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Reflex: The Database Manager— MacUser Editor's Choice Award

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Macintosh 512K or Macintosh Plus with one disk drive. Second external drive recommended.

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John Sculley, Apple Computer, Inc. 9 9

System requirements:

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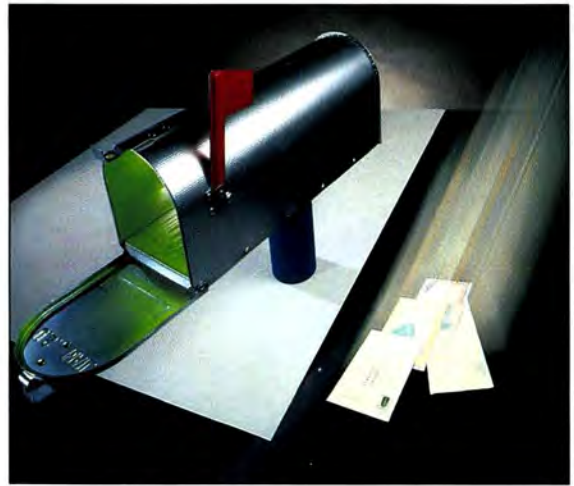
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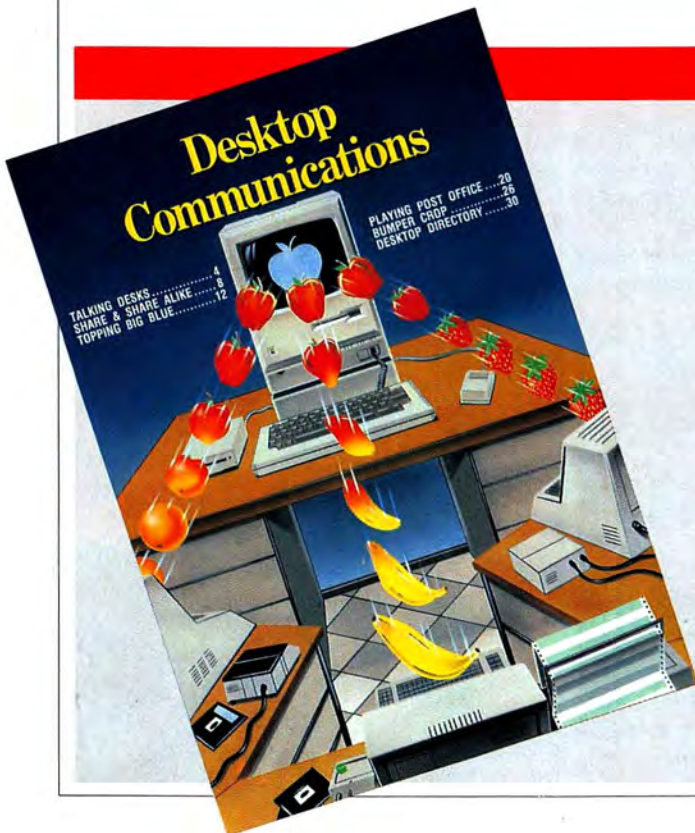
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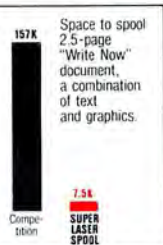
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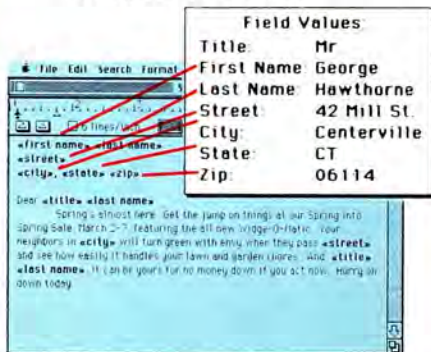
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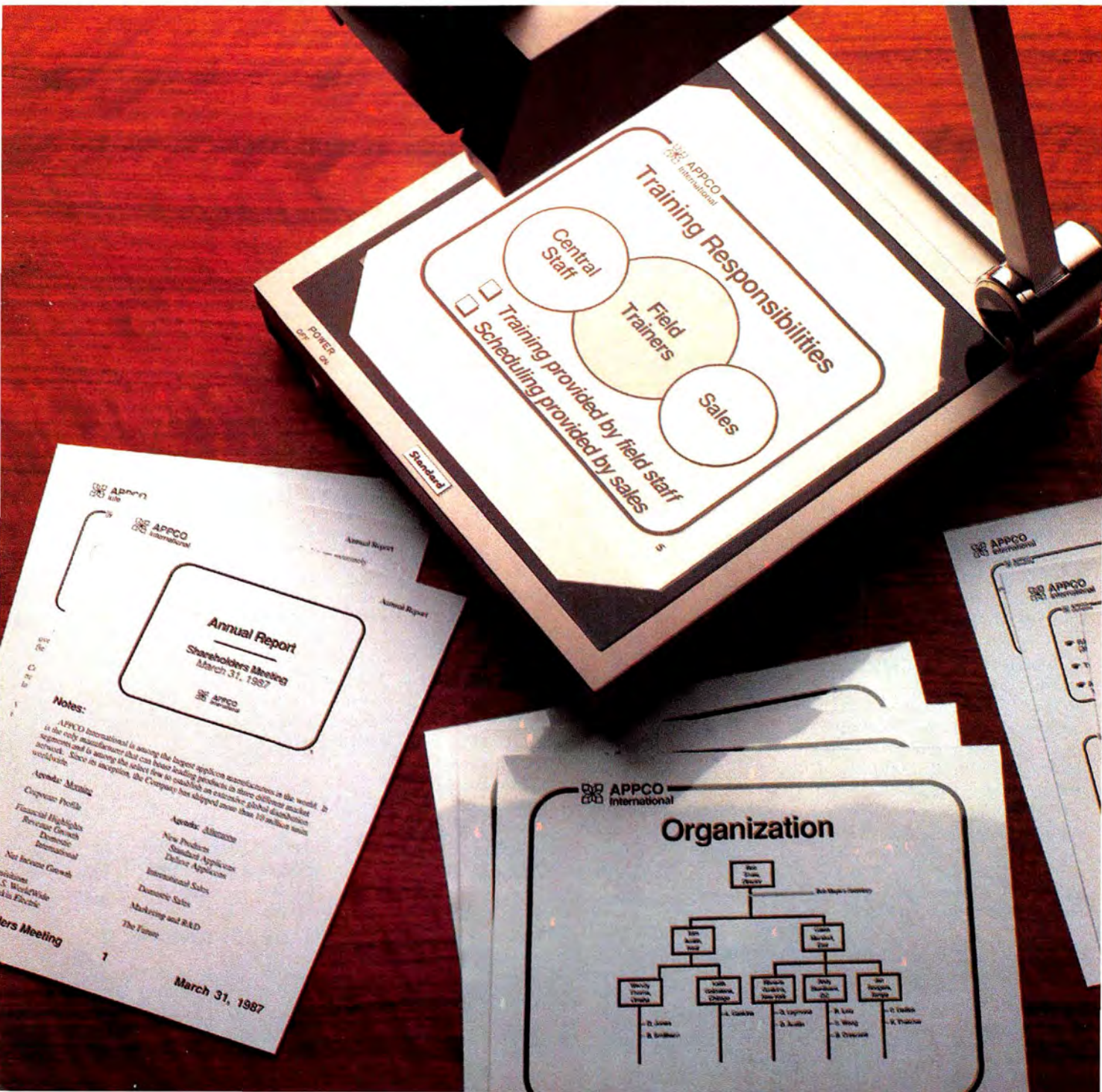
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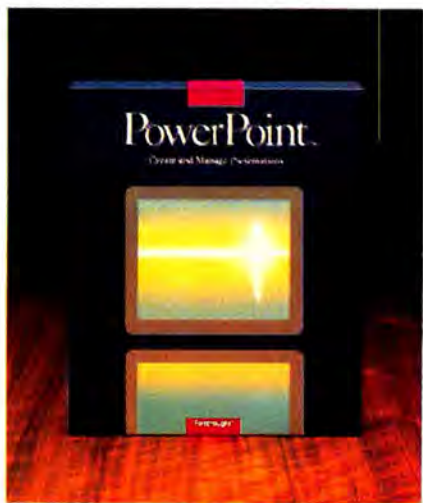
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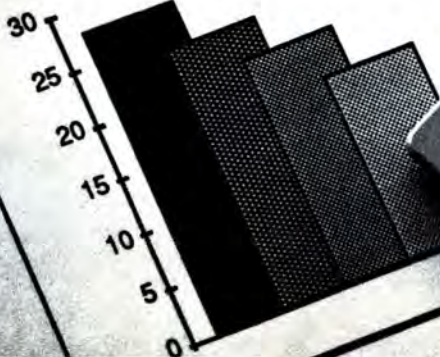
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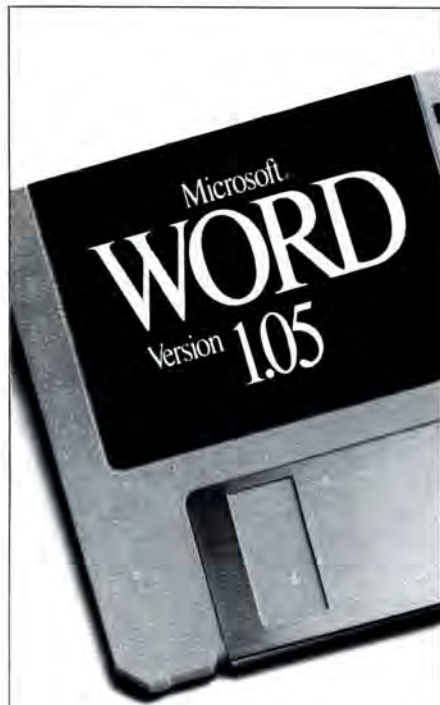
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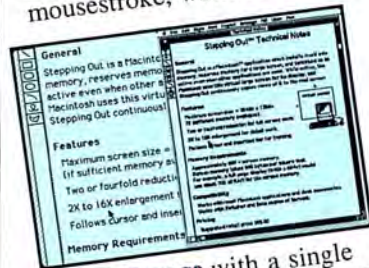
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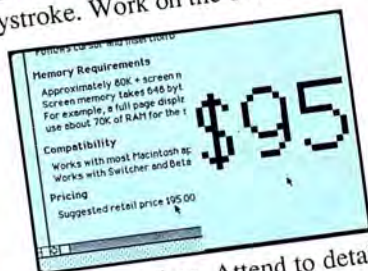
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If you're like most people your time is valuable. You believe you should, and could, be more effective managing your daily tasks. Perhaps you've even tried conventional methods of increasing efficiency—making lists of priorities, delegating, keeping diaries, etc.—only to find little has changed because you're still wasting valuable time.

That's why we wrote this guide. We want to explain four ways to improve the way you work by using the power of MORE and a Macintosh.

If you're too busy to read further, please skip ahead to the coupon and see how easy it is to receive our free time-saving booklets on **Managing Meetings, Preparing Business Plans, Creating Tree Charts and Organizing a Status Center.**

1 Start a revolution at your next meeting.

How often do you come away from a meeting satisfied with the results? Probably not as often as you would like. Here are some simple ways to get more accomplished at your next meeting:

- Have a specific objective in mind; as the meeting progresses, be sure you're still dealing with the same problem.
- Only cover things that cannot be put across in other ways—bulletins, manuals, direct contact with supervisors, etc.
- Don't try to cover more ground than time will permit. You can't solve the world's problems in a 30-minute staff meeting.
- Prepare for the meeting. Find out what the other people attending need to know before the meeting.

Why MORE is so revolutionary in meetings.

Try taking a Macintosh and MORE into your next meeting. Start with an outlined agenda, develop the issues into a group action plan. The participants—even those who don't use a computer—can direct the content and organization of the plan. Graphic Tree Charts and Bullet Charts help you present the impact of your decisions. At any point, you can review what's been accomplished. Everyone gets a uniform set of meeting notes, on disk or printed. This frees the participants from having to take detailed notes. Everyone knows what was decided, so next time you sit down there won't be a debate. Spreadsheets started a revolution for people who work with numbers. MORE is starting a revolution for people who spend time in meetings.



What's different about this meeting? The Macintosh on the table is running MORE. With MORE in the meeting, ideas will be focused and presented better than ever before possible.

2 Manage people and projects effectively.

Managing people and projects can be very difficult. Some managers apply common sense, others learn by doing, others simply avoid the problem altogether. In an effort to simplify a complicated subject, here are a few things that will help any manager:

- Managing requires a great deal of talking and listening. It sounds easy, but it is a constant job that requires a concentrated effort.
- Job descriptions and boundaries should be provided for every person's job.
- Feedback on performance and encouragement improve motivation. Doing and saying nothing leads to stagnation.
- Find the best people you can and support them.

Now there's a way to manage people and projects better using MORE. Managers, executives, corporate planners and personnel staff can use MORE to outline their management ideas and instantly transform them into a Tree Chart. You can use Tree Charts for organizational charts, project flow-charts, decision trees, block diagrams or time lines. MORE also is a powerful tool for writing job descriptions and preparing employee reviews. As a project management tool, MORE is fast and flexible.

3 Create a time-saving Status Center.

The first step in becoming more time-efficient is to identify how you spend your time. Naturally, once you've figured how and why time is spent, you begin to do things that give you higher payoffs and more satisfaction.

For you, MORE becomes a convenient and powerful electronic notebook and card file. You collect and organize the details of



The next best thing to having a clock that runs backwards is having a Macintosh that runs MORE. With MORE you can set up a Status Center to organize the details of your daily work.



Some of the best ideas you have don't always happen in front of a computer. (That could change after you've used MORE.) For example, you can take your ideas from scraps of paper to a finished presentation in minutes.



daily work in an outline—your personal Status Center. You keep this outline up-to-date, using it to:

- List and organize your tasks
- Record names, addresses and phone numbers
- Keep your daily calendar
- Write and file notes and memos
- Track your expenses

MORE's power outlining lets you change and interconnect your lists with ease. You can use the Templates feature to store "boiler-plate" such as an address form and call it up at any time. The calendar feature will generate a daily schedule automatically. Most of your writing and word-processing work can be done right in MORE. You can even dial a phone, record the time and date, and calculate a sum—all by pressing a key. MORE is the ultimate tool for desk-top productivity.

4 Process your ideas, then present them.

If you've ever had to prepare a presentation in a hurry, you know how frustrating and time-consuming the task can be. Technique is an important part of presenting your ideas effectively. Here are some simple steps that will take you from rough ideas to finished presentations:

- Make a "laundry list" outline of basic ideas.
- Become uninhibited with your ideas—don't edit on your first pass.
- Be generous with headings, call-outs, charts and illustrations.
- Allow yourself the flexibility to change your presentation, even at the last minute.

Now you can prepare a presentation quickly and professionally, even at the last minute.

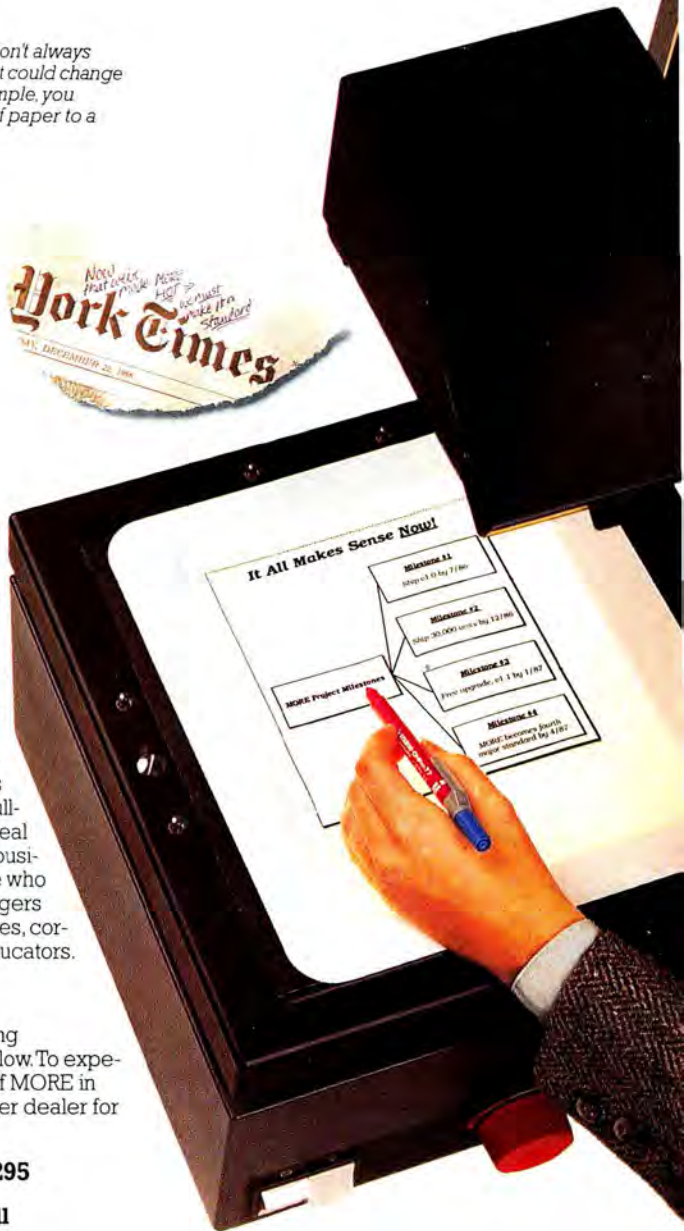
For the first time, MORE integrates idea processing with idea presentation. You can outline your ideas and quickly transform them into attractive Bullet Charts. Add Tree Charts and pictures, and you have a full-fledged slide show. MORE is ideal for the entrepreneur writing a business plan—and also for anyone who develops presentations: managers and decision makers, executives, corporate planners, sales staff, educators.

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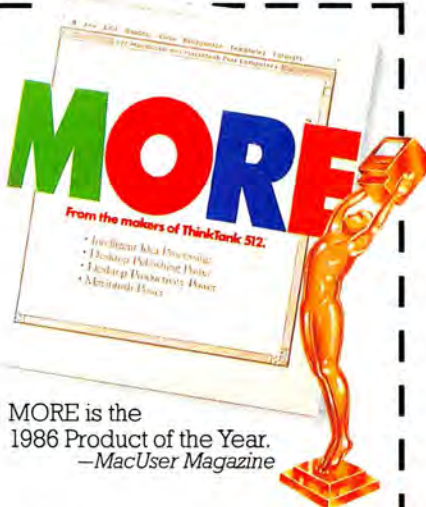
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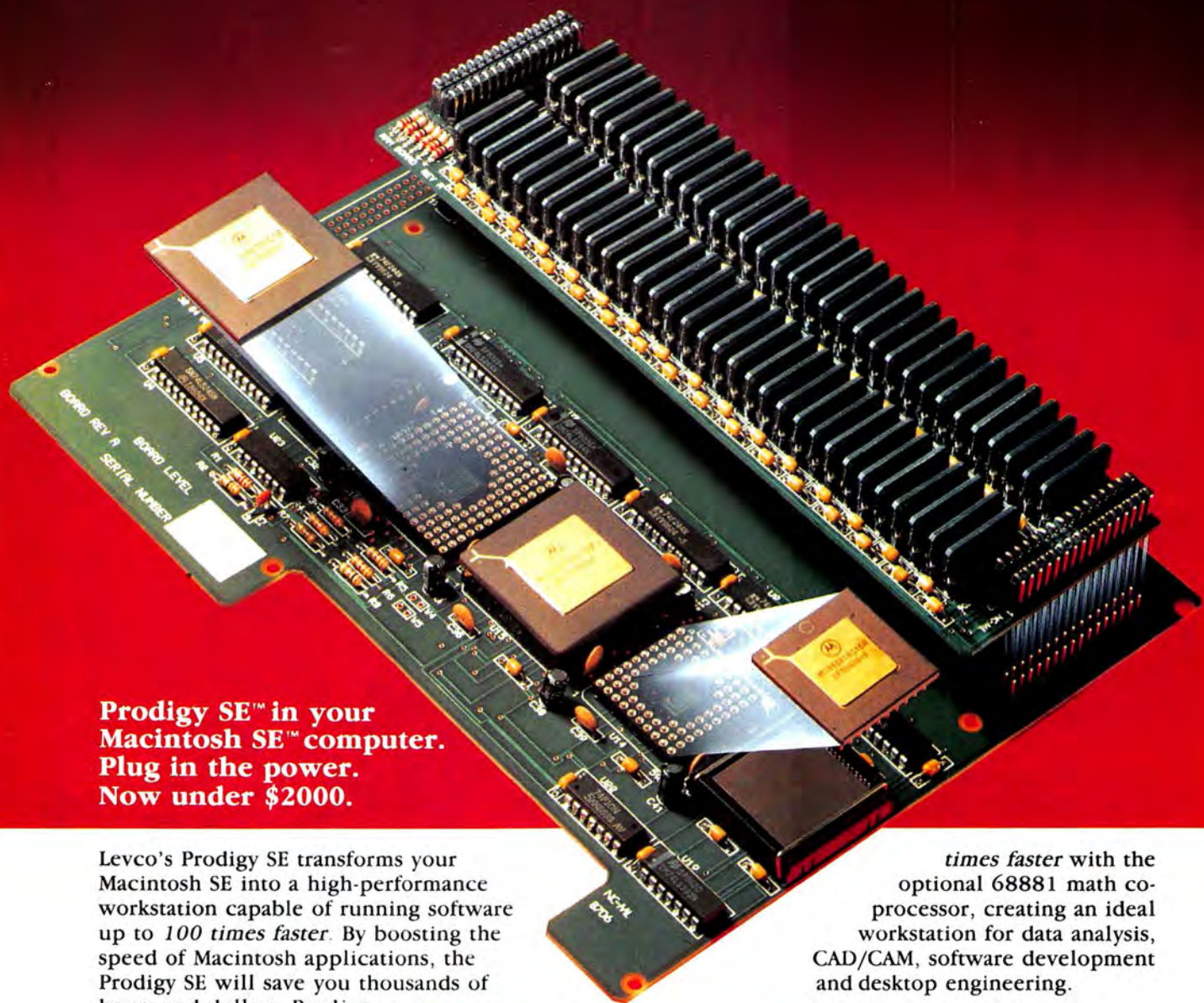
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by Neil L. Shapiro

Copyright— Copy Wrong

We all have secret weaknesses. One of mine (which will no longer qualify as a secret following this paragraph) is that I spend a lot of time in comic book stores. Going through the stacks on a hunt for an old "Uncle Scrooge," "Donald Duck" or other Carl Barks masterpiece, picking up the latest Dave Sim's "Cerebus" creation — this is how I unwind. But even these idyllic reveries have been interrupted by overhearing various conversations that yank me back to reality.

Conversations about computers, about software are becoming more and more prevalent among the high-school age kids who wonder who the old-looking guy by the back issues might be. Without meaning to, I have picked up a complete education on how these young people view the computer industry and, specifically, the software industry.

I have seen the future — and we might be in need of a few superheroes.

TRUTH, JUSTICE, THE AMERICAN WAY

Every computer-oriented conversation I have ever heard in this circumstance involved the pirating of software. I have heard plans being laid for mass copying of disks on both school-owned and personally-owned computers; seen facsimiles of manuals swapped and have even heard one Mom chime in that she'd buy one of the kids a computer if the others would "share" the software.

Now these are not the sort of kids who you might be tempted to cross the street to avoid. Not one had a safety pin through his or her nose and they were paying cash up front for their comics.

They are not thieves, they are not dishonest and they are not stupid. But they certainly are software pirates.

How did they — and so many others — fall into this type of activity?

Well, I finally overheard one conversation wherein I knew one of the people involved. I had once had a long discussion with him about Carl Barks and how Walt Disney Studios had managed to

somehow keep "The Duck Man's" name from public view for so many decades.

Anyway, they (my young acquaintance and three of his friends) were talking about copying the latest game when they got home. Figuring that the worst that could happen is that I would obtain a neighborhood reputation as an old fogey, I politely interrupted and asked if they realized how wrong it is to copy software.

Well, I expected a number of replies. I figured that I would hear that software was too expensive so it was just asking to be copied; perhaps that copying is really "testing", or any number of rather hollow arguments I had heard so often before.

What I did hear astounded me.

JOUSTING A DARK KNIGHT

The guys looked at me as if I was crazy. What, they wondered, could I possibly be talking about? How could it



be "wrong" to copy software? Hey, everybody does it.

They had literally never been told before that copying software is ethically wrong.

Never.

By anyone.

Sure, they understood that it was a violation of the copyright law. But so what?

We had a long discussion. I explained to them some of the realities behind software publishing, things that most people reading this editorial probably

already know. I told them that many authors depended on the software sales for income, and told a few personal stories I know about people who are trying to support families being such authors. I tried to get across that once the publisher meets costs and the distributor gets a cut there is just not that much left for the person who wrote the program.

I don't want to go into all of the reasons here because that isn't the point of this piece. You understand the reasons. I understand the reasons. Most of the people we know and work with understand the reasons.

The kids don't understand the reasons.

The software industry has failed to reach the people who do not read computer magazines or technical journals. The software industry has failed to reach the developing consumer market at the consumer level.

And, more, the schools have failed without even trying.

A MARVELOUS IDEA...

These kids shouldn't have to wait for some old codger to wheeze up to them in a comic book store mumbling about the ethics of software piracy. They should already have learned this, the same places that they learned that other improper actions are ethically wrong. They should have learned it in their homes and schools — at least in their schools.

Many high schools have ethics in the curriculum. Today, someplace in the country, hundreds of high schoolers have had to answer test questions by describing what they would do in hypothetical situations involving everything from cheating to dating (and even cheating on a date).

Not one high schooler I know about has been asked today what he or she would do if confronted by the chance to copy a piece of software.

The reasons for not copying software deserve at least the same exposure in the school system as the reasons why we should all vote or why we should not steal candy. As computers become more and more a part of our society — led in this advance by easy to use and maintain computers such as our Macintosh — then society will have to recognize the role computers are now playing.

AMERICAN SPLENDOR

Of course, one of the main drawbacks to this idea is that, as it now stands, teachers (as a class) are cited by the industry as being in the forefront of

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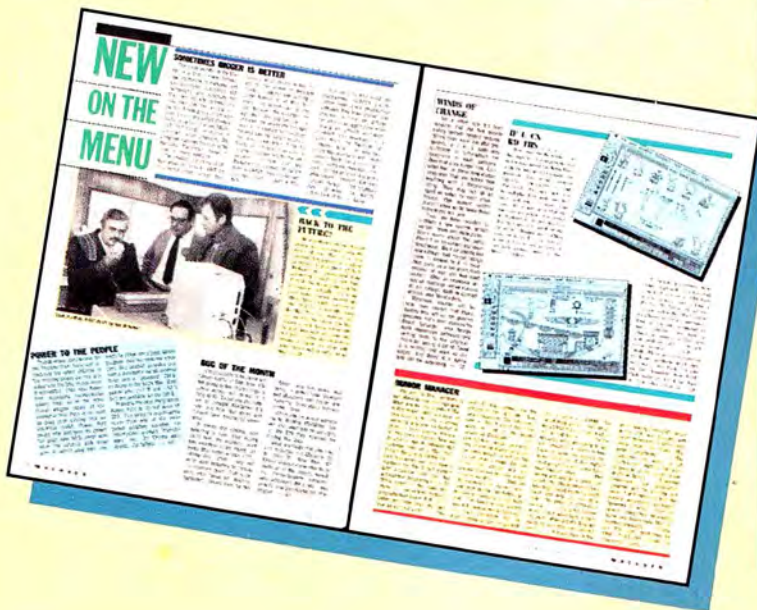
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DOVE COMPUTER

software ripoff. It seems that most teachers would not think twice about cloning any number of disks for classroom use.

(OK, put down that word processor. I know that there are very honest teachers out there. You don't have to write to introduce yourself as one and you don't need to write me to defend your favorite pedagogue. I'm speaking of teachers as a class here — pun intended — and not saying every individual is guilty).

Well, I have to believe that if teachers were asked to present lesson plans on why software piracy is evil that they might do well to listen to themselves.

They are not thieves, dishonest or stupid. But they certainly are software pirates.

And if they don't, well, the kids would probably enjoy scenarios such as:

"Uh. Ms. Lurch? Remember when you said we shouldn't copy software? How come my *MacWrite* disk doesn't have a printed label?"

You can't send the whole world to detention.

Imagine a whole generation of high schoolers graduating school with a complete understanding of why software piracy is not a good idea but, instead, the road to ruin of what many have come to know and enjoy — computing. Imagine them going on through college and then into the working world.

I don't know for sure that this would work. But I think it has a much better chance of working than four-color ads that preach to the already converted.

But it is going to take some effort.

First, it will take effort on the part of the software industry to broach this idea officially. Then it will mean that many teachers will have to champion the cause in their own schools. But I think there's a good chance of bringing software ethics into the schools.

If you're a teacher who perhaps already has such a curriculum, we'd love to hear from you. Or, if you're a teaching professional with ideas, please share them.

Let's get this show on the road. The software authors of 1992 are counting on us. ☐

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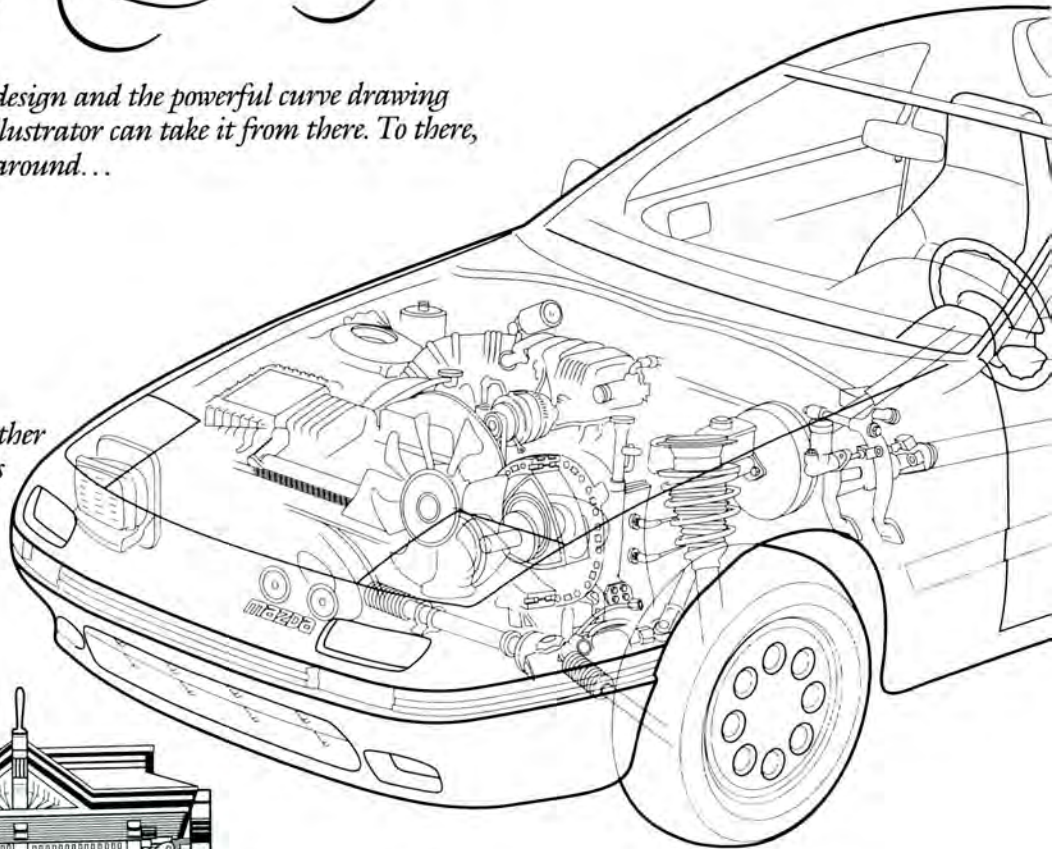
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Artifactory

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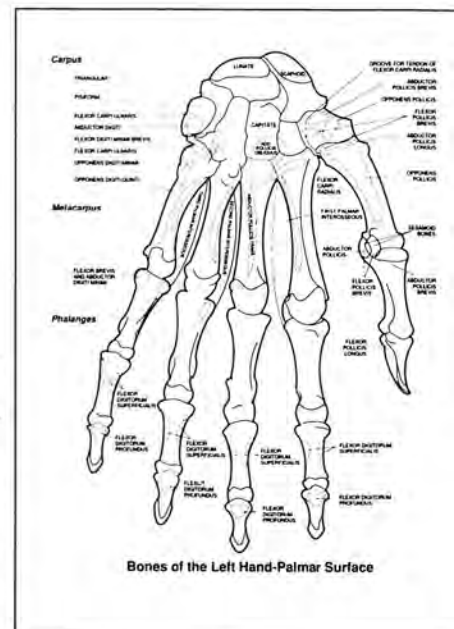
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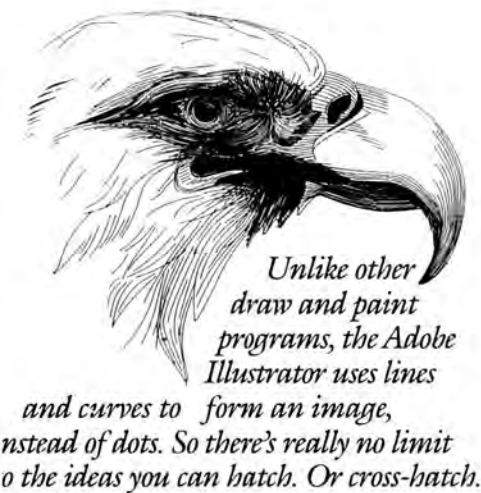
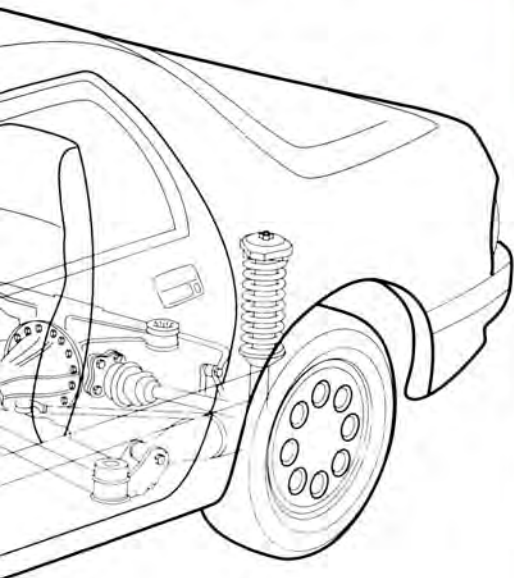
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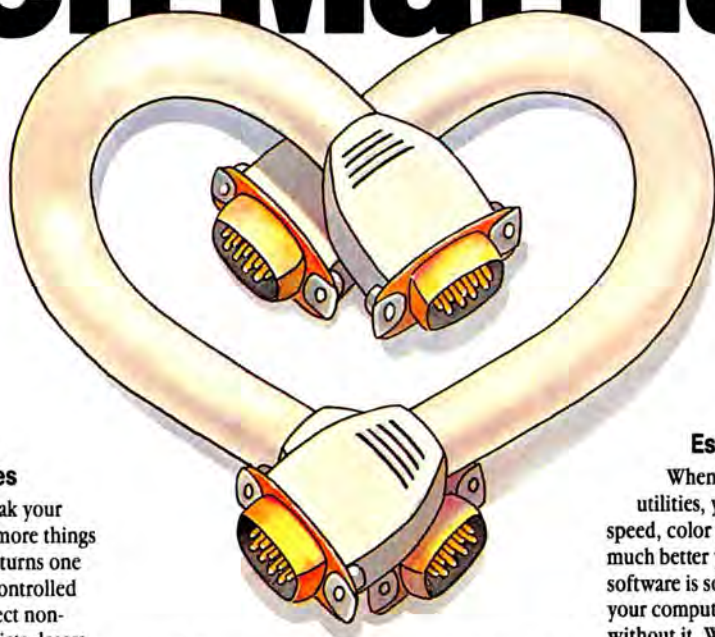


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Steven Bobker

We're always happy to hear from our readers (well, almost always), 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.

UNDER THE AEGIS

I have just completed reading the "No Applause For Clapp" comments in the Letters section of the January 1987 *MacUser*. There are several references to our upcoming product, *Doug Clapp's Word Tools* in those comments.

Although *DCWT* has been delayed for over 6 months, it is indeed a real product. With the surge in desktop publishing and the Macintosh user base, it is vital to make sure a product is "right the first time." *Word Tools* didn't pass our testing program with the marks we expected. We've put extra time, effort, money and coding into this product. As a result, the marketplace will get a remarkable program that will not require an update in order to make it "right." We have been testing each new test release with a series of beta sites, including *MacUser* magazine.

Further, it should be noted that Aegis Development has not advertised, issued press releases or otherwise promoted any product before a definitive release date has been determined. *Word Tools* is no different. Delayed? Yes. Vaporware? Hardly.

With regard to the writing abilities of Mr. Clapp, he is one of the most prominent writers in the Mac market. The comments by your readers indicate that Doug has stirred their emotions to the point of writing about it. Style is very subjective. Doug (and all good writers) are always looking for ways to improve, experiment and expand their writing horizons. *Word Tools* was his idea. I loved it. Thanks, Doug
DAVID BARRETT
PRESIDENT, AEGIS DEVELOPMENT

We called Mr. Barrett for clarification of "definitive release date" and he told us that, while a definitive date had originally been agreed on, it subsequently became clear that *Word Tools* would not be ready by that date. It was too late to pull advertising that had already been placed, but a moratorium was placed on further advertising and promotion. Many of you have written in saying you have already paid for *DCWT* and are still waiting for the product. According to

Mr. Barrett, at least two — shall we say unscrupulous — mail order companies pirated early beta versions of *Word Tools*, photographed screens and advertised the program. They're the people who have your money, and you no doubt know who they are. Aegis Development has never taken an order for *DCWT*. We still can't say exactly when the program will actually appear, but we can tell this: the manuals are at the printers and the packaging is complete. The last major bug seems to be an inability to read *MacWrite* files. — LK

DUNGEONS DOOMED?

On reading Dave Valliulis' article on John Raymond's *Dungeons of Doom* in your January issue, I got the impression that he highly recommended the game. Because I enjoy dungeon-type games, I decided to give it a try and I sent Mr. Raymond a request for a copy of the software. One week later I received an apologetic letter saying that the program was not available through him. He also mentioned that there would be a new, improved version under the name *The Dungeon Revealed*.

I would truly like to get a copy of either *Dungeons of Doom* or *The Dungeon Revealed*. Can you please tell me where and how this is possible?

MARK RAMBLER
WOODCLIFF LAKE, NJ



Dungeons of Doom is available on CompuServe and quite a few local bulletin boards. If you don't have access to BBS, you might try a local users group; a lot of them offer shareware and public domain software on disk. If your local group doesn't have *Dungeons*, write to the Boston Computer Society's Mac group at BCS Mac, 1 Center Plaza, Boston, MA 02108. Dave tells us that the word on *The Dungeon Revealed* is that it is too big to put on a service, so you may have to wait awhile for that one. — LK

THE REAL SECRET IS . . .

In "The Secrets of Pascal" in your December 1986 issue, Doug Clapp presents what is said to be a simple procedure for incrementing a variable. The routine as printed will do nothing but use up processor cycles; I'm sure it was an oversight. The following procedure accomplishes the increment:

```
Procedure AddOne(VAR x : INTE-
GER);
BEGIN
```

```
  x := x + 1
```

```
END;
```

MIKELL D. NELSON
LEWISVILLE, TX

GENERAL KUDOS

I happen to like Doug Clapp's "What's Hot — What's Not" article myself. In fact, the January 1987 issue was full of good articles. It seemed like everyone was humming; writing tight and brisk good stuff.

Dvorak was back in the saddle, after a series of puzzling fantasy articles. We may not always agree with Dvorak, but we *always* read him. I disagree with his idea that Sculley isn't cutting it as Apple's rep; Sculley is definitely Mac-militant and always quotable. The "Test Drive a Mac" campaign wasn't a failure, either. I know some hardline Mac veterans within this Mac-hostile corporation who had their first contact with the Mac because of that campaign. If not for that, there would be no Revolution here at all.

Neil Shapiro's "Big Brother and Newspeak" editorial was dead-aim, packing a devastating nuclear punch, as usual. Shapiro's clear-speak editorials like this are alone worth the cover price, especially to those of us in PC-crushed corporations. Thanks for the inspiration.

ARDEN HENDERSON
ANGLETON, TX

I have been waiting a long time for Dvorak to hit a nerve and for all heck to break loose. So here are a few imperfect replies to all of those even more imperfect remarks in your December 1986 issue.

Sure, Dvorak is a bit off the wall and is an IBM user, but I don't know very many Macintosh users who have even come close to the IBM, either. You all say that the IBM is dumb, is hard to use, the Mac is #1, etc. I have used the IBM many times and I think that *both* computers have problems. Not major problems, but still problems.

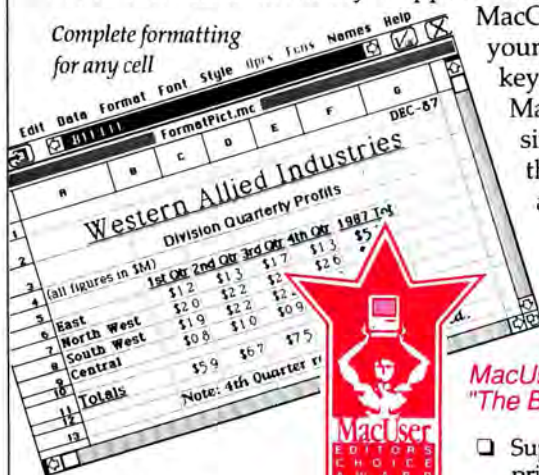
The mouse always gets dirty and is always lost in a fast typing session, while

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cursor keys aren't exactly the easiest thing to use — depends on what you're not used to using. That's the main point. We can't really say a lot against Dvorak and his anti-Mac bias when we say so much against IBM. Face the facts, folks. We aren't perfect, either.

Now, I really get a kick out of his articles. I don't take them seriously. If I did, I would probably call him a snob and a jerk and maybe even a PROM-brained static pusher. I read his column every month, laugh at it for a while and go on to the next issue. Now why don't you Macintosh meatheads get your act together and just shut up. If you have anything to say, say it by writing for an IBM magazine.

MONTE PESCADOR
KELSO, WA

I was going to make some devastatingly witty point about this being, after all, a Macintosh magazine, but I'm still reeling from the news that Macintosh users are imperfect. — LK

OVERVUE MISSTEP

December's "Answers From the Mac Team" column contained a response stating that *OverVUE* is incompatible with *Switcher*, and though your responses are usually right on, you missed the boat on that one. Granted, *OverVUE* has had its problems with *Switcher* in the past, but versions 2.0c and above are *Switcher*-compatible, and these versions have been available since October 1985.

There are, however, some traps to watch out for. *OverVUE* does not use the Clipboard for cutting and pasting; therefore, you cannot cut and paste between *OverVUE* and other applications. If you do convert the Clipboard into *OverVUE* from another application, *OverVUE*'s menus will freeze up. The best way to configure *OverVUE* under *Switcher* is with the Always Convert Clipboard box turned off. Then switching between *OverVUE* and, say *Word* — the ideal mail merge combination — is a piece of cake. If you have more than two applications installed under *Switcher*, you can still convert the Clipboard between them by holding down the Option key as you switch.

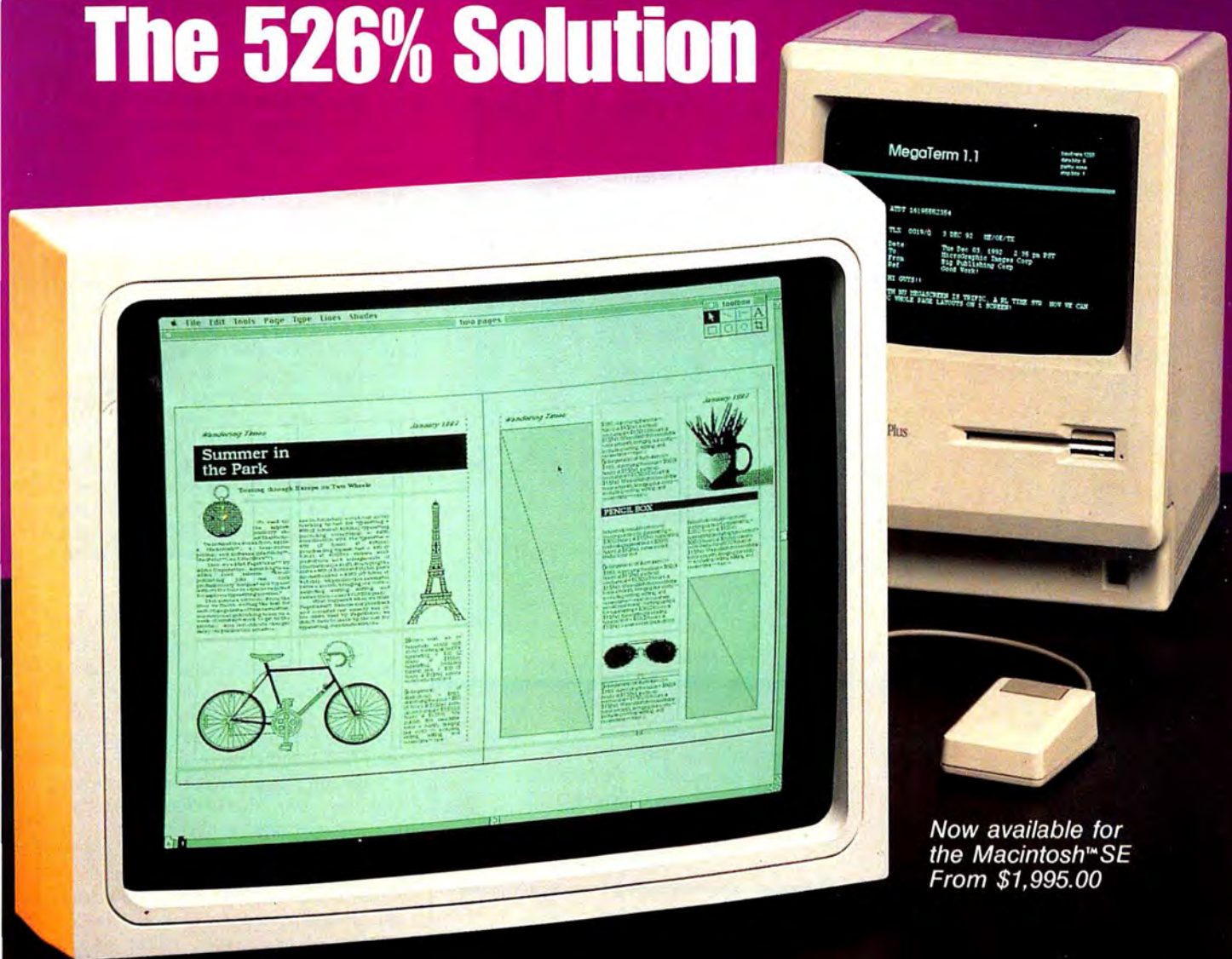
RUSS WYLLIE
TECHNICAL SUPPORT
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PRIZE DISAPPOINTMENT

I was greatly disappointed on reading the Editors' Choice awards for 1986. For example, Best New Entertainment Program: Adventure — *Uninvited*. It is

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

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L E T T E R S

an enjoyable game, but hardly the best. The most revolutionary game ever produced for a computer system was released in October 1986 by Silicon Beach — *Dark Castle*. The animation is smooth, the graphics are flawless and the storyline is gripping. I also disagree with the Best New Art/Graphics program as *FullPaint*. Again, I think Silicon Beach should have taken the prize with *SuperPaint*.

JOHN O'DONNELL
PALOS HEIGHTS, IL

Outside of the unavoidable fact that editors have their idiosyncratic bases for choice like everyone else, the chief reason neither of those programs made it in this year's awards is that they weren't available in released versions at the time of the vote (assuming you're referring to the 1.0 version of SuperPaint). And, while we all think Dark Castle is a pretty nifty piece of work, it wouldn't have been considered in the Adventure category anyway — it will probably show up somewhere under Best Entertainment Program: Arcade next year. — LK

THANKS FOR WRITING, HAVE A NICE DAY

Neil Shapiro's "Editor's Desktop" in your January 1987 issue was one of the most blatant examples of the amateurish slant that pervades much of the computer press these days. Granted this is a column/opinion that we're dealing with here, but boosterism has absolutely no place in any publication. Objectivity? Obviously, Mr. Shapiro has only a passing acquaintance with the word.

Don't misunderstand me. I, too, have enjoyed many hours playing *Smash Hit Racquetball*. Shilling for the company, any company, however, should not be the job of any writer, editor or cub reporter.

They may make "swell" gifts (come on, reach for a thesaurus and quit using these chatty, juvenile expressions that jump from the pages of *MacUser*. I surmise that Primera Software has already received its "swell" gift, a free advertisement. No, I won't "reward" a manufacturer for turning out an entertaining piece of software — isn't that what they're supposed to be doing? If it's cheap, great. If not, I have the choice of not buying it.

I feel no obligation or responsibility to support a company, regardless of its altruistic actions. If the game is great, say so, but please spare us such blatant shilling.

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L E T T E R S

Oh, I don't know. Any time we review any software — as a Quick Click or feature — we give our honest in our opinion of the product. Sometimes, like Neil, we get excited. It doesn't constitute "shilling" or anything morally or legally reprehensible. (In that context, you'll notice your more libelous comments have been edited out.) And while you may not intend to reward a manufacturer, that's pretty much what any customer does by buying a product — good or bad. — LK

MANUAL ERROR

I renewed my MacUser subscription early and, true to your promise, you sent me Mr. Kottwitz' excellent book, *The Power User's Manual*. Thank you. It is full of useful information and has already proved its worth by clearing up a mystery which I, my dealer and others had been unable to fathom — why disks initialized on one person's Mac 512E did not always read properly on a Mac 512K.

However, there is an error on page 54 to which I wish to draw your attention. In regard to *Helix*, under the section entitled "Keeping Relations Efficient," it states "Remember that *Helix* allocates disk space in a record for every field that's defined in your relation, regardless of whether you've entered data into the field or not." As one of the primary designers of *Helix*, I can state unequivocally that this is wrong. All versions of *Helix* and *Double Helix* use NO disk storage for fields containing no data in a particular record. This is how *Helix* detects an "Undefined" field in record: It detects the fact that the record (or row in *Helix's* terminology) has no space allocated for a particular field and that therefore the field is undefined.

When you create a field (by tearing off a field icon) a certain amount of disk space is used (20 to 50 bytes depending upon type and the version of *Helix* in use). However, no additional disk space is used except when a row actually contains data for the field. The only place where unused field icons cost "extra" disk space (beyond the space used by their creation) is with indices. Here, an unused field icon costs two bytes per row in the relation.

I hope this error can be corrected in the next edition — and given the usefulness of *The Power User's Manual* and the rate at which the new Macintosh software seems to be created, I have no doubt that a next edition will come.

JONATHAN SCHNEIDER
 NORTHBROOK, IL

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Heeere's Eddy!

For those of you who keep hearing his name but have never laid eyes on him, meet Eddy. More formally, the statuette awarded to the winners of our Editors Choice Awards at a fancy annual dinner. This year, Jean-Louis Gassée, Apple's Vice President of Product Development, kindly did the honors, presenting Eddies to 30-odd delighted recipients at the Four Seasons Clift in San Francisco. Trivia fans: Given that an Eddy weighs in at slightly more than a full-grown St. Bernard, how many pounds did Jean-Louis pump for *MacUser* that night?! Send answers on a postcard . . . — FD



Apples and Oranges

Since the introduction of the Mac, there have been a number of products that have attempted to bridge the incompatibilities between the Mac and the Apple II. Products such as *Mac +II* allow Apple II owners to use the ProDOS 3.5-inch diskettes on their Macintosh. Three new products have recently been introduced to help supplement this emerging market.

Of these products, the only one intended for the casual user is *ProLink*. Developed by AL-Soft, Inc. (PO Box 927, Spring, TX 77383-0927, (713) 353-4090), *ProLink* is a Macintosh application that allows you to insert an Apple II 3.5-inch (ProDOS 8 and

16 only) disk into your Macintosh and have it read by the Mac for text file transfers. You are able to convert text type files (text, ASCII, DIF and SLYK) in both directions. The interface used is similar to the *Font/DA Mover*, with your Macintosh directory on the left side and the ProDOS directory on the right. The only restriction with this application is that it only does text file transfers. If you are in *MacWrite* (or *AppleWorks* for that matter), you must save the file as text and then do the transfer. *Multiplan* files, however, can be saved as SLYK files and then transferred. *ProLink* retails for \$39.95.

Passport is primarily a developers tool that provides Apple II and Mac developers with powerful file conversion facilities. *Passport* does the same as *ProLink*, but it goes much further. First, *Passport* allows Mac files to go to and from ProDOS and Pascal formatted diskettes. Conversion utilities that are included are transfer facilities to/from *AppleSoft BASIC*, *AppleWorks*, *MacWrite*, *Excel* and *Apple II Pascal* source, to name a few. Second, you must be a fairly proficient programmer to program conversion routines for *Passport* to handle other types of file conversions between the machines.

The *Passport* application was available at press time only in early test (alpha) form from the Apple Programmers and Developers Association (APDA) — 290 SW 43rd Street, Renton, WA 98055, (206) 251-6548 — and does have some bugs. You must first be a member of APDA (\$20/year) in order to purchase *Passport* for \$13.

The third new product to enter into the Mac/Apple II market is the *MACtoGS* cross develop-

SuperMac At AppleWorld

SuperMac announced a series of very high resolution video cards for the Macintosh SE and Macintosh II, high performance disk drives for the Mac II and RAM upgrades for the Plus, SE and II at the AppleWorld Conference in Los Angeles.

The most dramatic of the cards, with the codename "Wizard," offers 640 X 480 resolution in 1, 2, 4 and 8 bits per pixel (the same as the Apple video card) and it can also display up to 1024 X 768 resolution in 1, 2, 4 or 8 bits per pixel, in color or monochrome. Fully configured with RAM, SuperMac expected this board to sell in the \$700 to \$1000 range. A slightly less expensive card called "Toto," for users who don't need color but do want the greater resolution, offers up to 1K X 768 resolution by 1 bit for black and white. SuperMac will also package two RGB monitors, a 15-inch and a 19-inch model.



The third video card, called "Scarecrow" at press time, is similar to Toto, but for the Macintosh SE. It gives the SE 1480 X 1024, black and white resolution, and will drive virtually any monochrome monitor. Toto and

Scarecrow should sell for under \$500.

SuperMac's RAM upgrade products use 1-megabit chips in 1-megabyte SIMMs. These are available in 1-, 2- and 4-megabyte configurations. — MDW

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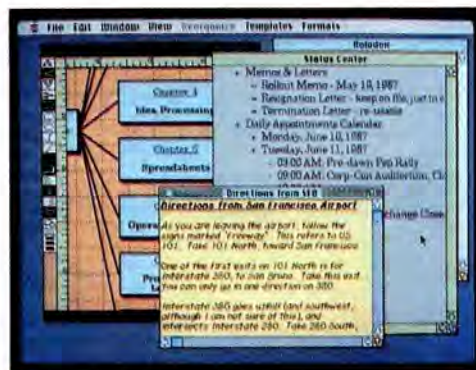
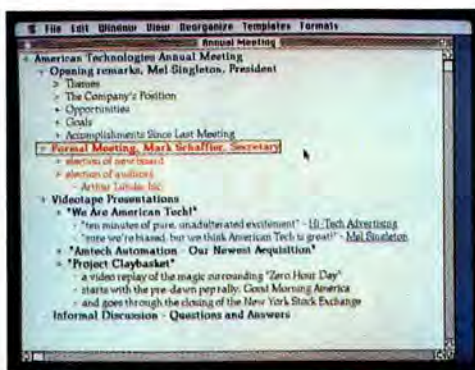


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B U I C K

ment system. A cross development system is where you use another computer (that is usually more powerful) to develop software for your target computer. In this case, you are able to use the speed and larger storage capacity of the Macintosh to cross develop assembly language (6502/65C02/65816) applications for the Apple II family, primarily the Apple IIGS.

MACtoGS, by Consulair Corp. (140 Campo Dr., Portola Valley, CA 94025, (415) 851-3272), is the first cross development system using the Mac as the developing machine. The assembler source code for *MACtoGS* is compatible with *Apple II Programmers Workshop* (APW) which runs on the Apple IIGS. *MACtoGS* lists for \$195 and includes *Passport*. — DS



MORE Color

Most people, when they think of color on computers, probably think of games or art. Who would have guessed that one of the first places we'd see support of the new Mac color would be in a desktop presentation pro-

gram (or idea processor, if you will)? *MORE's* 1.1 upgrade also comes in a 1.1C version that is compatible with both the Mac II and the SE. The price is \$295, same as for the black-and-white version. Living Videotext is plan-

ning to provide the program to registered users who purchase a Mac II. For more information write or call Living Videotext, 2432 Charleston Rd., Mountain View, CA 94043; (415) 964-6300. — LK



Prints Charming

All that media hype about desktop publishing last year got a lot of desktops into the publishing business. One of the more attractive new offerings is *Verbum*, a quarterly personal computer art magazine edited and published by Michael Gorney. In the early issues at least most of the art is Macintosh-generated, and includes high-res 3-D, digital photography and bit-mapped abstracts. For information about subscriptions, write to *Verbum*, PO Box 15439, San

Diego, CA 92115. Subscriptions are \$28 per year.

Another Mac-produced effort is *American Window Cleaners Newsletter*. *AWCN* is the brainchild of Rod Woodward and Richard Fabry. The latest issue we saw has an editorial tracing the etymology of such words as "clean" and "water". *American Window Cleaners Newsletter*, PO Box 5653, Berkeley, CA 94705. We were assured this is the only newsletter of its kind, and we believe it. — LK

RUMOR MANAGER

Hardware totally dominates the latest rumors. Apple has lots of new goodies almost ready for release. PostScript has been added to the low-cost (\$1795), low-speed Personal LaserWriter (the one with the Kyocera engine) and it will be out very soon, if it's not already available. That was sort of expected. What's not is the third Mac of 1987. This is a Mac II with everything built-in and then some. Special deals have been cut with many third party vendors and many applications will be built into the 2 megabytes of ROM. This professional workstation machine will list at \$9999 with software and a 17-inch square corner color monitor.

