Apple's New LaserWriter II Series:
Which One's Best for You?

DESK ACCESSORIES
Suitcase versus Font/DA Juggler Plus

NEW ON THE MAC II:
- PixelPaint: 16.7 Million Colors
- Interleaf: High-End Publishing

CARD TRICKS
- New HyperCard Programming Column

DESKTOP PRESENTATIONS
- Instant Slides
- Product Roundup
Whether it's a two-page letter or a 100-page report, the whole point of writing is to get to the point. And nothing gets you there faster than Microsoft Word, Version 3.

That's because Word is not your ordinary word processor. In fact, it's not a word processor at all. Word is the Macintosh™'s first document processor.

And it's specifically designed to take you from outline to output, without getting you bogged down in details.

That's why you'll find a combination of powerful features in Word you won't find anywhere else.

Like an integrated outliner for organizing your thoughts. And for rearranging pages of paragraphs with a simple click of the mouse.

Likewise, a simple mouse click is all you need to check and correct your spelling, using Word's built-in, customizable 80,000-word dictionary.

Plus you can preview and adjust page layouts before you print. Customize menus, so the files, fonts and formats you need are always at hand. Even assign Word the time-consuming chore of generating a complete index and table of contents.

All critical, professional features that strip hours off the task of turning rough thoughts into crisp, persuasive documents.
But the real power of Microsoft Word comes from the major time-saving features available while you input, edit and format your work.

Advanced features, like command and accelerator keys, that duplicate every mouse function while you keep your hands on the keyboard. Glossaries, for recalling frequently used text with a few rapid keystrokes. Style sheets, for saving and reusing type styles and formats with a simple point and click.

And obvious, but often overlooked time-savers, like the ability to select words, sentences or whole paragraphs at the touch of a button.

What can Word do for you? The answer can be found at your local Microsoft dealer. For the address of one near you call (800) 541-1261, Dept. E61.

Ask him to help you put Word to work in preparing your most complicated documents. And in no time at all you'll reach your own conclusions.
MacUser

PRODUCT SURVEY

Laser Fare
by Henry Bortman
An in-depth look at Apple’s three new LaserWriters: the II NT, II NTX, and II SC. Be sure to read this article before deciding which one best suits your present — and future — needs. 140

POWER COMPUTING

Double Helix Takes Form
by Gary Hirschberg
In this second article in a series, we look at the form-design capabilities of Double Helix. Our review/tutorial takes you step by step through the whole process, from template to output. 190

Big Macro Attack
by Ezra Shapiro
If you’re a dedicated Works user, your life just got a little easier. WorksPlus Command increases that program’s power and adds new capabilities. If the macros it provides aren’t what you’re looking for, you can easily build your own. 244

RESOURCES

DAs of Our Lives
by Sharon Zardetto Aker
You want to stuff as many fonts and DAs as possible onto your Mac. 20

Instant Slides
by Haven C. Sweet
Here’s a quick and dirty way to produce decent 35mm print slides on the Mac, using standard graphics and draw programs — for those times when time is more important than appearance. 218

And Now Presenting...
by Michael D. Wesley
Desktop presentations seem to be the next Macintosh “Trojan niche.” We give you an overview of the hardware and software products that will juice up your next presentation. 234

WORD PROCESSING

The Write Choice?
by Russell Ito
Microsoft’s new low-end word-processing program, Microsoft Write, may be just what you’ve been looking for. On the other hand, you may be better off using the short-menu option in Word — or sticking with your present program. 226
ENkERTAINMENT

Fight or Flight
by Jay Palmer
If the high price of planes (or fear) has kept you from becoming Top Gun, here's your chance. Falcon puts the F-16 on your Mac and gives "flying by the seat of your pants" new meaning. 250

Editor At Large
by Neil L. Shapiro
Viral Infection. 23

Pinstripe Mac
by Robert R. Wiggins
Freedom of Choice. 59

Two Bits' Worth
by Michael D. Wesley
Educating the Masses. 67

Card Tricks
by Michael Swaine
Desperately Seeking Scripts. 75

The Help Folder
The Help Folder is on vacation this month, as Dan Cochran is on his way to Apple's Paris offices. In coming months, the column will be handled by Chris Espinosa of Apple. Bon voyage, Dan!

HYPERCARD

Flash Cards
by Laura Johnson and Victoria Juarez
A quick and tantalizing look at some of the newest HyperCard stacks. 260

COLUMNS

Editor's Desktop
by Frederic E. Davis
Send in the Clones. 13

Things to Come
by Steven Bobker
Macintosh Futures. 17

DEPARTMENTS

Letters
from the Mac community
Readers have their say. 27

New on the Menu
edited by Jon Zilber and Louise Kohl
Something new from Kurzweil, electronic Sherlock Holmes, Mac navigation, Updates, and more. 34

Quick Clicks
TV Producer, UpBeat, TrueForm, LaserTalk, Alphabet Blocks, LXR*Test, HyperDA, American Discovery, Solitaire Royale, and Star Fleet I. 92

Tip Sheet
Compiled by Chip Carman
Mac hints, tips, and shortcuts. 125

MiniFinders
Hundreds of capsule reviews to help you pick and choose. 268

Coming Soon 10

Advertisers' Index 294
Five mice, to be exact.
That's MacUser Magazine's highest rating. Which seems reasonable for a product that's added real productivity to thousands of menus.

Suitcase allows a virtually unlimited number of fonts and desk accessories. Far more than the normal limits. And that boosts productivity.
A rich variety of fonts gives the desktop publisher the opportunity to always make the right selection. A desk accessory should always be there when you need it.

Suitcase puts it all at your fingertips. That's why we have five mice and the MacUser Editor's Choice Award for Best New Utility of 1987.
DISCOVER UPTIME. Build an exciting library of programs for less than one dollar each. You deserve value. At UPTIME value is yours. Each month over 30,000 people just like you enjoy UPTIME. Your disk arrives with eight programs and more every month...

Enjoy eight programs including two new desk accessories on each monthly disk. Make your life easier. Get more from your Macintosh. Organize and be more productive with home and business management programs. Learn with educational programs. Enjoy all the games and adventures. Using your Macintosh is now a snap with tutorials and desk accessories.

It's easy, inexpensive and fun. It's UPTIME! Too good to be true? There's even more! Each monthly disk has reviews of the latest software, hardware and peripherals. Save time and money. Learn the strengths and weaknesses of each item we evaluate. Shop "on the disk" in our Micro Discount Mall.

Subscribe now and save. You won't believe the low price! Satisfaction is guaranteed — or your money back. You'll be amazed at just how much comes on every UPTIME disk. Make the very next one yours. Fill out the coupon. For immediate service call toll-free:

1-800-437-0033 anytime, day or night.
Please circle 153 on reader service card.
THE BEST TYPE BOOK
MONEY CAN BUY.

This priceless professional tool is yours free. Simply mail the coupon below. Or call Adobe Systems toll-free.
Adobe, developers of the Adobe™ Type Library and PostScript® software, is the world's leader in electronic publishing. This full-color, 11"x15" 32-page "Font & Function" catalog is jam-packed with helpful tips and problem-solving advice from Adobe type and design experts. It features samples, interviews, and more than 210 high-quality Adobe typefaces described in detail.

Get yours today, FREE. Just call 800-29-ADOBE. In Alaska and Canada, call 415-962-2100. Or write Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900.

FREE.

To receive your "Font & Function" Adobe Type Catalog, mail to: Adobe Systems, P.O. Box 7900, Mountain View, CA 94039-7900. Please allow 4 weeks for delivery.

NAME
ADDRESS
STATE
CITY
PHONE
ZIP

Please circle 117 on reader service card.

GAME OF KINGS AND QUEENS

The appeal of solitaire games is timeless. People have played for generations and will continue to do so. Now you have a special treat in store—a collection of eight popular solitaire games for your computer. From children to grandparents, it's one of the few computer games that ALL ages love to play. For the competitive spirit we have included a scoring and tournament mode. Select from a variety of beautiful card decks and get set for hours of fun!

Available on IBM 286K (EGA, CGA, Tandy) and Macintosh 512K. Amiga coming soon.

Please circle 39 on reader service card.
Wholly Kao.

The diskette. The whole diskette. And nothing but the diskette. That's what we make at Kao Corporation's Infosystems Division.

Kao is committed to total vertical manufacturing integration because a single flaw at any step in the diskette manufacturing process can result in data loss.

From raw materials to final packaging, 100 years of Kao leadership in surface science technology goes into every Kao diskette.

So whatever size, density, or color Kao diskettes you purchase, you're assured that they will exceed every industry standard worldwide.

Ask your office products or computer specialty dealer for Kao brand professional diskettes. Or call Kao at 1-800-443-0100 Ext. 947 for the name of your nearest dealer.

And make sure every diskette you buy is wholly Kao.

World Headquarters: Kao Corporation 14-10 Nihombashi Kayabacho 1-chome, Chuoku, Tokyo 103 Japan. 813-660-7669 Fax 813-660-7786 Telex KAOJY JS 24816.

In USA contact: Kao Corporation America Infosystems Division, 2005 Landings Drive, Mountain View, CA 94043 (415) 965-4186 Fax (415) 965-0466.

In Canada contact: Kao-Ontek Ltd., P.O. Box 41, 10 Distek Drive, Ancaster, Ont. L9H 3H2 (905) 663-7001 Fax (905) 663-2866 Telex 0833148.

In Europe contact: Kao Corporation GmbH Infosystems Division, Wannenstr. 57, 4000 Dusseldorf 30, F.R. Germany, 0211-4176-0 Fax 0211-415559 Telex 86875650 kao ged.

Please circle 138 on reader service card.
HyperCard.

HyperCard + Reports™

The Proof is in the Printouts

Use Reports to Organize and Print HyperCard Data

Don't let HyperCard limit you to just printing cards and stacks, columns and rows. Get Reports, the Complete Report Generator for HyperCard. With Reports, you can select whatever you want from your HyperCard data, then print it any way you want: reports and phone lists, invoices and checks, mailing labels, Rolodex® cards, summaries and much, much more. Organize and analyze information in thousands of ways, with 5 levels of sorts and breaks, 8 selection criteria, totals, subtotals, averages and other detail summaries. Design print-outs with pizzazz, using a custom layout editor with flexible formatting, variable fonts and character styles. Plus graphics—paste in pictures from your HyperCard stacks, scrapbooks, or other applications, or use the built-in drawing tools.
If you use HyperCard, you need Reports.
It will turn your HyperCard data into useful information, any way you look at it.

How to order: Ask your retailer for Reports
or, to order direct, call 800-345-2888,
Operator 300. $99.95 suggested retail price.
NOW thanks to READ-IT! Optical Character Recognition software, any scanner (including Thunderscan) can be used to input text from books, magazines, newspapers, letters, price lists, phone books; in fact most any printed word, into your Macintosh. READ-IT! converts scanned images into text files which you can then edit in your word processor, store in your database or use with your desktop publishing application.

READ-IT! comes pre-trained for most popular typewriters, ImageWriter and LaserWriter fonts. But don't despair if your documents use different fonts, because unlike other OCR systems (even the ones costing thousands of dollars more) you can teach READ-IT! to recognize virtually any new typeface, even foreign and special characters. Furthermore, READ-IT! can also read files from Fax Modems and works in the background under Multifinder.

And the new Version 1.1 now includes drivers for all popular scanners, batch processing, speech, automatic font selection, and a built-in spelling checker. So if you're looking for the best way to enter printed data, the solution is as simple as the process. See your dealer or call toll-free 1-800-822-0772.

To receive a FREE demo of READ-IT! and the Olduvai product line HyperCard stack, just send us a blank disk.

READ-IT! O.C.R. for Thunderscan: $149

Optical Character Recognition software for any scanner.

OLDUVAI Corporation, 7520 Red Road, Suite A, South Miami, FL 33143
(305) 665-4665 Fax (305) 665-4071

READ-IT! is not copy-protected and requires 1 Meg. RAM and any scanner.
Thunderscan version requires 312K and Thunderscan 4.0.

All product names mentioned are trademarks of their respective holders.

Please circle 118 on reader service card.
Introducing the fastest, easiest way to do your personal finances and small business books.

Quicken for the Macintosh®

Eliminate Bookkeeping Chores Forever.

Quicken is so automatic it does your financial work for you. To pay bills just tell Quicken the amounts. It does 14 automatic bookkeeping steps and hands you the printed checks.

At tax time, Quicken gives you the itemized reports supporting each tax deduction. Need to find a check you wrote months ago? Quicken finds it in 3 seconds flat.

Finish Financial Work in Seconds

Quicken is extremely fast. It does in seconds what used to take minutes or hours.

<table>
<thead>
<tr>
<th>Item</th>
<th>Time to do 10 Checks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quicken</td>
<td>1</td>
</tr>
<tr>
<td>Quicken &amp; Sense®</td>
<td>1</td>
</tr>
<tr>
<td>MacMoney®</td>
<td>1</td>
</tr>
<tr>
<td>Hand Written</td>
<td>1</td>
</tr>
</tbody>
</table>

No Accounting Hassles.

Before Quicken, computerizing your books was difficult, even on a Mac. Accounting jargon, inflexible rules and tedious procedures were standard.

Quicken has changed all that. Like Macintosh, Quicken uses a familiar visual metaphor; a checkbook right on your screen. So there are no strange rules to learn. Absolutely no “debit”! No “credit”! No “ledger”! No “forced closes”! Nothing in your finances changes. Finally there is bookkeeping with the soul of the Mac.

Flexible Enough for Personal or Business Use.

Quicken works for individuals. For service and manufacturing businesses. For doctors, consultants, designers and property managers. For anyone who wants relief from routine bookkeeping hassles.

Order Now and Get Two Free HyperCard® Stacks.

<table>
<thead>
<tr>
<th>Item</th>
<th>Promotional Offer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check Designer—put clip art or logos on your checks.</td>
<td>Free!</td>
</tr>
<tr>
<td>Custom Reporter—produce a wide variety of customized financial reports.</td>
<td>Free!</td>
</tr>
</tbody>
</table>

Specifications:

- Compatibility: Works in spreadsheets like Excel®
- Compatibility: Works with HyperCard®
- Software Requirements: Macintosh with 512K RAM. All printers, including laser printers.
- Capacity: Number of bank accounts—unlimited. Number of transactions—unlimited. Number of income/expense categories—unlimited. Amounts to $999,999.99
- Other: Not copy protected

Try Quicken for 30 days free!

Try Quicken for 30 days free! Print checks on all printers.

Click and Quicken instantly updates your check register, recalculates balances and prints your checks.

Click and Quicken automatically updates your check register, recalculates balances and prints your checks.

New! LaserChecks. Now print checks on all printers.

End Financial Hassles.

Quicken, $49.95

Click three times for these instant reports:

- Income & Expenses (P&L)
- Budget vs. Actual
- Taxable Income/Deductions
- Rental Property/Job Cost
- Accounts Payable
- Cash Flow/Cash Needs
- Payroll Taxes

I want to try Quicken on your no-risk 30-day guarantee. If I don't save time, eliminate hassles and get the clearest picture of my finances, I will return it within 30 days for a full refund.

Quicken for Macintosh, $49.95 plus $3.00 shipping and handling. California residents add sales tax.

Call 800-624-8742 (in California call 800-468-8481) or send this coupon with your check or credit card number to: Intuit.

Name ____________________________________________

Address ____________________________________________

City ____________________________________________ State __________

Zip ____________________________ Phone ____________________________

□ Check enclosed (No purchase orders)

□ Visa □ MasterCard □ Am Ex

Card No ____________________________ Exp ____________________________

Other: ____________________________

Intuit

540 University Avenue
Palo Alto, CA 94301

$49.95
Aatrix Payroll is a compact and powerful tool designed to reduce the time spent preparing payroll for your business.

**FEATURES:**
- Employee paychecks may be processed in as little as two seconds each.
- Paycheck printout adaptable to any check form.
- Calculates and prints on W2 forms.
- Print queue allows for consecutive check printing.
- Users may create and edit tax tables on the Federal, State, and Local level, using our fast entry system. Federal and all state tax tables are included.
- Employee files may be grouped by department.
- All taxes are calculated, accumulated, and deducted.
- Federal and State unemployment taxes are calculated, accumulated, and reported.
- "End of Payroll," "By Date," "Monthly," "Quarterly," "Annual," and "By-Individual" reports summarize gross pay and withholding at all levels. Federal forms 940 and 941 information are also provided.
- Reports can be exported as a tabular text file, for export to other programs.
- Bonuses or commissions, overtime and double overtime may be included.
- Tracks employee "anniversary" dates.
- Up to 8 deductions, such as FICA, health insurance and disability may be automatically deducted, accumulated and titled for each employee.
- Password protection is provided for you and your employee's security.
- Set upper limit on deduction amounts. Declare deductions exempt from taxes.
- Much, much more!

**$179 *
Aatrix Payroll Ver. 3.0**

Aatrix Payroll PLUS is designed for larger companies that require more complex functions. The features include everything in Aatrix Payroll as well as:

- Ledger for Payroll checking account.
- 10 different income sources.
- Special Restaurant Tip section.
- Unlimited number of employees.
- Special Contractors Section for various hourly rates and income sources.
- Prints form 1099.
- Batch prints up to 200 employee paychecks at a time.
- Up to five separate employer contributions.
- Itemizes and accumulates different hourly types: regular, overtime, double overtime, vacation, holiday, sick pay.
- Writes miscellaneous checks and posts checks to ledger.
- Accumulates sick pay and vacation pay based on hours worked.
- Lots of reports.
- Much, much more!

**$295 *
Aatrix Payroll PLUS**

Upgrades from 2.01 available. Call today!

**30 DAY MONEY BACK GUARANTEE**

**ORDER LINE**

1-800-426-0854

Please circle 63 on reader service card.

Aatrix Payroll Canada
Shipping May 1, 1988

P.O. Box 5359
Grand Forks, ND 58206-5359

Developers of TimeMinder™

*Plus $6 shipping and handling.
Send in the Clones

The IBM PC has been successfully cloned by many companies. The Macintosh has not. I think it's too bad that the Mac has not been successfully cloned, but a lot of folks at Apple vehemently disagree with me about it. So far, the folks at Apple are getting their way, and you can't buy a legitimate Macintosh-compatible computer. The subject of cloning the Macintosh involves many interesting issues, however, and I'd like to share a few thoughts with you about the pros and cons of Mac clones.

First, let's take a look at other successful computer clones. By far the biggest clone business involves clones of the IBM PC series of computers. Computers that are compatible with the IBM PC, PC XT, and PC AT are available from hundreds of different vendors; some of the clones, such as the Compaq 386/20, offer better performance than IBM's own machines. Many people credit the widespread availability of these IBM-compatible clone computers with establishing IBM's technology as the leading standard in the microcomputer industry. Although IBM could have taken legal measures to try to stop PC clones, the company felt it was better to have other manufacturers selling lots of IBM-compatible computers in order to rapidly establish IBM's technology as the most widely used standard.

**APPLE BEATS PINEAPPLE**

Apple, on the other hand, has always taken aggressive legal measures to try to stop the cloning of Apple computers. When the Apple II first came out, many companies were quick to copy the design of the computer. Apple-compatible computers with names such as Pineapple, Banana, Orange, and Wombat were available for less than half the price of the genuine Apple II. These computers were direct rip-offs of the Apple II, right down to the programs in the computer's ROM (read-only memory). These companies were merely copying Apple's ROM programs electronically and transferring the programs to the ROMs of their clone computers. This direct copying of the ROM programs eventually led to these exact copycat computers' being pulled from the market.

The programs in ROM are related to the operating system of the computer and are the key (along with the right computer circuitry and disk operating system) to what makes one computer compatible with another. When microcomputers were first introduced, there was some debate about whether or not copyright laws applied to the ROM programs, since these programs couldn't be directly read by people. Apple, in fighting off the directly copied ROM programs, was instrumental in establishing that copyright protection did indeed extend to programs in a computer's electronic memory. By proving that Pineapple, Wombat, and others directly violated Apple's copyright on the Apple II ROM programs, Apple was able to obtain a legal injunction against the sale of those computers in the U.S. and other countries with which we have trade agreements.

Similarly, you may have heard rumors of special ROM programs for the Atari that let you run Mac software, or Mac-compatible machines for sale in places such as Hong Kong or Brazil. These are all examples of machines with direct copies of the Mac's ROM programs, which are therefore illegal to sell in this country.

**THE SAME BUT DIFFERENT**

There is another approach to creating clones besides merely copying the programs in ROMs, however. A company called Language Arts managed to duplicate the functionality of the ROM programs in the Apple II without exactly copying the actual programs. Language Arts did so by reverse-engineering the features and functions of the software and figuring out how to make a different group of ROM programs do the same thing that Apple's ROM programs did. Although Apple tried to fight off the Language Arts ROM programs, its attempt was not successful, since the ROM programs were not direct copies and therefore did not violate Apple's copyrights.

Language Arts then supplied the ROMs for the Franklin computer and the successful Laser 128 computer. This strategy of duplicating ROM functionality without copying...
the actual software was also used by Compaq, Phoenix, and other companies in the IBM market to create IBM-compatible ROMs that could sell legitimately without violating IBM's copyrights. Several companies are currently hard at work on legitimate copies of the ROM programs in IBM's new PS/2 series.

As with the Apple II and IBM PC, the key to cloning the Mac is in the computer's ROM programs. The Mac's hardware can be legitimately duplicated fairly easily, because creating a functionally equivalent machine that is not an exact duplicate of the Mac is not a great engineering obstacle. The disk-operating system of the Mac (the System and Finder) comes with virtually all application-software packages, so that's also not a big problem. The question is, can any company duplicate the functionality of the Mac's ROM programs without violating Apple's copyright? I think the answer is yes.

NO, NO, NO!

At Esther Dyson's annual PC Forum this spring, I asked Jean-Louis Gassée, Apple's vice-president for research and development, what he thought about Mac clones. "No, no, no!" came his emotional reply. "We're not about to hand over the keys to our premier technology to anyone else," he continued. Well, unfortunately for Gassée, other people out there are picking the lock to the Macintosh while Apple's not watching. I've heard rumors about two separate companies that are trying to duplicate the Macintosh ROM's functionality without directly copying the software code, thereby avoiding violating Apple's copyrights.

I think it's rather brash of Apple to think there are no Macintosh clones just because Apple won't hand over the keys. More likely it's because the Macintosh ROM programs are fairly complicated and have taken longer to reverse-engineer than IBM PC or Apple II ROM programs. Apple's had enough trouble keeping up with the System; imagine the difficulties for an outsider.

Because the Mac SE and Mac II ROMs have about twice as much software in their 256K ROM chips than the Mac Plus has in its 128K ROM chips, the first Macintosh that companies are trying to clone is the Mac Plus. I'm sure Apple will file suit to try to prevent the Mac clones from being sold, but it wasn't successful in stopping the Laser 128 Apple II clone, and I have my doubts about whether it will be able to stop a Macintosh clone. If my sources are right, this issue may come up sometime later this year when a Macintosh clone may be introduced.

I'm sure Apple will file suit to try to prevent the Mac clones from being sold.

LICENSE TO CLONE

Regardless of whether or not any companies successfully introduce Macintosh clones, I think Apple should consider another cloning scenario. In this alternative scenario, Apple could license Macintosh clones of older models to certain manufacturers and thereby retain the rights to the Mac technology while making a license fee from the sale of every authorized Mac clone. Since Apple wants to protect its current product line, it could license only the rights to reproduce the older Mac models that it no longer wants as part of its product line family. For example, when Apple stopped producing the 128K Mac, it could have licensed that machine to another manufacturer; likewise for the Mac 512K, 512KE, and, eventually, the Plus.

This type of licensing scheme could make low-cost fully-compatible Macs available. Low-cost Macs, even if they were clones of older models, would take sales away from unlicensed Mac clones as well as from other computer lines such as the IBM-compatible and Atari computers. Licensing Mac clones would also give Apple more control over its
market and technology than IBM has, since companies such as Microsoft (which produces IBM’s disk-operating system) and Phoenix Technologies (which produces compatible ROMs) — and not IBM — license most of the IBM-compatible computers.

HURT OR HELP?

Apple worries that Mac clones would hurt sales of genuine Apple hardware. I think that Mac clones would help establish the Mac as the dominant standard in microcomputing, however, by rapidly enlarging the installed base of machines. In fact, some industry analysts go as far as to say that the Macintosh is not yet a standard at all — they maintain that a true standard must have more than one supplier.

Clones can, in fact, help sales of the genuine product; just look at Big Blue. Because the large number of IBM clones helped establish IBM’s technology as the market leader, IBM was able to sell a million of its new PS/2 computers in less than a year. In contrast, Apple needed about three years to sell a million Macintosches. Now more than 10 million IBM and compatible systems have been sold, compared with only about 2 million Macs. I believe that if low-cost Mac clones had been available, Apple might have been able to establish itself as the leading standard instead of IBM; the Macintosh is, after all, the better computer.

If Apple licensed only older models, it would create a larger demand for the advanced models that constitute the current product line. The users of millions of cheap Mac 512K clones would eventually want to use software such as HyperCard or Illustrator that require a Mac Plus, SE, or II, and would upgrade their equipment to genuine Apple models that offered technology and features that were more up-to-date. Apple would also benefit by selling various peripherals for use with the clones; in case you haven’t noticed, some of Apple’s printers sell for more than its computers do.

The most important potential benefit of Mac clones would be the proliferation of great software, which would increase to accommodate a larger installed base of computers. Developers would have many more machines for which to sell their software, thus enjoying increased revenue and being able to reinvest more money into producing even better software. Better software is not only great for us computer users, but it is also what will keep the Macintosh ahead of the competition in the long run.

FREDERIC E. DAVIS/EDITOR IN CHIEF

The difference between WRITE AND WRONG:

SENSIBLE GRAMMAR." It checks your papers for common and not-so-common writing and grammatical errors quickly and easily. Embarrassing typos and simple mistakes are a thing of the past with Sensible Grammar.

Check for many grammar errors caused by improper verb tenses and article/noun, verb/modifier and noun/verb agreement. Check mechanics for improper abbreviations and capitalizations, redundancies and properly-formed numbers. Catch incorrect commas, parentheses, periods, spaces and other common punctuation errors. Writing style is checked against over 3,000 commonly misused wordy, racist and sexist phrases and cliches. Sensible Grammar even knows exceptions to the rules.

And Sensible Grammar never goes against your judgment. It makes suggestions which you can use automatically, ignore, mark, or replace with your own wording using the full sentence editor. Sensible Grammar. The "write" way to improve your writing skills.

SENSIBLE SPELLER." It checks, either during or after typing, over 83,000 words derived from the official Random House Dictionary for correct spelling. Sensible Speller also checks capitalizations, abbreviations, doubled words and more. And it always makes suggestions which you can ignore, mark or replace with your own. Sensible Speller is the "write" way to improve your spelling skills.

Black’s Law Dictionary, Sensible Technical Dictionary and Stedman’s Medical Dictionary ($39.95 each), available separately on diskette for use with Sensible Speller.

Sensible Grammar ($99.95) and Sensible Speller ($79.95) compatible with PageMaker, MacWrite and Microsoft Word.

Sensible Software, Inc.
335 East Big Beaver, Suite 207, Troy, MI 48083 • (313) 528-1950

Please circle 112 on reader service card.
Introducing DYNAMAC. Because the world of information doesn't sit still.

Your Macintosh™ Computer has moved you easily and intelligently through a full spectrum of desktop solutions. But, until now, that's where the movement stopped. Desktop solutions had to stay where your Macintosh did—on your desk.

With the introduction of Dynamac, however, solutions can go wherever problems or opportunities are. Not just because of the Dynamac's small, sleek physical dimensions but because of its very big performance dimensions.

Up to 40 megabytes of hard disk storage and up to 4 megabytes of main memory are built in. Dynamac's screen is high resolution gold Electroluminescent—equal to the finest graphics—and displays 46% more information than the Macintosh. The internal modem, quiet fan, high-grade surge protector and many other features ensure that Dynamac will be an office-quality resource wherever it goes to work.

Dynamac. It lets you leave the office without getting left behind.

For additional information, please contact Dynamac Computer Products, Inc., 1536 Cole Boulevard, Suite 252, Golden, CO 80401. (303) 233-0305.
Predicting the future was an honorable occupation thousands of years ago, and it’s an honorable occupation today. Trying to read the future can be a valuable enterprise because it opens windows of opportunity and allows problems to be nipped before damage can be done.

Knowing what is about to happen has never been easy (nor particularly certain). And the predictor’s job is much different from what it was 1000, 100, and even 10 years ago. Prediction should arise from presently known facts, combined and integrated in the predictor’s brain to produce logical constructs.

The first element of successful prediction is data. But the data problem has changed radically in the last few years. It used to be a simple matter of gathering whatever data there was. Now the amount of data available to today’s predictors is so overwhelming as to virtually impede the process.

No longer is it enough just to assemble the information. That might have been sufficient 20 or 30 years ago. Now predictors must frequently develop means of winnowing the relevant data from the vast amounts of raw data available.

Computers are wonderful repositories for storing data. There are applications that can search all the files on a hard disk for specific phrases. But computers can’t, with any certainty, tell you which phrases to look for or which bit of data should be associated with which other bits. And computers still can’t make the intuitive leaps the brain can, connecting the seemingly unrelated to reach absolutely correct conclusions.

That computers will one day be able to make those leaps I don’t doubt, although I don’t have enough data to predict when that day will be. Until then predictions will be the province of the human brain. Yes, the computer can calculate probabilities, helping the wonderfully fallible brain to avoid the patently impossible. And file-manipulation and searching techniques already relieve the brain of much of the cataloging overhead that used to be necessary.

But prediction is still very much an art. It’s what I’ll be doing in the next few columns.

In that most perfect of all worlds, I could just ask the right questions and get absolutely accurate answers. So could every executive and product manager. Life would be boring. Business would become a game of allocating the resources and money to meet clear and predictable goals. Apple, for example, would know exactly how the Macintosh family would have to evolve to maximize its market share. It would know that by late 1988 a new computer with a specified set of features and with a specific suggested retail would maximize market share and profit. It could use the mathematical disciplines of linear and nonlinear programming to check that the aiming point really was optimum, that small variations wouldn’t produce a superior result. And, I guess, it’d be happy.

Unfortunately, there’s no real way to say where the aiming point really is. All that Apple can do is make a prediction, a prediction based on the data currently available. And it has. The next generation of Macintoshs probably already exists as a group of prototypes. More than likely, the next several generations of Macs are planned.

I’ve just completed an intensive study of the data available to me (and you, if you know where and how to look). Here is where I think the Mac is heading.

The market is splitting into two fairly clearly defined segments. One segment demands the most powerful, most innovative machines possible. This is the group to which the original underpowered Mac somehow appealed, and it is the group now served by the Mac II and the accelerated SEs. It consists of the people Apple as a corporation has traditionally served and served well. And Apple will continue to support these people. Although John Sculley has repeatedly said that there will be no new CPUs in 1988, I think he is playing with words.

I think that (barring a laptop) there will be boxes with new names, but the innards of some boxes will not look at all like they do today. The 68020 in the Mac II, for example, is sure to be replaced by the faster, more capable 68030. That has to happen, but for no other reason than Apple’s major push into UNIX. Apple’s UNIX variant, A/UX, requires (among many other things) a page-management memory unit (PMMU — currently the Motorola MC 68851). A/UX cannot make inroads until a substantial number of installed units have PMMUs. But the 68851 is an expensive chip, and it will continue to be an expensive addition.

If, however, a 68030 were substituted for the current 68020, all Mac II’s would suddenly have PMMU capability because PMMU functionality is built into the 68030. As there’s already a PMMU socket on the Mac II’s motherboard, a simple daughterboard, holding the 68030 and bridging the current 68020 and 68851 sockets, is very likely. And because 68030 prices are only slightly higher than 68851 prices, the change could be made without an actual price increase.

The SE can similarly be upgraded. Just as the SEs now shipping (they actually started shipping last November) have a new and much quiet-
er fan, the SE could have a new CPU. It'd still be the same SE; it might not even be any faster (the 68030 doesn't promise huge performance increases). It'd just be a better, more capable machine.

There will probably be other new versions of both the SE and the Mac II. I wouldn't be surprised to see a headless SE — the bottom of an SE — that you could hook to the monitor of your choice. That one wouldn't support color, at least not this year. And look for a smaller Mac II, with three or four slots. The laptop, if announced this year, will have a name such as Macintosh SE Portable.

**Computers still can't make the intuitive leaps the brain can, connecting the seemingly unrelated to reach absolutely correct conclusions.**

You could argue that modified units such as I've described are not really new CPUs. After all, they have names such as SE Enhanced or Mac II 1030. A new CPU requires not only new technology and new functionality but also a new name. Thus, these units are not new CPUs.

That's this year. Next month I'll discuss the other (and probably more important in the long run) market segment — the low end. Machines that sell well in that segment have to evolve toward the ideal appliance computer, the machine you simply turn on and don't think about. That's the computer that can significantly increase the acceptance of personal computers among the vast majority of people who neither use computers nor particularly want to. These are people who demand both immediate case-of-use and immediate and visible results. I'm sure that the best minds at Apple have given this segment of the market much thought. I'm sure they have some really interesting plans. And next month I'll tell you, based on my data gathering, what I think they are.

There's also another small but highly visible and important-out-of-proportion-to-its-size segment: the superhigh end. Apple has always had a great interest in such computers, and I see no signs that that interest is abating. Although Apple's plans in this area are closely guarded secrets, I do have some idea about what is going on, which I'll also discuss in next month's column.

**ODDS AND ENDS**

Recently, I've come across a disturbing number of reports of authorized Apple dealers refusing to provide the latest System software and HyperCard with new purchases. Businesses, in particular, have been singled out for either trying to sell these products to purchasers of new machines or simply refusing to provide them. It appears, however, that a broad spectrum of dealers are guilty here.

If you buy a Macintosh (any Macintosh) from an authorized Apple dealer, that dealer must either provide the copy of HyperCard and the latest System software (with its documentation) or give you a coupon to send to Apple for these products. If your dealers refuse to do either of these things, you should ask them to contact Apple corporate via AppleLink (all dealers are required to subscribe). Apple will promptly remind them of their responsibilities.

If the dealer refuses to give you what you have bought and will not contact Apple, take your business elsewhere and let Apple know. Although Apple's record with its dealers is not particularly exemplary, the company will act if it receives enough complaints. Just don't get so angry that you give up on Apple and Macs. They're still the best computers your money can buy.

A bit earlier I alluded to a new fan in SEs. The old fan was a squirrel-cage motor, similar to the device inside every electric hairdryer (indeed, I've heard that the original SE fan started out life as a hairdryer motor). Whatever it was, it was noisy. In fact, most of the early complaints about SEs concerned the noise this fan made (or makes, if you are unfortunate enough to be stuck with one).

The new fan is called a muffin fan (it looks like a small window fan) and from some rather subjective testing is a bit less than half as noisy as the original. Its noise level is wholly acceptable. It's the fan that should have been in the SE from the beginning. A false sense of economy, however, dictated the noisier and cheaper unit. All current SEs should have this fan. Just to be safe, tell your dealer that you know about the quieter fan and insist the dealer guarantee that your SE has one. You (or the dealer) can look inside before you take the Mac home. (You can do this without opening the Mac — use a powerful flashlight to look inside the area above the power switch. The old fan's blades are vertical; the new blades are arranged in a circle.) Or the dealer can guarantee that an old SE will be promptly swapped for the new quieter one. Either way be sure to get the quieter SE; it's a much tamer beast, especially in a domestic setting.

If you have a noisy SE, you have several options. Unfortunately, all but one of them requires opening the case and mucking around inside. This is generally not recommended and voids your warranty.

The solution that doesn't void the warranty is (I'm sure you knew this was coming) the most expensive. It's also the best fix and not unreasonable. Apple is selling the new fan as a replacement part, to be put in by your service rep (your dealer should have a qualified service person on the premises). The price for the parts and the installation labor will vary from dealer to dealer, but it should be within a few dollars of $90. Certainly, you shouldn't pay much more without a very good reason. If your dealer looks blank when you request the new fan, refer to part number M076-0311.

Some of the other fixes involve adding a resistor or a Zener diode to the power-supply board — not a solution for average users. These solu-
Let the Trump Series™ 1000 take a bite out of the cost of your Apple.

Unlock the high performance potential of Apple with the easily installed, cost effective Trump Series Apple Subsystems. Trump manufactures a full line of quality drives that integrate beautifully with Apple. Take a close look at our entire line!

- TRUMP SERIES 1020 ................. $899
- TRUMP SERIES 1040 ................. $1,399
- TRUMP SERIES 1040+ ............... $1,459
- TRUMP SERIES 1050 ................. $1,669
- TRUMP SERIES 1080 ................. $2,149
- TRUMP SERIES 1090 ................. $2,389

(For Dealers call Microtek)

The Trump Series Apple Subsystems give you reliable high-capacity internal and external storage with fast, simple “plug and play” installation. Made to Apple’s exact specifications, the Trump Series is compatible with the Apple Mac Plus™, Mac SE™, and the Mac II™, includes drive and utility software, SCSI cabling, all necessary hardware, and is the only subsystem that is shock mounted for ease of portability. All this...in addition to the high profit margin potential of 80 and 90 megabyte units.

Call today at (313) 464-2111 for complete information on the Trump Series 1000 Apple Subsystems by Microtek...your ace in the hole for taking a bite out of the cost of your Apple.

Call our dealer support line 1-313-464-2111

Please circle 47 on reader service card.
Once You Try A QuickCard™ Reference Guide
You’ll Never Go Back To Your Software Manual.

We Guarantee It!

To use today’s complex Macintosh software, you have two choices. You can puzzle over lengthy, hard-to-use manuals. Or use QuickCard™ Reference Guides which provide concise step-by-step instructions for every feature plus all keyboard commands. You’ll also discover those special features buried in the manuals. QuickCard Reference Guides save time—and increase the value of your software. Get the guides used by corporations, universities and professionals!

- All Information on one 8½”x11” reference card
- Step-by-step Instructions for each feature
- Every keyboard command displayed
- Dozens of tips and shortcuts
- All the special techniques hidden in the manuals
- Organized for instant use
- New users get up to speed quickly
- Experienced users learn new skills
- Highest quality non-glare laminated vinyl
- Quick, easy, enjoyable to use

Available for: [ ] Microsoft Excel  [ ] Microsoft Word 3.01  [ ] Microsoft Works

To order, phone or send your name, address and check for $14.95 for each QuickCard Reference Guide plus $1.95 shipping per order. Or charge to your VISA/MC by sending complete card number and expiration date. Be sure to specify which guides you want.

Round Lake Publishing Co., Dept MUS
415 Main St., Ridgefield, CT 06877
Order line—(203) 438-5255

NEW!

Version 7*

COPY II
for Apple Macintosh

BACK UP PROTECTED SOFTWARE.
Copy II has the built-in power and flexibility to handle most protection schemes—automatically!

GIVE YOUR MAC MORE MUSCLE.
Copy II includes MacTools. This comprehensive set of utilities can repair some damaged disks. Version 7's more powerful undelete can often recover the file, including name, type and creator and even works with hard disks.

EVEN RUNS SOME PROTECTED SOFTWARE FROM YOUR HARD DISK.
Our Copy II Hard Disk feature lets you copy some of the most popular business software from a 400K to an 800K disk or direct to your hard disk! Call for current list.

To Order: call 503/244-6036, B-5 West Coast time, M-F, with your card in hand. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

Questions: call 503/244-5782.

$39.95
Central Point Software

INCORPORATED
9700 S.W. Capitol Hwy., #100
Portland, OR 97219

NOW! 800K drives for Macintosh! $199 (plus $10 s/h). Plugs directly into Mac 512e & Mac Plus!

The 68020 in the Mac II is sure to be replaced by the faster, more capable 68030. That has to happen, if for no other reason than Apple’s major push into UNIX.

The final fix I’ve seen is the most elegant. You can easily insert a small circuit that includes a thermistor (a temperature-sensitive transistor) into the fan circuit (using three easy, nearly foolproof vampire clips). You cut one wire and mount the thermistor package near the top of the back of the power-supply board. This device then controls the fan’s speed, supplying full power (and noise) in those rare cases when lots of cooling is called for and dropping the fan speed by up to about 40% most of the time. That speed reduction cuts the noise in half.

Installation is simple. The hardest part is opening the case. This neat little package is called the Quiet Cool and is offered by Peripheral Land of Fremont, California (call (415) 657-2211 for the name of the dealer nearest you). The suggested list price is $59.95. Installation, if you want your dealer to do it, is extra. As usual, installation by a dealer who is not an Apple dealer or by you voids your warranty. If, however, your dealer is an authorized Apple service center (as many if not most Peripheral Land dealers are), your warranty remains intact.
A technological breakthrough for using your Mac data disks in a PC.

Turn a PC 3.5" drive into a PC/Mac drive for only $159.

Now it's easy for the Macintosh and PC to share files. Installed in an IBM PS/2 Model 30 (or a 100% PC or AT compatible with an internal 3.5" drive), the new Copy II™ PC Deluxe Option Board allows the PC to read and write Macintosh data diskettes directly.

A low-cost, state-of-the-art solution—no "extra" drives, serial cables or network needed.

Using the latest ASIC technology integrated in a half-size card, the Copy II PC Deluxe Option Board transforms a PC's internal 3.5" drive into a dual-purpose Mac/IBM compatible drive. For hundreds of dollars less.

All you do is pop a Mac data disk into the PC's internal 3.5" drive and go.

Easy to use.

PC users already know how to use Mac disks in a PC. The commands are virtually identical to DOS—they simply add an "M" for Mac before each one. "COPY" becomes "MCOPY," "DIR" becomes "MDIR," etc. It's really that simple.

Works with all the great Macintosh and PC programs.

Now PCs and Macs can share data files using popular programs like Pagemaker, Excel and Microsoft Word. Mac Excel can even read Lotus 1-2-3 spreadsheets directly. What's more, switching back and forth is easy. The Deluxe Option Board makes your PC a pro at two-way communication.

Ideal for offices with both Macs and PCs.

With the Copy II PC Deluxe Option Board, Mac and PC users can share data quickly and easily— for a lot less money than you would pay for a network or add-on Mac drives. There's simply no easier, less expensive way to transfer data from Macs to PCs. Or vice versa.

Bridge the gap.

Teach a PC to read Mac files.

For the dealer nearest you, or to order direct, call (503) 244-6036, M-F, 8 a.m.–5 p.m. (West Coast time). Please specify computer make and model when ordering. Compaq Portable, HP Vectra and Tandy 1000 require extra $15 cable. Current Option Board owners will receive a special upgrade offer. Questions? Call us at (503) 244-5782.

Please circle 229 on reader service card.

Central Point Software
INCORPORATED
9700 S.W. Capitol Hwy.
Portland, OR 97219
The PostScript laser printer sure to get high ratings at its network debut.

The QMS-PS 800 II is an 8-page-per-minute laser printer that combines the desktop publishing power of Adobe PostScript® with the superior printer technology of QMS, a leader in printer technology for 10 years. Exceptional paper handling, faster processing speed and a Canon® CXD® print engine with 10,000-page-per-month duty cycle give QMS-PS 800 II the versatility your Macintosh™ network needs.

A network sensation QMS-PS 800 II holds 500 pages, so operators aren't constantly refilling depleted paper trays. Users can even designate automatic switching between the two trays for doing letterhead/second page printing. Select faceup or facedown collation. And manually feed odd-sized paper stock.

With QMS ASAP™ (Advanced System Architecture for PostScript) proprietary technology, QMS-PS 800 II delivers outstanding performance. In fact, the more complex the page, the more it outperforms other PostScript printers. Two megabytes of memory, expandable to three megabytes, also add to the overall page processing speed when you are creating complex documents.

Type casting The QMS-PS 800 II comes with 35 resident typefaces (you can download more if you like). PostScript allows you to scale type to virtually any size, from minuscule to mammoth. PostScript also enables you to design, and redesign, your documents with exacting detail. You have total control over the final appearance of documents, with the ability to place text and graphics anywhere on the page. In short, you get the complete desktop publishing power that only PostScript can give you.

Critical acclaim The QMS-PS 800 II is certain to receive rave reviews on your network. And for a single-user set-up, there's the QMS-PS 810 laser printer. For a demonstration of either, call 1-800-523-2696 for the location of the Laser Connection dealer nearest you. And be sure to ask for The Sourcebook™ — our exclusive catalog filled with the latest laser printer products and enhancements.

Laser Connection
A QMS® Company

The following are trademarks of their respective companies: QMS, QMS-PS, ASAP, Laser Connection of QMS, Inc, Macintosh of Apple Computer, Inc. PostScript of Adobe Systems, Inc. Canon, Canon CTD of Canon, U.S.A.
Viral Infection

I looked at my Macintosh screen with a mixture of fear and loathing. The words on the graphic screen hardly seemed threatening. Yet, I knew that the message, for all of its seeming innocence and grace, could be the most seriously dire problem that all of us in the Macintosh Community might have to face in the coming year.

The words read:
- Richard Brandnow, Publisher of MacMag, and its entire staff would like to take this opportunity to convey their Universal Message of Peace to all Macintosh users around the world.

While it was hard to disagree with the message, in this case even Marshall McLuhan would have to agree that the message was not the medium. For this message appeared, unannounced and unwanted, on my own computer screen, carried on the slimy wings of a "computer virus."

In the name of Universal Peace, Richard Brandnow had opened a Pandora's Box of horrors and harpies that may dog us all forever.

What's a computer virus? How did this happen? What's wrong with this anyway? Let me give you some background:

BITS, BYTES, HORSES, AND VIRUSES

When not working on MacUser-oriented tasks, I am the Chief Syop of the MAUG group on the CompuServe network. This group meets using an online BBS system to share information and freeware software. Other groups such as ICONtact on Delphi and Coffee MUG on GENie are structured along similar lines.

Part of my online responsibility is to run an area devoted to Apple's HyperCard program. In this area many hundreds of people have uploaded thousands of stacks for others to use. So, it was a shock one day when a member reported to me that there was what he called a "Trojan Program" among the new stacks. Now, a Trojan Program is a program that has been purposefully designed to be harmful. It hides deep within itself some sort of harmful or unknown routine.

Personally, I have always thought the term "Trojan Program" to be an unacceptable misnomer. The Trojan Horse was a well-thought-out tactical ploy by the Greeks, during a declared war, to enter a city that should have been on its guard against such ploys. The Greeks who rode within the Trojan Horse were heroes, putting their own lives on the line.

But the people who program Trojan Programs are often just pond scum. They have chosen to use an act of deceit without a war being openly declared, against an "enemy" who has no choice but to be caught off guard. It is not the Trojan Horse that such people put me in mind of, but rather, the Day of Infamy when Japanese Zeros screamed above Hawaii in a surprise attack following a supposedly fruitful peace negotiation.

But even a Trojan Program would have been more acceptable than what the MAUG sysops were to find when they examined and disassembled the stack. It was not just a Trojan Program. It was what many people now call a "computer virus."

LOST TIME, LOST HOPES

The first day following the discovery, we had three people examining the stack full time. We discovered that it would replicate a mysterious Resource into the INITs of any System it came in contact with. If you ran the stack, your System file would be installed with an INIT installed. If you launched that System, it would corrupt any other System online and install the same INIT resource.

Forty people on MAUG had downloaded the stack before we discovered it. My understanding from other members was that the stack had also been downloaded from just about all the other electronic networks as well. Our staff was horror-stricken. What could the self-replicating INIT resource be capable of doing? Perhaps it was just a form of graffiti. Or maybe it would erase hard disks.

Billy Steinberg, who is a true genius at such things, was first to disassemble the INIT and figure out what it did. It seems that the INIT would replicate itself until March 2, 1988 and then display the message from Richard Brandnow. Then, on March 3, it would remove itself from your System.

I was aghast. In fact, as I write these words, I am still appalled that an otherwise reputable organization such as MacMag could have been a party to this type of development effort. I decided to call Richard Brandnow at MacMag's offices in Canada and ask him to be interviewed. I explained to him my connections with both MacUser and MAUG. I was very up front about writing a piece condemning this practice and told him that I wanted to give him a chance to reply.

We had an interview that, in many ways, reminded me of some of the lesser known works of Lewis Carroll.

CANADA UBER ALLES?

Basically, Richard sees this computer virus he has designed as a "nifty" and "non-destructive" way of "...saying, 'Hi There!' to convey MacMag's peaceful message."

I told him that I was not alone in seeing computer viruses in the future. Richard assured me that, "Macintosh people are not nasty," and that this type of virus was groundless.
**MAC INKER™**

Over 100,000 sold

FREE BOTTLE OF INK, RESEVOIR CAP & INK METER

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMAGEWRTER I AND II</td>
<td>$42.00</td>
</tr>
<tr>
<td>EPSON</td>
<td>$42.00</td>
</tr>
<tr>
<td>UNIVERSAL IMAGELO</td>
<td>$58.50</td>
</tr>
<tr>
<td>MULTICOLOR IMAGEWRTER</td>
<td>$80.00</td>
</tr>
<tr>
<td>MULTICOLOR ADAPTER ONLY</td>
<td>$40.00</td>
</tr>
</tbody>
</table>

Shipping $3.00

- Applications: Dark, lubricated ink extends print-head life. Re-ink in color too. 2 oz. bottle $3.00; pint $18.50. We have a full range of special inks, heat transfer inks, cartridges and Mac Inkers available.
- Over 10,000 cart./appks supported.
- Dedicated Mac Inkers available for extra large or special cartridges

**RIBBONS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imagewrtter Cartridge</td>
<td>$3.15 ea</td>
</tr>
<tr>
<td>4 Color Imagewrtter Cartridge</td>
<td>$10.00 ea</td>
</tr>
</tbody>
</table>

---

**MODEMS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercury 1200AT</td>
<td>$139.00</td>
</tr>
<tr>
<td>Mercury 2400</td>
<td>$239.00</td>
</tr>
<tr>
<td>Capricorn World Minimodem *</td>
<td>$189.00</td>
</tr>
<tr>
<td>Quick Link MAC software (w/modem)</td>
<td>$15.00</td>
</tr>
<tr>
<td>Cable</td>
<td>$15.00</td>
</tr>
</tbody>
</table>

* Capricorn - 300/1200 baud, supports both US & European standards.

100% Hayoe Compatible

Shipping $5.00

- 24 month warranty
- Status lights
- Speaker
- Call progress monitoring

**DATA SWITCHES**

$50.00

8 or 9 pin models available

We have switches and buffers for any application, at the best prices in the nation. Ask for brochure.

Cables: We carry cables for Apple computers and peripherals. Rapid turnaround on custom orders. Competitively priced.

SPECIAL OFFER: For orders of $10.00 or more, tell us where you read this ad and get a free keychain, bumper, and flashlight combined! A $15.00 value!

30 day money back guarantee on all products. 24 hour shipping.

ORDER TOLL-FREE IN OREGON
1-800-547-3303
(503) 626-2291

**EDITOR AT LARGE**

When I insisted that maybe, just maybe, a couple of less-than-nice people had managed to buy a Macintosh computer — perhaps the lifestyle-enforcement squad from Cupertino was asleep that day — he laughed and told me that I was experiencing a "cultural problem."

"Here in Canada," he said, "we don't have nuclear weapons. We are not allowed to own guns; we don't use guns. Not like in the United States, where people are nasty."

To design a program that claws its way into someone's System file, for any reason, is reprehensible.

Somehow, this did not reassure me. Richard proudly admitted that he had begun developing and spreading this computer virus in December. He denied, however, knowing anything about it being placed in a HyperCard stack. According to Richard, the finished virus was simply left on a Mac II and a Mac SE in the offices of MacMag for two days. Whoever copied software from those machines got the virus. It appears that at least one programmer figured out enough about the virus to move it into a HyperCard stack. But even without the HyperCard connection, how far did the virus spread?

Richard told me that "as the publisher of a Macintosh magazine, I get to visit many corporate offices."

Who else had the virus?

"Aldus has it on their machines," he told me. "Apple has had it on their machines. I've been at Apple many times and seen it there." He denied having actually planted the virus in those companies. "Perhaps because I am a Canadian," he said, "I don't do nasty things."

To Richard Brandnow, this computer virus was still a "nifty" way to celebrate March 2nd, the birthday of the Mac II, with a message of peace and goodwill.

I think he just should have settled for buying a card from Hallmark.

When I set up my own computer System, I do not expect that another person will tamper with it, without my permission, for any reason whatsoever. To design a program that claws its way into someone's System file, for any reason, is reprehensible.

Richard feels that everything is OK because his announcement INIT was harmless. Actually, I have to wonder if it is really harmless. Did he test it with hundreds of programs for compatibility?

In just one evening I managed to find a program that would not run with a Brandnow-infected System — Apache Strike from Silicon Beach Software. The documentation for that game specifically says to remove INITs from your System file. Well, you can't remove something you don't know is there. The program runs fine on my regular System. It hangs and crashes on my Brandnow System. How many other programs has this virus interfered with, how many crashes are attributable to it? We'll never know how many hundreds, perhaps thousands, of hours of frustration this has caused already.

But even if the INIT were absolutely, completely, 100% harmless, it would still not be "nifty" but anathema to everyone who understands what computing is and what it should be.

You can't justify breaking into someone's house because you wanted to leave them a message. Neither can you justify breaking into someone's computer system to do the same. Personal property, at least in the United States, is inviolable. To act otherwise is at the least ethically hollow and perhaps criminally culpable.

I hope that this action is not simply treated as a "prank" and shrugged off. It is a threat aimed at each and every one of us who own a Macintosh computer system.

We need to make one thing very clear in all of this: Our computers are our own.

Stay out of them. 🚫
When they say a picture is worth a thousand words, they're describing LaserView,™ ultrahigh-resolution large-screen monitors from Sigma Designs.

Available for the Macintosh™ SE and Macintosh II in 15-inch and 19-inch sizes, LaserView provides a 1664x1200 on-screen pixel display (equal to 11 Macintosh SE screens). And because LaserView is a noninterlaced monitor, text and graphics are displayed virtually flicker-free. Even facing pages.

You can opt to view finished documents in the high-resolution 1664-1200 pixel mode. Or compose your pages in the standard, 832x600 resolution mode without repeated scrolling, resizing, or zooming. You can choose from three cursor sizes and two system font sizes for legibility.

For more information on LaserView, call Sigma Designs today at (415) 770-0100. Or visit an authorized Sigma Designs dealer.

Because for computer-aided engineering, advanced desktop publishing and anything in between, LaserView offers you a totally new point of view.

Sigma Designs, Inc.
46501 Landing Parkway
Fremont, CA 94538

LaserView is a trademark of Sigma Designs, Inc. Macintosh is a trademark of Apple Computer, Inc. for institutional use only.

Please circle 207 on reader service card.
Why you should buy a mouse with no moving parts.

One simple reason. No moving parts. And that means no problems.

Introducing the A+ Mouse from Mouse Systems. The A+ Mouse is an all optical mouse with no moving parts. It doesn't depend on friction, so there aren't any parts that can slip, get dirty or wear out. It doesn't have a rolling ball, a commutator, little teeny bearings and shafts, or plastic housings housing who-knows-what.

Instead, our mouse uses a mirror-like pad that reflects a tiny beam of light to track your slightest hand movement. No other mouse moves as fast or is as reliable. Especially when you're moving around in spreadsheets and graphics software or editing text and manipulating data. That's because our mouse gives you up to 200 counts per inch and digital accuracy for exceptional cursor control.

Plus solid state electronics to ensure precision. No matter what Apple system you have, we have an A+ Mouse that's right for you.

The A+ Mouse is compatible with the Macintosh 512K, Macintosh Plus, Apple Ile and Apple IIe (which requires the Apple mouse card).

The A+ Mouse ADB is ideal for the Macintosh SE, Macintosh II, and Apple IIGS.

The A+ Mouse. The mouse you'll never have to clean, repair or replace. It's so reliable, it's the only mouse which comes with a Lifetime Warranty.*

See your local dealer for a demonstration.

Today.

A+ MOUSE
MOUSE SYSTEMS

* Warranty limited to North America. Contact MSC Technologies for details. Apple is a registered trademark and Macintosh is a trademark of Apple Computer, Inc. Mouse Systems is a trademark of MSC Technologies Inc.


Please circle 186 on reader service card.
“MacGyver” on ABC. It was, if I remember right, a Macintosh SE running Mac-A-Mug with an ImageWriter II attached, and even better, they actually used the thing.

I hope this will be of help to you.

Lloyd J. Quallette
Kenai, AK

NOTED. — JZ

II BE OR NOT II BE

Scrambling for information on what will and won’t work on the Mac II is a real hassle. Apple, with obvious indifference and contempt for its customers in many ways, continues in some idealistic dream world where its dealers are a fount of information concerning its products.

Some of your advertisers clearly state that their products can be used with the Mac II. Many, including those with expensive, elaborate ads, do not provide this type of information. The absence of this guidance incurs a needless waste of time in phone calls or correspondence between the vendor and the potential buyer.

To even consider purchase of programs on the chance that they “may” work on the Mac II would be pure hypocrisy. I am grateful to those advertisers that do provide the useful and needed guidance that their products will or will not work on the Mac II.

Roy C. King
Austin, TX

In the absence of advertiser information on Mac II compatibility, we’ll be providing occasional lists stating what does and doesn’t work. In the March ’88 issue (“New On The Menu,” page 46), we published such a chart. Look forward to even more comprehensive compatibility lists. — BT

ON AGAIN, OFF AGAIN

I use my Macintosh Plus an average of two to three hours a day in my home. I have heard that frequent on/off, of which I am often guilty, can significantly shorten the life span of my Mac. Would keeping the power on 24 hours a day using a screen saver be more healthy for the Mac?

Emile D. Broussard
Access Unlimited
Santa Barbara, CA

You might extend the life of your Mac a little by leaving it on continuously — but for safety reasons, you should turn it off whenever you leave it unattended. Chips can decide to blow up at the slightest provocation. — CC

TV OR NOT TV

You at MacUser appear to be keeping track of the TV shows that the Mac appears on. So I am writing to tell you about the latest show in which the Mac has starred. It was the week before Christmas’ episode of

4D OR NOT 4D (4 UPI)

In the February ’88 issue, Charles Meyerson wanted to know about receiving UPI transmissions. Well, I don’t know if this will work for him, but 4th Dimension lets you alter its ASCII map to suit your needs. (Or you can create your own specialized ASCII map to use for any purpose you choose, which is especially useful for importing and exporting data from other formats.) I assume the UPI ASCII format could be imported in this way, though having never actually tried this myself, I couldn’t attest to this actually working. I will say this, however: It has been my experience that if 4D says it can do something, it can! (And then some!)

J. Smith
Beverly Hills, CA

“J. Smith” — right...C’mon, Guy. We know that’s you. — RI

DESPERATELY SEEKING PASCAL

I bought a Mac Plus last year in hopes of learning to program. I am 12 years old and have only some experience in programming BASIC on our old TRS-80. My brother, who learned BASIC much better than I and now writes programs to control a beam line at Bell Labs (don’t ask, I don’t know what that is about), forbade me to learn any more BASIC. He claims he had to “unlearn” it before he could move on. Anyway, I always use the computer to write papers, do diagrams for science, and play games, but I can’t find anyone to teach me Pascal or something like that. At my school, we have “computer literacy” — Ha! We use these computers from 3 B.C. Our “teacher” replies, “We don’t worry about that stuff” when asked what the clock speed of the computer is. My brother recently bought Turbo Pascal for his own use and then went back to college, so he can’t help me.

BELINDA MORGESY

MAY 1988 MACUSER 27
AnthroCart®

The original AnthroCart. Mobile. Incredibly strong. So many ways to solve your space and equipment problems. Choose different sizes. Move shelves around. Add space saving options.

AnthroCart. Well designed technology furniture. Look for our name.

Call us: 800-325-3841

Made in U.S.A.
Holds up to 150 lbs.

Anthro Corporation
Technology Furniture
3221 N.W. Yeon St.
Portland, OR 97210
503-241-7113

Anthro Corporation is a subsidiary of Tekroxx Inc.
Anthro is a registered trademark of Anthro Corporation.
The manual expects you to know about Pascal already, and school doesn’t get to it until tenth grade (almost four years away). How can I learn?

GARY KAPLAN
Bala-Cynwyd, PA

A good place to start is Turbo Pascal Tutor ($69.95 from Borland), a 700-page tutorial that teaches the basics of Pascal programming. You can also get free tech support over the phone — free except for the cost of the call. If you still have trouble, try programming in Logo. It’s a good language to teach you to think logically. — BT

To even consider purchase of programs on the chance that they “may” work on the Mac II would be pure hypocrisy.

LETTER TO THE EDITOR

On your recommendation, I purchased a copy of Fedit Plus (“the file and disk editor for everyone. It can do more for your disks and files than any other application”) at the same time as my Mac. Well, so far, the only thing it has done for my disks is allow me to type a period or comma with the Shift key up or down. I’m pleased to have been able to do this — and I thank Dan Cochran for the instructions on how to do it — but this seems to fall short of doing more for my disks and files than any other application.

The manual gives a detailed and comprehensive explanation of disk structure, but it doesn’t really tell you how to do anything. My impression is that there is a large body of information that you’re presumed to have that I don’t have.

ERNEST J. CASSIDY
Church Point, Nova Scotia

I don’t know about the manual, but there’s a 12-year-old hacker in Pennsylvania looking for something to do. Check the Tip Sheet, which often has tips and tricks you can do with Fedit.

— CC

A FULL AND HIS MONEY...

Get this.

In July I responded to an ad I got because I registered for FullPaint — it urged me to get in on an advance offer on FullWrite. Because I was very happy with FullPaint, I paid for FullWrite up front. I know that others have had problems with vaporware, so I won’t moan about how I got excuses and how the president of Ann Arbor Softworks is getting free publicity by promising his product and getting tarred and feathered on the cover of MACazine for not delivering.

The point is, I called for a status early in December and to say that if I didn’t have FullWrite in my hands by 1/15/88, I was going to cancel, only to be told that it was finished and it was being shipped at the end of the year! I had been patient; I’d only called twice to get status reports, and I hadn’t yelled and threatened as I’m sure thousands had, and it was going to pay off.

Let me tell you about today.

The end of the year came and went, as did 1/15/88, and I was trying to psyche myself up for calling Ann Arbor when out of the blue, FullWrite came! I rip open a box that had been shipped second-day air from a town I can walk to, pull out a heavy manual — really getting excited now — pull out a sheet of paper that has three disks inside — ooh, oob — catch a glimpse of “prerelease” out of the corner of my eye, don’t care, pop it in the Plus, let’s go, System disk, all right, eject program disk, swap, swap, swap, swap.

Forget it, I think, as I read the manual (printed in August ’87) that says that I’ll need a second drive (and some other friendly stuff such as “Who knows, you might even learn something” on page 9 of the introduction and “use the Reference Guide” — you guessed it, no such
thing), I'll load up a RAMdisk with the basics of the enclosed System disk. GET INFO says I'll need about 455K, no biggie — everything but HyperCard can run with 569K, right?

