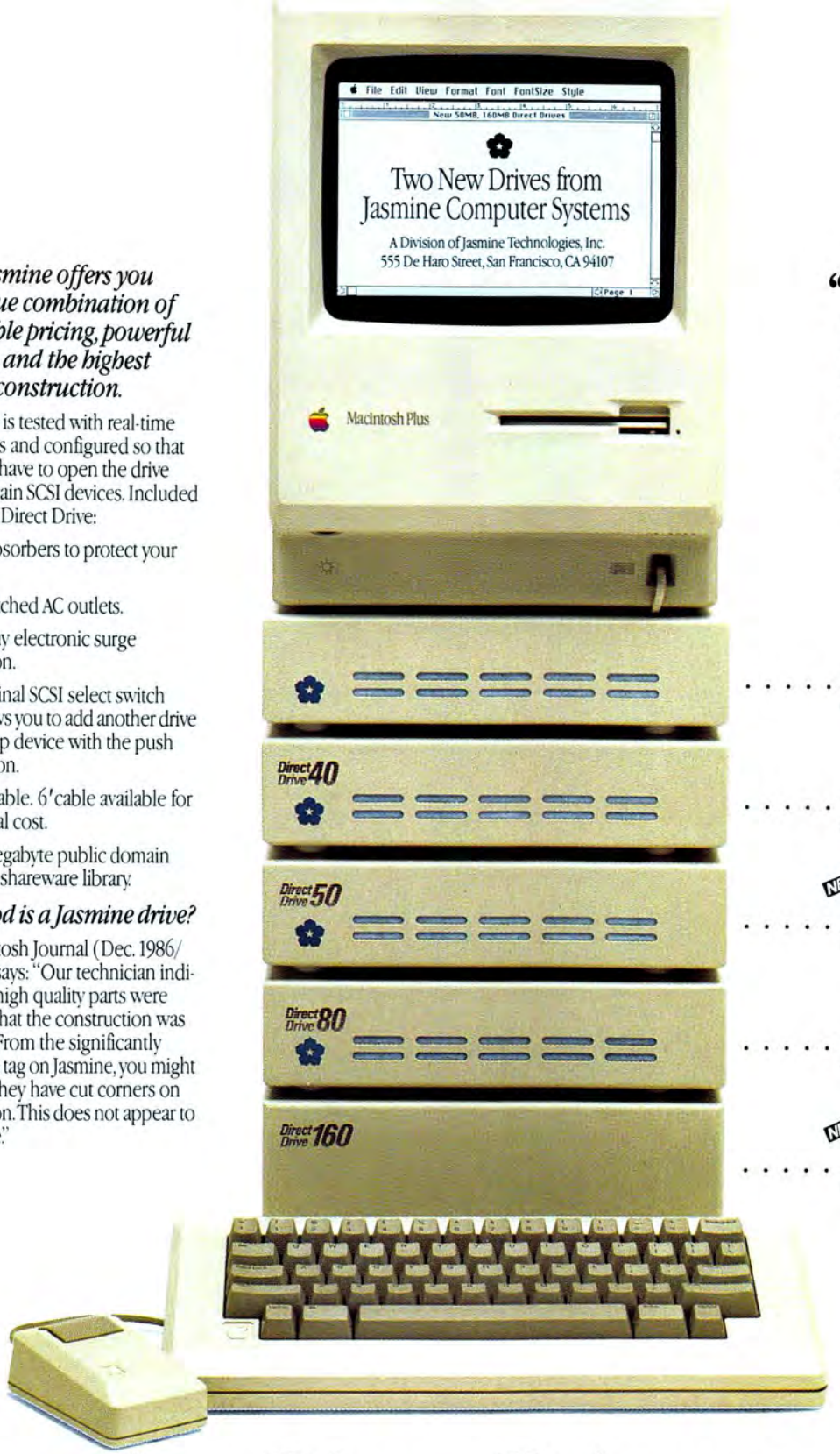
The new priests are the guys who know that much of the old software won't work on new ROMs. They have a fix on disk. These are the guys who know that single-sided disks behave differently than the new two-siders. They have a fix on disk. These are the guys who know that to survive in the glitch-riddled world of the Mac you have to subscribe to a dozen newsletters that forever track ever-changing bugs and fixes. Such a business. Someone is missing a bet by not starting a magazine called *BugWorld*. Let's call a spade a spade.

Apple loves this. It adds to the mystique. It makes introverted hackers turned corporate sleazeballs look good to their dumb IBM enamored boss. Just look what they can do that nobody else can do. "Mac forever," they whisper among themselves.

Check it out. At company meetings, check out the loner who uses the Mac. He knows he has the powerful killer bee of a machine. He gloats. He feels superior. All that is missing is the robe, vestments and little boys carrying incense.

When they start to talk in Latin, I'm through.

BOB ZIMMERMAN



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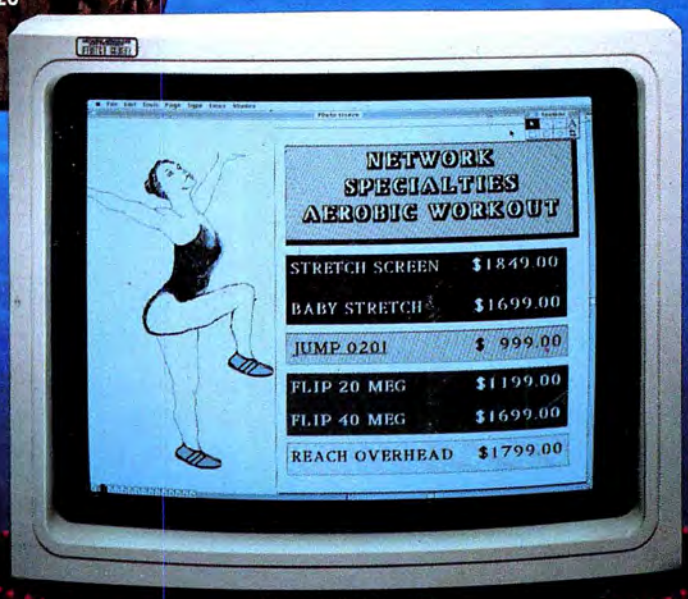

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