Latest codename we heard was Honda. . . . The recent wave of takeovers (of which we were part of) will continue unabated as some of the bigger players go after some equally big players (no more just big companies snatching up little companies). There is sure to be one real shocker soon and possibly two. . . . The add-on board market is doing just what everyone expected and then some. RAM cards abound including many using the new (and pricey) 1-megabit chips. (It might be wise to hold off on added memory until later in the year when prices will fall.) The 16-megabyte barrier has fallen and 64-meg cards can't be far off. The few at-

tempts at adding hard disks to actual cards (the current rage in IBM PCs) have not been impressive. And they've been small, generally 10 megabytes. Stick to the big external units. Speaking of which, that gigabyte plus unit from the midwest, codename SuperPerson, is really impressive. Handles any workgroup with ease. . . . ROM cards (software in ROM) will appear very soon. The performance benefits are impressive, but the concept only works for stable, thoroughly debugged software. So far there are two cards that we'll loathe to return when their loan periods expire. . . . There are at least two winners among the rash of third-party keyboards due. One is

clearly better than both Apple units. . . . The Apple System software will finally stabilize by mid-July (their prediction, not ours). Keep tuned. . . . The software arena is dominated by one major question: Will my program run on a Mac II? The answer has been yes in a surprisingly high number of cases, although fixed window sizes on bigger screens are still causing major problems for some people. . . . Page layout programs continue to pop up from surprising sources, and most of them are surprisingly good. That's more than we can say about the new word processing programs (with one very notable exception).



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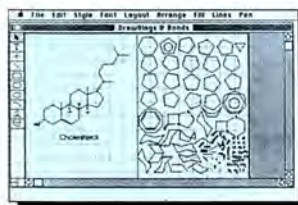
Lots of chemical scientists and chemistry students have started flocking towards the Mac in hopes of making their work easier. Among the more time-consuming tasks that they often do is producing organic chemical structures. For most, *MacPaint* and *MacDraw* were a blessing. The ability to draw the complex structures and easily manipulate them made the charting of structures go much more quickly.

A new product, *Organic Fonts*, by Modern Graphics, makes the job even easier still. *Organic Fonts* is actually several products in one. The first font, *OrganicFont*, includes both simple ring and aliphatic portions of

organic compounds. *OrganicFont* is designed to be used with word processing programs. It's a unique font in that a number of key combinations will type behind the cursor, altering the character that was previously typed. This allows you to overlay a ring that had just been typed (e.g., adding a bond to the top or bottom of a symbol). Even though *OrganicFont* takes a bit of learning, you'll later be able to place the resulting organic structures directly into your text.

The other two fonts included with *Organic Fonts* are primarily for use with painting and drawing applications. The fonts, *RingFont* and *AliphicFont*, are

exactly as their names imply. Each is loaded with basic structures and symbols used in chemical compounds. *AliphicFont* can be used to create formulas in addition to structures, as Greek characters and direct, easy-to-input super- and subscripted



numbers are provided. The *RingFont* provides you with over 30 basic ring structures that are just a single keystroke away.

The final part of *Organic Fonts*, *DrawRings* and *Bonds*, is a set of object-oriented rings (at various rotations) that can be accessed by any object-oriented drawing program. These rings are provided in a *MacDraw* document as well as in a *Scrapbook* file. These files are provided for users who wish to get optimal LaserWriter output from drawn compounds.

If your livelihood involves building organic structures, *Organic Fonts* is a piece of software that you must have. *Organic Fonts* can be purchased for \$79.95 (10% educational discount) from Modern Graphics, P.O. Box 21366, Indianapolis, IN, 46221, (317) 253-4316. —DS

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 numbers (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 3.3* 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 free from an authorized Apple dealer. Be sure to bring in a blank disk or two, though.

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. —SB

Acta	1.2	NCP,+	Font/DA Mover	3.2	NCP,+	Mac +]]	3.0	NCP,+	Quick & Dirty Util.,		
Aztec C	1.06H.1	NCP,+	Fontographer	2.1	CP,+5	MacProject	1.1	NCP,+	Vol. 2	1.0	NCP,+
Back to Basics	1.03	CP?,+	Front Desk	3.0	CP,+	MacProof	2.0	NCP,+	Rags to Riches	3.0	CP,+
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BatteryPak	1.23	NCP,+	Gato	1.43	CP,+	MacSpec	1.3	CP,+	ReadySetGo	3.0	NCP,+
Business Flevision	1.1	CP,+	Hard Disk 20	1.1	NCP,+	MacSpin	1.1	CP,+	Record Holder	2.1	NCP,+
CalendarMaker	2.2	NCP,+S	Hard Disk Utility	2.0	NCP,+5	MacSpool	2.1	NCP,+	REdit	1.2	NCP,+
Chooser	3.0	NCP,+	Helix	2.0r11	NCP,+5	MacTerminal	2.0	NCP,+	Red Ryder	9.4	NCP,+S
ColorChart	1.3	NCP,+	Helix, Double	DH1r35	NCP,+5	MacTools			Reflex	1.0	NCP,+
ColorMate	2.1	NCP,+	HFS Backup	2.0	NCP,+5	(MFS/HFS)	6.3	NCP,+	ResEdit	1.1	NCP,+
ColorPrint	2.03	NCP,+	HFS Locator Plus	1.4	NCP,+	MacWrite	4.5	NCP,+	Sargon III	1.0	CP,+
ComicWorks	1.0	NCP,+	ImageWriter	2.3	NCP,+	Mac Zap Copier	4.5	NCP,+	SideKick	2.0	NCP,+
ConcertWare+	3.1	CP,+	ImageWriter, Apple-			MailManager	1.0	CP,+	Silicon Press	1.1	NCP,+
Copy II Mac	6.3	NCP,+	Talk	2.3	NCP,+	Measure Test	5.7	CP,+S	Slide Show Magician	1.3	CP,+
Copy II HD	6.3	NCP,+	InTalk (was inTouch)	2.11	CP,+	MicroPhone	1.0	NCP,+	Smartcom II	2.2B	NCP,+
Cricket Graph	1.1	NCP,+5	Jazz	1A	CP,+5	Micro Planner Plus	5.7	CP,+	SoundCap	4.3	CP,+
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Disk First Aid	1.0.1	NCP,+5	LightSpeed Pascal	1.0	NCP,+	MS BASIC	3.0	NCP,+	Studio Session	1.2	CP,+
DiskInfo	1.43	NCP,+S	Lode Runner	1.0	CP,+	MS Chart	1.0	CP,+	SuperPaint	1.00	NCP,+5
Disk Ranger	2.6	NCP,+	Mac-3D	2.0	CP,+	MS Excel	1.03	NCP,+	Switcher	5.1	NCP,+5
Dollars & Sense	1.4	CP,+	MacASM	2.0	NCP,+	MS File	1.02	CP,+	System (MFS-128K)	2.0	NCP,+
Dungeons of Doom	4.0	NCP,+S	MacBillboard	4.01	NCP,+S	MS Fortran	2.2	CP,+	System (HFS)	3.3	NCP,+
Easy3D	1.01	NCP,+	Mac C	5.0	NCP,+	MS Word	3.0	NCP,+	Tempo	1.1	NCP,+
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FileMaker Plus	2.0	NCP,+	MacInTalk	1.1	NCP,+	OverVUE	2.0d	NCP,+	Top Desk	2.1	CP,+
Flevision	1.0	CP,+	MacLabeler	2.3	CP,+	PackIt III	1.2	NCP,+S	TurboCharger	2.0, RevD	NCP,+
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FONtastic	2.7	NCP,+	MacPaint	1.5	NCP,+	Vol. 1	1.6	NCP,+	WriteNow	1.0	NCP,+
			MacPascal	2.1	CP,+				ZBasic	3.02	NCP,+

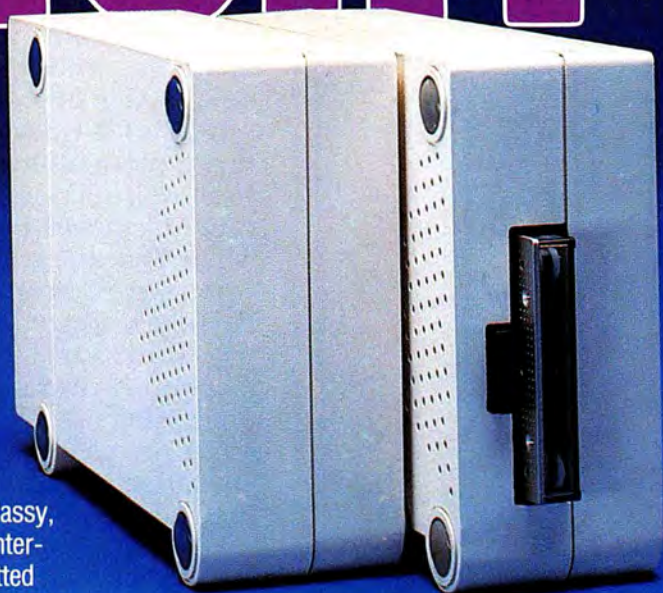
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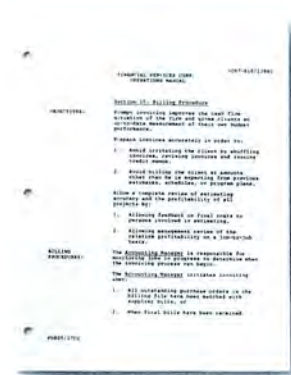
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There's no smarter, faster input device than PC Scan Plus. It can read words, illustrations or photographs into your Macintosh word processing or desktop publishing programs in seconds. At the click of a mouse. And it can do the same for an IBM® PC.

HULL MARKETING NEWS
FOR THE CONSUMER ELECTRONICS MARKET
VOLUME 1

10 Retail Outlets for Consumer Electronics
Shift away from the "Big Three" Department

Outlet	Sales (\$000)
1. RADIO SHACK	\$2,200
2. K-MART	\$1,800
3. SEARS	\$640
4. MILITARY PXs	\$600
5. MONTGOMERY WARD	\$500
6. SERVICE MERCH.	\$500
7. TARGET	\$450
8. BEST PRODUCTS	
9. J.C. PENNEY	

The latest figures released by the Consumer Electronics Association indicate that the industry is moving away from the "Big Three" department stores and toward the large "discount" chains. The biggest news is the shift to the number one slot for 86. A fairly new entrant to the circuit is in remarkable growth in 1985. Another interesting move is the Military PXs, which last year for the first time ever, J.C. Penney's Montgomery Ward, one of the "big three" has surpassed the service media decline, as J.C. Penney's recent media blitz on their line of electronics has apparently had little effect on their sales. They are again in the top place with sales remaining about the same as last year. When sales per store are examined, the most impressive performance is further down the list. Circuit City's sales breakdown of their equipment reveals video equipment (includes VCRs and video cameras) to be their largest

Now you can learn a quick and easy way to manage with confidence, without feeling apprehension or over-demanding—Learn how to give orders that are fulfilled—How to make sure people follow through with assignments without undue threatening—Learn to delegate tasks without oversteering about your own popularity—How to refuse to say "no"—All this and more in our new seminar...

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- How to manage with strength
- How to direct when necessary
- How to cause resentment
- How to direct when necessary
- Communicate your most creative ideas
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NEW PRODUCT PROPOSAL - DOOR SHIELD

Background: We must determine whether the manufacture and distribution of a pre-formed aluminum door shield is an opportunity for existing mobile home after-market.

The Market: Currently there exists a method of flashing usually done by the mobile home set-up crew, or by an after-market remodeler. This is done with about equal that is to be custom cut and formed for each door. A pre-cut, roll-formed molding would save the same purpose.

- Homeowners currently spend an average of \$75 to have custom flashing applied.
- The product can be manufactured in our Boston plant with existing equipment to retail for \$30 plus installation.
- Installers, remodelers and homeowners would accept a roll-formed molding.

The Product: A 4-1/2" roll-formed piece to serve as door flashing. Made of anodized .020 aluminum and .040 baked enamel aluminum in white and Bark Brown. Available in twelve standard lengths to fit the standard factory-installed Silverstar, Brentwood and Silver Staruses (all models) entry doorways.

Projected Sales (in units)

Year	Silverstar	Brentwood	Silver Star	AP Sales	TOTAL
1983	1278	789	877	5%	152
1984	1878	1430	700	7%	287
1985	1432	1590	778	7%	287
*1987	1775	1620	804	7%	428
1988	2800	1700	800	10%	265
*1989	3400	1800	800	25%	1325
	3700	2000	900	35%	1800

The above denotes total number of units shipped and candidates for retrofit work. The 5th column shows the percentage of units for which we can expect to supply retrofitting and remodeling materials. Our real market exists for the 1987 models and on. From these units we can expect set-up, retrofit and remodel business.

Production Costs

- Aluminum coil. If our current aluminum source can be manufactured, and if we can increase our credit line, we can buy at 20,000 lb. quantities. This will bring our cost of base metal down to .039/lb. for .020 and .05 for .040. Stocking additional colors will not be a problem.
- Labor. It is estimated that cutting, roll-forming and packaging will take an average of 3.5 minutes per package.
- Packaging. We will offer bulk packaging in distributor quantities. Each panel will be paper wrapped. Quantities of 20, 40 and 60 panels will be cartoned for distributors. Dealer packaging will be in lots of five. Cartons will be our standard paper wrapped corrugated, printed in two colors. End caps will be used for all bulk packaging, fold-in ends for dealer packaging. Poly foam sheets will be needed for

Launch Expenses

1. Tooling	\$10,000	33%
2. Advertising/Marketing	8,000	27%
3. Sample Kits	5,000	17%
4. Engineering	4,500	15%
5. Packaging Development	2,500	8%
TOTAL	\$30,000	100%

continued on page 2

NEWSLETTERS. Anyone in your office can create pages with punch! With Ragtime's ease of use and flexible capabilities, newsletters like this are a snap.

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PROPOSALS. Everyone needs a business advantage. When your presentations include spreadsheets and graphics to make your points, you'll be noticed!

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Page Processing; A New Breed

Word Processing has served you well for over two decades, and has now been replaced by a new, superior application—Page Processing. It's called Page Processing because it contains all the necessary tools for creating exciting pages and professional documents. Gone are the limitations of words without pictures and text without numbers.

Ragtime, the premier Page Processor for the Macintosh computer, is the first to combine the functions of **word processing, spreadsheets, page layout** (also known as desktop publishing), **business forms generation** and **graphics management** all in one complete package. Effective businessmen need these combined functions to create truly professional documents such as proposals, manuals, financial presentations, newsletters, and advertisements.



The Page Processing Advantage

If you are using separate software packages for word processing, spreadsheet and desktop publishing, you are not achieving your full potential. A new standard in top-quality business documents has been established with the integrated power of Ragtime Page Processing.

As an example, consider a typical business proposal, like that pictured above right. Only with the power of Ragtime Page Processing can you create the entire page layout (including columns, hairlines, headers, and the like) and simultaneously word process all your required text. Next, you can build in a persuasive spreadsheet with all the facts and figures (a requirement in any business proposal), all without leaving the application. Then bring in the graph that illustrates your data (a picture is worth a thousand words processed). Voilà, you and Ragtime have produced your most professional proposal ever. All this at a fraction of your previous efforts and costs. This is the Page Processing advantage.

Commitment to Innovation and Excellence

Orange Micro has spent over six years providing innovation to Apple users all

over the world. To date, we have sold over 500,000 Apple enhancement products, and gained the support and respect of the industry.

Special Opportunity to Try Ragtime

We would like to give you an opportunity to experience the power of Ragtime Page Processing on your own Macintosh, at your convenience. Complete the coupon below and discover Page Processing for yourself.

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Sounding Off

One of the easier choices in our 1986 Editors' Choice Awards was for the best music application, *Studio Session*. In our review (Dec '86) we had found the documentation to be the one of the most disappointing parts of this innovative program. Since that time a final manual has been completed and sent out to all registered users. Now that an

excellent manual exists, we have added a half a mouse to the program's rating, bringing it to four and one half mice.

The developers of *Studio Session*, Bogas Productions, are offering two add-ons, on their own. The first is a set of two diskettes (with more forthcoming) of *Studio Session* songs. One diskette is all country music, while the

other features early heavy metal.

The second product is not really a product at all, but an audio sampler. It's a free audio cassette that features *Studio Session* sounds and songs. The hope is that after hearing *Studio Session* play you will run to your local dealer to get it. When sending for your free cassette be sure to send a self-addressed,

stamped (No. 10) envelope.

To obtain the free cassette or the \$19.95 (each) song diskettes, contact Bogas Productions, 1520 Pacific Ave., San Francisco, CA 94109, (415) ED-BOGAS. To purchase the *Studio Session* program (\$89.95), contact Impulse at 6860 Shingle Creek Pkwy., Minneapolis, MN 55430, (800) 328-0184. — DS

DIALOG BOX OF THE MONTH



I must have amnesia! The date can't possibly be correct. We'd both be really happy if you'd fix it with the Control Panel.

OK

A number of users of *MacServe* networks have reported this alarming dialog box. It will appear if the clock in a Mac on the *MacServe* network becomes set to an obviously incorrect date and time. The clock in a Macintosh can reset (to January 1, 1904) by simply removing the battery and turning the computer off and on. A powerful surge of electricity can also cause the

clock to show the wrong time. This problem can be corrected by changing the date with the *Alarm Clock* DA. From the looks of this man, a surge seems a possibility.

If you've stumbled over any unusual dialog boxes recently, we'd like to see them. Send them to MacUser Dialog Box, 25 West 39th Street, New York, NY 10018.



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BUG OF THE MONTH

Cricket Graph, version 1.1, has a rather serious bug that many people, except for Professor H. Kroemer of Santa Barbara, have overlooked.

Cricket Graph does not properly graph data points in a list in the order in which they occur in that list. Rather, the application graphs data points in the order of increasing X-coordinate (or Y-coordinate, if you interchange

axes). This makes it impossible to draw any curve along which both the X values and Y values change in their direction.

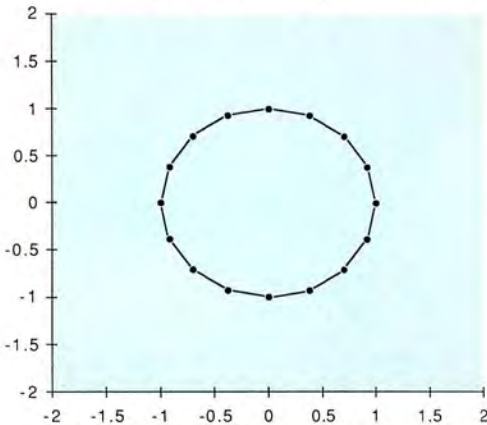
Examine the example below. Shown is the data along with a chart of that data from both *Excel* and *Cricket Graph*. Notice how *Excel* draws the circle that is called for while *Cricket Graph* plots its lines progressively in the direction of the X axis.

For discovering this bug, Professor Kroemer, of the University of California will be receiving \$25. 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 how you found your bug. — DS

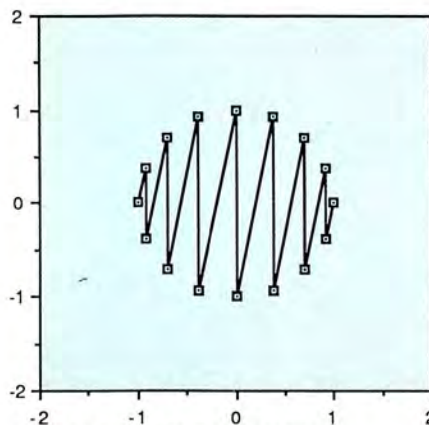
	A	B
1	1	0
2	0.9238795	0.3826834
3	0.7071068	0.7071068
4	0.3826834	0.9238795
5	0	1
6	-0.3826834	0.9238795
7	-0.7071068	0.7071068
8	-0.9238795	0.3826834
9	-1	0
10	-0.9238795	-0.3826834
11	-0.7071068	-0.7071068
12	-0.3826834	-0.9238795
13	0	-1
14	0.3826834	-0.9238795
15	0.7071068	-0.7071068
16	0.9238795	-0.3826834
17	1	0

THE ORIGINAL DATA

Shown is the data that was plotted by both *Excel* and *Cricket Graph*. Notice that *Excel* was able to draw the proper graph (a circle), while *Cricket Graph* plotted data in the incrementing X axis only.



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Because whether you like to work from a quick list of catchwords or a precisely detailed blueprint, you can move effortlessly between outline and draft at any time. It's a simple matter of selecting a display option.

So if an effervescent phrase flashes off your fingertips, you're word processing. If you need to note three ideas for the ending, you're outlining.

And if you think nothing can be this simple, you're almost right. Nothing else is this simple.

The more you rewrite, the more you'll like MindWrite.

If you want to move a MindWrite paragraph, for example, just select it with the mouse and drag it to its new location.

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Or drag them to a new location—where they'll appear in the order you selected them.

Nothing else is this foolproof, either. MindWrite's exclusive "accumulating clipboard" stores everything you've cut until you're sure you won't need it.

Numbered sections are automatically renumbered when you move them.

If you're writing to fill a certain space, the word-count feature keeps you posted.

And time-and-date stamping lets you mark changed paragraphs, so it's now much easier to review complex revisions. Speaking of which:

The longer you write, the more you'll like MindWrite.

Now you can navigate through long or complex (or long *and* complex) documents faster than ever before.

No more tedious scrolling. A tap on the mouse-button shows the entire manuscript in outline form. Click on the chapter, section or subsection you want and it opens. Work, click back to the outline, and move on.

Of course, you can view outline and text in separate windows, too. And have as many windows as you want.

Don't let the low \$125 price pull the wool over your eyes.

MindWrite is full-strength Macintosh word processing. With easy learning. Integrated graphics. Its own unique features. Plus more we don't have space for here.

It's guaranteed, too: if within 30 days of purchase you find it doesn't live up to our claims, you can call us for a refund.

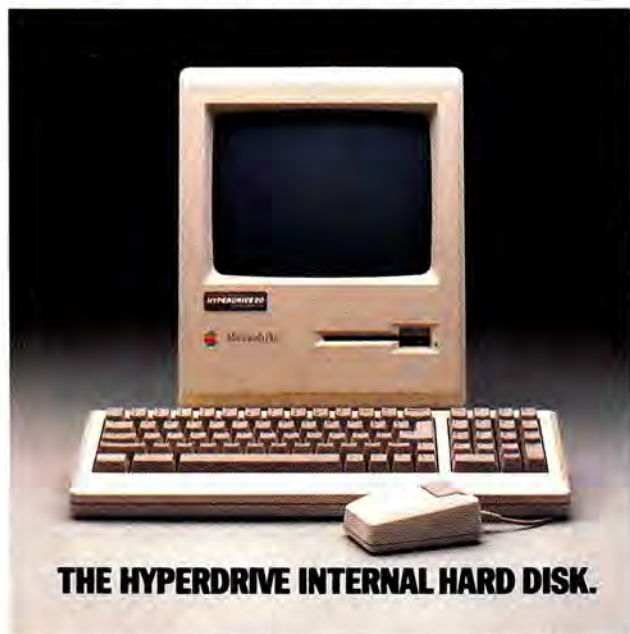
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for creative individuals

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THE HYPERDRIVE INTERNAL HARD DISK.

If you're among the inner-directed, we can mold a Macintosh in your own image.

Through HyperDrive 20—the first hard disk to be installed *inside* the Mac or Mac Plus and connected directly to its microprocessor.

The resulting Macintosh can, in its own quiet and unobtrusive manner, out-perform any other Mac in its class.

It can not only store as much information as 50 diskettes. But it will also reduce power-up time by 66% over a Mac Plus. Load Aldus' PageMaker 150% faster. Microsoft's Excel 250% faster. And so on.

Which should more than satisfy any-one's need for speed. Unless, of course, you

need something "lightning fast," which is how Macworld described HyperDrive 2000.

This internal hard disk system also includes an additional microprocessor and a floating-point processor—turning the Macintosh into an authentic number-cruncher. In fact, a Mac with HyperDrive 2000 can perform computations from 10 to an astonishing 250 times faster than a Mac Plus.

Both HyperDrive 20 and 2000 can share their vast hard disk storage with regular Macintoshes through HyperNet 2.0. Our new networking software that's universally compatible with any Macintosh and any hard disk, internal or external.

But sheer speed aside, what distinguishes all HyperDrives is the software they're equipped with. Which you can learn more about by consulting the ad on the right.



HIGH PERFORMANCE FOR EXTROVERTS.



THE HYPERDRIVE EXTERNAL HARD DISK.

The FX/20 and FX/40 are the most outgoing members of the HyperDrive family.

They spend their time on desktops, in the company of other office tools, connected to any Macintosh with an SCSI port.

The resulting Macintosh is extremely fast, which will come as no surprise to anyone familiar with HyperDrives. (If you aren't familiar, see the fourth paragraph of the ad to the left.)

Nor is it surprising that our FX series is extremely accommodating, providing a vast 20 or 40 megabytes of storage.

The real surprise, at least for those familiar with external hard disks, is all the software the FX comes with.

Such as a program that protects your documents by making back-up copies of them onto diskettes.

Another program protects your documents from certain excesses of sociability—denying access to anyone who doesn't know the password you choose.

Still another program automatically queues up documents for your ImageWriter or LaserWriter. So you can go on to other jobs without waiting for your printer.

In short, no other external hard disk does everything that HyperDrive FX/20 or FX/40 does. Which is a distinction it shares with the internal HyperDrives on the left.

Over 1200 authorized General Computer dealers will be happy to help you establish a meaningful relationship with either. For the dealer nearest you, call (800) 634-9737*.



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FileMaker Plus From Forethought

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

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

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

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

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

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

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

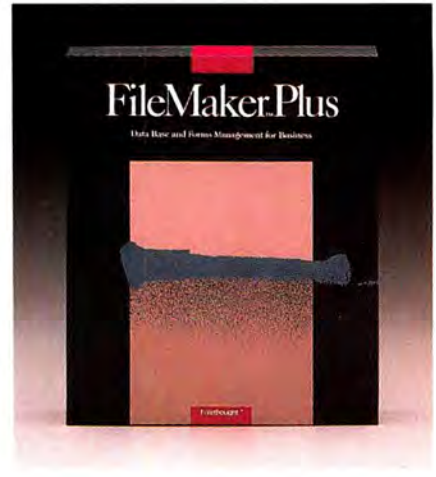
You can exchange information with other programs, like MacWrite,™ MacPaint,™ MacDraw,™ Microsoft® Word and Microsoft Excel. You can share applications or formats you've created with other members of your team, or consolidate group efforts into one database. And FileMaker takes full advantage of the Macintosh™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

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

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

We guarantee it.

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



Watch your data take human forms.

purchase order

Bowman Space Planners
October Billings Report

Client	Date	Hours	Rate	Total
Alk	6/13/86	3.5	45.00	\$3757.50
	0327	0	45.00	--

Expense Report

Date	Notes	Amount
11/2/86	Trp to B&AW	
	Copying of report for Browns Firm.	
	For bill mailing	
	Meeting w/ Alan Albert	

Bowman Space Planners

Item No. Description Quantity Unit Price Extension

182	Dwelling Wall	36.00	6,552.00
622	Interior Partition	21.00	13,065.00
899	Joint Ceiling	2.00	2,460.00
2703	Door Sng	0.34	1,598.00
4990	Insulation R-11	1.25	2,495.00
576	Insulation R-19	13.75	7,920.00
691	T-bar Ceiling	1.00	851.25
1000	VCCT	1.00	1,480.00
	Blank Vinyl	475.00	1,480.00
	Door	190.00	1,092.00
	Ceiling	980.00	8,168.00
	Painting	5,000.00	3,000.00
	Handing Plan		
	Grand Total		\$71,538.25

Approved By _____ Date _____

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 by Robert R. Wiggins

Walking The Floor

Walking the floor of the San Francisco Mac Expo for three days in January made it clear that the rest of the world has finally started to realize what you and I have known all along: The Macintosh is a business computer. There were plenty of people in suits, both working in booths and on the floor. And there were very few games on display. Most of the booths were showing "serious" software and hardware. While there were no announcements from Apple, many developers used the show to announce new products, and in several cases released new products at the show.

Redgate Communications honored the "Mac 100" — people, companies and software that are or were significant to the Macintosh community (and there was as much talk about who was *not* on the list as there was about who was on); and *MacUser* had a dinner to formally present its Editors' Choice Awards (the Eddies) that were featured in our January issue.

Here are some of the highlights of the show:

Word Processing/Page Layout — the second and third generation word processors now starting to come out add enough features of page layout programs to blur the line between them and force me to lump them together. *MacAuthor*, er, *Laser Quill*, er, *Laser Author* finally debuted for real at this show and is now shipping, but it had plenty of vaporware (software that is announced but is as yet as elusive as vapor) competition from *Word 3.0*, *FullWrite Professional* and *Word Perfect*. All of these are promised soon, and all had some impressive demos. We've come a long way from the days of *MacWrite* and *Word 1.0*.

Aldus *PageMaker 2.0* was also talked about at the show, but *ReadySetGo 3.0* got more floor space since both Manhattan Graphics and LetraSet had it up and running.

Laser Author is the same full-featured product previously available in England and in addition to its style sheets and unique "frames," it has features such as the ability to open *MORE*, *Acta* and *MacWrite* files. Microsoft was demoing *Word 3.0*, which adds features like confi-

gurable menus, hyphenation, spell checking and index and table of contents generation. It's still not WYSIWYG (What You See Is What You Get), but it has a page preview mode that lets you see in reduced form on the screen approximately what the page will look like. Ann Arbor was showing a demo of *FullWrite Professional*, direct from the programmers, with just about every feature found in any word processor, with quite a few page layout capabilities thrown in, such as the ability to wrap text around irregularly shaped pictures.

Aldus wasn't showing *PageMaker 2.0* to just anyone, so the traffic at their booth was lighter than it would have been if they had been showing continuous demos. LetraSet's acquisition of *ReadySetGo 3.0* made for a bit of excitement, and many people now swear by it, as, unlike *PageMaker 2.0*, it is available now. In fact, some people seemed quite disturbed that the new *PageMaker* will be available on the IBM-PC before the Macintosh version is out.

So you can judge for yourself — all of these products are promised by April or May, just about the time you'll be reading this, so check around and see who did and did not make their deadlines.

Spreadsheets — *Excel 1.03* made a quiet bow at the Microsoft booth (it's only a minor update, after all, although those with big screens like the Radius won't find it so minor — it now works on these screens). The big splash was made by *Trapeze* from Data Tailor, an

innovative concept in spreadsheets that's hard to explain but fairly easy to use once you get used to it. *Trapeze* is a marvel that can produce gorgeous output (including pictures), and better yet, it's available right now. It may not be for you, as it's a bit more complicated to use than a "normal" spreadsheet, but it's worth looking into.

Graphics — While *SuperPaint* and *Cricket Draw* were on display, the graphic product drawing the biggest crowds was Adobe's *Illustrator* (so big that they demoed it at the Radius booth in addition to their own booth), a sort of full-page *FONTographer*. *Illustrator* allows graphic images to be imported and then traced over with curves and lines that will have full LaserWriter resolution, and gives access to some PostScript features that up to now have been difficult or impossible to get to from most applications. Two drawbacks (aside from expense): it's not ready yet, and it's probably going to be copy protected. Cricket drew pretty good crowds with *Cricket Draw*, which was available, and which has a lot of extra features to allow access to PostScript capabilities which have been unavailable in previous drawing programs like *MacDraw* and *MacDraft*.

Elsewhere On The Floor — *MORE* from Living VideoText gets the award for best upgrade, with a free upgrade to version 1.1 which adds "Undo" and several other nifty features (not to mention bug fixes) making *MORE* an even better program. Symmetry also announced an upgrade for *Acta* to 1.2, which adds features like printing and "intelligent cut and paste." Smethers-Barnes demoed *Prototyper*, a program for programmers who want to prototype their applications quickly and easily. And my personal favorite (and possibly least business-related) product introduced at the Expo: *DiskTop* and its accompanying program *Widgets* from CE Software (the Mock people), which performs a number of handy and sometimes odd little functions I've always wanted to be able to do easily (like disable the LaserWriter startup page).

SCENES WE'D LIKE TO SEE

With the business orientation of the Macintosh becoming more and more apparent and its growing acceptance by big (and small) business, it may not be too long before a scene like this is played out in corporate America:

"Boss, I found a great computer and I need authorization for the purchase order."

"Not so fast, Jenkins. Does this com-



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puter have a standard user interface across applications?"

"Well, no, Boss, but..."

"Pull-down menus? Easy to understand dialog boxes?"

"Well, a few programs do, but..."

"Does this computer of yours support desk accessories?"

"Well, there are these memory-based kind of..."

"How about standard formats for data interchange between programs?"

"Not exactly, Boss, but..."

"No cut, copy, and paste at all?"

"Well, some programs sort of..."

"Do applications for this computer

The San Francisco Mac Expo in January made it

clear that the world has finally started to realize that the Macintosh is a business computer.

support Undo in case you make a mistake?"

"Well, no, Boss, bttt..."

"Jenkins, does it run Excel?"

"Well, no, Boss, but..."

"Jenkins, exactly what kind of computer are you trying to foist off on this company, anyway?"

"Well, Boss, it's an IB...oh, never mind. It's not really what we need anyway."

PINSTRIPES PICKS

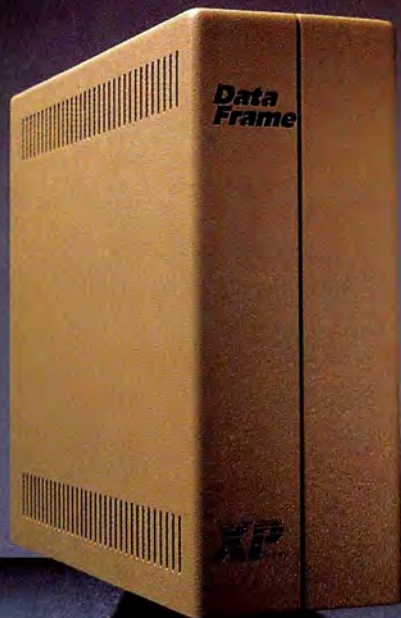
The pick of the available products shown at the Expo:

Trapeze: as described above, it's worth investigating. It may not be for you, but again, it may be exactly what you've been looking for.

Cricket Draw: it still has a few kinks, but it is an amazing drawing tool for use with PostScript devices like the LaserWriter.

Laser Author: as described above, a very powerful hybrid of word processing and page layout, although complicated enough to make it difficult to use at times.

Fluent Laser Fonts: CasadyWare has done it again, with several impressive new fonts.



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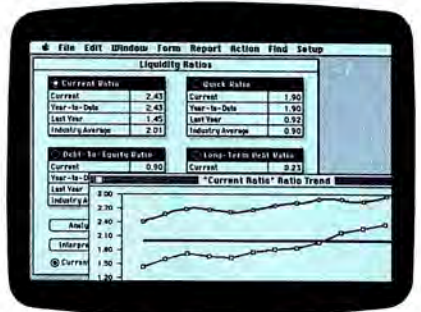
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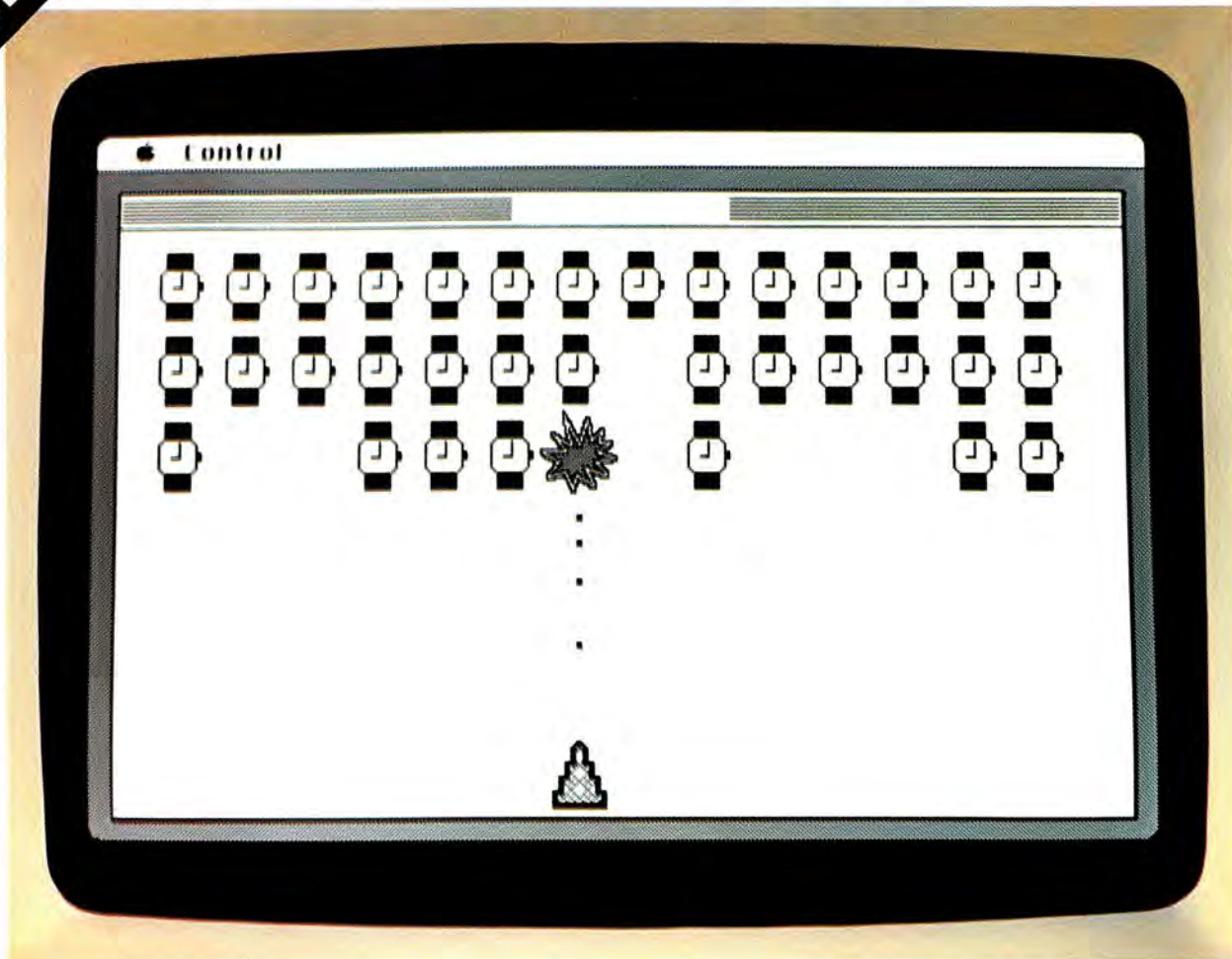
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by Michael D. Wesley

The Wild (Rainbow) Yonder

The title and concept of this column, West Coast Report, sometimes get stretched a little bit — as a columnist, I have the freedom to get carried away sometimes. But the fact is that in this month's column I am going to stick to the concept like *Glue* and report on what's happening on the West Coast, in as much detail as I can.

This might be tricky, because the West Coast is going nuts. Usually at this time of year there is a lot of activity because of the many new products announced or shown at the MacWorld Expo in January. Winter is a time for companies to finish and ship products introduced at the Expo. The spring and early summer are a little bit quieter, then people gear up again for major announcements in the fall. We editors/writers/columnists usually get a chance to catch our breath between shows.

Those days are gone, at least for this year. As usual, many new products were shown at the Mac Expo, including *Stepping Out* from Berkeley System Design; *Quark Xpress*; *FullWrite*, from Ann Arbor Softworks; *Illustrator* from Adobe; a 9600 baud modem from AST; more hard disks; *Super Laser Spool* and *Disk Fit* from Supremac; *Guide* from OWL Systems; *LabView* from National Instruments; *Trapeze* from Data Tailor; *Works-Plus Spell* from Lundeen and Associates — and more, more than I can even remember. Add to these the list of products already announced that will be coming soon — *PageMaker 2.0*, *dBase Mac*, *Word 3.0*.

But this year developers didn't stop at the Mac Expo. We barely had time to sort through the new products before another show came along. A bunch of developers announced major products at the Seybold Desktop Communications Conference in January, showing a tremendous amount of key third-party support for Apple's file server and the main AppleTalk ingredient, the Apple File Protocol. (You can get a more detailed discussion of this in the Desktop Communications Supplement in this issue.)

These two events by themselves would

have been more than enough to keep the press extra busy, but the activity didn't stop at Seybold, either. Apple led the way with new product announcements at Seybold and also at the AppleWorld Conference in Los Angeles. And third parties, excited as !#@\$ about the new Macintosh machines, have leaped into the spotlight with new products: add-on cards; high speed, large capacity hard disks from everyone and his brother; monitors to take advantage of the new Mac's display abilities, and in fact to enhance them; colorized versions of existing software and hints, at least, of outrageous software to come.

It seems that I've spent at least as much time out of the office looking at new products as I have in the office trying to write about them. It's an incredibly exciting period, if a bit tiring and somewhat nerve-wracking. Every time I think I've just seen the Greatest Product Ever Sold, someone else sneaks up on me and says "We have a new product that we think you'd like to see."

While the almost whirlwind activity has made life crazy for the press, it's actually quite wonderful for you, the Macintosh user. Over the next several months you'll have an enormous range of choices in hardware, software and peripherals. You'll be able to do more with a Macintosh than many people ever dreamed possible.

WHAT'S COMING

I don't usually like to make predictions except in the privacy of my own home, but I've gotten lucky the last couple of times out so I'm going to look ahead to the rest of this year. Remember that I'm writing this in January, so the whole year looms for me, even if you're reading it in May.

DESKTOP PUBLISHING

The Macintosh family of computers will get a lot of competition in the marketplace, from Xerox, IBM and others, but Apple will assert its position as the quality leader. Even though software and systems from other manufacturers will sell well, Apple will stay on top because other machines are just catching up to where Apple has been for a year, and the new Macs — the SE and the Macintosh II — will see huge advances in software that can't be matched by the other machines.

DESKTOP COMMUNICATIONS

Macintosh networks will link Macs to damn near anybody's personal computer, minicomputer or mainframe system, so

Macintosh networks will spread to every level of business. This will mean that more and more people will be exposed to Macintosh, and, as has happened before, be converted to the Macintosh way. Macintosh II will be the premiere communications machine.

DESKTOP PRODUCTIVITY

Thanks to *Excel* and recent inroads from data base products such as *Omnis 3* and *Helix*, Macintosh has started to be recognized for the amazing productivity tool that it is. This year new products, including *PowerPoint* from Forethought, will redefine this category.

DESKTOP ENGINEERING

Let's face it, CAD and engineering on the Mac has been pretty stagnant because even the Mac Plus lacks the speed and power to do hardcore simulations and drafting. This area, just waiting to explode, is going to go bananas in 1987 because Macintosh II has the power and the speed. What happened to typesetting will happen to CAD — a previously specialized field, limited to a few highly trained experts, will become more accessible to everyone. The university community, which embraced the Macintosh early, will continue to do astounding things. I can't wait to see what happens when you put a Macintosh II in the hands of Mac fanatics who feed on raw computing power.

MACINTOSH BY GOSH — THE OVERALL VIEW

IBM is always a force to be reckoned with, but in an article in *Computer Reseller News*, an unnamed third party developer who has spent some time with Macintosh II was quoted as saying that Macintosh II is now where the 386 machine everyone's waiting for will be in two years. I think IBM will be lucky to catch up at all. The Mac SE, now Apple's mainstream business machine, is fast,



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flexible and extremely capable. Macintosh II is phenomenal, and as I write this, work has already begun on Apple's new CPUs for 1988 and beyond.

I think that Mac sales will more than double over this year. Apple will have sold the 1,000,000th Macintosh sometime in March of 1976. The 2,000,000th may well come before the end of the year. Some of this growth may well be at the expense of the Apple II line, but some of it will erode the position of Big Blue. Apple is already gearing up its corporate sales efforts for a full-scale attack. Rumors have been floating about very large sales pending to an unnamed aircraft company and a military arm of the US government.

The growth of Apple and Macintosh will also mean increased sales of Macintosh software and peripherals, and I think these areas will also more than double over the next year. There will be a lot of takeovers in 1987, with small developers consolidating and larger companies taking a firmer position in the market. Let's hope there will still be room for the small innovator.

John Sculley's autobiography will out-sell Lee Iacocca's and Mr. Sculley's name will be bandied about as a possible presidential candidate.

I'm not really on anything, just a Macintosh believer who happens to be very excited about what's happening and what's going to happen. Of course, something could go wrong. Apple certainly isn't perfect — they made some odd design decisions with the new machines that will come back to haunt them, and if there are serious delays in shipping the SE or the Macintosh II, disregard everything said to this point.

THE MELLOW WEST

Anyone outside of California who thinks the West Coast is a mellow place should be here now. Sure, business is often conducted in relaxed settings and casual clothing, but that's mainly because nobody has time to go home and change clothes. Ask anyone at Apple what the past few months have been like. Ask Lisa Van Horn, a superstar in Apple's public relations department, who gave up 22 hours on a Sunday so our photographer could shoot pictures of Apple's new equipment, then turned around and did it again for another publication the following day.

Things aren't going to calm down for a while, and that's great. Great for you, great for Apple, great for Macintosh, great for me, even great for my office cat, Mac-Beethoven. ☹

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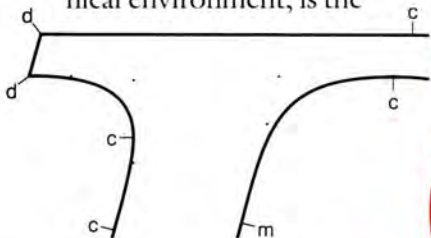
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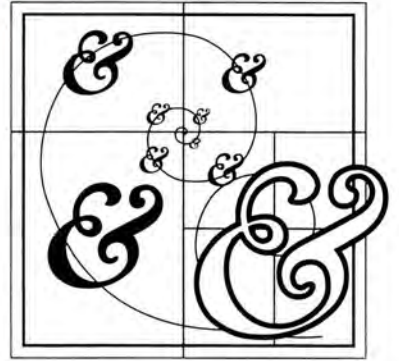


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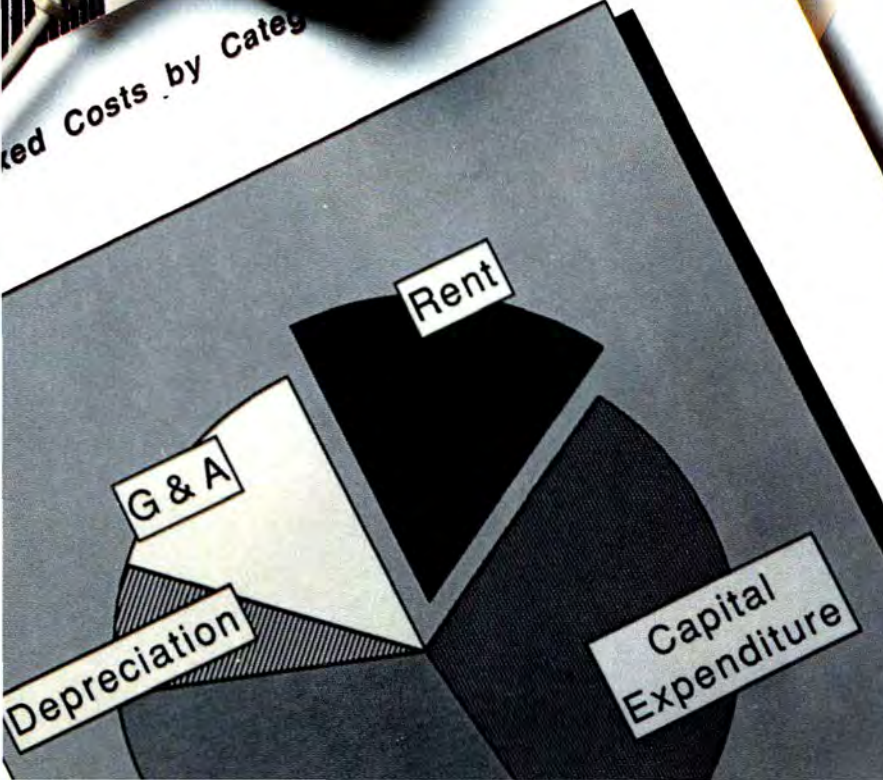
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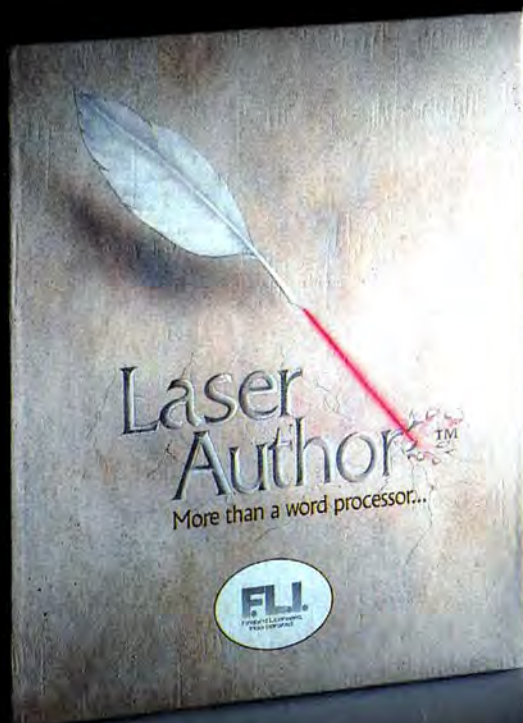
Prepared by John Ward
Marketing Department

Category	Amount
Variable Cost	\$1.25 per unit
Fixed Costs:	
Rent	\$120,000
Capital Expenditure	\$65,000
Depreciation	\$25,000
Advertising and Promotion	\$125,000
General and Administrative	\$50,000
Total Fixed Costs	\$385,000

This table presents the projected contribution from the new model at various prices and volumes.

Volume	Price	Revenue	Variable Costs	Contribution
500,000	\$1.85	\$925,000	\$625,000	\$300,000
550,000	\$1.85	\$1,017,500	\$687,500	\$330,000
600,000	\$1.85	\$1,110,000	\$750,000	\$360,000
650,000	\$1.85	\$1,202,500	\$812,500	\$390,000
700,000	\$1.85	\$1,295,000	\$875,000	\$420,000
750,000	\$1.85	\$1,387,500	\$937,500	\$450,000
800,000	\$1.85	\$1,480,000	\$1,000,000	\$480,000
850,000	\$1.85	\$1,572,500	\$1,062,500	\$510,000
900,000	\$1.85	\$1,665,000	\$1,125,000	\$540,000
950,000	\$1.85	\$1,757,500	\$1,187,500	\$570,000
1,000,000	\$1.85	\$1,850,000	\$1,250,000	\$600,000

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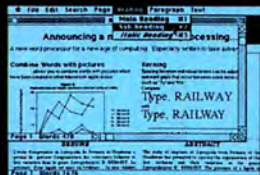
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by Doug Clapp

In On The Ground Floor

First, two stories.

When Edison invented the phonograph, he thought his invention would be used primarily by lawyers, whose clients could give phonographic accounts of their legal wishes. Edison never imagined that music would fill those wax platters. He didn't foresee the birth and boom of the "record industry."

When Bell invented the telephone, it didn't make much of a splash. The *London Times* called it "The latest American humbug." Bell offered to sell the telephone rights to Western Union — a mammoth "communications company."

Western Union snickered at the idea. Thanks to Gabriel D. Ofiesh for those anecdotes. They're from his article "The Seamless Carpet of Knowledge and Learning" in the book *CD ROM: The New Papyrus*, published by Microsoft Press.

That's what I've been doing the past few nights: reading *CD ROM: The New Papyrus*. The book has been out for months. I've almost bought it many times. I didn't, until now, because it's... well, thick. And it looks boring. And the title is a masterpiece of pretension. The new papyrus? Even "The rest are history" can't approach that line!

But I had to read it. CD ROM articles keep showing up. They, too, look boring, so I haven't read them. And Pournelle keeps harping about CD ROM.

The kicker was the rumor that the "new machines from Apple" would be "CD ROM compatible," whatever that means. That was the last straw. I began reading.

First the bad news. CD ROMs won't be everything to everybody. Nothing is ever as good as you hope. Great expectations lead to harsh realities. The duck quacks softly over the barn.

For starters, a CD ROM drive will probably be slow. Faster than a floppy, granted, but slower than a hard disk. Noticeably slower. The reason is that data on current CD ROM disks is laid down like tracks on a record. Disk drives put data in pie shaped wedges. It's faster to get to a wedge.

That means you won't watch CD ROM movies. Pictures, yes; movies, no. The individual frames can't be read in, one after the other, fast enough.

But that's okay. "Wedge-CD ROMs" are in development. And disk caching and other software tricks will speed up CD ROM reading. It can be done. Remember the *Finder 1.0*?

The killer, as I'm sure you know, is writing to CD ROM disks. You can't. They're read-only.

If you wade into the literature, you'll find that WORM disks (for "Write Once, Read Mostly") and DRAW disks (for "Direct Read After Write") and other acronymic platters are being feverishly worked on. WORM drives do exist, but they're expensive. When CD ROMs arrive, expect to read only.

That's okay by me. I'd kill to have the *Encyclopedia Britannica* an electron spurt away. Or *Webster's* or *Roget's* or *Larousse Gastronomique* or the *Yellow Pages*. Come to think of it — why not the *National Yellow Pages*? What a concept!

But the rest of the market may not be as easily swayed. You know why Apple (and everybody else) doesn't like new product leaks, right? It's because the rumors kill sales of existing products. Why buy today's ho-hum reality when tomorrow's sizzler will soon arrive?

So with write-able CD ROMs. If we all wait to write, the read-only market may fizzle. CD ROMs probably won't be a Good Idea That Didn't Make It — there's too much momentum already for that to happen. But if we all wait, it won't help.

But enough gloom. Here's the good news.

CD ROMs will probably be cheap. CD ROM drives will be similar to — but simpler than — CD audio players. You can buy a CD audio player today for less than \$200. To make a computer CD ROM drive, you take stuff out. Less, not more, hardware. Cheap.

How much data on a CD ROM disk? About 500 megabytes. The same as twenty-five 20-megabyte hard disks. The same as a mountain of floppies. *Grolier's Encyclopedia*, as I remember, takes up less than 15 percent of a CD ROM disk.

Or look at it another way. Audio data takes up a tremendous amount of disk space. One second of sound, sampled at 22 kilohertz, requires 22,000 bytes of storage. The quality of CD audio disks is even higher, which requires even more disk space. The result, on an audio CD, is about one hour of music — extremely high quality music.

But what about lower quality, which



takes less room? If you're willing to accept "telephone quality" sound, a CD can hold about 35 hours of sound!

Or graphics. A CD ROM could hold about 10,000 full-page *MacPaint* files.

Or all three: programs, sound and graphics. Imagine *Helix*, *Filevision* and the *Talking Moose* rolled into one application. On second thought, don't.

And with luck, there won't be a fight over formats. Phillips and Sony have already agreed on a standard. Microsoft has blessed it. Apple will give its blessing. That helps.

Not that Apple needs to do much. Macintosh already has a CD ROM port. Apple calls it a SCSI port.

Given that, developers will be all over CD ROMs. Apple will make the market, Microsoft will build the tools. Macintosh proved that the race goes to the swiftest developer — at least in the beginning. Lots of track shoes are being laced as you read this.

Even now, you can buy CD ROM applications. *FileMaker*, which hasn't achieved much success, may make it yet, if CD ROMs come out — quick. *Guide*, from OWL international, is an amazing program for creating "hypertext." When CD ROMs arrive, *Guide* won't be amazing; it'll be awesome.

But all the above may be chauvinism. CD ROMs may be more than another computer peripheral. Maybe, just maybe, it'll be the other way around: computers may become CD ROM peripherals.

There's already talk of "viewers": Dyna book contraptions built around a CD ROM drive, a flat screen and easy ways to navigate through millions of megabytes of information.

Someday, history may record what we knew all along: to make the computer a household appliance is easy. Just get rid of that damned keyboard. ☐

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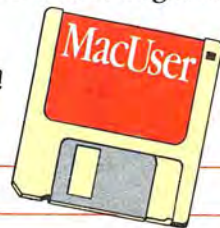
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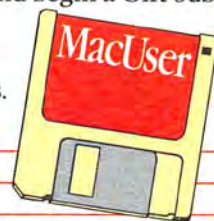
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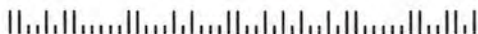
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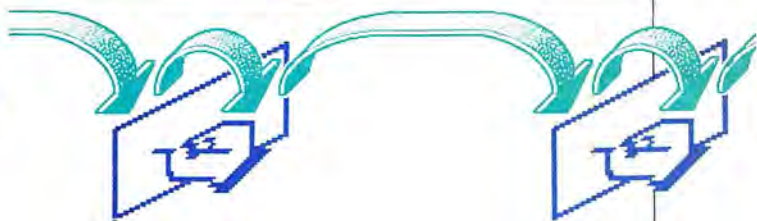
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SCRIPTOR

List Price: \$295 licensing fee. Published by Screenplay Systems, 348 East Olive Avenue, Suite F, Burbank, CA 91502. (818) 843-6557. Version 1.4. Copy protected.

The Hollywood screenplay format was perfected nearly 50 years ago, soon after Al Jolson first spoke in "The Jazz Singer." Sans graphics or font changes, the classic screenplay is a stark, bare-bones blueprint. Its precise indentations, punctuation and transitional phrases make all scripts equal; they clock in at the one page per minute of screen time.

Scriptor is a standalone application that makes scripts look the way they should. It operates on *Word* files, and reforms them into standard screenplay format.

That's a tall order. Some of the rules are: "Action" descriptions run the full width of the page; dialogue margins cover about one-third the page width. Character names are never separated from their dialogue. Speeches are never broken in mid-sentence. When dialogue is broken, you must repeat the character name followed by a (CONT'D), atop the next page. And so on.

Word will do a lot toward getting you there. You can "keep lines together" in the format box (COMMAND-M), to lock names and dialogue. You can indent text by using the glossary to call up pre-set formatting.

But when it comes time to break dialogue, insert all those "continueds," and eliminate unwanted "white space"—a 120-page script can be a massive job. And if you later make changes . . . well, you've got to do it all over again.

Enter *Scriptor*. It opens your *Word* files, executes intelligent page breaks, inserts all names, transitions, scene and page numbers. It then strings your files together and prints them as one seamless document.

And when you add new material, *Scriptor* will reformat, renumber and reprint the whole screenplay—automatically.

Scriptor has some very powerful features. You can manipulate your margins, widening the dialogue a few characters, let's say, to shorten the overall script by several pages. You can tell it to Create A and B pages (page 17a, 17b, etc.) for your new material, while keeping the old page breaks. You can add or delete scene numbers, change line spacing and insert Act Breaks (for TV)—all without touching *Word*.