FullWrite requires at least 1024K. Thank you for your patience and continued support. Thank you for your patience and continued support. Thank you for your patience and continued support.

Along with shipping prerelease versions after swearing that it never would, the best joke is the bit where the company says that it's a "stable pre-release version" and goes on to say that it's so unsure that it's stable. I generally use other things — about the editorial review something be nonstandard ASCII.

FullWrite 4.5, a disk. GET INFO says I'll need about 455K, no biggie — everything but Word Processor. Thank you for your patience and continued support. Thank you for your patience and continued support.

Meanwhile, FullPaint is still Version 1.0, and I generally use SuperPaint from Silicon Beach, a company that gives a damn. This was written on MacWrite 4.5, a piece of software that should be in the Software Hall of Fame for really being the "Total Word Processor" and for "Changing "Serious Writing Forever."

Sorry about the diatribe. And another thing — about the editorial reply to Charles Meyerson's letter (February '88) — I thought the S in ASCII stood for standard, so how can something be nonstandard ASCII?

BART ZANTZINGER
NEWTOWN SQUARE, PA

Nonstandard standards are in the fine tradition of such eyeworms as military intelligence, airline food, express bus, almost pregnant, and stable prerelease software. — JZ

On February 10, Ashton-Tate announced the acquisition of Ann Arbor Softworks. At that time it also announced a ship date of April 30 for FullWrite. This should mean that FullWrite will be on the shelves by the time this issue hits the streets.— LK

RIGHT TIP, WRONG PROGRAM

In the March '88 "Tip Sheet" (page 103), under MultiFinder, reader Frank Benjamin notes that, "If you don't want to scroll to the bottom of the Apple menu to see what applications have been launched, hold down the Option key while selecting the menu. The DAs are not listed, and you have easy access to the applications list."

LIKE MANY OF MY MAC ENTHUSIAST FRIENDS, I HAD NOTICED THE EASY ACCESS ICON BUT HAD NO IDEA WHAT IT MEANT.

Your readers who are not using our product Suitecase may become frustrated in attempting to use this feature; it is provided by Suitecase, not by MultiFinder.

STEVE BRECHER
SOFTWARE SUPPLY

DRIVING TEST

Our aging 400K drive has resided in Macintosh #40607Z since we purchased this more or less original machine. We upgraded the 128K a while back. We added an external drive and decided to upgrade the internal drive to 800K. "Easy," smiled the salesman. "Within a week," guaranteed the service manager.

It did take a week. It took a week to put the drive that helped write this through a MacDrive Test. It failed the test, and you can't upgrade a failure. "It's Apple policy, not ours," intoned the dealer.

This old drive came home. At home it worked. Like its owners, it takes a few minutes to spring into action. Was it tested fairly? We requested a retest.

Back to the service center we trooped. Breathlessly we watched our Macintosh write through its MacDrive Test. It passed! The service manager agreed: Our 400K drive officially worked. "Within a week," he repeated the timing for our upgrade.

He did not call us. On the eighth day, we phoned him and learned that old 400K had failed again. A second secret, test? We never learned what happened. Instead we learned that an added $180 would correct the problem. Only after that would we be allowed to purchase an upgrade.

As our confidence in the Macintosh sales and service system plummeted, we rescued old 400K housed in old case #40607Z a second time. Here it is, assisting in this letter, defeating its own demise. Are all old users being put through a new MacTest? The mouse is beginning to smell like a rat.

CYNTHIA H. MERMAN
ST. LOUIS, MO

BRUSSELS TOUT

Word 3.0 admittedly has some bugs and the output to printer can be tricky; however, I still decided to use the program for a 600-page book on Danish stamps that contained quite heavy formatting. During the whole output process, I had to repaginate one section of 20 pages, but apart from that I had no problems with the program. As this particular book is upgraded every three to four years, it was important to select what I thought would be a future-proof piece of software. I did not want to retype or reformat the whole book just because I was tempted to use a flashy word processor with a noncompatible file format or a word processor from a company that went out of business or decided to discontinue its product. So even if the original program was flawed, I am still satisfied that I made the right choice; it gets the job done.

Perhaps the time has come to separate software into business- and personally oriented programs. With all the power now available on the Macintosh, much new software is bound to be much too powerful for personal use.

ERIK PAASKESEN
BRUSSELS, BELGIUM

IT MUST BE TUESDAY

American firms hardly seem to realize that there's still another market across the Atlantic Ocean. Magazine ads from hardware producers almost never tell if their prod-
In 1986, there was one dual-page display for the Macintosh™ computer: our MegaScreen™. The choice was simple. Now, it seems everybody and his dog makes one. To make matters worse, there are very few places you can go to compare displays.

But you don't have to buy "blind." Our MegaScreen gives you advantages we can easily demonstrate here.

**WYSIWYW (What You See Is What You Want).**

Claims of "high resolution" may sound good, but with all the different screen sizes, the only easy way to compare resolution is in dots per inch (d.p.i.). Other big screens give you a compressed display showing 82 or even 94 dots per inch. That means 10-point type looks like 7-point type. It's just too small to edit or even read comfortably. Our 75 x 75 d.p.i. display gives you accurate sizes and shapes.

We offer one- and two-page MegaScreens for the Macintosh SE and Macintosh II. Interface cards are dealer-installed — typically in less than 10 minutes — without voiding the Apple® warranty. MegaScreens are also available for the Macintosh Plus.

**We remember the future.**

With an SE, we know you're giving up your slot by adding an interface card, so we've provided options. You can choose a card with a 68881 math co-processor, or you can select our modular card, which provides its own 'slot' for our MegaModules, such as a video output (NTSC, PAL, and standard Macintosh signal).

Unlike some big screens, ours even gives you options for the screen in your Macintosh; you can use it in tandem with your MegaScreen to extend your work space, as shown below. We also give you MegaTalk. It lets you communicate with other users through your AppleTalk® network. Even while running other applications.

Someday, other big screens may give you the control, the options and the additional communications features MegaScreen Video Systems offer.

But if you need the increased productivity today, you can clearly see there's only one choice.

**MEGA Graphs**

**We Have Seen the Future.**

20954 Osborne St., Canoga Park, CA 91304
Call us at (818) 407-0571 for your local dealer.
FAX (818) 407-0058
Telex: (650) 288-0349 MCIMAIL

All screens shown are untouched photographs of running displays. The desktop publishing example was created with QuarkXPress™ The CAD document was created with Versacad™. MegaScreen, MegTalk and WYSIWYW (What You See Is What You Want) are Trademarks of MegaGraphics, Inc. Apple and AppleTalk are Registered Trademarks and Macintosh is a Trademark of Apple Computer, Inc. Versacad is a Registered Trademark of Versacad Corp. Quark and XPress are Trademarks of Quark Incorporated. MegaGraphics is an Authorized Apple Value Added Reseller. ©1988, MegaGraphics, Inc. Please circle 145 on reader service card.
Learn Software the EASY Way!

Audio Tutorials Available For:
• HyperCard™
• Excel™
• Word™
• PageMaker™
• MORE™
• Works™

Quick and Easy
Each tutorial can be completed in about an hour. You learn by hearing and doing. Friendly instructors on an audio tape talk you through the software program and have you try new skills as they are introduced. Each tutorial is available for less than $50.

YES, send me more information on the tutorials from Personal Training Systems.

Name
Company
Address
City   State   Zip code
Daytime telephone   Number of Macs in your office

Personal Training Systems  P. O. Box 54240, San Jose, CA 95154

(408) 559-8635
You are welcome to call collect.

Please circle 60 on reader service card.
ball. Best of all, perhaps, will be my lack of embarrassment if someone is looking over my shoulder at the spinning beach ball — I can proudly relate, “Doesn’t that look Mac-like? This program was partially developed at Apple.”

In addition, I don’t have to worry about arcane programming code anymore. Well, maybe a little, as I tried programming a HyperCard button the other day — sure looked and felt like a sequence to me — couldn’t have been arcane code, though, as it had an Apple logo on the disk. I read once that the unmentionables need an arcane code to boot a program. Do you remember whether the review was in the power-computing section or under filing cookie recipes?

Anyway, I’ll give up the power and speed I have become accustomed to for a more idiot-proof code that is slo-o-o Mac-like. For a while, though, until I get the bugs out of the new system, I have plans to hide one of my SEs and Omni in a closet (hope that noisy fan isn’t a giveaway). Then, while my employees are watching spinning beach balls and pictures, I will be able to sneak in and get some transactions done.

THOMAS M. TYSSE
GRAND RAPIDS, MI

FAN CLUB

Regarding the recent announcement that Apple has now released a quiet Macintosh SE but will charge present owners $90 to fix their fans, I hope you will publish this open letter to John Sculley on behalf of all SE owners.

Dear Mr. Sculley,

I love my Mac SE. If my house burned down, I’d get my family out and then save my Mac. But its fan is driving me crazy.

In search of some relief, I recently turned off my noisy computer and returned to that other (but always quiet) tool for the mind — the book. I’ve found Odyssey: Pepsi to Apple to be real food for thought, especially some of these thoughts:

“Quality without compromise is expected in every function and every department. . . . That’s one of the reasons why so many American companies fell into trouble. They measure quality in terms of what was affordable, meaning what level of predictable error was acceptable, rather than insisting upon perfection at the start.”

“Every Mac owner could feel he had a vote in Apple’s future, its direction, and its vision for the workplace of the future.”

“When I trust others, I build a relationship with them. In return, I expect them to be trustworthy back.”

“We had to make it acceptable to talk about accountability with the same reverence as we talk about creativity.”

Are these quotes from the same person who now wants to charge me $90 to fix his shoddy product? My SE in its current rattletrap state most certainly does not “establish and maintain an operating environment conducive to human growth and development” (which you quote as one of Apple’s founding goals).

Apple really should recall all the original SEs and fix them free of charge. If that doesn’t wash, why not offer SE owners a rebate on purchase or upgrade of Claris’ new software, equal to the cost of fixing their fans?

ROZ AULT
WINCHESTER, MA

BUZZWORDS R US

In the past year, almost all our typesetting needs have been satisfied by desktop publishing. Because there is a quality difference between desktop publishing and typesetting, customers must be informed that materials will not be typeset.

For several months, we used desktop publish as an adjective, even in contracts (for example, all desktop-published materials will be camera-ready). I finally grew tired of the phrase and coined a new term, deput. Sometimes we typeset, sometimes we deput. Clients like the word. Do you want to spread it around? No royalty will be charged.

DOUGLAS J. PAUL
CORALVILLE, IA

Sounds like a home permanent to me — RI

Imagine That!

Simulate with Extend™

Introducing Extend, the most powerful Macintosh™ simulation application for Business, Science, and Engineering

What can you do with Extend?

Model stock market behavior, electronic systems, cash flow, factory production, computer networks, neural response, earthquakes, pollutant propagation, ...almost anything!

Don’t be limited by other simulation programs! Extend allows you to simulate anything that can be put into block diagram form. Extend’s unique features include:

• Built-in scripting language
• Compiled for fast results
• Custom dialog boxes and icons
• User defined functions
• More than 60 built-in functions
• Unlimited number of plots
• MultiFinder™ compatible

Because Extend is scripted rather than just formula based, you can do:

• Continuous simulations and FFT’s
• Discrete event simulations
• Differential equations
• Event-driven plotting

As seen at Macworld, San Francisco Available from Imagine That, Inc.
7109 Via Carmela, San Jose, CA 95139
(408) 365-0305
$495.00 for the Mac Plus, SE, II
Demo $10.00. Visa & MC accepted
Imagine That! and Extend are trademarks of Imagine That, Inc. Macintosh, MultiFinder are trademarks of Apple Computer, Inc.

Please circle 3 on reader service card.

M A Y 1 9 8 8 M A C U S E R 3 3
Pixels at an Exhibition

Next to watching bowling on TV, there's nothing more boring than watching a filmstrip ("Thomas Jefferson's home in Virginia is called Monticello, 'the little mountain.' BEEP"). But new, interactive video products from Optical Data and The Voyager Company just might bury those deadly filmstrips forever.

VideoCards, from Optical Data, and LaserCards, from Voyager, are HyperCard videodisc controllers that can turn a videodisc into an enormous visual database. Using a Mac, you can directly access any frame or sequence on a videodisc, mark and arrange images to create your own demonstration, and perform rapid searches for related images and topics. For technical reasons, both lines of stackware are designed for use with the Pioneer 4300 or 6000 series "industrial type" videodisc players, with RS-232 interfaces.

For art lovers, Voyager has released The National Gallery of Art Laserguide, a HyperCard stack to guide you through the companion National Gallery of Art videodisc. The disc features the complete archive of the painting and sculpture collections at the National Gallery in Washington, D.C., and the Laserguide makes it possible for you to enjoy and design your own tour without leaving home. A similar guide to the work of van Gogh, The Vincent van Gogh Laserguide, has also been announced.

Voyager has also issued The Voyager VideoStack, a tool kit for anyone interested in developing simple HyperCard videodisc controllers. The VideoStack lets the developer create customized buttons for videodisc functions, define events (such as selecting specific sequences and audio tracks) while automatically making buttons to activate them, and build a slide tray for loading still frames and their descriptions for manual or automatic playback. It also automatically installs video drivers into any HyperCard stack.

Science courses at all levels will benefit from this technology, since both companies are producing stacks for science-related videodiscs. Voyager's BioSci Laserguide is complete index to The BioSci Videodisc, which it distributes.

Optical Data's VideoCards are designed for use with the company's Life, Earth, and Physical Science videodiscs, and make it possible for teachers—or their students—to chart their own paths into the sciences.

VideoCards purchasers can also join the Hypermedia Development Project, a user network intended as a shareware system for the exchange of stacks and ideas. Participants receive both hard-copy and software updates on a quarterly basis, and are kept posted on other current projects. As LaserCards add-ons become available, the Hypermedia Development Project will serve as a low-cost means of disseminating the information.

Videodiscs, players, interface cables, and stackware are all available from both companies. Optical Data's address is PO Box 97, Florham Park, NJ 07932; (800) 524-2481, and Voyager can be contacted at 2109 Manning Avenue, Los Angeles, CA 90025; (800) 446-2001, or in CA; (800) 449-2001.

—Russell Ito

Larger Than Life

MacAmerica is introducing a new service at a bargain price: Jumbo Poster enlargements (18 inches X 24 inches) from 3½-inch X 11-inch laser printer or ImageWriter output (or anything else, like photos or line art) for a mere one dollar (plus shipping). Output from disk is also available at an additional charge. The enlargements are stunning, often with better contrast and blacker blacks than the originals. A variety of specialty papers (transparency, velum, glossy, heavy stock, fluorescent, sticky-back, etc.) are also available. Next time you feel like blowing something up, contact MacAmerica, 18032-C Lemon Drive, Yorba Linda, CA 92886; (714) 779-2922.

—Jon Zilber

Mac Your Own Kind of Music

While Apple was busy unveiling its MIDI interface at Macworld Expo in San Francisco, most music software publishers were 600 miles away, at the NAMM (National Association of Music Merchants) show in L.A., where Apple was an exhibitor for the first time.

Meanwhile, back at the Expo, a Mac on the Mac seminar featured composer Christopher Yawelow demonstrating Cybernetic Composer, a soon-to-be-released shareware program from Ray Kurzweil. This computer-assisted composition program is intriguing from a theoretical point of view,
but it won’t put composers out of work. (Check your local bulletin board or user’s group for this one.) Yavelow also demonstrated Ovaltune — sort of like Music Mouse with video — from Ocode Systems, which should be available by the time you read this (also available in a color Mac II version called Strawberry Ovaltune). Contact Ocode at 444 Ramona, Palo Alto, CA 94301; (415) 321-8977. Yavelow is the director of the newly formed Macintosh Entertainment Guild of America, an organization geared towards Mac professionals in audio/video fields (write to MEGA at 1032 N. Sycamore Ave., Hollywood, CA 90038 or call (213) 653-0240 for more information).

The musical show-stopper at Macworld was a beta version of Finale, an integrated sequencer and notation package that includes rudimentary artificial intelligence features such as the ability to automatically follow changes in tempo (a hold, a rubato passage or just plain human imperfection); Finale displays what you meant to play instead of producing an unreadable garble showing the exact, imperfect rhythms you actually played.

Sequences in Finale appear instantly on the screen in standard music notation, eliminating the need to convert sequenced files to notation files. For more information, contact Coda at 1401 E. 79th Street, Minneapolis, MN 55425, or call (800) 549-1917.

— Jon Zilber

**Finale**, a new MIDI sequencer, keeps tempo with you — even if you don’t got rhythm. **Finale** could be the first WYSIWYMTP — What you see is what you meant to play — sequencer.

---

**Only in Your Dreams**

_Dreams_, due out in July from the makers of MacDraft, takes up where that earlier Mac drawing program left off. In addition to color, the object-oriented _Dreams_ integrates symbol libraries, 3-D perspective, and PostScript output.

_Dreams_ is aimed at high-end drafting and CAD markets. It does such visual somersaults as editing color patterns using tools like Finger Painting and a Paint Bucket to mix colors. An array of palettes includes tools for drafting as well as most of MacDraft’s accessories. Optional library disks include architectural symbols for residential and light commercial use. Future library releases will be in the electrical and mechanical engineering fields.

Is _Dreams_ the answer to designers’ fond wishes for CAD software or an unfulfilled desire? To find out, contact Innovative Data Design at 2280 Bates Avenue, Suite A, Concord, CA 94520; (415) 680-6818. _Dreams_’ $500 price tag is being knocked down to $200 for registered MacDraft owners.

— Ben Templin

---

**The Big Picture**

As the ad says, “Kodak makes your pictures count” — and now that includes the picture on your Mac screen. The Datashow HR projection “pad” lets you project Mac output to any convenient wall or screen via an overhead projector. At the heart of the Datashow is a translucent 512 X 342-element liquid crystal display (LCD) that mimics the Mac SE or Plus screen pixel for pixel.

Unlike other blue, yellow, or green LCD projection devices, the Datashow HR uses crisp black LCDs with a 20-to-1 contrast ratio (the HR stands for high resolution).

The unit also features an internal fan to keep things cool when you leave the pad on a hot projector all day (since heat can affect the LCD unit), shock-absorber feet to keep the pad steady, and a switch to invert the display to a negative image of what’s on the Mac screen.

The Datashow lists for $1495 and requires a $90 video adapter card. To find out more, call (800) 445-6825, ext. 883 or write to Eastman Kodak Co., Dept. 412-L, 343 State Street, Rochester, NY 14650.

— Jon Zilber
NEWS LINE!

A Full Plate
PALO ALTO — Ashton-Tate has acquired Ann Arbor Softworks, adding yet another installment to the continuing saga of FullWrite Professional, the high-end word processor — plagued with one of the longest — and most public gestation periods in the history of Mac software. At press time, Ashton-Tate had scheduled release for April 30th and will honor Ann Arbor’s pre-release sales provisions.

Megabytes on a Silver Platter
SEATTLE — Apple’s long-awaited CD-ROM player (the AppleCD SC) was announced at Microsoft’s Third International Conference on CD ROM in March, with a May ship date expected. The good news: The price ($1,199) is less than expected and includes playback circuitry for conventional audio CDs. The bad news: Driver software for the “High Sierra” standard for CD-ROM won’t be available until later this summer. Among the first disks due out: CD-ROM versions of The Whole Earth Catalog, The Grolier Electronic Encyclopedia, and Books In Print.

The Odd Couple
DALLAS — Apple’s implementation of UNIX — AIX — was introduced at UniForum in February. The combination of user-seductive Macs with the user-hostile and often Byzantine UNIX environment is one of the oddest couples since Oscar and Felix, but the two complement each other surprisingly well. AIX requires a hardware platform — an 80-megabyte hard disk and a souped-up Mac II — that seems expensive in traditional Mac markets, but it’s a low-cost solution compared with the traditional mainframes and minicomputers UNIX traditionally runs on. AIX has attracted leading UNIX database developers — such as Ingres, Oracle, and Informix — as well as Mac developers porting applications from the native Mac environment, like StarView II from Abacus Concepts.

The Honeymooners
NEW YORK — The Apple booth and John Sculley’s keynote were the hit of the recent DEXPO show in February, despite the fact that Apple’s technology agreement with Digital Equipment hasn’t yet yielded any products. Standards and compatibility issues (like DEC’s support for, and Apple’s rejection of, Adobe’s Display PostScript) are keeping the Mac-DEC marriage a less than perfect union. But connectivity products are already springing up as Macs begin swarming into VAX networks. SynOptics and Kinetics, for example, are jointly marketing an SE board-based network that turns regular “twisted pair” telephone wire into Ethernet cabling.

Thin Bits...Texas Instruments has announced a LISP coprocessor board set for the Mac II for developing expert systems. TI will market Mac IIs with its microExplorer board starting at $14,995. Enhanced Apple IIe’s and Apple IIGS’s can now be mixed with Macs in version 2.0 of AppleShare File Server. Apple has purchased Network Innovations, a Cupertino software firm that develops mainframe communications software.
Reflex Plus can show you more about relationships than Dr. Ruth

The relationships between different pieces of data within your database are all important ones. Because Reflex Plus is truly relational, it can "relate" and cross-reference your data.

Many "database managers" are not much more than "list managers"—simple lists that can't connect and cross connect one item with another. So while they can "list," they can't really "manage."

What your data tells you depends on how you look at it

It's easy to customize your output with Reflex Plus. Whatever you're working on—letters, invoices, quotations or data entry screens—Reflex Plus lets you add graphics, position them wherever you want, change sizes, change fonts and produce truly professional results. Reflex Plus lets you make the most of your Macintosh.

Some of the power pluses of Reflex Plus

- Visual database design—a "natural" for your Macintosh
- WYSIWYG ("What-you-see-is-what-you-get")
- Truly relational database manager
- Auto-Save—which means you'll never lose data again
- Paste Choice command that saves you enormous amounts of time
- Context-sensitive online Help
- Automatic creation of formulas to let you instantly search, sort, calculate, qualify and more
- Multiple entry forms for the same database
- Entry for more than one database in a single entry form
- Shows one record at a time or all records at once
- Calculated fields in entry forms
- Display-only fields
- Default, but editable fields
- GROUPBY function
- Record sizes can be 1000, 2000, or 4000 characters
- Compatible with all Macintoshes with at least 512K RAM including Macintosh SE and II
- New rewritten documentation

Borland's new relational database, Reflex Plus, is the best Macintosh database... It is simple to use and operate, very flexible in design, low cost (only $279 compared to $500 for dBase Mac), and small in size (250K versus 730K for Fourth Dimension)... We converted an Omnis 3 database that took two weeks to design into Reflex Plus in two days... We think Borland is right on target with their approach.

David Smith, MacTutor

How to succeed in business for only $279

Reflex Plus is the super-power of truly relational databases, and it's only $279 plus shipping and handling.
Beary Whimsical Stationery

Are you fond of bears, lambs, or dinosaurs? Or are butterflies, flowers, and sailboats more your style? If so, check out Computer Creations’ special line of Image Writer paper bordered with these whimsical designs. The continuous- feed paper comes in packages of 100 sheets at $9.95 per package. The kids will love this one and may even write those thank-you notes with out any nagging! Contact Computer Creations at PO Box 2741, Long Beach, CA 90807, (213) 421-2655. — Laura Johnson

Programs, like wine, often improve with age. 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 at the About... item at the top of the Apple menu.

Apple System software is special. Generally, and unless you have a 128K Mac, you should be running the latest System software. (128K owners should continue to use System 2.0 and Finder 4.1.) The latest Apple System software is available free from most user groups, national on-line services and local BBSs. The deluxe version (four disks, boxed and well-documented) can be purchased through Apple dealers for $48.95, not a bad deal considering what’s included: Finder 6.0, System 4.2 or 4.3 and the long-awaited MultiFinder 1.0. As information on MultiFinder compatibility becomes available, we’ll keep you informed. All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (not yet a comprehensive list); and S, shareware (try before you buy software). Changes and new listings are shown in bold. Compatibility is sometimes in the mind of the beholder. Programs listed as Mac II compatible may not perform 100 percent of the functions they offer on other Macs, nor do they necessarily take full advantage of the Mac II.

<table>
<thead>
<tr>
<th>A.A.Is Prolog</th>
<th>M1.15 NCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acta</td>
<td>2.0 NCP//</td>
</tr>
<tr>
<td>AMS General Ledger</td>
<td>2.08 CP</td>
</tr>
<tr>
<td>AppleShare</td>
<td>1.1 CP</td>
</tr>
<tr>
<td>Artie C</td>
<td>3.4b NCP</td>
</tr>
<tr>
<td>Back to Basics</td>
<td>1.03 NCP</td>
</tr>
<tr>
<td>Balance of Power</td>
<td>1.03 CP</td>
</tr>
<tr>
<td>Bulk Mailer</td>
<td>3.0 NCP</td>
</tr>
<tr>
<td>Business Fiduciary</td>
<td>1.1 NCP</td>
</tr>
<tr>
<td>CalendarMaker</td>
<td>3.0 NCP</td>
</tr>
<tr>
<td>Chart</td>
<td>1.0 CP</td>
</tr>
<tr>
<td>Cursor</td>
<td>3.0 CP</td>
</tr>
<tr>
<td>ClickArt Effects</td>
<td>1.01 NCP</td>
</tr>
<tr>
<td>Clipper</td>
<td>1.01 NCP</td>
</tr>
<tr>
<td>Cogitate</td>
<td>1.5 NCP</td>
</tr>
<tr>
<td>ColorChart</td>
<td>1.3 NCP</td>
</tr>
<tr>
<td>Colorizer</td>
<td>1.1 NCP</td>
</tr>
<tr>
<td>CompuServe</td>
<td>2.1 NCP</td>
</tr>
<tr>
<td>CompuServe++</td>
<td>2.03 CP</td>
</tr>
<tr>
<td>CompuServe++</td>
<td>4.0 NCP</td>
</tr>
<tr>
<td>CornerWorks</td>
<td>1.0 NCP</td>
</tr>
<tr>
<td>ConcertWare+</td>
<td>4.0 NCP</td>
</tr>
<tr>
<td>ConcertWare+ M 1.0 NCP</td>
<td></td>
</tr>
<tr>
<td>Copy II Mac</td>
<td>7.1 NCP</td>
</tr>
<tr>
<td>Copy II Mac</td>
<td>7.1 NCP</td>
</tr>
<tr>
<td>Cricket Draw</td>
<td>1.1 CP</td>
</tr>
<tr>
<td>CricketGraph</td>
<td>1.2 NCP</td>
</tr>
<tr>
<td>Curator</td>
<td>1.04 NCP</td>
</tr>
<tr>
<td>Deluxe Music Configuration Set</td>
<td>1.0 CP</td>
</tr>
<tr>
<td>DesignScope</td>
<td>1.14 NCP</td>
</tr>
<tr>
<td>Disk Express</td>
<td>1.10 NCP</td>
</tr>
<tr>
<td>Disk First Aid</td>
<td>1.10 CP</td>
</tr>
<tr>
<td>DiskFile</td>
<td>1.4 NCP</td>
</tr>
<tr>
<td>DiskInfo</td>
<td>1.45 NCP</td>
</tr>
<tr>
<td>DiskSpace</td>
<td>3.1 NCP</td>
</tr>
<tr>
<td>DiskTop</td>
<td>3.02 NCP</td>
</tr>
<tr>
<td>Dollars &amp; Sense</td>
<td>4.0 CP</td>
</tr>
<tr>
<td>Double Helix II</td>
<td>140 NCP</td>
</tr>
<tr>
<td>Draw it Again, Sam...</td>
<td>2.0 NCP</td>
</tr>
<tr>
<td>Easy3000 Ed</td>
<td>21.0 CP</td>
</tr>
<tr>
<td>Excel</td>
<td>1.06 CP</td>
</tr>
<tr>
<td>ExelCommon Lisp</td>
<td>2.2 CP</td>
</tr>
<tr>
<td>ExelCommon Lisp</td>
<td>1.1 NCP</td>
</tr>
<tr>
<td>ExelLogo</td>
<td>2.3 NCP</td>
</tr>
<tr>
<td>EZ Draft</td>
<td>1.00 CP</td>
</tr>
<tr>
<td>Facebrick</td>
<td>1.0 NCP</td>
</tr>
<tr>
<td>File</td>
<td>5.0 CP</td>
</tr>
<tr>
<td>Finder</td>
<td>2.1 NCP</td>
</tr>
<tr>
<td>Finder (MFS-128K)</td>
<td>4.1 CP</td>
</tr>
<tr>
<td>Finder (HFS)</td>
<td>6.0 NCP</td>
</tr>
<tr>
<td>Findwelt</td>
<td>1.0b NCP</td>
</tr>
<tr>
<td>Flashback</td>
<td>1.6 NCP</td>
</tr>
</tbody>
</table>
EUREKA: The Solver: Solves your mathematical equations instantly

You can then tell Eureka to
- Evaluate your solution
- Plot a graph
- Generate a report, then send the output to your printer, or a text or MacWrite file
- Or all of the above

You can key in:
- A formula or formulas
- A series of equations—and solve for all variables
- Constraints (like X has to be < or = 2)
- A function to plot
- User-defined functions
- Built-in statistical & financial functions
- Unit conversions
- Maximization and minimization problems
- Interest Rate/Present Value calculations

Most problems that can be expressed as linear or non-linear equations can be solved with Eureka. Eureka also handles maximization and minimization, plots functions, generates reports, and saves you an enormous amount of time.

Eureka instantly solves equations that would've made the ancient Greek mathematicians tear their hair out by the square roots—and it's all yours for only $195.00.

It's easy to use Eureka: The Solver
1. Enter your equation into the full-screen editor
2. Select the "Solve" command
3. Look at the answer
4. You're done

Eureka: The Solver includes
- A full-screen editor
- Online help
- Calculator desk accessory
- 68000 math coprocessor chip support
- Powerful financial functions
- Built-in and user-defined math and financial functions
- Ability to generate reports complete with plots and lists
- Polynomial finder
- Inequality solutions
- Supports Macintosh II color monitor

Minimum system requirements:
Macintosh with 512K RAM, 128K ROM minimum
One 360K disk drive
Eureka: The Solver is a trademark of Borland International, Inc. Other brand and product names are trademarks or registered trademarks of their respective holders.
Copyright ©1987 Borland International

For the dealer nearest you or to order by phone
Call (800) 543-7543

Please circle 158 on reader service card.
Spectrum HoloByte - Board the cockpit of the Falcon jet fighter and experience a realistic simulation of combat flying. $28

Solitaire Royale Choose from eight different versions or play "The Tour," which is all eight versions in succession. $18.75


Solitaire Royale

Benko-Wren - the MacStation is ideal for organizing that "crowded" desktop. It will combine your printer, diskdrive, modem, mouse, manuals and disks into one convenient unit. Ventilated to keep your Mac cool. $75

Two 800K disks of imaginative and useful Adobe Illustrator drawings. The perfect choice for desktop publishers who need professional looking art! Graphics & Symbols 1. $60.00

DiskFinder - is a powerful file librarian which operates as a desk accessory to provide you with instant access to all your important disks and files. $38

DiskFinder

SuperGlue $52 & Glue $39 - The best and easy way to transfer graphics!

Solutions International - The Curator is an art manager and integrator. It provides an easy way for users to integrate artwork from TIFF, Encapsulated PostScript, PICT, Glue, PostScript and MacPaint formats. $82

Not just another file finder or disk Cataloger - Williams & Macias - DiskFinder - is a powerful file librarian which operates as a desk accessory to provide you with instant access to all your important disks and files.
If you believe there's no such thing as a bug ("That, my friend," said the software salesman, "is an undocumented auto-bomb feature, included at no additional charge with all our software"), you might also believe there's no such thing as a missing feature. If so, please contact me regarding some prime swamp land in Florida. The rest of you should check out the latest Miss Ng Piecs chart from Robert ART Morgan. This month's subject is laser printers.

If you'd like to subscribe to his newsletter check-full of missing features (and we mean that as a compliment), write to Ramifications Unlimited, PO Box 619, Dept. MU, Julian, CA 92036. For $25 a year, you can find out what you're missing. And let us know what kinds of feature comparisons you'd like to see; we'll pass your responses on to Robert. Write us at MacUser, 110 Marsh Drive, Suite 250, Foster City, CA 94404.

— J n Zibb

### Laser Printers—What's Missing?

<table>
<thead>
<tr>
<th>Feature</th>
<th>&quot;Old&quot; Apple LaserWriter</th>
<th>Apple Laser II SC</th>
<th>Apple Laser II NTX</th>
<th>GCC PLP</th>
<th>GCC BLP</th>
<th>AST Turbo</th>
<th>Qume ScripTEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Price</td>
<td>$5795</td>
<td>$2799</td>
<td>$6599</td>
<td>$1999</td>
<td>$3995</td>
<td>$3995</td>
<td>$5295</td>
</tr>
<tr>
<td>RAM</td>
<td>1.5M</td>
<td>1M</td>
<td>2M</td>
<td>3M</td>
<td>3M</td>
<td>2M</td>
<td></td>
</tr>
<tr>
<td>Max Optional RAM</td>
<td>1.5M</td>
<td>1M</td>
<td>2M</td>
<td>3M</td>
<td>3M</td>
<td>2M</td>
<td></td>
</tr>
<tr>
<td>SC81 Port For Font Disk</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Number of Resident Fonts</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>v</td>
</tr>
<tr>
<td>Capacity of Paper Tray in Sheets</td>
<td>100</td>
<td>200</td>
<td>200</td>
<td>150</td>
<td>150</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Manual Feed</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Handle Heavy Card Stack</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Straight Paper Path Available</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Legal Size Tray Available</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Envelope Feeder Available</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>&quot;I'm Working&quot; Light</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Centronics Port</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Serial Port</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>PostScript Support</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>LaserWriter Plus Emulation</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>LaserWriter Plus Font Family</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>HP LaserJet Emulation</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Diablo Emulation</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Full Page Bitmap (min/sec)</td>
<td>3.49</td>
<td>5.2</td>
<td>1.20</td>
<td>1.59†</td>
<td>2.11</td>
<td>1.20</td>
<td>1.40</td>
</tr>
<tr>
<td>All Parts User Replaceable</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Sealed Toner Cartridge</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>Write White or Black*</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
</tbody>
</table>

1. *This enables you to share the printer between two or more Macintoshes. GCC offers a $50 option to make their PLP shareable. However, since all the processing is done on your Mac, this could be a very S-L-O-W-W-W way to go.

2. If your printer does not support PostScript, your gray scale shading will look rather crude and you won't be able to print PostScript effects such as "text on a curve or spiral." It also means that you can't use PostScript fonts. GCC uses the Bisetstream equivalents of most of the Adobe fonts.

3. This time was achieved using a HyperCharged SE. Since the SE itself does all the processing for this printer, you can expect things to take longer with a standard Plus or SE. By the same token, if you own this printer, you can speed it up by adding memory and/or an accelerator board to your Mac.

4. "Write White" printers apply a charge to the drum where you don't want toner to stick. "Write Black" printers apply toner to the drum where you do want toner to stick. Write White printers tend to have blacker blacks, but are more sensitive to the kind of paper you use than Write Black. The Write White printers sometimes scatter toner so badly that the letter "e" closes up. Unwanted specs can appear in random spots that have to be touched up by hand.

### Laser Printer "Band-Aids"

1. Avery has just introduced new sheets of mailing labels that can be auto-fed from the paper tray. This is good news for users of the AST TurboLaser since it lacks a manual feed. It's also good news for those of us who hate standing there feeding each sheet. Ask for product code 5160, 5260, 5261, 5161, 5262, 5163, 5164, or 5165 at your favorite paper supply store.

2. If you have a non-Apple laser printer, Apple's symbol is not in the printer resident Times or Helvetica. You'll have to use Chicago Symbols bitmap font or some downloadable that has it.

3. If your laser printer is not printing dark enough, try a good quality, laser compatible paper with good capacity like James River Dello Opaque English Finish. Sometimes the kind of paper makes all the difference.

4. If you can compensate for a slower printer by using a print spooling program, check out Light-Speed's LaserSpeed and SuperMac's SuperLaserSpool. Or, if you are using MultiFinder just turn on background printing. The paper doesn't come out of the printer faster, but you get the Macintosh back more quickly to go on to the next task.

5. When printing multiple documents, you can set up a mass print rather than waiting for each document to finish before closing it, opening the next, and starting another print. Instead, quit to the Finder. Select all the documents you wish to print. Then select PRT from the File menu. Assuming they were all created by the same application, the Mac will start up the appropriate application and print all the selected documents, pausing only at the beginning to ask for options.

6. Always turn off Smoothing when printing rough drafts. It's faster.

7. Use the page preview feature of your application to view the document before you try printing. This enables you to see glaring mistakes before you print. Previewing is much faster than printing. If your application does NOT have a preview mode, get the public domain Preview resource. Place it in your System Folder. Then go to Chooser under the Apple Menu. You will see Preview as a choice in addition to LaserWriter. Select it, close the box, and try printing. (Some spooling programs also give you a preview mode.)

8. For those of you who use downloadable fonts, you can save time by "permanently" downloading often used fonts. They remain as long as the printer is powered up (and not reset). Otherwise, they will be downloadable with each document that uses them. If you have a printer with 3 megabytes of RAM, there should be plenty of space for this.
The MacZone is a trademark of the Saving Zone.
We carry over 1400 products for the Mac. If you don't see what you need, give us a call!!

Accessories

Abaton
Pro Point For The SE/II ......... CALL
Asher Engineering
Turbo Trackball (SE and Mac II) ... 85.
Banx Books
Beck Tech
Fanny Mac ............ 65.
Benko-Wren
MacStation II ......... 75.
Datadesk
Hyper Dailer .............. 29.
Mac 101 Keyboard (Mac Plus/SE) 139.
Mac 101 Keyboard (Mac SE) .... 145.
Mac 101 Keyboard (Mac SE) .... 145.
Ergotrons
Matilt, MacPlus/SE ............ 77.
Mouse Cleaner 360° .............. 13.
Golden Ribbons
Black ............ each 6.
Blue Brown Green Red ............ each 6.
Multi Colored ............ 16.
Kalmar Designs
- Traxwell Disk File Cabinet (Holds 45 Disks) .... 19.
(Holds 90 Disks) .... 29.
Kensington MicroWare
Tilt/ Swivel .............. 23.
Polarizing Filter ............ 35.
System Saver Fan ......... 6.
Ax Mouse SE/MacPlus SE/II .... 86.
Kraft
Joystick (Quickstick) ......... 39.
Mac Packs Comes in blue, red and grey
Mac Plus Keyboard ............ 62.
Backpack Mac Plus/SE Bag .... 72.
Mac SE Bag ............. 72.
Imagewriter Bag ............ 49.
MSC Technologies
A+ Mouse Adh SE/II Mac III ... 85.
A+ Mouse (512 And Plus) .... 65.
Orange Micro
Grappler Mac* ............ 67.
Savvy Zone
800K Disk Drive ............ 189.
Mouse Pad - Blue, Grey, Red .... 6.
Tool Kit To Open Mac ......... 20.
6 Outlet Noise & Surge Protector .... 25.
Scansum
Mac Table .............. 375.
Sensible Softworks
Bags come in Grey Navy, & Wine
Imagewriter 1 or II Bag .... 49.
Mac 512/Plus/SE Bag .... 55.
Smith & Bellows
Diskette Chest (Holds 96 Disks) .... 27.
Sony
Double Sided Disks-10 Pack .... 21.
Double Sided Disks-Bulk 1.70 each.
Single Sided Disks-10 Pack .... 14.
Single Sided Disks-Bulk 1.18 each.
3M
40 Meg DC-2000 Tape Cartridge .... 23.

Business/Personal

Acius
4th Dimension ..................... 549.
Action
Focused Point (Stackware) .... 59.
Asfis Development
Doug Clapp's Word Tools ....... 45.
Ailg Systems
Mac Proof V. 3.0 ............. 119.
Ann Arbor Softworks
Full Write Professional CALL
Ashton Tate
Dbase Mac ............ 298.
Blyth Software
Omnis+ 3.25 & Express ......... 288.
Borland
Eureka: The Solver ............ 129.
Reflex Plus ............. 187.
Brainpower
Statview ............. 114.
Statview 512+ ............. 178.
Bravo
MacPaint ..................... 79.


Free "Zoner Loaner" Drive
Should your hard drive go down during manufacturers warranty or extended warranty, we will send you a loaner drive while yours is being repaired.
For details, call our (800) number and ask how you can qualify

Graphics & Design

3DG Graphics
Images With Impact:
Graphics & Symbols 1 ......... 60.
Ask Software
Draw It Again Sam! ............. 95.
Adobe
Illustrator ............. 425.
Aldus
FreeHand ......... CALL
Pagemaker ............. 455.
Adjuts
Fontographer ............. 239.
Fontastic Plus ............. 48.
Brainpower
Design Scope 1.15 ............. 128.
Graphidex ............. 74.
Cricket Software
Fict-O-Graph ............. 108.
Deneba Software
Canvas ............. 117.
Diehl-Graphisoft
Minicad 3.15 ............ 398.
Dubi-Click Software
Wetpaint, Vol 1 & 2 ......... 35.
World Class Fonts, Vol 1 & 2 .... 35.
Foundation Publications
Comic People (Vol 0 Office Days) .... 25.
Comic Strip Factory ......... 35.
Innovative Data Design
MacDraft ............. 158.
Letraset
Ready Set Go 4.0 ............ 289.
Macromind
Video Works II ............. 117.
Olduvai Software
Post-Art ............. 42.
Postcraft International
Laser FX ............. 117.
Shaharam
Mac-A-Mug ............. 44.
Shana Enterprises
Fast Forms Construction Kit .... 79.
Silicon Beach Software
Silicon Press ............. 46.
Super Paint ............. 79.
Solutions
Glue ............. 39.
Smartscreen & Clipper ......... 39.
Super Glue ............. 52.
The Curator ............. 82.
Strider Software
Foster Maker Plus ............. 39.
Solutions Software
Pixel Paint ............. 289.
Symmetry

Creative Education

Bible Research Systems
The Word ............. 169.
Bright Star Technology
Alphabet Blocks ......... 31.
Great Wave Software
Kids Time ............. 28.
Mindscape
S.A.T./ Perfect Score ......... 47.
Spinnaker
Score Improvement ......... 58.
True Basic
Algebra/Algebra 2, Calculus .... each 35.
Discrete Mathematics ......... CALL
Pre- Calculus ......... CALL
Probability Theory ......... 35.
Truextent ......... 39.
Unicorn Software
Animal Kingdom, Decimal Dungeon, Fraction Action, Mac, Bobos, Math Wizard .... each 27.
Read A Rama ......... 35.

Games

Accolade
Hardball ............. 24.
Avclivitio
Shanghai ............. 24.
Avalon Hill
Mac Pro Football Requires 1 Meg* .... 30.
Benderbund
Ancient Art Of War ......... 28.
Cam Session ......... 20.
Maze Wars Plus ......... 30.
Ballaysie Software
Ferrari Grand Prix ......... 34.
Fokker Triplane ......... 34.
Electronic Arts
Chesmaster 2000 ......... 30.
Scrabbles ......... 26.
Epyx
Sub Battle ......... 24.
Green Inc.
Crystal Quest ......... 25.
Henderson & Associates
Real Poker ......... 27.
Infinity
Go ......... 24.
Grand Slam Tennis ......... 28.
Microsoft
Flight Simulator ......... 35.
Miles Computing
Down Hill Racer ......... 25.
Foot's Errand ......... 25.
Harrier Strike Mission II ......... 27.
Mindscape
Balance Of Power, Crossword
Magic, Deja Vu, Shadowgate .... each 30.
Trust And Betrayal ......... 31.
Uninvited ......... 30.
PBI Software
Strategic Conquest Plus ......... 34.
Practical Computer Applications
Mac Courses ......... 32.
Mac Games ......... 36.
Mac Racquetball Requires 1 Meg* .... 36.
Silicon Beach Software

Light Years Ahead in Customer Service
### Hardware

<table>
<thead>
<tr>
<th>Brand</th>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Mac</td>
<td>Mac II SE</td>
<td>$458.95</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>Mac II SE External Hard</td>
<td>$458.95</td>
</tr>
<tr>
<td>Adic</td>
<td>Juke 2000J</td>
<td>$998.00</td>
</tr>
<tr>
<td>Integrated Systems</td>
<td>ADIC 2000J</td>
<td>$998.00</td>
</tr>
<tr>
<td>MTS Systems</td>
<td>MTS 2000J</td>
<td>$998.00</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Software</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Excel</td>
<td>$598.00</td>
</tr>
<tr>
<td>Microsoft Word</td>
<td>$598.00</td>
</tr>
<tr>
<td>Microsoft PowerPoint</td>
<td>$598.00</td>
</tr>
</tbody>
</table>

### Ordering Information

We accept VISA, MASTERCARD & AMERICAN EXPRESS. No surcharge added.

- All prices subject to change without notice. All items subject to availability.
- All published for your convenience only.
- Orders filled on a first-come, first-served basis. Personal checks are accepted. No credit card purchases. All orders subject to availability. Credit card orders must be prepaid for shipping.
- Please include a daytime phone number.
- All prices subject to change without notice. All items subject to availability.
- All published for your convenience only. Credit card orders must be prepaid for shipping.

**Now Shipping Standard Air 4.00 per Order**

---

*Disclaimer: The information provided in this document is not legally binding and is subject to change without notice. Always verify the latest information through official sources.*

BrainPower Inc. - MathView Professional - delivers tremendous computational and graphic power in a wide range of numerical analyses to the math professional.......... $149.00 StatView 512+ - Powerful, graphic, and easy to use. Allows users to interact with their data like never before .......... $178

adic - Expensive Data Insurance Apple compatible, 3M Tape Back-up, adic Data Library SCSI Storage Systems
- 150-600 Hard Disc System
- 40 & 134 MB Tape Back-up System
- 800 MB Optical WORM System

NUDATA - Data Cell Slim line Series - conviently small, can operate vertically or horizontally, many plus's
90 Meg SCSI hard drive ....... $1595.
60 Meg SCSI hard drive ....... $1195.
40 Meg SCSI hard drive ....... $885.
20 Meg SCSI hard drive ....... $569.
(Includes $150. in Software)

Letters ...
Dear MacZone,
Each time we have called -- even with a complex problem -- your people have extended themselves beyond normal courtesy and accommodation to solve our problems. I am now a faithful and loyal recurrent customer. This is not the America we've been dealing with these past few years. Thank you.
Mary M. Carr
USX Experts
Herndon, VA

Uncle Dennis Tech Tips ...
Rapid Windows
When you are through with your application which you opened after digging through a lot of folders on your desk top, the finder will spend a lot of time closing these windows. Avoid this delay by holding down the option key while opening your folders. Then when you return to the desk top the windows will not have been left open. And at the same time, to close many open windows, hold down the option key while you click on the first go-away box. All the windows will quickly close.

CE SOFTWARE - Quickeys - Allows virtually any mouse/key combination to be performed with a single key combination. Very simple to operate, a must for users with extended keyboards .......... $69
Once upon a time...

(many years after the Big Bad wolf had huffed and puffed himself out of the story), the Three Little Pigs decided to get into desktop Publishing.

The First Little Pig... bought their business a paint program, a drawing program, a layout program, and a Great Big Hard Disk. He created so many tiny little files that he quickly lost track of what was what and what was where.

The Second Little Pig...
bought a scanner and an art program that generated PostScript files. He added all his images to the Great Big Hard Disk.

After awhile, he began spending all his time trying to figure out ways to convert files from one format to another to take advantage of different programs' features.

The Third Little Pig...
(always the practical one) saw his brothers getting more and more disorganized. "Time is money," he said. "We need a software solution."

So he went out and bought SmartScrap & The Clipper™, The Curator™, and SuperGlue™ from Solutions International.

All Three Little Pigs...
began using SmartScrap to create multiple scrapbooks, each with its own visual table of contents. With The Clipper, they were able to crop and rescale images on the clipboard with pinpoint precision. The Curator helped them find all the TIFF, PICT, PAINT, GLUE and EPS graphic files on the Great Big Hard Drive. What's more, because The Curator can easily convert images from one format to another (like EPS to PICT, or TIFF to PAINT), their format problems disappeared. They used SuperGlue to take finished pages from one program and treat them as if they were graphics in other programs.

Soon, the Three Little Pigs were finishing their projects in record time. And of course, they published happily ever after.

Please circle 161 on reader service card.
NEW ON THE MENU

For A Song

Music Publisher is a new notation program, due out by the time you read this, that bears a greater resemblance to object-oriented graphics programs like MacDraw than to other notation programs. Instead of filling the screen with rows of the symbols used to construct musical scores, Music Publisher features a single row of "tiles." Each tile contains a family of related music symbols.

For example, the "rest" tile has everything from whole rests to sixteenth rests on its different faces, like the numbers on each side of a die. You spin the tile to expose the rest with the needed value, which you can then position into your score. Other tiles provide symbols for notes, dynamic values, clefs and other notation symbols. The selection of symbols on each tile can be customized to the needs of the particular piece you're working on.

The result is a clean, spare interface that leaves most of the screen free for your score, without sacrificing quick and easy access to virtually any symbol you might need. Some actions — like collecting notes into a beamed group — are animated, providing greater positioning control. Additional features include selective global changes, automatic part extraction, support for lyrics or blocks of explanatory text and PostScript-compatible output. Music Publisher lists for $105. For more information, contact Shaheen at PO Box 26731, Milwaukee, WI 53226; (414) 442-7503.

— Jon Zilber

What a Card!

Sending in those software registration cards can land you on all kinds of junk-mail lists, but it's often worth the risk. Lots of software publishers offer free upgrades to registered owners, but only if they know who you are and how to reach you.

ABA Software is sending free upgrades of "Draw it again, Sam..." 2.0 to registered owners. The new version adds bit-mapped graphics to the program. Call (800) 231-0230 for details, or write to PO Box 850, Frazier, PA 15015.

Mac II musicians: Stop jamming for a minute and listen up! Jam Session 1.1 fixes some bugs that might have interfered with your virtuosity at the keyboard. Contact Broderbund at 17 Paul Drive, San Rafael, CA 94903-2101, or call (415) 482-3500 for details of how to get your free upgrade. And Mark of the Unicorn has issued yet another automatic free upgrade to registered Performers. This one (Version 2.5) runs up to 60 percent faster (so you can record and play back even hotter licks and denser textures) and runs on a Mac II and/or under MultiFinder (with a few minor limitations). Contact MOTU at 222 Third Street, Cambridge, MA 02142; (617) 576-2760.

General Computer has a quasi-free upgrade for Version 2.0 of its PLP laser printer software. There's a nominal charge if you want the works (new manuals and new disks). But the company has given its corporate blessing to anyone who wants to get a budget version by copying the program from a dealer or from other PLP owners. Version 2.0 lets you install fonts on your hard disk for faster printing, and it has lots of other goodies such as "medium-draft" quality printing, a larger print-able area, and track kerning. It also eliminates some of the work-arounds required with various third-party software packages. Call (617) 800-0890, or write 580 Winter Street, Waltham, MA 02154 for more information.

Free upgrades are more than a good idea: They're a way to get some free publicity. If you publish software and are offering a free upgrade, let us know. (And keep us posted on non-free upgrades, too.) Write to: Update Manager, c/o MacUser Suite 250, 110 Marsh Drive, Foster City, CA 94404, or send electronic mail to 72257.2671 (CompuServe), macuser (MCI Mail), or X0259 (AppleLink).

— Jon Zilber

Any Modem Port in a Storm

The Macintosh gets under way on the high seas with Navigate!, a program that digitally charts a ship's or boat's course. Navigate! also pinpoints the ship's position on the chart if you interface it with electronic devices that read longitude and latitude (like SatNav, Loran and GPS). The positioning devices hook up to the Mac via the modem or printer port.

Once a course is laid in, Navigate! calculates the heading, range and estimated time of arrival to your destination.

Each chart disk covers approximately 2500 square miles of coastal and off-shore areas and all charts are consistent with the NOAA National Ocean Service geographic survey. Users can zoom in on harbor areas and customize the charts to mark favorite moorings or landmarks.

Future modifications include hooking up an autopilot to let the Mac do the steering as well as the charting. Also a sideband receiver could be connected to the Mac so that weather information, such as isolars, can be added (temporarily) to the charts.

Navigate! costs $1495 and chart disks are $60 each. It's available from Fair Tide Technologies, 18 Bay Avenue, Burlington, MA 01803-472; (617) 229-6409.

— Ben Templin
Denmark rethinks the computer table...

The original MacTable was the perfect place for a Macintosh. Then the Macintosh changed shape. So we thought about it again and built a new one.

Introducing the all-new MacTable. Perfect form and function for the entire Macintosh family.

One table fits all
The new MacTable fits every Mac made, be it 128, 512, Plus, SE, or the Macintosh II.
It has a place for everything: Hard disk, second drive, modem, keyboard, mouse, ImageWriter, and LaserWriter. Plus a carton of paper. Yet even with a full complement of gear, there's room to spread out for serious work.

Every surface interchangeable
Each of MacTable's four surfaces can be independently tilted — and interchanged! You can even make it right or left handed. So it accommodates any peripheral you'll ever have at comfortable working and viewing angles.

Stands the test of time
MacTable is meticulously built in Denmark, by craftsmen using pure beechwood and durable laminates. Its new, sturdy design and quality materials support even the heaviest equipment. And MacTable is now a new color: Platinum Gray, same as the new Macintosh line.

Matching roll-away cabinet
The new free-standing cabinet (optional) is big enough to use as a stand for your LaserWriter or CPU. It features easy-glide casters, space for full-size binders, and a special place in the locking drawer that holds over 100 disks upright and secure.

New lower price
The new MacTable also has a new price. Just $289. Add the sturdy, matching cabinet for $139 more (all prices plus shipping and handling). And if you're not satisfied with MacTable for any reason, return it for a prompt refund (less shipping).

Before you buy an ordinary table for your Macintosh, think again. Then choose the Danish solution. The new MacTable.

To order your MacTable or for more information call:
TOLL FREE 1-800-722-6263 in WA state (206) 481-5434

ScanCoFurn P.O. Box 3217, Redmond, WA 98073-3217

Please circle 67 on reader service card.
Apple can't touch this.
“It beats the Apple® board hands down.”
That’s how Macintosh Today judged the MAC-101,” our advanced keyboard for the Macintosh. It’s not hard to see why. With the MAC-101, you can work the same fast, simple way your mouse works—without leaving your keyboard. And turn functionless function keys into a major resource. It’s the only keyboard that works with every model Macintosh. It’s also the only one Microsoft® recommends for Word® 3. And the only one Aldus® recommends for PageMaker.

Function is as function does. Since the function keys on an Apple Extended Keyboard can’t otherwise need numerous keystrokes—or mousestrokes—can now be assigned to just one key. So you can rip right through your work, Without unnecessary detours to the mouse.

Feeling is believing. Obviously the MAC-101 is great news for every Mac user. But for IBM® types who are feeling their way around on the Mac, the news is even greater. Because our keyboard is laid out in a standard configuration that’s identical to the IBM PC. Which means that anyone who’s used to an AT or PS/2—or a Selectric®, for that matter—will instantly know the MAC-101 like the back of their hand.

And type on it accurately, with the confident touch that comes only from our tactile, positive-response keys.

“Clearly in a class by itself.”
That’s how MACazine sizes up the MAC-101. While MacWEEK calls it “the most important accelerator you can buy for a Macintosh.”

You can buy it for under $170—software included. And since it carries a two-year warranty, you’ll be enhancing your piece of mind right along with your Mac.

So call 800/826-5398 (in California 800/592-9602) and find out where you can lay your hands on the MAC-101. Once you do, you won’t let go.

The MAC-101 lets you execute program commands with a keystroke—without having to reach for the mouse.

We make the MAC-101 for every Mac model—from 128 to II—and we make them in the USA.

The MAC-101 with functions is programmed. You have 101 function keys. So take out the ones you don’t want and put in the ones you do.

We’re the only keyboard that’s specifically designed to enhance Macintosh software. And we’re the only one that’s recommended by Microsoft and Aldus for Word 3 and PageMaker.

“Ours is the only keyboard that’s recommended by Microsoft and Aldus for Word 3 and PageMaker.”

Please circle 135 on reader service card.
Feed Me!

In the beginning, laser printing was even better than sliced bread. At least until everyone discovered that the LaserWriter paper tray needs to be refilled more often than a ravenous teenager. Fortunately, several new products are available that automatically feed your hungry printer.

Printing a letter with the first page on letterhead has always been a problem, but those days are over. BDT Products' LaserFeeder and MultiFeeder are a pair of multi-bin sheet feeders for the LaserWriter that let you print your first page on letterhead and the remaining pages on a different stock, and then address the envelope automatically.

The LaserFeeder (three paper trays plus envelopes) and MultiFeeder (six trays plus envelopes) feed the LaserWriter via the printer's manual feed slot, and increase the LaserWriter's paper capacity to 400 (LaserFeeder) or 1000 sheets (MultiFeeder). What's more, using "The Flipper," the MultiFeeder can collate and stack your documents in the proper order in a 400-sheet output hopper.

Of course, there are times when what you need most is a large paper supply. For those situations, The Laser Connection has released two solutions: the Paper Plus 500 and the Big Bin 1000. The Paper Plus 500 works with the Canon CX-driven LaserWriters, and holds up to 500 sheets of paper or 100 envelopes. The Big Bin 1000 is designed for Apple's new Canon SX-driven LaserWriters, the IISC, IINT, and IINTX. As its name suggests, the Big Bin 1000 increases the LaserWriter's paper capacity to 1000 sheets.

Both of Laser Connection's sheet feeders replace the LaserWriter's paper tray, and neither requires any additional software.

BDT's LaserFeeder and MultiFeeder are priced at $1795 and $5685, respectively. Contact BDT at 2150 Farnsworth Avenue, Irvine, CA 92714; (714) 660-1380.

Laser Connection's Paper Plus 500 and Big Bin 1000 list at $995 and $795. Laser Connection can be reached at 7852 Schillinger Park West, Mobile, AL 36608; (205) 633-7223.

— Russell Ito

Applications
Now Being Accepted

They don't make 'em like they used to. And maybe they never did. If you've got a boffo software idea or a product you could really use but don't have the time or inclination to turn it into a reality, why not share it with the Mac community? You just might see your product on the shelf at the software store. And, if we publish your idea, you'll see a $25 check in your mailbox.

Kathleen Miller of Arlington Heights, IL, has a kindergartner who's a whiz on the Mac but needs more practice with a pencil. What she wants is a program that converts text input into inch-high, dashed letters for her son to trace. "Here I am with an SE, FullPaint, MacDraw, and MacWrite, and I'm stuck with a pencil and ruler," writes Kathleen.

Great idea! You could try creating your own font of practice letters using Fontographer or another font editor. But a simple shareware font or utility would be even nicer.

Send your product brainstorm to: ANBA, MacUser, 110 Marsh Drive, Suite 250, Foster City, CA 94404.

— Jon Zilber

Hang Up

Hangup

There's a problem with HyperCard's Phone stack. Though it dials through the modem, the modem remains off-hook after it dials. The result is a connection that sounds like someone's hanging on an extension. A quick patch to the stack will have the modem hang up — after giving you enough time to pick up the phone yourself.

First make sure your user level is set for Scripting. Open the Phone stack and select STACK INFO from the Objects menu and make a back-up copy of the stack just in case you have any problems. Click on the Script button, and you'll see how HyperCard controls the dialing.

Scroll down until you see the section that starts "on dial string" — it should be the third section. Between the eighth and ninth paragraphs of that section (just before the paragraph that reads "put empty"), enter the following two paragraphs (exactly, quotes, spaces, and all, but leave out the "1") and ":"):

1) wait 6 seconds
2) send "dial" & quote & empty & quote & " with modem" & quote & "+++ATH" & quote to Hypercard

While HyperCard will indent the paragraphs correctly, you may want to manually wrap the second paragraph with a Command-Enter just before the "+++ATH" string.

What this patch does is cause the stack to wait six seconds after dialing the number, then send the Hayes hangup command. That gives you six seconds to pick up the phone after the modem dials; if you don't pick up the phone that fast, you probably deserve to have it hang up on you.

— Daniel J. Rosenbaum
The Tracks of My Tears

Anyone who's ever dreamed of connecting a Mac to the company's mainframe has probably sat in a corner, quietly singing Smokey Robinson's lament more than once, but now you can stop your sobbing. Blackhole Technology and Qualstar have both introduced 9-track streaming tape drives for the Mac. Qualstar's Model 1260S Ministreamer and Blackhole's MacTAPE/SCSI connect directly to the SCSI port on any Mac, from the Mac Plus to the Mac II, and provide full read-write capabilities on IBM compatible tapes.

The MacTAPE/SCSI comes in both tri-density and quad-density (GCR format) versions that can handle IBM/ANSI compatible 556/800/1600/3200/6250 bpi tapes at a transfer rate of 100K per second, depending on the block size you're transferring and the type of Mac you're using.

The Model 1260S Ministreamer is a GCR format unit with multiple operating speeds that maintains a transfer rate of 80K per second. Both tape drives come with utility software for backing up, as well as data transfer and conversion (ASCII/EBCDIC) software. They're also multiuser compatible, and, depending on the operating system, can function as either file servers or network resources. Companies that want the flexibility of adding a mainframe later may find these drives an ideal option.

Both units are small enough to fit in any environment and, stood on end, the Ministreamer's footprint is the same as a sheet of letter size paper.

The MacTAPE/SCSI loads automatically, and the Ministreamer can read/write VAX back up tapes.

The list prices for all this power are: $7695 for the MacTAPE tri-density; $10,500 for the MacTAPE quad-density and $7995 for the Model 1260S Ministreamer. (That's the comptroller singing now.) To find out more, contact Blackhole Technology at 225 East Street, Winchester, MA 01800; (617) 721-7690 or if you're outside Massachusetts, (800) 227-1688. Qualstar can be reached at 9621 Irondale Ave., Chatsworth, CA 91311; (818) 882-5822.

— Russell Ito

Transfer data from a Mac to a mainframe on 9-track tape with the MacTAPE/SCSI (shown), or the Model 1260S Ministreamer (not shown).
NEW ON THE MENU

The Bear Essentials

A new clip art package, Mac Gallery, is a collection of professionally drawn art work in MacPaint format. Two 400K disks (a third, free borders disk is included for a limited time) contain over 400 pieces of original art covering holidays, special occasions, food, sports, mortise cuts, borders—a veritable potpourri of clips for your newsletters, cards, business cards, flyers, certificates, and other creations. One interesting feature is Teddy Bear Fun, two files of ready-to-use and make-your-own bears with bear parts and apparel to make Mama Bear, Santa Paws, Super Teddy, and more.