Scriptor has three primary modes:

1. The Desktop or Layout Mode. Here, you access a series of what might be called "Ultimate Page Set-Up" windows—where you designate indents, margins, scene number positions, etc. You save all this info as a template, or "layout."

2. The Project window. Here you choose the *Word* files you'd like to link together—and in what order—to format and print as one script. You also designate which layout to use, which fonts and other options.

3. The Format and Print Modes. Formatting is nearly as much fun to watch as your movie. Your script scrolls by, as each page break is viewed.

Switch from "Auto" to "Ask," and it consults you about each dialogue break. You can accept *Scriptor*'s recommended break, or choose your own.

Meanwhile, a Status display tells you the page number, the scene number, which *Word* file you're in—the works.

The Print window offers all the usual Mac options, plus the ability to find and print strings of miscellaneous pages (e.g., 4a, 15-17, 26b), or pages featuring a particular character, location or other keyword.

Scriptor prints faster than *Word*; it is a joy to behold. Daisywheel printers are supported, as well as the LaserWriter and ImageWriter.

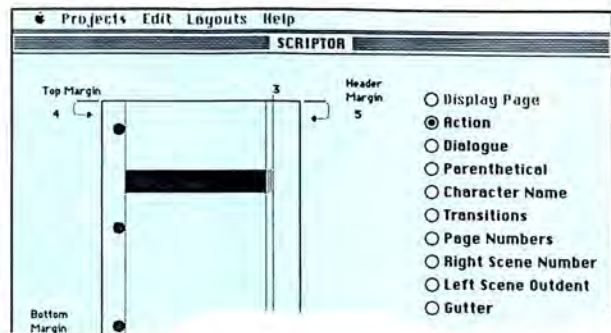
Scriptor does not yet support proportional fonts; a version that will is planned for later this

year. Actually, screenplays are best left mono-spaced, to format out at the correct page length. (Again, standard screenplay format is for a good reason.) I recommend Courier 12 on the LaserWriter.

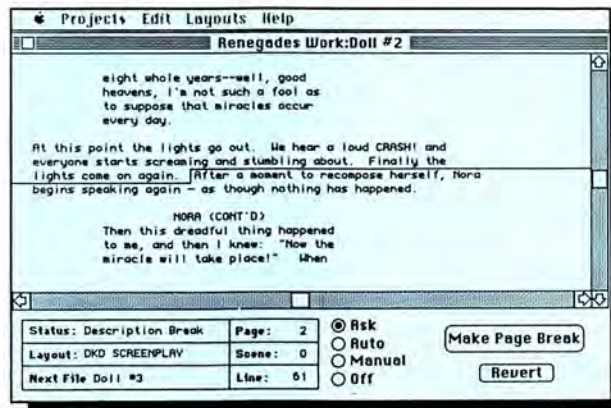
The program takes some getting used to. The biggest problem is the interface. It is not entirely Mac-like. For instance, the Layout menu offers you all the options: margins, headers, scene numbers and so on. But the New Layout command is under the Edit menu. Curious.

The Project window always looks the same, whether you're selecting, formatting or printing files. Except that you must leave it, return to the layout level, and then return again to format or print. This is confusing.

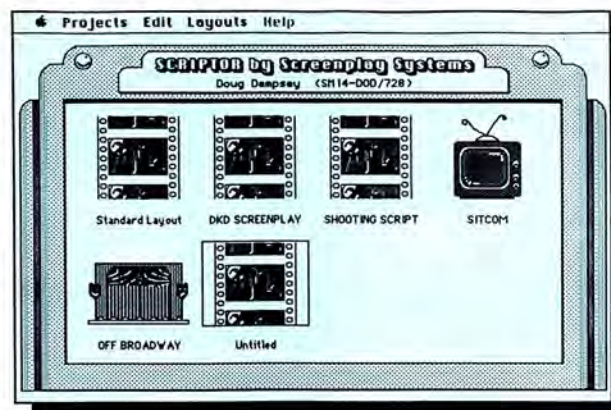
The Margin Moving feature, when activated,



The Blueprint window. The cursor becomes a handle that can grab the margin lines, and move them. As you shift the margins, the new values appear. Click a new item, i.e., Dialogue, and the blueprint reflects the settings for that item. Changes here will be saved to the currently selected "layout" when you click OK.



Scriptor's Formatting window. The "action" description will be broken as indicated—unless the user moves the "break indicator" by scrolling up/down or left/right. REVERT returns the break to *Scriptor*'s recommendation.



Scriptor's desktop, the Layout window. You call up a new layout, choose type (Feature, Theatrical or Television) and then name it. Once selected you can modify the layout's settings under the File menu, you can choose to open a project and formatting and/or printing. Note user's name and serial number.

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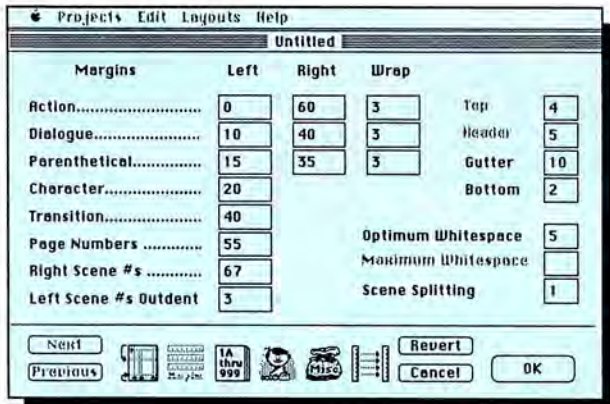
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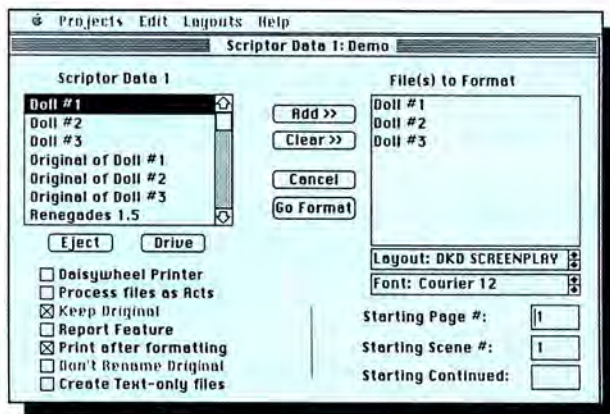
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The Margins window. Each value represents a left indent, in P10 increments on the Word ruler. Note the icons at bottom; these are the other layout options.



The Project window. You enter it once to select Word files and options. You enter the window again, via the Format command, to begin formatting. You enter it once again, via the Print command, to commence printing.

doesn't only change your margins during that one format/print session—it permanently alters the numbers in the layout you're using. In effect, you've created a new layout—from your old one. An inconvenience.

The Report feature, which is supposed to print out a list of your scene headings and numbers, is unpredictable. And there are a few other quirks, like a buggy scrollbox in the Project window.

However, I did look at a beta copy of version 1.5—due out in early '87—and these bugs seem to have been fixed. Also, 1.5 will support HFS (1.4 does not).

Scriptor is fast, accurate . . . and undeniably ingenious. But it takes some effort to learn. You've got to read the manual. Scriptor is not a toy; it's for serious users.

Scriptor was written by Stephen Greenfield and Chris Huntley, two USC Film School grads who actually work in Hollywood. They know what they're doing, and their support is refreshing. When you've got a question, you call Screenplay Systems and get Greenfield on the phone. He'll walk you through the problem—and if it's really a bug, he'll start working on the fix.

Scriptor comes with a screenplay glossary for Word, various fonts and a hard disk installer. Scriptor is copy protected, and asks for the key disk. Also, your name is installed in the Desktop by Screenplay Systems.

For the screenwriter, sitcom writer, playwright— for Producers and Independent Filmmakers—anyone who must wrestle with this arcane format—Scriptor looks to be boffo box office. — Douglas Dempsy

TRAPEZE 1/2

List Price: \$295. Published by Data Tailor Inc., 1300 S. University Drive, Fort Worth, TX 76107. (800) 443-1022; (817) 332-8944. Version 1.0E Not copy protected.

Have you ever been working in a spreadsheet and wanted to change the font in one cell? Or wanted to put a picture or logo somewhere on the page? Or to intermingle charts and data on the same page? Or wanted to move a clump of cells slightly to the left and maybe down a little? If so, Trapeze may be the program you've been searching for.

Trapeze bills itself as "the spreadsheet without limits." While this may be advertising hyperbole, it does give a hint of what Trapeze offers. A Trapeze worksheet starts out blank. No cells, no nothing. On this worksheet you place things called blocks, in a manner similar to page layout programs. Blocks can contain normal spreadsheet-type cells, as many rows or columns as needed; or text; or pictures; or special graphics like boxes or underlines. Blocks are aligned to a user-definable grid, and can be sent to the back or brought to the front if they overlap.

You manipulate blocks using tools from a pop-up menu in the icon bar in the left part of the edit window. This new menu appears immediately under the menu bar. There are tools to create standard blocks, data base blocks, text blocks and graphic blocks; to move blocks; or to change the size of all cells in a block. There's also an edit

box pop-up menu to allow selecting/changing block names, to show or change cell contents, to show or change block formulas, and to view or edit comments about a block.

Understanding Trapeze requires understanding how blocks work. The basic unit of most spreadsheets is the cell, but in Trapeze it's the block.

	1989	1990
Revenue	30,000	40,000
Cost of Goods	4,000	5,000
Gross Margin	26,000	35,000
Labor Expense	2,000	2,000
Overhead Expense	1,000	1,500

Cells cannot contain formulas, only blocks can contain formulas, and the formula applies to every cell in the block. For example, if revenue for 5 years is in a block named "Revenue" containing one row and five columns; and expenses are in a block named "Costs" the same size; then the block called "Net Income" would contain the formula "Revenue-Costs" and would automatically be five cells wide. If another column is added later to Revenue and to Costs, Net Income would automatically grow, too. This behavior has a lot of advantages, but some

disadvantages, too. If a specific year's revenue is needed in a formula, a function needs to be used to extract it. And if enough cells need to participate in multiple formulas without the rest of the block, a worksheet can end up with lots and lots of single cell blocks that have to be individually created, placed and named (since formulas can only refer to blocks by name).

But what formulas can be created! Since Trapeze treats blocks with multiple rows and columns as matrices, there are a number of built-in functions such as matrix inversion, matrix multiplication, linear regression, multiple linear regression and polynomial regression that won't be found in standard spreadsheets. There are financial functions (amortization, present value and the like), statistical functions (averages, standard deviation, sample variance and more), string manipulation functions, logical functions, conversion functions and even a large set of transcendental functions (logarithms, geometric formulas and then some).

Overall, Trapeze is very rich in function, and can produce very attractive output. It is not easy to learn, but once mastered is fairly easy to use. It may still require occasional visits to the manual which is fairly comprehensive—although it could be improved. The original version had some bugs, but Data Tailor quickly shipped out a free upgrade to registered owners, and hopefully will continue this kind of behavior. Trapeze is not for the faint of heart, but power users should find it to be right up their alley.—Robert R. Wiggins



MacBuffer LW

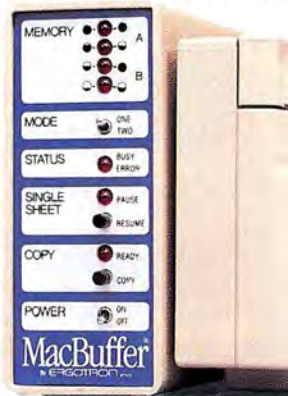
Stop Waiting for Your LaserWriter

The Apple Macintosh and LaserWriter created Desktop Publishing and made high quality graphics a cost-effective reality. This also marked the advent of a new form of office bottleneck, "waiting for the LaserWriter." This means that, while printing, the Macintosh is held hostage, needlessly waiting for the LaserWriter to complete the complex calculations necessary to produce the finished page. In fact, every Mac on the network is forced to wait for a single print job.

operator on the network can send MacBuffer LW their print jobs and get back to work.

MacBuffer is compatible with most of the major Macintosh software packages and the most popular desktop publishing programs such as PageMaker. It comes in 1 and 2 megabyte models and connects via Appletalk.

mode. Get the most out of your Imagewriter I or II with MacBuffer



MacBuffer

Stop Waiting for Your Imagewriter

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MacBuffer LW; MacBuffer; and MacTilt, the professional workstation for the Macintosh (pictured above), are all designed to help you get more done in less time.

For more information, contact your local Apple Dealer or **ERGOTRON**, P.O. Box 17013, Minneapolis, MN 55417, (800) 328-9839/(612) 854-9116, Telex #4310015

PageMaker®
Compatible

Ergotron's MacBuffer LW brings productivity to desktop publishing by eliminating needless waiting. Productivity means that every

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GRAPHIDEX $\uparrow\uparrow\uparrow\frac{1}{2}$

List Price: \$124.95. Published by BrainPower, Inc., 24009 Ventura Blvd., Calabasas, CA 91302. (818) 884-6911. Requires 512K. Not copy protected.

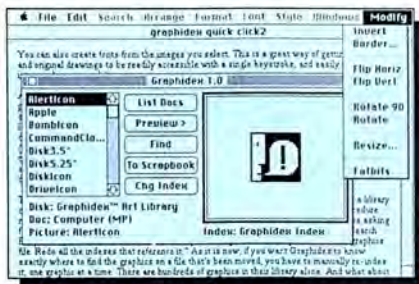
Do you ever have trouble finding one of your favorite graphics? *Graphidex* lets you index *MacPaint* and *MacDraw* format graphics without removing them from their original documents.

The *Graphidex* application lets you peer inside your documents. You just select the area of interest, name it and click OK; it's indexed. Selection is done with a combination of the familiar selection rectangle and some picture-searching algorithms unique to *Graphidex*. In the case of *MacPaint* documents, pictures are delimited by a specified number of white space pixels surrounding them. In the case of *MacDraw*, grouped objects qualify as indexable pictures.

To retrieve an indexed graphic, you call up the *Graphidex* DA, select the document that contains the graphic, then the graphic itself by name. You can copy it to the Clipboard, place it directly into the Scrapbook, or bring it into a preview window. You can make modifications in the preview window. Possible modifications include borders, as well as flipping, inverting, resizing and rotating images and make FatBits changes.

You can copy a modified graphic to the Clipboard or Scrapbook without affecting the

original indexed graphic. This is handy for making last-minute changes, especially for *Paint* format graphics. It's less useful with *MacDraw* graphics. Modifying a *MacDraw* graphic often converts it to *MacPaint* format, resulting in a loss of resolution if you print to a LaserWriter.



You can also create fonts from the images you select. This is a great way of making clip art and original drawings accessible with a single keystroke, and integrating them easily into your word processor.

Although this sounds great, the program itself is not very impressive. It has two major problems. The first is that graphics software is no longer the private domain of *MacPaint* and *MacDraw*. We now have *SuperPaint*, *GraphicWorks*, *MacDraft*, *Cricket Draw*, and *Illustrator*.

Graphidex is not really set up to handle graphics created by these applications (although it does OK with *FullPaint*.) Graphics created in these programs and saved in *MacPaint* or PICT format (*Illustrator* doesn't support either format) can be indexed by *Graphidex*. But the whole point of the utility is to let you get at the graphics where they live. It loses its punch if you have to save a copy of everything for indexing purposes.

The second problem is that there is no automatic re-indexer. The program comes with a library of clip art that fills a 400K disk. But if you move the library to your hard disk — a procedure recommended in the manual — *Graphidex* has a hard time finding the graphics. It keeps asking for their original disk. You can overcome this by clicking on a button that tells it to "Search Everywhere," but it would be much better if you could just tell it, "Hey, I moved this graphics file. Redo all the indexes that reference it." As it is now, if you want *Graphidex* to know exactly where to find the graphics on a file that's been moved, you have to manually re-index it, one graphic at a time. There are hundreds of graphics in their library alone. And what about when you finally get that new hard disk?

You may find *Graphidex* useful as it is if you work primarily with bit-mapped (*Paint* format) images. It's up to you whether what you get is worth the price. If you're object-oriented like me, stay away from it. — Henry Bortman

MOONMIST $\uparrow\uparrow\uparrow$

List Price: \$39.95. Published by Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. (617) 492-6000. Not copy protected.

Anyone who draws smiley faces in their letters deserves to be haunted by ghosts. Tamara, a fair maiden in distress, does just that in the letters you receive as part of the support material in Infocom's latest introductory level game, *MoonMist*.

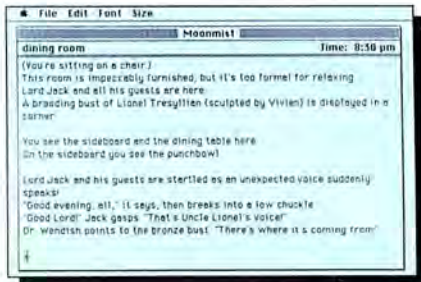
Tamara writes to tell you she is living in a castle in Cornwall, England and engaged to Jack, a British Lord. Unfortunately she is also being threatened by a ghost, who may or may not be the real thing. Tresyllian Castle has a long history of hauntings, and Lord Jack's old girl friend Deidre, adds to this rather typical haunted English castle story. Deidre was mysteriously drowned in a well after her break-up with Jack. Being a famous detective from the States, you rush off to help your friend in need. Armed with a suitcase, which I found lacking in stylish content

(you only have three outfits and one of them is a nightshirt), you are off to Cornwall.

Upon arrival at Cornwall you can dub yourself with the title Lord, Lady, Duke or Duchess. You're also asked what your favorite color is; this not only determines the color of your bedroom, but also which version of the game you'll be playing—this is one text adventure good for more than one go. The four versions of the game are red, blue, green and yellow. But don't fret if your favorite color is chartreuse or mauve; in that case the computer will randomly pick a version for you to play.

The four versions differ only slightly. The plot, people and scenery are the same, and this is a shame, since none of them is particularly interesting. The only apparent differences are the clues, the locations of the clues and treasure—and, of course, the color of your bedroom.

Even though I am relatively new to text adventures, I did not find *MoonMist* very challenging. I was able to say or do just about anything I wanted to any character and a simple



apology sufficed. *MoonMist*'s cast of characters also easily hand over written clues on request without even the slightest hesitation. The other clues are easy to figure out, and I was even able to find the treasure before I found all the clues.

MoonMist is not the most exciting game around, it would have livened things up a bit if I could have pushed someone (else) down the well. Or at least gotten Bolitho, the butler, to gossip.—JH

BACK TO BASICS

ACCOUNTING $\uparrow\uparrow\uparrow\uparrow$

List Price: \$199. Published by Peachtree Software, 4355 Shackleford Road, Norcross, GA 30093. (800) 247-3224. Version 1.03. Upgrade fee \$12.50. Not copy protected.

Back to Basics is a powerful software accounting package for the small business user. It

consists of three modules: General Ledger, Accounts Receivable and Accounts Payable. The modules can share information, but entries are not linked automatically between modules. This package is definitely not intended for an accountant with multiple clients. Rather, it is intended for use by the owner or bookkeeper of a small business. Their tutorial example is of a mom and pop type TV store.

Peachtree Software has made a serious effort to make their product accessible to the uninitiat-

ed. The manual is exhaustive, with numerous true life examples; the program is fairly Mac-like; there is an 800 technical support number (pay as you use, \$1 a minute, \$20 minimum), and there are numerous dialog boxes so you must double-check your actions frequently.

Back to Basics is a double entry accounting system. In general, every transaction is entered as both a debit and credit to separate accounts. The program is very good at preventing you from making an error in posting. In most cases, it will

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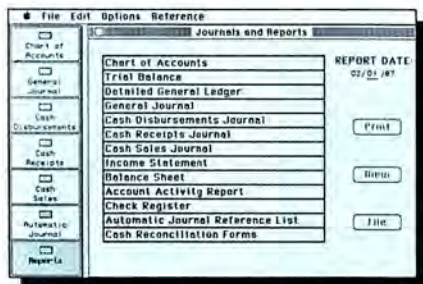
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not allow you to save a record that is not balanced. The general ledger can be used alone for cash basis accounting or in combination with the other two linkable modules for accrual basis accounting.

A filing cabinet with labels on the drawers replaces the expected menu bar for choosing



where in the set of accounts you want to be. The deviance from the Mac interface might be excusable because of the complexity of the choices, but I still would like command keys to speed things up. Also, I would like to see a transfer menu item added to allow transfer between the three modules of the program without going back to the desktop.

Data entry is fairly fast and efficient. The program fills in as much as possible automatical-

ly. There are methods provided to void most errors. There is no on-screen help, but there are numerous dialog boxes constantly reminding the user when to make back-ups or when saving will prevent further modification of entries. In fact, there are so many dialog boxes, the experienced user is certain to wish for the option of turning them off.

The report capabilities are amazing. I printed out 25 pages just by following the tutorial. *Back to Basics* generates so much paper, there is a danger of being inundated. With time, the user will presumably learn to be judicious in regard to printing.

The reports are saved as *MacWrite* documents, so they are available for import by other programs. One such use might be to dress up their formatting. All *Back to Basics* reports are printed in plain draft mode. This is disappointing for those of us grown accustomed to the elegance of formatting offered by other Macintosh programs.

The program will print both mailing labels and checks. Invoices can be printed on plain paper or preprinted forms. In fact, in the package Peachtree includes an order form for eight separate stationery items to be used with the software.

The large, full-color manual is excellent. There is even a 38-page section on "Accounting Principles" by a professor emeritus from Harvard Business School. There are tutorials for each

module, numerous examples, and discussions of where a user has some discretion in setting up accounts. Forty pages of sample reports are included as are 34 pages entitled "Business Situations." There is an excellent index and a glossary.

The manual has one problem. It refers to copy protection not present in version 1.03 of the program. Also, it does not mention the HFS filing system and assumes you are using 400K disks.

With 800K disks, you can put monthly data files for all three modules on one disk. Strangely enough, *Back to Basics* will still run on a 128K machine, though I couldn't recommend such a configuration. Much better would be a Mac Plus with a hard disk.

With over two dozen accounting packages available on the Mac, choosing just the right one is a difficult task. For any program of this cost, complexity and importance, I would strongly recommend renting it and making sure this is the program for you. Let your accountant see it, too. Chances are you'll both be impressed.

Peachtree offers a 30-day money back guarantee for those who buy direct from the firm (subject to a restocking charge of \$20 if the disk envelope has been opened). This is a very generous offer, allowing you adequate time to make certain that this is the accounting package for your business. An additional module, *Invoicing*, is due out this spring. — *Scott Beamer*

PORTFOLIO: DESIGNS FOR NEWSLETTERS

List Price: \$79.95. Published by Aldus Corporation, 411 First Avenue South, Suite 200, Seattle, WA 98104. (206) 622-5500. Requires 512K (512K Enhanced to use Wyzzy DA) or Mac Plus; PageMaker. Not copy protected.

Desktop publishing has brought the page layout into the electronic age for thousands of Macintosh users and *PageMaker* has been the application leading the pack. Unfortunately, owning *PageMaker* doesn't mean you know what to do with it.

Aldus has taken a step toward alleviating that problem by publishing the *Portfolio: Designs for Newsletters*. This two-disk set, accompanied by excellent documentation, provides over 20 different basic designs for laying out a two-page newsletter. Each template is a set of dummy pages, with preset columns and place-holding headlines, graphics and captions already in place. The designs range from simple two-column formats to complex five-column layouts with variable column widths.

All you need to do to use one of these templates is to open it. After saving it with a new file name, replace the masthead and graphics with your own, highlight the headlines and captions and retype them, and then pour your text. Changes, such as removing a graphic, extending a line, and so on, are easily made, because the basic page structure is already there.

The documentation is a tutorial in the best sense of the word: It is actually a short course in page design. An early chapter walks you through using templates to create a newsletter.

There is a wealth of information in this book. You are taught the most efficient order in which to lay out the elements on a page, how to select an attractive combination of typeface, type style and point size, how to work most effectively with rulers and guidelines



Later chapters each show three completed templates and discuss the particular design elements that distinguish them. Here, too, there are numerous hints on how to produce documents that will strike the right balance between visual impact and simplicity.

Aldus also provides end users with a complete set of Adobe's screen fonts for Times and Helvetica — separate screen fonts for Plain, Italic, Bold and Bold Italic. These fill up the font list (and your *System* file) rather quickly, but they have several advantages. They look better on the screen; they allow the screen image to more precisely match the printed output; they result in tighter copy fit and they are easier to edit, especially the italic styles.

It would have been nice if Aldus had provided the screen fonts for the full set of Apple Laser-

Writer Plus fonts, rather than just Times and Helvetica. Users of Palatino, Bookman and the like will continue to have the same problems with these fonts as with previous versions of Times and Helvetica. (If you want the LaserWriter Plus screen fonts, you'll have to get them from Adobe — fifty bucks for the full set.)

And Aldus should have issued a warning to hard disk users: Once these screen fonts are in your *System* file, they affect all the programs on your hard disk. Fortunately, this is not likely to cause problems except with *MacDraw*, but there may be some unexpected results with previously created files in other programs. You could also be in for a rude shock using these screen fonts if you output at a service bureau which doesn't have them. Bring a system disk with the new fonts along, just in case.

Along with the screen fonts comes a new version of *Aldus Prep* and a wonderful new DA called *Wyzzy*. With *Wyzzy* installed and turned on, you will get the maximum benefit from the new screen fonts, and your on-screen copy fit will be optimized. The bad news: *Wyzzy* only works with *PageMaker*; it can crash other applications. More bad news: Aldus has no plan to make *Wyzzy* available to *PageMaker* owners who don't buy the *Portfolio*. The good news: *PageMaker* 2.0 should correct the problems that created the need for *Wyzzy* in the first place.

The *Portfolio* is an impressive package and recommended to anyone who has tried to harness the power of *PageMaker* without quite hitting the mark. The price is a little steep after plunking down the money for *PageMaker*, but if you're someone who could use the help — and you know who you are — it's probably worth it. — *Henry Bortman*

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QUARK XPRESS (★★★★★)*

List Price \$695. Published by Quark, Inc., 2525 West Evans, Suite 220, Denver, CO, 80219. (303) 934-2211. Prerelease version reviewed. Mac 512E or Plus required, hard disk recommended. Not copy protected.

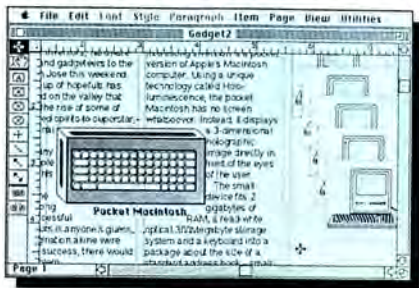
Quark Xpress is a superb product that represents a major step forward in the evolution of desktop publishing. Developed by a company in Denver previously known for a few very high quality software products on Apple IIs and Apple IIIs, Xpress is light-years ahead of where desktop publishing was a year ago.

PageMaker, MacPublisher and ReadySetGo! made people aware of what the Macintosh could do with presentation text and graphics. But anyone who has spent a good deal of time with these products knows their limitations and drawbacks. Although new versions keep getting more functional and easier to use, it has been very difficult to do certain things, such as proper kerning, using display-size typefaces, flowing text and graphics easily around one another and from page to page or column to column.

Xpress makes true, professional quality page layout easy. Other page layout programs let you work in typefaces from 0 to 127 points (a limitation set within QuickDraw). Xpress has a range from 0 to 500 point typefaces, in 1-point increments. Xpress contains a full-featured word processor with built-in spell checking, manual or automatic hyphenation and an exception dictionary. Xpress handles left, right, center and decimal tabs and reads text files as well as files formatted in MacWrite and Microsoft Word.

You can screen text in any of six gray levels. The program also offers color support so you can print text in any of seven colors on a color printer.

Graphics are displayed in boxes, with either square, rounded corner, circular or oval shapes. Text flows automatically around a picture box—move the picture someplace else and the text



automatically adjusts. Boxes can be transparent, in which case text can wrap around the shape of a graphic itself, or continue to conform to the box. Graphics can be imported from MacPaint, PICT or TIFF files, but the program has the built-in ability to draw lines, arrows and frames. A custom Frame Editor application lets you design your own frames for text or graphic boxes.

You can pipeline text from one area to another, with tag lines that let you know where the text went. Simply type in your tag and a command key for "Next Page." The tag line will register the correct page number of the continuation text. A similar tag "From page..." can be added at the beginning of the continuation box. The page references are relative—if either portion of the

pipelined text is moved, the tag lines automatically update to show the correct placement.

Xpress offers extraordinary control over the look of text on the page. It has global kerning capabilities, using the kerning pairs stored in Apple's font files. Xpress also has manual kerning, but unlike other programs that kern by points, Xpress kerns in increments of 1/100 of an em space. Besides being much more precise, this method assures that text will retain the proper kerning even if you change the style or size of the font. Xpress also does horizontal tracking in increments of 1/100 of an em space. Of course you don't have to move in such small steps—you can set a numeric distance as well.

On top of these features, Xpress also allows you to program PostScript devices from within Xpress documents, giving you even more control over the final output.

The program does have a few peculiarities. It offers a command key equivalent for almost every conceivable action, which is fine, but the choices are sometimes odd and take a little getting used to (COMMAND-SHIFT-B for bold, instead of COMMAND-B, for example). There is an excellent on-line help facility that smooths things over, though. Xpress seems a little slow at times, even on a Mac Plus, until you realize just what it is the program is doing and how long it would have taken with any other program. Give it a powerful Mac with lots of RAM and watch it sing.

Xpress is a real find and a very good value at \$695.—MDW

*[Editor's Note: This product's rating is provisional. Even at the date of the review, with the product in final beta test, it is a 5-mouse program.]

MAGIC DIGITIZER (★★★★★)

List Price: Digitizer with Magic software, \$399.95; RCA TC-1501 video camera, \$150; LaserMagic software, \$49.95. New Image Technology, Inc., 10300 Greenbelt Road, Seabrook, MD 20706. (301) 464-3100. Requires 512K+. Not copy protected.

New Image Technology has come close to perfection with their Magic digitizer and LaserMagic software. The digitizer proper is a black box (actually, it's beige) which converts video images into MacPaint files at 72 dots per inch. A companion RCA video camera can be purchased as an option, but the lens on this camera is not the greatest. New Image recommends that you buy a C-mount adapter which will let you use standard camera lenses (Nikon, Canon, Minolta, etc.) instead. You can also use a home video camera/VCR as a video source.

The power of the system lies in the software. The standard Magic software gives you complete control over gray scales—anything from high contrast black and white to 38 levels of gray. A number of different MacPaint-like pattern palettes are provided, any of which can be brought in and "mapped" into the gray scale. If you don't like any of the palettes that come on the disk, you can create one of your own in MacPaint and use it instead. There is also a way to produce a "trace-edges" effect, with the outlines in the image keyed to the patterns in the gray scale.

LaserMagic, the updated software, with a companion program ShowImage, takes a giant step forward. It allows images to be digitized at a full 300 dpi, retaining up to 256 levels of gray-scale information for each picture. This makes it possible to take advantage of the full resolution both of the LaserWriter (300 dpi) and of higher resolution devices like the Allied Linotron (1270/2540 dpi). Unfortunately, the ability to manipulate the gray scale on-screen at this resolution is currently limited to simple brightness and contrast controls. However, the image can be saved as a PostScript file.

LaserMagic burns up disk space at a rapid clip. A full-sized image stored with 256 gray levels requires over 250K. Saving a PostScript file requires an additional 500K. If you plan to do serious work with LaserMagic, you'll probably want to use a hard disk.

The user interface is very complex. There are 33 different controls packed onto the Control Screen, and the relationships among them are not always clear. Particularly disturbing is the fact that, while all the controls on the standard Magic screen are present in LaserMagic, none of them affect the way a LaserMagic image is stored. The control screen also departs significantly from the Macintosh standard—there's no menu bar.

The manual provides a reasonably good tutorial, but it's a poor reference guide. Part of the problem lies in the complexity of the user

interface, but the manual has some shortcomings all its own. For example, there is neither a parts list nor an adequate diagram of how to hook all the pieces together. As a result, it took



half an hour of head-scratching before I realized that the unit I received was shipped without a crucial adapter.

Some people are going to dive in with Magic and start making beautiful pictures right away. Others may never understand it. Most of us, somewhere in between, will need practice. But if you want to work with digitized images, and are willing to meet the software half way, you will be more than pleased with this product. If you need more convincing, go watch it run. Sales are direct from the manufacturer, but they will give you the names of satisfied users in your area.

—Henry Bortman

Another Round Of Cricket

CRICKET DRAW IS THE MOST advanced and powerful graphics application you can buy for the Mac.

"Did he really say that? What about *FullPaint*? *GraphicWorks*? *SuperPaint*? *Cricket Draw* doesn't do half the things any one of them can do."

True. But *Cricket Draw* does PostScript. PostScript is the page description language that makes the Apple LaserWriter tick. You know all those great special effects you've seen in the sample book that sits next to the LaserWriter demo unit in your local computer store? PostScript. Without PostScript, a LaserWriter is just another Canon copier. And *Cricket Draw* gives you more PostScript power than any other Mac application can shake a stick at. This is an application easy enough for anyone to use, but packing power that professionals have been anxiously waiting for.

SEEING IS BELIEVING

To draw, you must start with drawing tools, and *Cricket Draw* has a full complement of them. The top half of the tool palette contains the familiar standards: straight lines, rectangles with square or rounded corners, ovals and circles, arcs, polygons and freehand shapes. As you move down towards the bottom of the palette, things get more exciting (see Figure 1).

A new diamond-shaped tool gives you parallelograms. The "grate" tool allows you, with a single drag of the mouse, to draw a series of either parallel straight lines or concentric circles. The straight lines can have

Cricket Draw adds

PostScript to object-

oriented drawing and

shoots to the head of

the class.

either linear or logarithmic spacing. The bezier curve tool lets you plot curved line segments that can be twisted and reshaped in bizarre and wonderful ways by dragging their control points. (Previously, this type of tool has been available only in font-generation applications like *Fontographer* and *LaserWorks*.) And the starburst tool creates just what its name implies, a set of lines radiating from a common center.

Yet *Cricket Draw's* new tools reveal only a hint of what the program can do. *Cricket Draw* also allows you much greater freedom to fine tune the appearance of what you draw. For example, any object can be rotated and/or skewed (tilted) to any angle, selectable in 1 degree increments. By comparison, *MacDraw* can't do either; *MacDraft* can do rotation, but not skewing.

Double-clicking on an object invokes a dialog box that gives you very precise control over the line width, gray intensity and dash pattern of its outline, as well as the gray intensity of its interior, if it's a filled object (see Figure 2). Have you ever

wished you could make a line just a wee bit thicker or thinner than one of the half-dozen or so choices usually offered? Now you can — any thickness from 0.05 points to 99 points, in 0.05 point increments.

Ever longed for a shade of gray somewhere in between the ones available on the drawing palette? How does 0% to 100% in 1% steps sound? It's yours. Tired of trying to create dashed lines with diagonal-pattern "ink"? *Cricket Draw* offers you nine different dash patterns. And they don't get lost going around corners.

Depending on the type of object you select, you may get additional controls specific to that object type. For example, the dialog for a grate lets you set the style of grate (linear, log or radial) and the number of lines it contains. All open-ended objects, including curves, can have arrowheads on one or both ends. And wait until you see the precision with which you can control the corners on rounded rectangles.

Polygons and freehand shapes can be set to display and print smoothed or unsmoothed. And the smoothing is... smooooth. So smooth, in fact, that you may find smoothed polygons more practical to work with than bezier curves. Bezier curves, noted for their exceptional smoothness, are by definition limited to exactly four points. A smoothed polygon, however, can have as many points as you like, and looks just as good.

There's more. Any closed object can be filled with a graduated gray scale, known as a "fountain" (see

BY HENRY BORTMAN

Figure 3). Both the initial and final gray intensities of the fountain can be specified, as can its orientation. In addition, an object can be given a shadow, extending any desired distance and in any direction, in any shade of gray or graduated range of grays. Shadows work on open-ended objects as well as closed ones. You haven't seen anything like this anywhere before. Guaranteed. It's worth buying the program just to watch it draw fountains and shadows.

Cricket Draw has no pattern palette. This may seem strange for a high-powered drawing program, but remember that it's optimized for the LaserWriter. Bit-mapped patterns can't take advantage of the LaserWriter's resolution. In fact, they slow down printing. This is why Cricket Software opted instead to concentrate on an expanded gray scale. In contrast to bit-mapped patterns, true gray fills — both solid and graduated — are significantly improved by LaserWriter printing, and get even better when printed on a Linotronic.

However, if you still want patterns, there is something you can do. Using undocumented techniques, specifically the line screen (discussed in the sidebar "How to Get What You Don't See"), you can produce an infinite variety of fill patterns composed of horizontal, vertical and diagonal lines. Try playing around. Higher gray fill intensities will give you thicker lines. Higher frequencies will give you more lines per inch.

SHAPING YOUR VISION

Editing in *Cricket Draw* is far more versatile than in other drawing programs. To edit an object, select it and type **COMMAND-E**. For objects that can be edited — ovals/circles, lines, rounded rectangles and starbursts can only be resized — the standard resizing handles will disappear and a new set of editing handles will be displayed, one at each vertex or control point. Dragging one of these handles will reshape the object.

Using this technique, you can reduce or extend the angle subtended by an arc. You can move the corners of a grate around to create perspective-like effects. If you **OPTION-CLICK** on one of the edit handles of a

polygon, a second, independent, edit handle appears. This is referred to as "cusping." The best part of this feature is that if you cusp a vertex in a smoothed polygon, it squares off. This means that you can have both straight and smooth line segments in the same polygon. **SHIFT-OPTION-CLICK** will delete an edit handle from a polygon.

These editing abilities are further enhanced by zooming: You can enlarge a portion of a drawing up to eight times its original size, or reduce it down to one-eighth of its size.

A THOUSAND PICTURES FROM A SINGLE WORD

If you are a frustrated user of other drawing programs, you may now be wondering, "All right, so it does fancy pictures. What about text?" Good question. The inability to manipulate text on the screen while retaining the integrity of the character outlines of PostScript fonts has been the most limiting aspect of drawing programs to date. *Cricket Draw* meets the challenge.

You want text rotation? Skewing? Reflection on X and Y? Text in any shade of gray, instead of just black



ANOTHER ROUND OF CRICKET

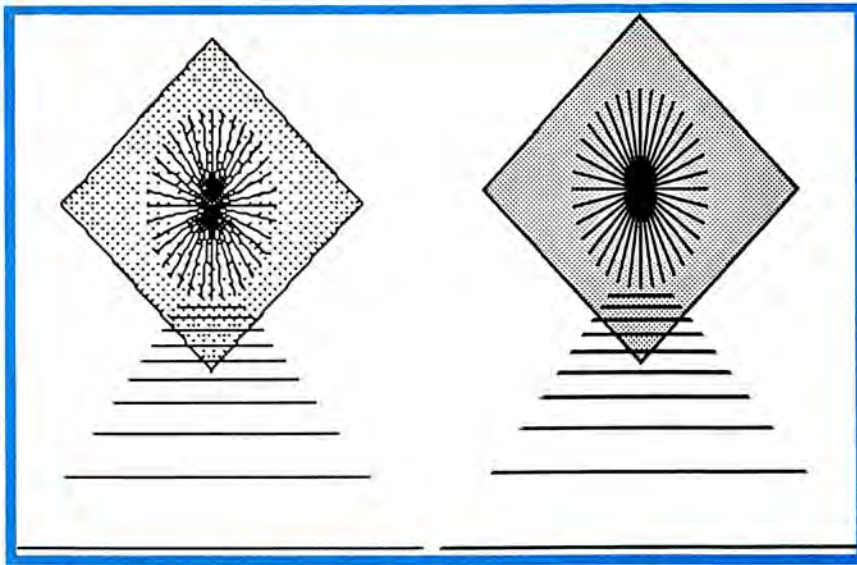


Fig. 1 *Cricket Draw's* new tools allow the drawing above to be made with only three objects. The diamond is a basic *Cricket Draw* shape, not a rotated rectangle. While both the starburst and grate contain multiple lines, each can be drawn with a single drag of the mouse. On the left, the drawing as it appears on the Mac screen; on the right, LaserWriter output.

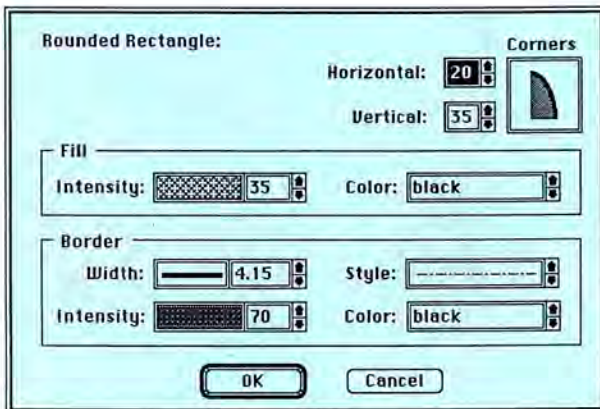


Fig. 2 When you double-click on any object you have drawn on the screen, a dialog box appears in which you can set line width and intensity, fill intensity (for closed objects), dash pattern and other attributes of the object's appearance. Shown here is the dialog box for a rounded rectangle.

and white? Shadow text, with graduated gray scales in the shadows? *Cricket Draw* lets you have it all.

Anything else? How about text placed along an arbitrary path, such as an arc, a bezier curve, an open-ended polygon or freehand shape? No problem. Just select a text block and any open-ended object simultaneously and choose the BIND TEXT option from the Special menu. It's done. You won't see a full representation of the bound text on screen. QuickDraw simply can't handle it. Instead, an area filled with diagonal lines will show you where on the printout the text will appear. You'll have to wait until you print your drawing to see the actual text in position along the path.

Each text block is fully editable; just press COMMAND-E. Numerous different font, size and style combinations can appear side by side within a single block. It's even possible to edit rotated or skewed text. It will straighten up while you work on it, then pop back to its previous orientation. To edit path-bound text, you must first unbind it.

Unfortunately, text editing, while powerful, is confusing. There are five different ways to get at text. (1) The selection tool (arrow) lets you resize a block of text or move it around on the page. (2) The text tool lets you draw a new text edit box; or, if the cursor is over an existing text block, it lets you edit. (3) The EDIT TEXT choice on the

Edit menu (COMMAND-E) also lets you edit text, if the block is already selected. (4) The SET TYPE choice on the Edit menu (COMMAND-T) displays a dialog box that lets you make font, style and point size changes on text that is selected. (5) There are command key equivalents for changing style and point size (but none is available for font changes). This all works quite differently than similar functions in other drawing programs (*MacDraw*, *MacDraft*, the draw layer of *SuperPaint*), and takes some getting used to. At first, you may feel the program is working against you.

POSTSCRIPT AND MORE POSTSCRIPT

Cricket Draw does PostScript and I've discussed a number of ways in which the program gives you unprecedented interactive access to PostScript's power. But *Cricket Draw* really does PostScript. We're talking code.

You can see the PostScript code for any drawing you make by selecting NEW from the File menu and clicking on the PostScript button. This will open an editing window. Choose GENERATE POSTSCRIPT from the Goodies menu and the PostScript code for the frontmost drawing window will appear in the PostScript window.

The contents of a PostScript window can be saved either in brief form — just what's in the window — or in complete form, which includes Cricket's PostScript header as well. This header is a wealth of information for anyone interested in the language. Cricket has revealed exactly how they accomplished every one of their PostScript techniques. And it's reasonably readable code, unlike some other PostScript headers that the hackers among you may have tried to decipher.

You can modify the code in a PostScript window — it's simply a text file. Your changes are not reflected on the screen, but you can download the contents of the window directly from *Cricket Draw* and see their effects on the resulting printout. If you don't like what you see, just try again. You can use the code generated by *Cricket Draw* as a building block for your own pro-

grams, making only minor modifications; or you can get as elaborate as you want. There is also a complete on-line PostScript help function, which shows you the proper syntax for and a short description of nearly every operator (primitive command) in Adobe's PostScript Reference Manual.

We really have to hand it to Cricket Software for providing this feature. Many developers would have stopped at the boundary of the drawing window and said, "We've given the user enough." You would never have seen their hard-earned PostScript secrets, and if you did, they'd be virtually unintelligible. Instead, Cricket went the extra mile and provided a full-scale PostScript laboratory as well as a great drawing application. It's a welcome change to see software done with the user in mind.

If, on the other hand, you have no interest in the hidden mysteries of PostScript, you can ignore this part of the application altogether. You'll still have all the power of the drawing program at your command. The two operate independently.

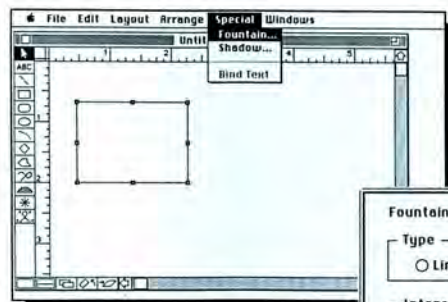
DOT TO DOT

Although *Cricket Draw* is optimized for PostScript, it is fully compatible with the ImageWriter. Of course, while a PostScript printer will often improve on the screen image, the printout from an ImageWriter will mirror the screen pixel for pixel. Text effects like rotation and skewing, in particular, which require better than 72 dpi to show their stuff and which therefore look ragged on the screen, will look equally rough when printed on an ImageWriter.

However, there is one distinct advantage *Cricket Draw* offers to those with an ImageWriter II: color. Color, along with line width, gray intensity, and so on, is one of the attributes that can be selected from the dialog boxes that appear when you double-click on an object. Gray intensities, fountains and shadows all work with color as well as with black and white. Of course you can't see color on the screen — not yet, anyway — but you can create four-

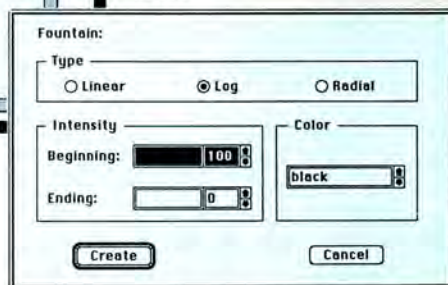
How To Get What You Don't See

Cricket Draw, like many other Mac applications, has hidden treasures waiting to be discovered by the adventurous. My favorite is accessed by OPTION-CLICKING the fill control in the lower left corner of the screen. Normally when you click on this control (without the Option key depressed), you get a dialog box that lets you modify the intensity of the gray fills for any closed objects currently selected or subsequently drawn. But if you hold down the Option key while clicking, with one or more gray-filled objects selected, you will get a dialog box which will give you access to a number of additional options that affect the way grays will appear. The examples here show you some of what can be achieved.



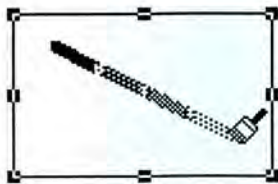
a.

Fig. 3 Filling a closed object with a graduated gray scale (fountain) and giving it a custom-designed shadow are a snap in *Cricket Draw*. (a) Draw a closed object, select it, and choose FOUNTAIN from the Special menu.



b.

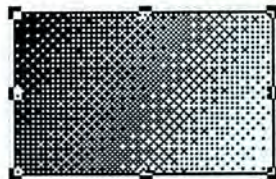
(b) Choose the fountain type, beginning and ending intensity and color.



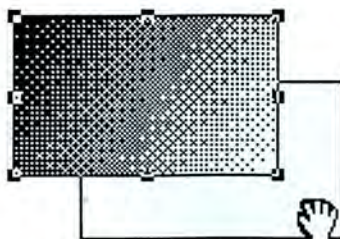
c.

(c) Drag the paintbrush cursor across the object at any angle.

(d) A fountain will fill the object.

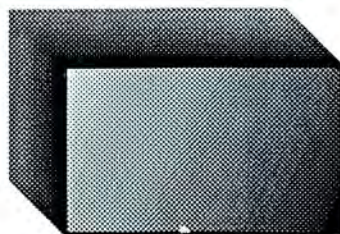


d.

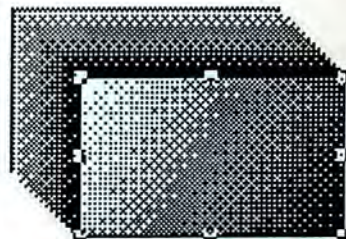


e.

(e) Choose SHADOW from the Special menu and set the appropriate options in the Shadow dialog box (not shown). Use the hand cursor to drag a shadow out from "behind" the object, in any direction and any distance from the original.



g.



f.

(f) The shadow will display on the screen and (g) the final product, printed on a LaserWriter.

ANOTHER ROUND OF CRICKET

color graphics on an ImageWriter directly from within *Cricket Draw*. No additional utility program is required to generate color output.

Many early users of *Cricket Draw* reported problems when trying to print their files, particularly when printing to Linotronics. I had this experience myself with one file that printed fine on a LaserWriter but thumbed its nose at me when I tried to get Lino output. Cricket has been working feverishly to overcome these problems since *Draw*'s initial release. As we went to press, they had just released an upgrade, version 1.01, which they claim has resolved most of the reported problems. This new version was not yet available for testing at press time. It is being sent free to all registered owners.

TO SEE IS TO KNOW

Cricket Draw's user interface is excellent. In designing a user interface for Macintosh software, it's easy to get carried away. It's hard to create a good balance between power and simplicity. Decisions about things like the organization of the menus, the assignment of command keys and the use of dialog boxes must be made carefully. Otherwise, the interface will end up obscuring a program's capabilities, rather than providing easy access to them. There is one area in *Cricket Draw* — text editing, already mentioned — that can use some improvements. But on the whole, the *Cricket Draw* interface is so well done that anyone who understands the distinction between bit maps and objects, can, if given the simple advice "Try double-clicking," learn 90 percent of *Cricket Draw* in 30 minutes — without the manual.

A program's user interface and its written documentation are two sides of the same coin. They both contribute to or detract from the ease with which the user can get a job done. Cricket has done a solid job on both. The manual has clear, accurate explanations. It is well organized and extremely well illustrated. There are a few places where there could have been a bit more explanation — not because what's there is inadequate, but because you get the feeling that

Now You See It, Now You Don't

Standards are a wonderful thing. The computer world is full of them. Like the RS-232 "standard." Or "standard" ASCII text files. The Macintosh has graced us with yet another, the "standard" PICT file format. There are several different programs that generate PICT files, among them *MacDraw*, *MacDraft*, *SuperPaint*, and now *Cricket Draw*. Others, such as *PageMaker* and *ReadySetGo* can't produce PICT files but can read them.

PICT is supposed to make it easy to move graphics from one application to another. But reality isn't always as accommodating as the paper world in which standards are written. So here's the low-down on what works and what doesn't with the initial release of *Cricket Draw*. The most reliable transfer is from *MacDraw* into *Cricket Draw*. This can be successfully done either with *MacDraw* files themselves or with PICT files created in *MacDraw*. The only surprise is that, since *Cricket Draw* has no fill patterns, *MacDraw* objects filled with patterns other than shades of gray will be converted into gray-filled objects in *Cricket Draw*.

MacDraft files cannot be read directly by *Cricket Draw*. PICT files created by *MacDraft* can be read by *Cricket Draw*, but the fill patterns will not transfer at all; filled objects will all become unfilled.

If you try to read a *SuperPaint* PICT file into *Cricket Draw*, the system will crash.

And in the "oops" department: *Cricket Draw* (version 1.0) can't read its own PICT files. So, if you save a *Cricket Draw* drawing in PICT format for export to another application, save a second copy of it in *Cricket Draw* format. Otherwise, you will not be able to make any further changes to it.

So much for bringing PICT images into *Cricket Draw*. Going the other way, the most reliable transfer is into *ReadySetGo* 3.0. I am told — although I didn't have a copy to test it myself — that *Cricket Draw* PICT files can be ported to *ReadySetGo* 3.0 with no problem, and that they will print properly. A handy hint: When you create the PICT file, hold down the Option key while you click on the Save button. This will generate a PICT file in which the screen image is a bit-mapped image, rather than an object-oriented image. The bit-mapped screen image will scroll much more rapidly in *ReadySetGo* than its object-oriented counterpart. You will still get the full benefit of the LaserWriter's resolution when your drawing prints, since the PostScript commands are exported to *ReadySetGo* along with the bit-mapped screen image.

As for *PageMaker*, wait until version 2.0, which will be fully compatible with *Cricket Draw* PICT files. Since version 1.2 uses Aldus Prep instead of Laser Prep (like everyone else does), and since Aldus Prep was not designed to handle the PostScript that is embedded in *Cricket Draw* PICT files, the latter can be read into *PageMaker*, but will not print properly.

there has to be more to the story.

Cricket is planning to release an ongoing series of technical notes about *Cricket Draw*, with pointers on how to get the most out of the product, and, alas, workarounds for any bugs that crop up. These notes will be uploaded to a number of subscriber bulletin boards (CompuServe, MCI, AppleLink) and will be made available free to Macintosh user groups. Registered owners who want to be sure to get them all, on a monthly basis, can subscribe for \$25 a year. The first set of such notes, detailing changes that were made in the software after the manual was printed, is included in the *Cricket Draw* package.

Registering will also guarantee that you'll be notified of upgrades. These will be available for a nominal fee (\$10 for minor versions, more

when major new features are added). Cricket has already planned to publish a version early in 1987 that fixes any bugs found in the initial release.

There is one last thing that should be mentioned. The largest drawing you can make with *Cricket Draw* is one page. You can have lots of windows open at once, but only one page apiece. When we asked the developers about this, they said that they had discussed the subject with a lot of people who use other drawing programs, and found that the overwhelming majority of them create multipage drawings for the sole purpose of reducing them in order to achieve an effective increase in the resolution of their final images. Very few people outside of the CAD world actually need to make large final drawings, which requires taping pages together.

Fig. 4 The 1270 dpi resolution of the Linotronic 100 yields a smoother gradation of grays in fountain-filled objects (bottom strip) than does the LaserWriter with its 300 dpi resolution (top strip).

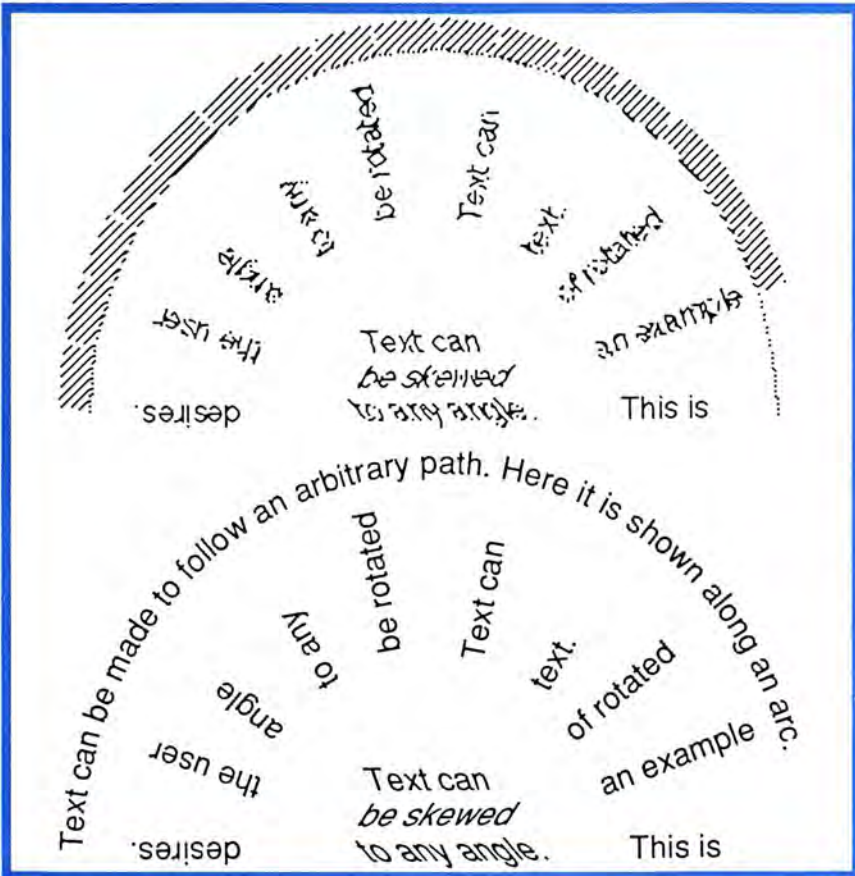
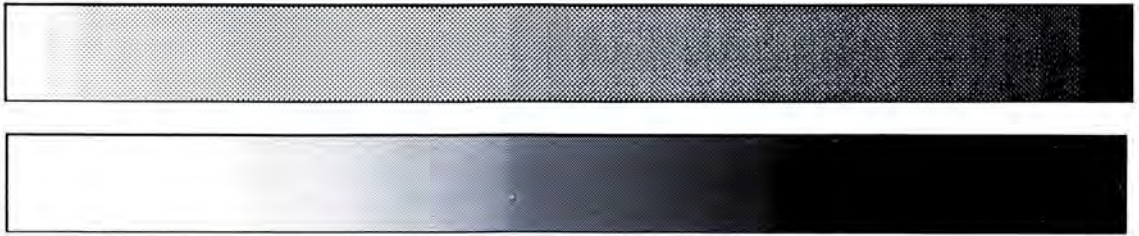
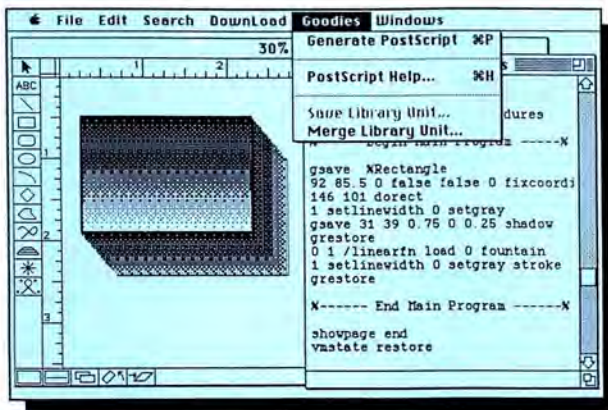


Fig. 5 Text can be rotated or skewed to any angle in one degree increments. It can also be placed along any arbitrary path. On the Top, the modified text as it appears on the screen. On the bottom, LaserWriter output.

Fig. 6 You can see the PostScript code for a Cricket Draw drawing by opening a PostScript window and choosing GENERATE POSTSCRIPT from the Goodies menu. What appears in this window can be saved on disk as a text file. It can also be edited — if you know PostScript — and downloaded to a printer directly from within Cricket Draw.



Since *Cricket Draw* is not a CAD program, a single page was deemed adequate. Those who are looking for increased resolution can achieve it in *Cricket Draw* by setting the reduction percentage in the Page Setup window to less than 100% (25% is as low as you can go). This expands the rulers in the drawing window proportionally, allowing you to draw on a piece of "virtual paper" as large as 30" wide X 40" high (or 27" X 50" if you choose legal size paper). When you print, however, it will be reduced to a single sheet.