Mac Gallery comes with a reference manual, Mac Gallery Tour Guide, filled with tips, techniques, hints, and ideas for combining graphic elements for special effects like showing motion, making reflections, adding shadows, and making special award certificates.

You can get Mac Gallery for $49.95 from Dream Maker Software, 4020 Paige Street, Los Angeles, CA 90031; (213) 221-9987.

— Laura Johnson

DIALOG BOX OF THE MONTH

Make a LaunchKey or an FKEY?

What planet are you from? Choose "OK" if you are very, very ashamed.

And all this time we thought the Mac was user-friendly. Little did we know that Don Hickcox was moonlighting writing dialog boxes.

This zinger came to us courtesy of Will Cate of Gaithersburg, MD, who had it pop up while he was working in IMI Software's shareware program LaunchMaker. "I was making application-launching FKEYs with it, when I accidentally clicked the 'Make FKEY' button while an existing FKEY was already selected. The resulting dialog box gave me a pretty good chuckle." We liked it, too, so we've sent Will $25.

If you'd like to enjoy the kind of fame and fortune Will's hasking in now, send us your best, worst, or most interesting dialog box. If we publish it, we'll send you a check for $25. Make sure you save a copy of your screen in MacPaint format (that's Command-Shift-3) on disk, so we can reproduce your masterpiece here at Dialog Box Central. Send your submissions to Dialog Herb c/o MacUser, 110 Marsh Drive, Suite 250, Foster City, CA 94404. No calls, please.

— H.D. Plant

It's Simply been worth waiting for

bedford®

making software comfortable™

Some time ago we told our development team to create a full-featured small business accounting program for the Macintosh™. We told them that all the functions and features a small business would require had to be fully integrated under a single icon.

To ensure it built on our tradition of comfortable software, it had to qualify with our time-tested telephone support group, integrate smoothly with our payroll update service, and utilize our complete line of business forms.

Eighteen months later they gave us Simply Accounting™. We think the wait was worth it. Why not drop by your nearest Apple dealer and see what you think.

Bedford Software Corp.
15311 N.E. 90th Street
Redmond, WA 98052
(206) 883-0074

Bedford Software Corp.
15311 N.E. 90th Street
Redmond, WA 98052
(206) 883-0074
Electron­

ic, My

Dear

Watson

If you've ever bolted upright at 3 a.m. and muttered, "Who was the woman?" or "What was Mycroft's real profession?" or "How many times did Holmes call on Toby?", your hours of anguish are over.

An Electronic Holmes Companion is an electronic edition or the "Canon," the four novels and 56 stories chronicling the exploits of the world's greatest consulting detective, Sherlock Holmes.

The Companion (due out from Psyl­ogic Systems by the time you read this) comes as straight ASCII text files that can be read into most word processors. It also includes a number of programs for indexing, analyzing the "readability" level of the stories, graphing the "themes" throughout the Canon, developing your own Holmes concordance, or comparing Conan Doyle's writing characteristics with those of other writers.

You also get a preface by John Bennett Shaw, of the Baker Street Irregulars, that includes his bibliography of 100 books and publications on the great detective. And to help further the cause of Holmesian scholarship, a listing of hundreds of scion societies and contact persons throughout the world is also included.

An Electronic Holmes Companion is available for $59.95 (Connecticut residents should add 7.5 percent sales tax) from Psyl­ogic Systems, PO Box 315, Tolland, CT 06084. "Come, Watson, the game is afoot!"

— Russell Ito

If students cram before taking a test, do teachers cram when they prepare one? You bet!

Joseph Grossbauer, of Chicago, discovered this month's bug during a test-writing cram session using the latest version of Cricket Draw (version 1.1). You see he was — well, let's let him tell it.

"I teach a class at a local college, and I was in the process of writing a mid-term exam. I should have prepared the exam earlier, but I knew that I had most of the test written, and all I had to do was prepare a few drawings. Best of all, I had just received the latest version of my favorite draw program (what a setup, right?). Well, everything worked beautifully; the program ran faster, the edges of the document were better defined, and best of all, I had more control manipulating the document. Now the big moment came, time to print! As the printer rolled out the first page, something was wrong. There were no lines! I tried again — same thing. I tried my old System and Finder, hoping maybe, just maybe, but I bombed out in spades. As the clock moved much too close to zero hour, I finally did the only thing I could: I drew in the missing lines by hand, and ran off to class."

We duplicated Joe's bug and discovered that it only occurs on lines drawn with Cricket Draw's line tool and then printed (or not printed, as it turns out) on an ImageWriter II. The same image printed fine on our LaserWriter.

To compensate Joe for his frustration, and to thank him for giving us something to write about this month, we've sent him a check for $25. We'll send you an identical check (well, we'll put your name on it, instead of Joe's) if you send us an interesting bug. Send the gory details to Bugsy, c/o MacUser, 1 IO Marsh Drive, Suite 250, Foster City, CA 94404, and be sure you fill us in on your System and Finder versions, hardware, and any unusual DAs you may have installed. May all your catastrophes be minor.

— H. D. Plant

General Ledger
- entire fiscal year available for reports
- user definable chart of accounts
- produces full audit trail

Payables/Receivables
- uses open invoice method
- prints checks, invoices and statements
- user defined aging periods

Payroll
- automatic federal and state deductions
- accumulates OTD, YTD, W-2, 940 and 941 information

Inventory
- fully integrated with payables and receivables
- uses average weighted cost method
- handles adjustments and transfers

Jobcost
- distributes revenue or expense to projects or profit centers
- paycheck distribution includes the company's portion of FICA, SUTA and Disability Insurance

Requirements
- Apple® Macintosh™ computer with one megabyte of memory, 800K on-line storage and 128K ROM

Standard Features
- Six fully integrated functions
- Reports can be displayed, printed or exported
- Not copy protected

Please circle 15 on reader service card.
Finally, backup that works like a Mac

At last there's a backup system with the power, sophistication and ease of use to equal your Mac: Irwin BACKUP for the Macintosh.

Our new 40 and 64 megabyte tape backup systems are the first with fully iconographic EzTape software which provides maximum control and flexibility in selecting folders and files to backup or restore. They're the only backup systems with the power to support AppleShare, TOPS and Apple's new A/UX. The only backup sophisticated enough to allow data exchange between Macintosh, Unix, MS-DOS and OS/2 computers.

And all this comes with the proven reliability of Irwin's patented AccuTrak data tracking technology. It's just one more reason why Irwin is the world leader in microcomputer tape backup, with more than 500,000 systems already installed.

For data protection on a par with your Macintosh, there's only one choice: Irwin BACKUP.

For more information on the new Irwin BACKUP systems for the Macintosh, see your dealer or call 1-800-BACKUP1.

Irwin and EzTape are registered trademarks and AccuTrak, iconographic and Irwin RAM-IX Tape are trademarks of Irwin Magnetics Systems, Inc. Macintosh is a registered trademark and AppleShare and A/UX are trademarks of Apple Computer, Inc. Unix is a registered trademark of AT&T. TOPS is a registered trademark of San Motronics, Inc. MS-DOS is a registered trademark of Microsoft Corp. OS/2 is a trademark of International Business Machines Corp.

Please circle 27 on reader service card.
NEW ON THE MENU

Word processing tools come in all shapes and sizes. Unfortunately, the ones presented to speakers at Macworld Expo by show organizer Mitch Hall Associates didn’t come with a spelling checker. (But what can you expect from a company that alphabetizes The Macintosh Business Letter under “T.”)

GeoQuery
Maps Out Markets

GeoQuery asks the question: “Can a map-based statistics package deliver enough market research information to be worth its $349 price tag?” If you need to know where to go with your product, GeoQuery can deliver customer information within any specified geographic area down to the state and county level.

GeoQuery works in conjunction with a flat file manager, like Excel, to access a customer or company name by Zip code. You then look at other fields in your database to make decisions about doing business in a region. One nice touch is the ability to gauge distances in miles by simply dragging a line from point to point.

GeoQuery answers limited questions about your data based on geographic criteria. Optional modules include data for “Areas of Dominant Influence” and “Dominant Market Areas,” demographic terms used by market and media researchers like Nielsen and Arbitron.

GeoQuery works in color on the Mac II, has a HyperCard interface, and includes LaserWriter support. The basic package contains a map of the United States including Alaska and Hawaii. Future plans call for a European edition. State and county maps come as options. It’s available from Odesta, 94084 Commercial Blvd., Northbrook, Il 60062; (800) 323-5423 or (312) 498-5615.

— Ben Templein

SALE OF THE MONTH

Design 1.02 .105. PowerMath 2.0 .63.44
MORE 1.0 .115. CMS 60MB External 3SC .95.
PowerMath 2.0 .63.44
Turbcharger .25. Sony Disks . SS 1.18 RS 1.64
Word Handler .27.99

Orders Only
1-800-847-5775

SALE OF THE MONTH

Designer 1.02 .105. MacOpener* (tool) .16.75
MORE 1.0 .115. Vollermoden 1200 .129.72
PowerMath 2.0 .63.44
CMS 60MB External 3SC .95.
Turbcharger .25. Sony Disks . SS 1.18 RS 1.64
Word Handler .27.99
Ribbon .2.95

SOFTWARE LIBRARY
P.O. Box 980365 • Houston, TX 77098

MAY 1988 MAC USER 55
When you want to talk Macintosh

<table>
<thead>
<tr>
<th>MONITORS</th>
<th>HARD DRIVES</th>
<th>TAPE BACKUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Specialties</td>
<td>CMS</td>
<td>AST</td>
</tr>
<tr>
<td>High Top Full Page Display</td>
<td>Pro-20 SE/i 85 ms</td>
<td>AST 2000</td>
</tr>
<tr>
<td>Flat Top LCD</td>
<td>Pro-40 SE/i 29 ms</td>
<td>AST 4000</td>
</tr>
<tr>
<td>Nuovotech</td>
<td>Pro 20 Li/65 ms</td>
<td>CMS</td>
</tr>
<tr>
<td>EasyView 14&quot; Monitor</td>
<td>Pro 43 Li/40 ms</td>
<td>Tapestack 60</td>
</tr>
<tr>
<td>Power R</td>
<td>Pro 60 Li/40 ms</td>
<td></td>
</tr>
<tr>
<td>MacLarger 12&quot; Monitor</td>
<td>Pro 80 Li/26 ms</td>
<td></td>
</tr>
<tr>
<td>Radius</td>
<td>Pro 102 Li/28 ms</td>
<td></td>
</tr>
<tr>
<td>Full Page Display Plus</td>
<td>Pro 140 Li/28 ms</td>
<td></td>
</tr>
<tr>
<td>Full Page Display SE</td>
<td>Pro 150 Li/28 ms</td>
<td></td>
</tr>
<tr>
<td>Two Page Display</td>
<td>MacStack 20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacStack 40 40 ms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacStack 60 40 ms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacStack 80 26 ms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacStack 140 28 ms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Everex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMAC 20D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMAC 91D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mountain</td>
<td>Everex</td>
</tr>
<tr>
<td></td>
<td>20MB with SCSI</td>
<td>EMAC 60T</td>
</tr>
<tr>
<td></td>
<td>40MB with SCSI</td>
<td>$999</td>
</tr>
<tr>
<td></td>
<td>80MB with SCSI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80MB Fixed/20 Removable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>140MB with SCSI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>140MB Hard w/SCSI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PCPC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD21M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD32M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacBottom HD45M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVEREX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMAC 40D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$999</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEMS</th>
<th>DRIVES WITH TAPE BACKUP</th>
<th>UPGRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sigma Designs</td>
<td>Everest</td>
<td>Dove Computer</td>
</tr>
<tr>
<td>LaserView 19&quot; SE</td>
<td>EMAC MD 2400</td>
<td>MacSnap 524</td>
</tr>
<tr>
<td>LaserView II 19&quot;</td>
<td>.</td>
<td>MacSnap 524E</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 524S</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 548</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 548E</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 548S</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap Plus 2</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap Plus 2H</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 2S</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacSnap 4S</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Tool Kit</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>MacMemory</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>E Machines Adaptor Kit</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Multimedia 2MB</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Turbo Drive 40 SCSI</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Turbo SE</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Maxplus Mega 2MB</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>Maxram/Maxprint</td>
</tr>
<tr>
<td></td>
<td>.</td>
<td>68881 Math Co-processor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLOPPY DRIVES</th>
<th>DIGITIZERS/SCANNERS</th>
<th>UPGRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Edge 800K External</td>
<td>AST</td>
<td>Dove Computer</td>
</tr>
<tr>
<td>Mirror Technologies</td>
<td>Turbo Scan</td>
<td>MacSnap 524</td>
</tr>
<tr>
<td>Magnum 800</td>
<td>Koala</td>
<td>MacSnap 524E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 524S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 548</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 548E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 548S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap Plus 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap Plus 2H</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 2S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacSnap 4S</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tool Kit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MacMemory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E Machines Adaptor Kit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multimedia 2MB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turbo Drive 40 SCSI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turbo SE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maxplus Mega 2MB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maxram/Maxprint</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68881 Math Co-processor</td>
</tr>
</tbody>
</table>

To Mac users, we are the new kid on the block. To more than 400,000 satisfied PC customers, we’re an old friend.

Call now for fast, friendly service on the widest selection of Mac hardware and peripherals.
<table>
<thead>
<tr>
<th>SOFTWARE</th>
<th>SOFTWARE</th>
<th>ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aegis Development</td>
<td>Lundeen &amp; Associates</td>
<td>Allsop</td>
</tr>
<tr>
<td>Doug Clapps Word Tools</td>
<td>Works &amp; Spell</td>
<td>Disk file 10 Holds 10 3½&quot; Disks</td>
</tr>
<tr>
<td>Affinity</td>
<td>Microsoft</td>
<td>Disk File 30 Holds 30 3½&quot; Disks</td>
</tr>
<tr>
<td>Tempo</td>
<td>Word</td>
<td>Cleaning Kit for 3½&quot; Disks</td>
</tr>
<tr>
<td>Ann Arbor Softworks</td>
<td>Write</td>
<td>15.99</td>
</tr>
<tr>
<td>Full Write Prof</td>
<td>File 1.05</td>
<td></td>
</tr>
<tr>
<td>Full Paint</td>
<td>Excel</td>
<td>9.99</td>
</tr>
<tr>
<td>Ashton Tate</td>
<td>Power Point</td>
<td>15.99</td>
</tr>
<tr>
<td>dBase Mac</td>
<td>Migent</td>
<td>48.00</td>
</tr>
<tr>
<td>Berkeley Systems Design</td>
<td>In-House Accountant</td>
<td></td>
</tr>
<tr>
<td>Stepping Out</td>
<td>Neshoba</td>
<td>48.00</td>
</tr>
<tr>
<td>Brainpower</td>
<td>Filemaker Plus</td>
<td>29.00</td>
</tr>
<tr>
<td>Stateview 512 Plus</td>
<td>Survivor</td>
<td>40.00</td>
</tr>
<tr>
<td>Broderbund</td>
<td>MacMoney</td>
<td>169.00</td>
</tr>
<tr>
<td>Print Shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cricket</td>
<td>Cricket Graph</td>
<td></td>
</tr>
<tr>
<td>Cricket Draw</td>
<td>Cricket Draw</td>
<td></td>
</tr>
<tr>
<td>Data Viz</td>
<td>MacLink Plus with cable</td>
<td></td>
</tr>
<tr>
<td>Deneba</td>
<td>Coach</td>
<td></td>
</tr>
<tr>
<td>Coach</td>
<td>Coach Professional</td>
<td></td>
</tr>
<tr>
<td>Coach Thesaurus</td>
<td>Comment 1.1</td>
<td></td>
</tr>
<tr>
<td>Canvas</td>
<td>Canvas</td>
<td></td>
</tr>
<tr>
<td>5th Generation</td>
<td>Fastback</td>
<td></td>
</tr>
<tr>
<td>Past Back</td>
<td>Firebird LICENSES</td>
<td></td>
</tr>
<tr>
<td>Firebird LICENSES</td>
<td>Laser Author</td>
<td></td>
</tr>
<tr>
<td>Laser Author</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NESHOBA**

**Filemaker Plus**

$179

<table>
<thead>
<tr>
<th>SOFTWARE</th>
<th>ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone Beach</td>
<td>Allsop</td>
</tr>
<tr>
<td>Silicon Press</td>
<td>Disk file 10 Holds 10 3½&quot; Disks</td>
</tr>
<tr>
<td>Software Discoveries</td>
<td>Disk File 30 Holds 30 3½&quot; Disks</td>
</tr>
<tr>
<td>Merge Write</td>
<td>Cleaning Kit for 3½&quot; Disks</td>
</tr>
<tr>
<td>Software Power Company</td>
<td>15.99</td>
</tr>
<tr>
<td>Power Up</td>
<td></td>
</tr>
<tr>
<td>Software Supply</td>
<td></td>
</tr>
<tr>
<td>Suitcase</td>
<td></td>
</tr>
<tr>
<td>SuperMac Software</td>
<td></td>
</tr>
<tr>
<td>Super Laser Spool</td>
<td></td>
</tr>
<tr>
<td>Disk Fit</td>
<td></td>
</tr>
<tr>
<td>Sentinel</td>
<td></td>
</tr>
<tr>
<td>Symmetry</td>
<td></td>
</tr>
<tr>
<td>Acta V 2.0</td>
<td></td>
</tr>
<tr>
<td>TIMaker</td>
<td>Turbo Backup 300 VA</td>
</tr>
<tr>
<td>Target Scoop</td>
<td>Turbo Backup 450 VA</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISKS**

**SONY 3½" DS/DD Disks**

$179

<table>
<thead>
<tr>
<th>DISKS</th>
<th>DISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxell</td>
<td>Maxell 3½&quot; DS/DD</td>
</tr>
<tr>
<td>Maxell 3½&quot; DS/DD</td>
<td>18.99</td>
</tr>
<tr>
<td>Maxell 3½&quot; SS/DD</td>
<td>12.99</td>
</tr>
<tr>
<td>Sony</td>
<td>Sony 3½&quot; SS/DD</td>
</tr>
<tr>
<td>Sony 3½&quot; SS/DD</td>
<td>12.99</td>
</tr>
</tbody>
</table>

---

**MacCenter**

In the U.S.A. and in Canada

**Call toll-free: 1-800-233-8950**

Outside the U.S.A. call 717-327-9575, Fax 717-327-1217

Educational, Governmental and Corporate Organizations call toll-free 1-800-221-4283

CMO. 477 East Third Street, Dept. N2, Williamsport, PA 17701

ALL MAJOR CREDIT CARDS ACCEPTED

POLICY: Add 3% (minimum $7.00) shipping and handling. Larger shipments may require additional charges. Personal and company checks require 3 weeks to clear. For faster delivery, use your credit card or send cashier’s check or bank money order. Credit cards are not charged until we ship. Pennsylvania residents add 6% sales tax. All prices are U.S.A. prices and are subject to change, and all items are subject to availability. Defective software will be replaced with the same item only. Hardware will be replaced or repaired at our discretion within the terms and limits of the manufacturer’s warranty. We cannot guarantee compatibility. All sales are final and returned shipments are subject to a restocking fee.

Please circle 37 on reader service card.
Now you have the tools to build a desktop design solution that's easy to learn, fast, and powerful—thanks to three powers in the computer industry.

Start with a Macintosh® II computer—the most powerful, most expandable member of the Macintosh family. It can handle your most complex design tasks with ease. And, with access to thousands of productivity programs, it still takes care of business.

Add VersaCAD®, VersaCAD's "Macintosh Edition"—the first high-performance CAD software written especially for the Macintosh—provides all the design power and flexibility you'll need. And it's so easy to learn, you can "point and click" your way through complex designs in no time at all.

Finish with Hewlett-Packard. When high-quality input demands outstanding output, plug into an HP DraftMaster drafting plotter. The powerful DraftMaster delivers superior line quality on a variety of media—in just minutes.

Power Tools. The only hardware and software you'll need to build the most powerful, easy-to-learn desktop design system around.

For more building tips, just call (714) 960-7720 and ask for our "Power Tools" brochure.
Freedom of Choice

In January of 1984 came the Macintosh. With 64K of ROM, 128K of RAM, and a powerful Motorola 68000 processor, it made an impressive debut. The industry press was excited, potential purchasers were enthralled, and Apple was hoping it had another hit on its hands. Amid the cheering and jubilation, there were those who remained doubtful, and most of them were business users in the lucrative corporate market. They had two main areas of concern, hardware and software. On the hardware side, business users were concerned that the Macintosh's closed architecture would severely inhibit the development of add-on hardware, such as hard disks, letter-quality printers, and 3270 boards for mainframe connectivity. On the software side, business users were unimpressed with the meager offerings available: MacWrite, MacPaint, Microsoft Word, and MultiPlan. They were especially miffed that Lotus 1-2-3 was unavailable, as it had become the corporate standard spreadsheet (and best-selling program).

Unfortunately for Apple, almost all of the concerns of these business users were justified. It soon became apparent that 128K of RAM was not enough, and adding more memory was expensive and required a service call. Hard disks were few and far between, difficult to use, and expensive. Letter-quality printers were also difficult to interface to the Macintosh. Software was slow in coming, despite Apple's Evangelism program, since Macintosh software was more difficult to develop than IBM PC software and took longer to finish.

The scene shifts to January of 1988. The Macintosh is now a line of computers. The low end of the line is the Macintosh Plus, with 128K of ROM and 1 MB of RAM fairly easily upgradable to 2.5 MB or 4 MB, and with a SCSI port for attachment of a wide range of hardware products. The high end of the line, the Macintosh II, has 256K of ROM and 1 MB of RAM easily upgradeable to 8 MB, a SCSI port, internal hard disks available, and eight NuBus expansion slots. When the middle machine of the line, the Macintosh SE with its single expansion slot, is included, it becomes apparent that Apple has addressed all of the major hardware concerns of the business community.

It is on the software side, though, that the changes are most apparent. Where once there was very little business software with only one product in a category (or none at all), now there are many choices, with three, five, or more products per category. Even the number of categories continues to expand, as desktop presentation, image processing, and forms design and management products appear. At the Macworld Expo in San Francisco in January, the number of products being shown was staggering, and many of them are still on their way, with more to come. Some examples:

**Word processing:** MacWrite 5.0, WriteNow 2.0, Word 3.01, and Write are just some of the competition for newcomers FullWrite Professional, WordPerfect, and Nisus.

**Spreadsheets:** Even the king, Excel, is starting to feel competitive pressure as GraphSheets Mac, Modern Jazz, and Wingz prepare to join MacCalc and Tripeze on the playing field.

**Databases:** Foxbase+/Mac joins the fray against dBASE IV and dBASE IIIE, all three of which can manipulate dBASE III files. Other contenders in the relational battle include Double Helix, Omnis, and Reflex Plus.

**Desktop publishing:** Still a contest, with a new version of PageMaker getting ready to take on all comers, including Xpress, Ready, Set, Go! and Scoop.

**Project management:** MacProject II takes on MultiUser MicroPlanner, while MacSchedule and AEC Information Manager target different areas of the market.

**Forms design and management:** Even this new category has multiple entries, with the integrated TrueForm up against the separates SmartForm Designer and SmartForm Manager.

**Utilities:** This category features many head-on contests, such as QuickKeys versus Tempo II, Suitcase versus Font/DA Juggler Plus versus Font/DA Switcher, and Redux versus DiskFit versus HFS Backup.

**Communications:** This is one category where there have long been three powerful contenders, and all three have been extensively revamped: Smartcom II, Red Ryder, and Microwave.

This diversity of offerings has one...
Microphone II by Software Ventures

Microphone II is one of the most sophisticated, while easy to use communications programs available for any computer. The unique design of this program makes it an extremely powerful tool for the experienced user, and a saviour for the novice. Pre-programmed icons make it simple to access major information services such as Compuserve or Dow Jones, with automatic log-in and sign-on. You can record your entire session through the “Watch Me” feature, and replay it later through a single keystroke. The new version of Microphone II is now Multifinder compatible, and comes with a free copy of Glue, a graphics/text transfer utility.

Microphone 1.1

Utility Software

- Apple Computer Switcher Connt. Kit 14
- AS/Soft Disk Express 1.0 26
- Font DA Juggler Pins 26
- Berkeley System Design Stepping Out II 32
- Beyond Inc. Menu Fonts 2 32
- C.E. Software QuickKeys (Macro Program) 37
- Disk Top 3.0 or CalendarMaker 3.0 29
- Central Point Software Copy II Mac (Includes MacTools) Special 20
- Electronic Arts Disk Tools Plus 31
- Terminal Generation Systems FastBack For The Macintosh 59
- Headform Disk Quick V.24 35
- HyperBook Maker 30
- Infosphere MacServe (Network Software) 158
- LaserServe (LaserWriter Print Spooler) 63
- Unlimited Software AltBridge 67
- DA-Converter II 25
- Font Share 149
- Icon It! (Assign icons to Menu Items) 39
- Read-It! TS (For Thundercans) 70
- Read-It! D.C.R. (For Image Scanners) 199
- Software Power Power-up Disk Optimizer 33
- Software Supply Suitcase or Power Station 38
- SRT MacFree 39
- SuperMac Software SuperSpool 42
- SuperLaserSpool 82
- Multi-User SuperLaserSpool 199
- DiskIt 14 84
- Network DiskIt 1.3 203
- Sentinel 155
- Sync Mac Envelope 30
- Mac Invoic 25
- TOPS Eops For The Macintosh 2.0 158
- or Net Print 199
- Williams & Macias 77
- myDisk Labeler w/ Color 31
- myDisk Labeler w/ LaserWriter Option 34
- Working Software, Inc. Findwell 29

Rags to Riches 3 Pak GL/AR/AP
Version III by Chang Laboratories

Rags to Riches Version III provides users more “Choices” in their accounting selection, setup, operation and reporting! Each module has more options to let you customize the operation to the way YOU do business. It gives you more flexibility to format reports, invoices and statements to suit your personality. This is the fastest accounting package available for the Macintosh. Success in accounting can be yours with Rags to Riches Version III.

Rags to Riches 3 Pack (GL/AR/AP) Version III 279.

Laser Fx by Postcraft International Inc.

Since the advent of the desktop publishing industry, no product has proven to be as useful, or as easy to use as Laser Fx from Postcraft. Simply take any PostScript font and use any of the 30 special effects to create a dazzling typographical masterpiece. You can print directly from Laser Fx or paste into Quark XPress, ReadySet, SetGo!, Microsoft Word, or most other popular desktop programs. It can also be used to create special effects in newsletters, designing logos, or adding that extra zipazz to your presentation. Laser Fx also has the ability to read PICT or paint files created in other programs such as MacDraw or MacPaint. Bring your desktop software and laser printer into the next generation with Laser Fx.

Laser Fx 117.

Desk Accessory Programs

- Affinity Microsystems Tempo II 94
- AffinFile 46
- Borland SideKick V.20 59
- Cortland 85
- Iop Desk 45
- Greene, Inc. 39
- QuickDex 14
- Symmetry HyperDA ( Req. 52K) 38

Languages

- Microsoft 94
- Windows 65
- Microsoft Basic Interpreter 1.0 65
- Turbo Pascal Numerical Methods 63
- Turbo Pascal Tutor 127
- Borland Turbo Pascal 4.0 43
- Microsoft Fortran Compiler 2.2 180
- THINK Technologies Lightspeed C 109
- Lightspeed Pascal 59
- CAPP's for Lightspeed C or Lightspeed Pascal 49

Communications Software

- Apple Computer MacTerminal 99
- CompuServe CompuServe Starter Kit 24
- DataViz MacLink Plus with Cable 145
- Red Ryder V.20 49
- Infodata-Router V.3 180
- Palantir EnLink V3 99
to Polish Up Your Mac...

Canvas by Deneba Software

Canvas is truly the complete graphics environment for the Macintosh. If you need a draw program, a paint program, text editing, high resolution images, embedded PostScript or more, then Canvas is for you. You can rotate objects, create multiple duplicates of an object or group of objects, or view and edit drawings and text at any magnification or reduction from 3.125% to 3,200% of the original. You can also use the desk accessory version of Canvas (included) to edit your graphics without leaving your favorite desktop program, database, spreadsheet or word processor.

Cutting Edge 800k Drive by Cutting Edge, Inc.

The Cutting Edge 800k Drive features an LED in-use light, a manual eject button, and a compact case (available in beige or platinum) that matches Mac aesthetics. It's compatible with old and new Mac ROMs so you can use it on a standard Mac 512k, a MacPlus, or a Mac SE. The Cutting Edge 800k Drive also has a MTBF rating of over 11,000 hours, and offers advanced power and design at an economical price.

WorksPlus Command by Lundeen & Associates

WorksPlus Command is the most powerful macro package available for use with Microsoft Works. You can record an unlimited number of keystrokes, open and close documents, view and edit documents, even move information between Works modules, and execute them with a single keystroke. You can print multi-column labels and reports, automatically generate table of contents and indexes for your word processing documents, even dial your phone from your database. For those who wish to write their own unique macros, WorksPlus Command includes a full macro programming language similar to Pascal. All this and more makes WorksPlus Command a program no Microsoft Works user should be without.

MacSnap Internal Memory Expansions by Dove Computer Corporation

It's a safe bet that no matter what Macintosh model you have, Dove Computer has a MacSnap memory expansion product that matches your needs. That's because Dove has an extensive line of high quality memory and productivity enhancement products available. All Dove products are easy to install and represent a superior value! We've selected some of the most popular models, and are offering them at special prices. All models listed include Dove's RamSnap software, their intelligent ram management software.

Copy II Mac by Central Point Software

Copy II Mac has always been the standard by which all other backup software is compared to, and it keeps getting better! It was awarded the 1987 MacWorld-World Class Award, MacUser Editors Choice Award, A+ Readers Choice Award, just to name a few. Copy II Mac is really seven applications in one, including the ability to make backups of "copy protected" software (for archival purposes only), and Copy II Hard Disk, which lets you run some protected software directly from your hard disk, RAM disk, etc. Also included is MacTools, which is a general disk and file utility with a variety of useful options, including a hard disk undelete files option. It's plain to see why Copy II Mac has already sold over 100,000 copies.

Positively A Plus

PROGRAMS PLUS

800/832-3201
Game Software

- Access World Class Leader Board Golf
- Acrord Hardball
- Activision Firepower
- Shanghai or Romantic Encounters
- Two Times in Tuscany
- Magic and Might
- Artworks Bridge 5.0
- Avalon Hill Mac Pro Football
- Ballcade Award Maker Plus
- Broderbund Ancient Art of War
- Bullseye Software
- Fekker Triplane or Ferrari Grand Prix
- Electronic Arts Ogre
- Return to the Stars
- Starcom I
- Venture's Business Simulator
- ChessMaster 2000, Patton vs Rommel or Scramble
- Archer, One-On-One, Pinball Construction Set, Seven Cities of Gold, Software
- Golden Oldies or Skybox (ex)
- EPFX Winter Games
- Sub Battle Simulator
- Hayden Software Sargon III
- Infinity Software, LTD. Go
- Informix Buccaneers, Leather Goddesses of Phoebus, Nord or Blund, Plundered
- Hearts, Sherlock, or Stationfall (ex)
- Beyond 2020
- Hitchens's Guide to the Galaxy
- Science Fiction Classics
- Zork Trilogy
- Intraeap Bumper Sticker Maker

Blank Media

- Single Sided 3½ Diskettes
  - BASF 3½ DS/ DD Disk (box of 5)
  - Sony 3½ DS/DD Disk (box of 8)
  - Fujifilm 3½ DS/DD Disk (box of 10)
  - Maxell 3½ SS/DD Disk (box of 10)
  - Clirho Color Disk SS/DD (box of 10)
- Double Sided 3½ Diskettes
  - BASF 3½ DS/DD Disk (box of 5)
  - Sony 3½ DS/DD Disk (box of 8)
  - Fujifilm 3½ DS/DD Disk (box of 10)
  - Maxell 3½ DD/DD Disk (box of 10)
  - Fujifilm 3½ DD/DD Disk (box of 10)
  - Clirho Color Disk DS/DD (box of 10)

Modems

- Emac 2400 Baud
- Hayes Microcomputing
- Smartmodem 1200
- Smartmodem 1200 Mac
- MicroPack II + Mac (128K or 512K)
- Mac Pack w/ Prolcom & Cable
- Macinware Plus/SE Dust Cover
- Mac SE Carry Case
- ImageWriter Ribbon - Black
- Apple Security Kit
- Polarizing Filter
- Printer Muller 80
- Control Center
- System Saver Mac (Beige or Platinum)
- System Saver SE
- Masterpiece Mac II
- Turbo Mouse (Reg. or ADB)
- Lightgate Felix (Second Generation Printing Devices)
- Mouse Systems A+ Mouse (MacPlus)
- A+ ADB Mouse (Mac SE, Mac II)
- MAC 400 ADB Keyboard, Platinum (Mac SE & Mac II)
- Ergotron
- TrueType or MacTilt SE (Platinum Color)
- Apple Monitor 360°
- Ultra Design
- Mac Luggage Available in Navy or Platinum Gray
- Macintosh Plus Carrying Case
- Macintosh SE Carrying Case
- ImageWriter II Carrying Case
- Kalmar Designs
  - TrueType 670 or Epson Disk Cases
  - Micro Cabinet (holds 8 disks)
  - Double Micro Cabinet (holds 16 disks)
  - Triple Micro Cabinet (holds 115 disks)
- Kensington External Disk Drive Cover
- Extra Long ADB Keyboard Cable
- Macintosh II Lindo
- Macintosh II Monitor Cable Extension
- Mouse Pocket (Rect. or ADB)
- Mouseway (Mousepad)
- ImageWriter or ImageWriter II Cover
- Macintosh Plus SE Dust Cover
- Mouse Cleaning Kit
- Disk Drive Cleaning Kit
- Tilt Swivel
- Universal Copy Stand

Accessories

- Atlas ProPoint (ADB Turbo Mouse for Mac SE & Mac II)
- Bel-Tech Fancy Mac (Beige or Platinum) 65
- Cambridge Automatice Numeric Keypad
- Central Products
  - MacOperator (All In One Mac Tool)
  - Curtis Mandala
  - Diamond-Surge Suspendor-SP-1
  - Emerald-Surge Suspendor-SP-2
  - Ruby-Surge Suspendor-SPF-2
  - Sapphire-Surge Suspendor-SPG-2
  - Cutting Edge Cutting Edge
- EADB-105 (Mac SE & Mac II)
- DataDesk-MAC II - Keyboard (128K/512K & Mac)
- MAC-400 ADB, Keyboard, Platinum (Mac SE & Mac II)
- Ergotron
- MacTilt or MacTilt SE (Platinum Color)
- Mouse Cleaner 360°
- I/O Design
  - Mac Luggage Available in Navy or Platinum Gray
- Macintosh Plus Carrying Case
- Macintosh SE Carrying Case
- ImageWriter II Carrying Case
- Kalmar Designs
  - TrueType 670 or Epson Disk Cases
  - Micro Cabinet (holds 8 disks)
  - Double Micro Cabinet (holds 16 disks)
  - Triple Micro Cabinet (holds 115 disks)
- Kensington External Disk Drive Cover
  - Extra Long ADB Keyboard Cable
- Macintosh II Lindo
- Macintosh II Monitor Cable Extension
- Mouse Pocket (Rect. or ADB)
- Mouseway (Mousepad)
- ImageWriter or ImageWriter II Cover
- Macintosh Plus SE Dust Cover
- Mouse Cleaning Kit
- Disk Drive Cleaning Kit
- Tilt Swivel
- Universal Copy Stand

Lasers

- AST Research TurboLaser P3 Turbo.Laser (Macintosh SE)
- Impulse
- Impulse (Macintosh) Audio
- Digitizer V2.0 Soundwave
- Kool Technologies Corp.
  - MacVixion (Digitizer)

New Image Technology Magic Digitizer
- Macintosh SE/Plus
- Summagraphs MacTablet 12x12 sur
- ThunderWare ThunderScan V4.0 with Power Port (Mac II, IIx, Enhanced, MacPlus, and Macintosh SE)
- Mac II Power Accessory

800/832-3201
Customer Service (203) 378-3662
Monday thru Friday 9 A.M. to 9 P.M.
Saturday 10 A.M. to 6 P.M. (Eastern Time)

OUR POLICIES
- We accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks with MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- Locations more than 1 day away shipped Federal Express Standard Air Service*
- Federal Express Priority 1 day service also available.
- Sorry, we cannot accept COD orders.

SHIPPING
- Continental United States: Add $3.00 per order to cover Federal Express Standard Air Service*APO/FPO orders shipped 1st Class Mail (add $3.00 Mini charge). Alaska, Hawaii and Outside Continental US: call or write for information.

RETURNS
- Defective software will be replaced immediately by the same item. Defective software will be repaired or replaced at our own discretion. Call customer service at (203) 378-3662 to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee.

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

When your order is shipped from our facility in Stratford, CT, Federal Express Standard Air Service will deliver the package in 1 to 2 days. This service does not guarantee next day delivery.

Now Shipping Standard Air Service by

Please circle 69 on reader service card.

Customer Service (203) 378-3662
Monday thru Friday 9 A.M. to 9 P.M.
Saturday 10 A.M. to 6 P.M. (Eastern Time)

OUR POLICIES
- We accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks with MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- Locations more than 1 day away shipped Federal Express Standard Air Service.* Federal Express Priority 1 day service also available.
- Sorry, we cannot accept COD orders.

SHIPPING
- Continental United States: Add $3.00 per order to cover Federal Express Standard Air Service*APO/FPO orders shipped 1st Class Mail (add $3.00 Mini charge). Alaska, Hawaii and Outside Continental US: call or write for information.

RETURNS
- Defective software will be replaced immediately by the same item. Defective software will be repaired or replaced at our own discretion. Call customer service at (203) 378-3662 to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee.

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

When your order is shipped from our facility in Stratford, CT, Federal Express Standard Air Service will deliver the package in 1 to 2 days. This service does not guarantee next day delivery.

Now Shipping Standard Air Service by

Please circle 69 on reader service card.

800/832-3201
Customer Service (203) 378-3662
Monday thru Friday 9 A.M. to 9 P.M.
Saturday 10 A.M. to 6 P.M. (Eastern Time)

OUR POLICIES
- We accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks with MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- Locations more than 1 day away shipped Federal Express Standard Air Service.* Federal Express Priority 1 day service also available.
- Sorry, we cannot accept COD orders.

SHIPPING
- Continental United States: Add $3.00 per order to cover Federal Express Standard Air Service*APO/FPO orders shipped 1st Class Mail (add $3.00 Mini charge). Alaska, Hawaii and Outside Continental US: call or write for information.

RETURNS
- Defective software will be replaced immediately by the same item. Defective software will be repaired or replaced at our own discretion. Call customer service at (203) 378-3662 to obtain a Return Authorization Number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee.

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

When your order is shipped from our facility in Stratford, CT, Federal Express Standard Air Service will deliver the package in 1 to 2 days. This service does not guarantee next day delivery.

Now Shipping Standard Air Service by
## Database Management

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Point</td>
<td>Fox Software Fox Base Plus</td>
<td>219</td>
</tr>
<tr>
<td></td>
<td>Fox Base Running</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>Microsoft Microsoft Fox File 105</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>Nautilus Software</td>
<td>599</td>
</tr>
<tr>
<td></td>
<td>Apple Computer HyperCard</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Adobe Type 1 &amp; 2 Mac 1.0</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>Blyth Software Oman 3 Plus</td>
<td>279</td>
</tr>
<tr>
<td></td>
<td>Bertrand Reflex Plus</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Chang Laboratories</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td>C.A.T. Contact+Activities+Time</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>Software Discoveries Holder</td>
<td>45</td>
</tr>
</tbody>
</table>

## Business Software

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>App. Computer MacProject</td>
<td>Mac Flow or Mac Schedule</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>Capture</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Microsoft Planning Software</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>Microsoft Planning Plus</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td>Microsoft Excel</td>
<td>205</td>
</tr>
<tr>
<td></td>
<td>Notes For Excel</td>
<td>399</td>
</tr>
<tr>
<td></td>
<td>Microsoft Works (each)</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>Leopard/Node Press Maker 2.0</td>
<td>209</td>
</tr>
<tr>
<td></td>
<td>Lotus Jazz 1A</td>
<td>169</td>
</tr>
<tr>
<td></td>
<td>Lundberg &amp; Associates</td>
<td>406</td>
</tr>
<tr>
<td></td>
<td>More Works For Excel</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Mainstay Think 'n Time</td>
<td>279</td>
</tr>
</tbody>
</table>

## Word & Outline Processors

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Computer MacWrite</td>
<td>Microsoft Write</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Life Writing Software MindWrite 1.1</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Microsoft Word 3.0i</td>
<td>253</td>
</tr>
</tbody>
</table>

## Spelling & Grammar Checkers

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.E.P. Systems MacProof 3.0</td>
<td>Literary Checker</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td>SpellCheck</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>SpellWord</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>Spelling &amp; Grammaring</td>
<td>366</td>
</tr>
<tr>
<td></td>
<td>WebPublisher</td>
<td>366</td>
</tr>
<tr>
<td></td>
<td>WordPerfect Corporation</td>
<td>368</td>
</tr>
<tr>
<td></td>
<td>WordPerfect Corporation</td>
<td>25</td>
</tr>
</tbody>
</table>

## Desktop Publishing

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addison-Wesley TExTures</td>
<td>PosterFront International</td>
<td>279</td>
</tr>
<tr>
<td></td>
<td>Adler Corporation PageMaker 3.0</td>
<td>475</td>
</tr>
<tr>
<td></td>
<td>All Bonfils Associates</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Expressionist 1.1</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Ann Arbor FullWrite Professional</td>
<td>169</td>
</tr>
<tr>
<td></td>
<td>Boston Publishing Systems</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>The MacPublisher III</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>LetraSet Ready Set, Ger 4.0</td>
<td>279</td>
</tr>
<tr>
<td></td>
<td>ImageStudio</td>
<td>279</td>
</tr>
</tbody>
</table>

## Accounting Packages

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astra Software Astraic Payroll V3.0</td>
<td>Rags to Riches GL, AR, or AP</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Addon Labs</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Free Inventory or Professional</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>With Purchase of 3-Pak, New</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>Entry to General Ledger 3 Modules!</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>Rags to Riches 3-Pak, GL/AR/PA</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>McCormick &amp; Co.</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Managing Your Money</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Likes To Have Accountant</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Document Distribution System</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Monograph</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Business Sense</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Business Sense</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Business Sense</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Money Management</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Money Perfect Corporation</td>
<td>129</td>
</tr>
</tbody>
</table>

## Statistics & Math Packages

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BrainPower</td>
<td>Berland Eureal+ The Solver</td>
<td>129</td>
</tr>
<tr>
<td>StatView 2 Plus</td>
<td>Syntax Stat 3.1</td>
<td>175</td>
</tr>
<tr>
<td>Math View Professional</td>
<td>Syntax Stat 3.1</td>
<td>145</td>
</tr>
</tbody>
</table>

## Graphics Software

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABA Software Draw It Again Sam...</td>
<td>Micro Maps MacAtlas Paint Version</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Adobe Systems Adobe Illustrator</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Adobe Photoshop Plus &amp; ME II</td>
<td>329</td>
</tr>
<tr>
<td></td>
<td>Adobe Photoshop Plus</td>
<td>289</td>
</tr>
<tr>
<td></td>
<td>Adobe Photoshop Plus Full Paint</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Apple Computer MaCePaint</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>Bell &amp; Howell Business Publisher SuperPainter</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Cassidy/Placet Fuji 2.0 (2-Set Disk)</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Flure Laser Fonts Vol. 1-18 (set)</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>Graphic Software SuperPaint</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>SuperPaint</td>
<td>41</td>
</tr>
</tbody>
</table>

## CAD Products

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Computer MacDraw</td>
<td>Enabling Technologies Easy 3D</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Innovative Design MacDraft II</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Silicon Beach Software Cómputer</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>SuperSoft MacPaint 3.0</td>
<td>149</td>
</tr>
</tbody>
</table>

## Educational/Creative Software

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baron's Baron's SAT</td>
<td>Great Wave Software TimeMasters</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Bogan Productions Studio Session</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Broodhound Jam Session</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Geometry, Calculus or Physics</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Tricks &amp; Techniques</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Where in the World is Carmen San Diego</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Code Mc Drums</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>Credit Card Rush Upon A Time</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Stepping Stones Level 1 or Level II</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Davidson &amp; Associates Speed Reader II</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Japanese Word Attack!</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Electronic Arts</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Deluxe Mosaic Construction Set 2.0</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Derive Electronic Arts</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Kid Talk, Speller Bee</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>First Shapes, or Math Talk</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Math Pschool, First Letters &amp; Words, or Smoothtalker</td>
<td>25</td>
</tr>
</tbody>
</table>

## Disk Drives/Hard Drives/Upgrades

<table>
<thead>
<tr>
<th>Category</th>
<th>Product Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST Research</td>
<td>MacSoft Co-Processor (Mac SE)</td>
<td>419</td>
</tr>
<tr>
<td></td>
<td>MacStarter Co-Processor (Mac II)</td>
<td>1049</td>
</tr>
<tr>
<td></td>
<td>Central Point</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>Copy II PC Deluxe Option Board</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>CD/ROM External Subsystem (MacPlus(SE)/11)</td>
<td>569</td>
</tr>
<tr>
<td></td>
<td>40MB External Subsystem (MacPlus(SE)/11)</td>
<td>789</td>
</tr>
<tr>
<td></td>
<td>50MB Tape Backup (MacPlus(SE)/11)</td>
<td>579</td>
</tr>
<tr>
<td></td>
<td>Cutting Edge</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>Cutting Edge 300K Drive</td>
<td>20MB</td>
</tr>
</tbody>
</table>
ADD MORE POWER TO YOUR APPLE II

If you own or work with an Apple II series computer, you need A+ Magazine.

Every month you'll find in-depth tutorials that help you take your system into more complex and comprehensive business and home applications... discover tips and the know-how to maximize your computer investment... and keep up-to-date on the latest technological breakthroughs for Apple IIs.

Subscribe today and save up to 50%! Call toll-free 1-800-525-0643 (In Colorado 1-303-447-9330) or return the attached order card.

1 year only $19.97—Save 44%
2 years only $35.40—Save 50%

Savings based on annual newsstand price of $35.40.
Basic annual subscription price is $24.97.
THE APPLE II MAGAZINE
THAT ADDS MORE POWER
TO YOUR SYSTEM—A+!

Yes, I need a magazine that's compatible with my Apple II. I need A+ Magazine.

Please enter my subscription for:
☐ 1 year (12 issues). Only $19.97. Save 44%!
☐ 2 years. Only $35.40. Save 50%!
Savings based on annual newsstand price of $35.40.

Mr./Mrs./Ms. _____________________________________________ please print full name 8H039

Company _____________________________________________ Title _____________________________________________

Address _____________________________________________

City _____________________________________________ State __________ Zip __________

Check one: ☐ Payment enclosed ☐ Bill me later
Add $5 per year in Canada and all other foreign countries. Please allow 30 to 60 days for delivery of first issue.
Basic annual subscription price is $24.97.
chief beneficiary: the end user. With multiple programs competing in a free market, each product has to be the best it can be if it hopes to siphon sales from the others. The end user of the product gets the benefits of these “feature wars,” as each product attempts to outshine the competition, and all the products improve over time.

Those business users who passed on the Macintosh back in 1984 are starting to come over in droves as they find out about the wealth of choices available. Of course, the IBM PC still leads in software availability overall, especially in vertical markets, but with application development systems like 4th Dimension and Double Helix on the Mac, some users are finding that they can develop custom applications in-house.

The availability of a wide range of Macintosh software and hardware products finally gives business users true freedom of choice. No longer are they tied to the IBM PC by software. Now they are free to choose whichever system works best for them.

**PINSTRIPE PICKS**

Some products worth looking into if you use your Macintosh for project management:

- **MultiUser MicroPlanner:** from Micro Planning International. A major update to the powerful project management system. Adds multiuser capability and MultiFinder support to the already excellent program.

- **MacProject II:** from Claris. A new version of the former Apple product, with color support and improved resource scheduling.

- **AEC Information Manager:** from AEC Management Systems. A different kind of project tracking system, centered on a database. Can be used in conjunction with MicroPlanner or MacProject.

- **MacSchedule:** from Mainstay. A MacDraw-like environment for developing and maintaining Gantt charts. Excellent for smaller projects.

---

**ADVANTAGE**

**STACKWARE**

*The best and the latest for Hypercard*

- **Best Education** $29.95
- **Best Entertainment** $29.95
- **Best Utilities** $29.95

One Sample Disk & Catalog $7.95

**SHAREWARE**

*Great Software at Unbeatable Prices*

- **Best Education** $29.95
- **Best Font & DAs** $29.95
- **Best Entertainment** $29.95
- **Best Clip Art** $29.95

**BEST CLIP ART: 5 DISKS $29.95**

One Sample Disk & Catalog $7.95

**ADVANTAGE COMPUTING**

24285 Sunnymead Blvd., Suite #212
Moreno Valley, CA 92388
1-800-356-4666 In CA 1-800-346-9105

Please circle 11 on reader service card.
How to Compress an Art Room into a 5 inch Space.

Introducing ArtRoom - a new, revolutionary way to store and manage your art and illustrations. ArtRoom is a compact, yet powerful system that allows you to store and access your artwork quickly and easily. With ArtRoom, you can:

- Store thousands of images on a single CD-ROM.
- Access your images instantly with just a few clicks.
- Organize your images into folders and subfolders.
- Share your images with others in minutes.
- Create custom templates for your projects.

ArtRoom is compatible with all major image editing software, including Adobe Photoshop, CorelDRAW, and Illustrator. In addition, ArtRoom includes a comprehensive library of fonts, symbols, and clip art.

For as little as $65 per month, you can have your own ArtRoom and start creating amazing artwork. Call us today to learn more about ArtRoom and how it can help you take your artwork to the next level.

Please circle 160 on reader service card.
Educating the Masses

Some of you may be tired of reading my views on the Macintosh as an educational revolutionary. If not, you probably will be by the time I finish writing about the subject. The fact is that as much as I care about the Macintosh as a whole, I care about education and children a great deal more. I have at last found a way to speak about both — so look out.

Quite a large number of people have written to or called me in response to the points I made in two previous columns (November '87 and January '88). I'd like to share some of their comments here, both to acknowledge them and to throw the weight of public opinion behind my ideas.

All but one of the letters I received were in agreement with my beliefs that the Mac is a better educational tool than an Apple II (or any other personal computer, for that matter) and could revolutionize education "if only" — if only there were dollars to buy it, if only there were good kids' software to run on it, and so on.

I can't resist sharing the lone dissenter's comments first, edited for length but not content (with my comments in brackets) and asking my readers to respond.

Bob Consorti, On Three Inc., Ventura, CA, says:

"Dear Mr. Wesley:

"I must take exception to your 'Two Bits' Worth' in the November issue of MacUser. Your statement that the Macintosh is a much better kids' machine than the Apple II product line is silly. Perhaps if you're pushing your kids to write stock analysis or learn spreadsheets from the age of 2 up [and why not?]. But if you're interested in helping the development of your child, the Apple II series has tens of thousands of programs that will help — not a paltry few. [I never disputed the quantity, just the quality.]"

"Regarding your statement that the Mac has better speed than the IIGS, it would be nice for all of us to have Cray's [sic] for our kids for the 'Ultimate in Speed.' Perhaps you're equating computing speed with operational speed. [I always thought there was a relationship there.] Yes, the 68000 does things faster than a 6502 or 65816. But have you ever run any educational software on the Apple II? [Yes, a vast amount, much of it with kids. That's why I feel qualified to dispute its quality. It (the Apple II) always seems fast enough to me. [But are you a ten-year-old?]"

"If you had done your homework, you'd know that the resolution on the GS is better than that on the Mac — horizontally. Vertically it's less. It does make a difference in the number of lines you can fit on a screen when doing word processing and other tasks, but the programs that are available make fine use of screen resolution. [Homework 101: Resolution is not just a matter of how many pixels wide a display is, nor of how many lines high, but also of how many dots per inch. If you're still not convinced, compare any typeface on the IIGS with the same typeface on a Mac."

"Your anecdote about Jeremy really cracked me up. That poor kid. [?] I wonder what happens when he realizes that there's more to life than white and gray or whatever single color he 'visualizes' they [sic] gray to be. Kids do need color. Ask any child psychologist and you'll learn that painting your kids' rooms in multi-colors is far better for their development than painting them gray and white. [1) Did I mention that I have degrees (with honors) in Education and Child Psychology? 2) I'm confused — I thought we were talking about computer screens. 3) Jeremy doesn't feel a bit deprived. He has an Apple II at school but finds it boring. Same with Justin, age 11, who insisted I mention his name in my column, too."

"The interface of the Mac is good, but it's not the perfect interface for all programs — specifically not for educational programs where menus bars and other items in the Mac interface could easily distract the kids from the real object of the program. I love the Mac interface because I use it every day in my word processing, DTP, and other needs. But I doubt that kids need access to sophisticated desk accessories and other things inherent in the Mac interface. [So why did Apple put QuickDraw, and menus, and so on into the Apple IIGS?]

"Kids can write, paint, and do thousands of other things on the Apple II. It seems to me that the fact that you're teaching an advanced computer-usage class for children has impaired your ability to see what 'nongifted' children use computers for. They aren't desktop publishing, or writing reports, or doing financial analysis. [I beg to differ. Some of them are indeed doing just that, as you'll see if you read on.] Let kids be kids. [I assure you, my kids act suspiciously like kids most of the time.]

"The II has it's place and the Mac has it's [sic]. Please don't try to confuse the issue with half-truths and a lack of knowledge."

One last point, Mr. Consorti, then I'll let some other readers speak. The comment you make about my impaired judgment with regard to nongifted kids is a common response from people, often teachers and parents, who simply don't know what they're talking about. As I mentioned in one of my columns, the techniques of good teaching do not vary greatly whether a child is gifted or a slow learner. I have worked extensively with children of all abilities, and you'd be amazed at what nongifted kids can do if you give them the right tools and the right support.
and you expect them to achieve to the best of their abilities.

THE LIGHTER SIDE

Bryan Jones, publisher/editor, The Dripping Springs Dispatch ("The Best Little Newspaper in Texas"), says:

"I am a single parent with two elementary-age (7 and 10) children. I also happen to use Macintosh computers to publish my weekly newspaper. Since I usually cannot leave my office when my kids get out of school, they spend many afternoons with me as a consequence. This has proved to be little hardship for myself or my children. They quickly learned the appeal of Macs and prefer (when they can appropriate one from my staff) to hack on a Mac in lieu of playing outside.

"My kids are now accomplished users of the hardware and the software. The Macintosh interface appeals to children of all ages (including those in oversized bodies).

"This year both my children are being exposed to Apple IIe computers at school. They now return to my office and greet the Macs like familiar and reliable friends. The software they most enjoy are graphics-oriented — such as MacDraw and SuperPaint — and they have become, in fact, more proficient than myself. They also 'publish' on PageMaker; write letters to imaginary pen pals with Word; and, of course, play some of the games I got (just for the kids, right?) such as Dark Castle, Shadowgate, and shareware stuff.

"In conclusion, you were absolutely on the mark when you said that the Mac is a great kids' computer. It's also a great parents' computer. It's a great business computer. It's just a great computer. Period."

Thanks, Mr. Jones. I'd love to see a copy of your newspaper.

Leroy O. Stone, Arawak Communications, Ottawa, Canada, writes:

"Your recent articles about children and the Macintosh certainly struck a responsive chord here.

"We have owned Apples since 1981, and my home has II Pluses, Ile's, Iic's, and Macs. To make a long story short, my four-year-old began asking to use MacPaint about a year ago! Now she can do a few things competently in MacDraw and Ready, Set, Go! as well. She has an amazing ability to string together meaningful sets of mouse commands.

"For years I have provided both children (the other is 14) with mild games and educational programs and Logo experience on the II's, emphasizing color. My first shock? My four-year-old doesn't care much about color! Half the time she is quite happy to deal with shades of gray! Now, she has a clear preference for the Mac! Why? — I am not sure; but I think it is a question of being in far greater control over what the computer does with the Mac than with the others."

I agree, Mr. Stone. The Mac empowers kids. What more could you ask from an educational tool?

Hardie Johnson, Lewisberry, PA, says:

"I enjoyed your editorial with regard to why the Mac can't read (MacUser, January '88). But if you submitted your columns on a bi-monthly basis, we would get to read all of them. [Good point. The distinction between bimonthly and semi-monthly is a personal pet peeve, yet I used the wrong one in my column out of carelessness. My contribution to Two Bits' Worth appears semi-monthly.]

"[About educational software] — Right on target. Partly because the stuff is written and used by involved educators. GIGO (garbage in, garbage out). Is HyperCard the answer? Well, HyperText anyway.

"Teachers are limited because they work for school boards. School boards are not educators, they are businessmen. Once you have sold the board on computers, you have two problems. The short-range prob-
"We're networked but not talking. 27 Macintoshes, 6 PCs, 3 LaserWriters, and 33 unhappy humans. We've got to pull together. Transfer messages, files, information. But it has to be easy. How can we connect?"

"Simple. InBox."

From a simple phone message to detailed memos with attached files (like spreadsheets, MORE documents, letters, graphics etc.), InBox helps groups or an entire company share information fast. 

- Easily.
- And inexpensively over Appletalk, or virtually any IBM PC network.
- That's why it's the best seller, a MacUser Magazine Editor's Choice and InfoWorld's top rated LAN E-mail product. Connect MAC to MAC, MAC to PC, or any combination with InBox.
- It's the right answer to every electronic mail question.

• Call today for more information.
(800) 64-THINK Ext. F
(617) 275-4800 Ext. F in MA.

The Power in Electronic Mail

SYMANTEC
THINK Technologies Division

Please circle 197 on reader service card.

The Power in Electronic Mail

135 South Road, Bedford, MA 01730 617-275-4800 MAC to PC E-mail and file transfer requires Appletalk. InBox is a trademark of Symantec. Other brands and products are trademarks of their respective holders. © 1988 Symantec Corp.
Real Estate Software

- Sales Associate™
  A records management system specifically designed for real estate salespeople.
  Price: $395.
- Maintains comprehensive database of important contacts and properties
- Searches and sorts across any variable
- Totally integrates telephone dialing, contact logs, mailing lists and calendar with property and contact information
- Extremely visual and intuitive user-interface similar to HyperCard™

The Ten Minute

- Property Manager
  Accounting system for multiple properties. Ideal for investors who manage their own properties.
  Price: $195.
- Manages investment properties including houses, apartments and small commercial properties
- Provides powerful reports to track vacation, income, expenses, cash flow, and end of year taxes

ProAnalysis™

A sophisticated real estate investment analysis program designed for the investor who demands professional quality analysis.
Price: $295.
- Comprehensive input modeling handling income and expense projections, depreciation, multiple loans of all types and refinancing
- Advanced performance measures including IRR, Adjusted IRR, Net Present Value, and many others
- Output flexibility to handle purchase decisions, financing options, sensitivity analyses, selling decisions

The Mortgage Office™

A complete mortgage broker/banker office automation system. Call for details.

Technology Services
14555 DeBell Rd.
Los Altos Hills, CA 94022
(415) 322-2001

Please circle 216 on reader service card.

TWO BITS’ WORTH

I’m looking for a way
to get the Macintosh into this classroom full-time. Do you have any ideas, contacts, schemes, suggestions?

I’m intrigued by the fourth graders’ reaction to the Macintosh being in the room. Some of the statements made in your November editorial fit perfectly.

I’m looking for a way to get the Macintosh into this classroom full-time. Do you have any ideas, contacts, schemes, suggestions? Our class is willing to help with research or reporting.

Well, I can put your request in my column and hope that someone responds.

A final note: Some of you wrote with questions that I will answer in personal letters. Thanks for writing.
MIKE TEMPLEMAN CHOSE THINK'S LIGHTSPEEDC FOR THE POWER.

Mike Templeman, a member of the Aldus Corporation founding team, puts it nicely: "THINK's LightspeedC is the fastest development environment I've seen. That's why we chose it to develop PageMaker." Performance is why professional programmers choose THINK's LightspeedC over competing C implementations. By a 10 to 1 margin, THINK's LightspeedC comes with an integrated multi-window text editor, compiler, linker, and auto-make facility. So you always get high quality, compact code.

For sizzling C, get the professional's choice. John Dvorak of InfoWorld calls THINK's LightspeedC "...a barn burner." Mike Templeman of Aldus calls it glorious.

Get a head start building better applications today. Buy Version 2.15 now and get a FREE upgrade plus a $15 rebate on the upcoming Version 3.0! Applications are fully compatible, so there's no reason to wait.

Call 1-800-64 THINK Ex. F for more information.

Please circle 170 on reader service card.

**THINK'S LIGHTSPEEDC**
The Professional's Choice.

SYMANTEC
Think Technologies Division

*135 South Road, Bedford, MA 01730 603/275-4800. Suggested retail price $175. *Free upgrade and rebate on purchases of Version 2.15 made after 1/31/88 only. Send a dated copy of sales receipt along with your registration card or member to THINK LIGHTSPEEDC FREE UPGRADE at the address on the left. Version 2.0 and a check for $5 will be shipped to you when available. **$4,000 LPM on a MAC II or on a SE with accelerator. 3,500 LPM on standard SE or MAC IIK Plus. Lightspeed is a registered trademark of Lightspeed, Inc. and is used with express permission. Aldus PageMaker is a registered trademark of Aldus, Inc. © 1988 Symantec Corp.*
UNPRECEDENTED

THE

FIVE

YEAR

WARRANTY

The five year limited warranty is available on hard disk drives only manufactured by Microtech International, Inc. and must be sold and delivered in the United States or Canada. Prices and specifications are subject to change without notice.

NOVA AND MICRO MAC are trademarks of Microtech International, Inc. - Macintosh Plus, SE and II are trademarks of Apple Computer, Inc.
NOVA
EXTERNAL HARD DISK DRIVE SERIES
FOR MACINTOSH PLUS, SE, AND II
20 MEGABYTES TO 120 MEGABYTES

MICRO MAC
INTERNAL HARD DISK DRIVE SERIES
FOR MACINTOSH SE AND II
30 MEGABYTES TO 90 MEGABYTES

MICROTECH
INTERNATIONAL, INC.
THE INDUSTRY'S BEST KEPT SECRET

Call for your nearest Microtech dealer: 800-626-4276
Some people will try to tell you that one product will fit every Macintosh application.

WHY WE DON'T MAKE JUST ONE LURE FOR EVERY FISH IN THE SEA.

If you're like most people, you don't try to use a spreadsheet for word processing. You have applications tailored for the task at hand.

Introducing The Big Picture®
Macintosh Display Systems From E-Machines.