DRAWING TO THE END

Cricket Draw is hot, and anyone with an interest in serious drawing or playful drawing or general playing should consider buying this program. Take a long look at what it can do and I think you'll see what we mean. 🖨️

HENRY BORTMAN IS A SAN FRANCISCO-BASED FREELANCE WRITER AND AN ENGINEER FOR US SPRINT.

Cricket Draw

Overall Rating	👍 👍 👍 👍
Follows Mac Interface	👍 👍 👍 👍
Printed Documentation	👍 👍 👍 👍
On-Screen Help	Only in PS window
Performance	👍 👍 👍 👍
Support	Too early to tell
Customer Value	👍 👍 👍 👍

Comments: High-powered object-oriented graphics, optimized for PostScript printers. A tad expensive, but worth it. **Best Features:** Unbelievable screen displays; rotation and skewing of text in 1-degree increments; graduated gray fills and shadows. **Worst Features:** Text editing is confusing. **List Price:** \$295. Requires 512+. Published by Cricket Software, 3508 Market St., Suite 206, Philadelphia, PA 19104. 1 (800) 345-8112. Not copy protected.

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DiskExpress (maximize disk performance)	27.	Turbo Maccountant (full-featured)	275.	WillWriter 2.0 (prepare your own will)	32.
Altsys ... NCP		Dow Jones ... CP		Linguist's Software ... NCP	
Fontastic (create your own fonts)	27.	Straight Talk (access News/Retrieval)	62.	Tech (1000 different symbols)	59.
Fontographer (Laserwriter font editor)	249.	Spreadsheet Link	65.	FOREIGN LANGUAGE FONTS	
Ann Arbor ... NCP		Market Manager PLUS 1.5	159.	MacCyrillic	39.
FullPaint (open four documents at once)	55.	Dreams of the Phoenix ... NCP		SuperFrench/German/Spanish	39.
Batteries Included ... NCP		Day Keeper Calendar	35.	MacHieroglyphics, MacKana/Basic Kanji, MacSemitic/Coptic/Devanagari, MacKorean, MacGreek, MacHebrew each	59.
The Mac BatteryPak (9 desk accessories)	27.	Quick & Dirty Utilities each	35.	SuperGreek New or Old Testament	79.
Time Link (electronic calendar/diary)	29.	Twelve-C Financial Desk Accessory	35.	MacGreek/Hebrew/Phonetics	89.
Thunder! (50,000 word spelling checker)	29.	Dubl-Click Software ... NCP		LaserGreek	79.
Isgur Portfolio (investment manager)	109.	World-Class Fonts! Vol. One or Vol. Two	29.	LaserFrench/German/Spanish	79.
Berkeley System Designs ... NCP		World-Class Fonts! (both Volumes)	49.	LaserCyrillic	115.
Stepping Out (requires 512k)	65.	Calculator Construction Set	39.	Living Videotext ... NCP	
Blyth ... CP		EDO Communications ... CP		ThinkTank 512k (outline processor)	99.
Ornis 3 Plus	call	Laserworks (requires 512k, Laserwriter)	229.	More (outlines, windows, & tree charts)	159.
Borland International ... NCP		Electronic Arts ... CP		MacMemory ... NCP	
Sidekick 2.0	59.	Deluxe Music Construction Set 2.0	65.	MaxRam & MaxPrint (Ramdisk, spooler)	39.
Reflex (information management analysis)	59.	Enabling Technologies ... NCP		Magnum ... NCP	
Turbo Pascal (HFS compatible)	59.	Easy3D (create solid 3D objects)	79.	Natural Sound Effects	27.
BPI Systems ... NCP		1st Byte ... CP		Natural Sound Cable & Editor Disk	89.
General Accounting (full-featured)	135.	First Shapes (preschool learning tool)	32.	McPic - Volume 1 or Volume 2	29.
BrainPower ... NCP		Speller Bee	32.	The Slide Show Magician 1.3 (CP)	35.
Think Fast (improves recall)	23.	KidTalk, or Mathtalk	32.	Microsoft	
StatView (statistics package)	35.	Smoothtalker (speech synthesis)	32.	Flight Simulator (the Mac takes flight, CP)	32.
Graphidex (DA graphics organizer)	75.	Forethought ... NCP		Learning Multiplan and Chart (2 disks, CP)	39.
Designscope (electronic circuit design)	129.	Factfinder (free-form info organizer)	49.	Basic Interpreter 3.0 (NCP)	65.
StatView 512+ (req. external drive, 512k)	179.	FileMaker (custom forms & reports)	79.	Chart 1.0 (42 chart styles, CP)	72.
Broderbund ... CP		FileMaker Plus (feature-packed database)	159.	Multiplan 1.1 (63 col. by 255 rows, CP)	111.
Print Shop (create cards and memos)	49.	FWB Software ... NCP		File 1.04 (flexible data manager, CP)	111.
Geometry (over 350 problems!)	65.	Hard Disk Backup (protect hard disk info)	39.	Basic Compiler 1.0 (NCP)	119.
CAMDE ... NCP		Hard Disk Partition (speeds up hard disk)	39.	Fortran 2.2 (compiler, NCP)	169.
Nutricalc (diet & nutrition analysis)	49.	Hard Disk Util (program backup)	57.	Works 1.0 (integrated tool, NCP)	189.
Nutricalc Plus (dietician's delight)	175.	Great Wave Software ... NCP		Excel 1.03 (power spreadsheet, NCP)	225.
CasadyWare ... NCP		KidsTime (educational, ages 3-8)	29.	Word 3.0 (word processor, NCP)	239.
Fluent Fonts (two-disk set)	29.	TimeMasters (learn about time, ages 4 & up)	29.	Miles Computing ... NCP	
Fluent Laser Fonts (Vols. 1-15) each	49.	ConcertWare+ (music composition)	29.	Mac the Ripper (req. Paint program)	27.
Central Point Software ... NCP		ConcertWare+ MIDI	75.	Orchestra of Fonts Vol. 4 (30 different fonts)	27.
Copy II Mac (includes MacTools)	20.	Greene, Johnson ... CP		Mindscape ... CP	
Challenger Software ... NCP		Spellswell (spelling checker)	52.	The Luscher Profile (personality profile)	24.
Mac3D (3D graphics, CAD features)	129.	Hayden Software ... CP		The Perfect Score: SAT (w/College)	47.
Chang Labs ... CP		I Know It's Here Somewhere (handy filer)	20.	ComicWorks (create your own comics)	49.
Rags to Riches Ledger	125.	Hayden:Speller (for Word & MacWrite)	27.	GraphicWorks (newsletters, ads, posters)	49.
Rags to Riches Receivables (req. 512k)	125.	MusicWorks (songs for your Mac)	32.	Monogram ... NCP	
Rags to Riches Payables (req. 512k)	125.	DaVinci Building Blocks (NCP)	46.	Forecast (tax planning)	41.
Rags to Riches Three Pak	299.	Home Design (NCP)	49.	Dollars & Sense (home, small business)	81.
Inventory Control	245.	Score Improvement for the SAT	59.	New Canaan MicroCode ... NCP	
Professional Billing	245.	Score Improvement: Achievement Test	59.	MDCFinder (requires 512k)	20.
Cortland ... CP		VideoWorks (animation)	59.	Mac Disk Catalog II (requires 512k)	32.
TopDesk (7 new desk accessories)	35.	Ideaform ... NCP		Odeta ... NCP	
Creighton Development ... NCP		MacLabeler (print disk labels)	29.	Helix (req. 512k, external drive)	105.
MacSpell+ (spell checker, req. 512k)	55.	DiskQuick (catalog floppies & hard drives)	29.	Double Helix (relational, custom menus)	279.
Cricket Software ... NCP		Imagine ... NCP		OWL International ... NCP	
Statworks (statistical package)	79.	Smart Alarms (DA reminder system)	39.	Guide (hypertext, free-form info)	89.
Cricket Graph (multiple windows)	129.	Impulse ... NCP		Palantir ... CP	
Cricket Draw (advanced draw capabilities)	179.	Comic Strip Factory (create cartoons)	65.	MathFlash, WordPlay or MacType	26.
Data Tailor ... NCP		Industrial Computations ... NCP		Inventory Control, GL, or AR each	49.
Trapeze (spreadsheet, reqs. 512k)	179.	Powermath (equation solving tool)	59.	inTalk (communication to emulation, NCP)	79.
DataViz ... NCP		Infosphere ... CP		PBI Software ... NCP	
MacLink Plus (transfer Mac/IBM data)	159.	LaserServe (network software)	65.	Icon Switcher (customized icons)	14.
Desktop Graphics ... NCP		MacServe (network software)	175.	Icon Fun & Games or Business Libraries	14.
DrawForms (requires MacDraw)	30.	Innovative Data Design ... NCP		HFS Locater (DA organizer for HFS)	27.
DrawArt (MacDraw artwork, req. 512k)	29.	Paste-Ease (requires Paint program)	35.	Hard Disk Backup (supports MFS, HFS)	29.
		MacDraft (new updated version, 512k)	159.	Peachtree ... CP	
		Kensington ... NCP		Back to Basics GL, AP, or AR each	89.
		Graphic Accents (req. Paint program)	29.		
		Type Fonts for Text (16 new fonts)	29.		
		Type Fonts for Headlines (req. 512k)	42.		

Drafting Made EZ

BY FRANK CONFORTI

Don't overlook the
Mac if computer-aided
drafting is part
of your business.

EZ-Draft offers
professional quality
CAD on the Mac



Mac products from

Personal Computer Peripherals ... NCP	
HFS Backup	\$39.
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!)	29.
Dinner At Eight (recipes to wines)	35.
Dinner At Eight-Silver Palate Bundle	59.
Satori ... NCP	
BulkMailer (mailing lists)	75.
BulkMailer Plus (up to 90,000 names)	225.
Legal Billing (attorneys to accountants)	389.
Project Billing (architects to engineers)	449.
Silicon Beach Software ... NCP	
Accessory Pak 1 (useful utilities)	21.
Silicon Press (printer utility, 512k)	42.
SuperPaint (advanced graphics program)	55.
Simon & Schuster ... NCP	
Mac Art Department (req. Paint program)	24.
Paper Airplane Construction Kit	24.
Typing Tutor III (learn to type!)	35.
J. K. Lasser's Income Tax	59.
SoftStyle ... NCP	
Colormate Art (Colormate images)	29.
Colormate (color printing utility)	49.
Laserstart (Hewlett-Packard Laserjet)	59.
Decision Map (make better decisions, CP)	79.
Software Discoveries ... NCP	
Record Holder (data manager)	42.
Software Ventures ... NCP	
Microphone (communications)	59.
Solutions, Inc. ... NCP	
SmartScrap & The Clipper	42.
Glue (creates "print to disk" capability)	42.
Springboard	
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)	29.
Early Games (ages 2-6, counting, CP)	29.
State of the Art ... CP	
Electric Checkbook (print checks)	29.
SuperMac Technology ... NCP	
SuperSpool	39.
Survivor Software ... NCP	
MacMoney (financial planner)	42.
Symmetry ... NCP	
Acta 1.2 (outline/writing desk accessory)	39.
PictureBase (clip art manager, 512k)	45.
T/Maker ... NCP	
ClickArt Personal Graphics	29.
ClickArt Effects	29.
ClickArt Publications	29.
ClickArt Letters Vol. 1 or Vol. 2	29.
ClickArt Holidays (Easter)	29.

MacConnection Special of the Month through May 31, 1987

T/MAKER Write Now

Steve Jobs claims "this is the word processor we built and designed Macintosh for..." Write Now is a fast, general-purpose word processor with simple page layout capability. Easy to learn and use, Write Now can accommodate any size Mac (512k recommended for spelling checker).

- Not copy-protected
- Extensive Undo feature
- On-screen multi-column editing
- Built-in spelling checker with 50,000 word dictionary

Write Now \$99

ClickArt Business Image	29.
Bombay, Plymouth, or Seville Laser font	59.
Write Now (word processor)	special
Target Software ... NCP	
Merriam Webster's Thesaurus	29.
MacLightning (interactive spell checker)	53.
Medical or Legal Dictionary	53.
Voila! (desk accessory outliner)	53.
Telos Software ... NCP	
Business Filevision (512k, external drive)	199.
Think Educational ... CP	
MacEdge II or Mind Over Mac	28.
Think Technologies ... NCP	
Laserspeed (Laserwriter utility)	69.
Lightspeed Pascal (includes debugger)	89.
Lightspeed C (top-rated C Compiler)	129.
TML Systems ... NCP	
TML Source Code Library	59.
TML Database Toolkit	65.
TML Pascal (compiler, req. 512k)	69.
TrueBasic ... NCP	
True BASIC (fast, flexible & portable)	89.
Algebra II, Pre-calculus, Calculus, Trigonometry, 3D Graphics, Discrete Math, Probability & Chippendale utilities	each 36.
TrueSTAT (statistics)	59.
Runtime (create stand-alone applications)	59.
Unicorn ... CP	
Animal Kingdom (ages 6-12)	29.
Decimal Dungeon (math, ages 9 and up)	29.
Fraction Action (arcade style math game)	29.
Mac Robots (pre-school program)	29.

Math Wizard (math games, ages 5-10)	\$29.
Read-A-Rama (reading, ages 5-8)	35.
William & Macias ... NCP	
myDiskLabeler (design & print labels)	25.
myDiskLabeler w/Color (req. Imagemaster II)	34.
myDiskLabeler w/Laserwriter option	39.

GAMES

Accolade ... CP	
Hardball (baseball simulation)	27.
Activision ... CP	
Championship Star League Baseball	22.
Mind Shadow (Who am I?)	27.
Hacker (you're on your own!)	27.
Hacker II (breach Russian computer)	30.
Borrowed Time (murder mystery)	27.
Shanghai (Mah Jongg strategy)	27.
Alter Ego (male or female version)	36.
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)	21.
Avalon Hill ... CP	
MacPro Football (req. 512k)	32.
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)	35.
Fokker TriPlane Flight Simulator	35.
Electronic Arts ... CP	
Archon (arcade strategy, req. 512k)	27.
Skyfox (3D graphics)	27.
Seven Cities of Gold	27.
One on One/Dr J vs Larry Bird (req. 512k)	27.
Patton-vs-Rommel (req. 512k)	27.
Pinball Construction Set	27.
Epyx ... CP	
Rogue (strategy dungeon classic!)	24.
Temple of Apshai (4 levels)	24.
Winter Games (Olympic events)	24.
Hayden Software ... CP	
Perplexx (scrabble-type game)	24.
Sargon III (9 levels of chess)	29.
Infinity Software ... CP	
Grand Slam (tennis, req. 512k)	28.
Infocom ... CP	
Leather Goddesses of Phobos (standard)	24.

1-800/Mac&Lisa 700U

MacConnection™

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

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All items subject to availability. Prices subject to change without notice.

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

MacConnection.

Hitchhiker's Guide, Trinity, Moonmist, Ballyhoo, (standard)	each \$24.
Invisiclues (hint booklets)	each 6.
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.
Brataccus (great graphics, req. 512k)	30.
Uninvited (mystery adventure)	30.
Deja Vu (murder mystery)	33.
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.
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)	42.
Simon & Schuster ... CP	
Star Trek—The Kobayashi Adventure	24.
Sir-Tech ... CP	
Mac Wizardry (high-rated fantasy)	36.
SPHERE, INC. ... NCP	
(Formerly Spectrum Holobyte)	
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 (Mac Plus parallel interface)	75.
AST Research ... 2 years	
AST 2000 (20 MB, 20 MB tape)	1795.
AST 4000 (74 MB, 60 MB tape)	4695.
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 ... 1 year	
MacSnap Memory Upgrades	
Mac Snap 524 (512k to 1 Meg)	149.
Mac Snap Plus 2 (Mac Plus to 2 Meg)	269.
Mac Snap 548 (512k to 2 Meg)	389.
Ehman Engineering ... 1 year	
800k External Disk Drive	219.
Ergotron ... 1 year	
MacTilt (includes external drive bracket)	75.
MacBuffer 512k	call
MacBuffer 1024k	call
Hayes ... 2 years	
Smartcom II (communications software)	89.

Smartmodem 1200 or 2400	call
InterBridge (connect Appletalk networks)	599.
IOMEGA ... 90 days	
Bernoulli Box (dual 10 MB w/SCSI)	1649.
Bernoulli Box (dual 20 MB w/SCSI)	1895.
Bernoulli Box (dual 10 MB, Appletalk)	2195.
Kensington ... 1 year	
Appletalk Cable Clips or Connectors	each 1.
Mouseway (mouse tracking pad)	8.
Mouse Pocket (for your idle mouse)	8.
Mac Plus 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	34.
Surge Suppressor	35.
A-B Box (for the Mac Plus)	65.
Control Center	65.
System Saver Mac (complete with fan)	65.
Turbo Mouse	89.
Koala Technologies ... 90 days	
KAT Graphics Tablet	169.
MacVision (digitizer)	175.
Kraft ... 1 year	
3 Button QuickStick	49.
Mirror Technologies ... 1 year	
Magnum 800k External Drive	229.
MagNet 20x (w/MacServe)	849.
Magnum 20 Tape Backup	929.
MagNet 30x (w/MacServe)	995.
MagNet 40/40 (40MB, 40MB tape)	2695.
MagNet 85x (w/40MB tape)	4595.
Personal Computer Peripherals ... 1 year	
MacBottom Hard Drive 20MB (serial)	879.
MacBottom Hard Drive 20MB (SCSI)	879.
MacBottom Hard Drive 30MB (SCSI)	999.
MacBottom Hard Drive 40MB (SCSI)	1295.
Summagraphics ... 90 days	
MacTablet 6" x 9" (stylus driven)	299.
MacTablet 12" x 12" (sketching)	389.
Systems Control ... 2 years	
MacGard (surge protection)	55.
Thunderware ... 90 days	
Thunderscan (high-resolution digitizer)	179.
Western Automation ... 1 year	
DASCH RAMdisk 2000k	459.

DISKS

Single-sided Diskettes

Sony 3 1/2" Disks (box of 10)	15.
MAXELL 3 1/2" Disks (box of 10)	15.
Fuji 3 1/2" Disks (box of 10)	15.
Verbatim 3 1/2" Disks (box of 10)	16.
3M 3 1/2" Disks (box of 10)	18.

Double-sided Diskettes

Sony 3 1/2" Disks (box of 10)	23.
MAXELL 3 1/2" Disks (box of 10)	23.
Fuji 3 1/2" Disks (box of 10)	23.
Verbatim 3 1/2" Disks (box of 10)	24.
3M 3 1/2" Disks (box of 10)	25.

INFORMATION SERVICES

Compuserve	
Compuserve Information Service	24.

Dow Jones

Dow Jones News/Retrieval Membership Kit	\$24.
Source Telecomputing	
The Source (subscription & manual)	30.

ACCESSORIES

Clean Image Ribbon Co.

Clean Image Ribbon Kit	12.
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Computer Coverup

External Disk Drive Cover	4.
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)	59.
Macinware Plus (Mac Plus carry case)	69.

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)	15.
Teakwood Roll-top Case (holds 90 disks)	22.

Magnum

Mouse Mover (let your mouse ride!)	14.
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Moustrak

Moustrak Pad (standard 7" x 9")	8.
Moustrak Pad (large 9" x 11")	9.

Ribbons Unlimited

Imagewriter Black or Color Ribbons	5.
Imagewriter Ribbons Six Pack	25.

Smith & Bellows

Mahogany Disk Case (holds 90 disks)	28.
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OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order.
- No sales tax.
- All U.S. shipments insured; no additional charge.
- APO/FPO orders usually shipped 1st Class Mail.
- Allow 1 week for personal and company checks to clear.
- UPS Next-Day-Air available.
- COD max. \$1000. Cash or certified check.
- 120 day limited warranty on all products.*
- To order, call us anytime Monday thru Friday 9:00 to 9:00, or Saturday 9:00 to 5:30. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30.

SHIPPING

Note: Accounts on net terms pay actual shipping.
Continental US: For printers and drives add 2% for UPS ground shipping (call for UPS Blue or UPS Next-Day-Air). For all other items, add \$2 per order to cover UPS shipping. We will automatically use UPS 2nd-Day-Air at no extra charge if you are more than 2 days from us by UPS ground. **Hawaii:** For printers and drives, actual UPS Blue charge will be added. For all other items, add \$2 per order. **Alaska and Outside Continental US:** Call 603/446-7711 for information.

Artificial Intelligence.

Guess who's coming to dinner?

You're having a party, right? And you need someone to round out a guest list. How about a person with real presence, let's say twentieth century, male, perhaps a bit controversial? Diamond Jim Brady? P.T. Barnum? I know—Albert Einstein. He'd be perfect! Relatively speaking. What a conversation piece!

Just call our latest contest winner, Robert Dorfman. He's got AI right on the shelf. He's maybe a little bald, and could use some arms and legs, but that's nothing Mr. Dorfman can't take care of with a little vinyl, plastic, fiberglass and some genuine human hair. But we should warn you—the famous professor won't come cheap. After all, in Mr. Dorfman's line of work, everyone has a price on their head.

Double or nothing.

We've finally found a winner who's head and shoulders above the other entries. Mr. Dorfman's father started creating lifelike figures over thirty years ago, and now Dorfman Museum Figures can be found in exhibitions from Cape Cod to Singapore. There's even one of the boss himself, which he takes a few hairs off



each year to maintain the resemblance to his own distinguished, but receding pate.

Fortunately, Mr. Dorfman is no dummy. He uses *OverVUE* to categorize his 700 different heads, as well as to keep up with his 2000 contacts in museums all over the world. *Excel* comes in handy for budgeting, sales, and for creating detailed cost analyses on each figure.

Contest Winner #6

Name: Robert Dorfman

System: Two Mac 512's;
two MacPlus'

Applications: Maintains
a database of 700 human
heads.

And, what about you? How does your Mac help you get ahead? Your story could be worth \$500 in free add-ons and software. Write away!

MacConnection™

"Our Connection."

14 MILL STREET, MARLOW, NH 03456 1-800/Mac&Lisa or 603/446-7711

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Please circle 82 on reader service card.

RECENTLY *COMPUTERGRAPHICS World*, a trade journal for the computer graphics industry, editorially asked "Where has Apple gone?" They were highlighting the fact that Apple has so far been a no-show in micro-based computer-aided design (or drafting) (CAD) software. They pointed out that Apple had everything going for it in the Macintosh with its high-resolution screen, its uniform user interface, its mouse, and so on. The editorial chided Apple for not being in the CAD marketplace where it belonged.

Until recently micro-based CAD software available has run exclusively on the IBM PCs and PC clones. And

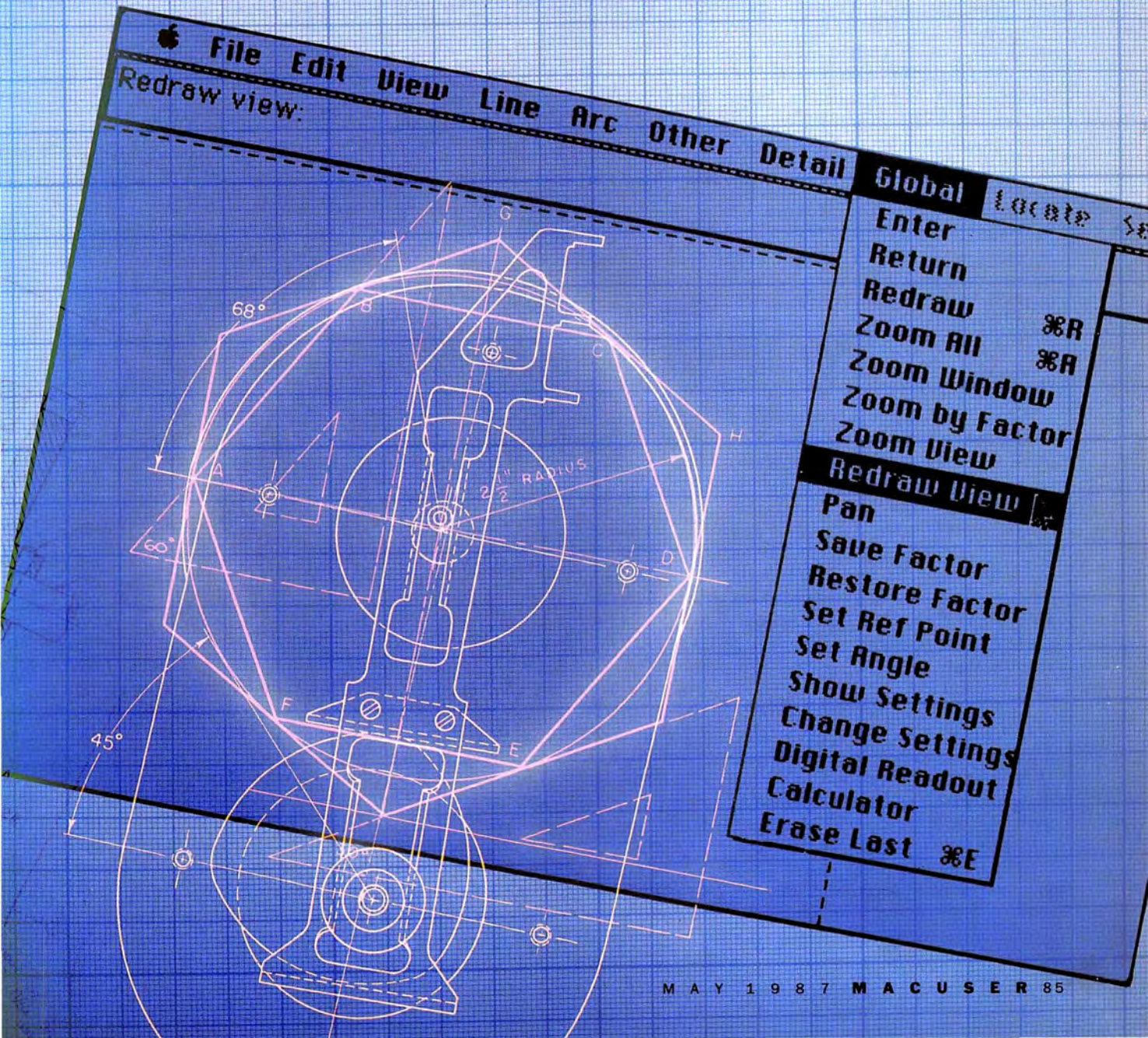
some of these software packages have become very sophisticated. Thanks to programs like *Autocad*, the industry leader, many "big" CAD companies have felt the impact of micros and mice on their market.

Now there's *EZ-Draft*, a \$2500, full-featured computer-aided drafting package by Bridgeport Machines. Bridgeport is a company well known for its large, numerical-controlled (read "computerized") milling machines that are used to create all kinds of metal shapes from car fenders to jet engine parts. This program should silence the critics about Apple's lack of "Real CAD" (Real draftsmen don't do FatBits?)

WHAT ABOUT MACDRAW?

Many Macintosh users who work with *MacDraw* think of it as a computer-aided design program. In reality it's more like a computer-assisted pencil when compared to dedicated CAD system capabilities. The main difference between *MacDraw* and *EZ-Draft* is the latter's ability to manipulate individual drawing elements with a greater degree of accuracy and flexibility. There is an analogy to this in the contrast between computer-aided drafting and "person-aided drafting" (i.e., pushing a pencil).

In computer-aided drafting there are usually 200 or more command



DRAFTING MADE EZ

combinations to aid the designer. Everything from "insert line" to "create line tangent to a circle and perpendicular to a line." In PAD there are only two commands: place line and erase line.

When using PAD all calculations must be performed manually by the designer to ensure the accuracy of the resulting drawing. Once the drafter has laid down some graphite (drawn a line) there is little that can be done with it. *MacDraw* falls somewhere between CAD and PAD.

EZ-Draft, on the other hand, is a full-blown computer-aided drafting package. It allows you to create complex geometrical drawings without resorting to calculating and drawing the position of every line, arc or circle in a drawing. *EZ-Draft* also includes a very complete set of dimensioning commands to help create a finished drawing. In fact one of the main strengths of this package lies in its dimensioning abilities.

CAD consists of two distinct drawing phases: geometry construction and detailing. Geometry construction is the job of creating the object you are describing in picture form, using a series of primitive elements such as lines, arcs and circles. Detailing is adding notes, callouts, sectioning, creating auxiliary views and so on.

A word of caution is needed here. Unlike most Mac applications, *EZ-Draft* is not immediately user friendly. For example, take the procedure necessary to install it on a hard disk (and programs this complex really require hard disks, even if they'll run from floppies). To install *EZ-Draft* on an Apple HD-20 requires no fewer than ten steps. If you miss one the software will not work! Once you manage to install it correctly things get a little easier.

EZ-Draft's command structure is not as intuitive as many other Mac drawing programs. In defense of *EZ-Draft* note that in order to perform the many tasks required to create real working drawings, the program must contain hundreds of command combinations. *EZ-Draft* started out as a software package running on other computer systems including Apollo CAE workstations and the

File

New...
Open...
Close
Save
Save as...
Revert to Saved
Quit \mathbb{Q}
Current Symbols
Purge Symbol
Save Symbol
Open Symbol
Plot
DoubleClick Off
From Clipboard
To Clipboard
Rectangular Grid
Polar Grid
Show Grid On-Off
Snap Grid On-Off
Set Trap Value

Edit

Erase
Move
Rotate
Mirror
Scale
Remove Segment
Remove Except Segment
Divide At
Divide Equal
Trim End
Change Features
Change Dimensions
Edit Line
Edit Arc
Edit Curve
Edit Text
Edit Dimension
Blank
Unblank

View

Set Work View
Define New View
Change View Border
Change View Origin
Change View Scale
Change View Angle
Move View
Align Origin
Align Border
Match Border
Delete View
Merge View
Transfer View
List View
Name On-Off
Border On-Off
Layers On-Off
Colors On-Off
View On-Off
Detail View

Every cover for CAD work is provided with the *EZ-Draft* menus. The program has so much command flexibility that each pull-down menu has its own pop-up menu.

Line

Lines To
Lines From-To
Rectangular Boxes
Drafting Lines
Double Lines
Chamfer
Infinite
Implied
From-To
Horizontal
Vertical
Angled Lines
Parallel-Distance
Parallel-Point
Perp Thru Point
Tangent-Perp
Tangent Thru Point
Tangent-Tangent
Tangent-Angle

Arc

Fillets
Circles
Concentric Circles
Circle By 2 Points
Circle Thru 3 Points
Circle In 3 Lines
Circle Edges
Circle Center-Edge
Circle Tangent-Edge
Circle Tangent-Center
Enter by Diameter
Enter Clockwise
Arc Thru 3 Points
Arc Ctr-SP-EP
Arc SA-IA-R-D
Arc SA-EA-R-D
Arc SP-EP-R-D
Arc SP-IA-R-D
Arc SP-EA-R-D
Arc SP-EP-R-D-Side

Other

Points
Curve
Ellipse
Slots
Hex by Size
Hex by Flat
Polygon by Flat
Polygon in Arc
Create Symbol
Create Instance
Change Instances
Smash Symbol
Projections
Measure Distance
Angle by Points
Angle by Lines
List Line or Arc
Calc Perimeter
Calculate Area

Detail

Notes
Notes from File
Notes to File
Cross-hatch
Standard
Chained
Datum
Horizontal Linear
Vertical Linear
Parallel Linear
Radial
Diametral
Angular
Label
Balloon
Feature Control Symbol
Dynamic Dim On-Off
Set Similar to Dim

Global

Enter
Return
Redraw \mathbb{R}
Zoom All \mathbb{R}
Zoom Window
Zoom by Factor
Zoom View
Redraw View
Pan
Save Factor
Restore Factor
Set Ref Point
Set Angle
Show Settings
Change Settings
Digital Readout
Calculator
Erase Last \mathbb{E}

Locate

Digitize
Endpoint
Center
Point On
Intersect-1
Intersect-2
Interpolate
Percent Of
Existing Point
Angle On
Angle Perp
Angle Hor-Lock
Angle Ver-Lock
Angle Int-With

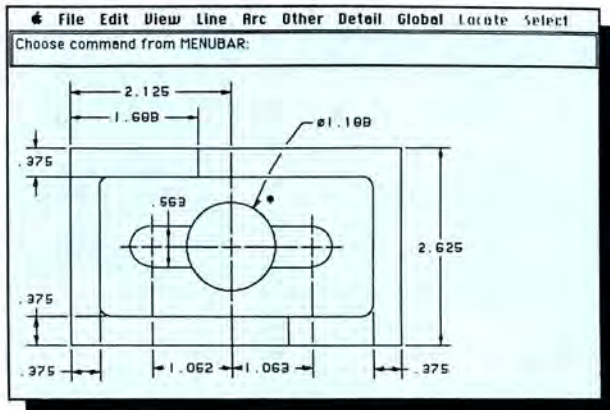
Select

Any
By Type
By Layers
By Color
By Group
All
All Visible
Chain
All In Win
All Out Win
Part In Win
Part Out Win
Clear Last
Clear All

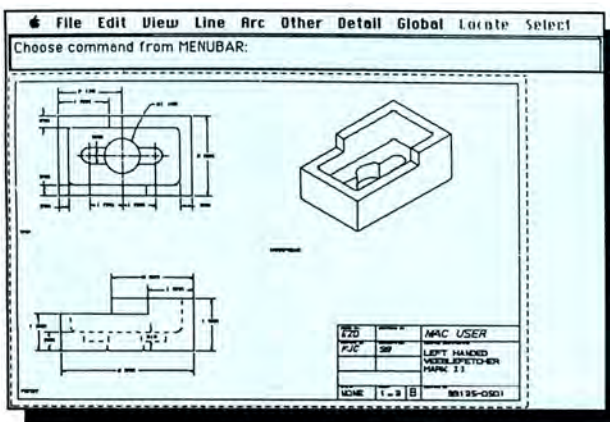
NEC APC computer system. It was ported over to the Mac. As such it brings along some of these other-system quirks.

When *EZ-Draft* is first launched you are presented with a pop-up menu that lets you select a standard drafting paper sheet size. In *EZ-Draft* you are always working on a drawing, so selecting drafting paper is always the first item of business. You don't have to open a blank sheet though, you can also select a previously saved drawing.

EZ-Draft also uses the Macintosh's pull-down menus. There's a problem in that there are not enough menus to go around. To solve this problem the folks at Bridgeport utilize what they call a pop-up menu system in conjunction with the standard pull-down menus. All commands have a series of options associated with them. For example, when you activate the Circle command from the Arc menu, a set of suboptions appears. These options work as command extensions, allow-



The zooming features of *EZ-Draft* allow control so that the designer may work close to the geometry of the drawing.



An example of a mechanical drawing showing the multiple orthogonal views containing both construction elements and detail elements (i.e. dimensions). Note the drawing border outline.



An architectural drawing of high detail shown under version 2.0, soon to be released.

ing the user to enter precisely the information needed by the command. Here's another example: If you select the Two Point option under the Circles command, *EZ-Draft* continues the command with the statement "of dist(ance) between." This option allows you to choose the radius of the circle by specifying two digitizes (digitized values) or some other XY coordinates.

This points up another difference between *EZ-Draft* and *MacDraw*.

The options available to enter the all-important coordinate information are not restricted to just mouse clicks on the screen; they also include explicit entry from the keyboard, and calculations from other elements already placed.

Keyboard input takes two forms: absolute coordinate entry and incremental coordinate entry. Absolute entry refers to a point on the drawing referenced back to the X and Y axes (i.e., X0 Y0). *EZ-Draft* refers to this as "explicit point entry."

Incremental entry refers to a difference in distance from some point on the drawing previously identified. This distance is commonly called the "delta" distance. *EZ-Draft* refers to this as "implicit point entry." *EZ-Draft* can accept polar coordinates (i.e., radius and angle) as well as Cartesian coordinates (i.e., X and Y).

TAKING IN THE VIEWS

Once in the drawing the user must set up the "views" needed to create the geometry. View is a concept that will be familiar to anyone who has taken any courses in drafting. Views are analogous to the orthogonal projection views used to describe a three-dimensional object with a two-dimensional drawing. In fact, *EZ-Draft* uses standard orthogonal names such as Front, Right and Bottom for its view names.

When you define a view you must define its position and size on the drawing sheet — where X0Y0 is located and what the view name is going to be. A scaling factor can be applied to each view independent of all other views. This is another example of true CAD.

Almost all drawings are created in some scale other than one to one. Architects, for example typically work at scales of 1 inch = 8 feet or 1 inch = 4 feet. If the view size turns out to be too small or the scale selected was either too big or too small for the sheet, *EZ-Draft* makes it easy to change all of the view parameters. A whole menu is devoted to view manipulation and control. Views can have different scale values on the same drawing sheet.

ALL KINDS OF GEOMETRY

Now on to the job of "layin' down some lines." Once a view has been created and selected as the work view you begin to create the graphics or geometry by using commands found on the Line, Arc and Other menus. There are lots of choices available. In the case of the Line menu there are 30 different ways to insert a line. Lines can be inserted as in *MacDraw*, using the mouse or by explicit input from the keyboard. One of the more interesting line insertion modes is the Double Lines command. This

DRAFTING MADE EZ

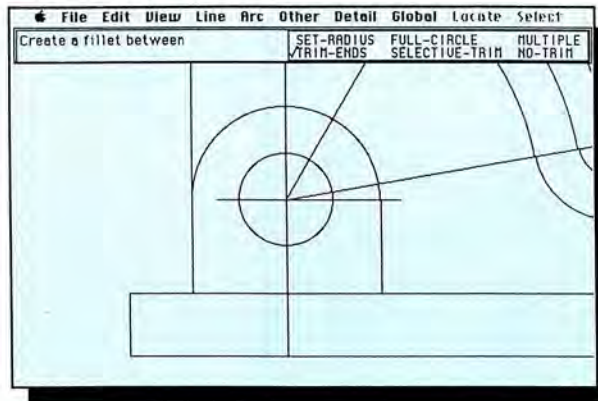
command allows creation of a pair of lines a set distance apart, handy for creating walls on architectural plans.

Lines can be drawn horizontally, vertically or at set angles, the angles being entered by either keyboard or calculated. Lines can be inserted with respect to other elements such as circles using commands such as Tangent-Tangent that draws a line tangent to two arcs or circles.

The Arc menu has a rich set of commands to create all manner of arcs and circles. Some commands, such as Circles, are straightforward. You provide a radius or diameter and a center point, and *EZ-Draft* draws a circle. A pop-up menu offers you three options as to how to enter the radius or diameter.

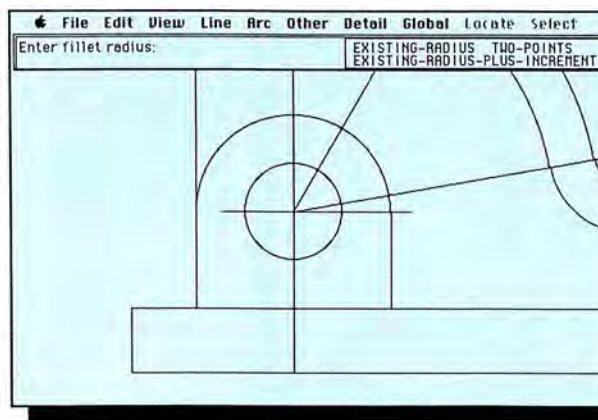
Arcs are among the most difficult of all drawings elements to place, because they have not only radii and origins, but also endpoints, like a line. The way this information is entered can be very confusing. Some large CAD systems give the user more than 30 different ways to enter an arc! *EZ-Draft* doesn't have quite that many, but there is still a dizzying array of arc commands. At the bottom of the Arc menu there is a series of commands followed by letter pairs. These letter pairs represent the parameters of the arc generated by that particular command. It can be a bit intimidating trying to keep up with all of the command combinations, especially without so much as rudimentary on-screen help. In this area *EZ-Draft* could really use some improvement. Virtually every other major CAD system has some sort of on-line help facility.

One very useful and well thought out Arc command is the Fillets. This command places a tangent arc at the intersection of two elements. The power of this command is demonstrated by the kinds of modifications you can do while placing your fillets. When you select the command, you're presented with a pop-up menu that includes such items as set radius (a very important aspect of a fillet), as well as how the command is to treat the two elements to which the fillet is to be applied. You simply identify the two target elements, the quadrant the fillet is to occupy and



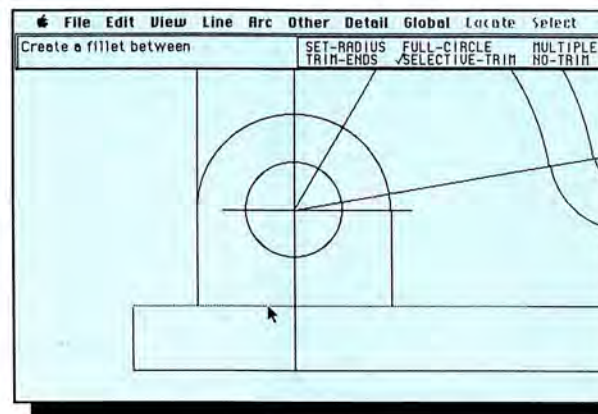
1

A step through of the Fillet command. After choosing FILLETS from the Arc menu, you are presented with further command selections on a pop-up menu. These allow the designer to direct how the Fillet will be inserted.



2

The Fillet's arc-radius must be set using the SET RADIUS option from the pop-up menu. The radius can be set by the options given in the pop-up menu or directly from the keyboard.



3

The lines or arcs that "mate" to the Fillet are identified by mouse selections. Note the highlighted line that was just selected.

the elements the fillet command is to trim.

The third element insertion menu is the Other menu. This menu contains commands for those element types other than lines or arcs, as well as commands to generate symbols.

Points (from the Other menu) are just that, points in space (or as they are sometimes known, zero length lines). These are handy to have around for complex constructions. Curves are similar to the curves available in *MacDraw*, although they

are actually Bezier splines here. These are mathematical curves similar to the French curves used in manual drafting. Bezier splines are very advanced elements and their existence in *EZ-Draft* says much about the maturity of this product. Other commands in this menu include Ellipse, Hex, Polygon and Symbols.

AH YES, SYMBOLS

Symbols are a way to create uniform drawings. A symbol is a group



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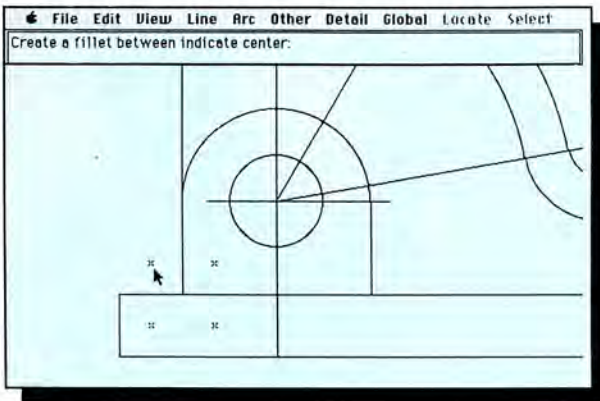
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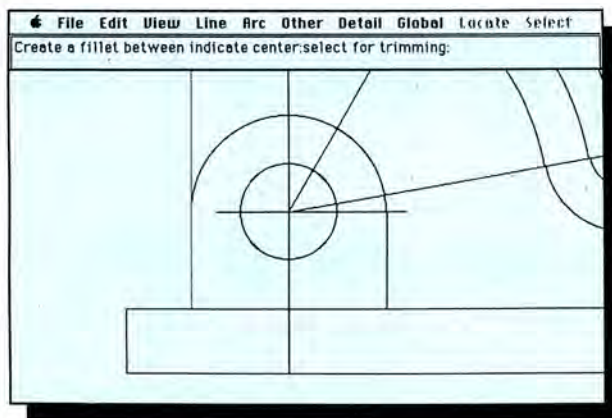
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DRAFTING MADE EZ



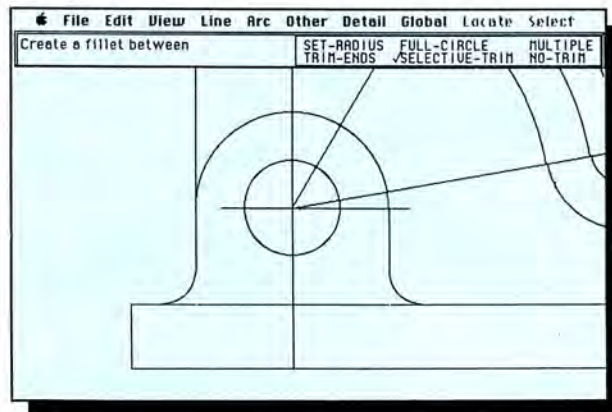
4

The quadrant in which the Fillet is to be built is selected by clicking at one of the four indicators. In this case we are choosing the upper left point.



5

The designer is now prompted to select the line that needs to be trimmed back to the end of the Fillet.



6

The final result of the Fillet command used twice. Note the trimming of the two vertical lines to the arcs' tangent point.

of elements representing an object such as a door or a valve that is used repeatedly. In other systems symbols are called as cells, library parts or figures.

Symbols are used similarly to the Clipboard/Scrapbook technique of *MacDraw* and *MacPaint*, the main difference being in how the program keeps track of the symbol contents and locations. In *MacDraw*, when you paste something into the drawing, all of the elements in the Clipboard are copied into the drawing.

With *EZ-Draft* symbols, only key information is stored each time the symbol is inserted. Key information includes such things as the scale at which the symbol was inserted, the angle and the XY location. The actual elements of the symbol are stored in the library area of the drawing. This allows the program to update the screen quicker, and gives you more flexibility.

Let's say a hex bolt pattern was stored in the drawing's symbol library and the hole drawn was too

small. The Change Instances command allows you to change the elements stored in the library for a particular symbol. All occurrences are updated.

Another important command on the Other menu is Projections. This command allows you to project key elements from one view into another view, working with the orthogonal names given to each view. The major problem with it is its complexity. In order to properly project an element into another view you must set up such parameters as depth of projection, whether edges are to be created, and so on.

DETAILS, MERE DETAILS

Once the geometry has been created, the next step is detailing the drawing. To speed up a usually tedious part of drafting, *EZ-Draft* has a whole menu full of useful commands. Straight text is handled with two commands: Notes and Notes from File. Notes allows you to insert text freeform, anywhere on the drawing, much like the text mode of *MacDraw*. Note, however, that the text is entered in the command area of the screen and is often cut off from view before you can see all of it. This can cause problems when trying to judge where to break text.

Notes from File accepts text from a text file on disk. The only drawback to this command is the text file must have the filename extension ".TXT" to work properly, an indication of *EZ-Draft's* "big system" heritage. Text inserted into the drawing can be modified by the Edit Text command of the Edit menu. Text height, width, slant (i.e., italics), justification and text content can be changed. But you can't change fonts! You're stuck with the default font. The ability to specify and change fonts is very important, and should be near the top of Bridgeport's wish list for the next version.

The most important part of the whole drawing process is dimensioning. It must be done with the greatest care. Nothing scares a job leader more than finding a worker applying a ruler or scale to a blueprint.

Dimensioning is an area where
(continued on page 192)

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CLUNKER TO
THE OFFICE.**



SO WHY DRIVE O

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Daisy chain up to 7 units. They come with backup utilities and optional MacServe networking software

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Preformatted, so just plug them in and run.



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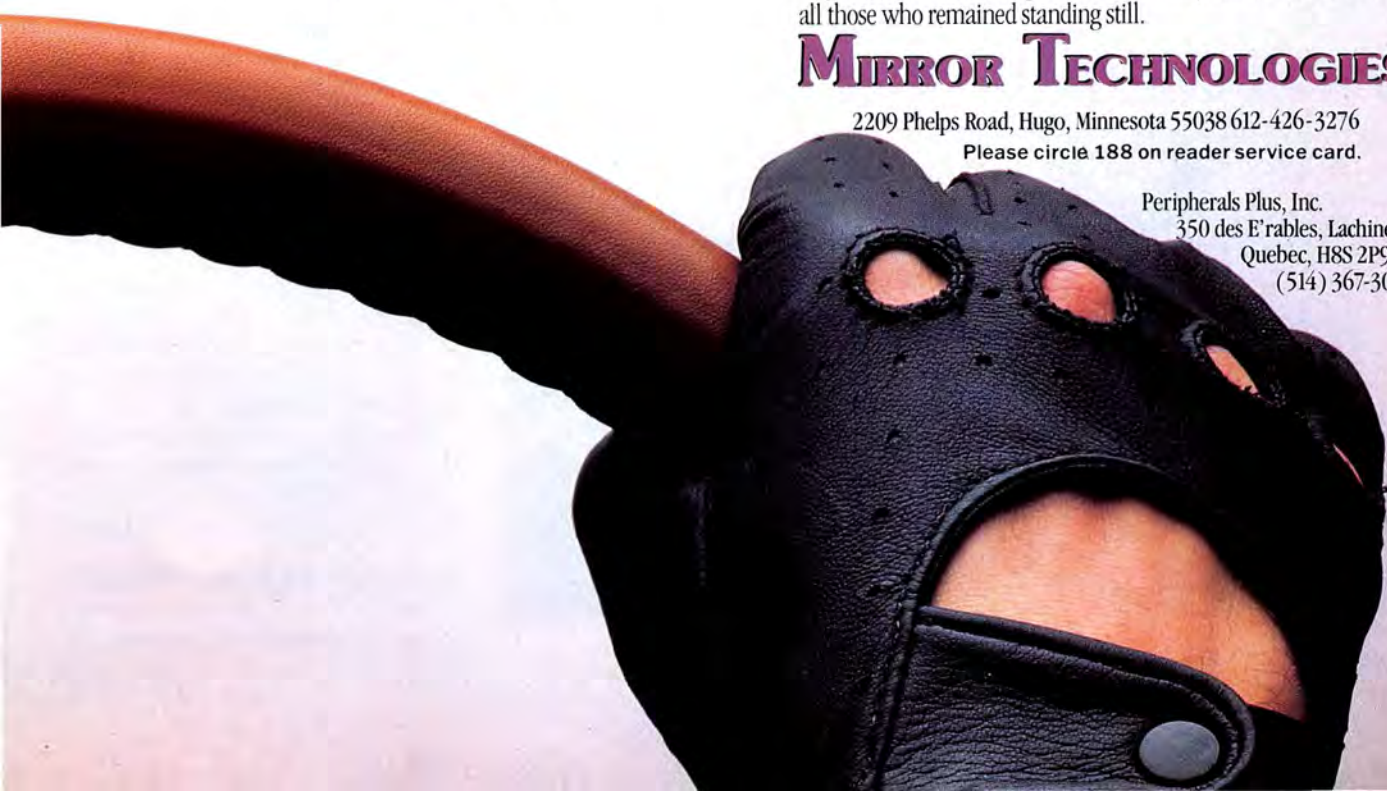
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Banking On Your Mac

Nothing will ever take
all the sting out of
taxes, but MacMoney
can certainly help
reduce the pain.



BY BONNIE L. WALKER

EVERY YEAR AS TAX TIME approaches, a lot of people are hunched over stacks of paper and receipts spread over their dining room tables. This year was probably no exception and next year, thanks to the new tax laws, promises to be even more fun. I, on the other hand, spend tax time merely copying totals from a neat pile of printouts generated by *MacMoney*. Maybe it's time for you to think about taking an easier way out, too.

MacMoney is a fine-tuned version of an already highly rated financial management package, *Home Accountant for the Macintosh* (see: "Bread and Butter Budgeting," *MacUser*, April 86). The authors of both programs, Mike Farmer, Colin Jameson, George W. Lee and John Tinsman had previously licensed the code to Arrays, Inc./Continental. Now they've rescinded that license, refined their program, revised the documentation and released the improved product under a new name.

Superficially, *MacMoney* looks very much like *HAMac*; however, more than 30 changes have been made. The changes that are particularly significant to current *HAMac* owners and potential buyers are:

- *MacMoney* requires a 512K Mac; *HAMac* could be used with a 128K Mac and an external drive.

- *MacMoney* works with the Mac Plus;

- LaserWriter support is included.

- If you have a Mac Plus and a two-sided disk, you can increase the number of transactions in one year from 3000 to 6000.

- *MacMoney* is not copy protected. The original *Home Accountant* was, although the protection was removed from the most recent version.

SMALL FIX FOR A BIG PROBLEM

Perhaps the most important change is a small bug fix that you might never notice. If, for some

reason, you exit *MacMoney* without selecting QUIT there is now a 90 to 95 percent chance that your data will remain intact. The reason is *MacMoney's* new data base integrity which runs a check when you start up the program to make sure your End of File markers are in the right place.

NOT JUST AN ELECTRIC CHECKBOOK

MacMoney is much more than an electronic checkbook or ledger; it is a financial management system with powerful planning tools. Its three categories are: data entry, data retrieval (reports), and "what if's." And you get the program's power without complexity. *MacMoney* is faithful to the Macintosh interface so it's easy to get started. All of the data entry prompts are logical and in plain English.

MacMoney is a standard double entry accounting system, that all related files are properly updated when you enter data. For example, if you write a check to a credit card company, *MacMoney* deducts the amount from the checking account's balance.

GETTING STARTED

New users can pick up their checkbook stubs, boot up *MacMoney*, put in a blank disk for data, select the default category "Personal Checkbook" and immediately start to enter information. Checks are automatically dated and numbered, (deposit slips are also numbered automatically) and your current balance is always displayed. You enter the payee, amount and category information — category and amount are required entries. I don't recommend this, but if you want to, you can create categories "as you go."

One of the more convenient new features is that the date of the last transaction appears on the check when you open an account instead of defaulting to the current date. Since I always start where I stopped, it's much less bother.

Also new in this version are different backgrounds for the check and the deposit slips to help people remember which they are entering. In the old program they looked a lot alike. This helps when you've just

recorded a deposit and then forgotten to switch back to the withdrawals to resume entering. The only solution in the earlier version of the program is to use the Transaction Register to change all the deposit amounts to zero and then re-enter the information correctly. The different backgrounds should at least give you fair warning to switch to the appropriate part of the program before you get bogged down in a time-consuming workaround.

CATEGORIES

Although you can create categories on the fly, it makes more sense to sit down before you start entering data and make a list. *MacMoney's* manual includes suggestions to help you get started.

MacMoney allows you to create up to 200 categories of seven types. Each one must be designated as expense, bank account, credit card, asset, liability, cash or income. Once created, their names can be changed, and balances can be changed by selecting ADJUSTMENTS from the Transaction menu. The only thing you cannot do is delete a category once a transaction has occurred involving it. You will have to decide which type you want each category to be, and it's not always cut and dried. For example, you might assign the type "credit card" to your gasoline cards. The problem is that *MacMoney* doesn't include credit cards in your Income and Expense reports. To get around this, create a credit card category for each card and other categories called "Gasoline," "Maintenance," etc. to assign to each credit card transaction.

You can also prepare a budget for a category. Just select the category from the list and type COMMAND/B. If you decide to prepare a budget, your reports and graphs will show you whether you are over or under budgeted amounts.

Most people write checks to cover more than one type of expense. *MacMoney* provides a means for dealing with these situations through split transactions. At the bottom of each check or deposit transaction, there is a Split button which expands the transaction form to accommodate up

to ten separate amounts and categories. Use Split transactions when you pay your mortgage or other loans so that you can keep track of how much you are paying on the principal and how much goes to interest or insurance.

Another common Split Transaction is when you write checks at the grocery store, partly for food and partly for cash. Recording this as a Split Transaction gives you a more reasonable idea of how much you're really spending on groceries.

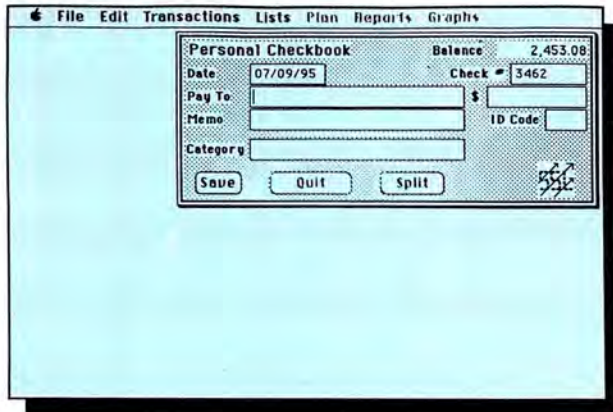
A major problem with Split Transactions is the lack of a space for a memo or ID code. Also, a transaction must be entered as split the first time it's entered, even if you don't have the correct information at that time. You won't be able to come back later and split up the information, although you can, of course, come back and correct it.

One of the nicest features of *MacMoney* is that it allows you to save data by the month without closing a previous month's transactions, as the old Apple II version of *Home Accountant* required you to do. When statements come in from past months, simply enter the appropriate date and the information. The register lists all items, checks, deposits, charges in the order that you entered them. The Custom Transaction Report, however, will allow you to sort items by date.

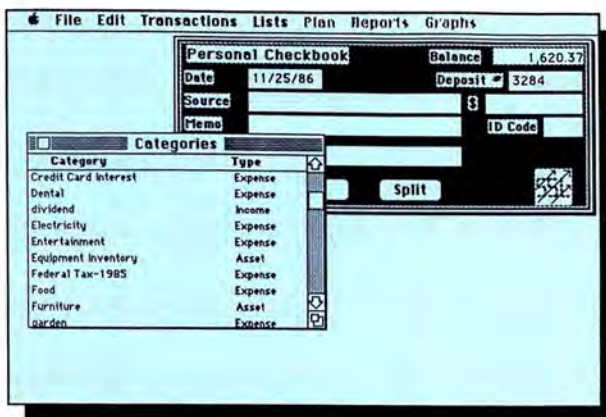
One important feature under the File menu is Start New Year. *MacMoney* transfers the previous year's data to the new System, as well as all your categories, names, ID codes and budget information. At the start of each year, it's important to review categories and make any changes before starting new transactions. Once a transaction is made, the category cannot be deleted. *MacMoney* saves the totals from the previous year in each category for each month and the year as a whole to use in comparisons in the reports and graphs.

Each time you launch *MacMoney* you'll be told when you last used the program, how many automatic transactions from the list you previously created are due and how full your transaction file is.