At E-Machines, we don't think all Mac users are trying to catch the same fish. That's why we make a complete range of large displays, and one that's just right for you.

For the Macintosh SE and Plus, we recommend our unique landscape-format monochrome display, The Big Picture. For the Macintosh II, depending on the application, we offer The Big Picture monochrome; The Big Picture IQ™ grey scale display; DoubleColor™ low-cost, full page color display card; The Big Picture CX™ 17 inch color; and the The Big Picture C20™ 20 inch color display systems.

So if you're casting about for a large screen, give us a call at (503) 646-6699. Tell us your application and interests and we'll help you find the Apple dealer that can install your new display.

E-MACHINES
9305 S.W. Gemini Drive
Beaverton, OR 97005
(503) 646-6699

Please circle 18 on reader service card.

©1988 E-Machines; The Big Picture is a registered trademark, and The Big Picture IQ, DoubleColor, Double Feature, The Big Picture CX, and The Big Picture C20 are trademarks of E-Machines, Inc. Apple and Macintosh are trademarks of Apple Computer, Inc. Multisync is a trademark of NEC. Excel is a trademark of Microsoft.
Seeking a substitute for a good manual and Scripts batch files or short BASIC programs
Desperately gram on your coffee break. But Bill to get things done, but the word was
gram in HyperTalk is the ability to exam­
ines that programming on the Mac was
Well, the Mac is too hard to pro­
gram on your coffee break. But Bill
Atkinson wrote HyperCard, and Dan Winkler wrote a language that
lets you program that.
The result is that someone who
isn't a professional programmer fi­
ally has the ability to create his or
her own solutions. When some pro­essional or personal need sends you
to the last card of the Home Stack to
set your user level to scripting, you
now have access to HyperTalk.
It's about time, if you ask me. The
mainstream of personal computing has always offered the user the op­
tion of building software rather than
buying it, and it's nice to see Apple
bringing the Mac into the main­
stream.
Welcome, Apple. Seriously.
YOU ARE NOW ENTERING
HYPERTALK
This is a column about program­
mess in Apple's programming lan­
guage for the rest of us, HyperTalk.
Although no magazine column can
substitute for a good manual and
lots of hands-on experience, I hope
to supply some tools of use to begin­
ing programmers, and to discuss
the tools in ways useful to more ad­
vanced programmers.
Here at the beginning, let's start at
the beginning. If HyperTalk is a pro­
gramming language, where are the
HyperTalk programs?
It's not a proper question, but it
points to a proper problem. Formally,
a programmer talks about the
scripts, not the program, in the Hy­
perTalk patois. The code resides in
scripts, and the scripts reside all over
the place. What corresponds to a
program in BASIC, for example, ex­
ists in HyperCard as a dispersed
functionality.
Swell, but one of the things that
should make it easy to learn to pro­
gram in HyperTalk is the ability to
examine others' code. Because Hy­
perTalk is an interpreted language,
you acquire the source code with any
stack you acquire. Public domain
stacks, shareware, commercial prod­
ucts, and Apple-supplied stacks are
all there for you to examine. But
when you're trying to learn scripting
by example, the last thing you need is
a dispersed functionality.
I suggest a thought experiment.
Imagine yourself examining the
program behind that most familiar of
all HyperCard objects, the Home
Stack. You select Stack Info from the
Objects menu while in the Home
Stack, and you learn that this stack
contains two backgrounds and five
cards. Stacks and backgrounds and
cards are all objects, as are buttons
and fields. And scripts are associated
with objects: every card, every back­
ground, every field, every button,
even the stack itself, can have a script
associated with it. Go ahead, just
have a look at the scripts. I'll wait.
The Home Stack contains, in all,
37 scripts. That's where its program
is. Not counting the time required to
read the scripts, just getting to every
script in the Home Stack would take
— oh, back already? You see why I
suggested you do this as a thought
experiment.
It's no wonder that one of the first
tasks stackware developers set them­
selves was to automate the extraction
of scripts. There are now several
shareware and commercial products
that do this, and you'll find at the end of this column a script that ex­
tracts scripts.
If that were all there is to under­
standing the why-it-does-what-it
does of a stack, which I refer to as its
program, we could end the column
here. Just looking at the scripts,
though, won't teach you how to pro­
gram in HyperTalk. A HyperCard
stack is a structured set of objects
that respond to messages that enter
and trickle through the stack. To un­
derstand the program behind a stack,
you need to understand the flow of
its messages.
MESSAGES FLOW DOWNSTREAM
Messages come trickling through
the stack. They are generated, for ex­
ample, when you do something to
the machine, such as moving the
mouse. A HyperTalk script is essen­
tially a collection of handlers of these
messages, and a message handler is
just a series of HyperTalk commands
associated with a message. Whenever
the handler receives its message, it
performs its commands. Some com­
mon messages are mouseDown and
mouseUp, generated by clicking the
mouse button; and openCard, which
is generated when you move to a new
card within HyperCard. The series of
commands performed when the han­
der receives the message can be ex­
tensive.
Clicking the mouse while the cur­
sor is over a HyperCard button will
generate a mouseUp message (also a
mouseDown message), but will have
no effect on the HyperCard button
unless the button's script includes a
handler for this message. But how
does the button know that the mouse click is intended for it? How does any object know that it is supposed to respond to certain messages and not to others?

For common events like clicking the mouse, HyperCard makes some natural assumptions. When you click the mouse over a button, it is reasonable to assume that you want to activate the script of the button, and that's what HyperCard does assume; it directs such a mouse message to the button's script. The button is called the mouse message's entry point. Similarly, the entry point for an openCard message is the current card. When you open a card, the message generated goes directly to the card's script.

The fact that a message has an entry point does not guarantee that it will be handled by the script of that object. If the script doesn't have a handler for the message, the message will fall through to the next object in the object hierarchy.

The object hierarchy is the next concept to master in understanding the flow of messages. A general object hierarchy is built into HyperCard, although every stack has its own structure, built in accordance with this hierarchy. In any HyperCard stack, a button or a field belongs to either a card or a background. A card in turn belongs to one background, and a background to one stack. A message can fall through a card button or card field to its owner card, or through a background button or background field to its owner background. From there it can trickle through the levels, down to the stack or even beyond it to the Home Stack or to the HyperCard program itself. A message will trickle through the hierarchy in this way until it finds a handler or reaches bottom.

Clearly, it can make a difference whether, say, a button is a background button or a card button: only in the latter case can a message fall through the button to the card. So although the general object hierarchy is fixed, what really determines the flow of messages is the structure of the particular stack under examination.

Once a message finds a handler, that's normally the end of it. It is possible, though, to override this normal behavior of HyperCard by passing the message. In this case, the message is intercepted by the handler of some object, which takes some action as a result of receiving the message, but the message is then allowed to continue through the object hierarchy to the next object, as though it had not been intercepted. The script for the Home Card handles the message startUp, but it also passes start-up messages through the entire object hierarchy and stops at the Home Card.

The mainstream of personal computing has always offered the user the option of building software rather than buying it, and it's nice to see Apple bringing the Mac into the mainstream.

Up on to the Home Stack, which in turn handles it and passes it on to other possible handlers. This passing of messages subverts the normal behavior of message handlers, but it still follows the object hierarchy. You can also subvert the hierarchy by explicitly sending a message to an object.

To understand the program of a stack, you need to know four things:

1. The entry points for messages that represent input (mouse actions, keyboard activity, etc.)
2. The object hierarchy of the stack (how the messages normally trickle through the stack)
3. Which messages are in fact intercepted by the scripts of each of the objects in the stack, plus any deviations from the normal flow; and
4. What commands the objects' handlers will perform on receipt of the messages, that is, the contents of all the scripts.

The first of these is generally obvious. The second I arbitrarily call "script extraction"; the third, "message tracking," and the last, "script extraction." The last three of these together I call "stack analysis," and that's what this month's script does.

STACKIAN ANALYSIS

It's called Stack Analyzer, and you may find it useful in examining your own stacks, Apple-supplied stacks, and freeware and shareware stacks. The first time I used it, I discovered a phantom button in Apple's Address stack. This information was of use to me as the button; but had it been my own stack, I would have been glad to find this error before sharing the stack with others.

As I have implemented it here at the beach, Stack Analyzer resides in a stack named "MacUser." This stack contains one background and one card. The background, also named "MacUser," contains two buttons, "home" and "back," each with a script. The card, named "May 1988," contains one field and three buttons. The card field is named "display," and the card buttons are named "format," "edit," and "analyze." The buttons are triggered by mouseUp messages, and the "analyze" button responds to some custom messages. You may implement it differently.

One way to use Stack Analyzer is to run it first with message tracking and script extraction disabled, producing a brief map of the structure of the stack (basically, the information in the last paragraph, which I edited from the actual output of Stack Analyzer). This will show you the hierarchy of objects through which messages can pass. Then run it with message tracking enabled, to see what messages are handled by the objects, and whether there are any deviations from normal flow. Finally, run it with message tracking off and script extraction on, to see what the handlers actually do in response to the messages they handle: to study the scripts.

If you're a beginning scripter, I
Professional Ergonomic Workstations for the Macintosh. See and feel the difference they make!

In business environments where operators spend long hours in front of their computer, the Mac's small screen size and the low physical profile can cause physical discomfort and reduced productivity. A common solution to the low profile problem was to place the computer on top of a hard drive. This is no longer a solution for the Mac SE with its internal hard disk or the Mac Plus when used with a vertical hard drive or a file server.

Phone books, shoe boxes, and other creative ideas have been tried to bring the Mac up to eye level, but with little success.

MACTILT IS THE SOLUTION!

By raising the Mac 4 inches, providing 30° tilt, and 360° rotation, MacTilt provides the increased height and the adjustability needed to reduce glare, and to ease eye, neck and back strain. Mounting clips assure stability yet allow instant portability.

MacTilt SE is designed especially for the Mac SE. The original MacTilt fits the 128K, 512K, and the Mac Plus. It comes standard with a universal drive bracket and is available in platinum or beige. Optional accessories include a security system, hard disk bracket, dust covers, etc. MacTilt and MacTilt SE are unit priced at $89.95.

For the finest accessory available for your Mac, see your Apple dealer or contact:

ERGOTRON, inc
1621 E. 79th Street • Mpls., MN 55420
612-854-9116 • 800-328-9839
TLX 4310015

Please circle 187 on reader service card.
"I would have given up anything to use a Macintosh, except my PC software."

Impossible, Warren! Choose one or the other—S.
"You can't have your Macintosh™ and PC too."

Famous last words.

People say, "Where there's a will, there's Warren." Which means I don't settle for words like No. Impossible. Can't be done. No way.

So when I decided I wanted a Macintosh, but didn't want to give up Lotus 1-2-3® or dBase® III, I naturally set about looking for a way to have it all.

The fastest fix was to buy both an IBM® PC and a Macintosh. "Not possible!" said the DP/MIS manager. "Pick one. Any one you want, as long as it's MS-DOS® compatible." Witty guy.

Then I searched everywhere for someone willing to loan me a PC in exchange for executive privileges. I was willing to give up anything, but I kept hearing No. Not interested.

Without another alternative in sight, I decided to surrender and settle for a PC. Then, I discovered an article on AST's newest products— processor into your Macintosh II—Mac86 into an SE—and load your favorite MS-DOS application software onto the Mac's hard disk. I was sold.

MS-DOS on my Mac looked and felt just like all my other Mac applications—great. I just pointed and clicked. The MS-DOS prompt I know and love appeared in a window on my screen. From there on, I used MS-DOS programs and commands as if I were working on a PC.

I even moved Macintosh files into MS-DOS, sometimes cutting and pasting parts from one environment to the other. And when I was finished with my PC and Macintosh files, I stored them both on the same Macintosh hard disk without any clumsy file transfer procedures to slow me down.

Back in the Macintosh environment, I still had immediate access to all of my PC files. Using Macintosh software, I reopened a PC file, enhanced it, then merged it with a Mac file. And when I was finished, I printed it on the LaserWriter®.

I guess the moral of this story is: You CAN have your Macintosh and PC too. Call AST today to find where you can buy Mac86 or Mac286. (714) 553-0340. BBS: (714) 660-9175. FAX: (714) 660-8063.

Mac86 and Mac286 meant I didn't have to compromise the Macintosh I wanted for the IBM software I needed.
See the difference...know the reasons

You are about to enter a new dimension in personal computing with the PCPC II™, a high resolution color graphics system for the Macintosh II. The PCPC II 19 inch monitor gives you a giant window into the color world of computer aided design, computer modeling, advertising, presentation graphics, desktop publishing and unlimited color applications. Designed for the most demanding professionals, the PCPC II provides the power and performance required to be your creative best.

Look at a PCPC II and experience the sharpest and most vivid colors possible. Witness a dazzling display of 256 colors from a palette of 16.8 million hues for the most realistic images possible. And for monochrome graphics, 256 shades of gray provide maximum detailing.

At PCPC, quality is an essential part of the design. Quality starts with state-of-the-art monolithic CMOS technology, Zip-pack video RAM for high reliability, and the lowest possible parts count to assure long life and trouble-free use. With 768K of video RAM, the PCPC II provides a resolution of 1024 x 768 with 8 bits per pixel. The non-interlaced display ensures an absolutely flicker-free screen and the sharpest picture imaginable. The high resolution monitor (previously found only on engineering workstations costing many thousands of dollars more) displays your work in its best light. The monitor's super fine pitch (0.31 mm) means you get incredible clarity. And for your personal comfort, the PCPC II features an anti-glare coating and a tilt-swivel base.

Now that you know the true colors of quality, don't compromise!

Personal Computer Peripherals Corp.
6204 Benjamin Road, Tampa, Florida 33634
(813) 884-3092  (800) 622-2888

Please circle 12 on reader service card.
suggest you create a one-card stack, add a scrolling card field and a card button, and type in Stack Analyzer as the button's script. Use it as a tool and don’t worry about how it does its job — yet.

If you’re past the beginner stage but want to learn more about message handlers and recursion, the remainder of this column will discuss the program Stack Analyzer.

ANALYSIS AND YOUR STACKS

The Stack Analyzer script consists of three message handlers. The first message the script responds to is mouseUp. The mouseUp handler prompts the user for some information, does a bit of initialization (some of it via messaging the handler setLocks), then generates the message “analyze theStack, 0”, which will be intercepted by the handler “analyze.”

This business of one handler messaging another may look a lot like calling a procedure or subroutine in a procedural language, but you should note that the analyze handler is entirely external to the mouseUp handler. It could, in principle, reside elsewhere, and there could be different analyze handlers in, say, the card operating system. The first message handlers in, say, the card scripts.

If there are other handlers with the same name, the messages handled by its script, if any, and the number and names of its chief constituents (backgrounds and cards). Then it sends out messages that the backgrounds and cards need to be analyzed. For each background or card, the analyze handler (recursively invoked) now reports its name, the messages handled by its script, if any, and the number and names of its chief constituents (fields and buttons). (Stop me if you’ve heard this before.) Then it sends out messages that these constituents in turn need to be analyzed. The analyze handler looks at each of the constituents, and since fields and buttons contain no constituents, it finally stops generating analyze messages.

There are good reasons for using recursion. My analyze handler is concise and makes use of the hierarchical structure of HyperCard stacks. But there are also good reasons not to use recursion in HyperTalk. Recursion is never necessary, is generally slow, and HyperTalk does not support recursion to hundreds of levels. Frankly, I used it here because I’m comfortable with it, it kept the listing short, and it gave me the opportunity to introduce others to the technique.

WARNING! WARNING!

A caveat: Stack Analyzer could be improved: for example, some kinds of deviations from normal message flow will get past it. Nevertheless, it should serve its intended purpose of

One way to use Stack Analyzer

is to run it first with message tracking and

script extraction

disabled, producing a

brief map of the structure of the stack.
allowing you to explore why a stack does what it does.

Some programming tips: When requesting input from the user, supply a good default response; I think my defaults for message tracking and script extraction are the right choices for first-pass analysis. I implemented handler setLocks the way I did because this ensures something important: that whatever gets locked gets unlocked, whatever gets changed gets put back. That’s an easy thing to forget, particularly on the seventh edit. In this program I use the no command to build a HyperCard command on the fly. Whatever string you supply to no will be interpreted as a HyperTalk command and executed. I find it a very useful tool, but it doesn’t exactly produce lucid code. Use it sparingly. When using recursion, it is not standard practice to pass the recursion level as a parameter (as I did with lev).

A word about the code: I’ll generally give you a script(s) and anything necessary to use it; I won’t give you full stack specifications, such as object property information. Why should I have all the fun?

I LOVE A MYSTERY

Finally, I’ll leave you with a puzzle.

Script extraction will show you every line of HyperTalk code your stack executes, and stack mapping and message tracking will show you how the scripts interrelate. Unfortunately, there are stacks for which these techniques won’t find the program. Run my script on Dan Winkler’s HyperCalc stack (supplied with HyperCard) and consider the output. HyperCalc is a mini-spreadsheet: it allows you to enter values and formulas into cells, it recalculates the contents of cells based on the values in other cells, and it will let you add more cells without scripting. It’s not Excel, but 19 lines of code??

There are no deviations from normal message flow, and all the HyperTalk code is in those 19 lines of scripts. So where does all the work get done? Where is the program called HyperCalc?

-- Script Stack Analyzer
-- Author: Mike Swaine
-- Version: 1.0 2/1/88
-- This script describes the structure of a HyperCard stack.
-- It reports all messages handled by any script in the
-- stack, and any messages passed or sent by the handlers.
-- It lists the scripts, if desired, and tells which buttons
-- and fields belong to which cards and backgrounds.
-- Its intended use is as a learning and debugging tool
-- for present and future HyperCard stack developers.
-- It should be attached to a button on its own card,
-- and it requires one (scrolling) card field for output.
-- Script Stack Analyzer is placed in the public domain
-- and may be used freely.

-- This handler is invoked when the mouse is clicked.
-- It prompts the user for some information,
-- performs some setup, then messages another handler
-- to do the real stack analysis.

on mouseUp
-- Initialization details.
global userName,showScripts,showEvents,analysis,theScripts
put empty into card field 1
put empty into user
-- Get the name of the stack (politely) from the user.
if userName Is not empty then put "," &word 1 of userName into user
ask "Analyze what stack" &user &"?" with the short name of this stack
-- Proceed only if the user has given you a stack name.
if it is not empty then
put it into theStack
-- Offer choices in the information to be reported.
answer "Do message tracking?" with "Yes" or "No"
put (it="Yes") into showEvents
answer "Do script extraction?" with "Yes" or "No"
put (it="Yes") into showScripts
-- The report will be built in a container called analysis.
-- Start building by putting the report title into analysis.
if user is not empty then put " for " &userName into user
put "Analysis of" &theStack &"stack" &user into analysis
if showEvents or showScripts then put " with" after analysis
if showEvents then put " message tracking" after analysis
if showEvents and showScripts then put " and" after analysis
if showScripts then put " script extraction" after analysis
put return &return after analysis
-- Do some initialization, including locking certain global
-- properties to keep the stack from running away from you.
setLocks true
-- Now analyze the stack.
analyze theStack,0
-- Now it's safe to unlock what you locked.
setLocks false
-- Display the analysis and tidy things up.
put analysis &theScripts &return &"End of analysis" into card field 1
put empty into analysis
When Your Mac Means Business... Get The Serious Business Backup.

Tecmar's QT-Mac40™

You've chosen the Macintosh™ for your business applications because of its sophisticated software, computing power and virtually unlimited disk capacity. Now choose the tape backup system that best protects your important data and keeps you in business.

You've chosen the Macintosh™ for your business applications because of its sophisticated software, computing power and virtually unlimited disk capacity. Now choose the tape backup system that best protects your important data and keeps you in business.

When Your Mac Means Business... Get The Serious Business Backup.

Tecmar's QT-Mac40™

You've chosen the Macintosh™ for your business applications because of its sophisticated software, computing power and virtually unlimited disk capacity. Now choose the tape backup system that best protects your important data and keeps you in business.

Serious Performance. Tecmar's QT-Mac40, 40MB SCSI drive delivers the speed and reliability you need for serious data security. Tecmar provides background backup mode, allowing you to back up while simultaneously running an application program. While its speed makes back-up convenient, its small size and unique T-cable design provide the portability to share your QT-Mac40 with other Mac users.

Serious Experience. With over three years of backup experience and more than 100,000 satisfied users in the desktop computer market, Tecmar is the choice in business backup.

Serious Support. Our two-year warranty is your assurance of quality and reliability. And our special QuickTurn™ Quality Service guarantees that we'll ship a replacement within 48 hours if you have a problem during your first six months of ownership.

So, get down to business with Tecmar's QT-Mac40. Call us now for more information at (216) 349-1009. Or write Tecmar, Inc., 6225 Cochran Road, Solon, Ohio 44139-3377.

<table>
<thead>
<tr>
<th>Tecmar's QT-Mac40 vs. Apple's 40SC</th>
<th>Apple's 40SC</th>
<th>Tecmar's QT-Mac40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (1MB/min.)</td>
<td>1MB/min.</td>
<td>2.5MB/min.</td>
</tr>
<tr>
<td>Portable</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Warranty</td>
<td>90 days</td>
<td>2 years</td>
</tr>
<tr>
<td>Experience in Tape Backup</td>
<td>None</td>
<td>3 years</td>
</tr>
<tr>
<td>Price</td>
<td>More</td>
<td>Call Now</td>
</tr>
</tbody>
</table>

Serious Competition. The QT-Mac40 is faster and smaller than Apple's 40SC Tape Backup™ yet it's completely compatible.

Serious Performance. Tecmar's QT-Mac40, 40MB SCSI drive delivers the speed and reliability you need for serious data security. Tecmar provides background backup mode, allowing you to back up while simultaneously running an application program. While its speed makes back-up convenient, its small size and unique T-cable design provide the portability to share your QT-Mac40 with other Mac users.
MacWorld called the DataFrame “the Porsche of disk drives.” Now you can put that performance to work for more users than ever. Because now there’s a DataFrame configuration that’s right for every kind of user. For example...

1. The Deserving User: DataFrame XP 30 Hard Drive
   Who deserves a Mac™ with DataFrame’s productivity-boosting performance? Everyone. That’s why DataFrame is the best selling hard disk drive next to Apple® Compare, and you’ll find that DataFrames are the fastest drives for the Macintosh. That they give you 50% more storage for your storage dollar. And that they offer the most reliable, elegant system design to boot.

2. The Practical Utilitarian: Every DataFrame includes utility software worth over $500.
   Worth over $500? Yes! Because all these packages purchased separately total over $500. SuperSpool and SuperLaserSpool mean long print jobs don’t tie up your Mac. DiskFit makes backup a snap. Sentinel makes encryption easy for sensitive files.

3. The Networker: DataFrame XP-60 + 40 Tape
   Networks need fast storage, so users don’t have to wait. And they need easy backup, for disaster prevention.
   Solution: The DataFrame XP 60 + 40, with 60 Mb of fast storage, and our ultra convenient, industry standard DC-2000 40 Mb tape drive.
   For bigger storage needs, consider our 105 Mb or 150 Mb drives (the XP-150 is the fastest Mac drive extant). Then backup with the DataStream 40 Mb tape drive.

4. The Desktop Publisher: DataFrame XP 60 + Bernoulli
   Users with big data applications like desktop publishing or databases love this combination hard disk and removable Bernoulli® cartridge. 20 Mb removable Bernoulli cartridges make backup and archival storage fast and easy. And what a system: 60 + 20 means 80 Mb on line, with infinite storage on the shelf.
5. The Intensive Mac II User:  
**DataFrame XP 150: Internal Drive.**  
For people who want all the performance a Mac II™ can deliver: Here is the biggest capacity drive that fits into the Mac II, and the fastest drive, bar none!

6. The Multiple Office Personality:  
**DataFrame XP 60 + Bernoulli**  
Need to get files back and forth to different offices? Equip each office with a high performance DataFrame 60 + Bernoulli. Then use the convenient 20 Mb cartridges to ship information back and forth. Users at each office have high performance drives with fast cartridges for backup and archiving.

7. The Engineer (Or Scientist):  
**DataFrame XP 105 Hard Drive**  
**DataFrame XP 150 Hard Drive**  
Those needing big storage and fast response will appreciate these two DataFrame systems—the biggest storage that you can attach to any Plus™, SE™, or II. And, unlike the ungainly boxes that house most large drives, DataFrames offer amazingly small, convenient packages.

8. The Protector:  
**DataStream 40 Tape Drive**  
Our handy 40 Mb DC-2000 tape system plugs into the Mac SCSI port and lets the office protector backup data with ease.

9. The One Who Makes It All Work:  
**SuperMac's™ No Compromise Support.**  
Relief for the office problem solver: Our designed-in reliability and quality. Superb documentation. And our responsive hotline that delivers answers fast.

Call for the name of your nearest SuperMac dealer.

$(415) 964-8884$ Dept 24

SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043
NEW!
STEPPING OUT™ II
The Macintosh™ Screen Extender

Don't let the Macintosh Screen Confine You!
It is possible to see and work on a full page, without buying a large screen monitor!

Choose your screen size. Zip across entire pages in a single mousedown. View the full page reduced with a simple key command. You can even zoom in and work on details.

Stepping Out II has even more features! Including:
• Compatibility with the Mac II
• Fixed menu bar and pallets
• 75% reductions for word processing

Stepping Out II is the ideal utility for desktop publishing, word processing, design, spreadsheets...any application that is enhanced by a full page display.

Best of all, Stepping Out II is only $95.

To find out more, visit your local computer dealer or call:
berkeley system design, inc
1708 Shattuck Avenue, Berkeley, CA 94709
415-540-5536

---

```lisp
put empty into theScripts
hide message box
end if
end mouseUp

-- This handler is invoked by the message setLocks
-- in handler mouseUp. It either locks or unlocks certain
-- HyperCard properties, depending on the value of flag.
on setLocks flag
-- Locking messages, screen, etc. keeps your stack,
-- rather than the stack being analyzed, in control.
if flag then set cursor to 4 else pop card
if flag then set lockScreen to true else--
set lockScreen to false
if flag then set lockMessages to true else--
set lockMessages to false
if flag then set lockRecent to true else--
set lockRecent to false
if flag then push this card else set cursor to 1
end setLocks
--
-- This handler does the analysis.
-- It uses recursion to dig through the stack hierarchy.
-- One invocation of this handler digs one level deep
-- (e.g., looks at the stack but not at its component cards),
-- then it messages itself to look at each component object.
on analyze thing, lev
-- Analyze something: a stack, background, card, field, or
-- button; i.e., report its name, the events it handles, and
-- its components. Then, if it HAS components, analyze them.
global analysis, showScripts, showEvents, theScripts
put the name of thing into itsName
-- Give the user some on-screen feedback.
put "Now examining " &itsName
-- Report the object's name.
put indent(lev) &itsName &return after analysis
if lev<2 then go to thing
put word 1 of itsName into object
-- Determine what kind of components it has.
if object="stack" then put "bkgnd,card" into sub
if object="bkgnd" or object="card" then put object --
&" field, " &object &" button" into sub
-- If it's a card, say what background it belongs to.
if object="card" and lev=1 then
put indent(lev) &" of " after analysis
put the name of this bkgnd &return after analysis
end if
-- If the user asked to see scripts, report object's script.
if showScripts then
put the script of thing into itsScript
if itsScript is not empty then
put return &"Script of " &itsName &return after theScripts
put itsScript &return after theScripts
end if
end if
-- If the user asked for message tracking, report that.
```
Introducing Infinity™ Drive by Peripheral Land — the SCSI 10MB removable disk system that will change the way you think about disk drives.

Now you can end the limitations of standard hard disk capacities and their lack of transportable data. Infinity™ not only performs like a hard disk drive (65 millisecond access time) but it provides unlimited storage capacity with removable 10MB diskettes.

Run out of room? Just insert another inexpensive diskette. Your storage capacity is infinite. And the cost is amazingly low: Only $18 for a 10 megabyte diskette. That's $1.80 per megabyte!

Communications bridge between your Macintosh and IBM AT and XT computers.

The Infinity™ System reads and transports IBM MS-DOS files from 1.2M and 360K AT and XT diskettes; it lets you display, edit and print IBM files on your Macintosh. That's flexibility! Each Infinity™ Drive comes with LaserSpeed™ a LaserWriter spooler by ThinK Technologies, BackPrint™ an ImageWriter spooler by Cortland Computer and PLI's advanced backup utility with image, file, folder, volume and incremental capabilities.

Infinity™ is compatible with Apple's complete line of Macintosh computers.

Stop by your nearest Peripheral Land dealer and test drive an Infinity™ Drive today and see the difference between standard disk drives and Infinity's infinite capacity. Or call us for information and the name of your nearest Peripheral Land dealer.
Award Maker Plus

Honor and thank people with more than just words - give them an award they'll keep. With Award Maker Plus you create professional quality certificates with colored, detailed borders, specialized graphics, and personalized messages ready for framing.

Award Maker Plus is a software tool that lets you print awards, certificates, licenses, coupons, diplomas or other documents of your own design. The program will print hundreds of predesigned Award Styles, allowing you to enter text, select the border style and color, and in some styles even enter your own Hi-res pictures.

Program comes complete with professional quality border designs, text fonts, and graphic art. Baudville also offers pin-feed French Parchment Paper to make your next award a standout!

Award Maker Plus Includes:
- Nearly 300 different awards and certificate styles to choose from.
- For sports, school, home, business, serious and fun events.
- Insert your own graphics.
- A variety of intricately designed black and white, and colored borders.
- The ability to create name files so you can print out awards for an entire group.
- Free gold-embossed press-on seals.
- Easy-to-follow instructions.

Other titles from Baudville include:
- Guitar Wizard and Ted Bear's Rainy Day Games.

Award Maker Plus Now Available For:
- Apple II+, IIc, IIe, IIGS with 64K, IBM PC, Tandy and MS-DOS* compatibles, Macintosh*, and Atari* ST*

See one of our many fine dealers or call us direct.
Call or write for our FREE Award Sample and Catalog.

DIAL (616) 698-0888

High Performance Software
5505 52nd Street NE, Grand Rapids, Michigan 49508

Please circle 206 on reader service card.

CARD TRICKS

if showEvents then
  put the script of thing into itsScript
  put the number of lines of itsScript into nlines
  if nlines > 2 then
    -- This takes time, so tell the user what's happening.
    put "Now examining the script of " &itsName
    put indent(lev) &" handles these message(s):" &return after analysis
    -- Examine each line of the script.
    repeat with i=1 to nlines
      put line i of itsScript into linei
      put word 1 of linei into word1
      -- The word "on" signals a handler.
      if (word1 = "on") then put indent(lev) &" " &word 2 of linei &return after analysis
      -- The words "pass" and "send" signal
      -- deviations from normal message flow.
      if (word1 = "pass") then put indent(lev) &" (which it passes)" &return after analysis
      if (word1 = "send") then put indent(lev) &" (It sends message " &word 2 of linei &" to " &word 4 of linei &")" &return after analysis
    end repeat
  end if
end if

-- Determine what components the object has, if any.
-- (Stacks have backgrounds & cards, cards have buttons, etc.)
if lev < 2 then
  do "put the number of " &word 1 of sub &"s into n1"
  do "put the number of " &word 2 of sub &"s into n2"
if n1 <> 1 then put "s" into s1 else put "" into s1
if n2 <> 1 then put "s" into s2 else put "" into s2
-- Report its components.
if n1 + n2 > 0 then
  put indent(lev) &" contains " &n1 &" " &word 1 of sub &" after analysis
  put s1 &" and " &n2 &" " &word 2 of sub &" after analysis
-- Then, for each kind of component...
  repeat with i=1 to 2
    do "put the number of " &word i of sub &"s into n"
    -- and for each component of that kind...
    repeat with j=1 to n
      put (item i of sub) &" " &j into m
      -- analyze it.
      analyze m, lev+1
    end repeat
  end repeat
end if
end if
end analyze

function indent level
-- This produces a tab for indentation based on recursion level.
repeat with i=1 to level+1
  put " " after s
end repeat
return(s)
end indent

98 MAC USER MAY 1988
YES.
It’s real!

Introducing ColorVue™ by Orchid Technology.

Experience the world of color with Orchid's new color video interface card for the Macintosh SE. This unique product provides an affordable solution for those of us who want color for their Mac SE, but don't want to give up portability, or pay the price of a Macintosh II.

When connected to an AppleColor RGB monitor or an IBM VGA color monitor, the ColorVue brings life to your images with a choice of up to 16 colors out of a palette of 1096. On a screen that is 75% larger.

Imagine working in color with your favorite applications like: SuperPaint, MacDraw, CricketDraw, VideoWorks, QuarkXpress, Cricket Presents and More.

And when you finish, you can print them in color on your ImageWriter II.

For more information call your nearest dealer or Orchid at (800) 638-3322, or (415) 683-9300.

ColorVue™: Color for the rest of us!
When it's time to start putting words on paper, Microsoft® Write is the right place to start. Because no comparably-priced word processor gives you as many features. Or an easier way to get at them.

If you already own a Macintosh™, you already know how to use Microsoft Write. Because it shares all those great Macintosh qualities. Like comprehensive, pull-down menus. And familiar point-and-click operation.

But don’t worry if you’ve never made friends with a mouse before. Microsoft’s exclusive on-line context-sensitive Help puts the answers to most of your questions a mere button push away.

Plus you get all the documentation and telephone support that's helped make Microsoft’s family of products the most popular of all Macintosh applications.

But making it easy to get your words on paper is just the beginning.

For example, thanks to a built-in spelling corrector, those well-chosen words of yours will all be impeccably spelled. And, thanks to another innovative feature, properly placed as well.

Because the page preview command offers you the unique opportunity to examine your work a miniature page at a time. So you can review, and revise, all those little factors that make the difference between a good-looking document and a great one.

Microsoft Write's 80,000-word, customizable dictionary helps our built-in spelling corrector make all your words letter-perfect.

Microsoft is a registered trademark of Microsoft Corporation.
Like where pages break and margins fall. And how the headers and footers lay out.

What's more, with advanced features like automatic footnotes, newsletter-column formatting, and the ability to mix text and graphics on the same line, Microsoft Write adds authority, and clarity, to all types of writing. With about as much effort as it takes to dot an i.

But Microsoft Write doesn't stop there.

As your word processing needs grow, you can always take advantage of the powerful, professional features of the Macintosh's leading word processor, Microsoft Word, Version 3. Without going back to page one.

In addition to using your existing files, Word uses the same commands as Microsoft Write.

And then adds incredible features and flexibility to them. So the time you invest with Microsoft Write won't be wasted.

And neither will your money. All registered Microsoft Write owners can upgrade to Word at a special, reduced price.

Before it's time to face up to the infamous blank page, call (800) 541-1261, Dept. E63, for the name of a Microsoft Write dealer near you.

Trust him to give you everything you need to get your writing started. Except, perhaps, an opening line.

Got a question? Microsoft Write's on-line, context-sensitive Help gives you the answer. Right on the spot.

Microsoft:Write
The revolution that the Macintosh sparked in publishing may just happen again with video. TV Producer, a Mac II, and a couple of VCRs create a video studio on the desktop. The add-in board lets you lay Macintosh graphics and animation over a video signal, then dump the results back to a video recorder.

TV Producer is a low-end video processor — one of the first in what promises to be a long line for the Mac II. Although you can’t alter the video signal itself — say, brighten up a shot when the lighting isn’t sufficient — you can overlay titles, bring in an arrow to point out a person in a crowd, or perhaps add an animated character that interacts with live actors.

You place the TV Producer board in a slot next to the Apple video card, and a couple of cables mate the pair. RCA-type connectors on the back of the board are the in and out jacks for the video signal. If you want to preserve the output, you need a second VCR to record it; otherwise, just route the output to a composite TV monitor.

You can’t view the video on your regular computer monitor because standard TV signals and computer output have different syncs — that is, they display lines at different frequencies. A more expensive version of TV Producer displays video on RGB multisync monitors. (Other configurations include PAL for the British TV standard and a Professional model that delivers a higher quality video.) Even if you don’t buy the more expensive RGB board, a multisync RGB monitor is almost a necessity to work productively. With a standard Apple monitor or any of the many analog RGBs, the screen will go fuzzy once you try to mix Mac graphics with video. If you have anything less than a multisync, you’ll be working blind.

The TV Producer software driver is installed in the System, where it then sets itself up as a selection in the Chooser. On my first few tries, the driver crashed my Mac II consistently — probably because the System I used had many odd DAs and initiits. A less cluttered System corrected the problem.

TV Producer’s specialty is chromakey — that is, superimposing a color over a video signal or allowing a video image to show through a color. But what TV Producer offers is really a scaled-down chromakey. You’re not working with a particular background color on the video image, just the color on the computer graphic.

TV Producer works in conjunction with graphics applications such as Pixel Paint and Modern Artist — not surprising because the latter program also comes from Computer Friends. To get a color to show on top of the video, you just click it. Conversely, you can click on one color and let it “show through” (become invisible), letting all the other colors on the screen appear over the video image.

This may not seem like much power at first, but with some advance planning, you can get a lot out of it. The best applications to use with TV Producer are desktop presentation programs, such as VideoWorks II, that set a stage for viewing. Because the stage is usually a white background without a menu bar, you can just click on white as the color to show through, and a movie or graphic complete with multiple colors will appear on-screen.

Even with such work-arounds, TV Producer’s interface is less than elegant. You have to work through the Chooser to get to the Options menu. A more intuitive interface would have you close the Chooser, then access a desk accessory to select the options. It would certainly make closing the Chooser easier when working blind on a nonmultisync monitor. The software needs to be revved again so that the interface is transparent to the video.

There are other problems with TV Producer. Unless you’re comfortable using a soldering iron on a circuit board, you’ll need help from a technician to install the board. You have to modify the Apple video card by adding a 14-pin connector — an act that voids your warranty. Computer Friends deserves a reprimand for the way it engineered this procedure. The 14-pin connector is not specified to fit the video card. It is
Newton's Law Can Teach Us A Lot About Hard Disks.

What goes up, must come down. When you store data on a hard disk, someday it will all come crashing down. But unlike Newton's apple, yours needn't come down forever. And protection doesn't have to take a lot of time.

Because now the all-time, best selling backup utility, FASTBACK, is available for the Mac.

Backing up a whole disk is up to five times faster than other backup programs. And daily, incremental backups should average about a minute. Mac Week called it "far and away the fastest program available for the Mac." And went on to say that its "extraordinary speed will encourage frequent backups, perhaps the most important consideration with backup software."

Add features like telling you how many backup disks you'll need, easy to use graphic displays and the ability to store multiple versions of a given file and FASTBACK becomes the only backup utility you'll ever truly want to use. Isn't it time you got started?

A Minute A Day Keeps Disaster Away

Fifth Generation Systems, Inc. 11200 Industriplex Blvd., Baton Rouge, LA 70809
Sales Office: 1322 Bell Avenue, Suite 1A, Tustin, CA 92680 (800) 225-2775 • (714) 259-0541
Please circle 146 on reader service card.

This product is in no way associated with or has origination in Fisher Scientific or Allied Corporation.
QUICK CLICKS

literally a case of trying to fit square pegs into round holes.

But it gets worse. I tried the multi-colored ribbon that connects TV Producer with the Apple video card just by inserting the ribbon into the 14-pin connector incorrectly. Fortunately, neither the Mac II nor the video card was damaged. Computer Friends may have saved a little money by using such chintzy connectors, but for $600 or more, consumers deserve better quality materials.

Despite the problems, TV Producer accomplishes what it sets out to do — overlay graphics on top of video. It isn’t for idle camcorder nuts who just want to put titles over their home videos. The price is too high for that — especially considering the cost of extra monitors. But for industrial videos, training tapes, and company presentations, it can make the difference between an amateur production and a professional look.

— Ben Templin

UPBEAT ½
List price: $150.
Published by Intelligent Music, PO Box 8748, Albany, NY 12208. (518) 434-4110. Requires 512K+., Version 1.2 reviewed. Copy protected.

Long before there were MIDI sequencers, there were drum machines. You got a drum machine to play what you wanted by programming short patterns and combining these to form song-length rhythm tracks. Drum programming is a task many musicians have learned, but few enjoy. It’s a tedious chore involving lots of counting, figuring, dealing with multipurpose buttons, running up against memory ceilings, and general hair-pulling. When MIDI-controlled drum machines and powerful computer-based sequencers appeared on the market, many musicians gratefully let the sequencers, with their advanced editing capabilities, take over.

The art of drum programming has not been lost, however, and Intelligen Music, maker of M and Jam Factory, has brought it into the modern world with UpBeat, which it’s billing as “the smart rhythm programmer.” UpBeat turns the Macintosh into a front panel for a highly complex and versatile drum machine, letting you input patterns and songs with the mouse, the Mac keyboard, and, if you like, a MIDI keyboard. Through MIDI, the program controls any drum machine you like, or several machines at once, or even keyboard synthesizers.

UpBeat uses the pattern/song conventions of traditional drum machines, except the number of patterns and songs you have available is virtually unlimited. Each pattern can have its own length, tempo, time signature, and even its own set of individual instruments. For example, you can instantly go from a cool jazzy 5\4 pattern at 90 beats per minute to a roaring Latin percussion orchestra at 144 beats per minute in 1\8 time without, literally, missing a beat. Not only can songs be built out of patterns, they can also be built out of other songs, so the flexibility for putting together compositions is enormous.

Patterns in UpBeat are displayed and edited visually. Each percussion instrument gets its own visual track, and each track is assigned a particular MIDI note (or combination of notes) so that it triggers a specific sound on a drum machine. You can draw in notes, or “strikes,” to instantly hear how they relate to the rest of the pattern. Resolution of the patterns can be set anywhere from 2 to 384 parts per measure. You can use different resolutions on different tracks, so that complex polyrhythms are easy to create. You can slide individual tracks back and forth in time to create different types of rhythmic grooves — for example, making a snare drum backbeat slightly late can give a track a more “Motown” feel, while moving it forward creates a “driving” feel. You have complete control over the velocity, or loudness, of each strike. If you are using synthesizers, you can also control note durations (drum machines usually ignore durations).

Cutting, copying, and pasting capabilities let you move tracks around, both within and between patterns, and there is a particularly neat function called FIT PASTE, which creates a rhythmic pattern a certain number of beats long and then squeezes or expands it to fill a different length.

Two features that clearly put UpBeat light-years ahead of any drum machine are its “jamming” and “filling” capabilities. The jamming feature lets you play along “live” with a running pattern. For example, you can instantly add a few snare drum hits to a rock rhythm. Or you can take a hi-hat pattern you’ve already recorded and have it play temporarily from a tom-tom. The “fill” feature is more complex. It generates random notes on one or more tracks, and the user controls which drum or drums will play the fills, as well as the speed, rhythm, and volume of the fills.

The program deals with probabilities of notes occurring, rather than completely predictable events. Probability factors can also be applied to the patterns themselves — rather than specifying a particular velocity for a note, you can assign it a range of velocities. You can also set note density, which determines how many of the notes on a track will actually sound. These features and the fill function can be instantly enabled and disabled with a “smart” icon — a picture of a light bulb. So a pattern can be rolling along very nicely, and then by turning on the icon, all hell breaks loose.

All of this would be a lot of fun, but not much else, if UpBeat could only operate on its own. Fortunately, the program lets you transfer its
Cuttina Edge = Incredible Value + Terrific Customer Service

Cutting Edge Book $185.00

"I abuse hardware! The Cutting Edge 800k small external drive has outperformed all of the other drives I have tested. My Cutting Edge drive has copied over 7,000 whole disk copies and over 10,000 disk formats. No other external drive on the market outperforms this one."

Doug Nosushan

Manual Eject Button & easy disk removal
• 1 Year Guarantee - Full Warranty - Fast Service

Thousands of hours of trouble free operation
• Reads 400k - Dependable - LED light and 800k disks performance

CMS MacStack

MacStack SD 20 $599
MacStack SD 40 $869
MacStack SD 60 $989
MacStack SD 80 $1369
TapeStack 60MB $779

Internal Hard Disks - Call

Mass storage for small investment. These units fit neatly under your Mac providing a comfortable viewing height.

Innovative Technologies

Speed Mouse Pad $9.50

(Pkg. price $15)

State of the art teflon coated surface provides fast and smooth mouse control
• Easy to keep
• Superior to cloth pads
• High Tech design

C. Itoh 3.5" DS/DD Disks

10-49 $1.55 ea.
50+ $1.45 ea.

Our Policies
Add $5.00 per order for shipping (volume orders handled at cost). No surcharge for Visa/MC/Amex. Immediate delivery. Technical assistance and returns please call (307) 789-0582. Prices subject to change without notice.

Cutting Edge, Inc.
Box 1259
97 S. Red Willow Rd.
Evanston, WY 82930
DIAL 1-800-443-5199

Please circle 104 on reader service card.

Finally,
a REAL Font menu...

MenuFonts 2

Once you install MenuFonts 2, all of your 'Font' menus will be transformed into what they should have been all along... Straightforward. Intuitive. Definitely Macintosh.

• installation is as simple as dragging the MenuFonts INIT file into your System Folder
• now installs automatically in most applications that have 'Font' menus
• now works with Microsoft Word, MacDraw and MacDraft
• includes 'KeyScroll' for people with lots of fonts
• MultiFinder compatible
• runs on all Macintoshes

$49.95

Included FREE are LockOUT & Fast Formatter!

MenuFonts 2

Send $10 for a demo of ForeRunner & MenuFonts!

TO ORDER YOUR COPY:
Send a check or money order to BEYOND, Inc.
3865 N. Oracle Rd. • Tucson, AZ 85705 • (800) 888-8667

VISA & MasterCard Accepted

Please circle 162/160 on reader service card.
<table>
<thead>
<tr>
<th>UTILITIES</th>
<th>LANGUAGE</th>
<th>COMMUNICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MORE FOR YOUR MAC...</strong></td>
<td><strong>SYMMETRY</strong></td>
<td><strong>FEDERAL EXPRESS</strong></td>
</tr>
<tr>
<td><strong>AFFINITY</strong></td>
<td><strong>HYPERTA</strong></td>
<td><strong>ORDERS NOW SHIPPED</strong></td>
</tr>
<tr>
<td><strong>TANGO II</strong></td>
<td><strong>38.00</strong></td>
<td>Select Micro Systems</td>
</tr>
<tr>
<td><strong>ALSOFT</strong></td>
<td><strong>38.00</strong></td>
<td>Shana Enterprises</td>
</tr>
<tr>
<td><strong>DISK EXPRESS</strong></td>
<td><strong>38.00</strong></td>
<td>FastPens' Construction Kit</td>
</tr>
<tr>
<td><strong>FONT/DA JUGGLER PLUS</strong></td>
<td><strong>44.00</strong></td>
<td>Software</td>
</tr>
<tr>
<td><strong>BERKELEY SYSTEM DESIGN</strong></td>
<td><strong>59.00</strong></td>
<td>MacNUse (tracks usage)</td>
</tr>
<tr>
<td><strong>STEP ON OUT</strong></td>
<td><strong>59.00</strong></td>
<td>Turner Hall Division-Symantec</td>
</tr>
<tr>
<td><strong>CONSULAIR</strong></td>
<td><strong>59.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ICOM SIMULATIONS</strong></td>
<td><strong>59.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TMON (debugger)</strong></td>
<td><strong>94.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MICROSOFT</strong></td>
<td><strong>119.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BASIC COMPL 1.0</strong></td>
<td><strong>119.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BASIC INTERP 3.0</strong></td>
<td><strong>61.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FORTRAN COMPL 2.2</strong></td>
<td><strong>169.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>THINK TECH</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTSPEED C</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHTSPEED PASCAL</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ZEDOCR</strong></td>
<td><strong>60.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ZBASIC</strong></td>
<td><strong>60.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOFTWARE RESEARCH</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MACFREE</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOFTWARE SUPPLY</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>POWER STATION</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUITE CASE</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUPERMAC</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DISK FIT</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SENSITEL 1.0</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUPER SPDY</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SUPER LASER SPOOL</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>WILLIAM &amp; MACIAS</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MYDISKLABELER Color</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MYDISKLABELER-LASERWR</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>WORKING SOFTWARE</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FINDS</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DESK ACCESSORIES</strong></td>
<td><strong>36.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ACTIVATION</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FOCAL POINT</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AFFINITY</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AFFINITFIL</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ALLAN BENADIO ASSOCIATES</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EXPRESSIONIST (equation editor)</strong></td>
<td><strong>49.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BORG</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SIDEKICK 2.0</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ELECTRONIC ARTS</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DISK TOOLS PLUS</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GREENE</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>QUICKDEX</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IMAGINE</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SMARTALARMS &amp; APPOINTMENT DIARY</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MINISTAY</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>THINK'N TIME</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>OLDUVAL</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ICON•</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOLUTIONS</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SMARTSCRAP &amp; THE CLIPPER</strong></td>
<td><strong>65.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MACSQZ/2! (Turner Hall/Symantec)</strong></td>
<td><strong>95.00</strong></td>
<td>Reduce on disk size of Excel spreadsheet by up to 95%. Password protection and file history. <strong>BUSINESS $59</strong></td>
</tr>
<tr>
<td><strong>DATABASE SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>1ST DESK SYSTEMS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>1ST FILE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ACTIONS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>4TH DIMENSION</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ASHTON-TATE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BASE DACE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BOLAND</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>RELAX PLUS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NASINHA SYSTEMS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FILEMAKER PLUS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BUSINESS SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>1ST DESK SYSTEMS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>1ST MERGE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ACTIVATION</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BUSINESS CLASS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BOLAND</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EUREKA THE SOLVER</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BRAVO</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MACCALC</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CRICKET</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CRICKET GRAPH</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CRICKET PRESENTS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DENNIS SOFT systems</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COMMENT 1.1 (post notes to files)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MICROSOFT</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EXCEL 4.0</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>POWERPOINT</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>WORKS 1.1 (integrated software)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NORTH EDGE SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>TIMESLIPS III (time and expense tracking)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SOLON</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BULK MAILER 3.0</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPRINT DRAW II AGAIN SAMP</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MACWAREHOUSE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ORDERS NOW SHIPPED</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DENEBA SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPELLING CHECKERS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AEGIS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DOUG CLAPP® WORD TOOLS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DANTEA SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPELLING COACH 3.0</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPELLING COACH PRO</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CONRAD MERIAM-WEBSTER THESAURUS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ELECTRONIC ARTS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>THUNDER (SPELLING CHECKER)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MICROPYTHICS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>WORD FINDER (SYNONYM FINDER)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>WORKING SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SPELLWELL 2.0 (SPELLING CHECKER)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>GRAPHICS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DRAW IT AGAIN SAM</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ABBA SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ACTIVATION</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>POSTCARDS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ANN ARBOR</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FULL PAINT (FULL SCREEN GRAPHICS)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BRODERBUND</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PRINT SHOP (CARDS AND MORE)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CE SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CALENDAR MAKER</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CRIKET</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CRIKET DRAW</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PICTOGRAPH (COLOR ON THE MAC II)</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DENEBA SOFTWARE</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CANVAS</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DUBL-CLICK</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MULTIPLE VOLUMES</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ENZAN-HOSHIGUMI</strong></td>
<td><strong>95.00</strong></td>
<td></td>
</tr>
</tbody>
</table>
output to other programs. When you turn on a "movie" icon, all of the MIDI data generated by the program as it plays — the songs, patterns, fills, and jams — gets stored as a MIDI file. MIDI files are an emerging standard for exchanging MIDI data between various types of programs, so a file created by UpBeat can be moved into a sequencing program, such as Passport Designs' Master Tracks Pro, where it can serve as a drum track to accompany a fully orchestrated song. Both of these programs are now compatible with MultiFinder. While there is as yet no way to have them both sending MIDI data out at the same time (although that would be a next logical step), going back and forth between them is a breeze.

For all its merits, UpBeat has a few problems. There is no undo command, so you have to be very careful about cutting and pasting. Under some conditions, the MIDI file it creates doesn't go into a sequence absolutely accurately; it has to be quantized after you get it in. This may be as much a result of different manufacturers' varying interpretations of the MIDI file spec as it is Intelligent Music's fault.

Setting up the program so that it works with a specific drum machine — that is, assigning all the right MIDI notes to the various tracks — is by far the most difficult aspect of the program, and it is, unfortunately, the one that has to be tackled first. There are some aspects of it, particularly when you are changing drum machines, that don't seem to make any sense no matter how hard I study the manual. It would be a big help if Intelligent Music included on the program disk "templates" for popular drum machines.

The manual is brief, but it contains almost all of the necessary information and is actually indexed. However, it is very badly edited, and the tutorial that opens the manual is confusing. You'd be better off skipping it. Just go to the reference chapters while feeling your way around the program.

Problems aside, UpBeat is a wonderful tool for musicians who are serious about rhythm. Some of the music industry's hottest professional drum programmers (who used to be known as session drummers) already swear by it, and you've probably heard it on some recent Top 40 hits. Used in conjunction with a good sequencer, it can go far towards making drum tracks more interesting and human-sounding. It's much easier to use than Intelligent Music's previous programs and can be immediately useful for a greater number of musicians as well.

Although its performance deserves a 4 1/2 mouse rating, it loses a mouse because of its copy protection.

— Paul D. Lehman

TRUEFORM ¥¥¥¥¥


You've probably noticed that computers haven't met the promise of cutting down on the amount of paper and forms in offices. But TrueForm can manage those forms more efficiently. Bureaucrats, take note, this may be your dream come true.

TrueForm lets you scan your original form, then use the electronic replica as a template for entering and saving sets of data on the computer. That's what most databases do, but instead of designing a database that looks like your existing forms, TrueForm uses what's already there.

When you first look at the scanned form on the computer you may think the image quality is unacceptable. But TrueForm saves two pictures of each form — one at 72 dpi for the computer screen, another at 300 dpi for a laser printer. The resolution of the program on the screen is sufficient to see where to place the data, but the resolution for the laser printer produces a document nearly indistinguishable from a photocopy.

TrueForm consists of two programs: Set-up and Fill-out. Set-up allows you to scan a form using six popular scanners. It also imports PICT, TIFF, or MacPaint files. You then teach the computer how to fill out the form by clicking those areas where you want fields. The program magically figures out the field boarders, how to format the data, and in what order you want the fields filled.

You can customize the form by adding instructions that are displayed when you move into a field. You can specify formulas or default values, and add constraints to check the validity of the data to ensure that a form is filled out correctly.

TrueForm has a number of format options. You can select predefined formats for numeric, Date/Time, and check item values, or you can define your own formats. TrueForm lets you select multiple fields and act on them as a unit. For example, you can move the selected fields as a unit and/or set the type style for the group. Another feature lets you unite a group of fields and treat them as a single entity for duplicating, summing, decimal point alignment, and so on.

The Fill-out program lets you enter data into the master form that you produced with the Set-up program. You can enter data from the keyboard or import data from text files generated by a spreadsheet, database, fax, terminal, or mainframe. (Spectrum claims that future versions will allow you to interface directly with databases such as 4th Dimension.)

But what if you don't own a scanner? No problem, send your form to
**MOM MORE FOR YOUR MONEY**

**Enzan-Hoshlgum**
MacCalligraphy ........................................... 115.00
Great Ware
Crystal Paint .................................................. 41.00
MicroMaps
MacAtlas Pro (MacDraw format) ....................... 129.00
Mindscape
GraphicWorks 1.1 ........................................... 84.00
Olduvai
Post-Art ......................................................... 42.00
Silicon Beach
Super Paint (super graphics) ......................... 79.00
Super 3D ......................................................... 195.00
Solutions
Curator (graphics management) ....................... 79.00
SuperMac
Pixel Paint ....................................................... 265.00
Symmetry
Picture Base 1.2 .............................................. 59.00
T-Maker
ClickArt Business Image .................................... 23.00
ClickArt Christian Images ............................... 31.00
ClickArt Effects or Holidays (ea.) ................ 28.00
ClickArt EPS Illustrations ............................... 79.00
ClickArt Publications ........................................... 28.00
Zedcor
DesktopPaint .................................................... 39.00

**DESKTOP PUBLISHING PRODUCTS**
Adobe
Illustrator 88 ................................................ 425.00
Aldus
PageMaker 2.0 ................................................ 419.00
Letraset
Image Studio ................................................. 279.00
Read-Set Go 4 .................................................. 40.00
Olduvai
Read-It (optical character recognition) ............ 159.00
Read-It! (ThunderScan version) ..................... 79.00
Solutions
SupraBlu (total graphics integration) ............... 56.00
Target
Scoop .............................................................. 199.00

**NETWORKING PRODUCTS**
Farallon
PhoneNET 128/512 ........................................... 44.00
PhoneNET Plus, SE & II ....................... 44.00
PhoneNET AppleTalk Adapter .................. 8.00
Microsoft
Mail .............................................................. 35.00
Nuvotech
TurboNET 128/512 ........................................... 35.00
TurboNET Plus, SE & II .......................... 35.00

**MUSIC AND SOUND**
Bogas Productions
Studio Session ............................................... 52.00
Broderbund
Jams Session .................................................. 30.00
Cambridge Auto
MIDI Controller ............................................... 49.00
Electronic Arts
Deluxe Music Construction 2.0 .................... 61.00
Farallon Computing
MacRecorder (records sounds) .................... 149.00
Great Wave
ConcertWave + 4.0 .......................................... 39.00
ConcertWave + MIDI 4.0 ............................. 79.00
Impulse
Impulse Audio Digitizer w/SoundWave ............ 149.00
Periscope Press
Practica Musica .............................................. 77.00
Resonate
Listen 2.0 ......................................................... 62.00

**EDUCATIONAL/PERSONAL**
Broderbund
Seriex Physics ................................................. 61.00
Davidson
Math Blaster ................................................. 27.00
Word Attack ..................................................... 28.00
Electronic Arts
Business Simulator (executive training) ... 48.00
First Byte
Kid Talk, Math Talk ea ................................. 32.00
Great Wave
Kids Time ....................................................... 26.00
Learning Company
Reader Rabbit .................................................. 34.00
Mindscape
Perfect Score S.A.T. (Perfect College) ....... 47.00
Nolo Press
Will Maker 2.0 (prepare your own will) ...... 30.00
Palantir
MacType ......................................................... 32.00

**GAMES**
Accolade
Hardball ......................................................... 23.00
Activision
Shanghai (strategy) ........................................... 24.00

**Bracket**
StatView II ..................................................... 282.00
TaxView Planner .............................................. 45.00
Survivor
MacMoney (personal finance) ....................... 65.00

**FINANCIAL AND ACCOUNTING SOFTWARE**
BPI
Entry Series General Accounting .................. 129.00
MECA
Andrew Tobias Managing Your Money .......... 129.00
Migent
In-House Accountant .................................... 109.00
Monogram
Business Sense .............................................. 282.00
Softsync
Accountant, Inc .............................................. 179.00
Softview
MacTax B7 ................................................. 65.00
MacTax California Supplement B7 ............. 35.00
TaxView Planner .............................................. 45.00
Survivor
MacMoney (personal finance) ....................... 65.00

**STATISTICAL ANALYSIS**
Abacus Concepts
StatView II (req. Mac II, or Plus SE w/68811 co-processor) 369.00
BrainPower
MathView Professional ..................................... 149.00
StatView 512V (requires 512k) .................... 177.00

**Cricket**
Statworks 1.2 (statistical package) .............. 74.00
D2 Software
MacSpin 1.1 ..................................................... 155.00

**POWERSTATION**
Fast, easy access to applications, documents and data. Includes the
screen-saver Pyro! (utilities) $38

**I'm Kerry, call me at:**
MUE8

**1-800-255-6227**
(1-800-ALL-MACS)
Inquiries: 201-567-2940 Canada: 800-255-6447 FAX: 201-905-9279
MacWAREHOUSE
1600 Oak Street, P.O. Box 1579, Lakewood, NJ 08701
MONDAY THRU FRIDAY 8 A.M.
to 11 P.M. (Eastern Time)
SATURDAY 8 A.M. to 8 P.M. (Eastern Time)
NOW OPEN SUNDAYS! 8 A.M.
to 8 P.M. (Eastern Time)

**© Copyright 1987 MicroWarehouse, Inc. MicroWAREHOUSE * is a division of Micro Warehouse, Inc. MicroWAREHOUSE * and Micro Warehouse are trademarks of Micro Warehouse, Inc. Some availability and price subject to change without notice.**
<table>
<thead>
<tr>
<th>ARTWORK/LICENSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artwork Bridge S.0</td>
</tr>
<tr>
<td>Avalon Hill</td>
</tr>
<tr>
<td>Broderbund Ancient Art of War (battle strategy)</td>
</tr>
<tr>
<td>Bullfrog Ferrari Grand Prix (racing)</td>
</tr>
<tr>
<td>Elkstone Spider Trilingual Flight Simulator</td>
</tr>
<tr>
<td>Electronic Arts Chessmaster 2000 (deluxe chess)</td>
</tr>
<tr>
<td>Patrosoft Romanji (strategy)</td>
</tr>
<tr>
<td>Scramble (word game)</td>
</tr>
<tr>
<td>Skyfox (3-D daylight)</td>
</tr>
<tr>
<td>Syzygy Sub Battle Simulator</td>
</tr>
<tr>
<td>Greene Crystal Quest</td>
</tr>
<tr>
<td>Infinity God</td>
</tr>
<tr>
<td>Infocom Beyond Zork</td>
</tr>
<tr>
<td>MacRacletball</td>
</tr>
<tr>
<td>Munchkin Chessmaster 2000</td>
</tr>
<tr>
<td>MSFL Pro League Football</td>
</tr>
<tr>
<td>MSFL Pro Draft</td>
</tr>
<tr>
<td>Miles High Strike Mission II</td>
</tr>
<tr>
<td>Mindscape Balance of Power</td>
</tr>
<tr>
<td>Dega Yu (who done it)</td>
</tr>
<tr>
<td>Simswatigate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOFTWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Point 800K Laser Drive</td>
</tr>
<tr>
<td>600K Laser Drive</td>
</tr>
<tr>
<td>320K Laser Drive</td>
</tr>
<tr>
<td>MacStack 20 Meg</td>
</tr>
<tr>
<td>MacStack 40 Meg</td>
</tr>
<tr>
<td>MacStack 60 Meg</td>
</tr>
<tr>
<td>MacStack 80 Meg</td>
</tr>
<tr>
<td>Cutting Edge 800K Disk Drive</td>
</tr>
<tr>
<td>Dave Mach II/SE Accelerator Board</td>
</tr>
<tr>
<td>EMAG 20D (hard drive)</td>
</tr>
<tr>
<td>EMAG 20D Deluxe (0 footprint)</td>
</tr>
<tr>
<td>EMAG 40D (hard drive)</td>
</tr>
<tr>
<td>EMAG 40D Deluxe (0 footprint)</td>
</tr>
<tr>
<td>MacStack 525 (512K to 1 meg)</td>
</tr>
<tr>
<td>MacSnap 25E</td>
</tr>
<tr>
<td>MacSnap 524S (inc SCSI interface)</td>
</tr>
<tr>
<td>MacSnap 548S (inc SCSI interface)</td>
</tr>
<tr>
<td>MacSnap 548S (inc SCSI interface)</td>
</tr>
<tr>
<td>MacSnap Plus 2 (MacPlus to 2 meg)</td>
</tr>
<tr>
<td>MacSnap Plus 8 (Mac II to 8 meg)</td>
</tr>
<tr>
<td>MacSnap Tool Kit (installation tools)</td>
</tr>
<tr>
<td>New Image MacScan (read-thru)</td>
</tr>
<tr>
<td>MacScan (flattened)</td>
</tr>
<tr>
<td>Product Design</td>
</tr>
<tr>
<td>Selkosia America</td>
</tr>
<tr>
<td>Summographics Bit Pad Plus</td>
</tr>
<tr>
<td>MacTablet 6 x 9</td>
</tr>
<tr>
<td>MacTablet 12 x 12</td>
</tr>
<tr>
<td>ThunderWar</td>
</tr>
<tr>
<td>ThunderScan 4.0 Mac II Accessory Key</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Finder (Microlytics) — Termsaurus DA with 50,000 synonyms. Automatic look-up and replacement. (spelling checkers) $39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISK DRIVES/MEMORY UPGRADES</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST</td>
</tr>
<tr>
<td>AST 4000/4 meg-60 meg tape</td>
</tr>
</tbody>
</table>

| MINICAD 3.0 (DIEHL GRAPHSOFT) — Professional functions in 2D and 3D modes with easy transition back and forth. (cafe card) $395 |

| Trust & Betrayal: The Legacy of Siboot | 30.00 |
| Uninvited | 30.00 |
| FBI Strategic Conquest Plus | 46.00 |
| Practical Computer MacCourseds | 34.00 |
| MacSoft 2.0 | 26.00 |
| MacRacketball | 36.00 |
| Primera Smash Hit Racketball II | 22.00 |
| Sierra On-Line Leisure Suit Larry | 23.00 |
| Silicon Beach Apache Strike | 27.00 |
| Dark Castle | 26.00 |
| Beyond Dark Castle | 22.00 |
| World Builder (game maker) | 41.00 |
| Simon & Schuster Star Trek - Kobayashi Alternative | 42.00 |
| Simulated Environment Systems Quarterstaff | 29.00 |
| MacTech Wizardry (classic fantasy) | 35.00 |
| Sphere/Spectrum Holoboy | 26.00 |
| Gato (submarine adventure) | 26.00 |

<table>
<thead>
<tr>
<th>DISK DRIVES/MEMORY UPGRADES</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST</td>
</tr>
<tr>
<td>AST 4000/4 meg-60 meg tape</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DCS/DEC/IBM APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goldstar DS/DD (box of 10)</td>
</tr>
<tr>
<td>Maxwell DS/DD (box of 10)</td>
</tr>
<tr>
<td>SD/DD (box of 10)</td>
</tr>
<tr>
<td>Sony SD/DD (box of 10)</td>
</tr>
<tr>
<td>Canon SD/DD (box of 10)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUT/OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abaton ProfPoint</td>
</tr>
<tr>
<td>Asher Engineering Turbo Trackball (612 Plus or SE/II)</td>
</tr>
<tr>
<td>Cambridge Auto Numeric Ease</td>
</tr>
<tr>
<td>DataDesk Mac 101 Keyboard</td>
</tr>
<tr>
<td>Kensington Turbo Mouse</td>
</tr>
<tr>
<td>Turbo Mouse ADB (for SE and Mac II)</td>
</tr>
<tr>
<td>Koala MacVision (digitizer)</td>
</tr>
<tr>
<td>Kraft 3 Bottom QuickStick</td>
</tr>
<tr>
<td>Lightgate Felix</td>
</tr>
<tr>
<td>Mouse Systems A+ Mouse (512 Plus)</td>
</tr>
<tr>
<td>A+ Mouse ADB (SE/II)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacScan (read-thru)</td>
</tr>
<tr>
<td>MacScan (flattened)</td>
</tr>
<tr>
<td>Product Design</td>
</tr>
<tr>
<td>Selkosia America</td>
</tr>
<tr>
<td>Summographics</td>
</tr>
<tr>
<td>MacTablet 6 x 9</td>
</tr>
<tr>
<td>MacTablet 12 x 12</td>
</tr>
<tr>
<td>ThunderWar</td>
</tr>
<tr>
<td>ThunderScan 4.0 Mac II Accessory Key</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Finder (Microlytics) — Termsaurus DA with 50,000 synonyms. Automatic look-up and replacement. (spelling checkers) $39</td>
</tr>
</tbody>
</table>
We've been behaving like groundhogs for months preparing what we believe is the consummate Macintosh Product Catalog. Friends and family dropped by the workshop as we spent every waking hour testing, reviewing and photographing hundreds of great products for the Mac. The 56 page color catalog is as much an informative "handbook" as it is a source for your Macintosh needs. Any product can be found instantly by using our color-coded indexing system. And once you're there all the product information is at your fingertips. Questions on copy protection, compatibility (both hardware and software) and function are answered in lively text punctuated with full-color photographs and informative screen dumps.

The Premier Edition of MacWAREHOUSE CATALOG is YOURS FREE with any order from Mac Warehouse. Or, if you're not quite ready to place an order, just send in the coupon below with your check for $2.00 (for postage and handling refundable with your first order) and we'll mail you the Premier Edition. So don't wait. We'll rush your product and Free Catalog FEDERAL EXPRESS STANDARD AIR so in no time at all you can "curl up with a good book".

AT MacWAREHOUSE THE SERVICE IS GREAT AND SO ARE THE PRICES!

When you call we'll be ready to help. Our sales representatives are here to answer any questions and will always let you know about our many specials. Like...

**Bookexternal Drive**

From Cutting Edge comes our most popular external floppy drive. Reads and writes 400/800K disks and is compatible with all ROM's. Convenient front panel eject switch. Only $179

**MacMONEY**

This versatile, powerful and intuitive accounting package from Survivor Software has been developed specifically for your personal and small business use. Complete and easy to use. Full double-entry personal bookkeeping system and financial planning too. Integrates with MacIntax. Requires 512K. $65

**EMAC DRIVE**

This zero footprint 20Mb hard drive from Everex comes with built-in SCSI intelligent controller and driver installed. Utility software, terminating resistor and connecting cables are included. Quiet running, fast data transfer, automatic head park and good looks compliment this top performer. Just $595.00

**Spelling Coach**

Deneba's best selling spelling checker desk accessory is compatible with over 95% of Macintosh software. Interactive features include as-you-type spelling checks and one-key corrections. Checks sections or a complete document at over 150 words per second. Includes Merriam-Webster's dictionary, Legal and Medical libraries. $59.00

**MacWAREHOUSE**

For price, quality and service you won't find a better source for your Mac needs. If you don't see it here, give us a call. Most likely we'll have it in stock. Our sales representatives are here to help!

I'm Kerry, call me at:

MacWAREHOUSE

1-800-255-6227

(1-800-ALL MACS)

Inquiries: 201-367-0440
Canada: 800-255-6447
Fax # 201-905-9279

MONDAY THRU FRIDAY

8 A.M. TO 11 P.M.

(Eastern Time)

SATURDAY 8 A.M. TO

8 P.M. (Eastern Time)

NOW OPEN SUNDAYS!

8 A.M. to 8 P.M.

(Eastern Time)
He had a reputation as a power user. But deep down he knew it wasn’t true. Oh, he had the software alright. But the real power, the electrical power that ran his Mac was another story. He lived in fear of its surges and spikes. He lacked the proper outlets. He knew he was out of control...

KENSINGTON POWER CONTROL

A Kensington power center will get your power under control. We organize and protect your entire system with extra outlets, convenient front-mounted switches, and the best surge suppression and noise filtering available.

1. Master Piece® Mac II starts with five protected outlets. Added modem surge suppression protects against surges and spikes on the phone line. And a built-in swivel lets you adjust your monitor. $159.95

2. System Saver® SE offers two protected outlets and a replacement for your SE's power cord, a choice of 1 or 2 switches, and modem/phone line surge suppression. $79.95

3. System Saver Mac not only gets your power under control, it keeps your Mac or Mac Plus cool. Two protected outlets, a replacement power cord, a quiet fan, and a choice of 1 or 2 switches. $99.95

For more information, call (800) 535-4242. In NY, call (212) 475-5200. Or write Kensington, 251 Park Ave. S., New York, NY 10010. Please circle 144 on reader service card.
QUICK CLICKS

Spectrum, and for $20 a page, they’ll scan it and send you back an image on a disk. Or you can design your own clean-looking form with MacDraw or even MacPaint, and import that image into the Set-up program.

TrueForm exports your forms onto paper as quickly and conveniently as it imports them into the Mac environment. You can easily print onto your old paper forms because the accurate electronic image lets you align the data within the fields. It can take two to three minutes to load an image into a LaserWriter, so TrueForm provides a Form Caching capability; the image of the form is sent to the LaserWriter once, then subsequent pages are printed at a rate of about four to five forms per minute. The folks at Spectrum also built in a fudge factor for printer alignment, an offset factor for the starting position of data at the top left corner, and a scaling factor that stretches or shrinks the placement of the data from the starting position.

I scanned and set up our company expense report, and TrueForm did a great job. The only problem is that our form is two-sided; one side is oriented vertically, the other horizontally. TrueForm handles multiple page forms, but all pages must be the same orientation. Also, after using spreadsheets for so long, TrueForm’s method of summing threw me, but it still worked. I only wish the automatic recalculation could be turned off. It’s so slow, I could enter the data quicker. Still, the wait is worth the results.

Bureaucrats, the line forms to the right.

— Chip Carman

PostScript has remained for most people that mysterious “something” in a laser printer that may or may not be hardware, software, or even a bizarre high-tech hybrid of the two. And as more and more PostScript hackers know all too well, this state of ignorance has been painfully mirrored by an almost complete lack of tools for PostScript programming.

Unlike established programming languages, PostScript has often been relegated to the backstage, hidden behind the curtains. It’s possible to dawdle with it in JustText, Cricket Draw, and Adobe Illustrator, but without the benefit of any of the usual debugging features of traditional programming languages.

Lasertalk (from the delightfully named Emerald City Software) has changed all that. Lasertalk is not just another collection of PostScript special effects for desktop publishers, like Laser Fix or LaserCraft (see MacUser, January ’88, “Well, Isn’t That Special?”), but a real powerful PostScript programming tool.

Lasertalk provides just about everything a PostScript programmer could want, and it does it simply and ingeniously. Upon start-up, it establishes interactive contact with the PostScript Executive or interpreter resident in a PostScript printer (such as the LaserWriter) via AppleTalk. Users can then “converse” with the printer directly — examining PostScript stacks, dictionaries, and the current status of the printer; as well as downloading files in batch mode or line by line. Although Lasertalk can be used off-line and includes a first-rate text editor, to take advantage of all its features, you should be connected to a running printer.

Lasertalk’s initial window is the
Storage Without Space

The Everex EMAC-40/60 DTL is the perfect combination for adding a high speed 40MB hard drive and a high performance, 60MB tape drive to your Macintosh™ Plus or SE. The EMAC-40/60 DTL fits right under your Mac — storage without space.

The hard disk’s 28 ms access time and the tape unit’s 3.5MB per minute backup speed are among the fastest in the industry. Speed, along with ease of use and affordable pricing, are a hard to beat combination.

The EMAC tape and disk utility software is installed on the hard disk, with the Apple® system folder already loaded for you. With our exclusive EMAC tape software, you can do a file by file or image backup and restore. Our powerful software also lets you backup multiple volumes in one session and on multiple tapes. The Everex EMAC-40/60 DTL comes complete with everything you need — connecting cables, terminating resistor and tape cassette.

Now you can have the convenience of hard disk storage and the security of tape backup without the need for any additional desk space. See the entire EMAC line of Macintosh peripherals at your dealer.

1-800-821-0806 Ext. 2222 in USA
1-800-821-0807 Ext. 2222 in CA

Everex is a division of Everex Systems 48431 Milmont Drive, Fremont, CA 94538

Everex, EMAC, and EMAC-40/60 DTL are trademarks of Everex Systems Inc. Macintosh is a trademark and Apple is a registered trademark of Apple Computer Inc. ©1988 Everex Systems Inc. All rights reserved.
MACSPIN lets you probe your spreadsheet data in a highly interactive real-time manner. Highlight categories, identify points or groups of points, zoom in for closer inspection. Allows you to view and edit downloads from mainframes, spreadsheet or database. See your multivariate data in a fresh and exciting way. Discover trends, patterns you don't agree that this is the only way to look... the 3D way.

Above is an actual MACSPIN display showing the same dataset as the spreadsheet below. Which conveys the concepts of structure and trend more clearly to you?

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
<th>Width</th>
<th>Height</th>
<th>Coord.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Quick Clicks**

interactive window (interactive only when you’re on-line with a PostScript printer). Here you’ll be met with information about the version of PostScript en cascaded in your printer and the prompt $PS>$, where you can begin to enter PostScript code. Code typed in here is immediately sent to the printer, and you receive feedback from the PostScript Executive as to errors, if any.

The Status window reviews the current state of your printer and various aspects of the PostScript environment such as line width, current point, gray level — in fact, just about anything you want it to, since you can easily customize the Status window during any work session.

The Edit window is where you enter PostScript code (or open a PostScript program generated by another application such as Adobe Illustrator) for examination and remarkably easy debugging. A file placed here can be downloaded in its entirety while on-line, “stepped through” line by line, or even downloaded in parts by establishing “break points” in the file where Lasertalk stops the download until you tell it to continue. During all this, you constantly receive updates via the Status window or by on-screen alerts that inform you of problems and PostScript errors. The Status window also provides an excellent way to learn and understand PostScript, since you can view how each line or block of your input affects the order of stacks within the PostScript interpreter.

Good Search, Find, and Replace features are accessible from menus and the keyboard. You can select individual words, whether “keys,” operators, etc., in any window and then search for them in the PostScript dictionaries and stacks by using the Dictionary Browser or by pressing COMMAND-L (for “lookup”). Lasertalk then searches for the selected item throughout all PostScript stacks and displays the definition. You can also select words within a dictionary and look them up. By choosing DOCUMENTATION SEARCH from the Search menu, you can view the relevant material from Addison-Wesley’s PostScript Language Reference Manual for any selected word. It’s the best on-line help imaginable for PostScript programming.

Lasertalk really shines once a program is ready to run. Unlike PostHaste, the only other program out there for serious PostScript programming, Lasertalk lets you preview your output on-screen before printing. It does this by reproducing the contents of the raster memory of your printer at a 4-to-1 ratio that guarantees an excellent image on the screen, albeit at four times the size of the original. The software provides some quick-and-easy two-digit commands that you can type in the Interactive window to reduce the image so that you can see more of the page. The Preview window has rulers at the top and left side of the screen that give you the proper PostScript x and y coordinates of the portion of the page in the window at any one time.

The manual, although plagued by “printer’s goblins,” is excellent (it’s written by David Holzgang, author of Understanding PostScript). The two-disk set includes a considerable amount of PostScript artwork and Cookbook examples from Addison-Wesley.

If you can afford it, are interested, or have some foundation in PostScript and own a PostScript printer, buy this program. It can’t be beat.

— Gregory Wasson

**Alphabet Blocks**

Alphabet Blocks is a set of two disks for pre-readers; the programs are identical except that one works with letter names, while the other works with letter sounds. The good news is that Alphabet Blocks takes a very sound educational approach to its two games — there’s obviously a professional behind the scenes. The
If you bill for your services by the hour, you need TIMESLIPS® III

Without a good time and billing system, your business isn’t collecting all the money it’s earned. You have to manage the billing process by tracking your expenses and accounts receivables. You need to know who is being billed and why.

Automatically Tracks Time and Expenses. TIMESLIPS® III gives you faster, more accurate billing, recovering cash that could have fallen through the cracks.

It’s a Desk Accessory. TIMESLIPS III runs concurrently with other programs, and can be called up whenever you need it.

A built-in “stopwatch” times any phone call or activity as you work. Then automatically calculates the total fee and updates your client file, instantly.

A unique “dollar clock” can appear in the corner of your screen to keep a running tab of time and billable dollars.

Understands Your Needs. Unlike other billing systems, TIMESLIPS III allows for real-time entry of expenses information while within another program.

Like time and billing systems costing lots more, it provides expanded description on each timeslip. It exports data to virtually any program that accepts tab-delimited files, such as Excel™, Jazz™, and Microsoft Works™.

Generates Custom Bills and Reports. With over 5,000 ways to create a bill, you can satisfy any client demand, or meet any office need.

TIMESLIPS III generates transaction reports, client history, aged receivables, and management reports.

Tables, bar graphs, pie-charts, easy-on-the-eye formats leap to the screen, giving you masterful control and analysis capabilities. Information, intelligently organized so you don’t have to be.

TIMESLIPS III is a Productivity Tool. It gives you a clear picture of your business: an activity-by-activity breakdown for each project. What was accomplished. How long it took. And the actual fee.

You Probably Can’t Outgrow TIMESLIPS III. It lets 250 of your colleagues handle 2,000 clients, with up to 128 projects per client. And track all simultaneously.

CALL TOLL-FREE
1-800-338-5314
In Mass., and for rush service call 617-768-6100.

TIMESLIPS is a registered trademark of North Edge Software Corp. Excel is a trademark of Microsoft. Jazz is a trademark of Lotus Development Corp. Microsoft Works is a trademark of Microsoft.
How to turn a Macintosh into the ultimate conversation piece.

With an AppleShare file server you can make Macintosh a dazzling conversationalist that can talk with as many as fifty other computers. Even if some of those computers can only speak in standard MS-DOS.

Completely integrated with the Finder, our AppleShare file server works the way Macintosh works. So everyone on your AppleTalk network can have access to shared documents, programs and templates just as if they were stored on their own hard disks.

In addition to sharing your information, AppleShare also lets you protect it.

When you create a folder, AppleShare lets you decide how (or if) its contents are to be shared. AppleShare access controls let you grant rights to individuals, a group or everyone on the network at three privacy levels: see folder; read documents within a folder; make changes to documents in the folder.

Because AppleShare is the Apple standard for file sharing, any software labeled "AppleShare Aware" will run smoothly and transparently right across your network.

And you can expect to see some very powerful new "AppleShare Aware" multi-user and multi-launch programs by third party companies like Microsoft and Aldus.

The AppleShare file server also offers a "waste not" upgrade path. Small workgroups can start on a Macintosh Plus or SE. When the network's needs expand, transfer the server to a Macintosh II. And put the other Macintosh back to work as someone's individual workstation.

Large groups can work with multiple servers on one network. Simply use the Chooser to select the server you want, just as you select a LaserWriter printer.

Find out how AppleShare can get all of the computers in your office talking to each other.

Call 800-446-3000, ext. 600 for the name of an authorized Apple reseller. And start a dialogue that everyone can work with.

The power to be your best.
even better news is that the learning doesn't get in the way of the game.

But, there is bad news: *Alphabet Blocks* won't run with less than a megsbyte of memory.

The *Alphabet Blocks* screen shows a pile of (what else?) blocks labeled with the letters of the alphabet. There's a somewhat homely elf in the upper corner of the screen; he's the one who interacts with the child during the course of the game. The animation in this program is very careful: the elf turns sideways when he (she?) speaks, and the lip movements are slightly exaggerated versions of the real movement for each letter.

The game is entirely modeless (that's a compliment). If you click on a letter block, the letter is outlined on the block, the elf pronounces it, and an illustrative picture appears. Pressing a key on the keyboard also elicits the same response. If you click on the elf, he'll say a letter (or a letter sound if that's the program you're in), and you have to click on the corresponding letter block. Enough wrong clicks and some of the blocks disappear, leaving a smaller group from which to choose. The program keeps track of which letters get the most wrong responses, and selects that letter more often for practice.

There's lots of attention to detail in these programs: the elf, for instance, falls asleep if nothing's been happening for a while. A simple mouse click wakes him up. (The documentation insists that he'll never wake up grumpy.)

Clicking on the toy soldier changes him from a standing to a sitting position, and changes the letters from upper to lower case. Clicking on the light bulb that hangs over the blocks turns it on and off and highlights each of the blocks in turn while the letters are pronounced.

The sound in these programs is no robotic Macintalk — this is a pleasant, clear, digitized voice enunciating each letter and sound perfectly. No doubt that's what forces this preschooler program into the realm of mega-memory.

*Alphabet Blocks* comes with a booklet of letters and pictures. Each of the letter pairs (upper and lower case) is printed on its own page, with its corresponding picture on the facing page. The letters themselves are composed of miniature raised letters. Research in pre-reading skills has shown that the more senses that are involved in learning, the better. This booklet provides tactile information as the child fingers the letter outlines. I'm not sure I understand or agree with the decision to make the upper case letter on each page out of miniature lower case letters, and vice versa.

*Alphabet Blocks* is a smooth and educationally sound set of programs. Even a very young child needs little or no guidance in its use. At $49.95, it's a good buy if you already have the right hardware. If you're in my situation, though, it could be a very expensive package: I'd have to upgrade the memory of my sons' computer, to the tune of a megabyte of memory in your Mac, and you share the machine with your kids, *Alphabet Blocks* is terrific.

Sharon Zardetto Aker

Essentially, *LXR•TEST* is a specialized database. One immediate benefit of this, compared to a more general purpose database, is that all the work of designing templates and report formats has already been done for you. For example, creating a multiple choice test is as simple as typing the questions and their various alternative answers in the appropriate boxes.

Every question is assigned an objective and an identification number. These can be used to subdivide questions into categories (such as book chapters), which in turn greatly facilitate searching for or selecting specific questions. At any time, you can rename or resequence a group of questions by first using SELECT to choose the desired questions (multi-
No other drive comes with this.

"Best New Hard Disk of 1987"

MacUser Editors Choice Awards

The acclaimed Jasmine Direct Drive 80 is the standard by which all others are judged. Powered by the incredible Quantum 80 MB hard disk drive, it has become one of the most desired Macintosh peripherals ever made. And, like all Jasmine products, a long list of "extras" come along for the ride.

Direct Drive 80, $1399.00
To order call (415) 621-4339

Please circle 58 on reader service card.

Call or send now for Jasmine's free 1988 Catalog
(415) 621-4339
ple selection criteria are possible) and then using RECLASSIFY to make the necessary changes.

Beyond all that, LXR•TEST's flexibility in generating tests exceeds what is possible in most traditional databases. With a click of the mouse, you can change the number of alternative answer boxes displayed for each question. For example, the program easily shifts from displaying two answer boxes to six. The correct answer is indicated by a check-mark next to the appropriate letter. These choices can then be used in constructing answer keys for correcting tests. The program also allows for essay question formats, with an optional solution box for listing lengthy free-form answers or various other comments that pertain to correcting a test.

You get almost total control over fonts with the capability of making global changes. A ruler similar to that in MacWrite allows for right, left, or justified text. You can import both bit-mapped and object-oriented graphics and manipulate them to fit within the appropriate location of your question. The vertical size of each box within a question can be easily adjusted with the mouse, and the printed test reflects such adjustments.

When it comes time to print a test, simply choose TEST DESIGN from the File menu. This reveals a series of new windows. The most important one moves questions (in a manner similar to Apple's Font/DA Mover) from the test bank to a particular test. This allows you to select a subset of the total number of questions in the test bank for use in a particular test. Further options include the ability to create headers and/or footers with automatic date and page numbering.

LXR•TEST can also randomly scramble the ordering of the alternative answers of each question or the order of the questions themselves. This results in different versions of the same test, each with its own separate answer key — useful in preventing cheating when giving a test to a large class. Another function allows linking, so that questions on a related subject always appear together.

While the overall operation of the program is impressively smooth, there are some minor problems and annoyances. The procedure for moving to specific questions within the test bank is unnecessarily awkward: First you must type in both the objective name and number of the desired question, then click on an arrow on the opposite side of the screen. This is a nuisance when creating new questions that you want to compare to existing ones, or when cutting and pasting between two questions. Something like a "go to..." command would be preferable. Also, while the vertical size of a box is automatically enlarged as extra lines are typed, it is not made smaller if you delete lines. Similarly, if a question is set to display five alternatives but only three are used, the empty alternatives will be unnecessarily printed out unless they are specifically deselected by the user. It would be better if the program recognized these empty boxes and automatically deselected them.

Finally, there is the limitation inherent in all such programs: their main value is if you intend to use questions more than once. While such a program can save time even if you create a unique test on each occasion, doing so prevents you from taking full advantage of the program. Despite these shortcomings, LXR•TEST remains a powerful yet easy-to-use application that accommodates virtually any manner of test design. If you've been looking for a way to reduce the repetitive chores of test construction, then LXR•TEST may well be the solution.

— Ted Landau

HYPERDA

List Price: $69.
Published by Symmetry Corporation, 761 E. University Drive, Mesa, AZ 85203.

To hear everyone tell it, HyperCard is going to change the world. So who am I to disagree? After all, to be colloquial about it, it's one hell of a product. But how do you reach all that information when you're in a word processor or spreadsheet? Sure, there's MultiFinder, but the memory requirements will soon you shopping for SIMMs. [Editor's Note: Version 1.0 of HyperDA is MultiFinder-hostile, but Symmetry says that has been fixed with version 1.01 and higher.]

Enter HyperDA, a desk accessory from Symmetry Corporation that lets you open and browse HyperCard stacks from within another application or from the Finder, even with 512K Macs.

Call HyperDA from the Apple menu, choose a stack from a standard Open dialog, and you're in. The stack appears and runs just as it would under HyperCard's Browse tool. All stack links remain operational, and you can navigate through the information in normal HyperCard fashion. Several of HyperCard's Command-key sequences, including PEEK AT STUDIES (Command-Option) and PEEK AT FIELDS (Command-Shift-Option) are supported. If a button triggers an action that HyperDA doesn't support, clicking on it will produce no response.

HyperDA also lets you search stacks with the FIND command. You type a character string into the message box and comb your stack for references. Or you can type in HyperTalk commands (HyperDA supports a subset of the HyperTalk language) just as in HyperCard. HyperDA also lets you copy graphics or text to the Clipboard and paste it into an application document. The Option key turns the Pointing Hand cursor into a cross hair for deploying a selection rectangle. Move the hand over text elements, and it changes to an l-beam cursor for selecting blocks of text.

Need hard copy? You can print Individual Cards directly from HyperDA.

In the process of making stacks more accessible, HyperDA adds some things that HyperCard left out. First of all, the menu bar is accessible at all times. HyperDA can also open a stack.
What if you could add the power, reliability, and flexibility of backbone and star topologies to your AppleTalk local area network?

What if you could do it inexpensively—running the network on your existing telephone wires?
What if you could expand your LAN throughout your entire installation—link rooms, floors—even buildings? What if you could add workstations, printers, and other devices as easily as you plug a phone into a wall jack?

You can.

The PhoneNET System™ makes it easy and inexpensive to link Macintoshs, PCs, VAXes, and peripherals throughout an organization. Run on an available pair of telephone wires, PhoneNET builds networks that users can plug into at will. And when it's time to move people and equipment around, your network is already wired for action.

PhoneNET supports daisy chains, backbones, and stars. Add a PhoneNET StarController™ and reconfigure your network into an active star—increasing network size and degree of management control. StarControllers, wired right into your building's central telephone closet, make it possible to include floors and buildings in a local area network. Link StarController to StarController and create networks that keep going.

On. And on. And on.

Control all this power from your desk. StarController comes with StarCommand™ and PhoneNET Manager™; sophisticated network management, testing and fault isolation software.

Use these programs in conjunction with PhoneNET CheckNET™ and TrafficWatch™ for complete network troubleshooting, monitoring, management and planning.

Call or write Farallon Computing for more information about the PhoneNET System.
Reach the stars.

Farallon Computing
2150 Kittredge Street, Berkeley, California 94704
415 849.2331 Fax 415 841.5770
Please circle 4 on reader service card.
QUICK CLICKS

into a resizable window. COMMAND-W toggles from Card to Window mode, which facilitates cutting and pasting operations.

Stacks behave differently depending on the mode of display. In HyperDA's Card mode, stacks are always active. Click on a button and its function (if possible) is executed. And, even when hidden behind an active application window, the DA intercepts Command-key sequences. So, be aware of possible conflicts, such as COMMAND-F (FIND) and COMMAND-P (PRINT). When a stack is displayed in Window mode, however, the window must be activated before HyperDA commands will work or the stack can be browsed.

The manual is short, well written, and to the point. Everything you need to use the program is there. If you prefer, keep the stack version online and refer to it with the DA itself. Included is an appendix listing the HyperTalk commands supported by HyperDA. Other technical notes are available from Symmetry as well.

Of course, HyperDA is not HyperCard. It does not have all the original's features nor its functionality. You cannot modify stacks. Most of HyperCard's visual effects are not supported. Neither can you launch programs or execute functions such as automatic dialing. But then replacing HyperCard is not HyperDA's purpose. Its business is the retrieval of information, such as your appointment schedule or address book, from stacks without having to leave your application. HyperDA is, if you will, a link to HyperCard.

I tested HyperDA with a variety of popular programs and encountered no difficulties. HyperCard aficionados should find this DA extremely useful. Because it works on 512K machines (it's shipped on an 800K disk, so a double-sided drive is necessary), HyperDA is especially valuable to those Mac users who have not yet upgraded their machine's memory to the minimum 1 megabyte that HyperCard requires. HyperDA gives these users access to the ever-growing stacks of stackware without having to use HyperCard at all.

— Carlos Domingo Martinez

AMERICAN DISCOVERY

List Price: $59.95.

American Discovery is an interactive United States geography game for one or two players, with several good features and many faults. The most significant shortcomings are an unclear focus and the absence of an age range on the product. I rate it at about 10 years old and up, although one or two of the games might be fit for a younger child.

American Discovery is actually several related activities tied loosely together into a single game structure. The first game, Find the States, is fairly simple but well done. Players identify a given state by clicking in the outline of that state on a map of the United States. The only problem with this activity is the small size of the map: It's almost impossible to pick out Rhode Island.

You have two tries to get the correct state before the game gives away the answer. There is no time limit, which I happen to like. Questions are generated randomly, so you never know what's coming next.

American Discovery gives two points for a correct answer, whether it comes on the first or second try. The score can be displayed graphically after each question (with a horse running along a track), or hidden
Enter The New Age of Electronic CAD

The wait is over for a powerful, easy to use electronic design workstation.

With the new Douglas CAD/CAM Professional System, you can now experience computer-aided design without going over budget and without sitting through months of tedious training. Running on the Apple Macintosh Plus, SE and II, the Professional System from Douglas Electronics excels in price/performance, short learning curves and ease of use.

As the newest addition to the Douglas CAD/CAM line of printed circuit board design and manufacturing systems, the Professional System is a fully integrated engineering tool that will take you from the schematic drawing to the final routed board. The software features full color, unlimited multi-layers and .001" control which makes surface mount technology (SMT) and other difficult tasks a snap. Professional Layout includes a parts placement facility. Schematic includes fully interactive digital simulation and net list generation. A flexible, multi-pass router completes the design cycle with a 16 layer routing capability.

The new age of electronic CAD has come with the high resolution and speed of a Macintosh engineering workstation. You'll be designing your first circuit board just minutes after the Professional System software has been loaded into your computer. In addition, the Macintosh's graphics capabilities allow for powerful features such as the ability to transfer Professional System drawings into final engineering documentation.

Computer-aided design wasn't meant to be time consuming and complicated. If your present CAD system has got the best of you, it may be time you enter the new age of electronic CAD with the powerful, easy to use Douglas CAD/CAM Professional System.

Take your first step by ordering a full-feature Demo. All three programs are included for just $25.

Call or write for more information and to place your order.

Douglas Electronics
718 Marina Blvd.
San Leandro, CA 94577
(415) 483-8770

Macintosh is a trademark of Apple Computer, Inc.
Please circle 224 on reader service card.
Ultrasync.
You're looking at the new star in display technology.

Actual unretouched screen image.
A screen star is born.

Introducing Ultrasync. The high-resolution, autosynchronous color monitor that's PC and PS/2 series compatible.

Ultrasync, with its exceptionally fine (.28mm) dot pitch, creates a picture of incomparable clarity. Capable of displaying infinite shades of brilliant color with striking contrast and dimension.

But the real beauty of Ultrasync is its versatility. It has the greatest autosynchronizing frequency range combination available with 45Hz to 120Hz vertical scan range (NEC's Multisync starts at 50Hz and peaks out at 75Hz) and 15KHz to 35KHz horizontal scan.

Plug Ultrasync into any IBM PC/PS series, Apple Mac II, or practically any computer system and it will adjust automatically to the standard you are using. There's no fiddling with switches or knobs. Our automatic picture sizing feature prevents display distortion and shrinkage. A simple built-in text switch is provided for your convenience. What's more, you'll enjoy the ease and comfort of Ultrasync's ergonomically advanced design.

Nobody but Princeton Graphic Systems could bring you an image with such star quality at a suggested retail price that's remarkably affordable. $849. After all, we've been doing it all along.
How to account for everybody.

And we do mean everybody.

You see, the SBT Database Accounting Library is already accounting for more than 50,000 businesses of every conceivable description.

From law firms and construction companies, to retail stores and manufacturers.

From small businesses with one computer, to major corporations with hundreds.

And now it's available for the Macintosh!

"It is the most complete and professional package available on the Mac."

Scott Beamer, MacUser Magazine

Our software runs with industry standard database management programs, like McMax, the dBASE III PLUS workalike for the Macintosh from Nantucket.

The SBT Database Accounting Library is a modular system of accounting programs.

You simply pick the ones that match your needs and start accounting. And when your needs change, you can use our free McMax source code to make our software accountable to your way of doing business.

The SBT Database Accounting Library for the Macintosh.

Everybody who accounts for anyone should look into it.

Call us today for our demo disk and information package, and get yourself accounted for.

SBT offers a complete series of product and reseller seminars as well as training in dBASE IV and computerized accounting. Call for complete seminar descriptions.
QUICK CLICKS

until the player clicks the score (horse) icon on the screen. The score display window is very confusing, and there doesn’t seem to be any particular reason for the horse analogy. Clicking the NEXT button brings up another question, or you can set a default so it jumps automatically to the next question.

You can, if you want to, play Find the States out to its conclusion (100 points is the default winning score, though this number can be changed). Since this is probably the best of the various activities, it might be a good idea. However, the manual suggests answering “a few” questions in this game, then skipping on to the next game, Click the States. If you do go on, you’re still playing the same overall game, because the accumulated score goes with you. This is confusing.

Click the States is a strange reversal of Find the States. You’re asked to identify a state that is highlighted on the map by clicking on the state’s postal abbreviation in a small window. As the cursor arrow lands on an abbreviation, the full state name appears at the bottom of the window. Unless you happen to know postal codes, finding the state you want can be a pain, although there is a Hint button that tells you what the state’s capital is.

If Click the States is supposed to teach state identification, the author has picked an odd and, I think, unsuccessful way to do it. And it doesn’t teach postal abbreviations either—they seem to be there as a concession to having a small screen area to work with. Again, the manual suggests answering “a few” Click the States questions and then moving on; I recommend skipping this one altogether.
Spell the States is a more appropriate follow-up to Find the States. You have to type the name of the highlighted state, correctly spelled (including the initial capital letter). An answer is either right or wrong.

Find the Capitals and Spell the Capitals repeat the above activities for capital cities, although the first one is somewhat misnamed: You actually find a state when you're given the name of the capital.

In Neighbors, the outline of a state is shown by itself against a white background. The object is to name all the states that border it. The program does tell you how many states there are. Again, you select the states from a box of postal abbreviations (I really dislike this feature). As you correctly name a neighbor, its outline is added to the central state, but not in the big picture. Instead, there is a tiny outline of the state in a small window at the corner of the screen where the region builds slowly. This is done poorly. Why not just add the new states to the big outline?

As with the other activities, you're allowed only two tries to get the correct answer. While some states only border one other state, in some cases there are several states. Tennessee, for instance, is bordered by eight states, but the correct "answer," all eight, is still worth only two points. If you make any two errors as you compile the list, the answer is incorrect. Why do you get the same number of chances for naming one border state as you do for naming eight?

Rivers and Lakes (yes, there's one more) rounds out the basic game. A major river or lake is shown on the U.S. map, and you have to identify it by typing the name, spelled correctly, in the Answer window.

There is also a trivia game, with questions on a variety of topics that you select, and a Locations game with informational questions about specific areas. Both of these games can be customized by a teacher or parent, with a tool called Discovery Maker.

And one more: Outside the game framework is the best activity of the package, Exploring. This activity lets you pick particular states or regions to find out more information.

There are several worthwhile activities in American Discovery, especially Find the States and Exploring. But the program fails as an educational tool. It tries to do too much in the framework of a single game, so there is no real focus or goal and it has no logical flow. While the graphics are quite nice at times, the small size of the maps often makes them unusable. Also, the manual is a mess. It doesn't seem to know if it's speaking to teachers, parents, or kids, so it doesn't do very well at any of them.

American Discovery is frustrating, because it's a good idea that hasn't been done very well. It's OK, if, like many parents or teachers, you're desperate to find kids' software for the Mac. But it could be, and should be, a whole lot better.

— Michael D. Wesley

Solitaire Royale

List Price: $34.95.

Now and again, everyone needs a change of pace. Solitaire Royale is such a change for Spectrum HolobYTE, a company noted for its complex and realistic game/simulations. Compared to previous offerings (Orbiter, Gato, Falcon), Solitaire Royale, a Mac version of 11 popular solo card games, simplicity itself.

Eight games (Pyramid, Golf, Klondike, Canfield, Corners, Calculation, Three Shuffles and a Draw, and Reno) make up the core of the program. Most, if not all, will be familiar to veteran solitaire players, although not necessarily by the names the program uses. For example, the standard 28 cards in a seven-column arrangement is called Klondike here.

Normally solitaire games are zerosum affairs — you play against the cards and either win or lose. However, Solitaire Royale adds a scoring system to each game. This not only permits you to gauge your performance in losing games, it also forms the basis of the program's Tournament features. The Tour cycles you through the eight games, recording your score for each and the overall total. The Tournament allows any number of players to compete against each other with identically dealt hands. Solitaire Royale records the top five scores for each hand. By the way, the Tour can also be played in Tournament mode, and you can save both Tour and Tournament games to disk.

Also included are three children's games (Concentration, Pairs, and The Wish), which are found under a sub-menu. Although conceptually simpler (they all involve matching cards), their memory-jogging character makes them challenging.

You can choose from ten different decks of cards with five different face styles; the Oriental cards are particularly attractive. Four different screen backgrounds are also available. Most menu items are accessible from the keyboard. During play, you can drag or click cards to their new locations. You can have the hands dealt at normal or fast speeds, and you can toggle the sound effects on or off. With sound, only normal speed deals are possible, but the sound effects when you win are a nice touch. Test all the games — the reward display after a win is not always the same.

As presently constituted, Solitaire Royale only runs on the 512K, Plus, and SE. Unfortunately, it does not run on the Mac II. The reason is the program's copy protection, which, as well as hindering transfers to hard disks, conflicts with the architecture.
Simply eject the DATA•PAK™ cartridge and take a 45 megabyte Winchester hard drive home tonight! Trustworthy and reliable, with an average access time of only 25ms it's even faster than most fixed hard drives. Imagine sending or carrying 45Mb of CAD/CAE drawings, color graphics or presentations with the ease and safety of a diskette.

The revolutionary DATA•PAK also delivers the features you would demand in a more traditional hard drive system; self diagnostics, automatic park and lock heads, password protection, and volume partitioning are all standard. And with its unique 8Kb buffer it adapts itself to any Macintosh, while keeping its 1:1 interleave performance.

Use DATA•PAK's new transportable technology as your principle storage system and gain all the advantages of ultimate security (lock it in the file cabinet), easy organization of related projects, unlimited storage capacity and fast data back-up.

Available in three configurations. DATA•PAK is a single cartridge drive system; DATA•PAKdual™ is a dual cartridge drive system; and DATA•PAKquad™ is a single cartridge drive coupled with either a 40, 80 or 120Mb fixed hard drive. With DATA•PAK you now have POWER2 EXPAND!® 45mb at a time.

All the convenience of a floppy, all the performance of a hard drive. Buy a DATA•PAK now at your favorite Apple dealer!
of the II. If you wish to use it on the II or experience difficulties running it on SEs and Plus with 68020 accelerators, Spectrum Holobyte will exchange (without charge) your original disk for an unprotected version — a commendable support policy. Also, a company spokesperson told me that the copy protection will be removed later this year. However, until that time, the inconvenience costs the program's rating a mouse.

Otherwise, Solitaire Royale, designed by Brodie Lockard of Shang-bai fame, is solidly constructed, very playable, and visually appealing. Uncomplicated but challenging, it's the kind of game that will be played a lot because it doesn't require a large block of time. Solitaire Royale provides a nice change of pace when you need it.

— Carlos Domingo Martinez

STAR FLEET I: THE WAR BEGINS!

List price: $55.
Published by Interstol Corporation, P.O. Box 57823, Webster, TX 77598. (713) 486-4163. Requires 512K +. Version 2.1 reviewed. Not copy protected.

Star Fleet I: The War Begins! will appeal to anyone who has ever had the urge to take a spaceship's helm and single-handedly grapple with hostile alien races. But this is no game for dilettantes: Whereas previous Star Trek-style space operas emphasized the single mission, Star Fleet I is a veritable career opportunity, allowing the consistently successful player to scale the professional ladder from ensign to admiral.

Here the handsomely illustrated game package, and you begin to get a sense of what lies within. A solid pound and a half of documentation describes the use of phasers, torpedoes, mines, tractor beams, and transporters. Shield configurations are discussed at length, as are navigation, internal ship security, and damage control. Moreover, descriptions of the Krellan and Zaldron empires and the history of their war with Humanity imbue the straightforward tactical spiel with a rich strategic texture.

Curiously, the 60-page Training Manual describes advanced tactics such as hunting the invisible Zaldrons and the efficient use of shield energy, whereas the 100-page Officer's Manual covers the basic functions of the 13 ships. Equally curious, the Officer's Manual, originally written for the IBM and TI Pro versions, describes keyboard inputs that do not apply to the Mac. That text nevertheless remains an ugly necessity because of a cumbersome password copy-protection scheme. A concise and excellent 10-page supplement outlines Macintosh commands.

Rest assured that Interstol did a thorough job of porting the original version to the Mac. Double-clicking on an enemy vessel launches a torpedo; double-clicking on a disabled vessel takes it in tow with the tractor beam; do it once more and a company of space marines moves in to slag it out with the alien crew. The only impediment to a smooth interface is having to type in headings and velocities to navigate between quadrants.

Battle messages scroll across a movable, resizable window and conventional dialog boxes convey messages of varying seriousness. Indeed, the program is heavily spiced with a decidedly corny humor that surfaces at unexpected moments. As it worrying about the treacherous Krellans and invisible Zaldrons weren't enough, you must also deal with sewage backups in the captain's quarters, a crew protesting depleted pizza reserves, and power failures that flood the ship with melted ice cream. Initially funny — but ultimately maddening — is having to wait for your marines to subdue the Hungarian cook's runaway goulash. Starship Troopers this is not.

Comic diversions aside, the game's essence remains unobscured: To destroy as many of the enemy in the least possible time; earn high mission ratings; and progress up the ranks, where the missions become tougher. Success requires one thing: efficient use of the ship's energy.

Your Invincible-class heavy cruiser has 5000 units of power to energize shields, fire weapons, move within or between quadrants, track down saboteurs who sneak aboard your ship, or operate any other system. A point-blank blast from a Krellan warship scatters almost 500 units of energy to the solar winds. If you had less than 500 energy units invested in that particular shield, internal damage results. To fix it, you have to spend energy points on damage control or repair to the nearest starbase, which costs you only time and, consequently, rating points.

Two successful training missions get you out of the Academy and into uniform as a lieutenant, junior grade. Three missions with a mean rating of 75% promote you to lieutenant. Thereafter five missions are required. Superlative single-mission performances earn you any of 21 decorations, and with the numbers stored on disk, your service record is etched on a floppy for all to see.

Although many of the details contained in the documentation seem like useless window dressing — for game purposes you hardly need to know what the Officer's Academy curriculum consists of — Interstol will be fleshing out the series with the announced August release of Star Fleet II, which will put you in command of several Krellan vessels. Rumor even has it the series might prove resilient enough to reach Star Fleet VII sometime in the next decade. That should ease the minds of all the Admiral Emeriti out there, restless for a new challenge.

— James D. Hornfischer
How to expand 20Mb of external storage to 120Mb

The Competition

Only MASS ● MICRO Systems offers you the Power2 Expand! for $445

MASS ● MICRO Systems drives are designed with YOU and your Mac in mind! Our exclusive design allows you to start with 20Mb to 100Mb and expand your system up to 200Mb anytime you need the Power2 Expand!

Lightning fast average access of less than 35ms, low power consumption, and a unique locking system to automatically store the heads on power down, give our drives real value. More than reliable, with a 25,000 hr MTBF (one of the highest in the industry) you can depend on them for a long, long time!

Order Today - get the Power2 Expand! into your future! Includes our 24 hr/day, 7 day/wk Support Hotline, 30 day money back guarantee, and a 1 year warranty. Buy direct and save!

MASS ● MICRO systems
(800) 253-8900 (408) 988-1200 in CA
3250 Jay Street ● Santa Clara ● CA 95054
Certified Apple Developer

Compatible with all Mac Pros, SE, & IIs

| MASS+20e  | 20Mb | $649 |
| MASS+30e  | 32Mb | $849 |
| MASS+40e  | 40Mb | $949 |
| MASS+50e  | 49Mb | $1049 |
| MASS+65e  | 64Mb | $1149 |
| MASS+100e | 102Mb | $1649 |

Certified Apple Developer

Power2 Expand! Drives Please circle 228 on reader service card.

<table>
<thead>
<tr>
<th>Power2 Expand! Drives</th>
<th>Capacity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2E+20</td>
<td>20Mb</td>
<td>$489</td>
</tr>
<tr>
<td>P2E+30</td>
<td>32Mb</td>
<td>$549</td>
</tr>
<tr>
<td>P2E+40</td>
<td>40Mb</td>
<td>$649</td>
</tr>
<tr>
<td>P2E+50</td>
<td>49Mb</td>
<td>$749</td>
</tr>
<tr>
<td>P2E+65</td>
<td>64Mb</td>
<td>$849</td>
</tr>
<tr>
<td>P2E+100</td>
<td>102Mb</td>
<td>$1449</td>
</tr>
</tbody>
</table>

Corporate Accounts Welcome

MASS+STORAGE Family. Power2 Expand! and P2E Drives are all registered trademarks of MASSMICRO Systems, Inc.
We Can Handle Characters Like These.

Show most scanners anything but an image and they're at a loss for words.
Which is why we'd like you to see things differently.
We've always recognized the importance of

being able to scan photographs and art as high-quality images, which we happen to do very well. But we also believe in the power of words. Which, not surprisingly, make up 80% of all desktop publishing.

To prove it, we've designed two new series of DEST scanners.

So now while scanning photographs, illustrations, logos, mastheads and graphics into your Macintosh™ Plus, Macintosh SE, Macintosh II, IBM® compatible PC or PS/2®, you'll find it just as easy to get a word in, too.

In the time you'll save by not retyping documents you'll raise your office literacy rate. Our scanners read more business fonts faster and more accurately than any other scanner. Including first pass dot matrix, laser and daisy wheel print.

And everything on your screen will look like it did on the page. Making it easy for you to edit information.

GET A WORD IN EDGEWISE WITH OUR PC SCAN 2000 SERIES.
Our PC Scan 2000 Series scanners use an edgefeed design.

They scan up to 256 levels of grey-scale data, giving magazine-like quality results when printed on high resolution equipment like phototypesetters.

And they feature variable resolution scanning up to 300 dots per inch at speeds of up to nine seconds a page.

An optional automatic document feeder has a 35 sheet capacity.
As Well As Characters Like These.

THE BIG EVENT
The Marketing Events Newsletter Of The Civic Arena Manager

Event Staff Pin
Big Attendance Figures On Wrestling Matches

"Let me tell you one thing. Do you really think I care who I have to beat to a pulp to defend my belt? That is, if I can find anyone without a wide yeller streak down his back to take me on. My daddy always said, 'If you can't stand the heat, kick out a window.' And brother, I see a lot of broken glass!"

The ratings of a mad man? Perhaps. But "The Human Sledgehammer" and dozens of other wrestlers like him are just mad enough to bring wrestling fans by the thousands to civic arenas all across the country.

For many marketing managers wrestling matches have become the rock concert attractions of the '80s.

Industry attendance figures seem to prove Turk's point.

In the first two months of the year, there were 37 wrestling matches held in the country. From a 57,000 seat arena in Denver to a 3,000 seat junior college gym in Raleigh. Total attendance for the matches has been estimated to be in excess of 500,000.

And it doesn't show any sign of slowing down.

More Facilities Benefiting From Hotel Tax

Seattle and Bismarck, North Dakota are just two cities that have passed legislation to enact an "enter-

tainment tax." Hotel and motel rooms, along with restaurants, add a surcharge to each customer's bill to help finance improvements to public convention, meeting and entertainment facilities.

"It worked wonders for us," says Linda Connell, the chairperson of the Bismarck Meetings Group. "The amount of the tax, which varies depend-
ing on the item taxed, hasn't affected us negatively in any way at all."

"We were a little leery at first of visitors complaining about the tax, but it's so little no one seems to really notice. But even though it seems small, it really adds up quickly."

How has the tax helped Bismarck?

"Very well," according to Connell. "This spring we'll be financing over 15,000 new square feet of exhibition space for our convention center. That's space that otherwise wouldn't have been available. Unless we passed a bond issue—which never seems to be a very popular idea."

For more information on how your city can benefit from similar legislation, please contact the public affairs office of The Big Event.

Deadline Approaching For Next Month's Articles

Remember, the deadline for all articles submitted to The Big Event is the 10th of each preceding month.

Send your pieces, double-spaced please, to Carol East, Events Coordinator, POB 8384, Seattle, WA 98132.

Dues To Remember

Executive Meeting Planners Association
June 13-18
St. Louis, Missouri

National Events Association
August 18-21
Portland, Oregon

For full information, please contact the association.

As it scans for today’s most popular DOS-based word processing programs.

With a single keystroke.

If you’d like more information on our desktop scanners, call 800-538-7582 outside California. Or 408-946-7100 inside California.

And we’ll show you how to avoid buying a scanner with a character flaw.

© 1988 DEST Corporation. PC Scan is a trademark of DEST Corporation (not to be confused with PC Scanner, a trademark of Utex Corporation). Other names indicated by "®" are trademarks and/or service marks of their respective manufacturers.
The Word is Out...

"Absolutely AMAZING word processing program. I want it WriteNow!"
Robert Forras, MacTimes

"This is the word processor that we designed and built Macintosh for."
Steve Jobs, NeXT Inc.

"WriteNow feels perfect.... It's hot. Highly recommended. This is THE word processor to use if you use a Mac."
John Dvorak, San Francisco Examiner

"Right now, WriteNow comes the closest to delivering on the promise of future word processing."
Michael Miller, InfoWorld

"T/Maker's WriteNow For Macintosh is a polished word processor that retains the elegance of MacWrite but adds features like multiple windows, footnotes, multiple columns, and a spell checker."
Dan Farber, MacWorld Magazine

"...WriteNow adds up to a great new word processor. ...its ease of use and speed put it way ahead of Microsoft Word and MacWrite for most jobs."
Vicky Jo Varner, The MACazine

Best New Word Processor
MacUser Magazine 1986

WriteNow
FOR MACINTOSH

Performance Word Processing for the Macintosh

To learn more, see your local computer dealer today, or call or write to:
T/Maker Company, 1973 Landings Drive, Mountain View, CA 94043 (415) 962-0195

Suggested retail price of WriteNow For Macintosh is $175. Runs on any Macintosh.

T/Maker is a registered trademark of T/Maker Co. WriteNow is a trademark licensed to T/Maker Co.
Macintosh and MacWrite are trademarks of Apple Computer, Inc.

Please circle 29 on reader service card.
Found a trick, short cut, or a smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o MacUser, Suite 250, 110 Marsh Drive, Foster City, CA 94404. We pay at least $25 for every hint we publish, plus we’ll print your name and hometown.

Every month we’ll select one tip as the Tip of the Month. The person who sends in that tip will receive $100 for it.

MULTIFINDER 1.0

When selecting a desk accessory, press the Option key as you click on the Apple menu. The DA you select will bypass the DA Handler and operate only in the application you’re currently using. Bypassing the DA Handler allows DAs such as Icon Maker to perform properly while using MultiFinder. (This technique works with Suitcase, too.) Make sure you’ve allocated enough memory to the application (use GET INFO) so that the application and the DA can run at the same time.

BRAD FERGUSON
NEW YORK, NY

AUTOBLACK

If you toss AutoBlack into your System folder and rename it “MacsBug,” it will turn your screen dark after five minutes of inactivity, and also allow background operations to continue. The INIT version of AutoBlack may run into interference problems with other INITs or programs that play games with the video, like Stepping Out. However, the application version of AutoBlack appears resistant to these problems.

DOUGLAS G. MILES
ELLENSBURG, WA

TRAPEZE

Trapeze lacks an option to shadow the neat charts it produces. However, there is a way to add shadows. Start by selecting TRANSPARENT BLOCKS, which is found under the SHEET SETUP command (COMMAND-`). After creating and setting your chart to the size you want, duplicate it (COMMAND-D). This will create a second chart the same size as the original. Double-click on the new chart and select the SHOW DATA ONLY option. Set all the active data series to black (or whatever shade or pattern you want the shadow to be). Select SEND TO BACK (COMMAND-L) and the duplicated chart will act as a shadow for the original. If you need to move the charts, be sure to select both of them at the same time. This technique works particularly well with pie, bar, and column charts.

MARK TOWLER
FT. WORTH, TX

TIP OF THE MONTH

WORD 3.0X and EXCEL

You’re allowed to “personalize” your master disk with Word or Excel by entering your name and/or organization into a dialog box.

But once you’ve done that, all future back-up copies display this information in an Info box when you open the application. The documentation states your disk will be “permanently marked.” If you desire to change what was entered, here’s the solution.

Using a file editor such as Pedit, display the application’s data fork. Pull down the Options menu and select SET EOF or SET END OF FILE. Then select ZERO, which eliminates the application’s data fork.

The next time you run the application, it prompts you to enter the “personal” information again, as if you had a virgin master.

DONALD R. ALLAIN
NEWMARKET, NH
Developing scientific experiments takes creativity. Writing code to run them takes sweat. At least it used to. But no longer. Because we've just solved the scientific and engineering programming problem.

YOU CAN WRESTLE WITH A FEW THOUSAND LINES OF CODE TO PROGRAM YOUR EXPERIMENTS.

OR YOU CAN USE LabVIEW.

Picture the perfect programming language. Imagine software where diagrams are really executable programs.

Imagine running experiments and simulations through front panels that look and act just like instruments. On screen!

Imagine reusable software modules that can control your instruments, in any application. Programs for data acquisition, data reduction, signal processing, analysis, conversion, and display.

Imagine a programming environment so powerful that productivity is measured in hours instead of days.

The Macintosh made it possible. LabVIEW made it happen. Automated testing, measurement, and simulation has never been easier or faster.

Call for details. 800/531-4742.

DESKTOP ENGINEERING HAS ARRIVED.

NATIONAL INSTRUMENTS
12109 Technology Blvd.
Austin, TX 78727
800/531-4742 512/250-9119

Please circle 72 on reader service card.
since you can’t have files with identical names in the same folder.

William K. Sacco
New Haven, CT

JAZZ

When using Jazz or other programs that don’t let you delete files from within the program, the following technique helps you purge obsolete versions of files.

For the files you want to delete, use Save As and add a ‘-T’ (short for Trash) to the end of the file name. When you quit the application and return to the Finder with a NAME chosen for the View, every file that should be deleted now appears twice, once with the original name and once with the ‘-T’ suffix. Just carry both copies to the trash.

Jeffrey A. Zarkin
East Lyme, CT

SYSTEM

There’s an easy way to have all your cdev resources appear in the order you want. The cdevs appear in alphabetical order following the General cdev when you select the Control Panel. To put them in the order you want, simply rename the cdev files; what I do is place numbers in front of the original names.

In order to rename the cdev files, you have to duplicate them, rename the copy, then throw away the original.

Paul R. Pudate
Urbana, IL

In order to get COMMAND-SHIFT-3 (the System utility that creates MacPaint-type snapshots of the screen) to work on a Mac II, configure the video card to use only two shades of gray. If the card is configured for 4 or 16 shades, the COMMAND-SHIFT-3 combination won’t work.

Gary Mushlin
Leavenworth, KS

Here’s a tip on how to get back to the Finder from games like MacJack and Crystal Raider.

Press the Interrupt button on the side of the computer. Then type G 40F6D8 and press the Return key. Though it may not work with every application, it’s a blessing in those that it does. Play away! (I thought this might be of special interest to the reader who asked a question about a similar problem in the “Help Folder” in the November ’87 issue. He was told there was nothing you can do.)

Doug Hassman
Livingston Manor, NY

When presented with a Save or Open dialog box, pressing the Tab key is a short cut to clicking on the Drive button. It selects the next available disk drive.

Jason Haslup
Cave Creek, AZ

Word 3.0X

Word lacks the ability to convert text initially typed as capitals to lowercase. COMMAND-SHIFT-K will toggle between text “as typed” and all uppercase, but it doesn’t convert text initially typed as capitals to lowercase. Also the capitalizing effect is lost when the file is saved as Text Only.

Surprisingly, MacDraw comes to the rescue. Text copied from Word can be pasted into MacDraw. Select the pasted text in MacDraw, then from the Style menu choose LOWERCASE.

Next, copy the text and paste it back into Word. The newly pasted text remains uppercase even when saved as Text Only.

By setting BELOW and DOUBLE borders on the paragraph menu of Word, you can obtain a double line beneath a paragraph.

Then, on the paragraph directly below that one, set the borders for DOUBLE and ABOVE. The result is an interesting group of three horizontal lines, as shown.

Michael Elenko
Seattle, WA

One problem with Word 3.0X is that Microsoft’s choice of long menu titles, such as Document and Window, plays havoc with the length of the menu bar especially when desk accessories add their own menus to the menu bar.

You can’t change Word’s menu titles to something less verbose with a utility such as ReEdit, because Microsoft didn’t use menu resources. So, use a file editor such as Fedit. Perform an ASCII Search for the capitalized word “Document.” This reveals the program area where the names of menu titles are stored. Each title
When it comes to design, you need tools that don't get in your way. Whether you're doing graphics for desktop publishing or architectural design, you want CAD software to emulate your mind.

Welcome to MacDraft. The best selling CAD package on Apple Macintosh systems. With over 50,000 owners, it's the program of choice for a wide range of professionals. The reason is simple. As in easy to use.

In a matter of hours, you can be up and running. And productive. Creating designs you never thought you could do. With a program that costs so little.

MacDraft also has power. To begin with, you set the size and scale of the drawing. Then click on icons to draw circles, rectangles, arcs, polygons, ellipses, free-form shapes and more.

Desktop Publishing and Presentations.

Architectural and Engineering work.

All in a variety of line thicknesses. Zoom in to do detail work or zoom out to see entire drawings. Add dimension lines to show lengths of lines or sizes of objects. Automatically calculate the area of any object. And resize entire groups. All at the push of a button. After July, all MacDraft registered owners can buy DREAMS, our more powerful CAD software, for $200 as a special offer. It's our way of saying thanks. See your local dealer and get MacDraft. It's time to get started.

A GREAT PLACE TO START

Please circle 164 on reader service card.
is preceded by the length of the title. For example, change the 8 in front of “Document” to 3, then issue the command WRITE SECTOR. That’s it. Using this technique, you can completely rename or shorten Word’s menu titles. If you rename titles, make sure your new titles are no longer than Word’s old ones.

NEIL RANSOM
PLAINFIELD, IL

Generally I need to spell check an entire document, but I don’t like going to the beginning of a document before running the spelling checker. If I don’t start at the beginning of the document, then I get a “Continue Check from beginning” dialog from Word.

In order to check the entire document without moving the cursor to the beginning, select the entire document by moving the cursor to the left margin, where the cursor changes to an arrow, then click the mouse while pressing the Command key. Now run the spell checker. The entire document will be checked in one pass.

DANIEL X. MEZA
LONG BEACH, CA

In your February ’88 issue I saw a tip about the use of the Print Merge feature. This explained the “Missing Comma in Data Record” dialog box, but didn’t explain how to find the omitted comma easily.

The easiest way to find a missing comma is to select the New Document button in the Print Merge window. This creates a document on the screen. When you come across the “Missing Comma in Data Record” dialog box, quit the Merge and scroll the document to the last record. The next record in your data file is the one with the problem. Once you have a successful Merge to the screen document, select PRINT and you are assured of printing the entire batch successfully.

RICK FRASER
SAN FRANCISCO, CA

While setting up a template for memos, I stumbled across the fact that the “auto date” from the headers or footers can be copied and pasted anywhere in a document. It continues to change automatically each time you start a new document. An “auto date” can be distinguished from text containing the date by using the SHOW PARAGRAPH command (COMMAND-), which displays a dotted outline around “auto dates.” This also works for the time and page numbers. You can also paste “auto date” into the glossary and add it to your Work menu.

LELAND F. MCARTHY
REDWOOD CITY, CA

When outputting legal-size Word documents on the LaserWriter, the top two inches of text will be chopped off unless you select a larger print area.

To select a larger print area, hold down the Shift key when you choose PAGE SETUP. After selecting Legal Size, click the Option button. From the Option menu, select LARGER PRINT AREA. It’s a documented feature, but many people seem to miss it.

JOHN T. HOLTON
NEWARK, DE

IMAGEWRITER

Here’s a way to obtain the fastest and best print quality from your ImageWriter II. You can access the ImageWriter II’s built-in proportional fonts from within MacWrite or Microsoft Word. Certain fonts when printed with the “draft” quality access the printer’s internal proportional fonts.

These internal proportional fonts are: Boston II 10 and 12 point, Toronto 12 point, Chicago 12 point, Venice 14 point, London 18 point, Athens 18 point, and San Francisco 18 point. Other fonts, such as Geneva, use a monospaced font in draft mode that produces awkward spacing.

DAVID L. HARTEN
WILLIAMSVILLE, NY

Here’s a foolproof way to deal with the ImageWriter II’s frustrating tendency to crunch up paper as its paper-advance teeth lose track of the perforated edge. First, place the printer on a table top with the back of the printer about 9 inches from the edge. Then put a phonebook (about 3 inches thick) between the edge of the table and the printer. Next, thread the paper from below the table, over the phonebook, into the printer, and out again. Whenever you print, start on the second sheet of paper. Attach a heavy paper clip to the paper and let it gently pull the paper over the phonebook behind the table. Leave at least another 7 inches between the table and the wall for gathering the printed output. This costs you extra space and paper, but the printer will finally stop crunching up your paper.