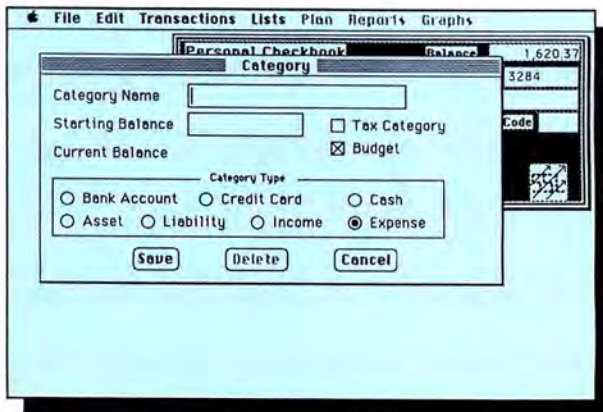
BANKING ON YOUR MAC



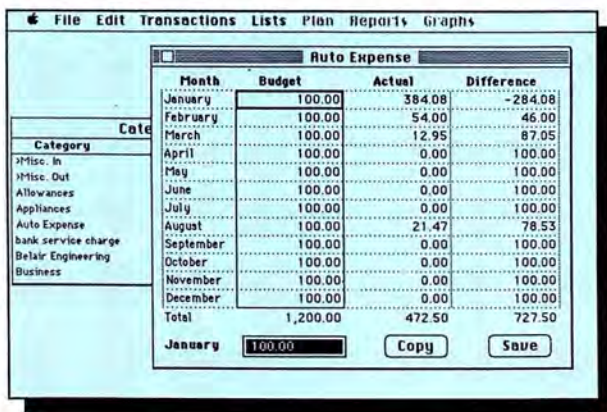
Select a bank account such as Personal Checkbook, one of the system's default categories to begin using *MacMoney*. Each transaction must have an amount and a category. Click on the Split button to assign amounts to as many as ten different categories.



Because the deposit slip is similar to the check, the background pattern is different to help users distinguish between them. Deposit transactions can also be assigned an ID Code and can be Split among as many as 10 categories. Category lists can be kept on display for easy reference. Click on a category and it automatically appears in the category frame on the check or deposit slip.



Type a unique name and enter a starting balance if desired. Select a type and click Save to create a category. Category types cannot be changed, and once a transaction has been made affecting the category, it cannot be deleted.



Enter an estimated budget amount for each month in which you expect an expense to occur. When you assign a transaction to the category, *MacMoney* will post the information here. Reporting options allow you to compare "actuals" to budgeted amounts. You can also use the budgeting feature to calculate the amount you expect your assets will appreciate or depreciate.

For those bills you pay each month in the same amounts, *MacMoney's* Make Automatic feature serves two purposes. First, it's quicker; second, it provides *MacMoney* with information so that it can remind you when bills are due. Ideal expenses to make automatic are mortgage and loan payments, insurance premiums and bank charges.

You create your Automatics at the time you write a check. You fill in all the details (payee, amount, category, etc.) and then select MAKE AUTOMATIC from the bank account menu. You'll also indicate which days and months the account normally comes due. Every time you open *MacMoney* after that, it will notify you if there are any Automatics due. Select AUTOMATICs from the Transaction menu and *MacMoney* will fill out the checks, deposits or service charges for you. Keep in mind that *MacMoney* selects the next check in your register and numbers it accordingly. However, you can edit the check number, amount and other data if it becomes necessary.

READ IT AT YOUR LEISURE

Reporting is one of *MacMoney's* strongest features. In fact, creating the many varieties of pie charts and bar graphs that are possible can get to be addictive. One handy feature is the ability to plot trendlines on all your graphs. Simply select TRENDLINE from the Report menu, and a trendline will appear on all graphs you create. *MacMoney* senses even slight trends and can alert you that your utility bills are on the rise far before you'd ordinarily notice.

There are several default reports that you get simply by pulling down menus and clicking buttons. These include the Income and Expense Statement, the Personal Balance Sheet, This Month's Activity and a Bill Payment Summary. The Bill Payment Summary lists all your Automatics and the status of each.

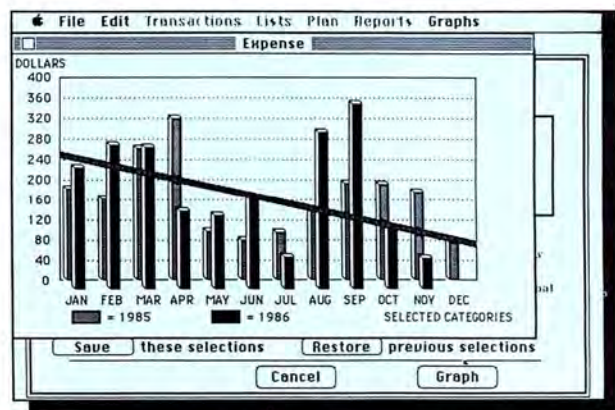
You can also create customized reports and graphs. You might wish to list out all medical transactions or all charitable contributions, for example, and use these reports as attachments to your income tax return.

One of *MacMoney's* few limita-

Click on the Split button and the Split window appears. Enter up to 10 categories and amounts. The total must add up to the amount entered. You may enter amounts and let *MacMoney* total the list for you. Then click in the transaction's amount window to record the total.

MacMoney's opening screen informs the user the date the System was last used, the number of automatic transactions due and the status of the transaction file.

To create an automatic transaction enter information on a check and then select MAKE AUTOMATIC. Select the day of month and months when the payment is due.



MacMoney compares utility bills for two years. The graph depicts obvious weather differences between the two years. April 1985 was cold and so were October and November. In 1986, July was cool while August and September were unseasonably hot. *MacMoney* also senses a downward trend in the overall cost of utilities as illustrated by the Trendline.

tions is that Cut, Copy and Paste work with text and with calculator results but not graphics. The only way to capture a screen graphic for use elsewhere is to save the window as a *MacPaint* document, using COMMAND-SHIFT-3.

PLANNING THE FUTURE

Although you'll mostly use *MacMoney's* data entry and reporting features to keep your actual books, there are planning features to make the true finance-a-holic burn the midnight oil. Some of the "what if" capabilities include Retirement Planning and Future Value/Goal.

Even the most down-to-earth user will appreciate the Plan's menu Loan Planning option. It lets you quickly calculate the payment and cost of loans with various amounts, lengths and interest rates, and print out accurate amortization tables that you can use to split mortgage and loan payment into appropriate categories. *MacMoney's* current formula produced a loan schedule for me which was accurate to the penny when matched with my bank's figures.

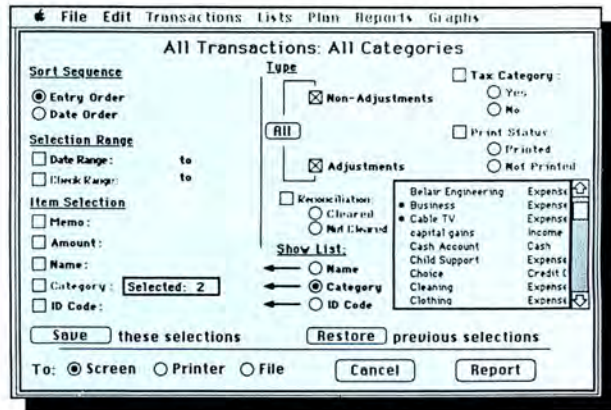
TRADING IN DATA

Small business owners will appreciate *MacMoney's* new ability to export data to several popular Macintosh applications. Each report offers three options for presenting the data: screen, printer and file. *MacMoney* text files can be opened and displayed within *MacWrite*, *Word*, *Multiplan 1.1*, *Excel*, *ReadySetGo* and *Helix*. Specific instructions for each application are included in the manual.

Also, any previously entered *HA-Mac* data is completely compatible. Just start up *MacMoney* with your old data disk. *MacMoney* will make the required conversions. Even if you have completed last year's transactions before you convert to *MacMoney*, you'll want to "Start New Year" with the previous year's data files to make yearly comparisons.

One of the best things about a financial package is help in preparing your tax returns. You set up the categories and enter the information, and *MacMoney* will report your income, withholding taxes and other

BANKING ON YOUR MAC



Customized reports and graphs are easy to set up and provide many options. Select a category type, a specific category or several categories. Compare data to a previous year or to budgeted values.

deductible items or categories. For additional help at tax time, financial planners will be happy to know that *MacMoney* is also compatible with the 1986 *MacInTax*.

THE CRASH OF '87

Customer support for your financial package may be more important than for other kinds of applications. Over the years as I used *Home Accountant* on my Apple II, then on the Macintosh, I've twice had occasion to call for help because I lost data and didn't want to enter nearly an entire year's transactions over again. (No one can emphasize enough how important backing up is with financial data.) A system crash has the potential for wiping out not only the data you just entered but making the entire disk unusable.

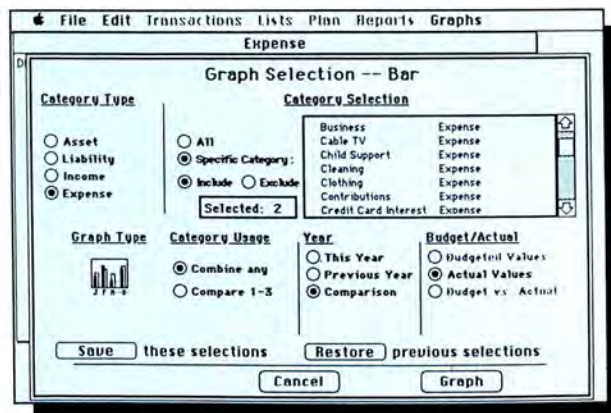
Even though it's usually your fault if you lose a year's work just before taxes are due, good customer support is available by telephone. Survivor Software loses a couple of points because they don't have a toll-free number. They gain points, however, because the authors themselves answer the phone and take a sincere interest in your problems.

MacMoney's user friendliness derives from the fact that the authors are constantly using information they receive from their customers and other sources to enhance and update their product. Prior to the current update, they reviewed all the suggestions made through customer support requests. From that list, they initiated approximately 30 of the most-needed changes in *MacMoney*.

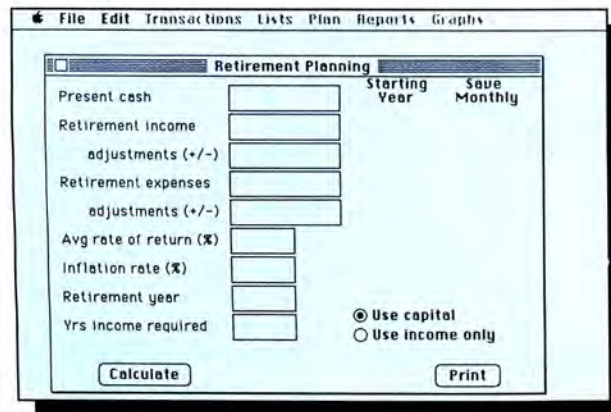
Since they are making a list for their next upgrade, customers should let them know what kinds of changes they'd like. Here's my wish list.

- Make it possible to sort and print transactions right from the checkbook. I'd like to see my transactions in order by date, even though I don't enter them that way.

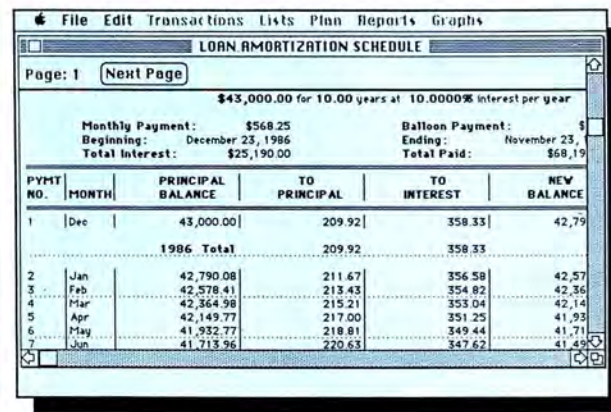
- Give the user the option to decide whether to use budget figures from the previous year or the actuals from that year. This was a feature in the Apple II version of *Home Accountant* that I miss. According to the authors, some people did not like



Custom Reports provide great flexibility. Print out all transactions, transactions in one or more categories or transactions which took place during a particular period of time. Search and print transactions by Memo, Amount and Name.



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(continued on page 194)

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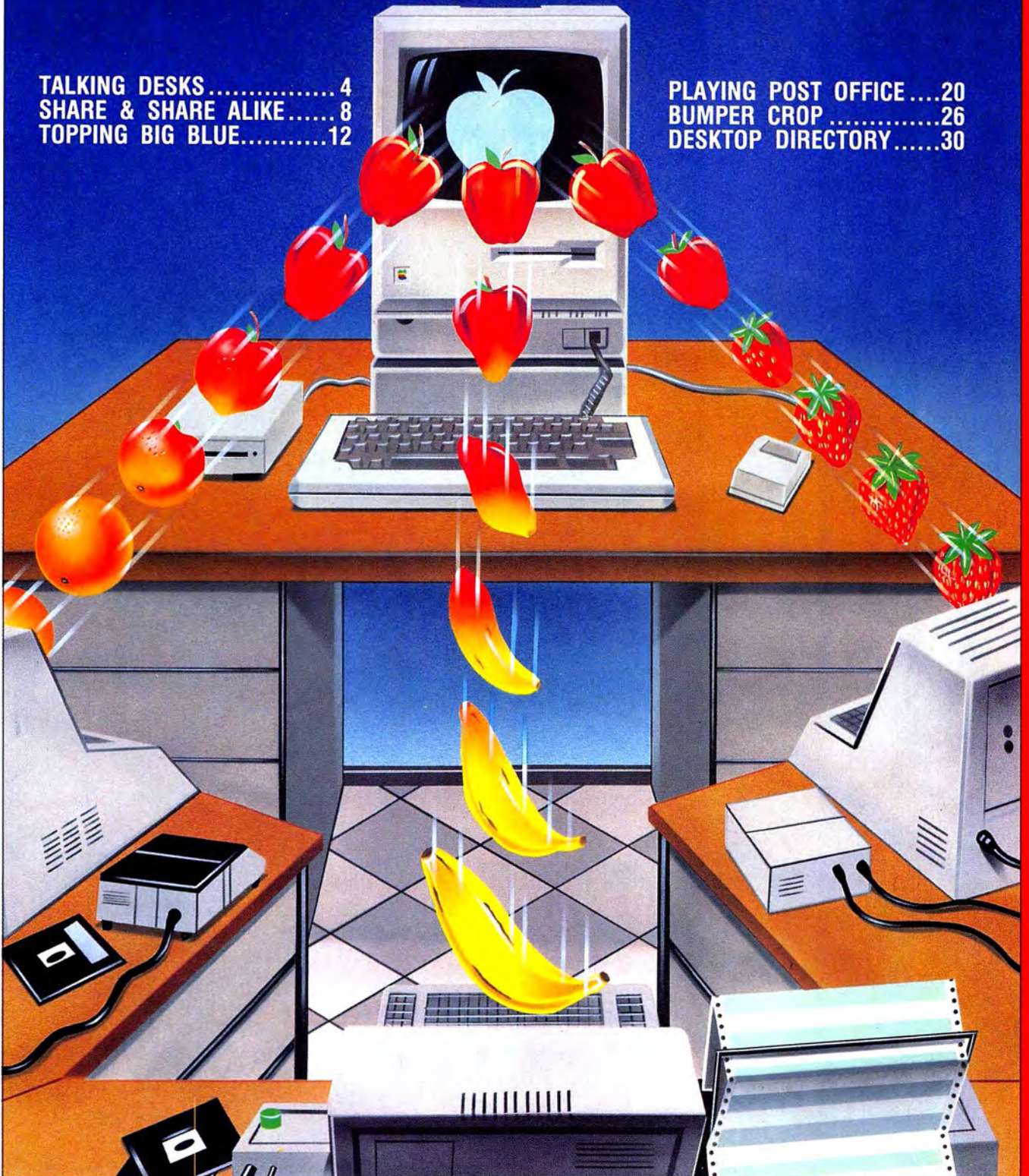


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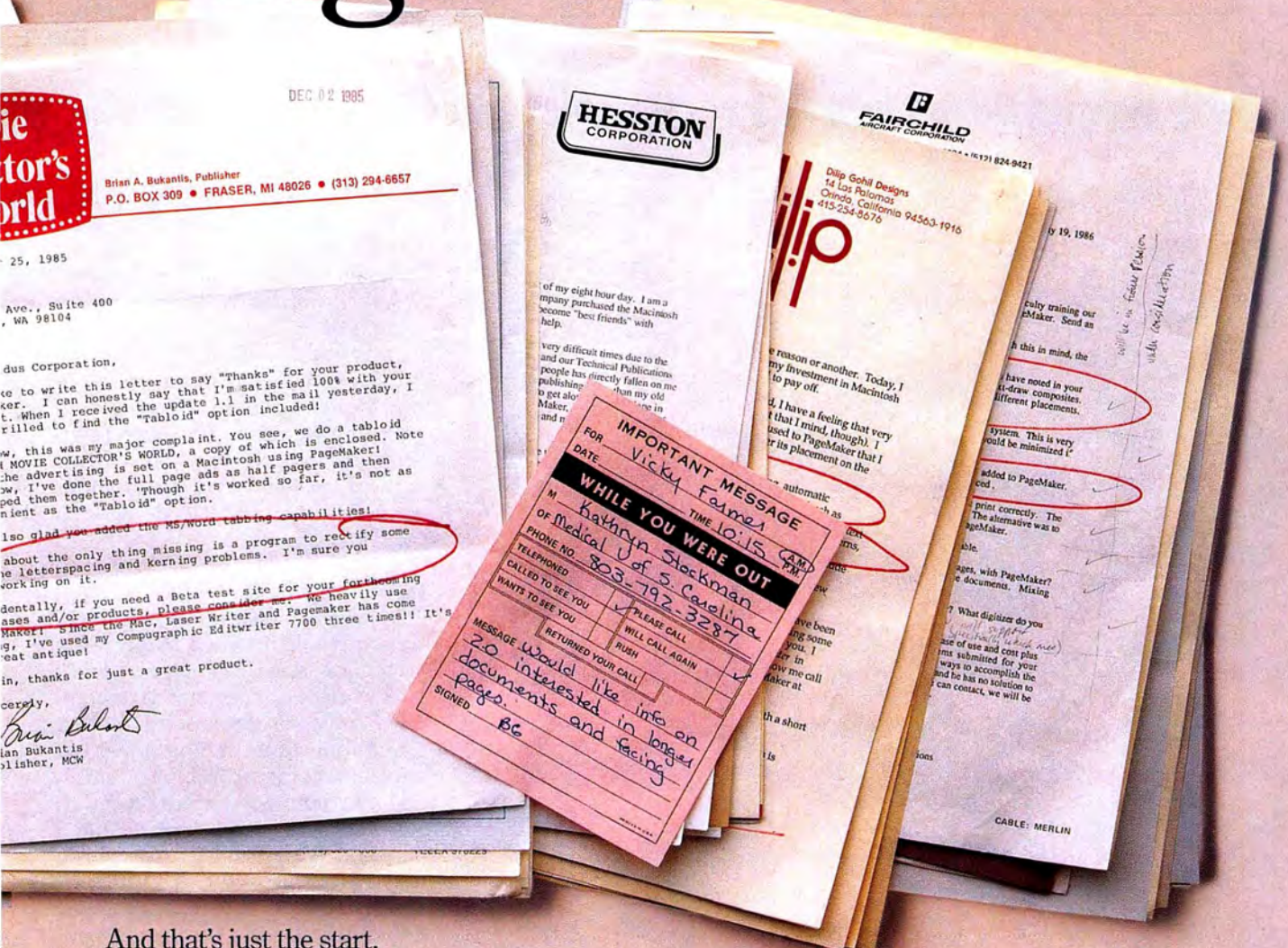
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Talking Desks

No matter what other computer you have to deal with, chances are the Mac speaks your language.

BY MICHAEL D. WESLEY



THE CORPORATE WORD FOR 1987, at least in the computer industry, is "connectivity." Unlike last year's corporate word — "leverage" used as a verb with little regard for meaning — connectivity indicates a specific and significant concept. Connectivity (correctly pronounced with emphasis on the first and third syllables, by the way) is a marketing term for the ability of different computer systems to talk to one another. For Apple Computer, connectivity is one way to bash down the doors of America's corporate buyers and further ensconce the Macintosh and other Apple equipment in the offices of Fortune 1000 companies.

Two major computer companies, Digital Equipment and Apple, are "leveraging" their ability to connect to other systems in order to make assaults on IBM. DEC and Apple are in fact working closely together to provide "solutions" (another corporate word) for big businesses with widely varied needs. For Apple, connectivity forms the backbone of their networking and communications marketing thrust, called desktop communications.

HOOK 'EM UP, RAWHIDE

Networks. When I was a retail computer salesman and trainer a few years back, one of the biggest problems I had was explaining to customers what personal computers *couldn't* do. At the time, it was not at all uncommon for people from small- and medium-sized businesses to come into the store looking for a network. I remember particularly well, two owners of a small import/export business in New York. They desperately needed a system to control inventory, handle their billing and other accounting functions and generally keep track of their business.

When they came into the store, they knew pretty well what they needed — a large data base application residing in a central location, with files that could be accessed by data entry people in the separate areas of sales, accounting and shipping/receiving. They needed a network with multiuser software, and, having read about all the new tech-

nology in networks, they came to see what was available. Unfortunately, at that time, there was nothing available for their needs short of a mini-computer system costing many thousands of dollars. For a while, we had to educate our customers away from personal computer networks because they really couldn't do the job.

The education process continues, but the problem is now reversed. Personal computer networks are real — computers from different manufacturers and with different operating systems can talk to each other. The Macintosh and other personal computers can connect to minicomputer or mainframe systems, acting as intelligent terminals. With the introduction of a boatload of new products at the Seybold Desktop Communications Conference in January and the AppleWorld Conference in March, Apple and third party manufacturers are striving to make networking the Macintosh almost as simple as cut and paste, and to educate consumers about the potential benefits of Macintosh networks.

SEE-THROUGH NETWORKS

One goal of the Macintosh was to provide transparent and easy access to information. To accomplish this, Macintosh required a unique melding of hardware and software with a standard set of operations to provide a simple and consistent user interface. From Apple's point of view, a network should provide a transparent and easy way for people to access, use and control the *communication* of information. A Macintosh network requires an even more complex melding of hardware architecture, software protocols and "enabling technologies" with a standard set of operations to provide transparent access to information and at the same time maintain the Macintosh user interface.

TALKING APPLES

If you've been using an AppleTalk network to share a LaserWriter or run an electronic mail program, you may wonder what the big deal is. After all, aren't you already networked? In fact, aren't there more than 50,000 AppleTalk networks in

use now? What's so complicated about networking? You just plug the AppleTalk connectors into your Mac and the LaserWriter and it all works. Maybe it's a little slow sometimes, but it works.

AppleTalk works as easily as it does because most of what it's doing is invisible to the user. This is what Apple means by transparent access. All the hard work has gone into the system before you ever see it. AppleTalk is much more than a set of cables and small white boxes. In fact, as Apple Computer is quick to point out, AppleTalk (the network) is a distinct entity (a concept and an architecture, nothing physical at all) from *The AppleTalk Personal Network*, which consists of the familiar white connecting cables and boxes. A confusing distinction, to be sure.

In order to make the concept of Macintosh work, Apple had to establish a set of standards that third party developers could follow in order to keep their products consistent. Initially, with the Macintosh a closed, self-contained system, it was fairly easy to establish and maintain those standards. The user benefits by having a variety of packages with a similar look and that work in a consistent fashion.

With networks there is much more groundwork and supervision that must be done by Apple, because now there are other computers in-



TALKING DESKS

volved, with their own methods, operations and standards. This is one reason that Apple's file server (announced as hardware in January 1985 and delivered as software in early 1987) was delayed for so long. A file server of generic variety could have been finished long ago, according to Gursharon Sidhu, the project leader for AppleTalk. But to make it work with the ease and style that is associated with the Macintosh took much longer than expected. What Apple has been able to do in that time, though, is strengthen the AppleTalk base to provide a communications framework.

CABLE CAR TO HELL

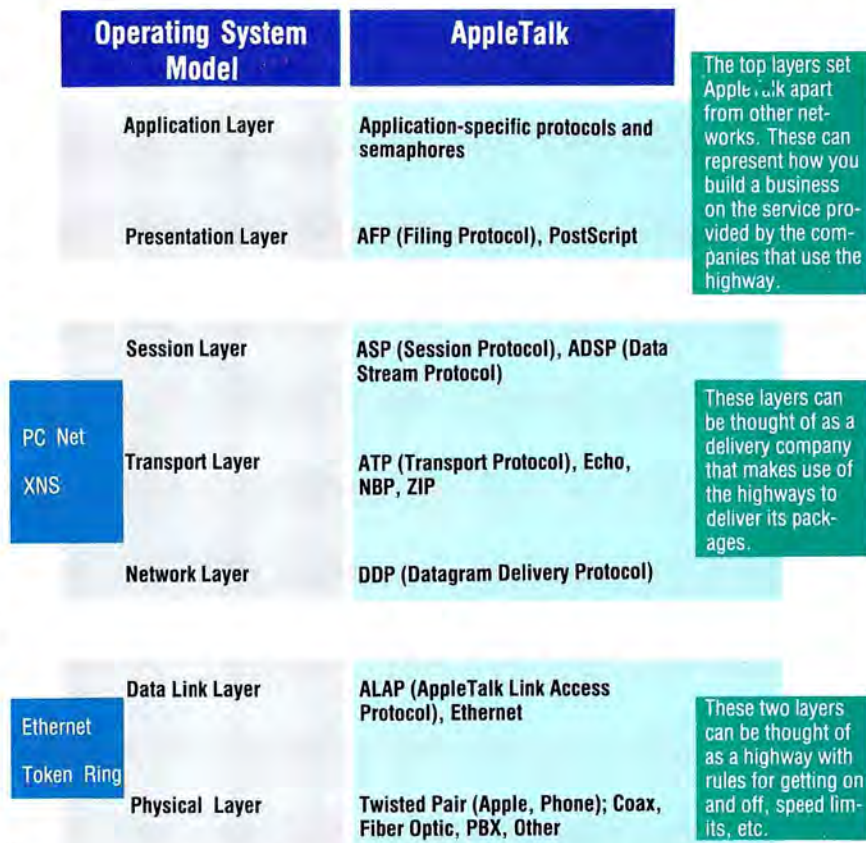
People often get caught up in cables when they mess about with networks, worrying intensely about the differences between twisted pair wiring and coaxial cable. Networking actually requires much more than the proper set of cables. In fact, this physical layer is actually just the base of a much larger structure that starts with cables but extends all the way up to network-intelligent applications.

AppleTalk, for example, is more than a set of cables, it is a standard communications system that fills needs in all levels of the network structure (see Figure). As we have discovered with PhoneNET and other optional carrier systems, AppleTalk doesn't need the Apple connectors to work. In fact, AppleTalk can use almost any structure as a carrier, including coaxial cables, fiber optic cables and PBX systems. You can run AppleTalk on 3Com's Ethernet, a widely installed network in the PC world.

AppleTalk can also be run on IBM's Token Ring network, across PCNet. And with the assistance of a product called *AlisaServer* and *AlisaTalk*, AppleTalk can provide the Macintosh with very high level connectivity with DEC systems. Odesta even has a DEC version of the *Helix* multiuser data base that uses Macs as a front end to a VAX system.

WHAT! ME NETWORK?

The sharing of information is critical to the smooth running of any



Adapted from materials prepared by Peter Friedman, Apple Computer

business. Decision makers need the most up-to-date and accurate data they can get in order to keep up with today's fast-paced world. If you use an AppleTalk network, you may be one of the people crying out for a file server because you saw the potential there while recognizing that the most important links were missing.

The key links are a file server that can keep files in a central location and provide access to the network users, and software that recognizes the network and knows how to deal with more than one user. For some applications, the software must allow more than one user to access an application or a file at the same time.

With the arrival of Apple's file server, the upgrading of AppleTalk to support true file sharing and accessory products from Apple and third parties, the links are now in place — and the benefits are enormous. It's now possible to link more than one Macintosh and share files. With an AppleTalk PC card you can now link IBM PCs or clones and Macintoshes on the same AppleTalk network and share the same files; put

a Macintosh II with a third party coprocessor on the network and you can use the same applications.

And Apple has made it possible for developers of hardware and software to provide the quick, easy and transparent access to necessary information by maintaining the consistency of the Macintosh interface and by providing similar standards of operation for networking. The support third parties have shown for the AppleTalk Filing Protocol (AFP) standard is phenomenal.

Is there a network in your future? If you are a member of a work group of almost any size or type, the answer is almost certainly yes. There are too many advantages to networking to let the opportunity go by. Just start chanting "connectivity" and watch what happens. But don't stop using "leverage" either. Sprinkle it liberally throughout your conversation and you'll be amazed at how far leveraging your connectivity can get you. ☛

MICHAEL WESLEY IS MACUSER'S WEST COAST EDITOR.

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Share & Share Alike

LONG AGO AND FAR AWAY (AT least from our New York City offices), Apple Computer announced their soon-to-be ready file server — a piece of serious business hardware, with serious (and necessary) business software built in. And a Mac community that was just finishing an exciting, but rough, first year rejoiced. For a file server was a real business tool. There's nothing fun or toylike about one. The next two years were spent speculating about the soon-to-be-available file server and exactly when it would make it to dealers' shelves, but it was never seen outside of Apple. Software difficulties and rapid changes in hardware technology combined to keep the file server constantly "under development."

Now, just as we went to press, Apple's file server was finally released. It's called *AppleShare* and it's a software-only package that buyers combine with their own (dedicated) Mac and hard disks. Various versions of it have been floating around since late last fall, but only with its release version were all its features locked in enough to be tested.

AppleShare is not the product announced two years ago, but an entirely different and much improved product. Gone is the emphasis on the box and the connections, replaced by the more useful idea of information sharing in small groups. *AppleShare* is simply software that facilitates this operation. It's intended for small local workgroups.

While Apple claims that *AppleShare* handles networks of up to 25

**Apple's long-awaited
file server,**

**AppleShare, lets
groups of Macs share
information and
applications.**

users simultaneously, don't take that claim too seriously. Given the limits of the AppleTalk Personal Network (required as the physical connecting mesh) and the limits of version 1.0 of *AppleShare*, you'll see performance degradation with as few as six users accessing the network regularly. In fact, *AppleShare* seems designed for and nearly ideal for the workgroup size (three to ten people) that Apple has identified as being most common in the workplace.

AppleShare also lacks many of the bells and whistles of larger mini- and mainframe packages. However, it works (and works well), is relatively cheap (even when the cost of the necessary hardware is factored in), and has a very full complement of features in areas that are important, like security.

THE DETAILS OF SHARING

AppleShare comes on two disks and has two distinct parts. One disk

has the actual server software and is used by the network administrator to set up the whole system and the other disk is copied by each user on the network and used to install the workstation software in each machine on the network.

Special server software must be installed on a dedicated Mac Plus, Mac SE or Mac II (if you have a spare). Also required is a hard disk. You can add as many hard disks as your system will allow to the server Mac, but all storage units must be attached to the server Mac. And the whole network must be tied together by an AppleTalk protocol connecting system (AppleTalk, EtherSC, AppleTalk Optical, PhoneNET, etc.). And there should be a system administrator (see "AppleShare for All?" below).

The user interface at workstations is simply the *Finder* (or whatever *Finder* substitute you use). The designers' goal was to make *AppleShare* as transparent to the ordinary user as possible, and they've been very successful in that respect.

The first step is to get *AppleShare* software installed on your work *Systems*. It's a simple operation. You simply run an installer program that places *AppleShare* in your System folder and at the same time updates your System software to *System 3.3* and *Finder 5.4*. Those versions (or higher numbered ones, as they are released) are required to be on every station connected to the server. The process is quick and relatively painless as long as you have a hard disk or a spare 100K or so on your

BY STEVEN BOBKER

System floppy. If neither is the case you're going to have to create a System disk with the required amount of room.

Once the software has been installed, access is easy. Just select the *AppleShare* icon in the *Chooser*, the desk accessory also used to select printers on the AppleTalk network. Selecting a server will not affect any current printer selections; they also remain in effect. (*AppleShare* can also be accessed from other AppleTalk networks that are bridged to it). Then enter a single password to use the server. Once you've correctly identified yourself, *AppleShare* manages all further access.

ISSUES OF ACCESS

The access control features in *AppleShare* allow each user to selectively share the information stored on the server. Users can determine by looking at the folder icons in the *Finder* what the restrictions are for each folder on the server. The access controls are easy to use since both the *Finder* and a new desk accessory called *Access Privileges* provide the ability to edit access privileges.

Users control their own folders, deciding what information they want to share and with whom — whether it be everyone on the network, a select workgroup or no one at all. Access levels can be controlled as well, with some users being able to modify information in a folder while others are only allowed to read the information.

One useful form of special access is the drop folder. This is a folder where any person on the network can put documents, but only the person with owner privileges can retrieve, see and use them. For example, a supervisor could use a drop folder to collect private comments from all the workgroup members.

SHARING SOFTWARE

AppleShare is compatible with most of the software currently available for the Macintosh. In the future, new applications taking full advantage of *AppleShare's* capabilities will be available. Two examples are



multi-launch applications that can be used by several users simultaneously and multi-user applications that allow several users to update the same data file at the same time, using their own application software. Necessary features such as file and record locking and security are a part of the various applications, not of the server software. Some applications already fall into these categories, and more are appearing on a weekly basis.

The ability of many users to access and use a single application does pose some legal problems. Most applications are licensed or sold for use by one user on one computer. *AppleShare's* ability to let all users use

applications seems to violate these agreements. Whether these agreements will hold up remains to be tested. Meanwhile several vendors (see "Bumper Crop" in this Supplement) have announced special versions of their software that will be usable, both physically and legally, by all *AppleShare* users on a single network.

APPLESHARE FOR ALL?

Apple has chosen not to mass market *AppleShare*. It will be available only from specially selected and trained dealers and VARs (value added resellers). The 300 or so dealers will be required to have all their *AppleShare* selling personnel attend a

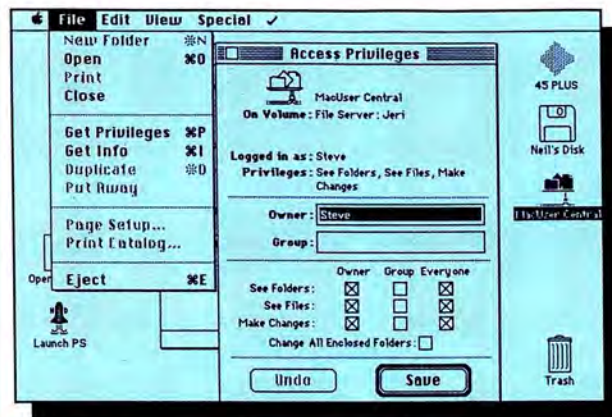
SHARE AND SHARE ALIKE



The new *Chooser* (version 3.0) can select printers, file servers, modem servers, mail systems and more. To enter your workstation in an *AppleShare* network, select its icon here, then select a server. You'll then be asked for a password. Once you have entered that correctly, simply close the *Chooser* and the *AppleShare* icon will appear.



If you need to check on or change folder privileges while working in an application, select the *Access Privileges* DA. This is what it looks like. Here a drop folder, where others can leave you private notes, has been created.



In the *Finder*, privileges are checked and changed by selecting the *GET PRIVILEGES* command in the File menu.

special Apple course. They will also offer a special network administrator's course for customers.

While a network administrator is not a strict necessity, you should plan on having one person assume that role. It's by no means a full time job, even with a large network, and should take only a few hours a week (mostly doing backups). John Sculley has said that if you don't accept the need for a network administrator, then you haven't fully accepted the need for networks.

AppleShare software lists for \$799 and requires at least a dedicated Mac Plus and hard disk. At current street prices, a used Mac Plus and new 20-meg hard disk can be bought for about \$1750. Add in some AppleTalk or PhoneNET connectors and you're looking at \$2600 to \$3000 investment for a medium-size workgroup. Considering the power of the system, that's not a bad price.

HOW BIG A SERVER?

Disk space requirements tend to

grow exponentially. Thus, *AppleShare*'s ability to use as many SCSI hard disks as can be daisy chained to the server Mac becomes very valuable. You can add storage space as your needs grow. *AppleShare* helps by effectively using disk space. It automatically allocates and recovers disk space on server volumes to obtain maximum space usage efficiency. This allows users to start small, increasing their storage capacity as needed by adding more hard disks.

You might want to consider starting with one of the bigger drives though. For example, Mirror Technologies offers very quiet 85- and 172-meg drives, designed specifically for server use. They're a specially good deal now since (for a limited time) Mirror will rebate the full cost of *AppleShare* software to purchasers of the 172-meg drive and half to those buying the 85-meg unit.

You'll need to check that any SCSI hard disks you currently have work with *AppleShare*. Apparently not all do. The Apple units obviously do as do the big Mirror units. We'll be publishing full drive compatibility lists as we develop that information over the next few months.

STEVEN BOBKER IS THE EDITOR IN CHIEF OF MACUSER AND ALL THAT THAT ENTAILS.

AppleShare

Overall Rating	★★★★
Follows Mac Interface	★★★★
Printed Documentation	★★★★
On-screen Help	None
Performance	★★★★
Support	Varies by dealer
Consumer Value	★★★★

Comments: Good true file server with a nearly transparent user interface. **Best Feature:** So transparent that you forget it's there. **Worst Feature:** Slows down noticeably under heavy load. **List Price:** \$799. Published by Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014, (408) 996-1010. Requires dedicated Mac Plus and hard disk, connects to network via AppleTalk protocol devices. Version 1.0 reviewed. Not copy protected.

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- ▶ to Macintoshes anywhere in the world

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- ▶ to IBM PC's and compatibles
- ▶ to Telex machines worldwide
- ▶ to mini & mainframe computer systems

Heard a lot about desktop communications lately?

Well, *intermail* is the integrated desktop communications solution for your Macintosh and IBM PC compatible computers. *intermail* enables you to quickly and easily compose and send notes, memos, phone messages, graphics, reminders and files of any type and size to anyone in your office or anywhere else in the world. Better yet, *intermail* allows you to send documents of any sort for receiving, copying and printing, even if the recipient doesn't have the originating application! And best of all, *intermail's* power is available from within all of your favorite applications.

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Topping Big

The Mac and the IBM PC can work together digit-to-digit.

FROM THE VERY FIRST GASP OF the Mac in its 128K infancy we have been raised to regard IBM as the Alien Empire, and it was an empire to strike back at—as was shown in Apple's famous "1984" TV commercial. And today? It's time to kiss and make up. The Macintosh Plus has won a growing acceptance by the business community, and it's no longer unusual to see Macs cheek-to-cheek with PCs in offices.

The next Macintosh generation (covered in *MacUser* last month) finally have slots that can accept MS-DOS coprocessors, enabling them to recognize and run many IBM PC programs. Instead of fighting, they'll be able to switch.

SO LET'S TALK

This new revisionist diplomacy is already operative, and it's the *TOPS*. *TOPS* for the Macintosh is a local area network (LAN) and translating system that can act as a distributed file server for multiple Macs. It's a software program and permits machines linked over AppleTalk to share any hard disk or printer on the network. Now, with the availability of the *TOPS* hardware/software package for the IBM PC, Macs and PCs can talk, swap and share data in almost any configuration. It's as if the Berlin Wall were suddenly made of Swiss cheese.

TOPS FOR THE MACINTOSH

TOPS resides as a desk accessory on the Macintosh. Your Mac remains a standalone machine until you activate *TOPS*, and then it becomes a Mac station that can communicate with other machines or stations on the network. Installing *TOPS* in the *System* on a floppy or a hard disk is both quick and simple, although the documentation is not as clear as it might have been on performing the hard disk installation process.

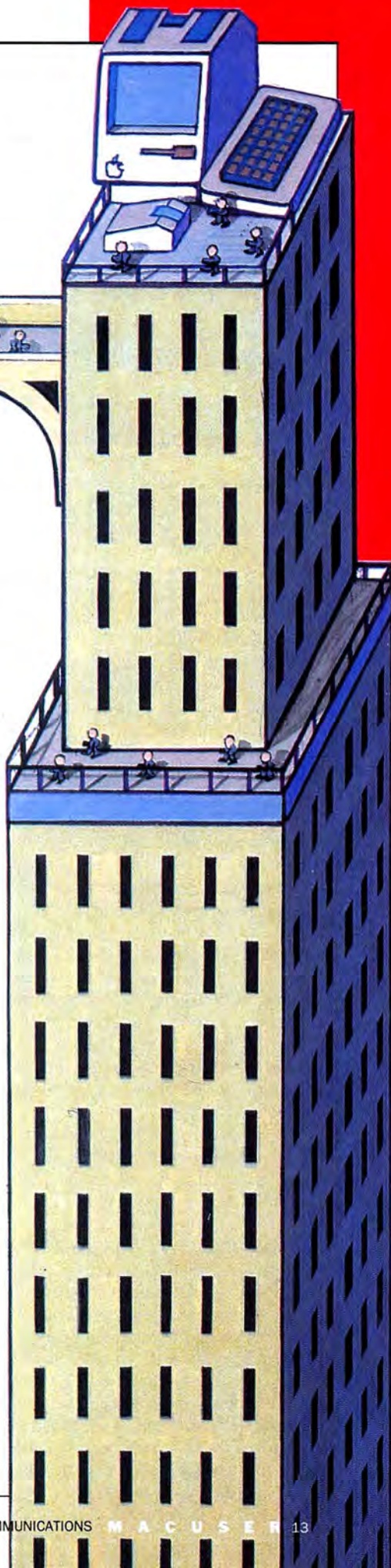
When you open *TOPS*, you are asked to "sign on" the network, and the name you choose will be seen by other stations on the network as another "client." You will need a separate, original copy of *TOPS* for each station. If you copy the application on another station and then attempt to sign on, a warning box will appear admonishing you that "another copy of this *TOPS* (serial# —) is already in use."

One of the other things you will notice upon opening *TOPS* is a reference to *InterBase*, with its tree-chart icon. *InterBase* is the "ambassador" function that mediates between Macs and IBMs. Without it, your intermachine dialog will be very limited. If you are working with a Mac-only network, you can save a bit of memory by deleting *InterBase*.

From the very beginning, the transparency, straightforwardness and ease of use of *TOPS* is impressive, especially considering that more horror stories have emerged from the information management and networking worlds than any others in the industry. With *TOPS*, what you see is what's really there, and you can usually get at what you see.

Blue

BY TONY REVEAUX



The *TOPS* desk accessory dialog box is just what you'd expect. On the left is a directory of the volumes within your station, on the right you'll see a list of the servers on the network and those volumes in the station you choose to select. In the center are the command buttons, for Open, Copy, Mount, Publish and Help.

HELP AT THE TOP

Six help screens are always available. They're valuable not only for using *TOPS*, but also provide inside information on any selected volume you choose. They can reveal its system type, size and condition. A sample of the data is usually included. Though it's not always legible as text, it can help identify the nature of the data, and assure that "something is in there."

By choosing what files you "publish," you determine what you wish to be accessible to other clients on the network. When you publish a volume, its icon changes to the *TOPS* symbol, and will be seen that way by other stations. It's just as easy to "unpublish" a volume by invoking a similar command, or dragging its disk icon from the desktop to the trash.

You can publish a folder of files, a volume of folders or an entire hard disk with one command. You cannot publish a single file alone. If one file is all you want to put out there, create a new folder or volume with a publishable name to wrap around it.

If you want to know which clients are using one or more of your published volumes, select it and then click on HELP. One of the Help windows provides a Client List. If

you select your station name, the list will extend to reveal the users of each of your volumes. There are few secrets on the *TOPS* network.

WHAT'S THE PASSWORD?

Foreseeing the concern for security, one of the major issues of networkers, *TOPS* includes a password system. If you hold down the Option key when you click on the PUBLISH button, the password dialog box will appear, offering three levels of access restriction. You can choose to make your document write-protected, limit it to one writer or leave it open to many. The system isn't perfect, and there have been reports that files can be invaded, and even passwords changed in some instances.

To access a file or application from another station that is published, you select MOUNT from the Command menu. If the file is not restricted, the act of mounting connects you to that document.

If you decide that you want a copy of a volume, folder or application within the memory of your own station, then the Copy command will perform that function. Not only can you copy a published remote file to one of your local disks, you can copy one of your files out to a remote disk that is open. Holding down the Option key when copying will bring up the *TOPS* copy conversion box, enabling you to choose to strip the control characters from an MS-DOS document, allowing it to be accepted as a Macintosh text file.

TOPS FOR THE PC

IBM PCs and their compatibles are certainly different from Macs. It's

TOPPING BIG BLUE



The basic *TOPS* window lets you select the folders and files you want to publish.

umes, hard disks and even RAM disks and mainframes for storage and backup has made *TOPS* valuable for many organizations. But even if the hard disk on your Mac is full of many megabytes of files from an MS-DOS program like *Ventura Publisher* or *Symphony*, you can't actually use them there. You can use Mac-compatible files that are residing in a PC's storage if the application is somewhere on the *TOPS* network, and vice versa.

It is an eerie experience to see *MacWrite* copied to a PC through *TOPS*, then trashed from the original Macintosh host. You'll still be able to create and use *MacWrite* files on the Macintosh even though the application itself is floating in a remote PC.

While most programs are compatible, within the constraints of storage and use, there are some that become cranky and unreliable in *TOPS*. A "smart" application like *Excel* can open, read and write to a *Lotus 1-2-3* file on a different machine type. But anything that influences the system or resources of the Mac, like *ResEdit*, *Font/DA Mover* or *Switcher*, should be invoked well outside *TOPS*.

Centram's telephone support, when these issues and others crop up, is always helpful and detailed.

MR. AMBASSADOR: MACLINK PLUS

If your Mac to IBM diplomatic needs go beyond the basic character-stripping of *TOPS*' conversion function, there is a powerful and versatile ally that you can enlist. *MacLink Plus* is a file transfer and translation utility that cuts through the thicket of word processing programs that usually present insurmountable barriers between the Mac and the IBM PC. In fact, it can be equally valuable in translating between programs within the same machine environment.

MacLink Plus can tie together Macs, but its specialty is uniting a Mac and a PC. The complete package includes software for the Mac, the PC and a cable with an adapter for a 512K Mac or a Mac Plus. Since we already had our machines networked with *TOPS*, all we had to do was install the *MacLink Plus*

a lot more work to tell them what to do, and they often need some prodding to reveal whether or not they have actually done it yet. But *TOPS* for the PC is as comparatively easy to install as *TOPS* for the Macintosh.

The first big difference is the addition of printed circuit board that must be installed inside the computer.

For those of you who are seasoned Apple II veterans, plugging in a board will seem like old times. For the rest of us, let's consider it as practice for the shape of Macs to come. We took the cover off the CPU unit of our PC clone, and the *TOPS* board inserted cleanly into an empty expansion slot. Its socket was at the rear panel for connection to an AppleTalk compatible cable. Your PC will need at least 512K of RAM for the *TOPSKRNL* memory-resident routine, and could really use 640K to run large applications without strain. As with the Mac version, *PC TOPS* can be installed on a hard disk or operate off a floppy, and is not copy protected, but is serial number protected.

Installing the *TOPS* program in a PC is smooth and rational. DOS programs need to reside in files, but the *TOPS* installer goes about creating and housing the necessary files automatically, all cued by on-screen prompts, concluding with the *TOPSMENU* screen. Like so much of the newer PC software, this is somewhat Mac-like in its menu-driven interface. There is also direct access to DOS commands for those already fluent in PC-ese.

From the *TOPSMENU*, most of the functions that you mouse with the Mac—showing server names, se-

lecting a server and seeing the volumes published by that server—are accessed from the PC's keyboard. The Menu Instructions on-screen Help window provides a list of basic commands. On the Mac you publish a volume with a couple of mouse-clicks. The PC requires typing in a command like; "TOPS PUBLISH d:/path AS vol [/R|RW] [/P [password]] [/U]." It's actually pretty easy, except that one character out of place invalidates the command.

Files from other PCs on a *TOPS* network appear as other volumes and directories, and Mac files appear as additional disk drives. Mac names longer than eight characters will be compacted, but at the volume-viewing level, there is a menu command for seeing "the long names of Mac files."

TRADING PLACES

Now that you have two different species of machine talking to each other, how good is the conversation? *TOPS* enables the Mac and the PC to share information, but there are limits. It is best at straight text files without specialized formatting. *TOPS* acts as a basic character-stripper (removing all the formatting information), accepting and moving files from one word processor to another. Once received, the unformatted file can be formatted to conform to the needs of the final output. Some programs manage to keep the formatting intact. For example, with *MacLink Plus*, a file conversion utility from DataViz, users have reported being able to even transfer desktop publishing documents intact.

The ability to utilize remote vol-

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“Despite our best efforts to disrupt MacServe, we failed. MacServe's automatic crash recovery system was able to recover from the worst network disasters we could throw at it and never lost any data. We could reestablish network connections quickly and without any elaborate recovery procedures. This is a remarkable achievement for such a complex product with so many opportunities for data loss.”

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*INFOWORLD
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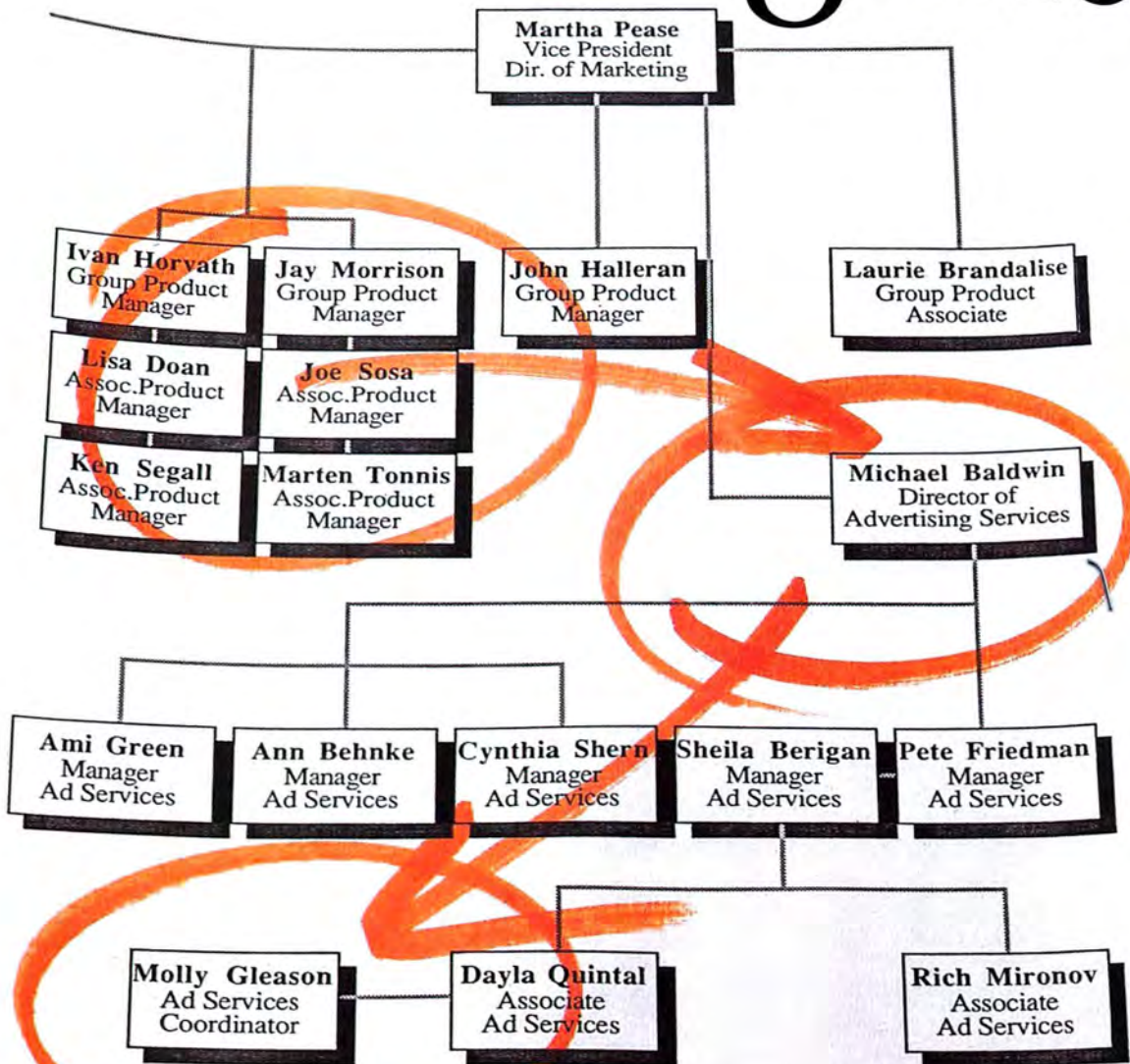
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All for one and one for all. With the AppleShare system, the workgroup's documents are yours for the asking.

It's a new file-serving system designed to build on the power of the AppleTalk® network. So each person can share information with other individuals, groups of people or everyone in the organization.

But what's truly revolutionary is how it works—just like a Macintosh™ personal computer.

The system utilizes a Macintosh with virtually any hard disk as a file server, so sharing is easy. Simply

THE FREEDOM OF INFORMATION ACT.

Every time you create a document, AppleShare lets you decide how (or if) it's to be shared.

Thanks to AppleShare access control, you can grant rights to specific individuals, at three different levels: 1) see folder, 2) read documents within a folder and 3) make changes.

And each folder will contain the most recent versions of the work within. Because the system is constantly updating itself.

ALL TOGETHER NOW.

Apple Desktop Communications can do wonders for productivity, beyond merely sharing folders.

Using a program like InBox, one person can easily send electronic mail to

anyone on the network. Or just as easily, to a pre-defined list of people. And these messages can include complete documents, such as those created by Microsoft Word or Excel.

With this new power, Apple Desktop Publishing becomes a whole new ballgame. Because quickly and electronically, you can collect the information you want to publish. Even from people who don't use Macintosh.

too can become an active part of the AppleTalk network.

Then, using a program like InBox PC, ideas that are conceived



Now even your MS-DOS computer can become a card-carrying member of the AppleTalk network.

in the MS-DOS world can be painlessly transferred to a Macintosh.

Where they can be analyzed more deeply. Studied more insightfully. And, with the able assistance of an Apple LaserWriter® printer, presented far more brilliantly.

TURN KNOWLEDGE INTO POWER.

Once you've begun sharing information within the workgroup, you'll likely thirst for greater power.

Which, as it just so happens, is readily available.

You can bring others into the group, via AppleTalk cabling, phone lines or fiber optic cabling. Link a number of workgroups together with options like Hayes InterBridge.

Or, with FastPath and EtherSC, even tie the whole company together on Ethernet cabling.

The full power of Apple Desktop Communications can be yours today.

And to get going, there's only one thing you have to do.



With Apple Desktop Communications, you can share information amongst a group of computers, including even those of the MS-DOS variety.

put a document into a folder, and it's available on the network. Instantly.

In fact, to use AppleShare, you need only a fleeting familiarity with two of the most basic Macintosh skills.

Pointing. And clicking.

INTRODUCING THE APPLETALK PC CARD.

Now you can communicate with other forms of intelligent life.

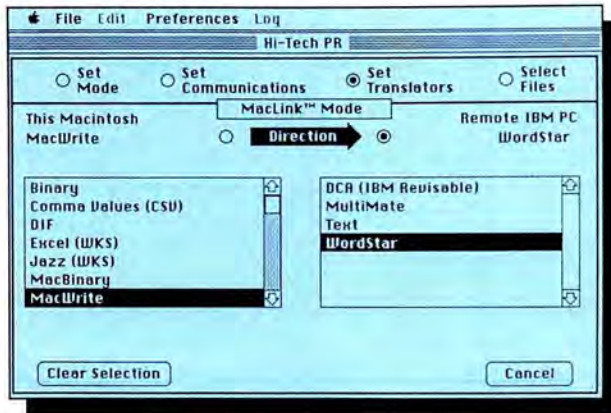
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TOPPING BIG BLUE



MacLink lets you transfer different file formats. The MacWrite file here will be received as a WordStar file.

ments. There will be some adjustments you will have to make for programs that do not share certain structures, but *MacLink Plus* is a welcome addition to the brave, new and more open world of desktop communications.

GETTING DOWN TO BUSINESS

The computer systems of most big businesses are not totally interconnected, visions of corporate Big Brother notwithstanding. Computing tends to be distributed in a variety of local work group environments of from ten to fifteen users. It's not unusual for an employee in one group to know more about what's happening in Afghanistan than to know what colleagues in a work group in the next building are doing.

Many Macs, after being invited in the door for their desktop publishing talents, have been quickly utilized for other office tasks. The need for a means of sharing work between them and the established IBM PC systems becomes more and more urgent. ☒

TONY REVEAUX IS THE EDITOR OF COMPUTER PUBLICITY NEWS, AND WRITES THE "MACINTOSH EXPLORER" COLUMN IN *COMPUTER CURRENTS* IN THE BAY AREA.

software for the Macintosh, where it resides as an application.

Once the remote IBM PC is up as a station open on *TOPS* and has volumes that are published, *MacLink Plus* can mediate between the two. You can select and control the translation processes through four different windows.

The Mode Selection window lets you choose between *MacLink*, Local Desktop or Special Communications Modes. The *MacLink* mode is the default for Mac-to-PC, and the Communications window sets transfer speeds and additional settings necessary for linking machines by modems.

The Set Translators and Select Files are the windows you will use the most. In Translators, the real

magic is revealed. You can choose the direction between machines that you want the translation to go. The menus look like a United Nations of computer languages, but just click on your choices—for example, a translation between *MacWrite* and *WordStar*—and the alternatives are automatically shown.

In the Select Files window you choose the source and destinations for the translation, often creating a named but empty file as a receptor for a straight translation. Otherwise, just wait for the New File Name dialog box to appear after you have clicked the CONVERT AND TRANSFER button. In most cases, the translation will be effected with all formatting of the original file intact, including desktop publishing docu-

TOPS For The Mac



Overall Rating	↑ ↑ ↑ 1/2
Follows Mac Interface	↑ ↑ ↑ ↑
Printed Documentation	↑ ↑ ↑ ↑
On-Screen Help	↑ ↑ ↑ ↑
Performance	↑ ↑ ↑ ↑
Support	↑ ↑ ↑ ↑
Consumer Value	↑ ↑ ↑ ↑

Comments: A file server and network system that links groups of Macs and/or PCs together, sharing files and peripherals. **Best Feature:** Clarity and transparency of use. **Worst Features:** Disk backup utility not provided, relies on remote storage. Documentation adequate but not complete in some areas. **List Price:** \$149 per Mac. Published by Centram Systems West, 2650 Ninth St., Suite 220, Berkeley, CA 94710, (415) 549-5900. Version 1.00 reviewed. Not copy protected, but electronically registered for one station.

TOPS For The IBM PC



Overall Rating	↑ ↑ ↑ 1/2
Follows MS-DOS Interface	↑ ↑ ↑ ↑
Printed Documentation	↑ ↑ ↑ ↑
On-Screen Help	↑ ↑ ↑ ↑
Performance	↑ ↑ ↑ ↑
Support	↑ ↑ ↑ ↑
Consumer Value	↑ ↑ ↑ ↑

Comments: An add-on board and a software program which provides a file server and network system that can link groups of PCs and/or Macs together, sharing files and peripherals. **Best Feature:** Clarity and transparency of use. **Worst Features:** Relies on remote storage rather than disk backup utility. Documentation adequate but not complete in some areas. **List Price:** \$389 per machine. Published by Centram Systems West. Version 1.02 reviewed. Not copy protected, but electronically registered for one station.