ERIC KELLER
ROSEMERE, QUE., CANADA

DESIGN 2.0

Need a larger viewing area? Tired of mousing around? Here’s a tip they don’t tell you in the User’s Guide. Typing Shift plus an arrow key scrolls through a document. (Does COMMAND-SHIFT plus U, D, L, or R for scroll up, down, left, or right.) Adjust the Scroll Rate by selecting PREFERENCES from the File menu. Click off Window Scroll Bars.

For an even greater viewing area, select HIDE STATUS BAR from the Edit menu and click the editing window’s Zoom Box.

ROGER A. KENYON
LYNNWOOD, WA

SUPERPAINT

Here’s a way to create interesting shadowed text using SuperPaint. In the draw mode, select the font and style (Bold works best), and type your text. Switch to the Paint layer and choose a brush pattern, such as a simple dithered gray. Next, choose TEXT PATTERN from the Style menu, and on anoth-
Introducing APPLE•CRATE...

Our sub systems have been designed to provide quick and easy installation and are fully compatible with Apple Mac Plus, Mac SE and Mac II.

These powerful systems include driver and utility software, an internal power supply, SCSI cabling, all necessary hardware and have been shock mounted for trouble-free transport.

The Apple Crate comes with a 2 YEAR WARRANTY on parts and labor and a direct watts line to our “72 hour turnaround” service department.

Complies with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules. Patent pending.

Apple, Apple Mac Plus, Mac SE, and Mac II are registered trademarks of Apple Computer Inc.

The Apple Crate provides:
- Additional SCSI port which allows daisy-chaining up to 7 SCSI devices
- Convenient fuse holder
- SCSI address select
- Controls and cable controls—clearly marked and easy to operate.

In California 800-323-9994  Nationwide 800-543-5808
Call for same day orders or technical support

APPLE•CRATE
6850 Vineland Ave., Bldg. M., North Hollywood, CA 91605
(818) 766-4001

Please circle 40 on reader service card.
er part of the page, type the text exactly the same as the text in the Draw layer of SuperPaint. Switch back to the Draw layer and move the original text over the patterned text to give you a shadowed effect. When you are satisfied with the effect, copy the shadowed text onto the Draw layer.

Michael Klingbeil
Lake Forest, IL

PAGEMAKER

When using PageMaker, I often need toudge an object just a small distance. Dragging with the mouse rarely provides precise control. Easy Access, an INIT that comes with the new System, is useful for this situation. Just press COMMAND-SHIFT CLEAR to turn on the Mouse Keys. Press the 0 key to lock the mouse button down, then use the numeric keypad to move the pointer (press 8 to move up, 6 to move right, etc.). To move the pointer one pixel on the screen, tap the key once. For longer movements, hold down the key. Pressing the decimal point unlocks the mouse button, and pressing the Clear key turns off the Mouse Keys.

Kevin Fong
Los Angeles, CA

RED RYDER 10.0

After a while, Scott Watson's title page gets old. To change this, go to Personal Preferences under the Customize Window. You will notice that "Display title screen at program startup" is not highlighted (on the Mac II with a color monitor, it's in red) and cannot be changed. To avoid this, repeat the function from the start, holding down the Shift and Option keys. Now you will be able to turn the Startup screen off. I feel younger already.

Dennis Baker
West Covina, CA

MACCALC

MacCalc is extremely fast, but recalculation causes significant delays with big spreadsheets. When using the time-saving MANUAL RECALC option, MacCalc still calculates individual formulas as they are changed or created. This is helpful if you want to see the new values of one or two existing cells without recalculating the entire spreadsheet. Click on the cell of interest, edit its formula to make some minor change, and then edit the formula back to its original state. For example, delete the last character of the formula, then replace it. Press the Enter key, and that cell (and only that cell) is recalculated. The entire process can be done in a second or two.

Jeff Lindsay
Appleton, WI

EXCEL

In Page Preview in Excel I discovered that while in the Blow Up mode, the arrow pointer turns into the hand scrolling tool when the Option key is pressed. An Option allows you to scroll to any part of the document without going back to the Full Page mode, moving the magnifying glass, and then clicking on the other part of the document.

Carl D. Smith
Issaquah, WA

Using Excel’s FIND command (the one under the Formula pull-down menu, not the FIND under the Data pull-down menu) with nothing in the 'Find What' field finds unoccupied cells. With this command you are restricted to the actual size of the worksheet (i.e., the worksheet area you have highlighted). If you try to execute FIND from the keyboard with COMMAND-H, Excel bypasses the Find window and selects the next occurrence of the search string (i.e., the next blank cell). If you want to open the Find window from the keyboard, just type COMMAND-F.

Daniel B. Weber
Pittsburgh, PA

You can create a cell with a blank numeric format. In other words, you can enter a value into the cell and it won't show. I use this and the LOOKUP function in an entry area of the spreadsheet for my company billing template. The blank format cell is the entry area for a code number that corresponds to the Town, State, and Zip code in the Lookup table. The code number itself is never displayed. Here's the technique:

1. Select the cell to format.
2. Choose NUMBER from the Format menu.
3. Hit the Backspace key, then the Space bar.

4. Press the Enter key to return to your worksheet.

Dan Smith
Merrill, IA

In Excel, when you want to copy a formula from one cell to another but still keep the reference absolute, you normally add a dollar sign ($) before the reference, and then Copy and Paste.

There is another way. By copying the formula from the formula bar instead of copying the cell itself and pasting it as usual you end up with the same cells being referenced in the new location. The procedure goes like this:

1. Select the cell that you want to copy
2. Select Formula from the formula bar
3. Press COMMAND-C or choose COPY from the Edit menu.
4. Click on X in the formula bar
5. Select the cell that you want to paste and press COMMAND-V.

You now have exactly the same formula in the new cell.

Mario Topete
Mexico City, Mexico

MACUSER MAGAZINE

In case you are reading an article in MacUser and you don't finish it, simply tear out one of the subscription cards and place it between the pages of the article. It makes a nice bookmark.

John Andrew Schafer
Chagrin Falls, OH

[The blow-in (loose) cards are easier to get out. — Ed.]
"We'll take it back"

—Réal Provencher
chase. If not, just send it back. That way, you’re sure. And, we even offer discounts with our Try-Pack™ specials. We want customers to be happy with their purchases, whether they’re looking at a new program, or buying a second copy for use at home.”

—Barbara

GRAPHICS
ClickArt Graphics (All) 29.00
Canvas 119.00
Cricket Draw 175.00
Draw It Again Sam 92.00
Cricket Graph 119.00
Graphics Works 39.00
Image Studio 290.00
MacDraft 159.00
My Disk Labeler (color) 32.00
PictoGraph 105.00
Picture Base 59.00
Pixel Paint 209.00
Post Art 41.00
Print Shop 39.00
Video Works II 119.00

WORD & PAGE LAYOUT
Notes For Pagemaker 42.00
Vision 119.00
Acta 36.00
Coach 3.0 62.00
Coach Professional 119.00
Coach Thesaurus 36.00
Findwell 32.00
Fluent Fonts 2.0 46.00
Fluent Laser Fonts (All) 46.00
Fontographer 242.00
FullWrite 179.00
Lookup 30.00
MergeWrite 30.00
More 161.00
Read It! (OCR) 172.00
Read It! (Thunderscan) 89.00
ReadySetGo 4.0 290.00
Spellswell 44.00
Thunder 33.00
Word Tools 47.00
Works Plus Spell 43.00
Write Now 101.00

DISK DRIVES
CMS Pro 45 SE 749.00
CMS Pro 60 II 779.00
CMS Pro 100SE 1495.00
CMS Pro 102 II 1195.00
CMS Pro 140 II 1695.00
CMS SD 20 579.00
CMS SD 60 879.00
CMS SD 102 1395.00
CMS SD 140 1795.00
CMS TS-60 (Tape backup) 795.00

OTHER PERIPHERALS
Minuteman 300SS UPS 489.00
Qume ScripTEN Laser Printer 3895.00
Thunderscan 4.0 199.00

COMMUNICATION HARDWARE
Smartmodem 1200 299.00
Smartmodem 2400 449.00
Anchor 1200 Modem 129.00
Anchor 2400 Modem 169.00
Phone Net Adaptor 8.00
Phone Net-512 or Mac Plus 45.00

MONITORS
LaserView 19 Monitor - Mac II 1799.00
Moniterm Viking 1 (Hi-Res) 3650.00
Moniterm Viking 10 (Color) 3695.00

Whether you want to buy a program, or wish to try several competing titles, you’re assured of getting Software That Fits. Call us right now, and ask for our free catalog.

WINNERS

GRAPHICS
ClickArt Graphics (All) 29.00
Canvas 119.00
Cricket Draw 175.00
Draw It Again Sam 92.00
Cricket Graph 119.00
Graphics Works 39.00
Image Studio 290.00
MacDraft 159.00
My Disk Labeler (color) 32.00
PictoGraph 105.00
Picture Base 59.00
Pixel Paint 209.00
Post Art 41.00
Print Shop 39.00
Video Works II 119.00

WORD & PAGE LAYOUT
Notes For Pagemaker 42.00
Vision 119.00
Acta 36.00
Coach 3.0 62.00
Coach Professional 119.00
Coach Thesaurus 36.00
Findwell 32.00
Fluent Fonts 2.0 46.00
Fluent Laser Fonts (All) 46.00
Fontographer 242.00
FullWrite 179.00
Lookup 30.00
MergeWrite 30.00
More 161.00
Read It! (OCR) 172.00
Read It! (Thunderscan) 89.00
ReadySetGo 4.0 290.00
Spellswell 44.00
Thunder 33.00
Word Tools 47.00
Works Plus Spell 43.00
Write Now 101.00

Hundres more...No surcharge on Mastercard and VISA. Purchase orders accepted on approved accounts. Sorry, no COD's or personal checks. Trial purchase based on 10-day minimum, plus six free days for shipping. All hardware sold with 30-day money-back guarantee. Prices subject to change without notice.

SONY and KAO disks at BIG Savings...Call Now!
We want you to be happy with your software and hardware purchases. So, we offer a return policy, unique in the industry.

“If you aren’t happy with any program you buy from us, send it back, in salable condition, and pay only our regular daily trial rates. Hardware carries a 30-day money-back guarantee. No ifs, ands or buts.”

“Real

ACCOUNTING

Checkmark Payroll 209.00
General Accounting 55.00
In Sight OneWrite 199.00
In Sight (GL/AR/AP)* Call
In-House Accountant 99.00
MacInTax '87 63.00
MacInTax Planner 47.00
Rags to Riches 120.00
GL, AR or AP 299.00
GL/AP/AR 3-pack 299.00
Inventory or Professional Billing 239.00

*AP, A/R available in multi-user

“We’ve found more and more customers who want to do business with us, because of our personnel and our style. These people know the software they want to buy. We want to offer the most attractive service, including the ability to return software that doesn’t fit.”

“Lew

BUSINESS

CAT 239.00
Eureka: The Solver 129.00
Fast Forms 96.00
Focal Point 60.00
MacCalc 81.00
Mathview Pro 149.00
Micro Planner + 299.00
Notes For Excel 42.00
Notes For MS Works 42.00
Statworks 75.00
WillMaker 30.00

COMMUNICATIONS & NETWORKING

CompuServe Starter Kit 24.00
ComServe 124.00
In Box 215.00
Laser Serve 64.00
Mac Serve 164.00
Maclink Plus 149.00
MacNet Starter Kit 36.00
Microphone 1.1 119.00

DATABSES

Double-Helix II 369.00
McMax 189.00
Omnis 3/Express 335.00
Record Holder Plus 45.00
Reflex Plus 165.00

“Impressions answer a lot of questions, but it usually boils down to one or two programs that seem like they’d do the job. Customers like knowing they can go ahead and buy what they want, and still be able to return it, and not get stuck. And, our customers know we don’t charge their card, until the order’s been shipped.”

“Jim

DESK ACCESSORIES & UTILITIES

Copy II Mac 23.00
Disk Express 35.00
Disk Fits 49.00
Disk Tools Plus 33.00
Disk Top 32.00
Expressionist 49.00
Fastback 39.00
HFS Backup 37.00
HFS-Locator Plus 26.00
Hyper DA 41.00
Icon-It 39.00
Mac Zap 39.00
MacTree 41.00
Power Station 38.00
QuickDEX 24.00
Quickkeys 64.00
Sentinel 179.00
Sidekick 2.0 64.00
Smart Alarms 37.00
Smartscrap & the Clippers (800K) 37.00
Stepping Out 56.00
Suitcase 38.00
Super Glue 56.00
Super Laser Spool 89.00
Super Spool 49.00

“Trial purchase is a unique option, we offer. You can look at one, or several programs, to see which one best fits your application. You rent a program for a set daily fee (10-day minimum—we include 6 free days for shipping). If you decide you want to keep the program, trial fees apply toward pur-
HYPERCARD

If you want to expand the cursors of HyperCard, make the ones you need with ResEdit, and call them from HyperCard by indicating the ID Number. The browse root and all other HyperCard icons and cursors are in the FONT resource of HyperCard, shown as a strange "12 ID 31756." You may not be able to open a resource with the ID number set so high. You can change the ID number, temporarily, to a lower number using GET INFO from the menu bar. Now you can open the resource, make your changes, then reset the ID number to the previous value. Be sure to save the changes.

If you want to print a card from a stack with better quality, especially text, export the card data to a Paint program, and print in the best quality available.

Ralph Narusak
Honolulu, HI

4. Type "it" into the Message Box and press Return.

The Message Box should contain the exact name (or, for patterns, a number) that HyperCard needs to identify that item.

Alison Moore-Smith
Provo, UT

Showing the time in a stack is nice, but it becomes a pain in the mouse if the stack is used for keyboard input. At the end of each minute, HyperCard updates the time. If you happen to be typing when the clock strikes, HyperCard abandons the text field to update the Time field, and your keyboard turns into a pumpkin. One way to ensure uninterrupted keying is to have HyperCard only refresh the time when you are not keying. The following lines in your stack script will do just that (assuming a field named "Time" is in the background):

```hypercard
on openField
    set lockText of field "Time" to false end openField
on mouseLeave
    set lockText of field "Time" to true end mouseLeave
on idle
    if lockText of field "Time" = true then
        put the time into field "Time"
    end if
```

Bill Swagerty
Valencia, CA

HyperCard's doMenu function is useful for selecting desk accessories with a button. However, it will not work with Affinity Microsystems' AffiniFile because of the space between the words. The space is available as a character in the Chicago font but not in HyperCard's script font (Monaco). To enable HyperCard's doMenu function to access AffiniFile, do the following:

2. Open the System File.
3. Open DRV.
4. Select AffiniFile.
5. Select GET INFO from the File menu.
6. Delete the space from the file name.

Now the file appears as AffiniFile and can be easily accessed with HyperCard's doMenu function.

Dean H. Wette
Clayton, MO

DARK CASTLE

One big problem many Dark Castle players have is getting to Fireball without making the mistake of going through Trouble. One solution is to press the Keys 1 and 2 simultaneously while you are in the Great Hall. It is only effective if you press the keys instantaneously.

Sharif Laurent
Austin, TX

McMax

Ever had your printer jam in the middle of a long-running McMax report or label form? Don't start back at the beginning. Use the FIND command to position the record printer where you had to stop (for example, FIND 71105). Resume your printing where you left off by specifying "rest" after the command, (i.e., LABEL FORM MAILLIST REST TO PRINT). Although the documentation does not mention this option, it works every time, just like it does in dBASE II+.
In their day, they ruled over three quarters of the earth's surface.
During WWII, they viciously brought Britain to her knees. And Japan to the ground.
These were the silent killers: Tench. Gato. U-Boat.
And now, they return. In this, the most realistic, all-encompassing simulation ever created for the personal computer.
You will command one of six types of American subs or German Kriegsmarine U-Boats, during any year from 1939 to 1945. You'll perform one of over 60 missions. Or you'll engage in the most difficult task of all: To make it through the entire war.
Each vessel is completely unique and painstakingly authentic, so you'll have a lot to learn: Navigation. Weather. Radar. And the contents of a vital target book, among other things.
Your arsenal will include deck and anti-aircraft guns. Torpedoes. And mines. But even all that may not be enough.
Because besides the risk of bumping a depth charge or facing a killer Destroyer, you'll still have to contend with the gunfire of enemy aircraft.
No simulation has ever had the degree of authenticity, gut-wrenching action or historical accuracy of this one.
The first release of our new Masters Collection. And a challenge of unbelievable depth.

**EPYX**

**Apparel II & compatibles, Apple IGS, Atari ST, Commodore 64/128, IBM & compatibles, Macintosh.**

**-independent generator & diesel engines.**

**Salt water tank, for trimming and compensating.**

**5" 25 cal. gun.**

**Officer's quarters.**

**Water purification.**

**Please circle 22 on reader service card.**
“Anyone intensely interested in productivity who sees 4th Dimension becomes a Mac convert.

“Four years ago, Macintosh™ opened a new era in computing. Now, 4th Dimension opens a new era in databases. For the first time, you are not forced to trade power for ease of use. 4th Dimension endows individuals with an elegant tool to analyze and control information—simple or complex, single user or multiuser.

Can you, a first time user, get great results quickly with a relational database? Yes, you can.

Can you, a developer, get more freedom, more features, more support to create outstanding products? Yes, you can.

Can you, a dealer, confidently deliver a database solution? Yes, you can.

No compromises. No sacrifices. 4th Dimension has so much power it will make your head explode.

Buy 4th Dimension and own a piece of the Macintosh dream.”

Guy Kawasaki
Ex-Macintosh software evangelist
President, ACUS, Inc.

“I have absolutely no training in databases, but I'm now using 4th Dimension day in and day out.

“Anything I want, I can build by myself.

The graphics are super. 4th Dimension is so easy to set up, easy to modify, flexible and powerful. And I'm getting technical support from ACUS anytime I need it.

4th Dimension doesn't eat data. If I make a mistake, data is preserved. I've never needed a backup copy of anything, and I've put it through some pretty severe torturing.”

Walter W. Stewart
4th Dimension end user
Research Physicist, National Institutes of Health

“4th Dimension is the most powerful database I've ever recommended for a micro.

“...and it's in the same class as the most powerful databases for minis and mainframes.

We've sold a lot of them. I feel good about recommending it, whether to low end users or high.

It's easy to use and easy to program. You have all the features of the Mac interface that make it easy: Windows, Menus, Buttons, Scrollable areas, Graphics.

It simply gives you all the tools you need to fully exploit the Mac and bring new power to your specific applications.”
In fact, I’ve become a developer myself. I wanted a point of sale application to run my business. I developed the system originally on a competitive product, but it didn’t have the horsepower to solve the problems. 4th Dimension has the power to do anything I want to do.

I can offer no more sincere testimonial for the products I sell than to use them to manage my own business. 

Dick Applebaum
Apple dealer and business co-owner
Computer Plus, Inc.

“When you sit down at a computer, there are two ways to go, IBM® or user friendly.”

“I enjoy working with 4th Dimension because of its power, interface, and the ability to create custom programs for my clients. I can’t think of anything better than 4th Dimension as a development tool, and I’ve looked at them all.”

Ted Bobber
Developer
Concept 2001

“The thing I like best about 4th Dimension is that it works the way I expect it to work.

“The whole screen interface is so much better than the others. With dBASE™ I spend a lot of time looking at the books and then creating screens. I never get it right the first time.”

I really like the way the subfiles work. I use that a lot because I maintain inventory sheets and I need to pull information from other places.

“I like how it does everything automatically, like buttons, radio buttons, check boxes, and scrollable windows. You really don’t need training to use these features.”

Diana Foster
4th Dimension user
PC Coordinator

In other words, what you see is what you’re used to working with.

These are the reasons I like 4th Dimension: It’s got the power to do everything I need in a complex vertical market. It’s got the interface to make that possible without taking on a second career. It’s got layout graphics that can make your product look as good as it works.

You can sit down and use 4th Dimension without doing much to it, and you still have complete power. It has some dynamic, dynamic graphics. All this without programming. The others bog you down in housekeeping chores.

The custom mode enables me to use words, sentences, phrases, and icons that are familiar to my people in the real estate business. I have the ability to customize menus and menu items.

“I really like the way the subfiles work. I use that a lot because I maintaininventory sheets and I need to pull information from other places.

“I like how it does everything automatically, like buttons, radio buttons, check boxes, and scrollable windows. You really don’t need training to use these features.”

Diana Foster
4th Dimension user
PC Coordinator

*The opinion expressed is not an endorsement by the National Institutes of Health nor the Federal Government.


4th DIMENSION™

Want to try it out? Yes, you can!

For $10, we’ll send you a demo disk and comprehensive 50-page user’s manual. Call today, and find out what 4th Dimension can do for you!

• Relational database
• Multiuser
• Object-oriented graphics
• Customizable interface
• Background processing
• Over 1,000 developers

Demo Hotline
1-800-952-6300, Dept. A11
1-800-423-4440 (in CA) Dept. A11

MacUser
Your Apple Magazine

ACTUS

20300 Stevens Creek Blvd. Suite 495
Cupertino, CA 95014 (408) 252-4444
Laser Fare

Apple has taken to market a trio of printers for all tastes, styles, and pocketbooks.

Good things happen in threes, so much so that Apple's third generation of laser printers — the LaserWriter II family — comes in three flavors. The triplets aren't identical, but they're close enough genetically that upgrading from low end to high is simply a matter of replacing the motherboard. Here's a look at what the LaserWriter II's have to offer.

All three printers share a new design, based on the Canon LPB-SX engine (the earlier LaserWriters used a CX engine). What distinguishes the three new models is the controller boards they contain.

The new printer line meets the needs of a broader range of users than did the previous generations — the LaserWriter and LaserWriter Plus. On the low end is the LaserWriter II SC, a $2800, non-PostScript, single-user printer that connects to the Macintosh via the SCSI port rather than over AppleTalk. The LaserWriter II NT ($4600), a slightly enhanced version of the former LaserWriter Plus, now holds the middle position in the family.

The hot new item is the LaserWriter II NTX. This $6600 model, complete with 68020 CPU and 68881 coprocessor, is faster than the NT. It comes standard with 2 megabytes of RAM, but the power hungry (if they can afford it) will expand all the way to 12 megabytes. A ROM expansion slot allows you to add user-specific fonts (for example, a standard company font or logo). But most significant, the NTX controller board has a SCSI port to which you can attach a hard disk. You can then use this hard disk to store downloaded fonts and to provide an enormous virtual font cache. The NTX is the first 300-dpi printer to offer this capability.

By Henry Bortman
Laser Fare

One noteworthy feature of the LaserWriter II line is that there's a smooth upgrade path from the SC all the way up to the NTX (see sidebar). Apple has been very kind to its users by making upgrades as simple as removing two screws and swapping controller boards. It is to be commended for this move.

**NT: NOT THRILLING**

The LaserWriter II NT is, frankly, boring — more or less the same machine as its predecessor, the LaserWriter Plus. It's based on the same 68000 microprocessor and contains the same 35 fonts. The changes can be found in the redesign of the body of the printer — it's more compact than the Plus and weighs only 45 pounds; in the amount of RAM — 2 megabytes as compared with 1.5 megabytes in the Plus; in its ROMs — the NT (and NTX) ship with Version 47 of PostScript, providing significant speed improvements over Version 38, which accompanies most Pluses; in the paper tray — which holds 200 sheets instead of 100; and in a new print engine — the Canon SX.

The new 8-pages-per-minute (ppm) engine is a mixed blessing. Responding to complaints that the blacks should be blacker, Apple chose an engine for its new machines to provide just that. The new La-
The best-selling Macintosh software just got the ultimate upgrade.
Presenting Claris™ 1.0. We used to be a part of Apple® Computer.


And here we are, while the halls are still filled with the scent of new carpet, introducing more powerful versions of the most popular Macintosh® software of all time.

MacDraw, the desktop publishing standard for graphics, has been completely overhauled as MacDraw II. It's faster, more flexible and precise. With new features like zooming and layering, and now on the Macintosh II, your basic breathtaking color.

MacWrite, the most popular Macintosh word processor of all time, now includes a built-in spelling checker, a 100,000 word dictionary and an abundance of new optional keyboard commands.

MacPaint, the illustration program that's inspired nearly as many imitators as the Mona Lisa, now exhibits a larger work.
area. Tear-off menus. Zoom. Templates. Auto-scrolling. And nine snapshot windows. All designed to make artwork more art and less work.

Finally, MacProject II, a full-power, professional-level project manager that generates tables, PERT charts, Gantt charts, histograms and applause in presentations. If you thought it was good in black & white, wait until you see it in color.

For the whole scoop, dial our upgrade hotline: (800) 544-8554. But here's where it gets really exciting.

Coming soon to a Macintosh near you: new and innovative Claris applications that make the most of the Mac's graphic, intuitive approach to computing.

Case-in-point: SmartForms. The quick and inexpensive way to design and manage professional-looking business forms. So there you have it. Claris has arrived. Stay tuned.

Please circle 183 on reader service card.
Laser Fare

By substituting the Canon SX engine for the formerly used CX, Apple has opted for poor grays in order to get better blacks. The top gray scale, printed on a LaserWriter Plus, never gets denser than about 85 to 90% in original printouts (although it may look darker in reproduction). The LaserWriter NT's gray scale, on the bottom, has the opposite problem. It is already close to black by the time it gets three-fourths of the way through the scale. The Plus' scale is also more evenly graded than the NT's. And large gray areas on the NT print out with noticeable streaks.

Figure 1

Upgrading in the LaserWriter II family is as easy as "plug and print." Shown here is the NTX board. Notice the SCSI port for attaching a hard disk to store downloaded fonts. You add RAM (below) no differently than you would on a Mac II motherboard.

What I can't show, because of space limitations, is that pages printed with large gray solids come out streaked on the new printers. Apple was noncommittal about whether these gray-scale problems might be fixed, saying it would wait to see how many users complained.

Timing tests (see Figures 2 and 3) show that the NT, with Version 47 of PostScript and expanded RAM, is now in line with other printers in its price range. In the October '87 issue of MacUser, the LaserWriter Plus was tested for speed and came out significantly slower than other printers in its class.

Apple doesn't let you expand the NT's RAM. Too bad. The ability to add even 1 megabyte of RAM would make this midprice printer work for a broader range of users. Given the gray-scale problems of the new engine, you'd be wise to compare other printers in the same price range that offer more RAM or have a faster print engine. Keep in mind, though, that the ability to upgrade to an NTX is a significant advantage that Apple has over other PostScript printer manufacturers. You may think you'll never need the power of an NTX —
MICRO PLANNER
the power to make
your projects happen!

If you are serious about making your projects happen on time and on budget then you need MICRO PLANNER. Most projects fail because of inadequate resources - something MacProject II does not even consider. Only MICRO PLANNER's combination of Critical Path/PERT and resource analysis allow you to easily compare trade-offs between time, money and resources. Successfully manage your projects with the power of MICRO PLANNER.

MICRO PLANNER
Version 6

$495.00
$595.00

Easy to Use?
Only if you are an artist. You have to draw the logic diagram manually. What a mess!

Multiple Archives — No

Data Interchange — No

Who stands behind the product?
Just another software company with only 1 enhanced version in 4 years.

Resource leveling — No

Multi-Project Resource Leveling — No

Multi-User — No

Automatically draws the logic diagram for professional quality no matter how complex. You will always look good.

Multiple Archives to save up to four different scenarios. "What if" your way to success.

Export and import data to and from other Macintosh® applications and/or IBM® PC or mini/mainframe applications using Project Exchange. You can also build libraries/templates of projects and merge or clone sub-projects.

MPI — the leading full service international project management consulting company. Servicing our clients for almost ten years, all we do is project management. We provide training, seminars, program management and consulting as well as software. More than 15 improved versions released over the last 4 years. We are constantly incorporating your suggestions. Most upgrades cost only $10. Wait until you see what is next!

Resource leveling for single or multiple projects, since 1978. Trade-off time vs. resources to optimize your schedules. Lots of projects, one resource pool? No problem. Find out who should be doing what and when? Can you complete that additional project on time? What additional resources will be required?

New Multi-User version ($200 per each additional station) including Color, MultiFinder compatible or single launch version.

If you are serious about making your projects happen on time and on budget, don't toy around. Get MICRO PLANNER Version 6.

For a limited time, you can trade in your MacProject and pay only $200 for MICRO PLANNER. Contact our office for details

Please circle 122 on reader service card.

Micro Planning International
235 Montgomery Street, Suite 840
San Francisco, California 94104 USA
Tel: (415) 788-3324 FAX: (415) 788-3405

We offer full training and consulting.
MICRO PLANNER is available on IBM® and compatibles.
or be able to afford it — but never is a long time.

**NTX: NEARER TO EXCELLENT**

The NTX, a Mac II in a printer case, is a remarkable advance in 300-dpi printers. It uses the same 8-ppm print engine as the SC and NT, but it is rarely the speed of a printer's engine that determines how fast it spits out pages. Usually it's the speed with which it performs the number crunching required to image the page. The NTX, with its 68020 CPU and 68881 math coprocessor, makes mincemeat out of some pages that the NT and others in its class cogitate over for minutes on end. Interestingly, however, the NTX shows no speed improvement over the NT on scanned gray-scale images. In this case it's the speed with which the Mac sends data over AppleTalk that is the limiting factor.

Although there are other 300-dpi machines on the market that employ 68020 chips, the NTX is the first to offer users the twin options of installing up to 12 megabytes of RAM and attaching a dedicated hard disk to the printer. What would a printer do with 12 megabytes of RAM? It can only image an 8.5 x 14-inch page, anyway. And why would it need a hard disk?

To answer a question with a question: How many fonts do you use? If your answer is, “Just the ones in the printer,” you can probably go back to reading about the NT. If, however, your answer is more like, “As many as I can afford,” the NTX may be the printer you’ve been waiting for (see the sidebar for an explanation of the ins and outs of extra RAM and dedicated disks and the cost of various expansion and upgrade options). Figure 4 shows the kinds of speed improvements extra RAM and hard disks offer.

You can use Apple’s new Font Download Utility (see Figure 5) with both the NT and NTX. When you use it with the NTX, it enables you to download fonts to either the printer (RAM) or its hard disk. This utility put together well, and its on-line help is mostly accurate. There’s one problem, though. You’ll be unable to download or to initialize the disk if you start up the utility without going through the proper steps. To wit: Turn on the disk, turn on the printer, then select the printer from the Chooser. The Help file doesn’t explain that you also have to quit and

---

**Cache As Cache Can**

The NTX is the first 300-dpi printer to allow for RAM upgrades to 12 megabytes and the first to take advantage of PostScript’s ability to attach a dedicated hard disk. Both RAM upgrades and hard-disk add-ons increase performance when you’re working with large font libraries.

Two aspects of PostScript’s printing process use up printer memory. Characters in PostScript are stored as mathematical descriptions of their outline shapes. These character outlines must be available in memory — let’s assume for the moment that no hard disk is attached — or they can’t be printed. The LaserWriter II NT and NTX both contain, in ROM, the outlines for 35 different fonts. If, however, you want to use a font not contained in ROM, you must first download it into RAM.

One of the unsavory “features” of PostScript is that a job that uses more fonts than RAM can hold causes the printer to reset itself. You don’t get any warning — just an error message and a start-up page. So, the more RAM you have available, the more fonts you can download without worrying about a reset. With 2 megabytes, the NTX accepted 15 fonts before it hiccuped. With 3 megabytes, I was able to download more than 40 fonts without a reset. These are not absolute numbers. Because different fonts take different amounts of space, the number you can download depends on which ones you use.

When you send a page that contains text to a PostScript printer, the PostScript interpreter “scan converts” the outline descriptions of the characters and generates bit maps. These bit maps tell the printer where to put dots on the page. Each different character in each different font, at each different point size and angle of rotation, must be scan-converted separately. This is a time-consuming process. Fortunately, PostScript maintains a RAM cache of recently used, already-scan-converted bit maps, which speeds the process when the same characters are used repeatedly. This, too, takes up memory, however.

When the RAM cache gets full, the printer dumps the least recently used bit maps out of memory to make room for new ones. If you later need to reuse characters that have been dumped, they must be scan converted again. Again, the more RAM you have, the more characters you can cache (see Figure 4). Figure that an entire alphabet of uppercase and lowercase characters for a single font at 12 point in a single rotation takes roughly 10K to cache; an alphabet in 6 point, about 5K; and in 18 point, about 20K. Furthermore, bit maps for sizes greater than 20 points are generally stored in compressed format, and large sizes are not cached at all (it’s faster to scan convert them again). Considering that the NTX can be expanded up to 12 megabytes of RAM, there’s plenty of room for caching.

But there are drawbacks to relying on extra RAM for font efficiency. RAM is volatile. All downloaded fonts and cached characters will be wiped clean each time you turn off your printer. And expanding above 3 megabytes of RAM is expensive (see sidebar on pricing).

Enter the hard disk. With a SGS! disk attached to the NTX, you can use fonts to your heart’s desire. Fonts downloaded to disk remain there permanently. You don’t even need to keep them around in your *System* anymore. Initially, 20% of a hard disk is set aside for downloadable fonts; the other 80% is for the cache. So even with a 20-megabyte hard disk, you have 4 megabytes available for downloadable fonts. This is almost enough room for the entire Adobe type library and will probably be sufficient for most users. But if it’s not enough, you can go to a larger disk.

---

**Cache As Cache Can**

The NTX is the first 300-dpi printer to allow for RAM upgrades to 12 megabytes and the first to take advantage of PostScript's ability to attach a dedicated hard disk. Both RAM upgrades and hard-disk add-ons increase performance when you’re working with large font libraries.

Two aspects of PostScript’s printing process use up printer memory. Characters in PostScript are stored as mathematical descriptions of their outline shapes. These character outlines must be available in memory — let’s assume for the moment that no hard disk is attached — or they can’t be printed. The LaserWriter II NT and NTX both contain, in ROM, the outlines for 35 different fonts. If, however, you want to use a font not contained in ROM, you must first download it into RAM.

One of the unsavory “features” of PostScript is that a job that uses more fonts than RAM can hold causes the printer to reset itself. You don’t get any warning — just an error message and a start-up page. So, the more RAM you have available, the more fonts you can download without worrying about a reset. With 2 megabytes, the NTX accepted 15 fonts before it hiccuped. With 3 megabytes, I was able to download more than 40 fonts without a reset. These are not absolute numbers. Because different fonts take different amounts of space, the number you can download depends on which ones you use.

When you send a page that contains text to a PostScript printer, the PostScript interpreter “scan converts” the outline descriptions of the characters and generates bit maps. These bit maps tell the printer where to put dots on the page. Each different character in each different font, at each different point size and angle of rotation, must be scan-converted separately. This is a time-consuming process. Fortunately, PostScript maintains a RAM cache of recently used, already-scan-converted bit maps, which speeds the process when the same characters are used repeatedly. This, too, takes up memory, however.

When the RAM cache gets full, the printer dumps the least recently used bit maps out of memory to make room for new ones. If you later need to reuse characters that have been dumped, they must be scan converted again. Again, the more RAM you have, the more characters you can cache (see Figure 4). Figure that an entire alphabet of uppercase and lowercase characters for a single font at 12 point in a single rotation takes roughly 10K to cache; an alphabet in 6 point, about 5K; and in 18 point, about 20K. Furthermore, bit maps for sizes greater than 20 points are generally stored in compressed format, and large sizes are not cached at all (it’s faster to scan convert them again). Considering that the NTX can be expanded up to 12 megabytes of RAM, there’s plenty of room for caching.

But there are drawbacks to relying on extra RAM for font efficiency. RAM is volatile. All downloaded fonts and cached characters will be wiped clean each time you turn off your printer. And expanding above 3 megabytes of RAM is expensive (see sidebar on pricing).

Enter the hard disk. With a SGS! disk attached to the NTX, you can use fonts to your heart’s desire. Fonts downloaded to disk remain there permanently. You don’t even need to keep them around in your *System* anymore. Initially, 20% of a hard disk is set aside for downloadable fonts; the other 80% is for the cache. So even with a 20-megabyte hard disk, you have 4 megabytes available for downloadable fonts. This is almost enough room for the entire Adobe type library and will probably be sufficient for most users. But if it’s not enough, you can go to a larger disk.
relaunch the download utility after going through the previously listed steps. But you do. (Remember, you heard it here first.)

Once you’ve downloaded a font to the NTX’s hard disk, you don’t need it in your System folder anymore. Keep the original font disks handy, though. While doing tests for this review, some of the fonts I downloaded to disk got glitched. Documents using those fonts simply wouldn’t print. I don’t know how it happened, but I know I didn’t like it. Fortunately, I didn’t have to reinitialize the disk. I recovered by redownloading the problem fonts (after I had unsuccessfully tried recopying their screen fonts with Font/DA Mover, reinitializing the printer, and rebooting my Mac). I was also fortunate to have a direct line to an Apple employee who helped me work through the problem. I wonder if Apple dealers will be as knowledgeable if users encounter similar problems.

SC: SLIGHTLY COMMON

The release of the SC marks a new direction in Apple’s marketing strategy for laser printers. With the SC, the company decided to go after the low end — people who want letter quality but are using an ImageWriter because they can’t afford the $4000+ for a PostScript printer. That such a market exists is borne out by the popularity of HP’s LaserJet line.

Two things most clearly distinguish the SC from the NT and NTX. First, it’s not a PostScript printer, and second, it cannot be networked — it’s for use by a single Macintosh computer. Although you can always upgrade an SC to an NT later, there’s a cost penalty for doing so (see sidebar). If you think you may need to connect more than one Mac to your printer any time in the near future, the SC is probably not for you.

Not being a PostScript printer has advantages and disadvantages. The big advantage is it’s a lot cheaper. If you don’t have to pay for PostScript, you can walk home with a printer for $2800 — that’s $1800 less than the cost of Apple’s mid-price NT.

On the down side, you are limited in the images you can print. Most significant, your choice of typefaces, styles, and sizes is restricted. If you want to print a particular font in a particular size and have it look good — which is the whole point — you need a screen font four times as large. And that means a separate screen font for each size you use. This consumes more disk space than is needed for PostScript printing, which requires that only one size of each typeface be available on-disk.

Fortunately, Apple has included with the SC two disks containing a wide range of point sizes — 9, 10, 12, 14, 18, 24, 36, 40, 48, 56, 72, and 96 — for Times, Helvetica, Courier, and Symbol — the four typefaces shipped in the original LaserWriter.

Unfortunately, that’s not good enough. SC output (see Figure 6) has...
Laser Fare

There are some misconceptions floating around about what the SC is and isn't. It is clearly not a PostScript printer. What is less clear, however, is that it isn't a QuickDraw printer, either.

Macintosh applications (most of them, anyway) draw images on the screen with QuickDraw When you print to a PostScript printer from a Macintosh, these QuickDraw commands are translated into PostScript commands, which are then sent to the printer. PostScript printers contain interpreters that retranslate these PostScript commands into dots on the printed page.

A “QuickDraw printer,” if such a beast existed, would contain a QuickDraw interpreter. The Macintosh would send raw QuickDraw commands to the printer, much as it sends PostScript commands to PostScript printers, and the printer would translate them into output dots. This is not how the SC works. Rather, the Macintosh itself translates QuickDraw routines, using the SC driver (which users must install into their System folders). What is sent to the SC is a plain old 300-dpi bit map. The process is more like printing to an ImageWriter than to a PostScript printer but at a higher resolution.

QuickDraw, McGraw?

...
Please circle 174 on reader service card.

Freight From Boredom!

- Video Game for all Macs 512K & Greater
- Color on Mac II
- 300K of Great Digitized Sounds

"It's so good, we had to ban it from the office!"
Steve Bobker - MacUser

"...addictive & compelling..."
John Dvorak

Greene Inc.

Order: CAL (800) 851-1986
US (800) 331-4321
Info (408) 375-0910

Please circle 175 on reader service card.
Pay As You Go

Perhaps it was stung by user criticism that there is no upgrade path from the Macintosh Plus to the SE, or maybe it is merely exhibiting good business sense. In any case Apple ensured that its LaserWriter II line could be upgraded by housing all three of its new printers in the same shell. Although there are great differences among the three models, users can enter at any level and be assured that, should their needs change in the future, they will be able to upgrade easily.

The LaserWriter II NTX, which comes standard with 2 megabytes of RAM, can itself be upgraded. It contains sockets for 12 SIMMs, each of which can accommodate either 256K or 1 megabyte of RAM. Those who frequently use a large number of fonts may wish to attach a hard disk to the NTX. ROM cards, containing oft-used or customized fonts, can also be installed.

At press time, guess whose hard disks were the only ones guaranteed to work when connected to the NTX? If you guessed a computer company whose name begins with A, you guessed correctly. According to Apple, the NTX's SCSI connection was designed according to spec, and other hard-disk manufacturers' incompatibility with the NTX is a result of their failing to conform to that spec. Apple says it is not their intention to lock the competition out of this market. But, apparently, it is one specific SCSI command that most hard-disk manufacturers don't implement that causes the problem. You don't suppose Apple could have warned competing hard-disk manufacturers so that the latter would be ready with compatible units when the NTX shipped, do you?

Apple is also the only company producing the SIMMs that plug into the NTX. You can't use the same SIMMs that go in the Mac; the NTX SIMMs, although they use the same chips, are configured differently and have a different number of pins. Several third parties are considering production of NTX-compatible SIMMs.

Here is a rundown of what is currently available and what it costs:

| LaserWriter II SC | $2799 |
| LaserWriter II NT | $4599 |
| LaserWriter II NTX | $6599 |
| SC-to-NT upgrade  | $2099 |
| SC-to-NTX upgrade1| $4299 |
| NT-to-NTX upgrade2| $2499 |
| 1-megabyte upgrade for NTX | $249 |
| 4-megabyte upgrade for NTX | $1999 |
| 20-megabyte hard disk | $1299 |
| 40-megabyte hard disk | $1999 |

1You don't have to return the SC board; you can move its 1 megabyte of RAM to the NTX board for a total of 3 megabytes in the NTX.
2You have to return the NT board to Apple.

Not being a PostScript printer has advantages and disadvantages. The big advantage: It's a lot cheaper.

FINAL ANALYSIS

Apple's new printers present an impressive lineup. But don't jump at them just because they're from Apple. If you need the power of an NTX, it's the only game in town, and it's worth it. With the NT, Apple's basic PostScript offering is now worth considering, whereas the LaserWriter Plus, as rated in the October '87 issue, was a comparatively poor value. But there are machines on the market that are both cheaper and more powerful than the NT (although no others that offer an up-
Attention to Detail.

Then and Now. It was the peak of handwriting. The illuminated manuscript combined writing and art in perfect harmony. An unprecedented level of beauty and precision was achieved, embodying a deep respect for their message. Today these qualities are yours with QuarkXPress. For information, call us toll free:

800-356-9363

Quality and precision make the difference.

QuarkXPress™
Electonic Publishing Software

Quark, Inc. • 300 South Jackson St., Suite 100 • Denver, Colorado 80209
All layout and typesetting on this page was produced using QuarkXPress.
QUICKMAIL™
THE NEW GENERATION ELECTRONIC MAIL PROGRAM
FROM CE SOFTWARE.
FASTER, EASIER,MORE POWERFUL ANDLESS EXPENSIVE.

There's something new available in electronic mail: Ease, Speed, Versatility, Real world feel. QuickMail™
The first complete mail program!

Whether you only have a few computers connected to a LaserWriter™ or hundreds with file servers and gateways... QuickMail, by itself, can make your office more productive.
Conferencing.
Connectivity.
Compatibility.
Adaptability.
QuickMail has it all.
Yet...like Macintosh®, QuickMail's sophisticated design is intuitive. It's a breeze.

“One of the hottest new E-mail products was previewed last month at the MacWorld Expo in San Francisco. The program, temporarily named Project X, is from CE Software...”
— Macintosh Today, February 23, 1988

Suggested Retail: $300 per 10 users.
MS-DOS Version Available This Summer.
Contact your local dealer to schedule a demonstration.

QUICKMAIL™
THE NEW GENERATION ELECTRONIC MAIL PROGRAM
Please circle 59 on reader service card.
QUICKIES™

The keyboard enhancer for your Macintosh
For: Macintosh 512E, Plus, SE and II. This award winning program works with all keyboards, especially extended keyboards.

- You told us macro programs were complicated, hard to learn and unreliable. We agreed. So, we wrote QuickKeys.
- How fast can you learn to use QuickKeys? How fast did you read this sentence?
- Virtually anything you can do with your Macintosh is done with a keystroke in QuickKeys. It even prints keyboard templates!
- Simply select an action from this menu, press a key and... Bingo! You're creating QuickKeys.
- All basic actions: opening programs, clicking and dragging, typing text, selecting menu items, buttons, sequencing actions and many more are condensed within a compact menu.

CalendarMaker™

Presentation quality calendars.
"If you use calendars, you need CalendarMaker"
- Nibble Mac, October 1987
- "Every year I have the same problem: finding the ideal calendar... In answer to this universal dilemma CE Software has published CalendarMaker." MacWorld, March 1987
- "With DiskTop you can find, copy, move, rename, create folders, and more without ever leaving the document you're working in."
- MacUser-Aug. '87
- "Enter events manually or import from programs including: MORE™, SideKick™, BatteryPak™, SmartAlarms™. Export calendars to MacWrite, MacPaint, MacDraw, PageMaker and others...Just $49.95"
- "DiskTop may well be the best desk accessory I've ever owned; I use it more than any other...this may be the best value in Macintosh software today." The MACazine, November, 1987
- "With DiskTop you can find, copy, move, rename, create folders, and more without ever leaving the document you're working in."
- "DiskTop contains the most powerful yet easy to use "Find" command available on the Macintosh. Hard drive users love it. Just $49.95"
- MacUser-Dec. '86

CE SOFTWARE

Visit your retailer or call (800) 2-CESOFTWARE for VISA/MasterCard orders. To purchase by mail send VISA/MasterCard number with expiration date, check or money order with appropriate amount plus $3.00 shipping and handling for each product ordered to CE Software, P.O. Box 1298, West Des Moines, Iowa 50266. For information call (319) 274-1989.

CalendarMaker, DiskTop and QuickKeys are trademarks of CE Software. Other names indicated by ™ or © are trademarks of their respective manufacturers.

Please circle 38 on reader service card.
Laser Fare

The quick brown fox jumps over the lazy dog.

Figure 6
A comparison of type on (a) the SC, (b) the LaserWriter Plus, and (c) the NT/NTX. The two full lines of type in each sample are 12- and 13-point Times italic. Note that characters printed on the SC have poor baseline alignment (the \( y \) in The, for example); that odd point sizes are poorly weighted (the \( y \) in the 12-point over); and that, because Apple provided only Roman (plain) screen fonts, the SC can't print true italics on serif faces. Note also that although type from the NT is darker, it is more plugged up. Look, for example, at the point where the curved portions of the g and h join the stems or at the magnified 6-point type.

HENRY BORTMAN IS A FReELANCE WRITER BASED IN SAN FRANCISCO AND IS A FREQUENT CONTRIBUTOR TO MACUSER.

MACUSER RATING
LaserWriter II NTX
 Printed Documentation  
 On-Screen Help  None 
 Performance  
 Support  
 Consumer Value  

MACUSER RATING
LaserWriter II NT

MACUSER RATING
LaserWriter II SC


Comments: Apple's low-end QuickDraw laser printer. Best Features: Can be upgraded to an NT or NTX; reasonably fast. Worst Features: Poor quality text; limited to QuickDraw graphics. List Price: $2799. Requires 1M+. Manufactured by Apple Computer, 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010.
To Manage Your Business, You Need To See...

**Double Helix II**

The New Concept in Data Management Systems

With Double Helix II you can quickly create powerful business solutions—client tracking, inventory, project planning, accounting, medical, curriculum management, etc.—using visual building blocks instead of programming. Applications can be instantly shared in a multi-user environment, without fileserver software, with the Double Helix II MultiUser Kit.

---

**GeoQuery**

The Power of Geographic Intelligence

For anyone who makes decisions based on maps or geographic locations, GeoQuery gives you the power of geographic intelligence. It lets you visually explore the geographic relationships in your data using “smart maps” on the Macintosh screen.

---

**Data Desk**

**Professional**

Data Desk Professional gives you the first integrated, interactive environment for the exploration and analysis of data, combining state-of-the-art graphics with advanced statistics.

**Executive**

Data Desk Executive allows you to ask questions visually with interactive graphics (pie charts, etc.), letting you get at the meaning behind your reports.

---

**Helix VMX**

With Helix VMX, you can create VAX applications quickly and cost-effectively on the Macintosh, thereby uniting the personal productivity of the Macintosh with the power of VAX systems. Applications can be accessed directly from Macintoshes or VT terminals using a unique multi-window environment.

---

**Visibly Superior Solutions**

Call 800/323-5423 for more information.

© 1989 Odesta Corporation. Double Helix II, MultiUser, and Helix VMX are registered trademarks of Odesta Corporation. Macintosh is a registered trademark of Apple Computer, Inc.

Data Desk is a trademark of Data Description, Inc. GeoQuery is a trademark of Argus Design Group.
A New Leaf on Life

Interleaf Publisher is a powerhouse among desktop-publishing programs, but it needs a powerhouse desk (and its unorthodox interface takes some getting used to).

IN MANY RESPECTS INTERLEAF PUBLISHER 3.0 is the ultimate desktop-publishing program currently available. It does have some negative aspects too, though. First, its hefty price tag ($2495) and system requirements (a souped-up Mac II with hard disk) eliminate it from consideration by all but the highest-end users. Also, its rather unusual user interface may make you want to think twice. And finally, its cavalier attitude toward Adobe fonts may lead to excessive hair pulling and premature graying of whatever's left.

But, if you want features you can only dream about in other page-layout programs and if you want multiuser capabilities, Interleaf is unique among the flora and fauna of the desktop-publishing world.

ROOTS

Interleaf was the first "workstation" DTP package to be ported to the Mac II. It's the first salvo in what could turn out to be a barrage of products (such as the forthcoming FrameMaker from Frame Technology) originally developed for Apollo, Sun, and DEC workstations.

Interleaf Publisher is based on an earlier Interleaf product called TPS (Technical Publishing Software) 3.0.

BY GREGORY WASSON
A New Leaf on Life

TPS processed its first page in 1984 and was used primarily by large corporations, government agencies such as the U.S. Census Bureau, and eventually even the military for use in the heady environment of mainframes and workstations.

In keeping with this background, Interleaf Publisher for the Mac is a program of bureaucratic proportions. The size of the packaging itself is intimidating — when I got the package in the mail, I actually thought I'd been sent the hardware by mistake. Interleaf is the 1988 hands-down shoo-in (to mix a few metaphors) for MacUser's new "Not-Quite-The-Eddy-Award" category of Muscle Packaging. Lugging this huge box around, I felt like Scrooge's damned partner, Jacob Marley.

The program and related files come compressed on 15 800K disks. A 16th disk houses an installer program that decompresses and allows you to register the software with your name and company. The entire procedure takes 20 to 30 minutes. Returning the enclosed registration card entitles you to two months of free technical support via an 800 number and notification of upgrades.

A gargantuan program needs a gargantuan home: a Mac II with at least 5 megabytes of RAM and a 40-megabyte hard disk (although a company representative said it would "probably" run on a 20-megabyte drive). The configuration I used for this article was a Mac II with 8 megabytes of RAM and a 49-megabyte hard disk with System 4.2 and Finder 6.0.

THE INTERFACE: DESKTOP DEMENTIA

Once you have finally installed Interleaf on your hard disk, the usual double-click sends it on its merry way. But most similarities to the Mac interface end abruptly once you're launched onto the Interleaf desktop. And it takes some perseverance before you reach the reward at the end of the rainbow.

Figure 1 shows the desktop with an assortment of the various icons you'll encounter while working with Interleaf. One of the program's most attractive features is that multiple desktops are possible: Each user on a network can have his or her own desktop with his or her private files and documents as well as files common to all desktops.

The usual menu bar seems to rule over the desktop as expected, but it functions more as a figurehead because the usual File and Edit menu commands, such as PRINT, SAVE, COPY, CUT, and PASTE, are grayed and useless while Interleaf holds court. You can access only a selection named Help — and it only serves to summon forth a rather mediocre on-screen help file for Interleaf.

Maybe those familiar-looking icons on the desktop will be easier to use? Nope. Just try to cut one, trash one, paste one, or even move one, relying upon old instincts, habits, and expectations, and nothing happens. Why?

Interleaf uses a different kind of menu that has just recently been publicly sanctioned by Apple and is now beginning to appear in some new products: the pop-up menu. These menus (there are several according to when and where you access them) pop into sight at the cursor location when you press the Command key and hold down the mouse button (see Figure 2). As you move down the menu, the commands are highlighted in turn. As in other Mac applications, releasing the mouse when you select a command implements that command. Pop-up menu items can have submenus (indicated by an arrow to the right of the command) that you access by moving the cursor over the arrow until any additional submenus either telescope in a kind of jagged dance across the screen or pop up on top of one another should you exhaust your screen space. Pop-up menus also tend to remember your last command or series of commands — they're so-called sticky menus, a real time-saver.
THE DOWN SIDE OF POP-UPS

Pop-up menus contain all the usual commands for creating, deleting, and manipulating files. Most Mac users will grow fond of them, but they only have some using to.

To move an icon, you must first select it by clicking on it once. You can select multiple icons by Shift-clicking or by dragging a selection box around them in the customary fashion. The Command-key/mouse maneuver described earlier conjures up a pop-up menu, one of whose commands is move. Move places the icon into an “animation state,” in which only a vague outline and manipulating files. Most Mac desktops (if it is already there). Want to move a document into a folder? You can’t just drag it over the animation state and lock it into its new position. You must then deselect it through a pop-up command or by clicking elsewhere on the desktop.

Movement is restricted, however, to an icon’s current window or the desktop (if it is already there). Want to move a document from one folder to another? You can’t just drag it over the folder and drop it in; in fact, technically, you don’t even move it. First, you open the target folder by double-clicking on its icon. Then select the icon to be moved into it. Execute a copy command from a pop-up menu, move the cursor to the new window of the folder, and execute paste from yet another pop-up menu. About as elegant as a hippo in tight, right?

And the usual keyboard equivalents of Command-C, -X, and -V: Forget it. There are, however, keyboard equivalents of Interleaf’s own devising, listed in an appendix at the end of the reference manual, for many of the word-processing operations. To use them most effectively, though, you really need an extended keyboard.

DOES IT DO WINDOWS?

If several windows are open at once (up to 16 are allowed), they can, of course, overlap. You cannot, however, bring one window to the front simply by clicking on it. You have to move your cursor to that window and execute the front command from a pop-up menu. You can also (if space permits) drag windows around on the screen and resize them (they do have size boxes and scroll bars!).

Finally, you might notice the icon labeled Clipboard in the lower-right corner of Figure 1. In Interleaf this icon functions as both Clipboard and Trashcan. Whenever you cut or copy something, it ends up here at least temporarily. And here it will remain unless you paste it elsewhere. To empty this ersatz Trashcan, you must open it, select the icons to be trashed, execute purge from a pop-up menu, and hope they go away. Occasionally, you will have to delete files at the Finder level.

You probably get the idea by now. The interface is different. The terminology is sometimes different, too: A dialog box, for instance, is called a stickup menu. You use the Command-key/mouse combination a lot. Often enough, in fact, to raise the specter of an occupational hazard rampant among Interleaf users: Command-key finger — Interleaf’s answer to tennis elbow and surfer’s knee.

You do get used to — or perhaps resigned to — the eccentricities of the interface, though. You should view Interleaf’s form in tandem with its textual and graphic functions. Many of its sins can be forgiven in light of its features for dealing with the organization of both words and images and the processing of large documents. Let’s take a look.

FIRST IS THE WORD

Unlike most of the products in the electronic-publishing or DTP market, Interleaf includes a word-processing environment that surpasses anything now available in DTP. Up to now, desktop publishers have had to content themselves with the clumsy and sluggish word-processing tools in programs such as PageMaker or have had to rely on the usual method of typing the files in a word-processing program such as Word or MacWrite and then importing them into the page-layout application. Interleaf bypasses this step with a full-featured word processor that incorporates hyphenation and justification procedures and a satisfactory, if limited, 80,000-word spelling checker, among other features. The program can also import RTF files from Word and text-only files from programs such as MacWrite, although some limitations apply here as you’ll see later. What’s more, it’s incredibly fast — good news for anyone who has endured the rigors of entering text directly into other page-layout programs.

Entering text directly within Interleaf is straightforward. First you create a document and open it. The document window should be familiar to most Mac users. It is crowned by a document header bar with various items whose menus can be accessed by pressing the Command key and mouse button when the cursor is over the appropriate name. Figure 3 shows the main pull-down menus...
A New Leaf on Life

that control font, point size, file manipulation, and printer and save options. Some of the names are different from those Mac users might expect, but they're there. The Save command allows you to save the document in Interleaf format (Save Fast) and in ASCII, and it even lets you force a save when you haven't made any changes to the document's content (if, for instance, you want to save the file with the cursor at a specific page or at a position different from the previous save).

BE CRUEL TO ADOBE WEEK

Font sizes are restricted to 13 choices, ranging from 6 to 72 points. Custom sizes (for example, 7 points) are not allowed, but the traditional and usual point sizes generally used are not allowed, but the traditional and usual point sizes generally used in high-quality typesetting are present.

Interleaf does not support Apple's font manager. It uses its own and its own versions of Adobe's PostScript typefaces, which you must copy to your hard disk. You may have all the LaserWriter Plus fonts in your System file, but you must still use Interleaf's versions instead. downloadable fonts, PostScript or otherwise, are absolutely not supported, so put Garamond aside.

Moreover, Interleaf has completely remapped the keyboard (you're going to have to hunt and peck for "smart" opening and closing type-setting quotes, for example) and has severely pruned Adobe's fonts, stripping most of the foreign-language letters (such as i), so you can forget about impressing cousin Hans in Germany or sending off company reports in a foreign language. So much for the international appeal of the Macintosh.

Interleaf's font management is, to my mind, its worst shortcoming. The company has effectively crippled the most delightful and progressive aspect of Adobe's fonts. It did this, according to company representatives, to maintain conformity with its workstation products and because it feels its screen fonts are better than Apple's. I don't see it, and besides it's too high a price to pay, even if true.

Text manipulation proceeds pretty much as usual, with some exceptions. When you select a range of text, if you begin to type in new text (expecting to enter a correction), the new text is inserted in front of the selected text — it does not replace it! Interleaf has several such variations from the usual Mac interface, and you probably won't like them.

But there are pluses in the Interleaf way of processing text that make up for all this. The program automatically repaginates and reformats documents as you enter text — and it does this almost instantaneously. I worked extensively with a 400-page document and it was a pleasure. I've typeset several books with 100+ pages using PageMaker or JustText. It can be done, but it isn't really worth the hassle.

Interleaf processes a lengthy document as a whole but also concentrates much of its power on what are known as components. Figure 4 shows a sample page. A thick black column at the left of the screen breaks down the text into its components — here defined as title, subtitle, paragraph, and so on. You can define or redefine each component via pop-up Component Property Sheets (see Figure 5), and you can exercise total control over the font, margins, and other attributes. And you can apply all this globally to all components with the same name within a document or even to linked documents (such as the chapters of a book), which makes the often tiresome job of reformating or editing a 500-page book a snap.

The appearance of each page is affected by the Page Property Sheet (see Figure 6), which you access through a pull-down menu. It includes options for margins; hyphenation control; vertical justification; and even feathering, a relatively obscure (at least among DTPers) procedure that allows stretching leading
MacCalc is the fastest spreadsheet you can buy, and More Speed gives you Greater Productivity.

"Special routines in MacCalc make operations such as entering data and recalculating, opening files, scrolling...faster than Excel." — Macworld, December, 1986

MacCalc is easier to use and learn than any other spreadsheet, and Greater Ease means Less Frustration... "Simplicity is the ultimate sophistication."

"[Working] in MacCalc is easier than in Excel." — Macworld, December, 1986
"Designed to be easy to use, and succeeds admirably." — Macazine, March, 1987
"MacCalc answers the frustration of Excel users - its carefully planned menu structure makes MacCalc exceptionally easy to use." — MacWEEK, June 15, 1987
"Simplicity and ease of use are MacCalc's greatest assets...seen in the richness and ease of use embodied in its user interface." — Macazine, November, 1987

MacCalc is the only spreadsheet which allows each cell to have its own format, font, size, and style - allowing high-impact, desktop publishing quality output, and Greater Clarity creates Dramatic Presentations.

"MacCalc offers the most flexibility in page and font setup, and has the most printing options." — Macworld, December, 1986
"MacCalc lets you dress up your spreadsheet..." — Publish!, June, 1987
"MacCalc's formatting features allow your spreadsheet to look more like pages from a finished report...brings the concept of publication-quality spreadsheets closer to reality." — InfoWorld, June 22, 1987

At $139, MacCalc provides the greatest value at about 1/3 the price of Excel.

"The clear value leader." — InfoWorld, November 3, 1986
"MacCalc is a spreadsheet package of exceptional value." — MacWEEK, June 15, 1987
"The best deal in a spreadsheet package that I've ever come across, but none."

"The Best Spreadsheet - MacUser Editor's Choice Award"

"It's faster than either Multiplan or Excel, and once you move into MacCalc, you're not going to want to move back" — Macintosh Buyer's Guide, Summer, 1987
"...MacCalc is a must-have. The product itself is highly functional, easy to learn and to use, and definitely supports the most visually appealing formatting/printing capabilities." — Macazine, November, 1987
"If you are interested in attractive output and value, MacCalc is the spreadsheet for you." — InfoWorld, June 22, 1987

Some of MacCalc's special features:

- Minimal recalculation™ technology for great speed
- Natural, powerful editing commands combined with easy to use interface
- Full choice of format, font, size and style in each cell for DTP quality output
- Variable row height and column width
- Cell notes, for audit trails and self-documenting worksheets
- On-Line Help
- Full Undo command
- Reads and writes WKS models (from Lotus 1-2-3 or Excel) and SYLK data
- Paste formatted tables from MacCalc directly into MacWrite or PageMaker documents
- Database sort, search, and fill commands
- Full desk accessory (DA) support and Switcher-compatibility

THE BOTTOM LINE: You can buy the slower, more difficult, overpriced, over-featured product from the competition, or you can buy MacCalc, the best spreadsheet for your real needs, for $139.