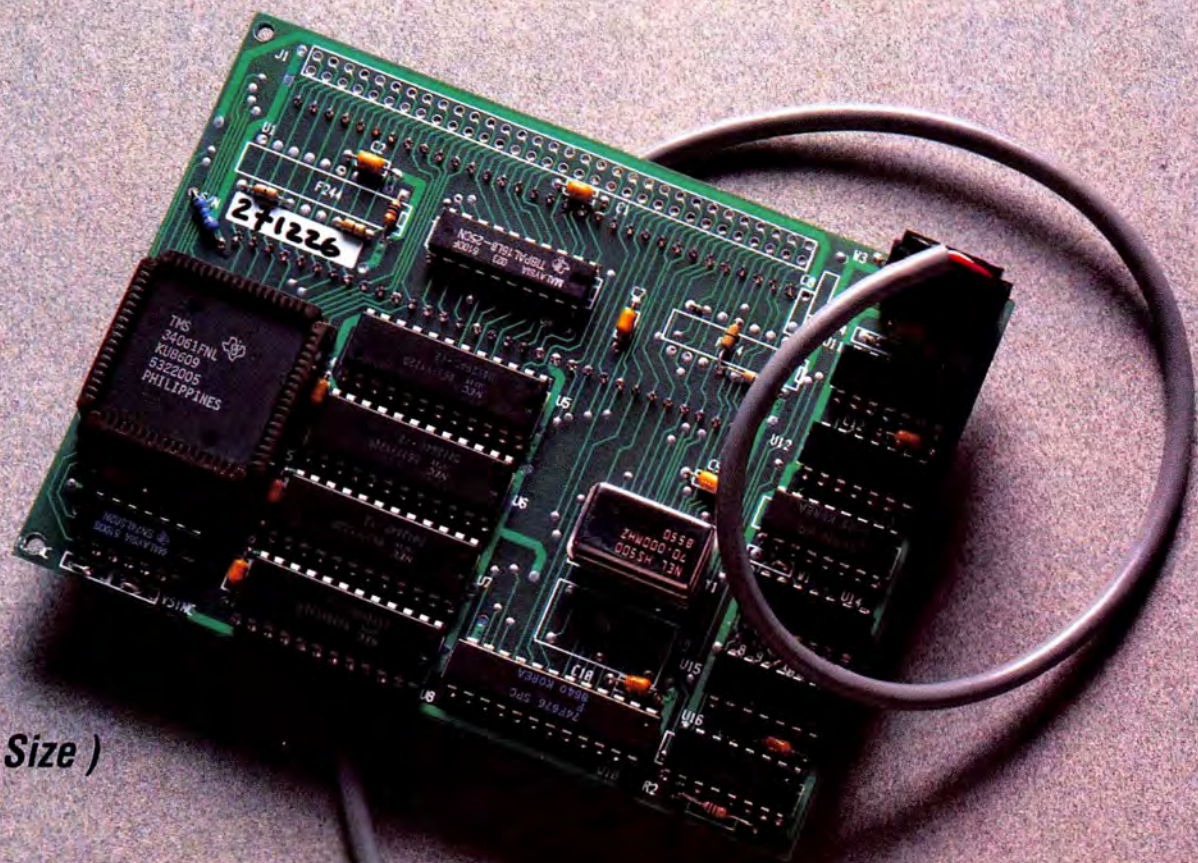
MacLink Plus



Overall Rating	↑ ↑ ↑ ↑
Follows Mac Interface	↑ ↑ ↑ ↑
Printed Documentation	↑ ↑ ↑ ↑
On-Screen Help	↑ ↑
Performance:	↑ ↑ ↑ ↑
Support	↑ ↑ ↑ ↑
Consumer Value	↑ ↑ ↑ ↑

Comments: File transfer and translation software that can link two Macs or a Mac and a PC together for data transfer. **Best Feature:** Clarity of use and versatility. **Worst Feature:** Mac disk-only package not offered. Documentation adequate but does not cover use with other compatible products. **List Price:** \$155 with cable; \$125 without cable. Published by DataViz, 16 Winfield St., Norwalk, CT 06855, (203) 866-4944. Version 1.0 reviewed, Not copy protected.

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Playing Post Office

**Electronic mail is
addictive. You don't
realize it until you try it
and can't give it up.
InterMail and inBox
lead the pack.**

THERE IS AN UNPUBLISHED BUT visually verifiable statistic about office work that electronic mail companies should exploit in their advertising campaigns. It makes electronic mail a clear and present necessity. Simply stated, the amount of paper consumed for interoffice communications increases exponentially for each person in the office — after the first two.

After our company used *inBox* and *InterMail* for several weeks — even though there were a few hitches — no one, from the receptionist to the president, would be willing to go without an electronic mail system. It's not perfect — we still shout at people over the tops of cubicle walls if they don't pick up their messages right away — but the savings we've made in the number of Post-It pads purchased makes it all worthwhile.

MAIL BOXING

InterMail and *inBox* have the same basic capabilities. They both let you send messages electronically from Mac to Mac across an AppleTalk network. Every Macintosh user on the network has his or her own

mailbox, to which any other user can send memos, phone messages, and files. Both programs will alert the recipient when a message comes in, and both will store messages for later reference. If the addressee isn't on the network when the message is sent, the message will be held until the addressee logs in.

Although they do the same thing, *InterMail* and *inBox* have somewhat different personalities. *InterMail* is a plain, utilitarian program that seems best suited to the fast paced style of a young company on the move. *InBox*, on the other hand, is refined and elegant, more likely to be at home in the offices of the Fortune 500.

REGISTERED MAIL

Installation of *InterMail* is simple. It requires all the Macs that are to be hooked up to be on an AppleTalk network. Once the network is set up, Apple's *Font/DA Mover* is used to install the *InterMail* desk accessory into the *System* file of each Macintosh on the net. Then the *InterMail* file from the *InterMail* master disk is copied into each *System* folder.

Next, one Macintosh is set up to act as the mail server for *InterMail*. The mail server is the host for all *InterMail* traffic. It (and its hard disk — electronic mail quickly overwhelms regular disks) stores all messages and coordinates mail activity for all the other Macs on the net. Busy as it is, the server Mac can still be used for other work because *InterMail* runs in the background. You'll notice some drop in performance level when mail activity is going on, but otherwise the server works just like any other Macintosh.

Setting up the server is as easy as copying the *InterMail Server* from the *InterMail* distribution disk into the *System* folder of the designated

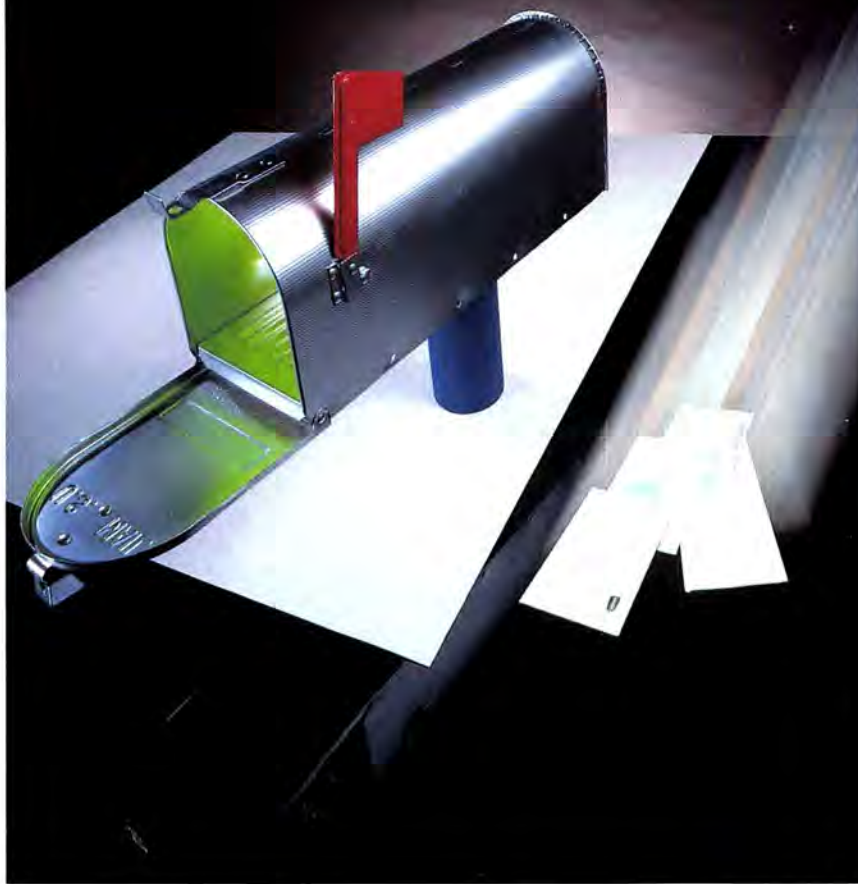
Macintosh and restarting the machine. Although InterNet says you can use a floppy based Mac as a server, you'll definitely need a hard disk. After just a few days use on our small network, *InterMail's* data file had grown to over a megabyte.

After installing the server, the network manager (it can be anyone on the net) sets up the mail center by naming all the users on the net and assigning them passwords (if desired). If possible, the user names should be the same name that is specified in the *Chooser* DA as the user name. It took no more than half an hour to install and configure an *InterMail* system for ten users.

InterMail takes up about 54K on each user's diskette. It consumes 34K of memory in each user's machine, and an additional 60K in the server's RAM. The amount of space on the server's disk dedicated to *InterMail* varies, but expect it to use a megabyte or two.

Setting up *inBox* is a little more difficult, but it should be easy enough for anyone with Macintosh experience. *InBox* is also AppleTalk-based. However, the current version requires a dedicated Mac as the server machine. (Future versions, which should be out by the time you read this will let you put the server on any Mac on the network that has sufficient disk space available.) *InBox* requires you to start up the mail center before you can do anything else. Unlike *InterMail*, *inBox* has two different kinds of disks, Administrator disks and Connection disks. You must use the Administrator disk to do any system maintenance. To get things going you'll have to enter a password. The password is saved onto your master disk, and there's no going back, so don't forget it. I did and it took me some frantic phone

BY LÉO LAPORTE



calls to Think Technologies to crack the code and get my mail system running again.

Once the administrator password is entered and a data file created for *inBox*, it's time to set up the address list. Every list starts with a bulletin board that all users have access to, and each list can contain up to 100 more names. Each name has a corresponding password for security.

As with *InterMail*, you can create routing lists. For example, you can designate a Shipping Department address that, when selected, will send a message to each of the people in Shipping who are connected to the network.

After the address list is built you'll have an opportunity to set the date and time and enter a news flash. Everyone on the net sees the news flash when they first log in.

Until *inBox* 2.0 ships, once the *inBox* message center is running, you might as well put your mail server Macintosh in a closet away from tampering hands. It will continue to run the message center, and only the

message center, until it is turned off. Even the system administrator must maintain the message center remotely from his or her own machine.

The next step in the installation of *inBox* is to obtain Personal Connection disks for each Macintosh on the network. The Personal Connection disks are serialized, so you'll need to purchase a separate disk for each user. Like *InterMail*, *inBox* installs as a desk accessory.

Installing *inBox*'s Personal Connection on a disk takes up about 90K. *InBox* consumes 40K of RAM on every machine on which it's installed. The server disk will require 50 to 100K of disk space for each user.

P.O. BOX MAC

Although *inBox* and *InterMail* do pretty much the same thing, each has features the other lacks. For example, *inBox* has a bulletin board address for public messages. It also lets you customize its phone message form to add check boxes that best suit your needs. (That can be done in

InterMail only as an extra cost option.) *InBox* can automatically print all the phone messages from any station. And it supports network wide log-on notices.

On the other hand, *InterMail* provides an additional message type, the assistance request. It's designed to help a user get assistance from the Network Manager. For an additional cost *InterMail* can also support graphic messages, a network reminder system and cross zone messaging.

InBox messages can be 30 (smallish) pages long — *InterMail* messages are limited to 32,000 characters. It comes to about the same thing. For both programs, longer messages can be created with a word processor and sent as an attached file. But both systems only allow you to send one file with any given message.

InBox and *InterMail* have slightly different ways of alerting you to an incoming message. *InterMail* rings a European style tone, opens an alert window, and flashes a small icon in the upper right hand corner of the screen. *InBox* rings a bell and scrolls a message across the menu bar. You can turn any of these features off in both programs. *InBox* does support repeated reminders for waiting messages — a feature missing (but perhaps not missed) in *InterMail*. Both programs support return receipts and the familiar "While You Were Out" telephone messages.

InBox and *InterMail* can each display a directory of messages waiting in your mailbox. *InBox*'s window gives you a good deal more information about the messages, though. It will tell you if a return receipt has been requested for a message (*InterMail* keeps it a secret). *InBox* also marks messages you've sent yourself and messages you have yet to read.

PLAYING POST OFFICE

InterMail only shows whether the message is a memo or a telephone message.

When all the features are tallied up, *inBox* has a slight lead.

EASE OF USE

InBox is a more attractive and polished program, and so seems easier to use. It's also a little harder to trip yourself up with *inBox*. For example, if you try to close a message window before sending the message, *inBox* will warn you that you are about to lose the message, and give you a chance to backtrack. *InterMail*, on the other hand, swallows the message whole without a word.

InterMail also has a problem with attached files. If you receive a message with a file attached and delete the message before saving the file, there's no way to recover the file. You'll have to ask your correspondent to re-send it, and the way the *InterMail* window is set up it's very easy to lose a file.

In general, *InterMail's* user interface isn't as well thought out as *inBox's*, so score this round in favor of *inBox*.

PRINTED MATERIAL

InBox comes with two kinds of manuals, one for the system administrator, and one for each user. Even though both manuals are small, they contain most of the information you'll need. Each is indexed and liberally illustrated. It's a nice touch to have a manual for each user.

InterMail, on the other hand, comes with a single, unindexed manual intended for the network manager alone. But *InterMail* solves the problem of having only one manual by putting a very complete tutorial on-line for each user.

Although *inBox* scores for its quality manuals, *InterMail's* built-in tutorial is a strong point in its favor. Score this round a draw.

THROUGH RAIN OR SLEET OR SNOW

When you add any program on top of a network, it's important that the program be reliable, because a crash could bring down more than just your computer, it could bring

down the entire net. Both *InterMail* and *inBox* seem fairly reliable on this count. They never affected network operation, and were easily able to handle the loss of any client system on the net. Of course, neither program will work when the mail server goes down, but they won't crash your net, either.

One program that can give electronic mail fits is *MacWrite*. It won't tolerate having a dialog box pop up while characters are being typed. It crashes when that happens. So if you use *MacWrite* a lot, disable the dialog box alert in *InterMail*.

Neither program is without flaw, however. The *inBox* desk accessory does not work with *Excel*, *Jazz*, *ThinkTank* or *OverVUE*. Think Technologies doesn't consider this a bug, but it's definitely not a feature. *InterMail* seems to work with all programs that support desk accessories. *InBox* can also be tough to install and run off old (64K) ROM machines without hard disks. It will work, but often wants more space than is there.

For its part, *InterMail* 1.0 has a serious bug that can cause your system to crash. For some reason if an

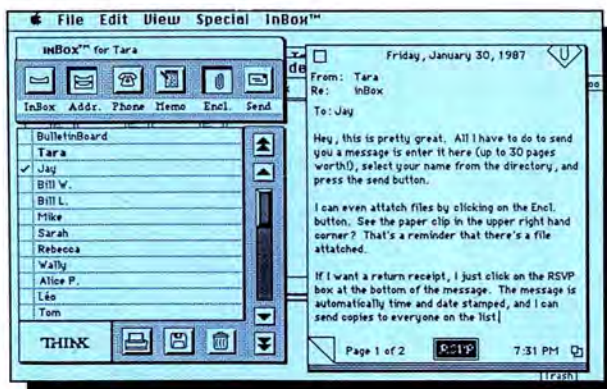
incoming message alert window is ignored, *InterMail* will start devouring your memory at the rate of about 1K per second. Eventually your Macintosh will run out of memory and bomb. This bug is easy enough to work around — just turn off the alert window feature — but it's a little scary.

Aside from that one bug, *InterMail* seems pretty reliable. It's a much newer program than *inBox*, though, so you can expect to see a few more kinks in the program.

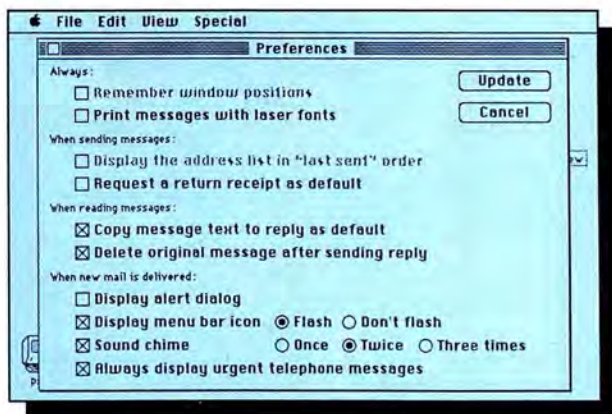
Both programs peacefully coexist with file servers running on AppleTalk. We tried them with *MacServe*, *TOPS*, and *HyperNet* running, and experienced no difficulties attributable to the presence of the network software. We have a variety of machines on our network, ranging from unenhanced Macintosh 512s, to Macintosh Pluses with and without SCSI hard disks attached, to Hyper 2000 Macintoshes with high-speed 68000s, floating point processors and 2 megabytes of RAM installed. Both programs worked equally well on all machines. Their memory requirements are too much for the old 128K Macintosh models, however.



The *inBox* Message Center acts as a server for the system. If you dedicate a Mac as a server, required by *inBox* 1.0, the Mac screen stays like this until the message system is shut down.



A sample *inBox* message. *InBox* screens are more attractive, carry more information than *InterMail* screens. Icons indicate the type of message being sent. Below them is the address list.



An *InterMail* user can customize the local responses by setting *InterMail* preferences.



InterMail — messages waiting.

A LOCKED BOX

InBox and *InterMail* each prevent unauthorized access to the message base through the use of passwords. Neither program requires you to use passwords if you don't feel they're necessary.

Think Technologies claims the copy protection on *inBox* is also for your security. In this case they may be right. Although it's an annoyance, it does add an extra layer of protection. Even someone with the system administrator's password, won't be able to log in without the key disk.

Both passwords and copy protection can be easily bypassed by someone who is clever enough, so neither mail system should be considered absolutely secure. If security is an issue for you it might be a good idea to encrypt messages before transmitting them.

COST OF MAIL GOING UP

As befits products that will be used on a large number of machines, both *inBox* and *InterMail* are expensive. The *inBox* Starter Set contains one Administrator disk and manual

and three Personal Connection disks and manuals, and sells for \$299. Each additional Personal Connection costs \$75.

InterMail works a little differently. The *InterMail* programs themselves are preconfigured for the number of users you've licensed. For one to four users the price is \$299.95. Five to ten users cost \$499.95, 11 to 20 cost \$749.95, and for 21 or more users *InterMail* costs \$949.95. No matter what your configuration you'll get one 800K diskette and one manual. Your disk can be upgraded at any time for the difference in price. InterNet also offers several optional features ranging from \$59.95 to \$199.95 per server.

InterMail works out to be much less expensive, about \$50 per node compared to \$75 per node for *inBox*. There's no question this round goes to *InterMail*.

ELECTRIC PONY EXPRESS

Both programs do the job they are intended to do, and do it well. Any difficulties encountered in the use of these programs are more than offset

by the convenience and efficiency of an electronic mail system.

The *inBox* interface is definitely superior, and it has the advantage of maturity and a strong company behind it. On the other hand, we've decided to stick with *InterMail* in my office. It does the job we need to do with a minimum of fuss, and it's more economical. Nor were we blind to the fact that *InterMail* works with *Excel*, while *inBox* does not.

By the time you read this, both companies plan to have released new versions of their programs which will fix bugs and add new features. InterNet plans to add Telex and modem autodial capability to *InterMail*. *InBox* 2.0 will eliminate the requirement for a dedicated Macintosh, and combined with *inBox* PC will allow Macs and IBM PCs to communicate over AppleTalk.

Whichever system you choose, the improvements in interoffice communications will be dramatic. The electronic office doesn't entirely eliminate paper, but you can certainly reduce the number of little yellow message pads used. ☹

LÉO LAPORTE IS A SAN FRANCISCO AREA WRITER. HE ALSO RUNS THE MACQUEUE BULLETIN BOARD IN THE BAY AREA.

inBox



Overall Rating



Starter Set, with one Administrator disk and manual and three Connection disks and manuals, \$299. Additional connections cost \$75 each. Published by Think Technologies, Inc., 420 Bedford Street, Lexington, MA 02173, (617) 863-5590. Serialized and copy protected.

InterMail



Overall Rating



Programs preconfigured for the 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. InterNet also offers several optional features ranging from \$59.95 to \$199.95 per server. Published by Interactive Network Technologies, Inc., 20 Amy Circle, Waban, MA 02168, (617) 965-5239.

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MACUSER • December 1986

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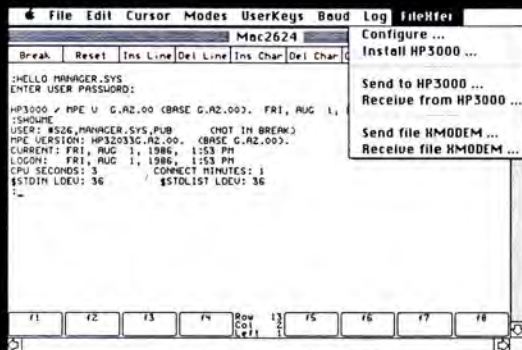
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Bumper Crop



The AST Mac86 is an 8086-based coprocessor board that enables users to run MS-DOS application software on the Macintosh SE as well as moved back and forth between the two environments.



The AST-ICP is an intelligent communications processor that offloads communications functions from the Macintosh II to increase system performance, speed and efficiency.



Designed to complement the Macintosh II computer, the AST-RM4 memory expansion board provides up to four additional megabytes of memory.



The AST Mac286 is an 80286-based microcomputer that allows a user to run MS-DOS applications at IBM PC AT speeds on the Macintosh II computer.

The arrival of the new Macs has brought forth flourishing third-party support.

THERE HAS BEEN AN EXTRAORDINARY amount of product development going on recently, including a huge showing of support for Apple's file server, *AppleShare*, and the AppleTalk protocols that make *AppleShare* possible. A large number of companies have announced support for AFP, Apple's Filing Protocol, and the Apple Communications Framework, both at the Seybold Conference on Desktop Communications, and to coincide with the launch of the Macintosh SE and Macintosh II computers.

Although the following list is not exhaustive, we wanted to let you know about as many of the products as we could. Company addresses and phone numbers can be found in the supplement directory.

Alisa Systems

Alisa Systems announced support of AFP in the next release of their file server for VAX/VMS. The Alisa product, called *AlisaServer*, is part of the *AlisaTalk* package currently marketed to users of DEC VAX systems who want to put their VAX superminis on AppleTalk networks. *AlisaTalk* is connected to AppleTalk via 3COM's Ethernet network and Fast-Path bridges, from Kinetics.

Apple Computer

The biggest announcement at the Seybold Conference was *AppleShare*, the Apple file server. *AppleShare* is a workgroup file server that provides transparent and easy access to shared

information over AppleTalk networks. *AppleShare* is now available and costs \$799.

Apple also announced the AppleTalk PC Card, a half-size printed circuit card for MS-DOS systems that lets MS-DOS machines access the Apple LaserWriter via AppleTalk networks. The AppleTalk PC card contains a 65C02 microprocessor (same one found in the Apple IIc and IIe), and has AppleTalk protocols in ROM.

Apple and several third parties announced plans to develop software for the AppleTalk PC card that will let MS-DOS computers access *AppleShare*. Included with the PC card is software that converts MS-DOS generated text to PostScript. The card supports *WordStar*, *1-2-3*, *MultiMate*, *Word*, *Diablo 630*, ASCII and PostScript file formats. The AppleTalk PC card sells for \$399.

Along with *AppleShare*, Apple announced a LaserWriter print spooler called *LaserShare*, which offloads the laser print queue to the server, returning control of your Mac quickly even if there are several documents queuing up to be printed. *LaserShare* should be available in the second quarter of this year at a price of \$299.

Apple, obviously a very busy company lately, also announced DCA Filter Software that translates MS-DOS word processing documents to *MacWrite* format. DCA, Document Content Architecture, is IBM's standard for word processing docu-

BY MICHAEL D. WESLEY

ments. Available through a special release in the second quarter to coincide with Apple's announcement of a card, external disk drive and software that let the Macintosh II read IBM PC data disks, there is no charge for the DCA product (no kidding — no charge).

Again from Apple comes a product called *AppleLine 3270 File Transfer*, a utility for transferring files from an IBM 3270 mainframe environment and Macintosh via Apple's protocol converter, *AppleLine*. Scheduled to be available in the second quarter, this product will sell for \$99.

Finally, Apple will be offering, through participating Apple dealers, a Network Administrator's Course. This will be a two-day, \$1200. course to teach non-technical people how to act as a network administrators, maintaining an AppleTalk network on a daily basis.

Applied Micronetics

Applied Micronetics announced the availability of version 1.30 of *Office Productivity System (Ops)*, an integrated invoicing, job costing and accounts receivable system that utilizes *AppleShare* to provide for multiple concurrent users of a single large database. *Ops* sells for \$475.

AST

AST, a very important company in the IBM PC add-on market, announced several multifunction boards for the Macintosh SE and Macintosh II.

The first board, MacPack — for the SE — is similar to the popular 6-pack card for the IBM PC. MacPack offers 1 to 3 megabytes of RAM on board, with a buffered connection for a daughter board. AST will publish the specifications of the daughter board, and hopes to use MacPack as a platform for themselves as well as other developers to generate additional cards for the SE.

The first additional card will come from AST themselves. It will be a daughter board with two serial ports and an optional 5 1/4 -inch floppy disk controller.

AST also announced the Integrated Communications Processor



The *AppleShare* file server configuration is flexible and expandable — consisting of a Macintosh Plus with virtually any hard disk.



Apple's new *AppleTalk PC Card* connects MS-DOS personal computers to the *AppleTalk* network and the *Apple LaserWriter*, enabling Macintosh — MS-DOS information sharing and *Apple Desktop Publishing* with MS-DOS personal computers.

Board for the Macintosh II. This card works with UNIX and will allow a user to hook up to four dumb terminals to a Macintosh II running UNIX.

Another board for the Mac II, the RM4, is a memory board, offering 1 to 4 megabytes of RAM that is available not to the user directly, but to other cards in the NuBus slots (UNIX, for instance). It could also be used to provide extra RAM support for optical scanners and other devices that require large memory.

Perhaps the most interesting cards from AST, though, are the coprocessor cards which will allow the Macintosh SE and Macintosh II to run MS-DOS. For the SE, AST announced the Mac 86 card, an 8086-based card with a 5 1/4 -inch floppy controller on board. The Mac 86 will not have any memory of its own, but will provide MDA and CGA type graphics support.

The Mac 286 provides an 80286 coprocessor option for the Macintosh II. Like the Mac 86 card, the Mac 286 will have a floppy disk controller on board. But the 286 also provides 1 megabyte of its own RAM, a DMA, and is slotted for an optional 80287 math coprocessor. Mac 286 supports MDA, CGA and Hercules graphics options.

AST will offer MS-DOS with the boards, either bundled or for an

extra charge. Prices had not yet been decided at the time of writing.

Centram

Centram Systems announced full support of Apple's communications framework, and the *AppleTalk PC card*. In addition, Centram announced two other significant products. The first, *TOPS REPEATER*, is a box that extends the maximum length of and number of machines on an *AppleTalk* network by receiving incoming network signals, regenerating them and retransmitting them at full voltage.

The second is *TOPS STAR*, which transforms bus networks, like *AppleTalk*, into a star configuration. It is designed to sit in a company's phone closet and connect directly into the building's telephone lines. *TOPS REPEATER* sells for \$189; *TOPS STAR*, \$1500.

3COM

3COM has announced the signing of a letter of intent to acquire Centram, with plans to market *TOPS* as entry level distributed server. They also announced 3+ Mac, a dedicated file server offering file service, name service, print service and 3+ electronic mail to users on *AppleTalk* and *EtherNet*. 3+ Mac will allow Macs to connect to 3+ networks with IBM PCs. Users will be able to

BUMPER CROP

dial into and access the network from a remote location via modem. 3+ Mac automatically maps MS-DOS file extensions (.xxx) to Macintosh file creator types, making it easy to pass files. Users can bridge *AppleShare* and 3+ networks, and 3COM will offer a token ring board for the server that will hook Macs into a token ring (IBM's standard) network.

Corvus

Corvus announced that OmniNet will provide full support of Apple's Filing Protocol and *AppleShare*. This will allow OmniNet users to access all AppleTalk software and should be available in mid-1987.

Diversified I/O

Diversified I/O announced *SoftBackup* software that supports AFP. *SoftBackup* allows users of individual Macs or Macs on a network to backup files to tape or diskette. It backs up at volume, folder and file levels. Features include timed backups, so the *System* can back up automatically, and scripts for repeated backups of selected items. *SoftBackup* is scheduled for an April ship date at a cost of \$69.95 for the standalone version, \$139.95 for the AppleTalk version.

DuPont

DuPont announced a fiber optic LAN (local area network) for AppleTalk. Developed for their own in-house use, the DuPont fiber optic LAN is modular, connecting each computer through an optical/electric signal converter. The fiber optics cabling allows users to add fiber optic links to an existing copper wiring network, or design one that is completely fiber optic.

There are several advantages to fiber optics, including increases in speed, distance and number of users. More than one hundred stations can be linked with individual nodes as far as 4900 feet apart. The system gives network designers the freedom to configure AppleTalk networks through walls, across floors and between buildings. It will be available at selected dealer outlets and directly from DuPont.



Key components of Du Pont's fiber optic local area network are, (from L to R), the concentrator, wall plate and converter.

Farallon

Farallon, the PhoneNET people, announced the PhoneNET Star controller, software and management card that allows very large AppleTalk networks to be set up in star topologies using a building's existing telephone wiring.

Farallon also announced the PhoneNET Repeater, a box that boosts signals on AppleTalk networks, and *TrafficWatch*, a set of network analysis and debugging utilities.

Flexware

Flexware announced a full range of multi-user high-end accounting applications supporting AFP and *AppleShare*. *Flexware Accounting* works across Macintoshes, IBM PCs and VAX minicomputers running the VMS operating system.

GCC

General Computer Company redefined the existing *HyperNet* distributed file serving software as compatible with and co-existent with *AppleShare*, and announced plans to extend *HyperNet's* capabilities to cover all leading hard disks, not just HyperDrive.

Imagine

Imagine Software, makers of *Appointment Diary* and *Smart Alarms*, announced *Multi-User Appointment Diary with Smart Alarms*. *Multi-User Appointment Diary* will work as a desk accessory, and will allow everyone on an AppleTalk network to write and/or view schedules for up to 21 people in an office, and still set personalized reminders. The product will work with *AppleShare*, *MacServe*

and other server software. The price is \$149.95 plus \$10 per node.

Infosphere

Infosphere announced *ComServe*, an AppleTalk Modem Server. *ComServe* lets many users on a network share modems and other serial devices over AppleTalk. The cost is \$195 per server and the product should be available in the second quarter. Infosphere also announced support of AFP and said that they will add AFP support to *MacServe*.

Layered

Layered announced that *Insight* accounting software will be made multi-user, fully supporting *AppleShare* and AFP.

Letraset

Letraset announced full support of AFP and said that future releases of *ReadySetGo! 3* will be fully compatible with *AppleShare*.

Microsoft

Microsoft, a company riding high these days, announced that *Word 3.0* will take full advantage of *AppleShare*, making it the first word processor optimized to take advantage of Apple's networking strategy. *Word 3.0* is designed to work in a networked environment, which means that it will support file sharing, as well as the ability to share style sheets, glossaries and dictionaries across a network. *Word 3.0* sells for \$395.

MindWork

MindWork announced that *MindWrite* supports the Apple communications framework, and that *Mind-*

Write is fully compatible with *AppleShare*.

Odesta

Odesta earlier announced a VAX version of *Multi-User Helix*. At the Seybold Conference, Odesta also announced plans to provide support of MS-DOS in its *Helix VMX* application. *Helix VMX* runs on any VAX computer under the VMS operating system, with Macintoshes as intelligent "guests" of the host server. It provides distributed processing for data base applications.

Odesta also announced that *Multi-User Helix*, *Double Helix* and *Helix VMX* will support AFP and *AppleShare*. *Multi-User Helix* will run concurrently with *AppleShare*.

PCPC

PCPC, makers of MacBottom hard disks, announced a multi-user version of their *HFS:Backup* hard disk backup utility for *AppleShare*.

Reach Technologies

Reach Technologies announced NUCLEUS, a family of network servers. NUCLEUS contains a microprocessor, memory and software for \$1595. A NUCLEUS 20 MB server will sell for \$2595 and the 40MB model for \$3395. Both have external SCSI ports so you can add on additional SCSI hard drives. Reach also announced that NUCLEUS family and Keeper Plus will fully support AFP.

SoftView

SoftView announced the release of an update that makes *MacInUse* compatible with AFP and *AppleShare*.

Solana Engineering

Solana Engineering showed a network cluster controller that lets you link Macs on a network to a variety of peripheral devices or other networks. The Solana cluster controller will sell for \$595.

Solutions

Solutions announced that *Glue*, their image sharing software, will let users "print" reports from most Mac applications directly to the file server

disk. Reports will then be available to all users of the server.

SuperMac Technology

Like Apple, SuperMac Technology has been extremely busy in the past few months. At the Seybold Conference, SuperMac Technology announced full support of AFP for their line of hard disk products. SuperMac Software announced a multi-user version of *DiskFit*, a hard disk backup utility shown first at the MacWorld Expo in January; multi-user *SuperLaserSpool*, a LaserWriter spooler also announced in January, and *Sentinel* file encryption software.

Tangent Technologies

Tangent announced *PC/Mac-Bridge AFP*, software that allows IBM PCs to access *AppleShare*. Available in March for \$150, it works with *PC/MacBridge* ATB, an AppleTalk board that includes *PC Print* software.

Think Technologies

Think Technologies announced *inBox 2.0*, an upgraded version of their electronic mail package that doesn't require a dedicated Mac to act as the mail center. Think also announced *inBox PC*, an IBM PC version of *inBox* that supports AppleTalk and *AppleShare*, and connects Macs and PCs over AppleTalk. *InBox PC* sells for \$195 per connection.

WOS Systems

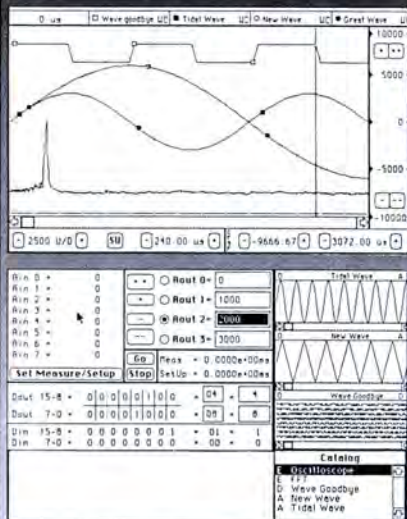
WOS Systems announced *WOS/CTB/McGraw Hill Fund Accounting*, a multi-user fund accounting system for *AppleShare*.

Although many of these products may seem esoteric right now, networking applications will be the norm in the near future. And the amount of support shown by third party developers for the Apple networking framework bodes well for increased large business support of Macintosh. And this is only the beginning of what Apple and the Macintosh community will reap from the opening up of Macintosh.

MICHAEL WESLEY IS MACUSER'S WEST COAST EDITOR.

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THE FOLLOWING LIST DOES NOT include the full range of modems and telecommunications software for single users, but is a gathering of multi-user, networking applications for desktop communications.

AlisaTalk, file server package for DEC VAX, AppleTalk. Alisa Systems, 221 E. Walnut St., Suite 230, Pasadena, CA 91101. (818) 792-9474.

AppleShare File Server, \$799. **AppleTalk PC Card**, \$399. **DCA Filter Software**, no charge. **AppleLine 3270 File Transfer**, \$99. **Network Administrator's Course**, \$1200 from participating Apple dealers. Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014. (408) 996-1010.

(Ops) Office Productivity System, integrated multi-user accounting system, \$475. Applied Micronetics, 3 Burnt Oak Circle, Lafayette, CA 94549. (415) 283-4498.

MacPack, multifunction expansion card for Macintosh SE (No price announced at press time.) Daughter board for **MacPack** with 2 serial ports and an optional 5 1/4-inch external floppy disk controller. (No price announced at press time.) **Integrated Communications Processor Board**, lets you attach up to four dumb terminals to a Macintosh II running UNIX. (No price announced at press time.) **RM4** for the Macintosh II offers 1 to 4 megabytes of RAM for use by other NuBus cards. (No price announced at press time.) AST Research, 2121 Alton Ave., Irvine, CA 92714. (714) 863-1333.

Omnis 3 Plus AFP, multi-user data base and applications generator. (No price announced at press time.) Blyth Software, 2929 Campus Drive, Suite 425, San Mateo, CA 94403. (415) 571-0222.

TOPS, distributed file server for Macintosh and IBM PC. \$149 for Macintosh, \$389 for PC with add-on card. **TOPS REPEATER**, booster box to extend AppleTalk networks, \$189. **TOPS STAR**, controller box that lets you run AppleTalk in a star configuration using existing telephone wiring, \$1500. Centram Systems West, 2560 Ninth St., Berkeley, CA 94710. (415) 549-5900.

3+ Mac, file server and **Ethernet Local Area Network** system for Macintosh that connects to 3+ networks using PCs. (No price announced at press time.) 3COM Corporation, 1365 Shorebird Way, Mountain View, CA 94043. (415) 961-9602.

OmniNet, Local Area Network providing high speed transmission, up to 64 nodes and up to 4000 feet between stations. Corvus Systems, Inc., 2100 Corvus Drive, San Jose, CA 95124. (408) 559-7000.

MacLink Plus provides file conversion from Mac to a variety of systems, including IBM DCA format documents, Wang. (No price announced at press time.) DataViz, 16 Winfield St., Norwalk, CT 08655. (203) 866-4944.

FT100 contains a half-height, IBM-compatible floppy disk drive. Allows file transfer directly from IBM data disks to Macintosh applications. (No price announced at press time.) 50 S. Main St., Salt Lake City, Utah 84144. (800) 531-0600.

SoftBackup, networking version of hard disk backup utility, \$139.95. Diversified I/O, 1008 Stewart Drive, Sunnyvale, CA 94086. (408) 730-2171.

FastNet, hardware device that provides an intelligent connection between SCSI ports and Ethernet or other Local Area Networks. (No price announced at press time.) Dove Computer Corporation, 1200 N. 23rd St, Wilmington, NC 28405. (919) 763-7918.

Fiber Optics Local Area Network for AppleTalk. Allows over a hundred stations per network, more through bridges. Nodes can be up to 4900 feet apart. (No price announced at press time.) DuPont Connector Systems, 515 Fishing Creek Rd., New Cumberland, PA 17070. (717) 938-6711.

PhoneNET, AppleTalk cabling system using telephone wiring and modular jack connectors. \$49.95 per node. **PhoneNET STAR** controller, software and management card lets you connect an AppleTalk network in a star topology using a building's existing telephone lines. **PhoneNET REPEATER**, a booster that extends AppleTalk networks. **TrafficWatch**, a set of network analysis and debugging utilities. (Prices for the last three items not announced at press time.) Farallon Computing, 1442A Walnut St., #64, Berkeley, CA 94709. (415) 849-2331.

Flexware, multi-user accounting software. (No price announced at press time.) Micro-financial Flexware, 15404 East Valley Blvd., City of Industry, CA 91746. (818) 961-0237.

HyperNet, distributed file server for HyperDrive, other hard disks. (No price announced at press time.) General Computer, 215 First St., Cambridge, MA 02142. (617) 492-5500.

InterBridge bridges multiple AppleTalk networks, also allows access to AppleTalk via modem from a remote location. (No price announced at press time.) Hayes Micro-computer Products, 705 Westech Dr., Norcross, GA 30092. (404) 449-8791.

Multi-User Appointment Diary with Smart Alarms, a networking version of the popular scheduling and reminders desk accessory. Works with a variety of networking software, including **AppleShare**, **TOPS**, **MacServe**. \$149.95, plus \$10 per node. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. (415) 453-3944.

MacServe converts a Mac and a hard disk into a disk and print server on AppleTalk, \$250. **LaserServe**, LaserWriter spooling software that works as a desk accessory. \$125 per node. **ComServe**, AppleTalk modem server. Lets multiple users on a network share a single modem. \$195 per server. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. (503) 226-3515.

InterMail, electronic mail software for AppleTalk networks. Prices range from \$299.95 for 1 to 4 users to \$949.95 for 21 users and up. Interactive Network Technologies, Inc., 20 Amy Circle, Waban, MA 02168. (617) 965-5239.

EtherSC is a hardware box plus software that provides direct connection from a Mac Plus SCSI port to 3COM's Ethernet network, \$1250. **FastPath** is a similar box used to bridge AppleTalk networks to Ethernet, \$2500. Kinetics, 2500 Camino Diablo, Walnut Creek, CA 94596. (415) 947-0998.

MacMENLO software includes a variety of packages that connect Macintoshes to Tandem Computers, and Tandem to AppleTalk networks. Menlo Business Systems, 334 State St., Los Altos, CA 94022. (415) 948-7920. Software is also supported and marketed directly by Tandem.

Multi-User Helix and **Helix VMX**, high end relational database and applications management software for Macintosh, Mac to VAX. **Multi-User Helix** sells for \$695, including **Double Helix** and three multi-user nodes. Additional nodes are \$100 each. Odesta Corporation, 4966 El Camino Real, Suite 205, Los Altos, CA 94022. (415) 962-8661.

AllegroServer software for Macintosh that connects Macs and other personal computers to the Wang VS Office System. Sold in a variety of options. Prices begin at \$495.

Directory

OmniGate, 351 California St., Suite 1000, San Francisco, CA 94104. (415) 781-6464.

Multi-user HFS:Backup, hard disk backup utility for **AppleShare**, AppleTalk networks. (No price announced at press time.) PCPC, 6204 Benjamin Rd., Tampa, FL 33634. (813) 884-3092.

Keeper Plus file server, a true dedicated file server for AppleTalk networks. **NUCLEUS** file server with microprocessor, memory and software for \$1595. **NUCLEUS 20 MB** file server for \$2595, **NUCLEUS 40 MB** for \$3395. Reach Technologies, PO Box, 9802, Suite 925, Austin, TX 78766. (512) 280-1977.

Multi-user Project Billing and Legal Billing II, network versions of time billing packages that allow simultaneous entry of time and expenses by any user on **AppleShare**. (Prices not available at press time.) Satori Software, 2815 2nd Ave., Suite 590, Seattle, WA 98121. (206) 443-0765

Multi-user DiskFit, backup software for hard disks on **AppleShare**. \$395. **Multi-user SuperLaserSpool** LaserWriter spooling software for AppleTalk networks. \$395. SuperMac Software, 950 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-8884.

PC/MacBridge AFP, software that lets IBM PCs access **AppleShare** on AppleTalk networks. \$150. Tangent Technologies, 5720 Peachtree Parkway, Suite 100, Norcross, GA 30092. (404) 662-0366.

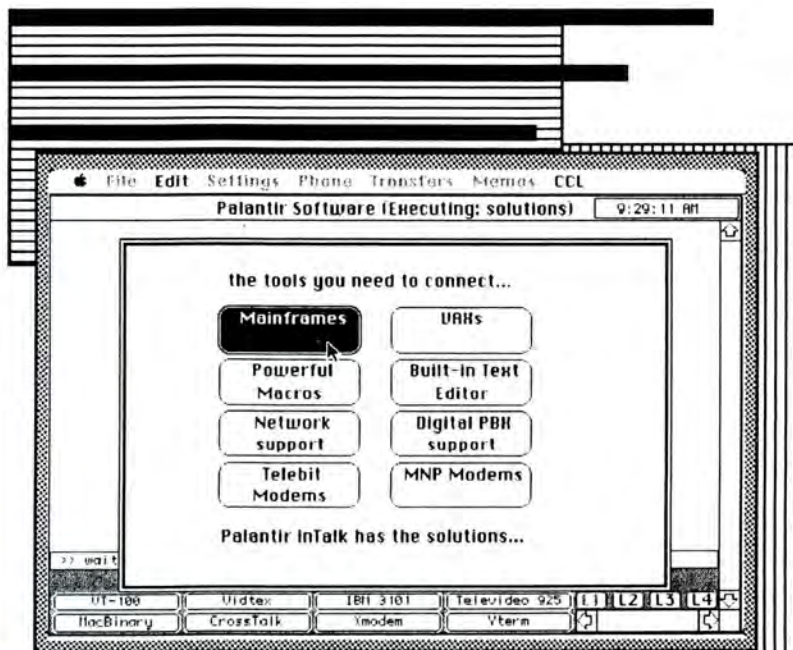
InBox 2.0, upgrade of **inBox** electronic mail software that is **AppleShare** compatible, no longer requires dedicated Mac. \$350 for a starter kit and \$125 per connection. **InBox PC**, electronic mail for PC on AppleTalk. \$195 per connection. Think Technologies, 420 Bedford St., Lexington, MA 02173. (617) 863-5590.

Netway 1000A, 3274 Gateway provides IBM host system access for Macs on an AppleTalk network. Software options provide terminal emulation and file transfer support. (No price announced at press time.) Tri-Data, 505 East Middlefield Rd., Mountain View, CA 94043. (415) 969-3700.

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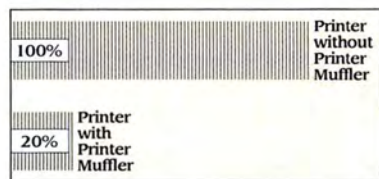
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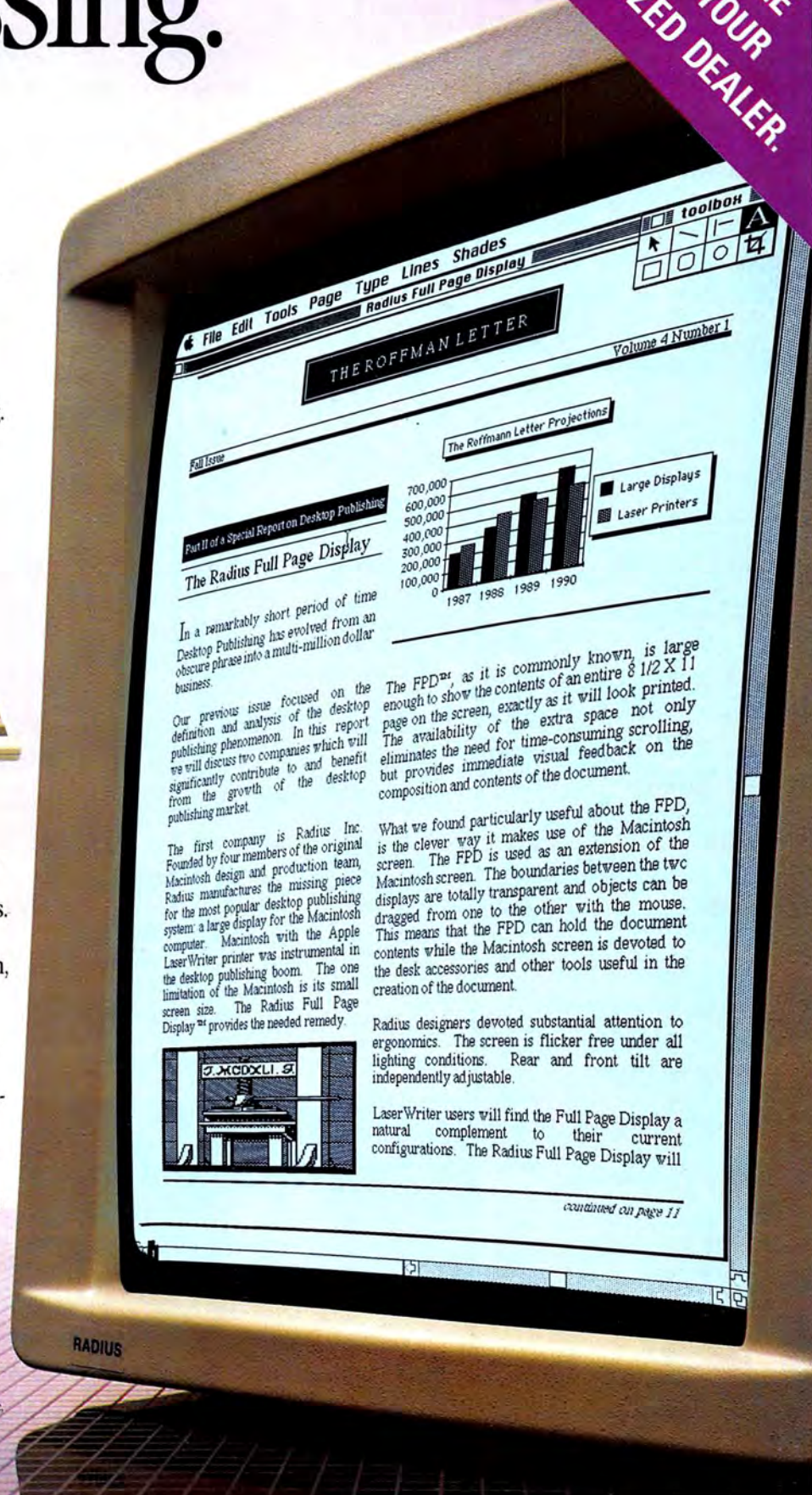
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Part II of a Special Report on Desktop Publishing

The Radius Full Page Display

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

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

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



The FPD™, as it is commonly known, is large enough to show the contents of an entire 8 1/2 X 11 page on the screen, exactly as it will look printed. The availability of the extra space not only eliminates the need for time-consuming scrolling, but provides immediate visual feedback on the composition and contents of the document.

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

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

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

continued on page 11

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Do, Re, Mouse

MUSICAL APPLICATIONS WERE probably not foremost in the minds of the earliest software and hardware developers — certainly it fell way behind such things as analyzing election returns and flowcharts. Computers were obviously the province of science; no one ever expected the arts to move in and take over to the extent that they have. There are several programs that support more or less formal musical composition; now there's one that lets you jam.

Music Mouse is the kind of application that leaves you feeling completely charmed. Created by Laurie Spiegel, who has worked at some of the great citadels of computer music (such as Bell Labs), it turns your Mac into a unique musical instrument. Laurie describes *Music Mouse* as "an intelligent instrument." Most of you will call it just plain fun. This is a music program unlike any other ever written for personal computers. *Music Mouse* is computer-assisted improvisation, automating parts of the improvisation process, leaving you free to shape and direct the flow of the music.

Unlike *MusicWorks* or the *Deluxe Music Construction Set*, this is not a

**Music Mouse gives you
computer-assisted
improvisation and
leaves you free to jam.**

notation program, or a sequencer (note storage and playback program). *Music Mouse* is a real-time performance application. Launch it, grab your mouse, and you're immediately involved in playing music. You'll be drawn into it before you know what's happened. Even if you've never touched a musical instrument before, you'll be able to make all kinds of interesting musical sounds right away. If you have some musical background, you'll be able to get still more out of it.

Laurie Spiegel is a composer of avant-garde leanings, so *Music Mouse's* forte is not melodies like "Jingle Bells" or "Three Blind Mice." Although you can use *Music Mouse* to play tunes, that's not its intended purpose. What *Music Mouse* does

most naturally and idiomatically is to create abstract sound patterns. As you play, you control, shape and direct those patterns in real time. With an unusual degree of insight, Spiegel has made some musical choices that restrict the range of possibilities, keeping you from making truly ugly sounds. At the same time, the remaining choices permit you to express your musical feelings spontaneously. It is, after all, an intelligent instrument.

With *Music Mouse*, you can play complex four-voice sounds and all the notes are within the pitch set selected — no "wrong" notes. You can play slow, arching melodies with rich harmonic accompaniment. Or you can play glittering, shimmering textures with rapidly cascading inner patterns. The *Music Mouse* helps you express yourself by selecting the right notes for the chords, and by generating the automatic melodic patterns, leaving the driving to you and your mouse.

KEYBOARDS, STRINGS, REEDS, MICE

Music Mouse is especially admirable because it is not a keyboard-based application. Almost all other



BY STEVE BIRCHALL



LUDTKE

DO, RE, MOUSE

music software forces you to use a keyboard to play it. Even the *Deluxe Music Construction Set*, which lets you drag notes onto a two-staff piano notation template, basically behaves like a piano. *Music Mouse*, however, is the kind of electronic musical instrument meant for diehard old analog knob twisters. One of the first things that attracted me to electronic music back in the 1960's was the fact that twisting knobs on control panels could produce meaningful music. The keyboards came later, when the academic types, and still later, the rock bands, took over. After that, every new electronic musical instrument ended up as a glorified electronic piano.

Keyboards limit your musical imagination to the things that keyboards do. Every instrument has its own unique, idiomatic way of being played. Thus composers must write differently for the violin, bassoon or the piano. What's easy to play on the clarinet, for example, might be impossible on the piano.

That's the point. Keyboards alone are not the complete answer. Music has many other expressive possibilities besides what keyboards provide. All are useful, and have an important place in the way we express musical thoughts. *Music Mouse* opens up some new ways to control your instrument — including MIDI instruments.

HANDS-ON MOUSING

The Mac-turned-intelligent-instrument offers simple two-handed operation. You control pitch by moving the mouse with one hand. Four voices are available, and you



MIDI Connections

If you have a MIDI port on your Mac, and a MIDI synthesizer, *Music Mouse* turns your Mac into an extremely flexible MIDI instrument, with an alternative controller. All the MIDI sound modification devices are usable (if your synthesizer has them): foot pedals, modwheels, breath controllers, and so on. All the MIDI expression parameters are available too — vibrato, tremolo, key touch sensitivity, portamento, sampled sounds and instrument definitions. Once you've gained access to MIDI, a whole new world of sounds, and more elaborate control over them, becomes possible.

Some synthesizers have expander modules, which are less expensive than the complete instrument with keyboard. *Music Mouse* can control those expander boxes directly. Also, since MIDI synthesizers are still playable while they are being operated by MIDI commands, one person can play the synthesizer normally, while another plays it from the Mac, using *Music Mouse*. If you're searching for new ways to make music, *Music Mouse* offers a dramatically new approach to controlling your synthesizers, and playing them in real time. Its "computer-assisted improvisation" approach is for performing music, not for notating it, so it can make improvising on a MIDI system easy and enjoyable by giving you a helping hand.

can divide them up with two voices controlled by horizontal movement and two by vertical motion, three against one, or one against three. A trackball is recommended instead of the mouse if you want really fine control over the individual notes.

With the other hand on the Mac keyboard, you can adjust everything else: volume, tempo, tone quality, pitch collection, transposition, and all the MIDI parameters. On the keyboard, the commands are always single keystrokes, with no Option, Command or shifted key combinations, making it truly a one-handed operation.

Speigel has grouped the key controls together to make them easy to remember, though most are arbitrary and not mnemonic. The pull-down menus remind you of key functions if you forget, but pressing the keys is preferable, because moving the pointer up to the menu bar would disrupt your music-making. The keys change the sounds instantaneously

and without causing any obnoxious switching noises.

The notes are distributed between the X and the Y axes, and you play the instrument by moving the mouse inside the two-dimensional universe of sounds they provide. If you don't like your current universe, you can change it by pressing one of the Mac's keys. *Music Mouse* has a very pleasurable high-touch, kinesthetic response. Moving the mouse makes music. Motion equals change. Very quickly, you learn how to become a part of this feedback loop, and you find yourself totally immersed in the process of creating music.

TRAINING YOUR MOUSE

As with any instrument, though, practice improves your performance. A good beginning exercise, using the default settings, is to keep the horizontal voice constant while moving the three vertical voices melodically. Listen to the changing pitches and relate them to the amount of distance you have to move the mouse to get that change. After awhile, the relationship becomes instinctive. Then, reverse the process and keep a three-voice chord constantly droning while playing solo melodies on the horizontal voice. For the more daring, the next step is to change the chords occasionally, after every few notes of melody. Later, you can experiment with the effects created by moving the mouse in various curves, circles, and other patterns. All the time you're doing these exer-

Music Mouse is the kind of electronic musical instrument meant for diehard old analog knob twisters.

cises, the most wonderful and pleasing sounds are pouring out of your Mac. Practice is pleasurable!

ON YOUR OTHER HAND

The Mac's keyboard is divided into eight groups as follows:

1. **q w e r t y**: Pitch collection controls the possible notes played by the mouse, and rejects those outside the pitch collection. Among the pitch collections are pentatonic (like all the black keys on the piano); diatonic (all the white keys); chromatic (both the black and white keys), a Middle Eastern scale; the cycle of fourths, and a continuous (or microtonal) pitch set.

2. **z x c**: Transposition by half-steps up, down and clear (return to normal).

3. **a 1 2 3 4 5 6 7 8 9 0**: Substitutes melodic patterns for static pitches. Each numbered key has a different pattern, and the "a" toggles them on/off. Pressing the mouse button will stop the repeating patterns until you release it.

4. **s d f g**: Voicing. The "s" key toggles between parallel and contrary motion for the voices added by the numbered keys. The "d" key toggles the motion for the mouse-controlled voices. The "f" key changes the format (two voices

against two, or one against three) as controlled by the mouse. The "g" key controls the grouping (all voices play together when on, each voice plays alone when off).

5. **u i o p**: Expression and tone quality. The keys select a waveform, square wave (like a clarinet) or saw-

Music Mouse is computer-assisted improvisation, automating parts of the process, and leaving you free to shape and direct the flow of the music.

tooth wave (string and brass sounds). For MIDI instruments, the "o" and "p" keys turn vibrato and portamento (sliding between notes) on and off.

6. **Spacebar < > / :** Volume. The spacebar turns the sound on and off. The "<" and ">" keys turn the

volume down and up (shift not necessary). The slash key toggles between legato (smooth connection between notes) and staccato (broken connections).