For technical, corporate, or dealer information, please call 415/341-6052. MacCalc is available at better prices everywhere. To order MacCalc directly for $139 plus tax in CA, please call our order desk at 415/341-0888 (7 days a week, 24 hours a day). If you have your Visa or MasterCard handy, or write. (Purchase orders cannot be processed) Bravo Technologies, Inc., 4848 S. Foothill Dr., Suite 101, Salt Lake City, UT 84121-4206.
A New Leaf on Life

between lines of a component — a necessary feature for accurate vertical justification of multiple columns on a page. Surprisingly, though, kerning is not supported in this release of Interleaf. Why wasn’t it there to begin with? Interleaf simply responds that none of its established customers have ever asked for it. That, I suspect, will change.

As I mentioned before, you can import files, but bear this caveat in mind: RTF files from Word that contain unsupported characters (remember All?), styles such as superscript (Interleaf does footnotes, but bizarrely, does not do superscript numbers), or non-LaserWriter Plus fonts can cause problems. Several such files I tried to import either elicited a message from Interleaf that the import procedure had been aborted or resulted in an Interleaf file that contained blanks where the offending item had been in the original file.

One of Interleaf’s glories is its auto-numbering feature. You can insert numbers referring to footnotes, illustrations, and outline items through a menu, and Interleaf automatically updates them all when you insert new material or change the position of existing references — even across multichapter files that have been linked in what is known as a book directory. Auto-referencing is a further enhancement to this feature. The software can also generate fully editable indexes and tables of contents.

You can create templates for document styles and place them in what is called the Create Cabinet. Thereafter, you can call up the template via a menu command. Most impressively, you can also devise graphic templates (to create a uniform illustration format, for instance) — a feature not available in any other Mac publishing software. The package provides several ready-made templates for frames, reports, newsletters, and books.

PICTURE THIS

Interleaf, priding itself on being a fully integrated publishing tool, supplies a MacDraw-like drawing environment. You create graphics by first selecting a comfospot on the page — a graphic frame (à la Ready, Set, Go!) — and then by using Interleaf’s formidable drawing tools, which support isometric projection for all you 3D fans. The usual options for rotation, fill, line width, snap-to-grid, snap-to-object, and so on are all present and accounted for, albeit through a pop-up menu rather than a toolbox as in most drawing programs. The program also comes with an impressive array of “click art” (see Figure 7), which includes graphic enhancements (Interleaf does not support Zapf Dingbats, alas), maps, display letters, and various shapes that you can copy, paste, and edit within documents.

The most useful feature of Interleaf’s graphic frames is that you can anchor them to words, text, paragraphs, pages, or positions on a page. Anyone who has had to revise a document in any of the DTP products for the Mac knows what a boon this is. No longer do you have to replace illustrations or graphics whose related text has suddenly flowed onto another page or to another location. You can cement the relationship between the two with user-defined anchors.

Interleaf’s graphic frames can also embrace inserted text (such as captions or legends) in the form of microdocuments or text strings, which as components can be fully edited, formatted, and even spell-checked. Figure 8 shows a graphic frame (the portion of the page enclosed in a gray-lined box) with such text additions.

Interleaf also includes an awkward paint-style environment, and free-hand drawing is possible, but why bother? You can import Paint files (and edit them somewhat clumsily) via a special pop-up Edit window. Imported Encapsulated PostScript File (EPSF) images (which you cannot edit) appear as a gray box on the
"Can a Macintosh lover survive in an office that runs on Wang?"

Introducing MacLinkPlus/Wang VS from DataViz, the workstation emulator that provides a Macintosh user access to Wang applications, word processing, data processing, electronic mail and file transfer.

"It's a whole new system to learn, right?"
Wrong. It works just like a Wang, but with all the friendly Macintosh features. All Wang functions are available through pull-down menus, the familiar Macintosh mouse and the standard or extended keyboard.

“And what about file transfer & translation?”
Exchanging information is a snap. You can transfer a Wang WP document to your Macintosh and work in Microsoft Word or MacWrite. And it works the other way, too.

"Good enough. But if I want to connect with a Wang PC, or even an IBM PC..."
No problem. MacLinkPlus/Wang VS connects with either one, and includes a “library” of more than 25 different data translators, such as Wang WP, WordPerfect, Microsoft Word, MacWrite, DCA, dBase, Lotus, and more. Works with the Apple File Exchange utility, too.

Ask your Macintosh dealer about MacLinkPlus/Wang VS, or call us direct at (203) 866-4944.

DATAVIZ

MacLink is a registered trademark of DataViz Inc. • All other brand and product names are trademarks or registered trademarks of their respective holders.

Please circle 155 on reader service card.
A New Leaf on Life

screen but print out fine. The documentation warns that Cricket Draw 1.0 EPSF files are not supported, but I imported Cricket Draw 1.1 EPSF files without incident. You can also bring in TIFF and PICT formatted files. MacPaint and TIFF files must have the extension .img added to their name (do this at the Finder level) for Interleaf to recognize them. Likewise, EPSF files must have the extension .eps tacked on (Big Blue rears its ugly head!).

Unfortunately, there are no rulers within frames (or within text documents for that matter), but Interleaf supplies some nonprinting graphic rulers (in inches, centimeters, and pica) that you can copy and paste in frames — not the best way to do it, but at least it's possible. The rulers also demonstrate another powerful feature of Interleaf: its ability to set "locks" on almost any conceivable aspect of a graphic (see Figure 9). This provides a way to place nonprinting guides on a page or to protect an object from being cut.

It's easy to generate a wide variety of graphs and charts by entering data (or importing it from a spreadsheet) via a special pop-up menu (see Figure 10). Like other graphics, charts are placed in frames.

ACCIDENTAL INCIDENTALS

Interleaf Publisher has some unusual techniques for dealing with PostScript files. An option from the Print menu in the document editing window lets you print PostScript files to disk rather than send them to the printer. The manual explains: "This can be useful in conjunction with other applications that allow you to manipulate PostScript files."

You would expect this file to be ASCII and readable as text only by MacWrite and Word or downloadable by Adobe's SendPS. The problem is that once you go back to the Finder, the file steadfastly refuses to divulge its secrets. There is a work-around (although the manual doesn't tell you about it): Start up a file utility such as ResEdit or Hard Disk Util (with its Set FileInfo feature) and change the file type to TEXT. Return to the Mac desktop, and you'll find that you can now open up the document with MacWrite or Word. Not only will you be rewarded with the PostScript description of your document but you'll also have the chance to poke around in the Interleaf PostScript prologue.

I've already mentioned the manuals — or rather their size. They are beautiful and are generally well put together. They include a large volume with two sets of tutorials, an installation guide, a user-interface guide, a reference manual, and a condensed reference guide. The tutorial
Here's looking at . . .
Introducing "Draw It Again, Sam" the newest drawing program for Macintosh. With powerful extended features, it adds new dimensions to your Mac graphics.

If you have used MacDraw or MacDraft, you've felt the power that a drawing program can put in your grasp. Imagine the same power brought to an even higher level, with features like libraries, layers, color, advanced text features, and a wide array of graphic display modes . . . Imagine "Draw It Again, Sam."

Libraries Were Never This Much Fun

Only "Draw It Again, Sam" lets you create your own graphics and text libraries. Create any image, simple or complex, and copy it into a library. Click on an icon-like symbol or on the image's name in a menu, and place the image anywhere on any drawing. Store and retrieve frequently used images, text, or logos, building large libraries (up to 500 images) for drafting, designing, or just for fun. No more rooting through scrapbook files, no more wrestling with the dipboard, and no more wasted time!

Create a Masterpiece — Layer by Layer

Only "Draw It Again, Sam" lets you create and use up to ten transparent drawing planes. You can group similar objects together, as an architectural blueprint or an anatomical drawing. Peel them away to reveal layer after layer of detail. Or view them all while working on only one — and avoid those accidental mouse-clicks that make doing detailed drawings such a trial. Use layers in conjunction with colors to produce spot color separations with ease or extend a single drawing into an animated series. You can even import a drawing and work over it or behind it without touching the original. Save or print the drawing layer-by-layer or as a whole. The possibilities are endless!

Amazing Graphic Flexibility Is Yours

"Draw It Again, Sam" uses the Macintosh's drawing modes to their fullest potential. Your objects can be in opaque, inverted, clear, or erased modes. You can experiment with overlaying transparent colors and patterns, you can even extend your drawing skills beyond the basics and generate an endless set of special effects. The countless colors and shapes achieved by this program are breathtaking.

To Paint or Not to Paint

Version 2.0 of "Draw It Again, Sam" adds a full set of painting tools to the drawing ones. Now you can combine the fine detail of bit-mapped graphics with the flexibility and ease of object-oriented drawing. And you can use both paint and drawing tools on the same layer — either side by side or overlapping. The best part is, "Draw It Again, Sam" is compatible with other paint, draw and page layout programs, allowing you to import and export art forms.

You Must Remember This . . .

With its comprehensive set of features and ease of use, this program is one you have to get your hands on. To find out more, or to order your copy, call 1-800-234-0230 and say, "Draw It Again, Sam."

Call or write:

Aba SOFTWARE, Inc.
P.O. Box 850, Two Davis Avenue
Frazer, PA 19355-0915
1-800-234-0230

Requirements: Macintosh 512E, Plus, SE, or II.

Suggested Retail Price: $150
Dealer inquiries invited.

"Draw It Again, Sam" © copyright 1987 Aba Software, Inc. All rights reserved. MacDraw, QuickDraw and the Macintosh models are registered trademarks of Apple Computers, Inc. MacDraft is a registered trademark of Innovative Data Design, Inc.
A lot of programs claim to be 'CAD.' And if all you want is a drawing, just about any of them will do.  

MGMStation® is real CAD. It's part of a fast, sophisticated CAD/CAM package developed for engineers and architects. It offers capabilities equal to mainframe CAD packages, with floating point precision up to 16 decimal places. Unlimited zoom. Color or black-and-white output. Auto dimensioning. Multiple layers, multiple windows. Hatching and filling of arbitrary shapes. Sophisticated functions like filleting and chamfering. Display precision beyond that of QuickDraw™ (note the smooth curves). Available symbol libraries. And built-in plotter drivers.

If you're designing mechanical parts, you may be interested in our CAM package, too. See your dealer for your HyperCAD® demo stack or write us on your letterhead for a free disk. Not everybody needs real CAD. But if you are serious about creating producible designs on your Macintosh®, can you afford to waste your time on anything less?

MGMStation. Real CAD.

5900 Sepulveda Blvd., Van Nuys, CA 91411 (818) 376-0008 AppleLink 10570 Telex: 310.7078 MCI-UW

Please circle 191 on reader service card.

**MORE THAN JUST STACKS...**

STAX! is more than just stacks because we design products and run STAX! with your needs in mind. All our products have extensive on-line help, annotated scripts and no copy-protection. We don't process credit card orders and checks until we ship your product. We're dedicated to providing you with high-quality, reasonably priced solutions. STAX! means products to help you work smarter.

- **The Macintosh Bible: HyperCard Edition™**
  - Thousands of hints, tips and shortcuts
  - Unchattered interface, easy-to-use
  - Optimized search and find — very fast
  - Comes with a paper copy (420 pp) of "The Macintosh Bible"
  - $69.95

- **HyperCard Helper™**
  - Sorting, finding and indexing routines
  - Special effects and animation routines
  - Import/export tasks
  - Complete instructions for each script, stack or routine—just copy and paste 'em into your stacks
  - $19.95

- **HyperCard Sound Effects Studio™**
  - SoundCap-to-SND converter
  - Pitch and speed modifier
  - Sound library and database
  - Automatic sound inserter
  - (no need for ResEdit)
  - More than 100 digital and synthesized sound effects
  - $49.95

To order by credit card, call 1-800-MAC-STAX! in Texas, call 512-467-4550 and ask for the STAX! order desk.

**A New Leaf on Life**

volume includes an ironic mistake in the table of contents: All the page numbers for Chapter 6 are wrong — an embarrassing error in light of Interleaf's boasts about its automatic table of contents generation and auto-numbering abilities! The manuals, by the way, were not produced with the Mac version but with the Sun workstation product — this became clear when I spotted superscripts in one section — something that cannot be done with the Mac software.

I called technical support and found the individual I conversed with friendly, warm, and willing to help, even though I called with five or six questions. When he couldn't immediately supply me with one or two of the answers to my problems, he promised to find out and call back. He did so within minutes, and he didn't know I was a reviewer. A rather disappointing aspect of technical support, though, was that the staff generally do not seem to be very familiar with Mac hardware and software — for example, the people I spoke to had not heard of ThunderScan or ResEdit.

**FORM AND FUNCTION**

The Mac interface is not a sacred cow. It could stand just a tiny bit of improvement — let's admit it. But Interleaf's interface is definitely not an improvement. I found it most amusing to hear Interleaf's representatives at the 1988 Macworld Expo in San Francisco spouting company-line gibberish such as: "We feel most of the differences between the Interleaf interface and the Mac's are enhancements." But then, with the very next breath, they said that in the next release of Interleaf Publisher, the interface would turn over a new leaf and adhere more closely to the Mac interface. Which is it, folks?

What's most exasperating about this sort of double-talk is that it really isn't necessary. Interleaf Publisher is an outstanding and welcome addition to the Mac and to the world of electronic publishing. Period. This statement is not meant to whitewash its shortcomings. It lacks many of the interface amenities now expected of Mac publishing software, but
Finally, a Mouse that's really quick. One that doesn't require a lot of room on your desk. One that's easy to use, even on a desk full of papers. Turbo Mouse from Kensington.

Turbo Mouse turns mouse technology upside down. It puts the mouse ball on top, rather than on the bottom like a standard mouse. You move only the mouse ball, not the whole mouse. That's why Turbo Mouse is quicker, quieter, and easier to use.

Turbo Mouse doesn't get its speed only from this ease of use. It has an automatic acceleration feature that senses the speed at which you are working and moves the cursor further when you move the mouse ball faster.

Turbo Mouse has two mouse buttons — one for right-handed users and another for lefties. And, since it's only 4" x 6", Turbo Mouse will fit neatly at the end of your keyboard.

For Macintosh™, Mac Plus, Apple* Ile, or IIc, ask for model 62350. For Macintosh SE, Mac II, or Apple IIgs, ask for model 62352.

For more information, or a dealer near you, call (800) 535-4242.

In NY (212) 475-5200.
Introducing MacTREE.

The ultimate hard disk management system.

It's one of the most amazing breakthroughs for the Mac since the Mac. It's simple, ingenious, and totally visual.

Announcing MacTREE.
A program which provides a unique "tree" display of your hard disk files and lets you instantly locate every folder or file.
And can sort your files any way you like. By name, size, kind, and date. Then copy, rename, erase, or move them - fast!!

MacTREE. The hard disk organizer that's easy to use.
And it's available. Now.

A New Leaf on Life

sometimes functionality is more important than form. If it is the only or best tool for the job, you use it. Interleaf's only real competitor at present for processing long documents on the Mac is TeXtures or MacTeX, but most people will prefer Interleaf, warts and all, over the code-driven TeX typesetting language.

Interleaf is not for the small-time desktop publisher (who couldn't afford it and the necessary hardware in the first place). But it will undoubtedly find a niche in the corporate world as an inexpensive alternative to the more costly workstation TPS version, and it will help guarantee and enhance the Mac II's visibility among the gray-blannel set. It has the potential to be a top-notch Mac product, as soon as Interleaf releases it from the constraints of an inferior and disappointing interface.

GREGORY WASSON IS A FREE-LANCE DESKTOP PUBLISHING TYPESETTER WHO LIVES ON A MOUNTAIN TOP NEAR SANTA CRUZ, CALIFORNIA. WASSON DID GRADUATE WORK IN GREEK AND LATIN IN CANADA AT THE UNIVERSITY OF TORONTO.

MACUSER RATING

Interleaf Publisher 3.0

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

Comments: High-end software for electronic publishing. Multiuser capabilities make it ideal for companies with editorial staffs responsible for the production of large, multivolume documents, such as books and catalogs. Best Features: Strong global formatting abilities; speed; and an integrated approach that combines word processing, graphics, and chart generation in one package. Worst Features: The user interface, the brutal crippling of Adobe's typefaces, and the inability to use downloadable fonts. These problems prevent the program from receiving the five-mice rating it could easily deserve. List Price: $2495. Published by Interleaf, Ten Canal Park, Cambridge, MA 02141. (617) 577-9800. Requires a Mac II with at least 5 megabytes of RAM and a 40-megabyte hard disk. Not copy-protected.
<table>
<thead>
<tr>
<th>Software</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activision</td>
<td>$64.00</td>
</tr>
<tr>
<td>Adobe</td>
<td>$339.00</td>
</tr>
<tr>
<td>Affinity Microsystems</td>
<td>79.00</td>
</tr>
<tr>
<td>Ashton Tate</td>
<td>$284.00</td>
</tr>
<tr>
<td>Berkley System Design</td>
<td>55.00</td>
</tr>
<tr>
<td>Borland</td>
<td>$159.00</td>
</tr>
<tr>
<td>Data Taylor, Inc.</td>
<td>199.00</td>
</tr>
<tr>
<td>Denbea</td>
<td>115.00</td>
</tr>
<tr>
<td>Fifth Generation</td>
<td>199.00</td>
</tr>
<tr>
<td>Macromind</td>
<td>124.00</td>
</tr>
<tr>
<td>MacroPac International</td>
<td>49.00</td>
</tr>
<tr>
<td>Meca</td>
<td>139.00</td>
</tr>
<tr>
<td>Microlytics</td>
<td>39.00</td>
</tr>
<tr>
<td>Micro Planning Software</td>
<td>295.00</td>
</tr>
<tr>
<td>Microsoft</td>
<td>248.00</td>
</tr>
<tr>
<td>Microsoft Excel V1.06</td>
<td>244.00</td>
</tr>
<tr>
<td>Microsoft Word 3.01</td>
<td>245.00</td>
</tr>
<tr>
<td>Microtech</td>
<td>125.00</td>
</tr>
<tr>
<td>Monogram</td>
<td>$84.00</td>
</tr>
<tr>
<td>Nantucket</td>
<td>175.00</td>
</tr>
<tr>
<td>Nashoba Systems</td>
<td>154.00</td>
</tr>
<tr>
<td>Odesta</td>
<td>345.00</td>
</tr>
<tr>
<td>Peachtree</td>
<td>139.00</td>
</tr>
<tr>
<td>Silicon Beach</td>
<td>79.00</td>
</tr>
<tr>
<td>Simon &amp; Schuster</td>
<td>39.00</td>
</tr>
<tr>
<td>Software Supply</td>
<td>42.00</td>
</tr>
<tr>
<td>Supermac Technologies</td>
<td>55.00</td>
</tr>
<tr>
<td>DiskKit</td>
<td>249.00</td>
</tr>
<tr>
<td>Sentinel</td>
<td>85.00</td>
</tr>
<tr>
<td>Super Laser Spool</td>
<td>89.00</td>
</tr>
<tr>
<td>Survivor</td>
<td>69.00</td>
</tr>
<tr>
<td>T/Maker</td>
<td>99.00</td>
</tr>
<tr>
<td>Think Technologies</td>
<td>85.00</td>
</tr>
<tr>
<td>WordPerfect Corp.</td>
<td>189.00</td>
</tr>
<tr>
<td>BASF</td>
<td>15.00</td>
</tr>
<tr>
<td>BASF 10 SS/DD Pack</td>
<td>19.00</td>
</tr>
<tr>
<td>BASF 25 DS/DD Pack</td>
<td>42.00</td>
</tr>
<tr>
<td>Abaton</td>
<td>119.00</td>
</tr>
<tr>
<td>Central Point</td>
<td>187.00</td>
</tr>
<tr>
<td>CMS Mac II 43 Meg Internal</td>
<td>$649.00</td>
</tr>
<tr>
<td>CMS Mac II 50 Meg Internal</td>
<td>699.00</td>
</tr>
<tr>
<td>CMS Mac II 102 Meg Internal</td>
<td>1,099.00</td>
</tr>
<tr>
<td>CMS Mac II 140 Meg Internal</td>
<td>1,249.00</td>
</tr>
<tr>
<td>Dove</td>
<td>168.00</td>
</tr>
<tr>
<td>MacSnap 524</td>
<td>152.00</td>
</tr>
<tr>
<td>MacSnap 524S</td>
<td>239.00</td>
</tr>
<tr>
<td>MacSnap 548</td>
<td>359.00</td>
</tr>
<tr>
<td>MacSnap 548S</td>
<td>425.00</td>
</tr>
<tr>
<td>MacSnap Plus 2</td>
<td>268.00</td>
</tr>
<tr>
<td>MacSnap 20</td>
<td>449.00</td>
</tr>
<tr>
<td>MacSnap 45</td>
<td>899.00</td>
</tr>
<tr>
<td>MacSnap SCSI Interface Port</td>
<td>99.00</td>
</tr>
<tr>
<td>MacSnap Tool Kit</td>
<td>19.00</td>
</tr>
<tr>
<td>E-Machines</td>
<td>1,499.00</td>
</tr>
<tr>
<td>Everex (1 yr. warranty)</td>
<td>509.00</td>
</tr>
<tr>
<td>EMAC 200 External Hard Drive</td>
<td>575.00</td>
</tr>
<tr>
<td>EMAC 400 External Hard Drive</td>
<td>849.00</td>
</tr>
<tr>
<td>EMAC 60T Tape Backup</td>
<td>849.00</td>
</tr>
<tr>
<td>EMAC 40/60 DT</td>
<td>1,549.00</td>
</tr>
<tr>
<td>EMAC 2400 Baud Modem</td>
<td>215.00</td>
</tr>
<tr>
<td>Farrow Computing</td>
<td>149.00</td>
</tr>
<tr>
<td>General Computer</td>
<td>1,595.00</td>
</tr>
<tr>
<td>HyperCharger 020 0 Ram 0</td>
<td>749.00</td>
</tr>
<tr>
<td>HyperCharger 020 1 Meg Ram 0</td>
<td>949.00</td>
</tr>
<tr>
<td>HyperCharger 020 1 Meg Ram 1</td>
<td>1,299.00</td>
</tr>
<tr>
<td>Impulse</td>
<td>144.00</td>
</tr>
<tr>
<td>Koala Vision</td>
<td>175.00</td>
</tr>
<tr>
<td>Kurtza Air 800</td>
<td>299.00</td>
</tr>
<tr>
<td>Magnent</td>
<td>165.00</td>
</tr>
<tr>
<td>Pocket Modem</td>
<td>165.00</td>
</tr>
<tr>
<td>Nuvo Tech</td>
<td>29.00</td>
</tr>
<tr>
<td>TurboNet DB/9 Connector</td>
<td>29.00</td>
</tr>
<tr>
<td>TurboNet DIN/8 Connector</td>
<td>29.00</td>
</tr>
<tr>
<td>Sigma Designs</td>
<td>1,599.00</td>
</tr>
<tr>
<td>LaserView 18&quot; SE Monitor</td>
<td>1,599.00</td>
</tr>
<tr>
<td>LaserView 18&quot; SE Monitor w/cover</td>
<td>1,699.00</td>
</tr>
</tbody>
</table>

To Order Call 1-800-333-3353

Monday thru Friday 7 AM to 7 PM (Mountain Time) / Saturday 8 AM to 6 PM

We carry over 2000 products, call for information as not all are listed above.

- Visa, MasterCard & Amer. Express accepted. No surcharge.
- Your Credit Card will not be charged until order is shipped.
- All U.S. shipments are insured at no extra charge.
- We accept COD orders—$2.00 surcharge.
- Arizona residents add 6.5% sales tax.
- Allow 1 week for personal & company checks to clear.
- All prices subject to change without notice.
- All products are subject to availability.
- Returns: All sales are final. Products purchased in error will be subject to a 20% restocking fee. Defective merchandise will be replaced immediately. Hardware replaced or repaired at our discretion. Questions call (602) 820-5602.

Please circle 83 on reader service card.
Pick a Peck of Pixel Palettes

A year after its release, the Mac II finally has the tools to take advantage of those 16.8 million colors.

WHEN APPLE UNVEILED THE MACINTOSH II, it turned more than a few heads with the machine's color capability. Such stunning high-resolution graphics had hitherto been available only on much more expensive workstations. Mac enthusiasts were eager to get their hands on the new hardware, to gaze with their own eyes upon this wonderful new world of color.

BY HENRY BORTMAN
The business community, desktop publishers, and graphic artists took a more sober approach. "Impressive," they said. "Where's the software?" The answer at the time was, "Uh, well, there isn't any yet."

Times have changed. And SuperMac's *PixelPaint* is a prime agent of that change. Written by Jerry Harris and Keith McGregor of Pixel Resources, *PixelPaint* is unquestionably a brilliant piece of programming. The more important question is: Who will use it? Its price tag ($495) and the even more expensive hardware platform required to run it limits its use to those on the highest end of the Macintosh market initially. But those early adopters who take the plunge will find a powerful graphics tool at their fingertips.

**The Color Palette**

As you may already know, with an 8-bit video card, a Mac II can display 256 colors at one time. The Apple system comes with a standard table of 256 colors, representative of the 16 million or so colors possible. But what if you don't like the 256 that Apple chose? What if you want to assign half of the 256 colors available to you to a subtle range of shades from burgundy to lavender?

*PixelPaint* lets you do it. You can assign any color of your choice from among the pool of 16 million to any one of the 256 positions in the Color Palette. (Actually, you only get to pick 254 — white and black are fixed.) *PixelPaint* comes with several predefined palettes, but these are only a starting point. You can customize to your heart's desire, selecting precisely those colors you need to create your image.

The painting of a frog shown here uses a highly specialized palette built specifically for this drawing. Notice that there are several different ranges of green.

The authors have clearly given some thought to the palette's user interface. The program allows you to select foreground, blend, and background colors. The foreground color is used by the normal painting tools. The blend color affects the operation of the tools when you're in Special Effects mode (more on that later). And the background color determines the background for patterns; certain special effects with text; and the color that gets left behind when you cut, delete, or erase part of your image.

Within the Toolbox are four squares of color. Three are for picking the foreground, blend, and background colors. Clicking and holding down the mouse button on any of these three choices brings a minia-
When in Special Effects mode, each tool acquires new capabilities and each has its own special Effects menu. Shown here are the Rectangle, Brush, SprayCan, and Text menus. Some of these menus — like the Text menu — have sub-menus with additional choices and options.

My favorite palette changer is BLEND which creates a smooth gradation between one color and another.

You can modify the Color Palette with the Palette dialog. Serious PixelPaint users will find themselves spending a great deal of time here. When you double-click on any of the 256 squares of color, you get the Apple System Color Picker. The color you select replaces the color on which you double-clicked.

You can cut and paste colors from one location in the palette to another. PixelPaint also allows you to modify a range of colors within the palette or the entire palette. You can lighten or darken any color(s) you select, make them redder (with the WARM button), make them bluer (with the COOL button), or complement them (with the CONTRAST button). My favorite palette changer is BLEND, which creates a smooth gradation between one color and another. You can use as few or as many palette positions as you like for a blend. The more you use, the more subtle your blend will be — but the fewer palette positions you'll have left for other colors.
SOFTWARE

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

Aba Software ... NCP
“Draw it again, Sam” (paint program) ....... $94.
Access Technologies ... NCP
Trapeweave 2.0 (spreadsheet & graphics) .... 205.
Activision ... NCP
Postcards (clip-art, card stock) .......... 20.
Business Class (atlas, req. Hypercard) ....... 30.
Focal Point (organizer, req. Hypercard) ..... 59.
Aegis Development ... NCP
Dave & Cropp’s Word Tools ....... 42.
Affinity Microsystems ... NCP
Affinity (DA editor) .......... 49.
Tempo 1.2 (power user’s macro utility) ....... 52.
Tempo II (updated, auto installation) ...... 89.
Allan Bonadio Associates ... NCP
Expressionist 1.1 (equation processor) ..... 46.
ALSoft ... NCP
DiskExpress (maximize disk performance) .... 26.
Font/DA Juggler Plus (w/sound utility) .... 32.

Challenger Software ... NCP
Mac3D—A veritable powerhouse of features.
PostScript® resolution, six variable light sources,
user definable tools and more, all contained in a
Draw-like program- ....... $126.

Altsys ... NCP
FONtastic Plus (advanced font editor) ...... 47.
Fontgrapher (LaserWriter font editor) ...... 239.
Ann Arbor ... NCP
FullPaint (advanced paint program) ...... 49.

Ashton-Tate ... NCP
dBASE Mac 1.0 (relational, req. MacPlus) .... 295.

Batteries Included ... NCP
Thunderbird 1.1 (spelling checker) ...... 30.

Berkeley System Design ... NCP
Stepping Out (screen extender) ........ 54.

Blyth ... NCP
Omnis 3 Plus/Express (database) ....... 275.
Omnis 3 Plus/Express (2-5 users) ....... 489.
Omnis 3 Plus/Express (6-10 users) ... 1249.

Bogas Productions ... NCP
Studio Session (music creation) ....... 49.

Borland International ... NCP
Turbo Pascal Tutor ........ 49.
Numerical Methods Toolbox ........ 65.
Sidekick 2.0 (includes MacPlan) ........ 68.
Turbo Pascal (HFS compatible) ....... 65.
Eureka: The Solver ....... 129.

Deneba Software ... NCP
Coach Professional—Edit big-league documents
with a whole team of features: Hyphenation,
95,000 word spellling dictionary, synonym
thesaurus, legal & medical dictionaries ....... $109.

Coach (interactive spell checker) ...... 59.
Coach Professional ........ 109.
Dove Computer ... NCP
RAMSnap (RAM Disk/Disk Cache) ....... 21.

Dow Jones ... CP
DeskTop Express (documents via MCI mail) .... 95.

Market Manager Plus (num. mgmt.) ....... 159.

Dubi-Cluck Software ... NCP
Calculator Construction Set ....... 36.
World Class Fonts! (both volumes) ....... 36.
WetPaint Clip Art (both volumes) ....... 36.

Electronic Arts ... CP
Disk Tools Plus (8 DA plus tools) ....... 32.

Deluxe Music Construction Set 2 CP ....... 61.

Enabling Technologies ... NCP
Easy3D (create solid 3D objects) ....... 79.

Pro 3D (3D shaded modeling) ....... 199.

Enzan-Hoshigumi USA ... NCP


Japanese Clip Art “Borders” Scroll ....... 69.

MacCalligraphy (create unique designs) .... 115.

Fifth Generation Systems ... NCP
FastBack Mac (powerful backup utility) .... 59.

1st Byte ... CP
Mad Libs (w/synthesized speech) ....... 14.

First Shapes (all about sizes & shapes) .... 32.

Kid Talk (“talking notebook”) ....... 32.

Math Talk Fractions (great homework helper) .... 35.

Smooth Talker (speech synthesis) ....... 32.

Speller Bee (spelling learning tool) ....... 32.

Forethought ... NCP
Factfinder 1.1 (information organizer) .... 35.

FileMaker 1.0 (custom design reports) .... 39.

Comic People (create your own characters) .... 25.

Comic Strip Factory (create cartoons) .... 45.

FWB Software ... NCP
Hard Disk Partition ....... 45.

Hard Disk Util (program backup) ....... 54.

Great Wave Software ... NCP
TimeMasters (learn about time, ages 4+) .... 22.

KidsTime (educational, ages 3-8) ....... 26.

American Discovery (U.S. facts & fun) .... 39.

Crystal Paint (graphic symmetries) ....... 42.

ConceptWare + (music composition) ....... 39.

ConceptWare + MIDI ....... 79.

Chang Labs ... 5 years
C.A.T.—Powerful relational database for managing
Contacts, Activities, and Time. Use to organize
events, meetings, day-to-day projects,
expense reports, personnel records, etc. .... $239.

Reflex Plus (info management tool) .... 165.

BrainPower ... NCP
StatView (statistics package) ....... 32.

Graphindex (DA graphics organizer) .... 65.

DesignScope (electronic circuit design) .... 128.

MathView Professional (num. analysis) .... 145.

StatView 512+ (full-featured) ....... 175.

Bravo Technologies ... NCP
MacCalc (easy to use spreadsheet) .... 79.

Brodurund ... CP
Jarm Session (create your own tunes) .... 30.

Print Shop (create cards and memos) .... 36.

Geometry (over 350 problems) .... 60.

Physics (over 300 problems) .... 60.

CAMDE ... NCP
Nutricalc Plus (full-featured program) .... 175.

CasadyWare ... NCP
Fluent Fonts (two-disk set) .... 27.

Fluent Laser Fonts (Vols. 1-18) each 46.

CE Software ... NCP
Calendar Maker (create custom calendars) .... 32.

DiskTop 3.0 (powerful DA Finder) .... 32.

QuickKeys (reduce mouse movements) .... 64.

Challenger Software ... NCP
Mac3D (3-D graphics, CAD features) .... 126.

Chang Labs ... NCP
Rags to Riches Ledger .... 120.

Rags to Riches Payables .... 120.

Rags to Riches Receivables .... 120.

Rags to Riches Three Pak .... 289.

C.A.T. (contacts, activities, time) .... 239.

Inventory Control or Professional Billing .... 239.

Professional Three Pak .... 359.

Retail Business 3 Pak .... 359.

Cortland ... CP
TopDesk 2.3 (7 new desk accessories) .... 32.

Cricket Software ... NCP
Pict-O-Graph (color on the Mac II) .... 105.

Cricket Graph (multiple windows) .... 119.

Cricket Draw (advanced draw capabilities) .... 169.

DataViz ... NCP
MacLink Plus (transfer Mac/IBM data) .... 145.

Davidson ... CP
Math Blaster! (grades 1-6) .... 27.

Deneba Software ... NCP
Marinar-Webster’s Thesaurus .... 36.

Comment (electronic Post-it notes) .... 56.

Canvas 1.0 (includes desk accessory) .... 109.

Omnis 3 Plus/Express .... 119.

Omnis 3 Plus/Express .... 119.

Omnis 3 Plus/Express (2-5 users) .... 489.

Omnis 3 Plus/Express (6-10 users) .... 1249.

Bogas Productions ... NCP
Studio Session (music creation) .... 49.

Country or Heavy Metal Rock Disk .... 15.

Borland International ... NCP
Turbo Pascal Tutor .... 49.

Numerical Methods Toolbox .... 65.

Sidekick 2.0 (includes MacPlan) .... 68.

Turbo Pascal (HFS compatible) .... 65.

Eureka: The Solver .... 129.

Den seen Software ... NCP
Coach Professional—Edit big-league documents
with a whole team of features: Hyphenation,
95,000 word spellling dictionary, synonym
thesaurus, legal & medical dictionaries .... $109.
"Dear MacConnection,

I have been prompted to write this letter due to your inability to ship products as promised. I ordered software on a Wednesday, and you told me you couldn't ship until the next day. So I figured I wouldn't have it till the following week. It arrived two days later.

I placed another order a week later. You told me it was out of stock, and might not arrive for 10 days. It arrived here the next morning! This kind of service is ridiculous. I'm becoming a little paranoid about thinking of the items I need. Now that you are promising overnight delivery, things may start arriving before I order them.

Lee Erisman
Lincoln, Nebraska

"I'm becoming a little paranoid."
<table>
<thead>
<tr>
<th>Software Ventures ... NCP</th>
<th>Microphone II—Powerful scripting &amp; background features makes connecting to your information service a snap. MultiFinder compatible. Includes GlueTM</th>
<th>$299.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solutions, Inc. ... NCP</td>
<td>SmartScrap &amp; The Clipper</td>
<td>35.</td>
</tr>
<tr>
<td>SuperGlue (total graphic integration)</td>
<td>52.</td>
<td></td>
</tr>
<tr>
<td>The Curator (access your artwork)</td>
<td>79.</td>
<td></td>
</tr>
<tr>
<td>SpringBoard</td>
<td>82.</td>
<td></td>
</tr>
<tr>
<td>Art a la Mac Volume 1 or 2 (NCP)</td>
<td>23.</td>
<td></td>
</tr>
<tr>
<td>Early Games (counting, shapes, ages 2-6)</td>
<td>28.</td>
<td></td>
</tr>
<tr>
<td>Easy as ABC (alphabet, ages 3-6)</td>
<td>28.</td>
<td></td>
</tr>
<tr>
<td>Certificate Maker (over 200 certificates!)</td>
<td>34.</td>
<td></td>
</tr>
<tr>
<td>Certificate Library Vol. 1</td>
<td>16.</td>
<td></td>
</tr>
<tr>
<td>SuperMacSoftware ... NCP</td>
<td>SuperSpool 3.4 (very fast, top-rated)</td>
<td>42.</td>
</tr>
<tr>
<td>SuperLaserSPOOL</td>
<td>82.</td>
<td></td>
</tr>
<tr>
<td>Multi-User/ SuperLaserSPOOL</td>
<td>199.</td>
<td></td>
</tr>
<tr>
<td>DiskIt (backup &amp; restore utility)</td>
<td>54.</td>
<td></td>
</tr>
<tr>
<td>Network DiskIt (automatic back up)</td>
<td>205.</td>
<td></td>
</tr>
<tr>
<td>Sentinel (encryption)</td>
<td>155.</td>
<td></td>
</tr>
<tr>
<td>Pixel Paint (color Paint program)</td>
<td>259.</td>
<td></td>
</tr>
<tr>
<td>Survivor II/ Paintor ... NCP</td>
<td>MacMoney (personal finance)</td>
<td>69.</td>
</tr>
<tr>
<td>Symmetry ... NCP</td>
<td>Acta 2.0 (outline/writing desk accessory)</td>
<td>36.</td>
</tr>
<tr>
<td>HyperIt (access Hypercard stacks)</td>
<td>42.</td>
<td></td>
</tr>
<tr>
<td>PictureBase 1.2 (clip art manager, 512k)</td>
<td>58.</td>
<td></td>
</tr>
<tr>
<td>Target ... NCP</td>
<td>Scoop up composition &amp; page layout</td>
<td>295.</td>
</tr>
<tr>
<td>Think Educational ... CP</td>
<td>MacEdge II (math &amp; reading)</td>
<td>28.</td>
</tr>
<tr>
<td>Mind Over Mac (memory &amp; strategy games)</td>
<td>28.</td>
<td></td>
</tr>
<tr>
<td>THINK Technologies ... NCP</td>
<td>HFS Navigator (search for buried files)</td>
<td>34.</td>
</tr>
<tr>
<td>Laserspeed (LaserWriter utility)</td>
<td>55.</td>
<td></td>
</tr>
<tr>
<td>Lightspeed (top-rated C Compiler)</td>
<td>65.</td>
<td></td>
</tr>
<tr>
<td>Lightspeed C (top-rated C Compiler)</td>
<td>95.</td>
<td></td>
</tr>
<tr>
<td>CAPP's for Lightspeed C</td>
<td>49.</td>
<td></td>
</tr>
<tr>
<td>CAPP's for Lightspeed Pascal</td>
<td>49.</td>
<td></td>
</tr>
<tr>
<td>InBox Starter Kit (CP)</td>
<td>199.</td>
<td></td>
</tr>
<tr>
<td>InBox Personal Connection (Mac or PC)</td>
<td>call</td>
<td>6.</td>
</tr>
</tbody>
</table>

**GAMES**

<table>
<thead>
<tr>
<th>Accolade ... CP</th>
<th>Grid Wars (3D arcade)</th>
<th>$59.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activation ... CP</td>
<td>Tass Times in Tonetown</td>
<td>21.</td>
</tr>
<tr>
<td>Tass in Shanghai (Mah Jongg strategy)</td>
<td>24.</td>
<td></td>
</tr>
<tr>
<td>Portal (sci-fi novel)</td>
<td>30.</td>
<td></td>
</tr>
<tr>
<td>Addison-Wesley ... CP</td>
<td>Puppy Love (you and your dog will love it!)</td>
<td>19.</td>
</tr>
<tr>
<td>Ann Arbor ... CP</td>
<td>Avalon Hill ... CP</td>
<td>28.</td>
</tr>
<tr>
<td>MacPro Football (req. 1 Meg)</td>
<td>17.</td>
<td></td>
</tr>
<tr>
<td>MacPro Football 85 Team or Season</td>
<td>16.</td>
<td></td>
</tr>
<tr>
<td>Baudville ... CP</td>
<td>Guitar Wizard (learning tool for guitar)</td>
<td>22.</td>
</tr>
<tr>
<td>Ted Bear's Rainy Day Games</td>
<td>22.</td>
<td></td>
</tr>
<tr>
<td>Blue Chip ... CP</td>
<td>Millionaire (stock market)</td>
<td>35.</td>
</tr>
<tr>
<td>Broderbund Software ... CP</td>
<td>Lode Runner (over 150 levels)</td>
<td>24.</td>
</tr>
<tr>
<td>Ultima III (fantasy adventure)</td>
<td>24.</td>
<td></td>
</tr>
<tr>
<td>Ancient Art of War (military strategy)</td>
<td>28.</td>
<td></td>
</tr>
<tr>
<td>Toy Shop (create working models)</td>
<td>27.</td>
<td></td>
</tr>
<tr>
<td>Bullseye ... CP</td>
<td>Ferrari Grand Prix (Formula One racing)</td>
<td>32.</td>
</tr>
<tr>
<td>Pokker TriPlane Flight Simulator</td>
<td>32.</td>
<td></td>
</tr>
<tr>
<td>Electronic Arts ... CP</td>
<td>Skyfox, Pinball Construction Set, Dr. J vs Larry Bird, Archon, each 15.</td>
<td></td>
</tr>
<tr>
<td>Ogre (tank simulation)</td>
<td>20.</td>
<td></td>
</tr>
<tr>
<td>Paton vs Rommel or Scrabble</td>
<td>27.</td>
<td></td>
</tr>
<tr>
<td>Chessmaster 2000</td>
<td>28.</td>
<td></td>
</tr>
<tr>
<td>Epix ... CP</td>
<td>Sub Battle Simulator (NCP)</td>
<td>24.</td>
</tr>
<tr>
<td>Multi-Game (arcade events)</td>
<td>24.</td>
<td></td>
</tr>
<tr>
<td>Greene, Inc. ... NCP</td>
<td>Crystal Quest (color arcade on Mac II)</td>
<td>24.</td>
</tr>
<tr>
<td>Hayden Software ... CP</td>
<td>Perplex (scramble-type game)</td>
<td>24.</td>
</tr>
<tr>
<td>Sargon III (9 levels of chess)</td>
<td>29.</td>
<td></td>
</tr>
<tr>
<td>Infinity Software ... CP</td>
<td>Grand Slam (tennis, req. 512k)</td>
<td>27.</td>
</tr>
<tr>
<td>Beyond Zork</td>
<td>30.</td>
<td></td>
</tr>
<tr>
<td>Classic Mystery Library: Moonmist, Suspict, &amp; Witness</td>
<td>36.</td>
<td></td>
</tr>
<tr>
<td>Science Fiction Classics: Hitchhiker's, Planetfall, &amp; A Mind Forever Voyaging</td>
<td>36.</td>
<td></td>
</tr>
<tr>
<td>Zork Trilogy</td>
<td>42.</td>
<td></td>
</tr>
<tr>
<td>Invisicues Hint Booklets (please specify)</td>
<td>6.</td>
<td></td>
</tr>
</tbody>
</table>

**T/Maker ... NCP**


**TML Systems ... NCP**

TML Pascal (compiler, req. 512k) | $59. |
| TML Teleconnector (DIN8 or DB9) | 45. |
| TML (file-server/LAN software) | 119. |
| NET PRINT (formerly TML PRINT) | 119. |
| TML for the PC | 119. |
| TML Flashcard (network add-in card) | 169. |
| True BASIC ... NCP | Language & Toolkit | 35. |
| True BASIC (interpreter & compiler) | 119. |
| 3D Graphics Toolkit | 49. |
| Other Toolkits (Sorting & Searching or Advanced String) | 49. |
| Educational Software | 49. |
| Algebra I or II, Pre-Calculus, Trigonometry, Discrete Math, Probability, Calculus, Arithmetic & MacFunction | each 35. |
| TrueSTAT (statistics) | 58. |
| Turner Hall ... NCP | MacSOZ (use w/Microsoft Excel) | 49. |
| Unicorn ... CP | Animal Kingdom (ages 5-12) | 27. |
| Decimal Dungeon (math, ages 9 and up) | 27. |
| Fraction Action (arcade style math game) | 27. |
| Mac Robots (pre-school program) | 27. |

**TML Software ... NCP**

Brotherhood Software ... CP | Lode Runner (over 150 levels) | 24. |
| Ultima III (fantasy adventure) | 24. |
| Ancient Art of War (military strategy) | 28. |
| Toy Shop (create working models) | 27. |
| Bullseye ... CP | Ferrari Grand Prix (Formula One racing) | 32. |
| Pokker TriPlane Flight Simulator | 32. |
| Electronic Arts ... CP | Skyfox, Pinball Construction Set, Dr. J vs Larry Bird, Archon, each 15. |
| Ogre (tank simulation) | 20. |
| Paton vs Rommel or Scrabble | 27. |
| Chessmaster 2000 | 28. |
| Epix ... CP | Sub Battle Simulator (NCP) | 24. |
| Multi-Game (arcade events) | 24. |
| Greene, Inc. ... NCP | Crystal Quest (color arcade on Mac II) | 24. |
| Hayden Software ... CP | Perplex (scramble-type game) | 24. |
| Sargon III (9 levels of chess) | 29. |
| Infinity Software ... CP | Grand Slam (tennis, req. 512k) | 27. |
| Beyond Zork | 30. |
| Classic Mystery Library: Moonmist, Suspict, & Witness | 36. |
| Science Fiction Classics: Hitchhiker's, Planetfall, & A Mind Forever Voyaging | 36. |
| Zork Trilogy | 42. |
| Invisicues Hint Booklets (please specify) | 6. |
Disks to Drives.

MacroMind ... NCP
Mazevara (play via modem or network) ... $31.
Microsoft ... CP
Flight Simulator (the Mac takes flight) ... 32.
Micro Sports ... CP
MSFL Pro League Football ... 32.
Miles Computing ... CP
Down Hill Racers (3D ski simulation) ... 24.
Harrier Strike Mission II ... 27.
Fool's Errand (optional hint booklet avail.) ... 27.
Mindscape ... CP
Crossword Magic ... 30.
Balance of Power (world politics) ... 30.
King of Chicago (req. minimum 512E) ... 30.
Shadowgate (castle adventure) ... 30.
Uninvited (mystery adventure) ... 30.
Deja Vu: A Nightmare Comes True ... 30.

Olduvai Software ... NCP
Trust & Betrayal: The Legacy of Siboot ... 30.
Defender of the Crown (req. 800k drive) ... 35.

Macs and share alike—and that means your PostScript downloadable fonts, too! Allows all Macs on a network to share fonts residing on a server ... $159.

MacWizardry (submarine simulator) ... 15.

MacRecorder™ Sound System ... 149.

Privacy: (for Mac II, 1 Meg to 2 Meg) ... 489.

MacSnap Plus 4H ... 399.

MacSnap Plus 2H ... 27.

MicroSoft ... NCP
PowerPoint—Compose complete boardroom-quality presentations. Design and arrange 35mm slides, flip charts, overhead transparencies, etc., all within one program ... $239.

1-800/Mac&Lisa 8200

MacConnection, 14 Mill Street, Marlow, NH 03456 1-800/622-5472 or 603/446-7711

© Copyright 1988 PC Connection, Inc. MacConnection is a division and trademark of PC Connection, Inc.

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

*Defective software replaced immediately. Defective hardware replaced or repaired at our discretion.

Model MSE 2 (MSE 1 with 1 Meg) ... $779.
Model MSE 3 (MSE 1 with math co-processor) ... 779.
Model MSE 4 (MSE 1 with 1 Meg & math co-processor) ... 975.
1024 Option (1 Meg accelerator or Mac II memory expansion) ... 195.
Math Kit (math co-processor chip set) ... 225.
Ergotron ... 1 year
Mouse Cleaner 360 ... 15.
MacTilt or MacTilt SE ... 68.
MacTilt (for large monitor) ... 85.

Farallon Computing ... 1 year
PhoneNET-AppleTalk 120 ... 9.
PhoneNET PLUS (DB-9 or DIN-8) ... 44.
PhoneNET StarController™ w/StarCommand™ software ... 1995.
PhoneNET StarController™ Wiring Kit: Punch Down Block ... 69.
PhoneNET CheckNET™ (multi-user) ... 69.
MacRecorder™ Sound System ... 149.
TrafficWatch (monitor network) ... 159.

Hayes ... 2 years
Smartmodem 2400 ... 449.
MacPlus 1200 or 2400 Package ... call

Kensington ... 1 year
Appleclack Cable Clips or Connectors ... each 1.
Mousseway (mouse pad) ... 6.
Mouse Pocket (for your idle mouse) ... 6.
Mouse Pocket (ADB) ... 9.
Mac Plus/Mac SE Cover ... 9.
ImageWriter II Dust Cover ... 9.
Printer Stand ... 16.
DA's to Databases.

Mouse Cleaning Kit w/Mouse Pocket ........ $17.
Disk Drive Cleaning Kit .................. 20.
Macintosh II Stand ....................... 21.5
Tit/Swivel ............................... 22.
Universal Copy Stand ..................... 22.
Extra Long ADB Keyboard Cable .......... 28.
Anti-glare Filter (for MacPlus or SE) ... 33.
Surge Suppressor .......................... 34.
Apple Security Kit .......................... 34.
Macintosh II Monitor Cable ............... 37.
Printer Muffler (80 column) .............. 37.
Printer Muffler (132 column) ............ 50.
Printer Muffler Stand (80 column) ...... 25.
Control Center ........................... 82.
A-B Box (for the Mac Plus) ............... 64.
System Saver Mac ......................... 64.
Turbo Mouse (large) ...................... 28.
Nutmeg 15" Monitor ....................... 295.
Magnet 40/40 ............................... 6.
Magnum Tape 40 Backup ................... 6.
A+B Box .................................. 28.
A+ Mouse ADB ............................ 87.
A+ Mouse ................................. 69.

MSC Technologies ......................... Lifetime
A+ Mouse—An all-optical mouse with no moving parts. Lightning fast, exceptionally accurate cursor control. Includes mouse pad.
A+ Mouse ................................. $69.
A+ Mouse ADB ............................ $87.

MacBottom HD 32 Meg SCSI ............... $899.
MacBottom HD 32 Meg SCSI w/Modem 1045.
MacBottom HD 45 Meg SCSI ................ 1159.
MacBottom HD 45 Meg SCSI w/Modem 1295.
MagNet 40x (platinum) ........................ 1395.
MagNet 30x (for Mac II) .................... 1295.
Magnum 800 External Drive (platinum) .... 1999.
MacGard Surge Protection .................. 59.
Thunderware ................ 90 days
Thunderware 3.0 with PowerPort .......... 199.
Mac II Power Accessory .................... 42.
Western Automation
DASCH RAMdisk 2000K ..................... 399.

DISKS

Double-sided diskettes.

Sony 3½" DS/DD Disks (box of 10) ........ 18.

Dove Computer ........ 90 days
MacSeig $485—Take 2 giant steps forward: increase your memory to 2 Meg, and add a SCSI port. User installable. Requires 512E (tools sold separately) ................ $449.

Fuji 3½" DS/DD Disks (box of 10) ........ 19.
Verbatim 3½" DS/DD Disks (box of 10) .... 19.
MAXELL 3½" DS/DD Disks (box of 10) .... 20.

INFORMATION SERVICES

CompuServe
Grolier's Online Encyclopedia ............ 32.
Dow Jones
Dow Jones News/Retrieval Membership Kit 24.

ACCESSORIES

Clean Image Ribbon Co.
Clean Image Ribbon Kit ................... 12.
Computer Coverup
External Book Drive Cover ................. 4.
ImageWriter II Cover ...................... 8.
Mac Plus or Mac SE Cover Set .......... 10.
I/O Design
Available in navy blue.
Imageware II (ImageWriter II carry case) . 49.

Macintosh II Monitor Cable ............... 295.
MacGard Surge Protection ................. 55.
Thunderware ........ 90 days
Thunderware 3.0 with PowerPort .......... 199.
Mac II Power Accessory .................... 42.

True BASIC ... NCP
True BASIC 2.0—By the people who know what BASIC should be! Kemény & Kurtz—original authors of the BASIC language. New version includes interpreter and compiler .... $119.

Moustrak
Moustrak Pad (standard 7" x 9") .......... 8.
Moustrak Pad (large 9" x 11") .......... 9.
Ribbons
Available colors: black, blue, brown, green, orange, purple, red, yellow and silver.
Rainbow Pack (6 single color ribbons) .... 20.
Multi 4-Color Ribbon (req. ImageWriter II) ... 9.
Sensible Softworks
Quality "Maccite" nylon dust covers ...... 7-17.
High Trek ImageWriter II carry case ...... 49.
High Trek Mac SE & ext. kybd. carry case 69.

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 shipped 1st Class Mail, charged by weight.
- Allow 1 week for personal and company checks to clear.
- 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 EST, or Saturday 9:00 to 5:30 EST. You can call our business offices at 603/446-7711 Monday through Friday 9:00 to 5:30 EST.

SHIPPING

Continental US: Barring massive computer failures and other natural or unnatural catastrophes, all non-C.O.D. orders placed after 8PM EST will ship Airborne the same night for next day delivery, except for those within UPS Ground Zone 1 (which is also an overnight service). The total freight charge on any order placed with MacConnection is now $3. Backorders will also ship Airborne overnight at no additional charge. Some areas require an additional day delivery. Hawaii, Alaska and Outside Continental US: Call 603/446-7711 for information.
Pick a Peck of Pixel Palettes

If PixelPaint provided only normal painting tools and the Color Palette, it would still make a contribution to color software for the Macintosh. But it goes much further.

You can save palettes as separate documents, which PixelPaint can in turn open for use in other paintings. If you choose to REMAP colors when you make a palette change, PixelPaint tries to match the old colors in your painting as closely as possible by selecting from among the colors in your modified palette. If you turn REMAP off (the default), new colors replace old ones based on their palette positions, and your painting can easily change its appearance completely. This nomenclature is exactly the opposite of what I would expect because to me the palette positions are much like a map. It's an unfortunate case of creeping computerese. I would have called it "Match Old Colors" instead.

There is an even more serious snafu here, though. The only time you care about remapping is when you work with the palette or when you open a color image created by another application, such as a scanned image. Yet the control for turning remapping on and off is not to be found anywhere near either of these functions; instead, it's hidden away in obscurity in the Preferences dialog, which you access from the Options menu. I still haven't figured out the logic behind that one.

SPECIAL EFFECTS

If PixelPaint provided only normal painting tools and the Color Palette, it would still make a contribution to color software for the Macintosh. But it goes much further. It offers two painting modes: Normal, which works as expected; and Special Effects, which far exceeds expectations.

You enter Special Effects mode by clicking a toggle at the top of the Toolbox. When you select a tool in Special Effects mode, a tool-specific menu appears on the menu bar. Command-clicking from anywhere in your painting lets you access this menu as a pop-up.

The most basic effect is a graduated fill, which PixelPaint calls a Fill Effect. Fill Effects are available for filled versions of the rectangle, rounded rectangle, oval, polygon, regular polygon, and freehand tools; for the Paint Bucket; and for the Paint Brush.

The most interesting Fill Effect is Tile. You can select a square portion of whatever is in the Clipboard to act as the tile pattern. You can then use this pattern as you would use any other fill. Four different tile sizes are available: 16, 32, 64, or 128 pixels square.

The other tools have special effects as well. One common to the Line, Arc, Pencil, Paint Brush, and Spray Can is the Cycle Effect. Similar to a Fill Effect, painting with the Cycle Effect produces lines that change hue as you paint, beginning with the foreground color, then repetitively cycling through the palette to the blend color and back again.

The Paint Brush is the most versatile of the "line-painting" tools, sporting 16 different effects. My favorite is the Clipper, which uses whatever is in the Clipboard as a brush. You can select any portion of your drawing and cut or copy it to the Clipboard, and the Clipper will paint with it. The selection doesn't have to be rectangular; you can use
the Lasso tool to copy to the Clipboard if you like. Nor does it have to be contiguous. **PixelPaint** lets you select and copy multiple, disconnected portions of a painting to the Clipboard. You can even use the Clipper with text!

Three other brush effects — Maximum, Minimum and Wash — are useful for colorizing black-and-white images. Maximum puts the foreground color wherever it finds black or a relatively dark color. Minimum puts the foreground color wherever it finds white or a relatively light color. The **PixelPaint** manual includes a tutorial that walks you through the use of these effects to colorize a MacPaint image.

Wash is designed for use with gray-scale images from scanners. It maintains the intensity (saturation and brightness) of the image being edited over but changes the hue to that of the foreground color. It can also be used to recolor an image. This effect has tremendous potential, but unfortunately, **PixelPaint** cannot import TIFF (Tagged Information File Format) files. TIFF is the main format used for transporting gray-scale images from one application to another. SuperMac's tech support claimed that Apple's new PICT 2 format could be used for gray-scale images, but as of this writing, no scanner software was shipping that could save a gray-scale image in PICT 2 format.

**PixelPaint** does, however, support a range of file formats, including MacPaint, PICT 2, and EPSF. Exporting **PixelPaint** images in other formats, however, is not without problems. Although **PixelPaint** provides great flexibility in editing the Color Palette, other applications do not yet know how to read these customized palettes — and PICT 2 format doesn't support them.

**DOCUMENTATION AND SUPPORT**

On the whole, the **PixelPaint** manual is well done. A solid tutorial section gives you an overview of the product's tools and techniques, and this is followed by a reasonably good reference section. The program also ships with three disks full of sample **PixelPaint** artwork.

But all is not perfect here. My biggest complaint is the manual's lack of any discussion of color-output devices. Nor is there much talk about problems of compatibility with other software.

More immediately obvious is the lack of color in the manual itself. That's right. It's all in black and white. This, to me, is a foolish attempt at thrift. Certainly, if SuperMac didn't want to pay for four-color process on every page, it could at least have printed one or two sections in color. The illustrations lose much of their impact by trying to present color concepts in shades of gray. These black-and-white screen shots, many of which are fuzzy, also do little to promote the SuperMac color monitors on which they were no doubt created.

Although **PixelPaint** is easy to use, you will have questions. SuperMac's telephone support for the program is excellent. I called several times with questions ranging from the ridiculously simple to the ridiculously esoteric. Each time my question was answered courteously and rapidly.

**PRODUCTIVITY TOOL OR EXPENSIVE TOY?**

If you were one of the first to buy a Mac II and have been champing at the bit for color software to play with, **PixelPaint** will more than meet your needs. It will probably be, for the near future at least, the color paint program of choice for high-end users. The features discussed in this review only scratch the surface of the program's power.

But can you produce anything useful with it? SuperMac is positioning **PixelPaint** as a business product for generating color presentation graph-
Anything These Can Do,

The time has come to replace all your old drawing tools. Because now there's a new, more powerful way to draw with your computer. It's called Aldus FreeHand. And it's the only drawing tool anyone with a Macintosh really needs.

It combines the flexibility of freehand drawing with the precision and special effects of the best computer drawing programs. So no matter what your level of artistic skill, it can help your work look more professional.

And because Aldus FreeHand is based on PostScript, the language of desktop publishing, your output will look even sharper than the image on your screen.
Aldus FreeHand supports full-color display, spot color and process color separations. It also gives you the most flexible editing capabilities and advanced text handling of any graphics software you can buy.

So call 1-800-33-ALDUS for a free self-running demo or visit your authorized Aldus dealer today and ask to see the state-of-the-art, art program for yourself.

It may be the last art supply you'll ever need to buy.

Aldus FreeHand
411 First Avenue South, Seattle, WA 98104  (206) 622-5500

Please circle 156 on reader service card.
Pick a Peck of Pixel Palettes

The program is not particularly fast. If you want to avoid disjointed images, you must frequently draw much more slowly than you naturally would. Screen navigation is also not up to snuff.

Then there’s the question of output. It’s all well and good to make beautiful pictures on the screen, but then what? For PixelPaint to be useful for creating business presentations or as a color proofing device, its images need to be turned into printed output, slides, or transparencies. But all you get with PixelPaint is a single page of output from a Tektronix 4693D color printer stuffed into the shrink-wrapped box. No discussion of this crucial subject. Period. Not all users will be able to afford such color-output devices, and their availability from service bureaus is still limited.

The manual is also silent on the possible use of PixelPaint images for video presentations, either static or animated. Nor, at press time, is there a way to generate a four-color PostScript separation from PixelPaint. Although there is some doubt that the halftoning machinery in current implementations of PostScript is capable of producing high-quality, high-resolution separations, the lack of this feature means that PixelPaint cannot be used easily to generate images for reproduction on a printing press.

THE VERDICT

PixelPaint does a masterful job of bringing the power of color to the Mac II screen. SuperMac was wise to market the product. It will undoubtedly be in the electronic toolbox of nearly every Macintosh artist in the high-end graphics market at which it is targeted.

SuperMac has, however, done a less than brilliant job of educating PixelPaint users about the practical considerations involved in actually using the product. I refer here primarily to the lack of technical discussions of color compatibility with other applications and color-output devices.

And then there is the price. I mean the real price — 2 to 4 megabytes of RAM and an 8-bit video board — not just the $495 sticker on the product itself.

I suspect that two groups of users will find that they simply can’t do without PixelPaint: graphic artists, who as always will find a way to iron out the difficulties of using new tools for productive work; and Macintosh enthusiasts who simply want color on the screen and don’t care if they ever output an image.

PixelPaint is, by SuperMac’s own admission, partly intended to showcase — and sell — the company’s hardware products: Spectrum video cards, color monitors, and memory upgrades. In this, it will probably be successful. I can’t help wishing, though, that SuperMac had given us something perhaps less powerful that required a less expensive hardware platform.

HENRY BORTMAN IS A SAN FRANCISCO-BASED FREELANCE WRITER. HE IS A FREQUENT CONTRIBUTOR TO MACUSER. HENRY IS ALSO A SYSTEMS ANALYST FOR US SPRINKLE AND PLAYS BLUES HARMONICA IN THE BAND RED BLUES.

MACUSER RATING

PixelPaint 111112
Follows Mac Interface [ ] [ ] [ ] [ ] [ ]
Printed Documentation [ ] [ ] [ ] [ ]
On-Screen Help None
Performance [ ] [ ] [ ] [ ] [ ]
Support [ ] [ ] [ ] [ ] [ ]
Consumer Value [ ] [ ] [ ] [ ] [ ]

Are you sure you want to throw away the applications "MacDraw", "MacPaint", "SuperPaint", "GraphicWorks" & "FullPaint"?

YES Cancel

Introducing Canvas™. The only graphics program that integrates MacDraw™ type objects, high resolution 300 to 2540 dpi images, PostScript™ and MacPaint™ type graphics in a single document.

No more switching from one window to another. No more cutting and pasting between different programs. Everything you want in one program, in one document.

Use Canvas™ for corporate slide presentations, forms, complex graphics, diagrams, newsletters. Any where you want stunning results.

Import graphics from other programs like - ith Dimension™, Excel™ and More™ to customize charts and graphs.