7. **- +**: Tempo. These keys slow down and speed up the tempo of the melodic patterns added by the num-



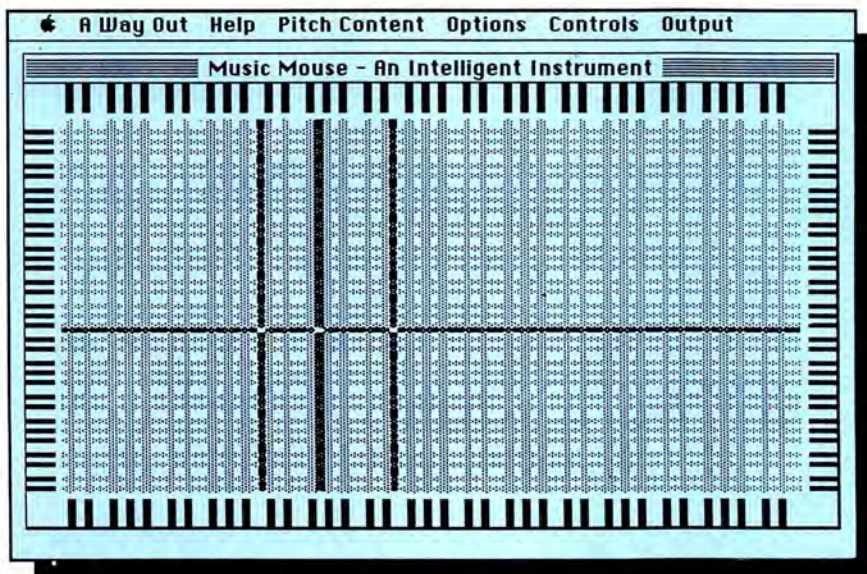
bered keys (shift unnecessary for the "+" key).

8. **vb hj nm kl**: MIDI controls for key velocity, modwheel and foot controllers.

That's an enormous amount of musical flexibility to have under your fingertips while you're pushing the mouse around. Despite the relative simplicity of the design, *Music Mouse* does quite a lot of different things. By pressing just one key, you can make a dramatic or a subtle change in the sound without interrupting the flow of your improvisation. For each of these eight sets of controls, there's a default setting so you can begin playing immediately. To return to the default settings, just press the SHIFT-I combination (the only exception to the no shift key rule).

Before you realize it, you are playing a rather pleasant form of avant-garde music. On this instrument, the main variables are not pitch and loudness, but tempo and articulation. What's really fun is discovering how easily you can express yourself in this non-traditional way. Many other conceptual instruments are possible, and you can move from one to another effortlessly.

Pushing a single key can make a



The main (and only) screen uses a four-line cursor controlled by the mouse. You can change the relationships so that you have two pairs of voices, or three against one, or one against three, or make them move in contrary motion instead of parallel motion. The display, though, is only a guide, and not really necessary. The best way to use *Music Mouse* is to listen as you play.

DO, RE, MOUSE

big difference in the sound — instantaneously. For example, the slash key (“/”) changes the articulation from legato (connected) to staccato (detached). The plus and minus keys speed up and slow down the tempo. Just playing with the tempo and articulation keys without moving the mouse can do some amazing things when you have the automatic pattern generators turned on. Just punch a key and you’ve changed the way your instrument operates.



Used strictly with the Mac, *Music Mouse* is amazing. You don’t need to remember all the different controls available — if you forget, you can press buttons until you find the one you want. After all, this is for improvisation and fun, not for playing Bach or Beethoven. If you make a mistake, you may find the sound interesting enough to go off in the direction it leads you, instead of where you intended to go. That’s the fun of improvising. But *Music Mouse* is even more powerful as a controller for MIDI instruments.

Music Mouse works either with the Mac’s internal sound generator, or it can control any MIDI instrument through a MIDI interface. If you use only the Mac’s audio circuits, hook it up to your stereo system, a pair of self-powered external speakers, such as the AR Partners or the Bose RoomMates, or a unit like Impulse’s MacNifty Stereo Music System. The Mac’s tiny one-inch internal speaker is intended mostly to produce the beeps and chimes that programmers use to tell you that something has gone wrong, or that an important operation is about to take place.

AGAIN, LATER

Music Mouse can’t save your better (or worse) efforts, but *Tempo* can. *Tempo* is a desk accessory for creating macros, or strings of commands initiated by a single command. Also, *Tempo* will record all your keystrokes and mouse movements, and replay them, so you don’t have to think too hard to create your macros. For recording *Music Mouse* improvisations, that’s just the ticket. With *Tempo*, you can record a long series

On this instrument, the main variables are not pitch and loudness, but tempo and articulation.

of mouse movements and have them played back automatically. During playback, you can slow down *Tempo*’s tempo. If you punch keys on the Mac during the recording, *Tempo* will reproduce all of the changes they create — or you can punch keys during the playback for added thrills and chills. Since *Tempo* macros can call other *Tempo* macros, you can nest lots of short macros to create really complex effects, all played back automatically.

Music Mouse also works with *Switcher*, so you can transfer the MIDI data it generates over to other MIDI applications, such as note storage and editing programs. And, since *Music Mouse* only occupies 26K, you can put it into a *Switcher* set with a word processor or a data base manager. When your regular work gets tedious and boring, you can switch applications. Take a break and have fun playing some music.

DOWN SIDE OF THE MOUSE

Music Mouse would be even more interesting if you could alter some of the presets. For example, the ten melodic patterns available from the

numeric keys are fine as they stand, but a more creatively inclined user might prefer to edit them or substitute completely different ones. Also, the durations of the notes in these melodic patterns are equal note values. The real fun comes when you can create interesting rhythms for these sequences. The preset pitch sets are good choices and present plenty of possibilities. But, the ability to substitute other pitch sets of your own choosing would be a nice addition. Spiegel, who is in real life a busy composer, hopes to find time to write enhancements such as these.

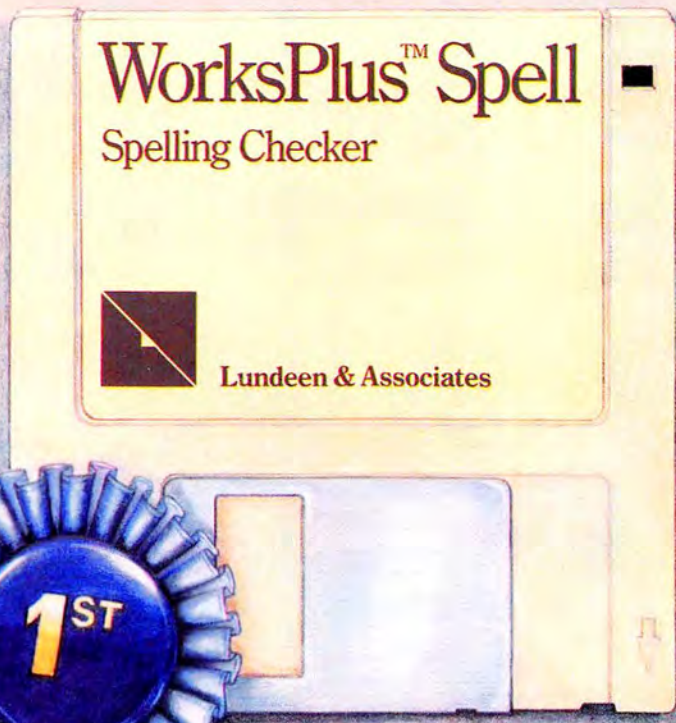
You can’t record, within the Mac, the things you play. You can of course, record the audio output on any tape recorder, but being able to play another mouseful of sounds along with a previous recording would be a nice capability. According to Spiegel, the Amiga’s multitasking environment can run several copies of *Music Mouse* simultaneously, and that makes extremely dense, complex sounds possible. The same would be possible on the Mac if a multitasking *System* and *Finder* were available. 

STEVE BIRCHALL IS A COMPOSER, TECHNICAL WRITER AND FORMER EDITOR-IN-CHIEF OF DIGITAL AUDIO. HE IS DIRECTOR OF PUBLISHING SERVICES FOR KOTTWITZ & ASSOCIATES IN MERRIMACK, NH.

Music Mouse

Overall Rating	★★★★
Follows Mac Interface	★★★★
Printed Documentation	★★★
On-Screen Help	★★★★
Performance	★★★★
Support	★★★★

Comments: One of the more innovative music programs available for any personal computer. **Best Feature:** Immediately immerses you in the act of making music. **Worst Feature:** You can’t edit the ten melodic patterns, or create new pitch sets. **List Price:** \$59.95. Compatible with all Macs, *System* 3.2 and *Finder* 5.3, as well as *Switcher* and *Tempo*, it occupies only 26K. Published by OpCode Systems, 444 Ramona, Palo Alto, CA 94301, (415) 321-8977. Not copy protected.



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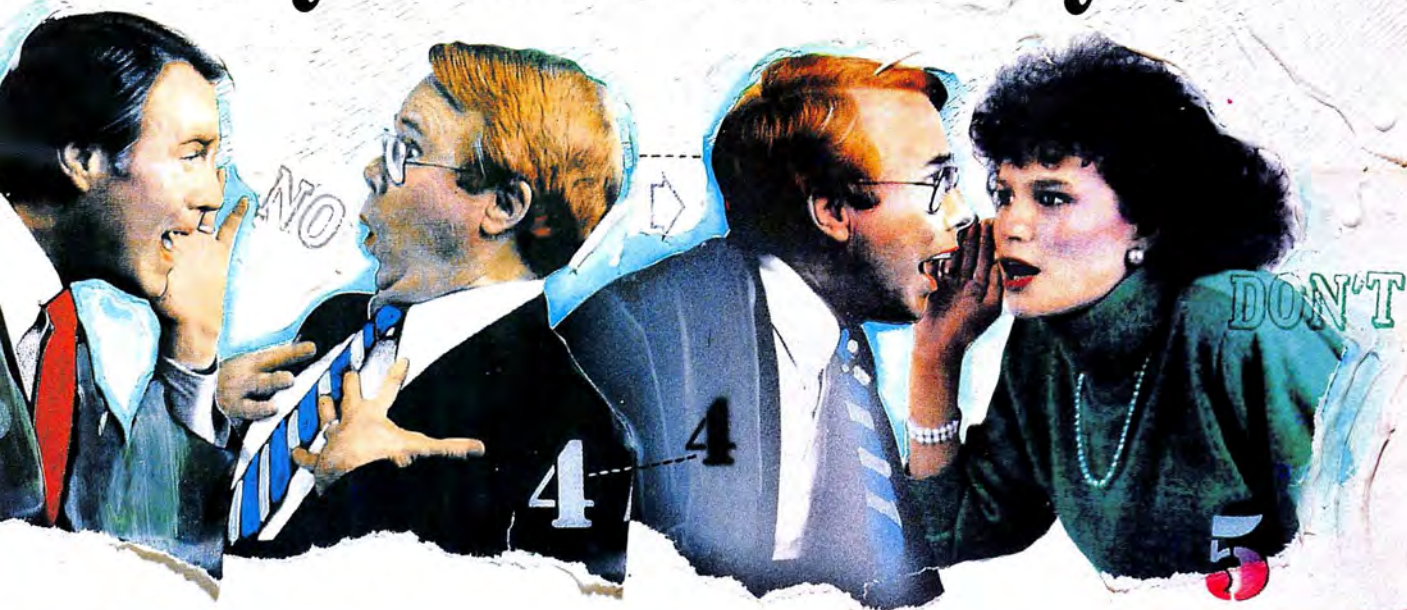
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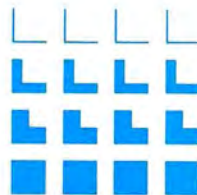
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Not So BASIC

Microsoft BASIC branches off in two directions: a new Compiler and version 3.0 of the interpreter.

BACK IN THE JULY 1986 ISSUE OF *MacUser*, you were warned: Microsoft would release its *BASIC Compiler* and let you think you had a development tool in your hands — but you wouldn't, really, because you would also need the machine language libraries from Clear Lake Research to get at the Mac's Toolbox. Well, the *Compiler's* here, and guess what? So is the 3.0 version of *BASIC*, which includes — you guessed it — the CLR Toolbox libraries. Microsoft apparently reads *MacUser*.

Okay, so you might have a developer's tool now, but how good is it? Let's take a look at both the *Compiler* and the 3.0 *BASIC* upgrade.

THE COMPILER

A compiler has to be reviewed on two counts: the process and the end product. With this compiler, the end product is very good, but the process is...well, "dismal" comes to mind. How anyone could write a compiler for the Mac without ever reading *Inside Macintosh* is beyond me. Or, maybe they read it and decided to break every Macintosh interface rule on purpose.

Here's what you have to put up with for the thrill of creating a double-clickable application of your own from a BASIC listing. You run

the compiler and you're faced with ...nothing. There's just an empty gray screen and a File menu. When you realize you ought to do something, you select OPEN from the menu and choose a BASIC program to compile. A window opens with your compile options, and you find yourself in (gasp!) a modal environment. That means you're in the window only: no File menu choices, no desk accessories available, nothing. You're in the *Compiler* for better or for worse. You check your options (more about them later) on or off, and press the COMPILE button.

As the program compiles, you get ongoing reports in the window. (How can you trust an application that prints only in Monaco?) If you have more than a few errors, the window starts scrolling — and you can't scroll it back. A list of errors can be saved to the disk for later printing, and you can pause the scrolling (with an unfriendly COMMAND-S and COMMAND-Q for pause and continue) but neither of these options is as direct as a scrollable window.

Okay, so you have only one minor error in the "source code" — the original listing. How can you fix this minor error? Quit the *Compiler*, open *BASIC*, fix and save the program; quit *BASIC*, open the *Compil-*

BY SHARON ZARDETTO AKER

NOT SO BASIC

er, and try again. Of course, you can set yourself up in *Switcher*, or use the TRANSFER command in the File menu to bypass the desktop to make it a little easier on yourself. If you're smart, you'll get a DA editor like *MockWrite* from CE Software or *miniWriter* from Maitreya Designs, and do the text editing from under the Apple menu (when you can get at it, after the compile errors are listed).

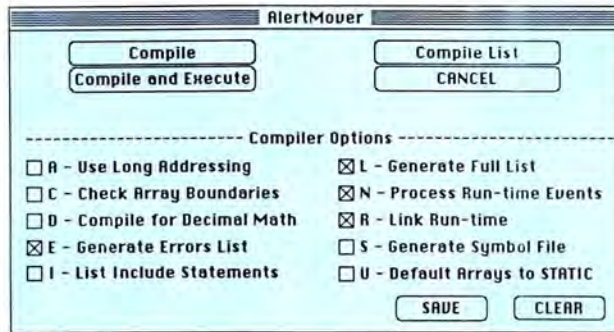
There are lots of other interface insults: you can wait all day, but never see the wristwatch icon; when compilation is complete, there's no way of knowing except by observing that the printout has stopped; creating a Compile list (a list of programs to be compiled in one fell swoop) is an exercise in computerese that's archaic on the Mac, full of slashes, semicolons and cryptic single-letter commands.

So much for the *Compiler's* environment — you get the idea. It's like working on any computer other than the Mac. Still, what the *Compiler* does is probably more important than how it does it (although I'm not entirely convinced of that).

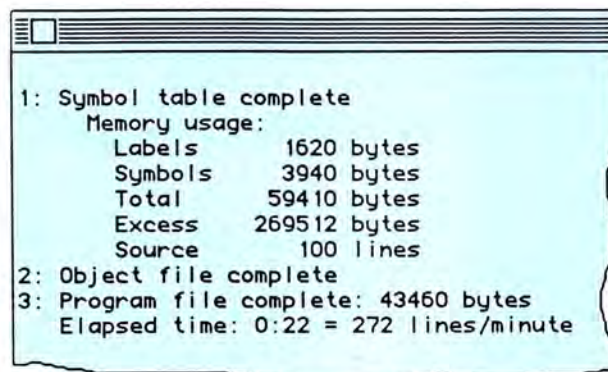
WORKING WITH THE COMPILER

To compile a simple program listing, all you have to do is: run the *Compiler*, select the *BASIC* program with the OPEN command, click the COMPILER button, and sit back and wait a few seconds or a few minutes depending on the length of the original program. If there were no errors found in the program you compiled, the disk has a completed double-clickable application created from your BASIC listing. It can be as easy as that.

Of course, it can also be a lot more complicated, even if you don't encounter errors. The compiler offers ten options for the compilation process itself, for instance. And, there are four "metacommands" that you can include in your listing to direct the compiler's actions. In addition, there are a few "extensions" to *BASIC* that the compiler can handle that the interpreter can't: Case Select structures and recursive subprograms. So, although a simple pro-



The *Compiler* window is a modal window: you can't select from any menu as long as it's open.



At the end of the compilation, a report like this is displayed; if errors are encountered, they are listed after these statistics. The window has no scroll bar, so long error lists scroll right off the screen.



The *BASIC* listing that serves as the source code, and the optional *Compiler* listing. The *Compiler* numbers all the lines regardless of the listing's line numbers or labels.

gram can be run through the compiler with little or no alteration, and few or no options activated for compiling, there are also a lot of things that can go into the preparation of source code.

METACOMMANDS

Elementary preparation of your listing for the *Compiler* consists of getting rid of a few commands that make no sense in a compiled application: LIST, for instance, or STOP or TRON. More sophisticated preparation of the source code includes the

use of metacommands.

Metacommands are commands embedded in the *BASIC* listing that the interpreter ignores because they are preceded by a REM statement, but the *Compiler* uses as instructions in the compilation process. The metacommands are:

- **SINCLUDE**, which directs the compiler to stop compiling the current code, compile a named file and insert it into the main code, then return to the main code to finish it.

- **SIGNORE ON/ SIGNORE OFF** instructs the compiler to ignore

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NOT SO BASIC

any statements between the ON and OFF statements; this lets you use interpreter-specific commands in a listing that will later be compiled.

●**\$OPTION** is used to turn compiler options on and off within the listing so they affect part of the source code regardless of the options set in the compiler itself. Although this can be an extremely useful tool, its implementation is poor, since it uses such cryptic syntax. If, for instance, your **\$OPTION** statement is to indicate that array-boundary checking is off and long addressing mode is on, the command in your listing would read:

```
'$OPTION -C or '$OPTION +A  
instead of something simple like:  
ARRAY ON or ADDRESS ON
```

●**\$PAGE** is an embedded command in a source code that will force a page break at that spot when you print a compiler listing file.

OPTIONS

There are ten options presented in the main compiler window, any of which can be used for a compilation, and any combination of which can be stored as the default combination for other compile procedures. Of these ten options, the N option and the R option are probably the most important.

The N option is the option to process RunTime events. You can hardly write a Macintosh program without using this option, since it refers to such things as errors and menu, mouse and dialog events. Even if you were willing to do

without error checking (in which case you'd be in trouble when the disk was full or the printer wasn't turned on), the other events aren't event traps (ON MOUSE..., ON DIALOG...), but any use of an event check (WHILE MOUSE(0)=0...). Using the N option slows down the running of the completed program somewhat, as does using event traps in the interpreter, since the computer is constantly checking for specific events in between other statement executions.

The R option is the option to include the "RunTime modules" within your application. If you do, you have a standalone program. If you don't, you have an ersatz double-clickable application that needs the RunTime library file at its beck and call all the time. You might wish to have the RunTime file separate, however, if you were creating a group of programs that would all be on the same disk. Instead of enlarging each by the RunTime module sections they need, they could share the single, separate file from the disk. This is probably not much of a consideration in these days of 800K disks.

THE END PRODUCT

If all you want from a compiled version of your program is a standalone application, you'll be happy with the final product. If what you were looking for was a lot of extra speed, your happiness quotient may depend on the kind of program you compiled; the *Compiler* speeds up

some things more than others (see sidebar).

There's one major problem with the overall look of your compiled application, and a few minor ones. When your application runs, the first thing you get is a menu bar with Default File and Edit menus showing on the menu bar; an Untitled document window flashes open, changes to your application's title, and then the window closes and your program begins. This is tantamount to putting a disclaimer in front of all of your programs ("Hi. I was written in BASIC and then compiled"). There's absolutely no excuse for this set-up — the interpreter begins programs this way, too, but that is not an acceptable excuse.

A nice touch that might turn into a minor problem is the fact that the compiler creates an About box for each application; you'll find it under the Apple menu when you run your program. The menu item says "About Application" and the dialog box that comes up says "Created by BASCOM" (*BASIC Compiler*). These are minor details that you can fix in *ResEdit*, but no mention is made of it in the documentation.

The *Compiler* apparently is not meant for the dilettante programmer. Aside from the outrageous \$199 price tag, the environment is not Mac-ish enough, and the documentation assumes a certain level of expertise. On the other end of the spectrum, serious developers probably won't mind the hostile environment, but they won't like the default menus and windows flashed at the opening of their programs, or the fact that the code won't boil down into something that can be used as a desk accessory, or a library that can be called from BASIC. Some middle-of-the-spectrum programmers might be happy enough with the compiler as it stands, but, speaking as one, I'm annoyed by both sets of problems.

TOO LITTLE, TOO LATE?

If the *Compiler* had come out a year or two ago, it might be forgiven some of its flaws; if it were less than half the price that's being charged,

How Fast Is Fast?

A compiled program runs faster than an interpreted one, but how much faster? It depends what's in the program. The interpreter versus compiler times, in seconds, are:

●The famous Sieve of Eratosthenes benchmark that searches for the primes in a given range of numbers (ten iterations): interpreter: 667; compiler: 56.

●Looping through 50,000 empty FOR-NEXTs: 26 vs 5.

●String concatenation — joining two strings 30,000 times: 63 vs 39.

●Disk access — 5000 reads, 5000 writes to a sequential file: 24 vs 5.

●Disk access — 5000 reads, 5000 writes to a random file: 61 vs 44.

●Math — 100,000 multiplications: 100 vs 1 in Binary BASIC; 204 vs 1 in Decimal BASIC.

●Graphics — repeated ROM LINE calls: 23 vs 10.

●Graphics — repeated CIRCLE statements: 38 vs 38.

●Graphics — repeated PSETs: 82 vs 52.

Ten thousand pages, take it or leave it.

For those of you going places, here's a little something that solves big storage problems in the time it takes to say "who has the Farnsworth financial files?"

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NOT SO BASIC

that also might be a saving grace. But, being both long-awaited and expensive means it should be a lot better than it is. Buying *BASIC* and the *Compiler* runs about \$300 retail. *TML Pascal* and *Turbo Pascal* are a third of the price and can do more serious, heavy-duty program development. What it comes down to is how much you're willing to pay (monetarily and psychologically) to be able to develop in *BASIC*, the language we all know and many of us even love.

BACK TO BASIC

The version number for the latest *BASIC* has jumped from 2.1 to 3.0 not because of the intrinsic changes to the interpreter, but because of the addition of Clear Lake Research's machine language libraries to the package (see sidebar). In fact, there's so much to the upgrade, it comes on two disks, with a third available direct from Microsoft for registered users. Besides the usual two versions of *BASIC* (decimal and binary) and the Toolbox libraries, you get *Run-Time BASIC*, a run-only utility that you can give out with your programs so people without *BASIC* can run your programs. Yes — you're allowed and encouraged to make copies and give them away.

The changes in the interpreter are not immediately apparent, except for

the *TRANSFER* command in the File menu that lets you bypass the *Finder* — presumably to launch the *Compiler*. Unfortunately, the environment hasn't been tweaked a bit; not that it's awful, but it sure would be nice to use cursor keys in a List window. There are a few new commands, however, and some 2.1 problems were fixed.

BASIC now works fine under HFS. You can access files nested down in folder levels, and the *FILES* function returns a complete pathname to the chosen file. You can also print with the LaserWriter from *BASIC*.


NEW STATEMENTS

In addition to the terrific routines available from the Toolbox disk, there are a few new ones in *BASIC* itself. By far the best addition is the block *IF-THEN* statement which lets you nest *IF-THENS*, and list the commands to be executed in a given condition.

There are four new "types" of edit fields. The current four types (1 to 4) are various combinations of framed/unframed and Returns allowed/not allowed. The four new types, numbers 5 to 8, use the same combination of attributes but do not highlight the default string in the field when it is created.







Other new keywords are special-

ized for more advanced programming, like *SADD*, to get a hold of a changeable string address, and *CHDIR* (change directory) to set the default volume to something other than the disk that *BASIC* is running from.

BASIC, like any language, is continually evolving. This latest step in its evolution is terrific. 

SHARON ZARDETTO AKER IS A MACUSER CONTRIBUTING EDITOR AND AUTHOR OF MANY GREAT COMPUTER BOOKS. HER LATEST IS *MACBITS: UTILITIES AND ROUTINES FOR THE BASIC PROGRAMMER*.

Compiler

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

Comments: Poor interface and high price bring the overall rating down a lot, even though the compiler does almost everything you want it to. The documentation is not for beginners. **Best Feature:** It works. **Worst Feature:** Disgraceful Mac interface; default windows and menus in compiled application. **List Price:** \$199. Published by Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. (206) 882-8080. Requires 512K+. Not copy protected.

The Toolbox Libraries

The machine language libraries provided with *BASIC*, and with the *Compiler*, add about 150 new statements to the language, providing such things as scroll bars, Command-key equivalents in the menus, and control over resources — icons, pictures, cursors, alerts and dialog boxes. There are additional routines beyond those in CLR's original ToolLib package, such as:

- An enhancement that lets you slow down the scrolling done with the scroll bars; this is handy now, and will be a necessity with the new, faster Macs. (The scroll bar is the only complaint I have about the Toolbox libraries; the strings in the scroll area are spaced too far apart, and the final line of pixels in letters with descenders are not selected properly when the string is highlighted.)

- *CmdKey* and *SetItemStyle* routines that let you add keyboard equivalents and use type styles in your menus.




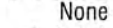


- *GetMouse* gets the current mouse coordinates without using the *MOUSE* function.

- A group of statements lets you manipulate Dialog boxes, putting them on the screen and checking what the user has input or selected. You can't, however, create Dialog boxes except with *ResEdit*.

- *PtInRects* lets you test if a point is in any of a number of rectangles. (This is in addition to the original *PtInRect* command.)

The Toolbox library will keep you busy for a long time, but when you need more additions, CLR is still selling their *MathStatLib* package and a new collection of routines that lets you use *VideoWorks* movies in your programs.

BASIC 3.0

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

Comments: *BASIC* still needs some polishing in its interface, but it's the friendliest language around. **Best Feature:** The addition of the Toolbox Library, block *IF-THEN* statements, and the *RunTime* module. **Worst Feature:** Frustrating lack of cursor control in the List window. **List Price:** \$95 (\$25 upgrade fee from 2.0 or 2.1). Published by Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. (206) 882-8080. Requires 512K+. Not copy protected.



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TIP SHEET

COMPILED BY DAVID SCHARGEL

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MACWRITE

 The widest right margin that can be used in *MacWrite* is 8 1/4 inches. Due to a problem with *MacWrite*, this margin can only be used temporarily. Printing will work OK, but the document will never save properly.

Expand the *MacWrite* window to its largest size, where you are able to see the 8-inch ruler mark. This is done by dragging the window to the left and enlarging the window as far to the right as possible. Now drag the right margin icon (on the ruler) to 8 inches (where it will automatically stop). Then click on the very bottom right corner of the icon and it will move 1/16 of an inch to the right. Do this three more times and the

right margin will be set to 8 1/4 inches.

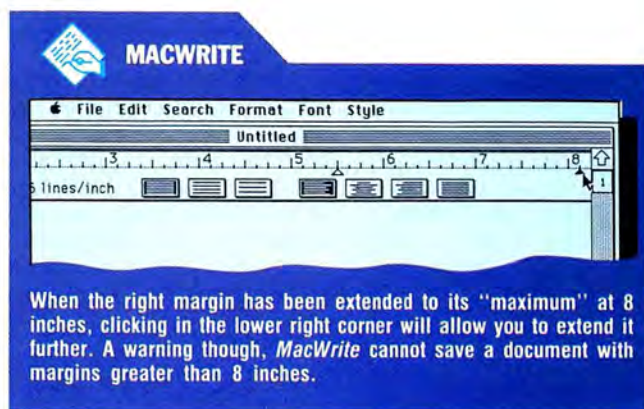
You can print the document with this ruler, but you cannot save the ruler or document successfully. Everything will seem normal the first time you save the document. However, when you attempt to reopen it you'll get a bogus I/O error. To get around this, set the ruler and print the document. Then, set the right margin back to 8 inches (or below) before saving the document.

TIM NEVELS
RAYTOWN, MO



Using *MacWrite*, or any word processor, there are times that you are not able to get all of the words you want on one line, with the last word wrapping to the next line as you type the last letter. Instead of changing your margins and hoping for the best, select the spaces in between the words and reduce the font size (of the spaces) as small as possible. This works most of the time.

JEFF FIBER
WANTAGH, NY



MICROSOFT BASIC



When you paste in a large segment of code, you can easily lose track of where the newly inserted code begins and ends. You can avoid possible confusion by inserting a dummy label prior to pasting in the new code. Later, you can find the block of code by typing "LIST label" in the Command window. For example, insert the label "NEWCODE:" prior to pasting, and you can find the new source code by typing "LIST NEWCODE" in the Command window.

H. DOUG MATSUOKA
HONOLULU, HI

THUNDERSCAN



The *ThunderScan* software allows for a direct transfer to *MacPaint* by choosing it under the Tools menu. If, however, you use *FullPaint*, *ComicWorks* or another painting application, change the name of your application to *MacPaint* and it will be launched directly from *ThunderScan*.

This can only be accomplished if *ThunderScan* and the application are on the same disk (or in the same folder for HFS).

BILL BALDRIDGE
RIVERDALE, MD

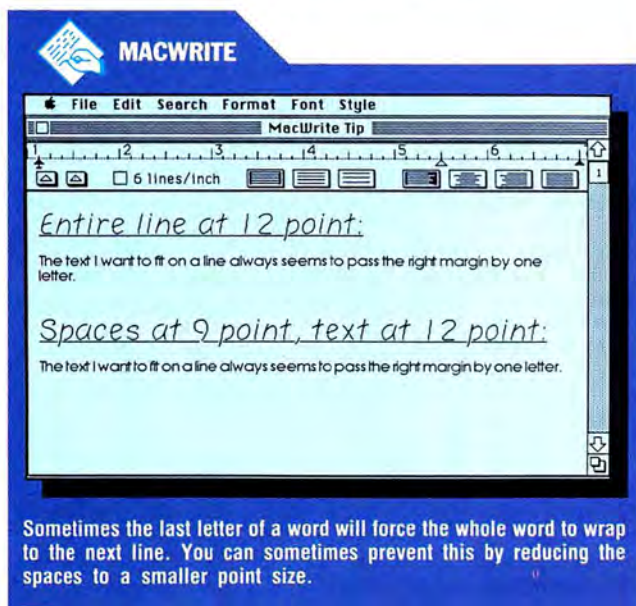
PAGEMAKER



PageMaker does not allow you to easily create dotted lines between text, such as might be used in a table of contents. Most fonts will not print dots a fixed distance apart.

A simple workaround to this problem is to use the box drawing tool. Draw a box as short vertically as possible, its length being the desired dotted-line length. Choose NONE from the Lines menu, and choose one of the "vertical strip" patterns from the Shades menu. You have just produced a line of fine dots. Change the size of the box and the patterns to get the dots to your liking.

CARL A. SCHUETZ
BALTIMORE, MD



SUPERPAINT



You can get LaserWriter quality output without having to use the memory hungry LaserBits function. First, paint your graphic at four times the desired size. Select the image and select COPY TO DRAWING from the Edit menu. Then, on the drawing layer, select the image and scale it to 24%. This will maintain the proper ratio of 72 pixels per inch on the screen to 300 pixels per inch. Although the screen version of the graphic won't always look good, the LaserWriter output will be sharp.

JIM MCSPIRITT
SAYREVILLE, NJ

MACDRAW/LASERWRITER



The following walk-through tip will show you how to use *MacDraw* and an Apple LaserWriter to produce professional quality disk labels. Additionally, you will require the *MacDraw* document discussed, Laser Disk

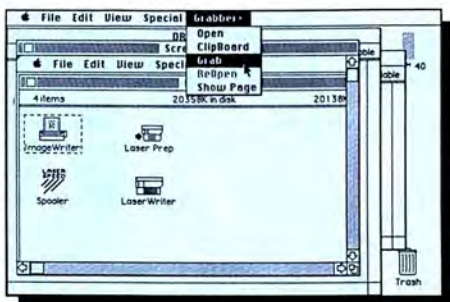
Labels. You can obtain this document either in this month's Strip Show (which requires a Cauzin Softstrip reader) or through the CompuServe, GENie or Delphi computer networks. The other required materials can be acquired at most major art supply stores. The following list of materials have been

found to be the best, however you may substitute.

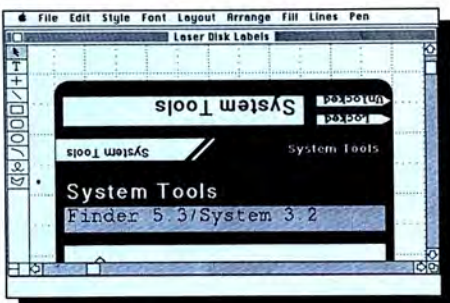
You will need:
An application or DA that allows you to copy information from a *MacPaint* document, Pantone paper in the color(s) you desire, 3M double coated transfer tape (3M 465), clear mat spray or a clear "fixative."

[Editor's Note: Due to some idiosyncrasies of LaserWriter fonts and various versions of MacDraw, you might find that your file does not look exactly like ours. It is possible that you have to change the fonts and/or move the text into position. Correct the disk label to your liking. We used the Helvetica and Courier fonts for our label.]

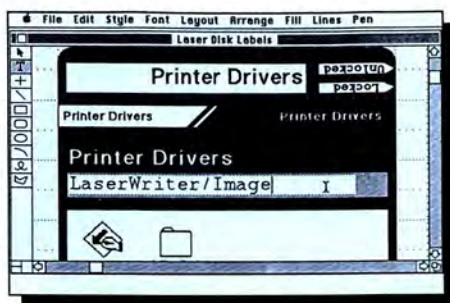
1 In the *Finder*, obtain a screen dump of the disk contents using **COMMAND-SHIFT-3**. Enter into a paint application or DA and individually copy each icon you want on your label and place it onto the Scrapbook. Attempt to lasso the icon, eliminating the "white space." When you bring the icon bitmaps into *MacDraw* you can resize them as desired. If *MacDraw* and the painting program are on different disks you must now move the Scrapbook File to the *MacDraw* diskette.



2 Enter *MacDraw* and open the file "Laser Disk Labels." Notice that all of the items, including text, are enlarged to twice the size of a normal disk label. Before printing confirm that *Page Setup...* has the reduction set to 50% so that the label prints at normal size. In addition, note that on the edge of the label the name of the disk is printed right side up and upside down. This is so the disk name is always visible regardless of whether the disk is in the floppy drive or in storage.



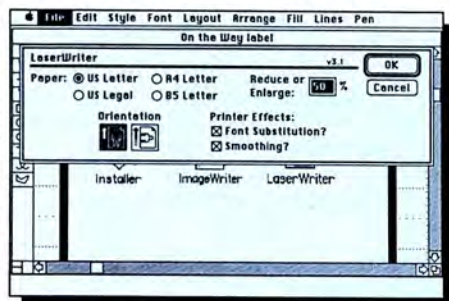
3 Start by changing the disk name. There are four places on the label where the disk name appears. Two of these four are upside down. The ones that are upside down must be rotated two times (to the right or left) in order to edit the text. After the four titles are changed, rotate the two upside down items back to their proper orientation. You will probably have to adjust the text's position within the label due to the fact that the disk name is a different size than originally. In the grayed area, change the text to a short description of the disk contents.



4 Remove the icons found in the center of the label. Open the Scrapbook file and cut and paste each icon into the document. After all of the icons have been pasted into the document, resize each as large as possible and align them in the icon area. Make sure to make the icons as large as possible because this document is twice the size of the actual label.



5 You now have the label ready for printing. Before printing, check that the LaserWriter is selected (using the *Chooser* DA) and make sure that the reduction in *Page Setup...* is set for 50%. You should print sample labels and make corrections as desired. Use *Save As...* to save your finished label under a different name so that the template is not altered.



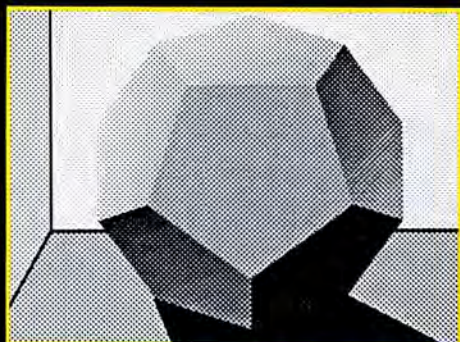
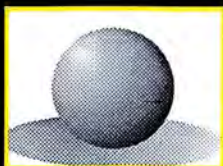
6 Cut the Pantone paper, resizing it so it may be fed into the LaserWriter. Print your label on the Pantone paper. In the future, due to the costs of the paper, you may wish to include multiple labels for printing on the paper. Cut the label to size and attach the double-coated adhesive tape to the underside. Finally, use a clear "fixative" or clear mat spray to give the label a finished look. The spray should not be sprayed anywhere near the computer or printer. Most sprays stay airborne and travel great distances.





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Requires Macintosh Plus or New ROMS

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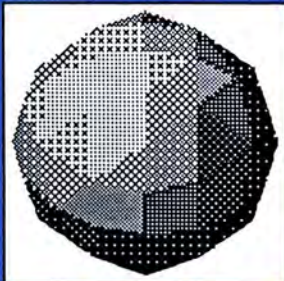
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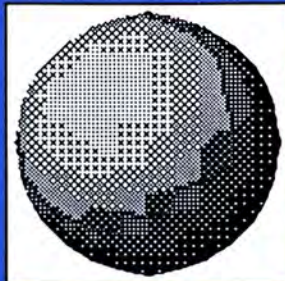




PRO 3D

Light
Custom Lighting...

SPHERE 2



SPHERE 3

Instead of getting the normal Sphere 2 when you choose CUSTOM LIGHTING from the Light menu, hold down the Command key while selecting it to get Sphere 3.

WORKS

When using the word processing module for a paper with a title page, the manual neglects to tell you that even though choosing TITLE PAGE from the Format menu eliminates the first page number (for the title page), your next page will be page number two. It is simple to get the first page of text to be page number one. Here's how.

Make sure to SET PAGE # from the Format menu and set the number to zero (0). This will invisibly set the title page to zero and number (visibly) the first page to one.

KEVIN C. BRISLIN

WHITEFORD, MD

HFS

If you are using the Finder and want to make a backup of a 400K HFS disk, you must hold down the Option key when you confirm the "Completely Replace Contents..." dialog box. If this is not done, your backup disk won't be a HFS disk.

If the source disk is a MFS disk and you hold down the Option key when you are given the "Completely Replace Contents..." dialog box, the destination disk will have HFS on it.

PHILIP BORENSTEIN
BRIGHTON, MA**MACPASCAL**

When doing a large number of remarks, one after another, hit the Return key after the end of each line, instead of typing a right brace. MacPascal will automatically type the right brace as well as the left one for the new comment line on the line below.

JIM MCSPIRITT
SAYREVILLE, NJ**ANCIENT ART OF WAR**

After a unit has entered combat both its food and, more importantly, condition are lowered. This can be rectified by detaching one man from another unit that has a higher condition and have him join (absorb) all of the weaker

unit. The new unit that is created will now be at the strength of the detached man.

ARTHUR HENRICK
PALO ALTO, CA**GLUE**

What if you own Glue and you want someone who doesn't to view your output? If they own MacWrite, you can use the following steps to give them any Glue output in MacWrite form.

1) Print to disk any output, using the Glue ImageSaver.

2) Open the image with the Glue Viewer.

3) Select the entire page and copy it to the Clipboard or Scrapbook.

4) Open MacWrite and paste the copied Clipboard or Scrapbook image into a MacWrite document.

MacWrite owners should now be able to view/print any documents.

BRUCE LONG
TEMPE, AZ**PRO 3D**

If you use the custom lighting feature, but are not satisfied with the resolution of the sphere that is drawn (Sphere 2), hold down the Command key while selecting CUSTOM LIGHTING from the Light menu. Pro 3D will now produce a Sphere 3 so you may fine-tune the lighting.

GORDON CARSKADON
STARKVILLE, MS

If you wish to issue a number of commands, you have to wait for the drawing to redraw after every command. When you hold down the Command key as you choose menu items, Pro 3D will not redraw the screen after each command. Constantly holding down the Command key will allow you to do a number of things without waiting for

the screen to refresh itself. To get the screen to draw itself again, click on the Redraw icon.

GORDON CARSKADON
STARKVILLE, MS**RESEdit**

Hold down the option key to override ResEdit's templates to open all resources in hexadecimal format. For example, hold down the Option key while double-clicking a ICN# resource to get the hexadecimal representation, instead of the icon editor.

PHILIP N. LEROY
DORAVILLE, GA**ACTA DA**

It is easy to split off a portion of a long topic in a single keystroke. Simply click at the start of the text to be split off, then press OPTION-ENTER.

BILL LAYMAN
LACRESCENTA, CA**MINIWRITER DA**

While using the "Smart Quotes" feature in miniWriter, you can force miniWriter to type standard quotes without having to open the "Options..." dialog to turn off the Smart Quotes feature. You can override the Smart Quotes feature by holding down the COMMAND key while typing a quote (") or a double quote (").

BILL LAYMAN
LACRESCENTA, CA

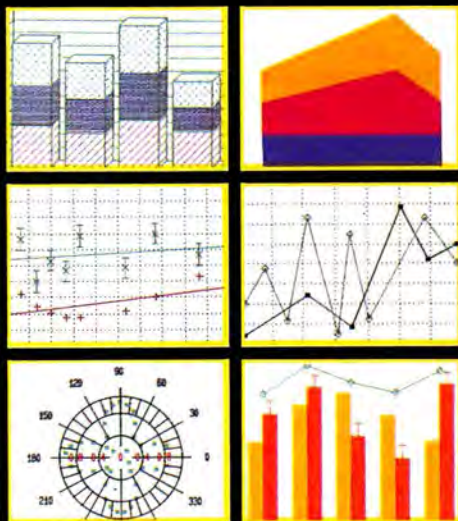
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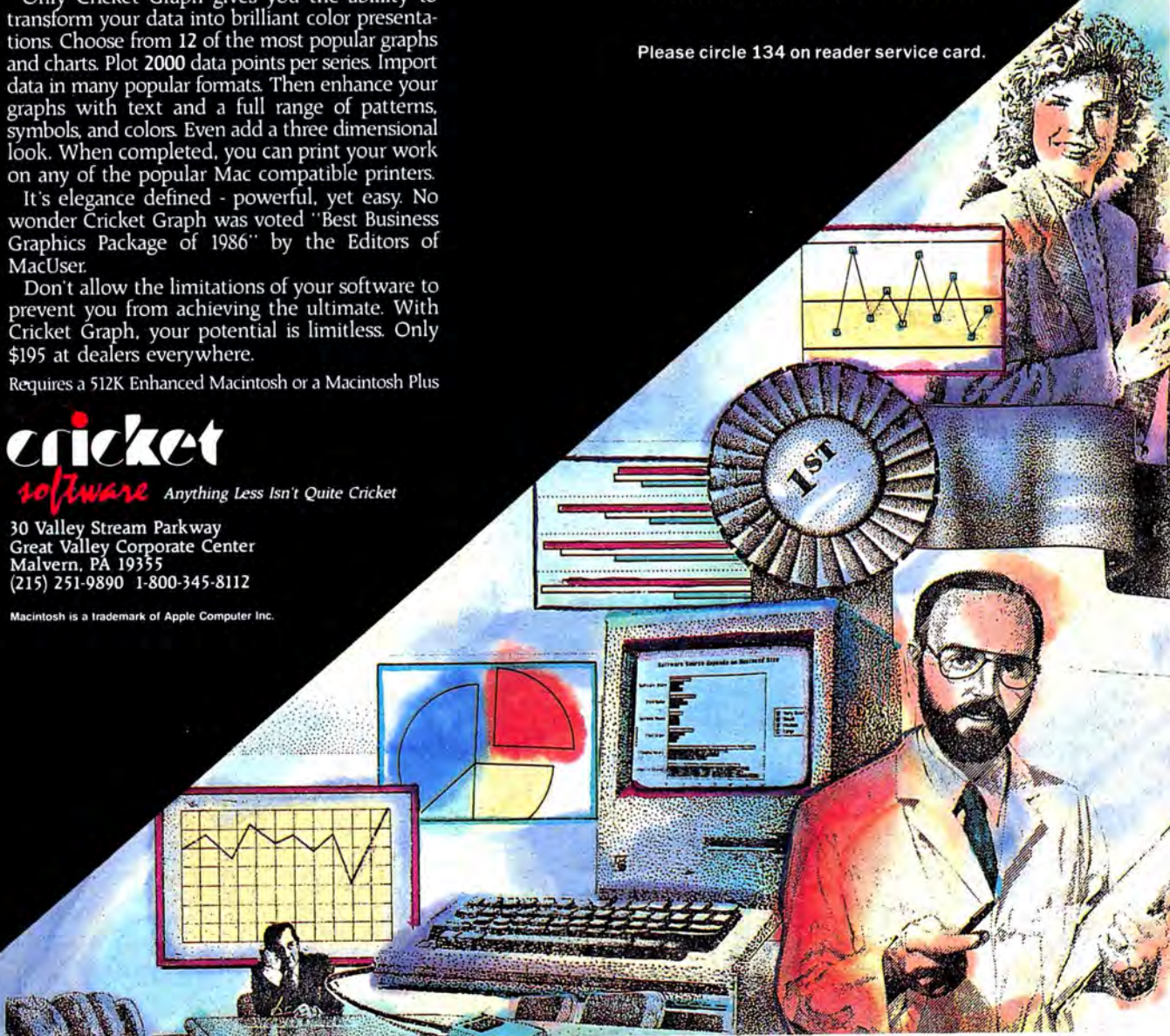
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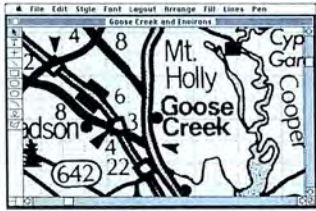
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by Dan Cochran

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 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.

HD-20 PROBLEMS

Q. I have a 512K Macintosh with an external disk drive and an Apple HD20 hard disk. To use the HD20, I have to insert the HD20 Startup disk in the internal drive when I start up the Mac.

Until recently, the Startup disk would automatically eject after the HD20 started as the manual says it will. Now it has stopped ejecting. If I select "Eject" from the File menu it will eject but requires me to reinsert the Startup disk before I can use an application. As long as the Startup disk is in the drive the HD20 works fine. Do I have anything to worry about or should I just go ahead and use the HD with the Startup disk in the drive?

Two weeks ago I called the local Apple office and was referred to my Apple dealer for help. I called the dealer and they said they'd get me an answer. I have received no answer.

E. R. LUTER
DALLAS, TX

A. I'm assuming you have a standard 512K "Fat Mac," not a 512K Enhanced. The HD20 Startup disk includes a System folder that contains the Finder, a System file, an ImageWriter Driver, and the HD20 Driver that allows the Macintosh and the HD20 to communicate with each other.

When you boot your Macintosh with the HD20 Startup disk, the startup software

will look for your HD20 and then it will look for a copy of the HD20 Driver on the hard disk. If it finds this file the startup floppy will eject and transfer control to the HD20. At this point you no longer need to have the Startup disk inserted in your internal drive as the HD20 contains the software necessary for your Mac and hard disk to communicate. If the HD20 Driver file isn't present on your hard disk, or if it can't be found, the startup disk in the internal drive must remain mounted. For some reason your HD20 Driver file can't be located by the startup software. You've either trashed it, it's buried in some obscure folder, or you have multiple copies of your System folder on your hard disk.

You could certainly continue to work with this arrangement but performance will suffer and you won't have easy access to the internal drive without having to swap disks all the time. Fortunately the fix is easy. First, you probably have an old HD20 Startup disk with outdated versions of the



System, Finder and HD20 files. Go to your dealer and get a copy of System 3.2, Finder 5.3, ImageWriter 2.3, and HD20 1.1.

Put all these files on a newly initialized 400K disk in a folder called "System Folder." This will be your new HD20 Startup disk.

Boot up your Mac and HD20 with your new Startup disk. Open up your HD20 and throw away your current System folder as well as any other versions of the Finder, System or HD20 files that are on the disk. Now copy the entire System folder from your newly created Startup disk to the HD20. Despite what the HD20 manual says, make certain that you only have one System folder on your HD20. When the copy is complete reboot your machine using the newly created Startup disk. The startup software will find the HD20 Driver on your hard disk, your disk will eject and you'll be back in business.

If you get tired of using the Startup disk

you can have your dealer transform your 512K Mac into a 512K Enhanced. Your 400K drive will get swapped for an 800K drive and you'll get new ROMs that can boot directly from the HD20 without the need for the Startup disk. A relatively minor and inexpensive operation with very worthwhile results.

MAC PLUS COMPATIBILITY

Q. I am a new member of the Macintosh family, with a brand new Mac Plus. As I learn about software, I find that I am not sure what programs are compatible with it. Even reviews are confusing at times. For example, in the Quick Clicks section of the December 1986 issue, the review for *Thunder!* says that 512K+ is required. Does this mean that the minimum memory requirement is 512K and, thus, it works with the Mac Plus? Can I assume that other programs with this designation mean the same thing? Other reviews, like those for *MicroPlanner Plus*, don't even mention requirements; others, like *CalendarMaker*, say Mac Plus compatible.

My confusion extends into the review articles and the MiniFinders as well. How can I know which programs are available for my Mac Plus? Would it be possible to include some uniform requirement designation in your reviews? It would sure help me.

LOGAN JONES
CHAPEL HILL, NC

A. With one megabyte of memory the Mac Plus is Apple's flagship product. As such, most any program that will run on a 128K or 512K machine will certainly run on a Mac Plus. Your confusion is rooted in historical basis and since you are a relative newcomer to the Mac scene I can easily see where it comes from.

When Apple introduced the Mac Plus we also introduced a new System and Finder (the software files you see contained in your System folder), and radically changed the software contained within the ROM chips on the machine itself. As a result of these changes a number of programs that used to work on the old 512K machines would not operate properly with the Mac Plus. The new System software was responsible, rather than the increase in memory.

During this transition period, when some software authors were struggling to make their programs compatible with the new machine, reviewers as well as advertisements would often explicitly state whether or not the program in question was Mac Plus compatible. As they say, "Time heals all wounds," and by now any program written for the Macintosh had better be Mac Plus

compatible if the author wants to stay in business. I think you can safely assume that all of the products you see featured in magazines like MacUser are Mac Plus compatible. Not necessarily useful, but compatible.

[Editors' Note: Good answer, Dan. 512K+ means that the program will not run on a 128K Mac. Those reviews that still mention Mac Plus compatible generally mean that some earlier version of the program was not Mac Plus compatible, and the current version is compatible.]

USE LOGS & PROGRAMMING

Q. We need a utility program that will keep track of the time users spend on each document or each program throughout the day. Then at the end of the day we could print out a sheet with information such as: Document name, Program name, Time Open, etc. Do you know of such a program?

Also I am interested in programming, but I know zero about this subject. Where do I begin? Books? Programs? Languages?

KIRK CHANDLER
SEVIERVILLE, TN




A. SoftView, authors of my favorite (and indispensable) tax preparation program MacInTax, have a new program called MacInUse that does exactly what you want. The program installs on any floppy or hard disk and runs silently in the background. Every time you use any application, MacInUse records the application name, date, start time, and duration into a file which you can later print out. You can also include a comment whenever you quit an

application. The comment is also added to the usage file. I haven't used it personally so I can't vouch for the program. [Editors' Note: We have, and it works beautifully.] I can, however, vouch for the company. You can reach Softview at 4820 Adolph Lane, Suite F, Camarillo, CA 93010. Their phone number is (805) 388-2626.

Another option is a desk accessory called Time Logger written by Lofly Becker. Recent versions come with an accessory (called an INIT) that causes the DA to always be active. Time Logger functions much like MacInUse, although it's a bit simpler in its reporting abilities and a bit more work to install. It's shareware, which means you can get it from a friend, a users group or an electronic bulletin board, and try it out. If you keep it, you should send \$10 to the author. If you want the latest version and documents, send him a \$15, a blank disk and a stamped (39c), self-addressed envelope. Lofly can be reached at 41 Whitney Street, Hartford, CT 06105.

Programming is a wonderful discipline whether it's your hobby or your profession. Although there are many intricacies, tricks and magic to the art, the basic concepts are easily learned and once mastered can be



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applied to any programming language. The subject of which programming language to use is as volatile a topic as religion or politics. I still think that Pascal and BASIC are great for beginners.

Many people can pick up the fundamentals on their own but I recommend you enroll in a beginning Pascal or BASIC programming course at a local community college. From there you'll have enough of the fundamentals to explore on your own. If you decide to study Pascal as your first language pick up a copy of Macintosh Pascal, a gentle yet powerful introduction to the language. If you end up studying BASIC I'd recommend ZBASIC, Microsoft BASIC, or True BASIC, all of which are available for the Macintosh. The documentation provided with any of these language products should be sufficient to get you started.

Good luck!

TOP OF FORM

Q. I have a Mac Plus and ImageWriter II. I've noticed that when using certain software such as *Word* or *Excel*, I have to assume a different Top of Form position than with other software such as *MacPaint*. I contacted Microsoft

and they assured me the problem was in the software printer driver. I'm using the latest *System* and *ImageWriter* driver (*System* 3.2 and *ImageWriter* 3.2). Can you give me any assistance in getting some consistency in printing?

ROSS FRID
CADILLAC, MI

A. *Top of Form* is under the control of the individual application and really has nothing to do with the printer driver. If you have two applications that seem to use identical *Top of Form* settings it's either a coincidence or they were written by the same company (as are *Word* and *Excel*). My only suggestion is to manually adjust the printer or fudge with your document before printing.

DAISYWHEEL CHAPTER

Q. Several months ago I purchased an Epson DX-10 daisy wheel printer to use with my Macintosh. I also have a serial to parallel converter. For software, my dealer recommended the *Mac Daisywheel Connection* from Assimilation Process.

The software works enough to indi-

cate that the hardware is probably OK, but the results are far from satisfactory. I have contacted Assimilation and received no satisfaction. The dealer can't make the software work either.

Does this software work? Can it be fixed? It certainly seems that a sophisticated machine like the Macintosh could run a simple daisywheel printer.

GEORGE E. GLASS
BOULDER, CO

A. I don't have pleasant news. Assimilation is out of business and the Daisywheel Connection doesn't work properly with the new Macintosh System 3.2. You may have some luck if you go back to using an earlier version of the *System* file. Microsoft offers a variety of printer drivers for daisywheel support. Check the drivers that come with *Word*. Microsoft also produced a device called the *MacEnhancer* that serves as a multiple printer connection box as well as a serial to parallel converter. It contains drivers for several daisywheel printers. I don't think it is still being made, but you should still be able to find one at a good price. Remember to try it out at your dealer before you buy it.



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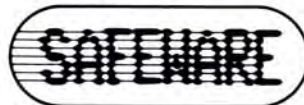
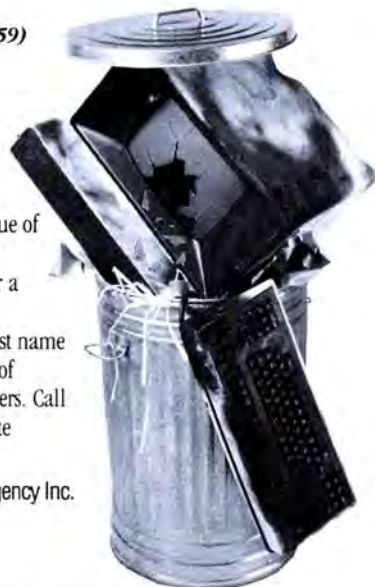
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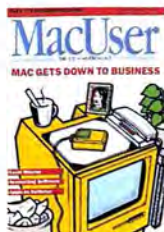
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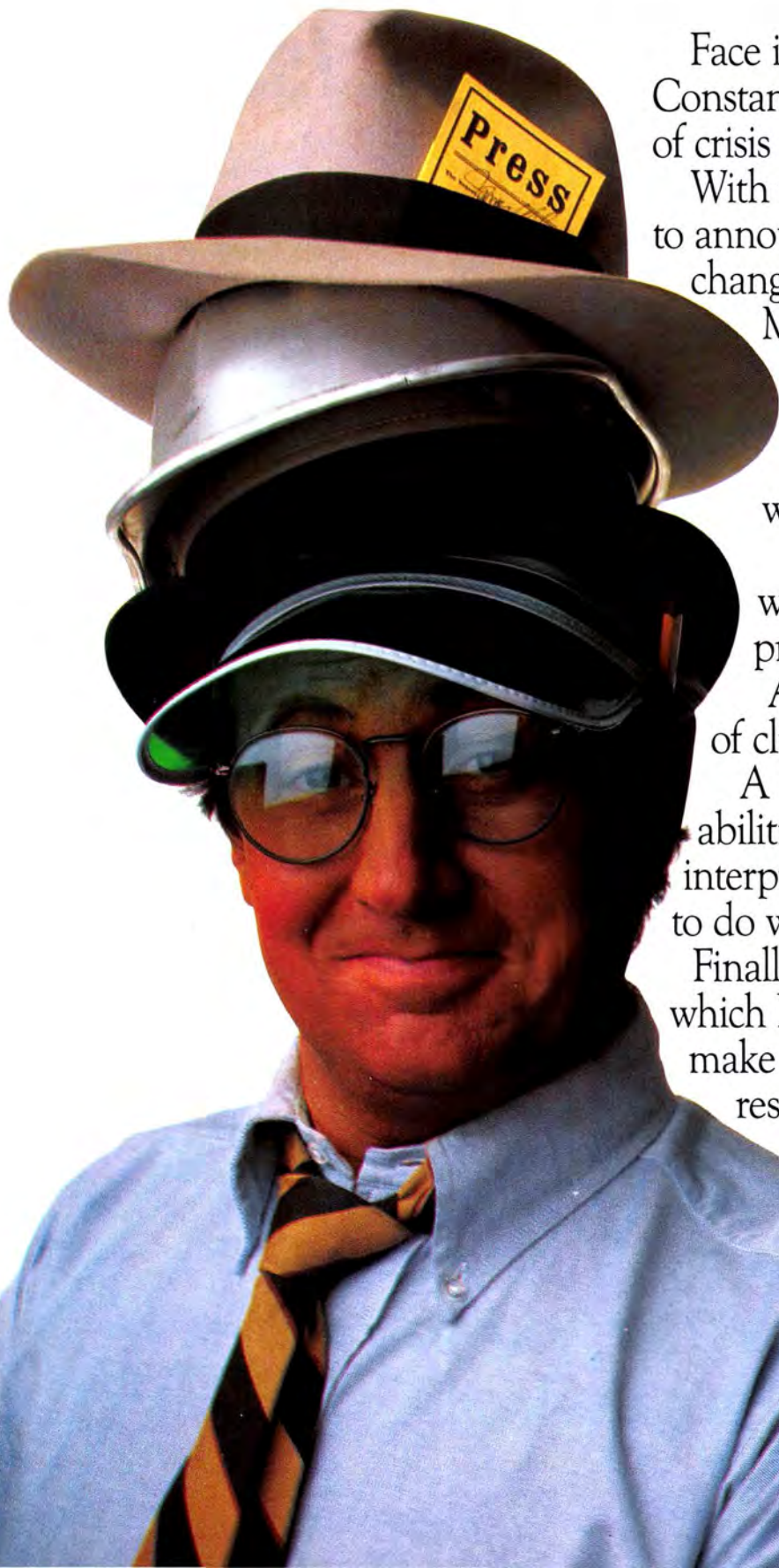
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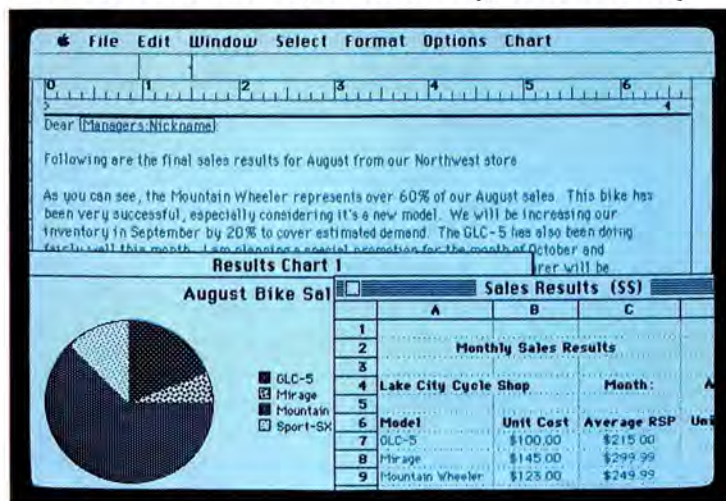
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mailings of form letters where you need to combine names from the database with text written in the word processor.

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MINIFINDERS



charts from spreadsheet data. Documentation is adequate, but not too well organized. \$199. Haba Systems, 6711 Valjean Ave., Van Nuys, CA 91406. CP

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 from 1 to 5 mice. 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, databases and communications. HotView, is best feature. Requires 512K+ and external drive. Version 1A requires 800K drive. \$595. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word **|||||** processing, database, 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

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 Shackelford 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 Disbursements, Receipts, General, Sales, and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built in, but customer and vendor information is very minimal. \$295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP

Hardisk is a complex integrated hard disk system that does not **||||** 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 **|||||** medium size business. At present, two modules are available: Accounts Receivable 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 **|||||** and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. No detailed or flexible reporting. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. \$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 professional **||||** 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. Uses standard double-entry accounting techniques. Will work on 128K. \$149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

Forecast is a tax estimating and what-if program designed to work **||||** with and use Dollars & Sense files. Straightforward, easy to use program. \$69.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP

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 **|||||** 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)

DATABASES

Business Filevision is a masterpiece of Macintosh programming. **||||** the only true graphic database on any micro. Much more powerful than the original, accepts *MacPaint* graphics. \$395. Telos Software, 3420 Ocean Park Blvd, Santa Monica, CA 90405. CP (Feb 86)

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)

Filevision is a simple database that can change the way you think **|||** about data and data organization. Records are based around user created graphics screens. Screens and records can be linked in complex ways. \$195. Telos Software, 3420 Ocean Park Blvd., Santa Monica, CA 90405. CP

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 **|||||** 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 **|||||** 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 (Nov 86)

Writer's Workshop maintains orderly records for writers. It can **||||** 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. \$99.95. 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 beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. \$199.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-6399. CP (Mar 86)

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 possible. Requires a minimum of 512K of RAM & 800K of disk space to operate. \$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 **||||** 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 (May 87)

GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats. **|||||** 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 **||||** combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac,

MINIFINDERS



approximately twice that on a 512K Mac. \$125. Microsoft, 16011 NE 36th WAY, Redmond, WA 98052-6399. CP

ClickArt Special Effects is a *MacPaint* enhancement desk accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. \$49.95. T/Maker, 2115 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint 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 192341. NCP (Mar 86)

ComicWorks is a graphics wonder. Manipulate bit mapped graphics as independent objects, with up to 64 layers of matting. An airbrush, multiple page capacity, full-screen drawing, and two disks of gorgeous artwork round out this package. Needs better LaserWriter support. \$79.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Nov 86)

Cricket 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. Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles (italic, bold, etc.). \$49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. \$395. Altsys, 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 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 without 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)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip 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

LaserWorks is a high-resolution font and graphics editor, producing LaserWriter-compatible end products. Its numerous well-designed features make it suitable for users of all levels, from beginners to pros. Requires 512K+ and external drive or hard disk. \$299. EDO Communications, 63 Arnold Wayh, W. Hartford, CT 06119. CP (Sep 86)

The Mac Art Dept. is a collection of over 150 graphic images ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. \$39.95. Simon & Schuster, Computer Software Div., 1230 Ave. of the Americas, New York, NY 10020. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces and facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K+ Mac required. \$59.95. Shaherzadam, PO Box 27731, Milwaukee, WI 53226. CP (Jul 86)

MacDraft is an object-oriented graphics program. It sports advanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. \$239. Innovative Data Design, 1975 Willow Pass Rd., Concord, CA 94520. CP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. \$40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint is the graphics program that started a whole new genre. Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

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 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)

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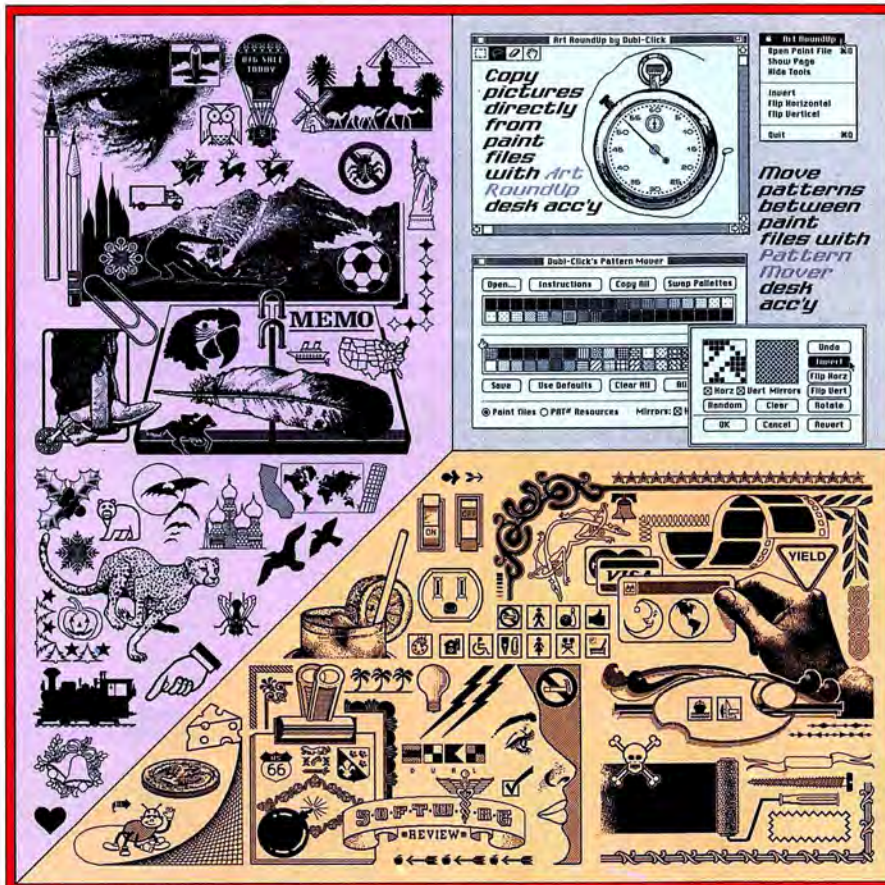
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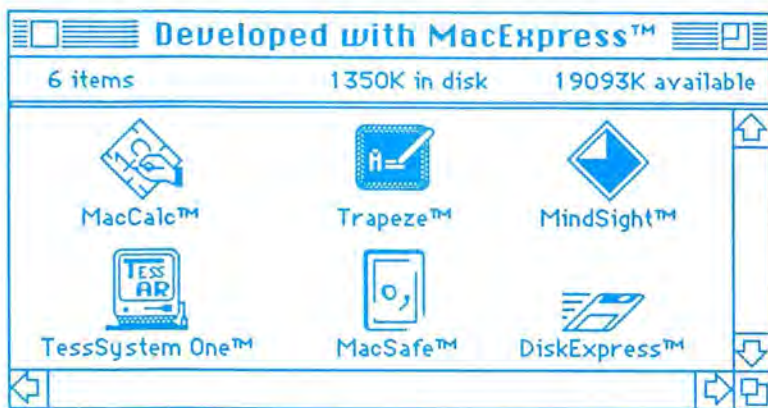
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MGMS: Professional CAD for Macintosh offers more than 200 **||||** functions. Very complete, capable program. Powerful tools like Groups, Dimension, Libraries etc. are standard. Sometimes confusing to follow—designed for experienced, professional CAD 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

MockPackage+ is a set of extremely powerful DAs. Includes a **||||** 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 **||||** 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 **||||** templates 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. 512K (512K E to use Wyzzy DA) or Mac Plus; *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. \$79.95. 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)

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved **||||** editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. \$59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Storyboarder produces working animated storyboards for use in **||||** film and video production. Imports graphics from *MacPaint*; allows screen masking to simulate television, 35mm or 70mm screen widths. \$495. American Intellware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

Sunshine Graphics Library is a collection of 36 400K disks (to **||||** date) with a wide variety of high-quality digitized images stored as *MacPaint* files. Each disk comes with a laser catalog. \$20/disk; discounts scale for multiple purchases. SunShine, Box 4351, Austin, TX. NCP (Feb 87)

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)

World-Class Fonts! comes in two volumes of three disks each. **||||** Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of *ImageWriter* fonts available. Each volume: \$39; both volumes: \$59. DUBL-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (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 **||||** 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 **||||** able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample set up documents and command language files provided. \$145. Palantir, 12777 Jones Rd., Houston, TX 77070. CP (Prem)

InterMail is an electronic mail system that runs under *AppleTalk*. **||||** 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 **||||** emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation—it is superb at those. \$99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy **||||** enough for novices. Very powerful command language allows full automation of communications, if desired. \$74.95. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jun 86)

Red Ryder is a full-featured telecommunications program that **||||** supports MacBinary, Xmodem and Kermit. Remote service procedures, auto procedure writer and keyboard macros allow automation of many operations. It is shareware and a real bargain. \$40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP (Jun 86)

Smartcom II balances power and ease of use. Capable of **||||** unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived. \$149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Prem)

Telescope is the power telecommunicator's terminal program. Can **||** be configured to emulate any terminal. \$125. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server that is designed to network computers with **||||** 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 **||||** graphics terminal and Data General DG200 emulation.

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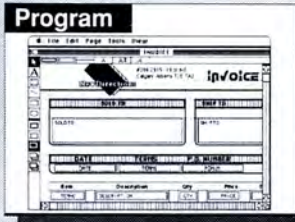
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Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. \$99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several 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 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)

Just Text is a professional level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. \$195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

Laser Author is a high-powered, technically oriented word processor. Good math setting capability. Has style sheets, word count and page layout capability. \$199.95. Firebird Licenses, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective interactive checker. The dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. \$59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (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 format. 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 having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking 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 (Apr 87)

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. \$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 sophisticated 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 checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. \$59.95. Greene, Johnson, 15 Via Chualar, Monterey, CA 93940. NCP (Oct 86)

Thunder! is the best spelling checker currently available. Has a 50,000-word dictionary. Features Learned Words (a superb glossary) 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 (Dec 86)

Word 3.0 is the most feature laden word processor now available. 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)

Word Handler is a word processor with elements of *MacWrite* and *Word*. Can delete, rename, etc., without quitting. Has case change, flexible printing options and glossary. Slow. \$79.95. Advanced Logic Systems, 1283 Reamwood Ave., Sunnyvale, CA 94089. NCP (Oct 86)

WriteNow for the Macintosh has many of the features of *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 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)

Callope 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 Kalaniano'le 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)

Guide allows you to "cross-reference" from within a document 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)

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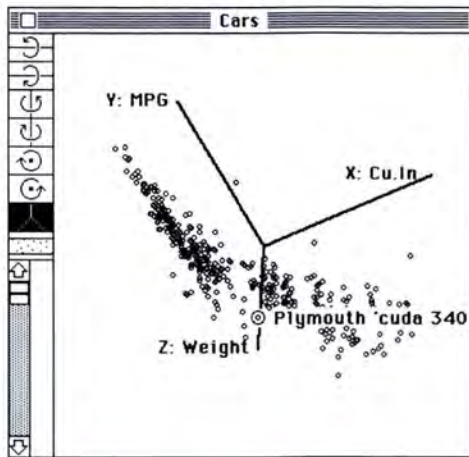
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and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. \$125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 86)

MacSpec is a specification writing tool, a cross between word and outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. 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 a 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 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)

Vollal is a full-featured outliner in desk accessory format. Headlines 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 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. CP (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 is a set of desk organization applications and accessories. Functions include phone dialer and logger, desk

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accessory terminal, calculator, clock, editor and more. When resource files are included modules take up a lot of disk space. \$84.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 85)

Smart Alarms is the best reminder system for the Mac. Easy to use, versatile, and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. \$49.95. Imagine Software, 2000 Center St., Berkeley, CA 94704. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. Menu Key adds Command key sequences to programs. View allows looking at and moving data between up to 8 MacWrite documents, BackPrint, Shorthand, Blank, Encrypt, and Launch. \$59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. **Paint Cutter** alone is worth the price. That program allows users to browse and manipulate full page MacPaint documents. \$39.95. Silicon Beach, 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)

Disk Librarian is an easy to use shareware cataloging 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 cataloging program that doubles as an efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. \$49.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP (Mar 86)

Dubl-Click Calculator Construction Set lets users design personalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. \$59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 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. \$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** 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)

Hard Disk Util uses patch files to allow users to mount and run unspecified programs on their hard disks. The list of patches is

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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 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 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 disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. \$49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. CP (Prem)

MacLink lets users transfer data between Macs and PCs. Can do special format transfers such as 1-2-3 to Multiplan and WordStar to MacWrite. Contains both Mac and PC disks, interface cable is optional. Has Mac and MS-DOS disks. \$125, \$155 with 8-ft interface cable. DataViz, 16 Winfield St., Norwalk, CT 06855. NCP

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. \$69.95. Kent Marsh Limited, Inc., 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. \$250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacZap is a three-part disk and memory utility. It can be used to recover some damaged files and disks, compare disks, analyze disk structure and make back-up copies of most disks. \$60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

myDiskLabeler is an excellent label making program. It can read directories, or use large or small icons, or anything else the user desires. Comes with 54 precut labels on pinfeed paper. HFS compatible. \$44.95; with color printing ability (on the ImageWriter II), \$54.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 86)

'Ncryptor is a simple, safe program that lets users password their files. The same program is used for encoding and decoding. This is the best product in its category. \$39.95. Mainstay, 28611B Canwood St., Agoura Hills, CA 91301. NCP

Packit III is an essential utility. Primarily used to temporarily "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)

Quick & Dirty Utilities, Volume One is a disk chock full of the handiest programs you have ever bought. Included are a super disk cataloguer, a desk accessory mover and more. Several desk accessories including a menu bar clock and a terminal are on the disk. \$39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Requires 512K+. \$19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Tempo is a desk accessory that allows most Mac commands to be intelligently recorded and played back. Capabilities include 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 2.0 rev. D 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 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,

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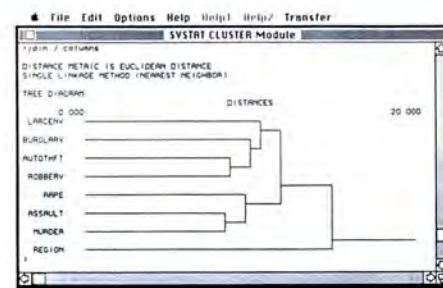
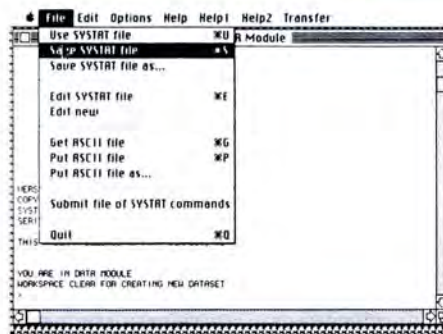
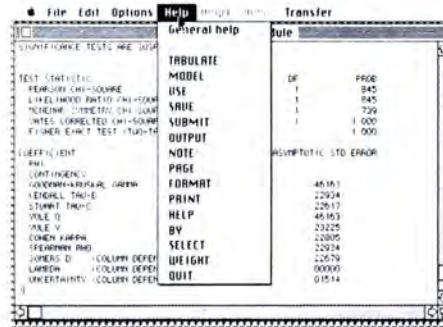
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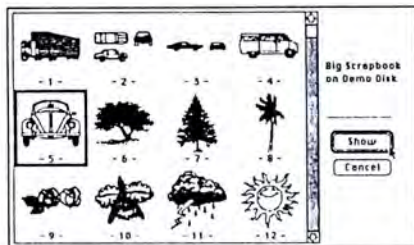


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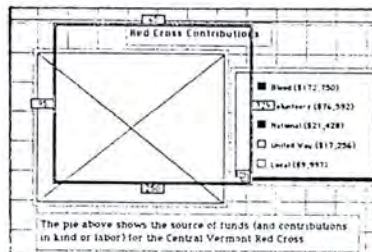
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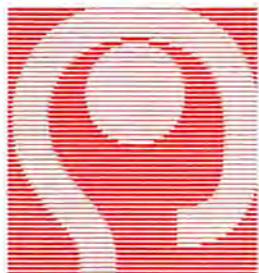
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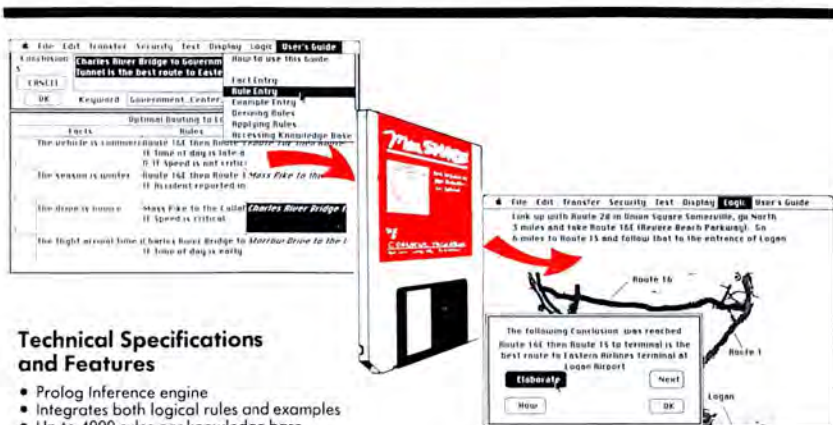
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MINIFINDERS



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 is not the best and Mac interface is nonstandard. \$495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 93108. 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 development 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 is an implementation of the popular Forth programming language. Level 1 is a simple, introductory version. Level 2 supports the Mac Toolbox fully. Level 3 extends the language to allow standalone applications. \$149 (Level 1), \$249 (Level 2), \$499 (Level 3). Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

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)



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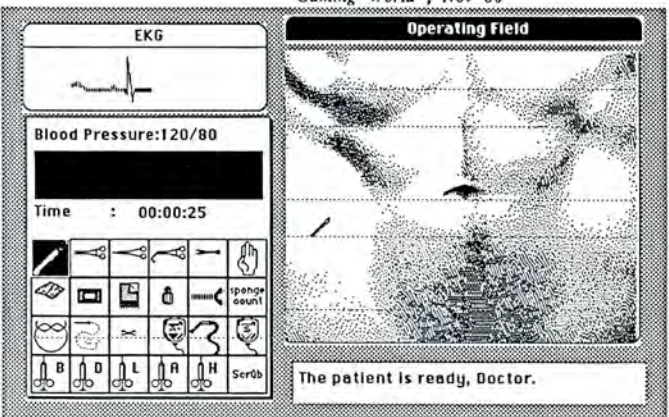
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Macintosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, 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" capabilities. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. \$125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. 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 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. Documentation and use of Mac interface are excellent. \$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. 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 Courseware, 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 36126, 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 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)

ZBasic is a fast, interactive compiler capable of creating standalone 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 programs to maneuver robots through a set of 8 mazes. The

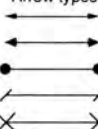
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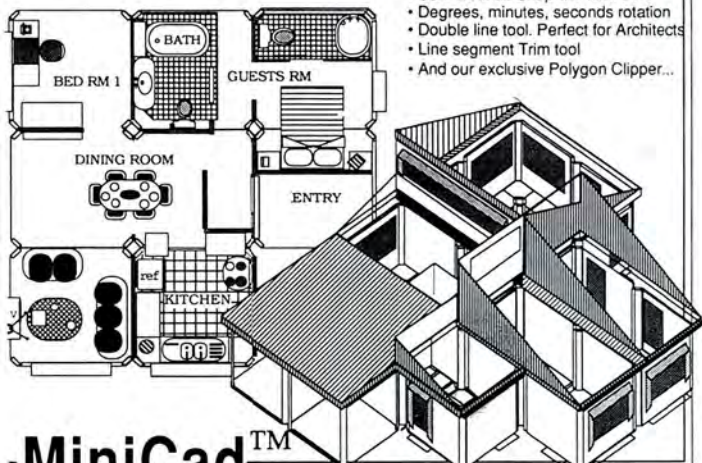
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MINIFINDERS



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. CP (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 (Jun 86)

The Ancient Art of War gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. \$49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keeps the balance of power ever-changing. One or two players. \$44.95. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Oct 86)

Balance of Power is the world's first computer peace game. This simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. \$54.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

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 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)

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 recipes accordingly. \$59.95. Rubicon, 6300 La Calma Dr., Austin, TX 78752. CP (Jan 86)

Dungeon of Doom is a fairly standard, *Ultima*-type adventure game of the pick-it-up, cut-'em-down variety. Fun, if you like the type. Requires 512K. Version 4 is HFS compatible. Shareware. \$25. NCP (Jan 87)

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)

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. 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. Bulls-eye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." \$49.95. Spectrum HoloByte, 1050 Walnut St., Boulder, CO 80302. NCP (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)

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 that requires a joystick for truly effective play. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. \$39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to *MacGolf*. 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 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

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MINIFINDERS



MazeWars+ is an interactive, multiplayer game to be played on **tttt** 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 **tttt** 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 **tttt** 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 than one play. \$38.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even **tttt** 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. Newssoft, PO Box 3046, Newport Beach, CA 92663. CP

Orbiter puts a real space shuttle on the Mac screen. A multitude of **tttt** 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-**tttt** 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 **tttt** 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 **tttt** 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 **tttt** 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)

Psion Chess is as good a micro chess player as you'll find. This **tttt** 1984 World Micro Champion makes superb use of graphics and the Mac interface. Switch between 6 languages for a touch of spice. \$59.95. Psion, 40 Lindeman Dr., Trumbull, CT 06611. CP (Mar 86)

Puppy Love is a combined game and teaching tool. As you teach **tttt** your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. \$19.95. Addison-Wesley, Reading, MA 01867. CP (Mar 87)

Real Poker is five-card draw against five other players with Old **tttt** 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

Sargon III is a chess program with 9 levels of play, problem-**tttt** solving modes, take back, hint, etc. Easy Play blocks *Sargon* from stealing search time during player's move, effectively doubling number of levels. Disk stores 107 classic games for review and replay. \$49.95. Hayden, 1 Kendall Square, Cambridge, MA 02139. CP (Mar 86)

Shanghai challenges players to clear a board of all 144 tiles, by **tttt** matching pairs of mah-jongg tiles and removing them.



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MINIFINDERS



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)

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 simulation 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)

Suspended is Infocom's most unique text game. Using a small plastic board and six markers, the player keeps track of six uniquely designed robots which check on damage to a complex's machinery and report back what they perceive as the problem. \$49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP

Tass Times in Tone Town is a slightly off-the-wall graphic adventure in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. \$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 vast wilderness of Sosaria; dungeons, oceans, and the Moon Gates to help solve the adventure. \$59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

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

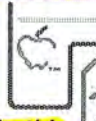
WordPlay is a word game with over 50 crossword puzzles for different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. \$49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what 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

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MINIFINDERS



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

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)

Deluxe Music Construction Set is a good general purpose music program. An active piano keyboard and instant audio feedback make this program perfect for educational applications. \$50. Electronic Arts, 2755 Campus Dr., San Mateo, CA 94403. CP (Mar 86)

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. It also produces some beautiful sounds. \$69. Imaja, PO Box 638, Middletown, CT 06457. CP (Jan 87)

Music Mouse is a music program in a genre all its own. Called "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, and 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

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 Computers, 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.

MacTablet is a stylus-driven graphics tablet. Users can easily sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. \$495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacVision is a digitizer that uses an ordinary video camera for input. Capable of extremely fine results and special effects. Easy to use and well documented. \$399.95. Koala, 3100 Patrick Henry Dr., Santa Clara, CA 95052.

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)

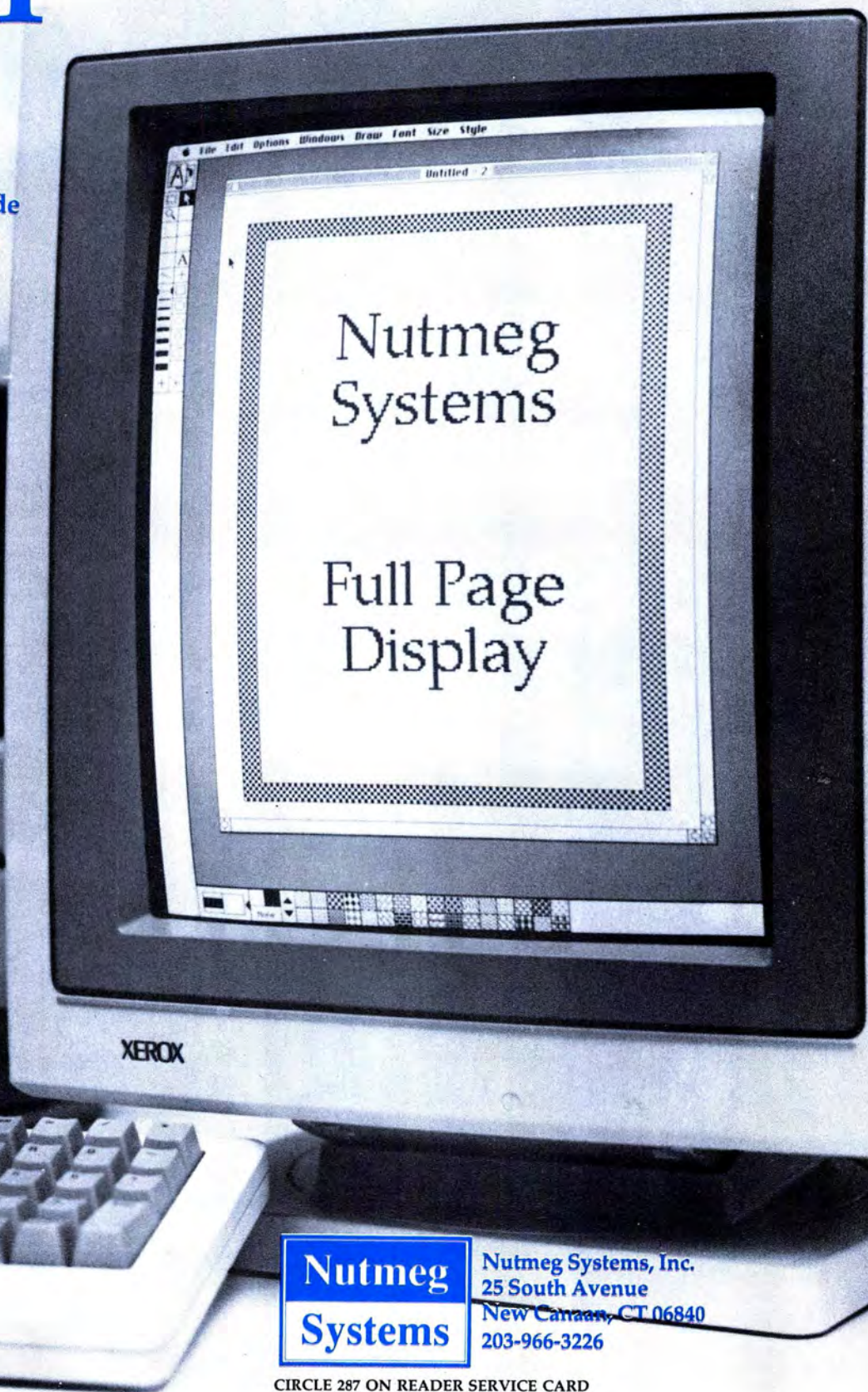
ThunderScan replaces the ribbon cartridge in an ImageWriter, which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. \$229. Thunderware, 21 Orinda Way, Orinda, CA 94563.

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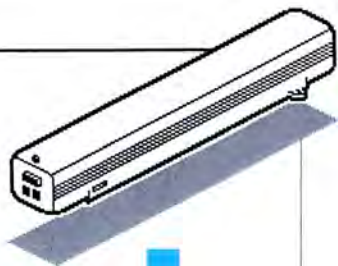
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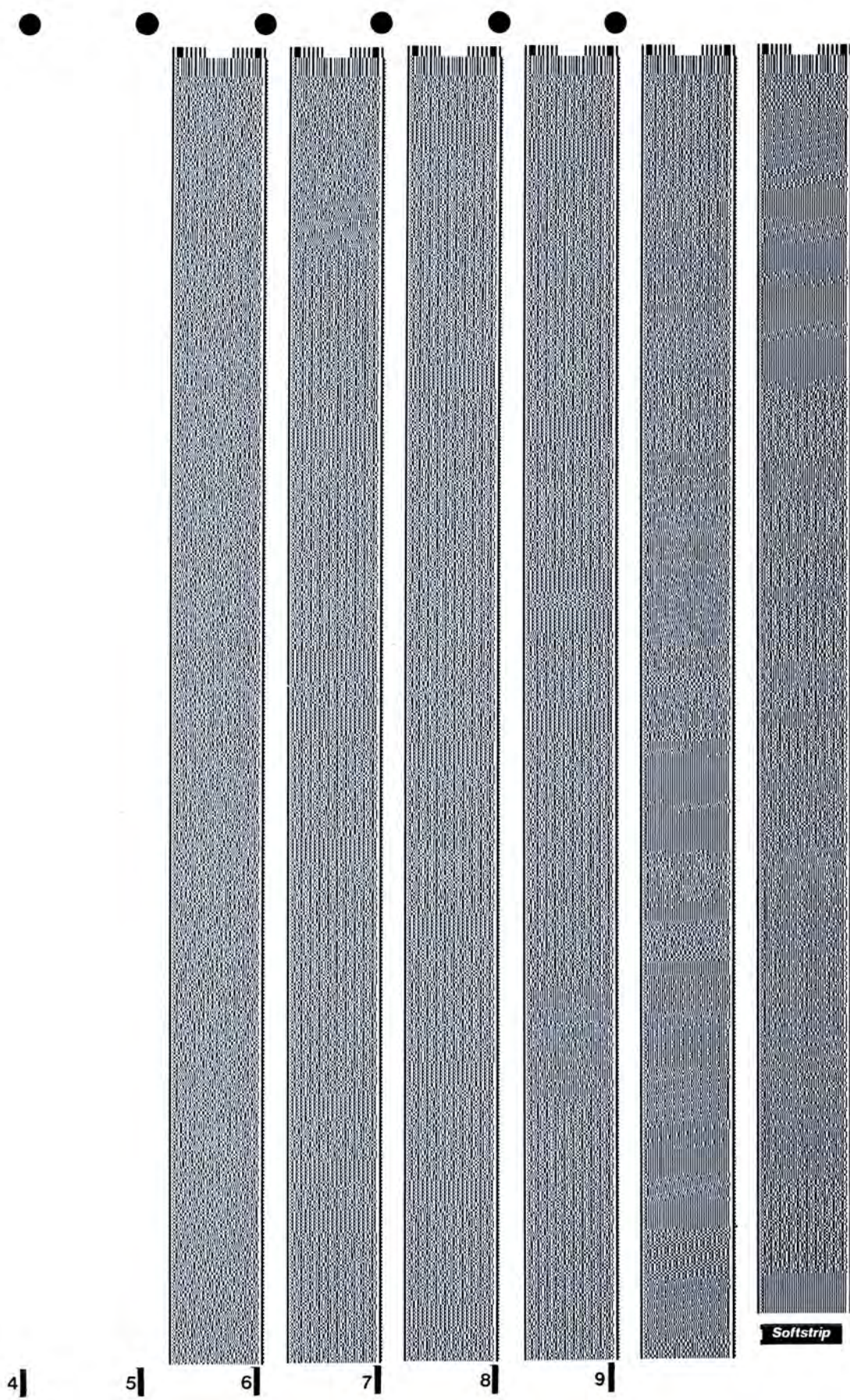
■ This page contains Softstrips: programs and data in a special machine-readable form. The material can range from straight, unformatted data to full-blown Macintosh applications.

To use this material, you'll need a Cauzin Softstrip reader. Readers are available from your local computer dealer. Be sure to get the Macintosh accessory kit. They're easy to use, well made and simple to store. If you wish to print your own strips, you must purchase a separate, inexpensive program.

This month's strips are for a *MacDraw* document entitled "Laser Disk Labels". This document is a supplement to this month's Tip Sheet. In an extended tip, we detail how to use *MacDraw* and a Laser-Writer to produce professional quality diskette labels. The other materials needed besides this file are detailed in the Tip Sheet. This file can also be obtained on the CompuServe and Delphi networks.

We would like to thank Robert T. Coolidge of Centerbrook, CT for providing us with this file and its associated tip. As with the other tips printed in *MacUser*, Robert will be receiving \$25. This file, the Softstrip and the associated text may not be reproduced without the written consent of *MacUser* magazine.

This month's *Strip Show* is presenting a second program, to make up for last month. The program is *Layout*. Its purpose is to modify the *Finder's* LAYO resource easily. The LAYO resource was discussed in detail in "Inside Improvements" in the September 1986 issue of *MacUser*. The instructions there involved using *ResEdit* and a certain amount of trial and error. *Layout* makes it all easy. The program was written by Michael C. O'Connor and is ©1986 by Leptronics Systems Design Company of 405 Tarrytown Rd., #145, White Plains, NY 10601.



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Softstrip

DRAFTING MADE EZ

(continued from page 90)

EZ-Draft excels. *EZ-Draft* creates what are known as "dynamic" dimensions. When a dimension is inserted into a drawing, *EZ-Draft* measures the distances automatically and places that information in the dimension's text. This means that you do not have to verify the position of every line in the drawing. *EZ-Draft* acts as a checker regarding the distance between point A and point B. This ability to verify has justified many large CAD system acquisitions.

Dimensions come in four flavors: Linear, Radial, Diametral and Angular. The flexibility of these commands is awesome. The dimensioning package conforms to the current *ANSI Standard Y14.2*. That means there are a wealth of suboptions presented when any dimensioning command is invoked. You can specify how such things as tolerances are presented (i.e., min-max, + and -, none). Dimensions are treated like any other element on the drawing in terms of editability. You can move, delete and yes, even change what a dimension says (although I wouldn't recommend doing this).

Speaking of editing, *EZ-Draft* includes a very powerful set of editing commands. You can change just about any aspect of any element in the drawing including getting rid of it altogether. In fact, you can even add color to elements (rather tough to see on the Mac). The real use of this feature is to allow the use of other hardware, such as multipen plotters and color displays like the Vermont Microsystems' VM-8860 color monitor, for which *EZ-Draft* includes a special set of drivers. *EZ-Draft* supports a host of output devices in the form of pen plotters, and, of course, the LaserWriter.

EZ-Draft can exchange graphics data with other CAD systems that support IGES. (IGES is a data exchange format supported by all major CAD vendors.) To do so, you'll need Bridgeport's extra cost IGES translator software. The ability to communicate with other CAD systems is absolutely necessary in the pro CAD world.

The IGES translator works well and accepted data ported over from

both *Autocad* and *Computervision* systems. However, there appears to be a serious bug in the IGES module when it comes to converting symbols. Fortunately, this is a known bug and is currently being addressed. *EZ-Draft* also supports the ability to exchange data with *MacDraw* through the Clipboard.

For all its elegant features, *EZ-Draft* isn't perfect. The main problems arise from it not being fully incorporated into the Mac operating environment. This leads to annoyances like requiring that all files have a specific MS-DOS-like extension. Overall speed is also on the slow side. The program runs under a Pascal language interpreter that requires a runtime library, a fact made very clear during installation of the software. That probably accounts for the slow response of the program overall.


This programming environment is being abandoned in the 2.0 release, which was in final, or beta, testing at press time. I was able to examine and work with one these test copies, and things are looking up. Gone is the difficult installation procedure. Present is a *MacDraw/MacPaint*-like icon palette and the familiar window controls found in most Mac programs.

The presence of the sizing box may open this program up in terms of flexibility. With *EZ-Draft 2.0* and an E-Machine large screen display, for instance, a user could increase the effective work surface considerably. This program would benefit from some sort of add-on math coprocessor product such as General Computer's HyperDrive 2000 or Levco's Prodigy 4. In fact, *EZ-Draft* is demonstrated at most shows using the HyperDrive 2000.

Technical support is available via telephone, but there isn't a free (800) number yet. The support supplied was adequate, although a little frustrating. It took three phone calls — starting with the 800 number (which turned out to be primarily a sales number) published on the cover of the reference manual — to finally get through to someone in product support. Once there, though, the person was very helpful.







Most calls the company receives involve technical problems arising from passing IGES data between systems.

The small manual included with *EZ-Draft* is much like most Mac manuals, but reasonably thorough, assuming you're familiar with CAD already. It includes a tutorial that takes a first-time user through creation of a complete drawing.

There is copy protection on this product, a fact of life with almost all programs over \$1000. It requires a master disk be present in the drive at all times. This is supposed to prevent a two-Mac firm from getting by with one copy of *EZ-Draft*. Oh well — if you are an engineer, designer or architect and need CAD on your Mac, you should seriously consider this package. In terms of its overall usefulness it is very good. In terms of value, *EZ-Draft*, at \$2500, is in line with the other micro-CAD packages of equal performance, although rather high for the general Macintosh market. And you must sacrifice some of the Mac's niceties that you have grown used to, but it is a small price to pay for a very powerful CAD software package. 

FRANK CONFORTI IS AN OPERATIONS MANAGER FOR A CAD SERVICE BUREAU IN DEERFIELD BEACH, FLORIDA. HE HAS BEEN INVOLVED WITH CAD SYSTEMS FOR NINE YEARS.

EZ-Draft

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

Comments: A full-featured, computer-aided design package that gives the user advanced design capabilities. **Best Feature:** Flexible drawing manipulation and dimensioning. **Worst Feature:** Slow response time and difficult installation. **List Price:** \$1995 for basic package; \$500 for IGES module. Published by Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. (203) 367-3651. Copy protected.

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Apple Schematics (4094)
Pinouts from Apple IIe, IIc & Macintosh™.
Nasa Schematics (4116) Detailed MacDraw sketches of Space Station, Pump, Thrusters...

Word Processing

Printer Utilities (4102) Wordstar to Macwrite. PageSetup (Create your own page sizes on your printer).
Spellcheck (4104) A spellier and extensive dictionary for Macwrite 2.2 and textfiles.

Business

Business Programs (4106)
Office Manager (Accounts Receivable: prints ledgers, deletes inventory)
Also included are Excel™ templates: Depreciation, Revenue.

Excellent Exchange™ templates
The following require MS Excel™ to run. Included are great tutorials for learning to work with Macros.

Excel templates (4164)
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Excel templates (4166)
1986 Calif. Payroll and Checkbook organizer with documentation.
Also included: Programmer-Self, a programmer's/financial planner's calculator. This program will allow you to print your steps onto to Imagewriter™.

(4167)dMAC III Demo & Examples
Relational Database program.

Telecommunications

Red Ryder 9.4 (4111) Latest update. It has an autodial feature and can store up to 80 telephone numbers. It also allows you to receive files automatically in any of 3 modes: ASCII, XMODEM, and KERMIT.
Red Ryder Macros (4090)
Contains Dow Jones™ & E. F. Hutton Quotes. Also contains a listing of area codes.
Termworks 1.2 (4112) Supports MacBinary & Macro capability for storing numbers & protocol settings. Also included are Freeterm 1.8, PackitIII and FModem.
Communication Utilis (4107)
BinHex 5.0. Supports the new .BIN protocol, as well as the old .HEX, .HCX & .HQX protocols. Packit III 1.2 (Compress your data for faster transmission), Compact, AppleTalk Chat and more.

Hacker Tools

H. Tools (4100) DrawPaint 1.0 (Convert MacDraw files to MacPaint.)
TabUtil. (Text File processor: add or remove tabs.) Icon Exchanger, Icon Collector, Cleanup, Iconer & more.
H. Tools (4108) Patchdisk (Get into any sector of a disk and modify it!), PurgeIcons, Disk Test, Answering machine and more.
Programmer Utilities (4162)
Softools™ (Draw many standard software engineering drawings such as Dataflow diagrams, flowcharts etc.), Fast Eddie A powerful programmers' text editor. Includes documentation.
Programmer Utilities (4163)
MemTest, MightFinder, FOBT Format, PRAM 2, Font -FKEY-DA sampler. (This very useful program will open any font, Desk Accessory or Function Key without having to install them onto the System. Also included: Cleanup, Mac ID, Hex & ASCII Strings.
Developer Stuff (4087)
ResDecompile. (A Macintosh application which can convert certain types of resources in a resource file, into source code suitable for compiling with ResEdit (Apple's Resource Editor).
Developer Stuff (4088)
Obi, Systems ID's, archiver & more.

Music

MacNifty (4124)
This disk contains realistic digitized sounds that may be altered by changing the sampling rate. Sounds included.
Musicworks™ songs (4122)
Includes Musicworks Demo which plays back songs. You can't write your own songs unless you have the commercial Musicworks. Songs included:
"Invention #1", "Ballet de la Roynie", "Born Free", "For Your Eyes Only", " Raiders of the Lost Ark", "The Gambler", "Jump" and many more.
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Midi Music Applications

These programs require a MIDI Keyboard.

Midi Term (4117) Midi 2, Midi Mouse, 7th Heaven
CZedit Demo (4118) CZlibrarian (For use with the Casio CZ101™ Keyboard).

Educational

Flachcard (4138) Orbital Mixing & Grades folder.
Math Master (4139) Venn, Conformal Maps, Automata, Tree and Tangent.
Speech Synthesis (4140)
The following programs demonstrate Speech Synthesis: Rona, Talking Eliza with demo files & instructions, Speak Easy and La Limerick Machine. (This one will read limericks that are typed)
Math Tutor (4181)
Weinberg. This program facilitates drawing math functions like integrals, summations etc. Equation, Math Drill & Camera tutorial.

Engineering:

DesignScope (4119)
Simulation Program that helps design component Circuitry. (Demo Version)
Digital Simulator (4120)
Digital Logic Simulator. Build & test electrical circuits.

Utility Programs

System Utilities (4182)
BootEdit (Alter the Welcome to Macintosh message), Change application font, Install (Install resources to your system that will RESUME your program after many system bombs), Window Changer (lets you customize the Save As & Open dialog boxes)
Disk Utilities (4183)
Disk Cat. Disk cataloging program. Disk Test, Display (text file reader), & Scavenger Mac (recover files).
Diagnostic Utilities (4184)
DiskTest, Speed Check, Ram Test 1.7, Dir-Act-ry (Reads directory of & disk then converts it to an outline document for use with the Acta DA.), Remount HD20 (Remount an Apple HD20 that has been accidentally thrown into the trash).

Updated Disks

Redit 1.2 (4185)
European Resource editor. This program is excellent for translating Macintosh programs to other languages. It does not alter any of the resources.

Switcher 5.0.1 (4186)

Languages

Basic Compiler (4101) Complete with documentation and examples.
Smalltalk (4099) Disk also includes Ada and a 68000 disassembler.
Xlisp 1.4 (4037)
McAsm (4033) 68000 Assembler and Linker.

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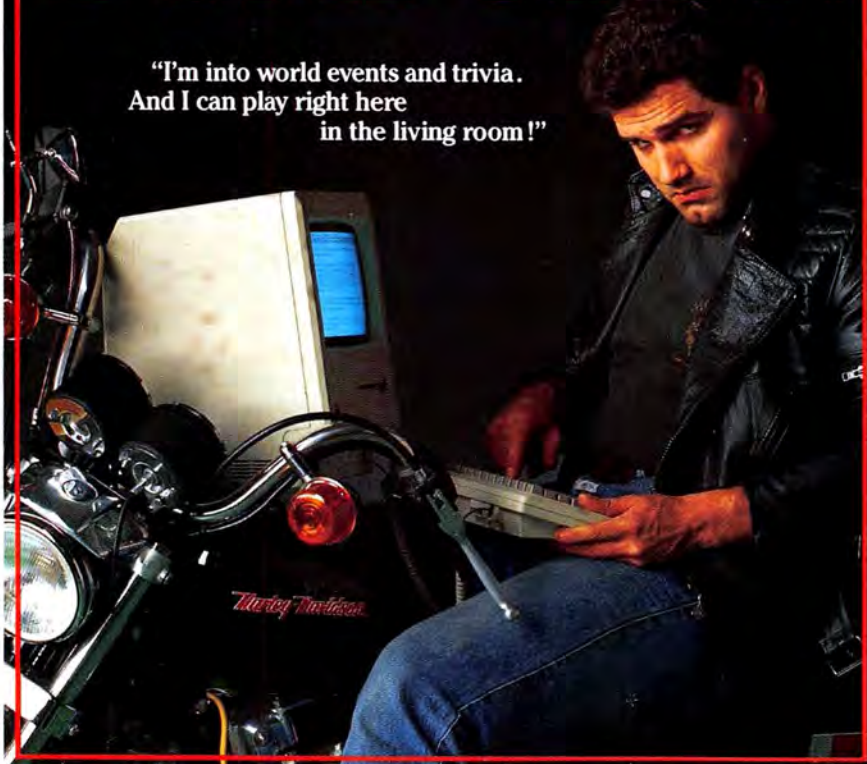
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(continued from page 98)

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BONNIE WALKER IS CURRENTLY PRESIDENT OF HER OWN CONSULTING FIRM WHICH SPECIALIZES IN DEVELOPING TECHNICAL MANUALS AND TRAINING MATERIALS. SHE IS ALSO THE AUTHOR OF SEVERAL TEXTBOOKS.

MacMoney

Overall Rating	☞ ☞ ☞ ☞ 1/2
Follows Mac Interface	☞ ☞ ☞ ☞
Printed Documentation	☞ ☞ ☞ ☞
On-Screen Help	☞ ☞ ☞ ☞
Performance	☞ ☞ ☞ ☞
Support	☞ ☞ ☞ ☞
Customer Value	☞ ☞ ☞ ☞

Comments: An excellent choice for anyone who wants to keep personal or business financial records based on checkbook payments. **Best Feature:** Flexibility and ease of use. **Worst Feature:** No space for memos or ID codes on split transactions. **List Price:** \$74.95. 512K+ and printer required. Published by Survivor Software Ltd., 11222 La Cienega Boulevard, Suite 450, Inglewood, CA 90304. (213) 338-0155. Not copy protected.

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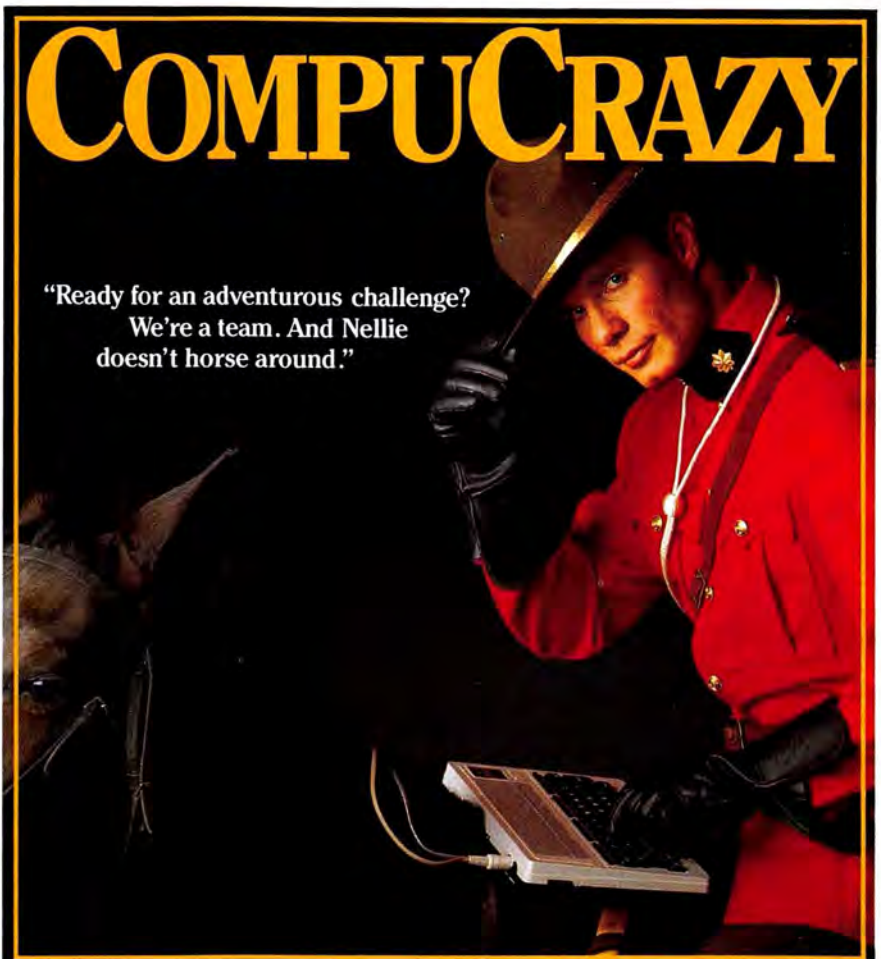
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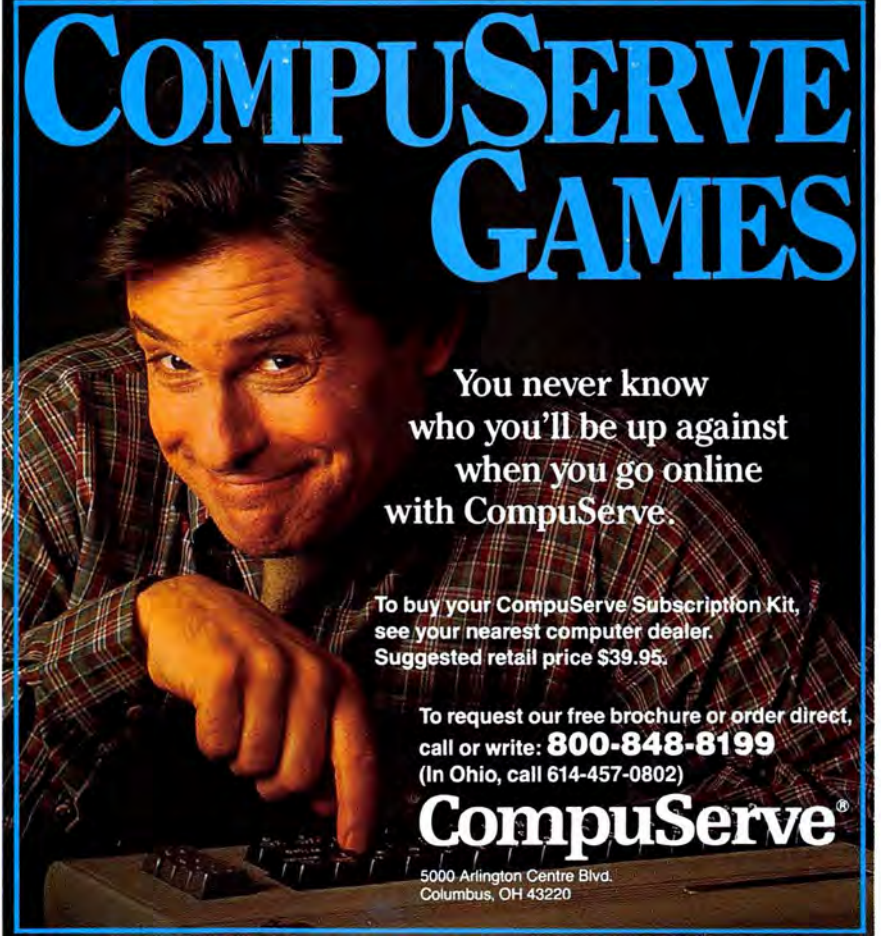
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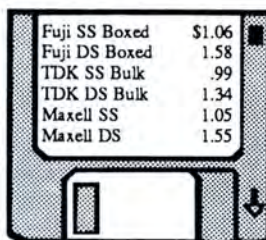
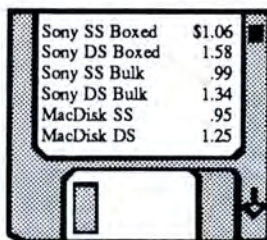
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by John C. Dvorak

Copping A Feel

It was a gloomy day in microcomputerdom when Lotus filed suit over the look and feel of a couple of clone spreadsheets. They look too much like a rip-off said the boss man. We'll sue the daylights out of them, he said. In his hand he waved a document. Broderbund vs. Unison was written across the top.

The user community was aghast. The developers were aghast. The mothers of the developers were aghast. The lawyers were ecstatic. "Hooray for lawyers," they all shouted.

Sides were taken. Lines were drawn. One group busted up coke bottles to create knifelike weapons. "We gonna cut you," they said. The other side grabbed sticks and clubs. "We gonna pound you," was their cry. They slowly marched towards each other when someone shouted, "Do you jokers know what this is all about?"

"Shut up," screamed a pretender as he tossed a bottle.

Whoa, hey, halt, stop, attendez, cool it. Before this cheap drama continues, perhaps we should deal with a few facts.

First of all, look and feel predates software and is nothing new to software. The first use of the term is thought to be in the Roth Greeting Cards vs. United Card Co. (1970). Time and time again, the courts protected screen design as some sort of artistic work. The most conservative cloners such as Newstar Software's *WordStar* clone adamantly refused to make a perfect copy of the *WordStar* menu for fear of copyright violation. The legal precedent for this kind of protection was pounded home by the most noteworthy case, Atari vs. North American Phillips a few years ago. It was a suit over the use of the *Pac-Man* character and screen. The recent Broderbund vs. Unison case clearly outlines the rights of developers.

I hope everyone agrees that developers have SOME rights. Or do you think that it's okay to copy whatever you want?

Let's go over some of the facts and concepts used by the winning attorneys in the Broderbund case. I spoke with Attorney Claude Stern about the issues

raised by that suit. Here are some of the misconceptions I discovered (and sometimes harbored):

1. Misconception: If Lotus wins, then all hell will break loose and there will be a rash of lawsuits because of the bad precedent. Not necessarily. Copyright cases are all tried on an individual basis. The law is fairly specific and although both sides use as many old examples as possible to prove their argument, the individual merits are the real determinant. Besides that, Lotus might be sued for its *Symphony* outliner or who knows what. Suits could be flying at Lotus if they fly at all.

2. Misconception: Apple has been pushing its pull-down menus as proprietary and protected by patent or copyright. Apple should be sued by Xerox for stealing the idea from the Xerox Star! One can hope and dream until you find that Xerox mysteriously owns 2.5% of Apple's stock. Apparently there was a sweet deal made some time ago, thus giving Apple the rights (and the rights to sue) anyone using an Apple-like interface. Besides that, even if Apple violated someone's copyright and patent, it doesn't mean that YOU can, too!



3. Misconception: Well, why doesn't the copyright holder of *VisiCalc* sue Lotus! According to the Broderbund lawyer, there is nothing wrong with modifying or enhancing to the extent that it's no longer recognized as the work you are mimicking. The idea is to protect YOU from someone making an exact copy and selling it as a clone.

Aside: Little known fact dept. Attorneys take note. The reason that *VisiCalc* used the backlash key to get to the

command line was because Dan Bricklin has a genetically inherited bent little finger. "I hate shift and control keys because of my pinkies. They are hard to hit, so I avoid them at all costs in my programs," he told me. He had to fight like crazy with Bob Frankston to implement them in the final version of *VisiCalc*. There seems to be no rationale for anyone ELSE using the keys for anything, but I digress.

Okay, let's get off this boring path and get to the point. It seems that the whole idea of these suits is to see if there is a likelihood of confusion. In fact, that's what the lawyers call it: the likelihood of confusion test. Will a casual, ordinary and reasonable person (a member of the audience, by the way, who is likely to use the product, not just some jerk off the street) when looking at two products think that one has been negligently copied from the other? Do they look and feel the same? If so, then here comes the judge.

This is the key to these cases. If a myopic judge fails to pick the right so-called "ordinary observer" then the case will fall to pieces. Let's face it, if you put a New Guinea cannibal in front of a Cray-2 and a Mac Plus, he'd figure that they were copies of each other. His perspective isn't that of the typical or prospective audience. Remember that the prospective audience for the Broderbund *Print Shop* product is a naive user of dopey brainless software. I wouldn't be caught dead making a hokey greeting card with a dot-matrix printer. Spreadsheets are a different story.

Let's hope it will be a CPA with reasonable experience who is considered the prospective audience for the product. Any decent bean counter is so detail-oriented that he shouldn't see any similarity between *Lotus 1A* and *Lotus 2* let alone *VP Planner* or anything else. When I sit down and see the Paperback Software logo appear on the opening screen, I'm sure not fooled into thinking that I have a copy of *Lotus* in my machine.

So where does this leave the Mac community? With all the limitations of the Mac, most Mac users are nonplussed by the whole look and feel scene. "Our machines are so powerful, and there are so many ways to do things that we don't have to clone anything," the arrogant Mac owner says. The more honest ones put it differently, "What's the fuss? The whole scene proves that IBM owners are wimps. In the Mac community, there wouldn't be a clone like *VP Planner*. We'd just bootleg *Lotus* and give out copies free! Who's to sue?"

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