We’ve even included a desk accessory version so you can use Canvas™ from within your word processor, spreadsheet, database or desktop publishing program.

Canvas™ allows you to view and edit in any magnification or reduction from 3.125% to 3,200% for incredibly precise control of your image.

Canvas™ is packed with features and powerful special effects. Bezier curves. “What you see is what you get” (WYSIWYG) text editing. 9 feet by 9 feet of continuous drawing area. MacObjects™ (graphic macros), TIFF support. And much more.

So if you’re looking for the best of everything, look into Canvas™.

Visit your local dealer for a complete demonstration of Canvas™ and other Deneba software including: Coach™ the best selling interactive spelling checker desk accessory, Comment™ the original Macintosh equivalent of 3M’s Post-It™ notes and the Coach™ Merriam Webster Thesaurus.

Or call us at 1-800-6CANVAS. In Florida call (305) 594-6965.

Canvas™ $195.00. Please circle 84 on reader service card.

Deneba SOFTWARE
7855 N.W. 12th Street, Suite 202
Miami, FL 33126

MacDraw, MacPaint and Macintosh are trademarks of Apple Computer Inc.
- ith Dimension is a trademark of Actex, Inc. Excel is a trademark of Microsoft Corp. Store is a trademark of Storing Volumes, Inc. SuperPaint is a trademark of SuperPaint Software, Inc. GraphicWorks is a trademark of Mindscape, Inc. FullPaint is a trademark of Ann Arbor Software, Inc.
Ashton-Tate and a powerful database ever
ounces the most
used by man or mouse.

It's called dBASE* Mac.
And it's the most powerful relational
database designed for the Macintosh™.
Especially since, unlike other
databases, you can get that power
without knowing a thing
about programming.
Begin by
creating
and
relating
your
files.
Not just
linking them,
but relating them. So when you update
one file, all your related files will be
And remember, with dBASE Mac you
can do all this without programming.
With a few clicks of your mouse,
you can quickly redesign and rearrange
your files to look at your data in any
number of ways. Without disrupting it.
And without any programming.
Also, using the selection of fonts and
MacDraw-like tools, you can design
reports from the very simple to the very
sophisticated. Right on the screen.
So you'll know how it looks before you
print it.

We're not talking about just text
and graphics. With dBASE Mac, you can
incorporate photos of people, parts and
places into your database.
You can even import data from
Ashton-Tate's dBASE III PLUS,® dBASE III,
or dBASE II,® as well as ASCII files.
All without programming.
And all with the help of Macintosh's
on-screen prompts and pull-down menus.
But if you want to go still deeper,
the powerful dBASE Mac programming
language will take you into a world
of power and capability where no
Macintosh has ever gone before.

If you would like a demo disk* for
$4.95† or the name of the dealer nearest
you, call (800) 437-4329, extension 2403††
You'll see how this Ashton-Tate relational
database will
make your Macintosh
office work
smarter.
Whether
you are a huge
organization.
Or a one-
mouse shop.

Hardware requirements: Macintosh Plus, Macintosh SE, Macintosh II with at least 1MB memory. *While supplies last. †In Colorado, call (303) 799-4900. Extension 2403. Trademarks/owners:
dBASE, dBASE II, dBASE III, dBASE III PLUS, Ashton-Tate/ Ashton-Tate Corp.; MacDraw/Macintosh/Apple Computer Inc. ©1988 Ashton-Tate Corp. All rights reserved.

Please circle 124 on reader service card.
Double Helix Takes Form

Icons and an intuitive graphics interface help dress your database for success.

WHOEVER SAID "LOOKS ARE EVERYTHING" presaged what has made the Macintosh a success. The saying goes double for the latest incarnation of Helix. The power users' database is as flexible in its screen and printed output as it is in its development language.

This article, the second in a two-part series on Double Helix II, looks at how the program handles forms. Output is critical when it comes to database design. No matter how powerful its relational searches are, if a database can't be customized for both data entry and output, then its users will be limited to those few who actually created it. In this combined tutorial/review, you'll see how Helix takes its object-oriented approach to database management and applies it to form design.

FORM DESIGN

To begin designing a form, drag the Template icon from the icon palette in a relation to the work area and double-click on it.

The icon switches at the top of the palette display the names of previously created icons that you can use in the construction of the form. The Abacus switch lists the name of calculations that have been built in the relation; the Field switch lists the name of data-field icons created in the relation; and the Template switch...
Double Helix Takes Form

Opening the Template icon is the first step in designing a form.

This layout template contains (clockwise from upper left): a picture field for the company logo, a field for form's title, an Abacus field for the current date, a Border rectangle drawn around the Contact/Phone and Rating fields for design purposes, and an invisible border around the vendor information. Because the invisible border begins above the Contact/Phone fields, the vendor information will be filled in first.

The Repeat rectangle, shown at the bottom of the template, is used to create listing forms, which are for display and report purposes only. They can't be used for data entry.

In fact, if you are entering data and continue typing past the end of the Field rectangle, Helix will store all the entered characters, even those not visible.

You select the appropriate rectangle and draw it into position on the form in the same way as you draw a rectangle in MacPaint or MacDraw. You can move or resize rectangles at any time, using the grow box.

If you want to have fixed information on the form, use the Label rectangle and type into it whatever you want. You can also paste pictures into a Label rectangle.

You use the Data rectangle for displaying information stored in the database. After you have drawn the Data rectangle, you can select either the Field Icon or Abacus Icon switch, and after locating the name of the field you want to display from the list presented, you select and drag it into the Data rectangle. The size of the rectangle affects only the length of the data displayed — it has no effect on the data itself or on the database structure. In fact, if you are entering data and continue typing past the end of the Field rectangle, Helix will store all the entered characters, even those not visible.

You set field default values by creating the value with an Abacus icon and then placing the Abacus icon in the same Data rectangle as the Field icon that will permanently hold the data. The full power of Helix calculations is thus available for default values. During data entry, the default value will automatically appear in the Data rectangle, but you can override this value by typing over it. If you do this and realize that you've made a mistake, a backward drag, followed by a delete and tab, will reinsert the default value. Helix also provides a "keep value" function whereby the default value is the one entered during a previous data-entry session. You have the option of having all default fields on a particular template shaded if you wish.

When you use a Data rectangle with a Picture field, you can have the picture either clipped to fit the size of the Data rectangle or scaled to fit.

You can also define Data rectangles as "nonselectable," meaning they are for display purposes only; you cannot alter their values. This approach makes it easy to have different screens for different levels of personnel (access to the screens being controlled through custom menus) that effectively control read-only and read/write capability on a field-by-field basis.

You have the option to outline both Data and Label rectangles with a solid border — a single line of fixed width that is not changeable in style. This ability is useful not only for design purposes but also to establish a standard format differential for input and displayed fields.

Border rectangles serve three purposes. You can specify them as either solid or invisible, and you can have rectangles with multiple borders, but they cannot overlap. The first use of a Border rectangle is merely visual and lets you draw a rectangle around any area in the template layout (make sure you specify it as solid in this case). The second use is to group several fields, or an area of the layout, so that you can reposition them on switch lists previously created templates that can be used as subforms or lists within the main form.

The four rectangles listed under the Tool switch are the Helix visual design tools. You select the appropriate rectangle and draw it into position on the form in the same way as you draw a rectangle in MacPaint or MacDraw. You can move or resize rectangles at any time, using the grow box.

If you want to have fixed information on the form, use the Label rectangle and type into it whatever you want. You can also paste pictures into a Label rectangle.

You use the Data rectangle for displaying information stored in the database. After you have drawn the Data rectangle, you can select either the Field Icon or Abacus Icon switch, and after locating the name of the field you want to display from the list presented, you select and drag it into the Data rectangle. The size of the rectangle affects only the length of the data displayed — it has no effect on the data itself or on the database structure. In fact, if you are entering data and continue typing past the end of the Field rectangle, Helix will store all the entered characters, even those not visible.

You set field default values by creating the value with an Abacus icon and then placing the Abacus icon in the same Data rectangle as the Field icon that will permanently hold the data. The full power of Helix calculations is thus available for default values. During data entry, the default value will automatically appear in the Data rectangle, but you can override this value by typing over it. If you do this and realize that you've made a mistake, a backward drag, followed by a delete and tab, will reinsert the default value. Helix also provides a "keep value" function whereby the default value is the one entered during a previous data-entry session. You have the option of having all default fields on a particular template shaded if you wish.

When you use a Data rectangle with a Picture field, you can have the picture either clipped to fit the size of the Data rectangle or scaled to fit.

You can also define Data rectangles as "nonselectable," meaning they are for display purposes only; you cannot alter their values. This approach makes it easy to have different screens for different levels of personnel (access to the screens being controlled through custom menus) that effectively control read-only and read/write capability on a field-by-field basis.

You have the option to outline both Data and Label rectangles with a solid border — a single line of fixed width that is not changeable in style. This ability is useful not only for design purposes but also to establish a standard format differential for input and displayed fields.

Border rectangles serve three purposes. You can specify them as either solid or invisible, and you can have rectangles with multiple borders, but they cannot overlap. The first use of a Border rectangle is merely visual and lets you draw a rectangle around any area in the template layout (make sure you specify it as solid in this case). The second use is to group several fields, or an area of the layout, so that you can reposition them on
**Macintosh Plus Entry System**

- System includes:
  - **Macintosh Plus** Computer
  - Maxell Diskettes Box of 10
  - 1 Megabyte RAM
  - 80 Megabyte Hard Drive
  - External Keyboard & Mouse
  - Pretend Mouse
  - Microphone II
  - External Speaker
  - HyperCard Software
  - Mouse Pad

  **Suggested list price $3450**

**CDA Price $2399**

When ordering specify package #8801

---

**Macintosh SE Super System**

- Complete System includes:
  - **Macintosh SE** Computer
  - Maxell Diskettes Box of 10 with 2 internal 80MB Drives
  - 1 Megabyte Memory
  - External Keyboard & Mouse
  - Pretend Mouse
  - Microphone II
  - External Speaker
  - HyperCard Software
  - Mouse Pad

  **Suggested list price $3669**

**CDA Price $2749**

When ordering specify package #8802

---

**Macintosh II/40**

- Complete System includes:
  - **Macintosh II/40** Computer
  - Maxell Diskettes Box of 10 with 40 Megabyte Hard Drive
  - 4 Megabyte Memory
  - 1700 Shears
  - External Keyboard & Mouse
  - Pretend Mouse
  - Microphone II
  - External Speaker
  - HyperCard Software
  - Mouse Pad

  **Suggested list price $7649**

**CDA Price $5999**

When ordering specify package #8805

---

**Macintosh SE/20 Super System**

- Same as above but includes the Macintosh SE with built in 20 megabyte hard disk and 1 internal 80MB floppy.

**Suggested list price $4699**

**CDA Price $3349**

When ordering specify package #8803

---

**Order Toll Free 800-526-5313**

**CUSTOMER SERVICE - 201-832-9007**

IN NJ 201-832-9004

---

**Buy with Confidence**

- **No-Risk 30-Day Satisfaction Guarantee**—If you’re not 100% satisfied with any hardware or accessories purchased from CDA Computer Sales, we will refund the purchase price of the hardware and/or software (less shipping and handling).
- **Free Technical Support Hotline**—We support your customers with knowledgeable technicians trained on all products we sell.
- **Warranty**—On top of the manufacturer’s warranty, we offer a 30 day defective exchange policy—If hardware or accessory fails in the first 30 days we will replace that item with a brand new one.
- **Apple Product**—We are not an authorized Apple dealer, therefore, during the 90-day warranty period the product must be returned to CDA for warranty repair.

---

**Shipping Charges**
- UPS Ground Shipping, add $2 - $12.50 minimum.
- UPS Blue Service, add $5 - $10 maximum.
- APO/PO Box shipping, add $4 - $14.50 minimum.
- Alaskan, Hawaiian, Puerto Rican, and Canadian orders, add $6 - $15.50 minimum. Foreign orders, please call.

---

**Payment**
- Major Credit Cards Accepted (all additional charge)
- Checks and Money Orders accepted promptly. Personal checks are held 10 days for clearing. NO COD’s please.
- Apple is a registered Trademark of Apple Computer, Inc.

---

**CDA Computer Sales**

One CDA Plaza, PO Box 333, Caldwen, NJ 07830

Monday, Tuesday, Wednesday, Thursday, Friday - 9:00 AM to 5:00 PM
Order #1: Phone, Fax #2: 201-391-1493
Computer's Electronic Mail (GO CDA)

---

Please circle 89 on reader service card.
We created WordPerfect no time flat. Relatively.

We don't mind telling you that we're breathing a collective sigh of relief. After slaving away, we've done it. We've designed and manufactured a powerful word processor that's truly worthy of the Macintosh. WordPerfect for the Macintosh is designed to take advantage of the Mac's outstanding graphics capabilities. And its mouse interface is elegant and easy to use; WordPerfect's unique hierarchical menus present commands in a logical, accessible manner.

And WordPerfect for the Macintosh comes from a company dedicated to word processing. With proven features that have helped to make WordPerfect the best-selling word processing software in the world.

Those features include...
for the Macintosh in parallel and newspaper-style (snaking) column options displayed on screen; automatic formatting and pagination; and a file manager that lets you copy, delete, rename, or print a file right from one WordPerfect dialogue—or quickly scan and select files by employing “Word Search.”

And, of course, WordPerfect for the Macintosh offers macro options as only WordPerfect can—helping to make repetitive tasks a thing of the past. Everything from memo forms to newsletter formats to complex procedures can be stored via macros with no limit as to number or size.

WordPerfect for the Mac also helps you compile professionnally organized tables of contents, indexes, and outlines. It makes footnoting simple. And, using Print Preview, it lets you view your document in miniature so you can check its appearance before printing. Add to all of this a fully integrated, 115,000 word dictionary and a large, rapid-access thesaurus, and you’ve got the perfect tool for all of your word processing needs.

WordPerfect for the Macintosh is designed for the individual, or for use in a shared environment. It’s compatible with files derived from WordPerfect 4.2 for the PC, Microsoft Word 3.01 and MacWrite.

Now you know what’s gone into our word processor for the Mac. And maybe now you’ll forgive us for the short delay. Well, relatively short.

For more information, call or write WordPerfect Corporation, 1555 North Technology Way, Orem, Utah 84057 (801)225-5000.

(Write, please circle 133 on reader service card.)

WordPerfect is a registered trademark of WordPerfect Corporation. All other brand and product names are trademarks or registered trademarks of their respective companies. WordPerfect is also available for VAX machines.
Double Helix Takes Form

The View window lists all available templates in alphabetical order in the view. The middle column lets you specify selection criteria that will restrict the records displayed in the view.

Once the view has been defined, you use the View menu to choose what will be displayed. For a listing template, the only option is Show Form, which shows the entire list.

The View window lists all available templates in alphabetical order in the column on the left; indexes appear on the right. The middle column lets you specify selection criteria that will restrict the records displayed in the view.

LISTING FORMS

The final rectangle on the palette is called a Repeat rectangle, and you use it to create listing forms. Listing forms are for display and report purposes only; you cannot use them for data entry.

Note the double-bordered rectangle that surrounds the data fields. It is the repeat rectangle that was drawn around the fields to be included in the list. A template can contain only one Repeat rectangle. You can, however, create sublists by using subforms. An example would be to list all the details of all open purchase orders under each vendor.

SELECTING A VIEW

So far I've discussed how you define fields, calculations, index files, and Layout templates. The View icon ties them all together and presents a particular view of the data in a particular sequence. It allows you to place constraints or selection criteria on the view and to enter or display data. To create a view, you drag the View icon from the palette in the main window to the main work area and open it to specify what it is you want the view to represent.

In the example shown, the template Vendor Entry has been selected along with the index called Alphabet. This section results in a view of the records in the Vendor relation, in accordance with the template previously illustrated, displayed in alphabetical sequence. If you wanted the display in vendor # sequence, you would select Vendor # in the index column. Clicking anywhere below the list of indexes would deselect all of them, and the data would be displayed in the order entered.

The View window lists all available templates in alphabetical order in the column on the left; indexes appear on the right. The middle column lets you specify selection criteria that will restrict the records displayed in the view.

If you had your fidds arranged into two columns for a presentation sequence, but you wanted to enter the data in the left column first because it was operationally more sensible, you could draw a Border rectangle around all the fields in the left column. Helix would then process these as a group first before proceeding "across" to the right column and then down the page. Because you can have multiple Border rectangles in a layout, you can get quite sophisticated in sequencing data fields into entry groups.

LAYOUTS

If you want to create a Layout template quickly, Helix provides you with the ability to do so. After opening a blank Template icon, you select Quick Entry from the Edit menu, and Helix will create a template for you, using the names of the field icons as labels. You can control the sequence of the fields by selecting the field icons in the order you desire prior to choosing Quick Entry. You cannot, however, restrict the layout to certain fields; all fields are automatically inserted into the layout. In addition, Abacus icons are not considered and must be inserted manually. Helix makes no distinction between input and output layouts, as 4th Dimension does. To print a record, you select the desired template and choose Print from the File menu, even if you're using the template for data entry. Find and Print prints the entire file or those records selected by a query, about which I'll say more later.

SELECTING A VIEW

So far I've discussed how you define fields, calculations, index files, and Layout templates. The View icon ties them all together and presents a particular view of the data in a particular sequence. It allows you to place constraints or selection criteria on the view and to enter or display data. To create a view, you drag the View icon from the palette in the main window to the main work area and open it to specify what it is you want the view to represent.

In the example shown, the template Vendor Entry has been selected along with the index called Alphabet. This section results in a view of the records in the Vendor relation, in accordance with the template previously illustrated, displayed in alphabetical sequence. If you wanted the display in vendor # sequence, you would select Vendor # in the index column. Clicking anywhere below the list of indexes would deselect all of them, and the data would be displayed in the order entered.

The Query column has two switches at the top that let you view
I want to increase the power and performance of my Macintosh! Begin sending me in-depth product reviews, hands-on tutorials and power tips, and complete coverage of the applications I can build into my Mac. Begin my subscription to MacUser for:

- One year (12 issues) for $19.97. I'm saving 58%!
- Two years (24 issues) for $34.97. I'm saving 63%!

Savings based on annual single copy price of $47.40.

MR./MRS./MS.  Please print full name  4S473

COMPANY

ADDRESS

CITY  STATE  ZIP

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and all other foreign countries, U.S. currency only. Annual basic subscription price is $27.00.
lists of the two available types of queries: Regular queries, which will be discussed later, and Abacus queries. You select the type of query by selecting the appropriate switching icon.

The Abacus query list would contain any Abacus icons that resulted in a true or false (yes or no) value; selection of an Abacus query displays only those records for which the result of the calculation in the Abacus is true. You could, for example, have an Abacus that returned true if there was no data in the Date Received field of the Purchase Order record (and false if there was). If you selected this Abacus query along with the P.O. List template, only “open” purchase orders— that is, those not received— would be displayed; if you didn’t select a query, all purchase orders would appear on the list.

Once you have defined the view by choosing the template, query (optional), and index (sequence)— (optional), you go up to the View menu and choose one of the selectable items. If the template is not a listing template, FIND FIRST will display the first record in the sequence you select. CLEAR FORM will present a blank template ready for entering a new record. Once you have a record, FIND NEXT and FIND PREVIOUS will display the next and previous records, respectively. The only option with a listing template is SHOW FORM, which displays the entire list (subject to query considerations).

When you close the view with the close box, Helix remembers the settings, and the next time you open it, these choices will still be in effect. If you want to look at information regularly, using a particular template in two different sequences, you can create two different View icons, selecting the same template but using different indexes, and give the Views different names. They would both then be readily available without making you go back to the selection window to change the specifications—for example, the Vendor List template in both alphabetical and vendor # sequences. You would have to use this approach in the Custom menu environment, as you cannot alter the specifications of a view when operating in Custom mode.

Several View windows can be open at the same time, each displaying different lists or records from the same or different relations. If a record is changed in one window and a record containing dependent data exists in another window, this change will be reflected in the second window. In a multiuser environment, this integrated referentiality also exists across the system: A change made in a window in one system will be automatically reflected in any open windows in any other system nodes that are affected. (The multiuser system protects against more than one user’s attempting to modify the same record at the same time.)

Consistent with the Helix environment, you can find a record you want to change without stepping through all of them one by one or writing a single procedural statement. Two options are available: Quick Query and Query templates.

**QUICK QUERY**

The Quick Query feature is applicable only to nonlisting forms and permits you to do a simple selection on the value in a single field. The field must be a data field; it cannot be a derived field— that is, a calculation result.

To activate Quick Query, click the mouse, with the cursor anywhere in the field you want to query, and then select Quick Query from the View menu. The name of the selected field then appears at the top of the window along with the available selection options. You choose the selection criteria, enter the value in the long box at the top of the query window, and press the Enter key. Helix then searches the file and presents you with the first record it finds that
Double Helix Takes Form

meets the selection criteria. It searches the file in the sequence of the index associated with the particular view. Pressing the Enter key again initiates a search for the next record satisfying the specified criteria.

When you find the record you want, you can place the cursor in any field or fields you want to change, make your changes, and press Enter when you have finished. The record will then be updated. If you click on the Cancel button in the Query window prior to pressing Enter, Helix will make the update and discontinue the search. Leaving the Query window open will result in the record's being updated (if changes were made), and then the search will continue for the next record. If you close the view with the Quick Query window open, it will appear the next time you open the view.

REGULAR QUERY

You use the Query icon to define a more complicated search, ranging from a one-field search to a combination of fields, each with its own criteria. The Query icon is the rectangle with the ? on the relation's Tool palette. When you drag a Query icon into the work area and open it, you are presented with a list of all nonlisting templates constructed in the relation.

When you select one of the templates, it is displayed in the Query window and becomes the basic form through which you can define the selection criteria on any of the fields in the template. When you are looking at a specific view that has a query associated with it, the option OPEN QUERY is available in the View menu. Selecting it will present the form for you to work with. If you want to specify a restriction, you click on the desired field and are presented with your options.

You can restrict as many of the fields on the form as you like. If you were looking at a nonlisting form and selected FIND FIRST in the View menu, Helix would find the first record that met the defined combined query; a listing form would list only those records meeting the criteria.

You can design specific templates for queries; the Query template does not have to be the same as that used for the view and it can refer to fields not specified in the view. The template can also contain Abacus or Calculation fields, contrary to a Quick Query. You can thus do selections based on all manner of complex selection criteria, including totals obtained from summing records in another data relation.

The relationship between the various fields in a Query template is an AND-type relation. That is, if you restrict the Rating to equal A+ and the Address to Contains N.Y., you would get Vendors in New York with an A+ rating, not Vendors in N.Y. OR with an A+ rating. If you wish to create an OR relation, or an AND/OR, you can construct an
When you want to boost performance of your Macintosh® SE, fast—the right accelerator can make all the difference. And with a price starting under $800, MacPEAK's Orion™ SE100 Accelerator makes the difference very clear.

It's the only board available that gives your SE all the power and memory expandability of a Mac II. And like all innovations from MacPEAK, the Orion SE is 100% Apple-compatible, which makes it easy to install, easy to expand—and very easy to appreciate.

**FROM SE TO MAC II IN NOTHING FLAT**

With a blazing clock speed of 16 MHz and full 32-bit busses, the Orion SE100 quadruples the processing speed on all your software. If that's not fast enough for you, an optional boost to 20 MHz is available (call for price on this option). Or, add a 68881 Math Co-processor and run math-intensive software and desktop engineering programs up to a hundred times faster than a standard SE! ($295 option)

Equipped with Apple-standard SIMMs, the Orion SE is designed for easy “snap-in” upgrades of 1 to 8 megabytes of on-board memory. Plug in a Galaxy™ LS option ($490) and your SE is instantly compatible with a variety of large screen monitors, including landscape and portrait formats.

The 68851 Memory Management Co-processor ($595 option) allows the Orion SE to handle up to 32 MB of memory, as well as advanced operating systems like A/B and multi-tasking systems.

**THE SMALL PRICE OF POWER: $795**


Best of all, at only $895 (just $795 without RAM), the Orion SE makes a big difference, for a price that's really "small change."
Double Helix Takes Form

Abacus that returns a true/false value, place it on the Query template, and define the appropriate selection criteria (true or false).

A query can be associated with more than one view. If, for example, you want to have several different formatted lists, all restricted by the same selection criteria, you can tie them to the same query. If more than one listing view referring to the same query is open at the same time and you change the query values, all lists will automatically be affected.

*Helix remembers the last setting of a particular query, and it stays that way until it is changed, even if the system is closed and reopened. This memory is advantageous in designing a custom system, as you can preset query values for commonly used reports. If you use the query structure and continually change the values, however, you can unintentionally get a restricted list if you forget that you have previously set values—especially pertinent if more than one view refers to the same query.

There are two general approaches to constructing a query system. The first is to construct a general Query template that contains all the data fields or calculations on which you want to restrict a list or access a record and have this single Query template referred to by multiple views. You can then merely open the query and define your criteria.

You could also have multiple views defined, using the same View template but referencing specific—that is, more restricted—queries, perhaps even with preset values. These views would have names or labels that described their specific purposes—for example, Western Territory Customer List—which could then be placed in a Custom menu.

The latter technique is more appropriate to a customized system wherein you want to make things as simple as possible for users. A mix of these two techniques is most likely: the latter approach for commonly used lists and record-access criteria and the former when the predefined ones don’t apply.

Effective form design is one of the first— and most important— steps in using a database. *Double Helix II*’s graphic approach to the problem makes the process simple without sacrificing power. By letting users focus on ends rather than means—that is, what you want your database to do rather than how it does it—Helix’s icon-driven environment makes it possible for even the most paranoid scriptphobe to customize and use a highly advanced database.

GARY HIRSCHBERG IS A PAST CONTRIBUTOR TO MACUSER WHO HAS MORE THAN 25 YEARS’ EXPERIENCE IN WRITING SYSTEMS AND APPLYING COMPUTERS TO BUSINESS AND ENGINEERING PROBLEMS. HE IS A FREELANCE CONSULTANT, LIVING IN MAMARONECK, NEW YORK, WHO SPECIALIZES IN BUSINESS SOLUTIONS AND DATABASE DEVELOPMENT FOR THE MAC.
Now go 17,400 bps in under $1000.

The new Courier HST™ modem.

PC Magazine calls USRobotics' Courier HST, "the top price-performance ratio at 9,600 bps." Now we've made it almost twice as fast without raising the price.

Our new full-duplex High Speed Technology dial-up modem with MNP™ Level 5 data compression is totally AT command set compatible, delivering data at up to 17,400 bps. And automatic fall-back/fall-forward always assures the fastest speed possible. Courier HST reduces phone line costs every time you use it.

When you buy an HST modem, you get USRobotics' more than 10 years of modem experience gained through sales of over half-a-million modems. We're an organization that will support you and grow with your needs.

PC Week says, "USRobotics' Courier HST produced the most impressive test results based on the modem's suitability to both file transfer and interactive applications."

Other modems talk about speed. Courier HST delivers. Get your hands on one... fast!

Call 1-800-DIAL-USR Ext. 68
In Illinois (312) 982-5001

USRobotics®
The Intelligent Choice in Data Communications.

Please circle 103 on reader service card.

USRobotics, SpecTec and Telgac are trademarks of US Robotics, Inc. Other computer and software names identified by * or ~ are trademarks and/or registered trademarks of their respective manufacturers.
HANDLING A LARGE NUMBER OF DESK accessories and fonts was never a problem in the early days. You ran out of disk space or memory long before you ran out of room in a menu. Then came hard disks and megaRAMs, and a System update that included scrolling menus. That basically solved the font problem, but there was still a System limitation of 15 "slots" in the Apple menu for accessories.

Gone are the days when I could impress onlookers with an Apple menu that stretched beyond all reasonable limits. By using a specially edited Font/DA Mover, I had 21 desk accessories (yes, I really used all of them) to go along with my 30 fonts (no, I didn’t use them all, but I liked to keep them around just in case).

Now, anybody can access almost any number of fonts and accessories by using special utilities such as Suitcase from Software Supply, Font/DA Juggler Plus from Alsoft, or Font/DA Switcher from Olduvai.

Font/DA Switcher was not available in time for review, so I took a close look at the first two. Both do essentially the same thing, each in its own way; there’s no clear winner in the head-to-head comparison. Personal preference is the deciding factor in this case.

ABOUT FONTS AND DAS
Both font/DA handlers take the same approach from a programming point of view. Fonts and desk accessories are a special type of entity called resources. A resource (things such as icons and pictures are resources, too) is available to the Macintosh — and therefore to you — whenever it’s in an open file. The System is always open, so fonts and DAs stored in the System are always available. The current application is an open file, too — hence the old trick of installing a DA or font into an application.

Suitcase and Font/DA Juggler Plus keep other files open: files that contain fonts or accessories or both. Because the files are open, their resources are available.

INSTALLATION
First, a word about software versions. The Suitcase release I’m using is 1.2.1. It’s an update to the version released at the San Francisco Macworld show in January, made available within weeks of the show to fix a few minor bugs. Font/DA Juggler Plus 1.0 (henceforth to be referred to as Juggler) is the update to Font/DA Juggler II.

Installation of the utilities couldn’t be easier: Drag the icon into your System folder and restart the computer. Juggler and Suitcase are both INITs, files that are automatically installed or run at start-up. In both cases, you can disable the start-up installation by holding down the Shift key when you start the Mac.

Deinstalling either utility isn’t difficult, but neither is it intuitive. You can’t just drag the icon to the trash; because it’s “in use,” it can’t be
Three years after inventing desktop publishing, the people at Aldus have just re-invented it. With a new version of PageMaker® dedicated to one simple proposition: freedom of choice.

From the beginning, PageMaker has given people unequalled control over all the elements of their publications. But now we've added many new features that also give you the ability to assemble even the longest documents with a couple clicks of your mouse. With PageMaker 3.0 the choice is always yours. Here are a few of the new ways you'll have to exercise it.

**Text Wrap**
Our new text wrap function gives you the choice of flowing text through an object, jumping over it or wrapping around it, like you see here.

And when you move a graphic, your text will automatically reflow around it. You can also control the margin between text and image and, with a custom wrap feature, fit text to even the oddest shape.

**Autoflow**
Now you have the option of flowing text automatically to speed up long-document creation or placing it column by column for shorter, more design-intensive pieces.

**Style Sheets**
PageMaker's style sheets give you the ability to create and apply style formats, including color, for all your text. And that allows you to reformat an entire story or document in a single operation.

You can also tag text in your word processor, database or spreadsheet for instant formatting in PageMaker. And any style commands from Microsoft® Wordfiles are read directly.
Templates
Since 20 professionally designed templates are now included with PageMaker, it's easy to give every document you create a designer's touch. You use the templates like blueprints, placing your own headlines, text and graphics according to the designated styles and sizes.

Spot Color
Mix a virtually unlimited palette of colors based on any one of three standard color models: CMYK, RGB or HLS. Then you can tag any element in the publication with a color by just clicking your pointer on it. And, when you print your document, PageMaker 3.0 gives you the choice of a single, composite image or separate sheets for each color used. You can even place registration marks in the corners of your separated output for accurate assembly by a professional printer.

Image Control
You can now adjust the lightness or contrast of any scanned image or bit-map graphic you place in PageMaker. And if you want to further customize a graphic, you can use one of our built-in special effects, or even create one of your own.

If all this has whetted your appetite to find out more, visit your authorized Aldus dealer today. And ask for the program that did a number on PageMaker.
DAs of Our Lives

Suitcase’s single dialog lets you open and close files as well as select and open desk accessories.

Font/DA Juggler Plus’ hierarchical menu lets you get at its main dialog or any of its resource lists.

thrown away. You have to drag the icon out of the System folder and restart the Mac again. Then you can trash it.

USING DAs

When you’re using Suitcase, it appears as the first item on the Apple menu, immediately beneath the About selection for whatever program you’re running. It has its own keyboard equivalent (Command-K), which is ignored if the same combination is in one of the application’s menus.

When you select Suitcase, a dialog opens displaying all the currently available accessories: those installed in the system and those in any file you’ve already opened with Suitcase. The dialog lets you open and close files that store desk accessories (and fonts, but I’ll get to that later); it also lets you open any of the DAs in the list.

Juggler takes a different approach but has the same result. Juggler’s main dialog, where you can open and close DA files (and other things, but I’m talking DAs right now). Selecting DA List from the secondary menu opens a separate dialog that lists — you guessed it — the available accessories. You can select and open any DA in the list.

INSTANT ACCESS AND FINE POINTS

Once you satisfy your craving for infinite DA access, other issues come under consideration: specifically, how many can you get at, how easy is it to get at them, and can you do everything through the keyboard if you want to? (The usual power-user concerns.)

Both Suitcase and Juggler measure up admirably. Each lets you open up to 12 files at a time; the files can be chock full of accessories, fonts, or both. You can run into a few problems with resource names and numbers, as described later, but basically you can get at as many as you want.

How easily can you get at them? On a beginner’s level, both Suitcase and Juggler require a few levels of selection and reaching for the mouse, but both also provide keyboard-only options.

You can select Suitcase by its keyboard equivalent. Then you can choose a desk accessory in the alphabetical list simply by typing its name or only as many letters as you need to differentiate it from the others. You can even scroll through the list by keyboard commands if you want to just read through it without selecting anything. A press of the Return key opens the accessory.

Juggler, too, has keyboard-only control. You can bypass its hierarchical menu structure by assigning hot keys to each of the subordinate menu choices, so you can pull out the DA list without reaching for the mouse. Once the list is up, you can manipulate it from the keyboard, selecting and opening the desk accessory of your choice. Unlike Suitcase, which forces you to use ResEdit to change its Command-key equivalent, Juggler provides an Options dialog, which among other things allows you to set the hot keys you want to
Data Scan lets you recover numeric data from printed (hard copy) graphics. Data Scan, the graphic equivalent of an optical character reader, quantifies line charts, bar charts, area charts, log/log, log/linear, linear plots, and more.

Welcome to the World of the Digital Terrorist

Every living adult is more than familiar with the planet-wide horror of terrorism. The hijacking of airplanes and ships, the random killing of innocent men, women and children, and the taking of hostages throughout the world has become a malignant growth on the body of civilizations everywhere.

Suddenly, we have a new kind of terrorism that is potentially as devastating and ubiquitous. It is the computer "virus" program, an unwelcome, hostile and poisonous takeover of the computer operating system. Unlike a natural virus, this one is a deliberate implant, a product ranging from the playing of the immature child to the outpouring of the deranged psychopath.

The January 31, 1988 edition of the New York Times provided a chilling, proliferating view of this disease. A sampling from this cafeteria of horror had us taste "infections" of U.S. college campus computers; an attempt to leave a "code bomb" which would have destroyed all files at the Hebrew University in Israel; and a rumored effort to interdict the IRS computers in Philadelphia.

Still, it all seemed just a little remote; it was happening to the other guy. On February 16, 1988, it became real to you and me. Mac Week and Info World both reported that a virus had been found in a HyperCard stack on CompuServe's MAUG forum. Incredibly, many industry members pooh-poohed this invasion as an innocuous "friendly" message. Do not be fooled. This is plain and simple terrorism.

Like his Uzi wielding brother, this terrorist's colossal ego manifested twisted pride in identifying his accomplishment, and, later, in his trumpeting of a truly asinine justification: "It didn't even cross our minds to do something harmful to the Macintosh!" It appears he doesn't have a mind to cross.

When we are willing to let such invasions of privacy go overlooked, unpunished, and are willing to wait to see if the end justifies the means by individual cases, we are saying that we are willing to negotiate with terrorists—a policy proven time and again to be woefully unsuccessful. We need to treat all cases of this disease with a lethal dose of every legal medicine at our disposal, or we are likely to soon have an epidemic on our hands.

Data Scan supports MacPaint, Thunderscan, Uncompressed FOTO, Data Copy, Dest, LoDown, Hewlett-Packard, and MacScan files.

Also from BrainPower... DesignScope: electronic system design. $249.95
MathView Professional: mathematical problem solver. $249.95
StatView 512+: simply the best statistics package available. $349.95
NEW! ArchiText: powerful, easy-to-use text analysis and synthesis package. $349.95 (Special pre-release price of $174.98 until June 15!)

BRAINPOWER, INC.
24009 Ventura Blvd., Calabasas, CA 91302
(818) 884-6911 • (800) 345-0519

Please circle 8 on reader service card.
Use to issue the commands listed in the submenu.

You're probably going to put the desk accessories that you use most often right in your System. If you have a group of accessories of secondary importance, you'll probably put them together in a file. Perhaps you have accessories that you use only occasionally; they may be scattered through several smaller files.

But if you're a real power user, you don't want to open a file of desk accessories every time you want to get something in that primary non-System group, even if it's only a few extra keystrokes once at the beginning of each computing session. You want the ones you use the most to be automatically installed in the Apple menu every time the Mac is started.

Both Juggler and Suitcase do automatic installation, although in different ways.

When you shut down your system, Juggler remembers which files you had open and automatically opens them again the next time. This works as long as the accessory files are where they were the last time they were opened; if you did any desktop reorganization or renaming, you'll have to reopen the file.

Suitcase takes an entirely different approach. Any font/DA file in the System folder whose name is Fonts, DAs, or Fonts/DAs is automatically opened on start-up. In addition, if you have a folder with any of those names in the System folder, all the font/DA files in that folder are automatically opened.

There's another fine point that might not have occurred to you, but it did to the designer of Suitcase: When you're in MultiFinder, the names of opened applications are in the Apple menu, at the bottom, after the accessory list. If you use the menu to switch from one application to another, it's tedious to scroll through 30 desk accessories to get to the listed applications.

With Suitcase, holding the Option key limits the menu list to Suitcase itself and then the list of applications. Juggler, following suit, uses the Shift key to constrain the menu to only Juggler's secondary menu choices and the application list. It's a
Keep your business running true to form

FileMaker Plus.
The data base and forms manager from Nashoba Systems.

The winner of top awards from both MacUser and Macworld is now the top-selling data base manager for the Macintosh. And for good reasons.

FileMaker Plus is the first product for the Macintosh to combine professional data base management with the ability to produce professional quality forms.

FileMaker Plus makes it easy to quickly create any type of form you want: number-heavy forms like invoices, purchase orders and expense reports; and text-heavy forms like contracts and form letters. You can arrange drawings, photos, text, numbers, logos, and dates anywhere on the page for maximum impact, then preview what you've done on the screen to make sure it's exactly what you want. FileMaker Plus even includes templates for creating mailing labels, proposals, and Rolodex cards.

FileMaker Plus makes managing your data base just as easy. It automatically indexes every word, number and date you enter. You can look up pricing information and quickly calculate, sort, and summarize your invoices, automate your sales reports, produce contact lists, form letters, and mailing labels. All from the same data, without retyping. You can also exchange information with other applications, like Microsoft Word, Excel, MacWrite, MacPaint, and MacDraw* to help you share information and formats.

And FileMaker Plus is on friendly terms with the entire Macintosh family, including the Macintosh 512K, Macintosh Plus, Macintosh SE as well as the Macintosh II, the ImageWriter II and LaserWriter Plus, and the latest system software, such as MultiFinder* and AppleShare.*

Nashoba Systems is just as committed to FileMaker Plus today as we were when we first developed it. We'll continue to do all the things that have made it such a success: listen to our customers, provide outstanding free technical support, upgrade our product with the most advanced technology in an easily accessible form, and assure your satisfaction with our money-back guarantee.*

Please circle 213 on reader service card.

Nashoba Systems, Inc. 170 Main Street, Box 3974, Framingham, MA 01701.

*Microsoft, Macintosh, MacPaint and MultiFinder are trademarks of Apple Computer, Inc. MacWrite is a registered trademark of N.T.S. Corporation. Rolodex is a registered trademark of Rolodex Corporation. Laserwriter II and LaserWriter Plus are registered trademarks of Apple Computer, Inc. MultiFinder is a registered trademark of Apple Computer, Inc. Microsoft and Windows are registered trademarks of Microsoft Corporation. MacWrite Plus is a registered trademark of N.T.S. Corporation. Novell is a registered trademark of Novell, Inc. AppleShare is a registered trademark of Apple Computer, Inc. MacPaint is a registered trademark of Apple Computer, Inc. Macintosh is a registered trademark of Apple Computer, Inc. MacWrite is a registered trademark of N.T.S. Corporation. Rolodex is a registered trademark of Rolodex Corporation. Laserwriter II and LaserWriter Plus are registered trademarks of Apple Computer, Inc. MultiFinder is a registered trademark of Apple Computer, Inc. Microsoft and Windows are registered trademarks of Microsoft Corporation. Rolodex is a registered trademark of Rolodex Corporation.
Solve Mac problems like an expert!

"1st Aid Kit" falls into that special category of "must-have" products (Macazine, April '87). It lets you handle every Mac problem from difficulties copying files, printing, and using AppleTalk networks, to recovering lost data from deleted or damaged files and unreadable disks.

Acclaimed by novice and expert alike, the 1st Aid Kit is much more than powerful software. At its core is a clearly written troubleshooting guide that:
- lists every imaginable error condition
- helps you quickly track down solutions to any problem
- takes you step-by-step through each recovery effort
- shows you how to avoid problems

The definitive product for troubleshooting on the Macintosh™ (Macworld, April '87). It "stands out and shoulders above any other product like it...I can't recommend 1st Aid Kit strongly enough" (Macazine, April '87).

1st Aid Kit $99.95
HFS Version: MacPlus, Mac SE, Mac II
MFS Version: 256K Mac, 512K Mac, MacXL

Available direct order 24 hrs.
1-800-THE-FIXR
In MA 617-847-4100
VISA & MC accepted, 5% s/h UPS ground, in MA add 5% tax
Not copy protected
Dealer inquiries welcome

MiniCad 4.0
80% faster, a galaxy of new features!
MiniCad High Precision CAD System

New with 4.0 Version:
Angular, diagonal, and chain dimensioning
Creation of arc or circle by choosing 3 points
Auto join
Double-line polygons
Trim circle capability
To add to the hundreds of fabulous features in 3.0 versions
All still for only $495.00. Call today
In USA call: 301/461-9480. Canada: 604-384-2131
Australia: 7-369-1204 or write Graphisoft 16370 Court Ave. Suite 202 Ellicott City, MD 21043

Visa/Mastercard welcome. Demo $19.00

DAs of Our Lives

nice and much-appreciated touch in both programs.

Using Fonts

Getting at extra fonts with either utility is simple: Open the file that contains the font, and next time you open an application, the fonts will be in the Font menu. The "automatic installation" on start-up works for fonts in the same way as it does for desk accessories.

There's a minor problem with fonts that occurs no matter which utility you're using. An application builds its Font menu from available resources when the application is first launched. So, if you use Suitcase or Juggler to open font files after an application is open, you won't see the new fonts listed. Conversely, if you close a font file, fonts won't be removed from the application's menu; selecting a "missing" font puts another font on the screen. Both programs display a brief confirmation dialog whenever you close a file to remind you about the font situation.

Identity Crises

Resources on the Mac have both names and ID numbers, and there's the potential of clashes in either category once you start using fonts and accessories stored in separate files. "Calendar," for instance, is a pretty popular generic name. I've also seen more than one font entitled "Boston." Both Suitcase and Juggler are forced to let the Mac use its usual resource-hunting priorities in the case of conflicts: any resource in the System wins, followed by the most recently opened resource file, then the next-most-recent file, and so on. Duplicate names don't appear in the Apple and Font menus, so you may not know you have a problem until an unexpected font or accessory shows up.

Because you can number desk accessories with anything up to 32,768, conflicting numbers don't occur that often. With fonts, though, ID numbers can only go up to 256, so conflicts are more likely to occur. When you have conflicting ID numbers, what you select is no longer what you get: select Boston
from the menu and you might get Concord displayed on the screen. Font/DA Mover automatically resolves numbering conflicts by adjusting the ID numbers when you combine fonts into a single file. The Suitcase documentation suggests that you put all your conflicting fonts in one file with the Mover so there won't be any number clashes. The Juggler disk includes a separate utility, Font Resolver, that resolves numbering conflicts between fonts even if they're in different files. If you keep lots of fonts in separate files, this could be a significant plus in Juggler's favor; however, because both Suitcase and Juggler require you to use another program to address the numbering problem, I see it as little or no advantage in the overall comparison of the products.

**EXTRA ATTRACTIONS**

With Suitcase and Juggler so much alike, perhaps their little extras will be able to persuade you one way or the other.

Suitcase comes with Pyro, a screen-saver program that you can set to take over the screen at a defined interval. It also includes a preliminary version of Power Station, a nifty Finder replacement. Juggler comes with several small utilities and a bunch of public-domain fonts and accessories (which I could be more enthusiastic about if there were some brief documentation about some of the less obvious ones).

Both utilities handle FKeys (Command-Shift-number combinations that invoke some special routine), although Suitcase doesn't trumpet the fact. Juggler also handles Sounds that replace the Mac beep. In fact, by count, Juggler is way ahead on features and extra utilities. What keeps it from pulling ahead in the overall comparison is that most of the extra features and utilities are not necessarily significant. Sounds that replace the Mac's beep, for instance, are initially fun but quickly wear on you. If I replace the beep at all, it would only be in favor of something like MORE's dignified little "blip." Font compression doesn't matter much when you have a hard drive. And so on. Juggler's Windows

<table>
<thead>
<tr>
<th>Single Volumes (THREE 400K DISKS)</th>
<th>Double Volumes (THREE 800K DISKS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$39</strong></td>
<td><strong>$59</strong></td>
</tr>
</tbody>
</table>

Please circle 108 on reader service card.
configurable hot keys for keyboard control of the menu are a clear advantage for those who can't or won't touch ResEdit. Another nice touch is the "preview" option that lets you see what's in a font or DA file before you bother opening it.

If you made your choice based on the documentation that comes with the programs, Suitcase would win. Its documentation is not great — it gets too technical too soon, and it doesn't emphasize enough for the beginner that a DA file can actually contain many DAs — but it's better than Juggler's. Juggler's documentation is adequate but awkward in places, and it has no index.

PERSONAL PREFERENCE
As I said in the beginning of the article, the Suitcase vs. Juggler issue can only be decided on a personal-preference basis. I have both programs (one of the perks of the software-review business), and it's Suitcase that's sitting at the top of my Apple menu these days — despite the fact that Juggler has some nice extras. Why? First, because I like ResEdit and changing Suitcase's Command key was no big deal; this addresses its only real flaw. Second, because I find Juggler too modal. Even if you bypass the hierarchical menu with the Command keys, you can choose either the DA List, or the Font List, or the Juggler command dialog that lets you open and close files. Suitcase's single dialog that does it all is more elegant, and I find it more comfortable.

LEAPFROG
Software Supply and Alsoft (and Olduvai) are engaged in an interesting game of leapfrog that can only benefit users. As each update for each program comes out, the others will look at it and decide to go one better. So, each update will be more powerful and have more features. All you have to decide is where to jump in on the game. Do it now before you can't lose.

SHARON ZARDETTO AKER IS A MACUSER CONTRIBUTING EDITOR AND A SOFTWARE DESIGNER.

MACUSER RATING
Font/DA Juggler Plus

Follows Mac Interface  
Printed Documentation  
On-Screen Help  
Performance  
Support  
Consumer Value  
Comments: A desk accessory that lets you have an unlimited number of fonts and DAs. Best Feature: You get at the game. Do it now because you can't lose.

Font/DA Juggler Plus

Follows Mac Interface  
Printed Documentation  
On-Screen Help  
Performance  
Support  
Consumer Value  
Comments: A desk accessory that lets you have an unlimited number of fonts and DAs. Best Feature: You get at the game. Do it now because you can't lose.
<table>
<thead>
<tr>
<th>Price</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$695</td>
<td>Totem 20MB Hard Disk: 3&quot; tall, 8 lb., SCSI-compatible, 65 ms access time.</td>
</tr>
<tr>
<td>$945</td>
<td>Totem 40MB Hard Disk: 3&quot; tall, 8 lb., SCSI-compatible, 28ms access time.</td>
</tr>
<tr>
<td>$2745</td>
<td>Totem 80MB &amp; 20MB removable: 5&quot; tall, 13 lb., Resists head crashes, 28ms acc. time/hard disk, 40ms acc. time/Bernoulli, 20MB cartridge included.</td>
</tr>
<tr>
<td>$1195</td>
<td>Totem II Single 20MB removable: 8 lbs., SCSI-compatible, Resists head crashes, 40ms access time, 20MB cartridge included.</td>
</tr>
<tr>
<td>$1995</td>
<td>Totem Dual 20+20MB removable: Complete storage/backup unit, Resists head crashes, SCSI-compatible, 40ms acc. time, 20MB cartridge included.</td>
</tr>
</tbody>
</table>

The people at Bering are dedicated to ensuring all Macintosh users that innovation, high quality and low prices can be a reality.

Our popular Totem™ removable Bernoulli disk drives let you use high capacity, high performance, long-lasting, 5¼" cartridges that store a full 20MB of data. These sturdy cartridges use advanced aerodynamics that guarantee high speed and resist head crashes. Our Totem Bernoulli drives come in single or dual units, or, can be combined with a hard disk for a complete backup and storage system. We even offer a whole line of our popular Totem hard disk drives in storage capacities from 20MB up to 140MB. And, all our Totem drives are 100% compatible with Mac Plus, SE, and Mac II.

30-Day money back guarantee. Totem drives come complete with a one-year warranty, plus a full, 30-day money back guarantee. So if you've been thinking about a Totem drive, here's your chance to try one out. We promise you won't regret it.

Full technical support guaranteed for all drives. All Totem drive orders receive a SCSI cable, terminator, system cable, power cord and Totem Backup and Restore software. Totem removable Bernoulli drive orders receive a head cleaning kit and one 20MB cartridge. Product specs and prices are subject to change. Prices do not include shipping, CA sales tax 7% or rush handling. Totem and Totem II are trademarks of Bering Industries, Inc. Macintosh, Mac Plus, Mac II, and Mac SE are trademarks of Apple Computer. Please circle 7 on reader service card.

To order your drive call 800-237-4641
The obvious power of Great Plains

GENERAL LEDGER

ACCOUNTS PAYABLE

ACCOUNTS RECEIVABLE

PAYROLL

INVENTORY

PURCHASE ORDER

ORDER ENTRY
...made even more obvious.

Introducing Executive Advisor

From General Ledger to Order Entry, the diversity of our software, combined with the wealth of information each module provides, has always kept the Great Plains Accounting Series ahead of our competition.

Now, with Executive Advisor, all the power and flexibility that make Great Plains so well suited for tracking your company's performance can be used, by you, to plan for its growth.

With just a click of the mouse, you can quickly draw valuable management information from the other Great Plains modules and see it displayed in a crisp, colorful, graphic format—all without interrupting normal accounting functions.

See for yourself how easily you can use accounting information to lead your company's growth, not just follow it. For a demo disk, call us at 1-800-345-3276. Or just send us the coupon below.

Either way, the benefits will be obvious.

I've enclosed $10.00. Please send me a demo disk of Executive Advisor.

Mail to: Great Plains Software
P.O. Box 9739, Fargo, ND 58109
Or call toll free: 1-800-345-3276

Please circle 129 on reader service card.
Creating instant slides 1

Make a template with a Draw

[Diagram of circuit or design]
Instant Slides

Behind in your presentation deadline? No time to turn around 35mm slides of your Mac's screen?

Here's a solution that's as easy as cut and paste.

WITH THE MACINTOSH, YOU CAN EASILY produce and print high-quality graphics and text almost instantly. Unfortunately, 35mm projection slides made from the same printed material require either an expensive film recorder or sending the job out of house, which can take several days. On occasions when time is tight, there's a neat work-around you can use to convert images on the computer screen to good quality slides in less than ten minutes. The technique involves using the Apple LaserWriter to print reduced images directly on transparent plastic, which after being trimmed and mounted, can be projected immediately as slides.

Fortunately, the size of the typical graphics window (such as those used in SuperPaint, MacPaint, or Cricket Graph) is approximately four times larger than that of a 35mm slide. Thus, you can print a drawing or text that fits within one window directly on plastic using a LaserWriter set at 25 percent of its original size. After trimming the image to the size of 35mm film, you insert it in a slide mount. The following discussion provides a step-by-step description of how to accomplish this, along with hints on how you can produce the best quality slides.

CREATING A TEMPLATE
To fit a 35mm slide mount, your images must print within a 1 5/6 X 7/8-inch rectangle, although you could use trial-and-error adjustments. It's best to construct a template delineating the maximum drawing size and the border needed for proper mounting. Use the rulers in MacDraft, MacDraw, SuperPaint, or Full Paint to create the template. Rulers in some programs may be inaccurate, so print the full-size template and verify its dimensions. SuperPaint preferences should not have a check in the box "Rulers match printout from LaserWriter" because the tem-

BY HAVEN C. SWEET
Instant Slides

The slide template can be made with a Draw program. You can simulate the sprocket holes of real film to help you align the transparency film in a slide mount.

The center of the slide so something is visible in the Scrapbook window.

**DRAW VERSUS PAINT**

You can use any Draw, Paint, or combination program to create an image, although each has advantages and disadvantages. When selecting a program, you should consider several factors.

Draw programs properly print font sizes that are not in the System (that is, they do not appear hollow in the menu bar) whereas Paint programs reproduce the distorted letters appearing on the screen. Images created in a Draw program can print in 50 seconds whereas the same image in Paint takes about 6 minutes to print. Typically, only six to eight different Paint slides can be produced in an hour.

Patterns created in Draw programs, because they are not scaled to one-quarter their original size, produce bizarre and unexpected results. Patterns in Paint programs will be resized to scale, although some may appear muddy. Lines created in a Draw program are thicker and are not as refined as those created in Paint programs. Contrary to your experience with printing full-size images, the overall quality of a reduced image printed in the Draw mode is definitely inferior to the same picture generated in the Paint mode.

Because of all these considerations, no single method is best for all circumstances. I find that figures containing only text, lines, and boxes are acceptable when generated using a Draw program (*MacDraft, MacDraw*, or the draw side of *SuperPaint*), especially if I need to print many slides. The availability of all the menu bar) whereas Paint programs reproduce the distorted letters appearing on the screen. Images created in a Draw program can print in 50 seconds whereas the same image in Paint takes about 6 minutes to print. Typically, only six to eight different Paint slides can be produced in an hour.

Patterns created in Draw programs, because they are not scaled to one-quarter their original size, produce bizarre and unexpected results. Patterns in Paint programs will be resized to scale, although some may appear muddy. Lines created in a Draw program are thicker and are not as refined as those created in Paint programs. Contrary to your experience with printing full-size images, the overall quality of a reduced image printed in the Draw mode is definitely inferior to the same picture generated in the Paint mode.

Because of all these considerations, no single method is best for all circumstances. I find that figures containing only text, lines, and boxes are acceptable when generated using a Draw program (*MacDraft, MacDraw*, or the draw side of *SuperPaint*), especially if I need to print many slides. The availability of all
Creating instant slides-1
Make a template with a Draw program

Creating instant slides-2
For text-only slides
1. Use a Draw program
2. Use Helvetica text
3. Only use Plain text, not Bold
4. Use point sizes from 12 to 72 (14-24 are best)
5. only use Outline text with text of 24 point or larger
6. Space text 1 1/2 lines
7. Dress up the text with enclosing boxes

Creating instant slides-3
Producing Figures
1. Create figures in Draw mode if possible since Paint pictures take longer to print
2. Paint images can be resized by selecting and stretching or shrinking
3. Graphs from Cricket graph should have text altered to Helvetica, plain, 12 & 18 point
4. Keep within the inner rectangle
5. Avoid using patterns without testing them first.

Creating instant slides-4
Printing
1. Use Apple Laser Printer
2. Set "Reduce or Enlarge" to 25%
3. Replace paper with plastic suitable for copiers
4. Print image on plastic
5. Make a full or 150% sized copy for your records or for professional slides

These Draw-produced slides are acceptable because they are mostly text. They were produced in SuperPaint and then copied into MacDraw via the Clipboard to produce multiple slides per sheet. Note that the pattern in the first slide did not reduce to scale. Had these been printed as Paint images, the quality would have been better but they would have taken much longer to produce.

letter sizes and the faster printing speed compensate for the thickened appearance of letters after reduction.

Always choose Plain Text because all letters appear bold when reduced, and use a LaserWriter font so the font appearing on the screen is not substituted for (and the spacing of the figure altered) during printing. I use Helvetica with a text size of at least 14 points to ensure readability; 14, 18, and 24 point appear to be the best. Outline text fills the letters and looks ragged unless the font is 24 points or larger. You can type text directly into the template, or you can import bullet charts created with presentation software.

For the highest quality text-only slides, however, use a Paint program with the fonts that look best on the screen. Geneva is a good choice; I keep my System file loaded with every available point size. You can use bold styles as an accent to Plain Text, and even 12-point type is clearly legible when reduced. Because it's faster to create text-only figures in a Draw program, however, I prefer SuperPaint. Using the Draw mode, you can revise text or alter the font, style, spacing, or line length at any time, thereby quickly generating a properly proportioned image. Once you've created it, save the Draw version for subsequent revision. Then select
Instant Slides

Although these "instant" slides are not of the very highest quality, they are fast and economical to produce with this "quick and dirty" method.

All, followed by Copy to Painting, and press Backspace to erase the Draw version. Print the Paint image, but expect a 6-minute wait.

You can print charts you create using Cricket Graph in either mode. For Draw mode (or direct printing by Cricket Graph), change all text to Helvetica and increase the size to 12 points for the numbers (although they may not all print clearly), 14 points on the axis labels, and 18 points on the heading. If you print directly from Cricket Graph, the reduced graph will fit on a slide if you do not resize the graph's initial window (you cannot import the template into Cricket Graph). To produce a high-quality image, resize the type as described earlier (assuming all are in your System file) but use the Geneva font, copy the graph to a Paint program via the Clipboard, and superimpose it on the template.

Drawings printed from Paint programs closely resemble the proportions you see on the screen and are usually worth the extra printing time. All lines are thinner than those from Draw programs, and patterns are more accurately reproduced. Be cautious about using patterns without testing them first, however. You should write text in the font that looks best on the screen and should never generate it. Although inverted figures or large expanses of solid black appear dramatic on the screen, they are of poor quality when reduced.

PRINTING THE SLIDES

Although other brands of printers also work, I performed all my tests on an Apple LaserWriter Plus. When ready to print, use PAGESETUP to adjust the Reduce or Enlarge value to 25 percent. Replace the printer's paper with plastic sheets that are suitable for Xerox copy machines—for example, Scotch 3M 502 Transparency film or Pro-Tech Laser Transparency film from James River Corporation. If the plastic has a paper backing, place the paper side up. If there is no backing, place the rougher side (the surface that receives the image) down. It's important to use the proper material because the printer's heat will melt some plastics. Avoid getting fingerprints on the surface because they may prevent the toner from adhering to that area.

If you print with a different computer or System from the one you used to create the figures, carefully inspect the screen image before printing to be sure the text was not resized or repositioned. Check the printed figure with a hand lens before closing the file to ensure toner didn't flake off. It's also prudent to print a full-size copy of the slide on paper so that a quality slide can be photographed for your next presentation.

If printing single slides, you can conserve plastic by cutting a sheet into thirds so each strip is approximately 8½ inches wide and 3 inches tall. When selecting PRINT from the File menu, change the Paper Source from Paper Cassette to Manual Feed. Insert the strips into the single-sheet feeder just as you would an envelope, being sure to have the surface to be printed on facing up.

MOUNTING THE SLIDES

If you want to add a background color, use a pen with water-soluble ink to color the upper surface of the print completely. Then rinse off the ink to leave a wash of color. Alternatively, you can include colored gels, available from photographic supply stores, in the mount with the image.

It's easy to trim the images using scissors if the paper backing is below the plastic. A variety of slide mounts are available, although some require precise fit of the film and thus are more difficult to use for this application. I prefer plastic mounts that open so the image can be taped in the correct position. Because the inner border of the slide may also be projected, it's important to mount it square within the frame.

Although these slides are not of the very high quality audiences expect from professionally photographed Macintosh graphics, they are fast and economical to produce with this "quick and dirty" method.

HAVEN C. SWEET IS A PROFESSOR OF BIOLOGY AT THE UNIVERSITY OF CENTRAL FLORIDA IN ORLANDO.
Not everyone needs Microsoft Excel.
Only people who

Pay taxes.
Evaluate engine efficiencies.
Prepare expense reports.

Manage accounts receivable.
Manage customer information.
Analyze market trends.

Invest in stocks.
Manage the payroll.
Monitor performance versus forecast.

Generate invoices. Sell insurance. Consolidate international reports.


Prepare financial reports. Perform loan analyses. Buy capital equipment.

Microsoft Excel
### Today's Special

Write a la Microsoft
served with
Spell Checker, Foot Notes, &
Multiple Columns
choice of
Type Sizes & Styles
and up to
16 Windows

---

<table>
<thead>
<tr>
<th>Feature</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Subscript</td>
<td>0.00</td>
</tr>
<tr>
<td>Keep With Next</td>
<td>0.00</td>
</tr>
<tr>
<td>Keep Lines Together</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Document</strong></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>0.00</td>
</tr>
<tr>
<td>Header</td>
<td>0.00</td>
</tr>
<tr>
<td>Open Footer</td>
<td>0.00</td>
</tr>
<tr>
<td>Title Page</td>
<td>0.00</td>
</tr>
<tr>
<td>Footnote</td>
<td>0.00</td>
</tr>
<tr>
<td>Repaginate</td>
<td>0.00</td>
</tr>
<tr>
<td>Spelling</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>File</strong></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>0.00</td>
</tr>
<tr>
<td>Open</td>
<td>0.00</td>
</tr>
<tr>
<td>Close</td>
<td>0.00</td>
</tr>
<tr>
<td>Save</td>
<td>0.00</td>
</tr>
<tr>
<td>Save As</td>
<td>0.00</td>
</tr>
<tr>
<td>Page Preview</td>
<td>0.00</td>
</tr>
<tr>
<td>Page Setup</td>
<td>0.00</td>
</tr>
<tr>
<td>Print</td>
<td>0.00</td>
</tr>
</tbody>
</table>

---

---
The Write Choice?

Microsoft wants into the low-end word processing market, but is Write the right move?

This is the age of trickle down. First, it was trickle-down economics; now it's trickle-down marketing. The strategy is simple: Introduce a high-priced, high-powered, high-end product; hype it for all it's worth; and when interest wanes, release a similar — but lower-priced and lower-powered — package aimed at the consumers who were unwilling (or unable) to buy (or to afford) the top of the line.

The latest example of this approach comes from Microsoft. It's called Microsoft Write, and the publisher describes it as a "streamlined subset of Microsoft Word," which is a euphemistic way of saying it's the same program with several features left out. Intended as an entry-level word processor, Write is a simplified, no-frills program that doesn't include such power features as style sheets, an integrated outliner, custom menus, glossaries, mail merge, page-layout features (such as boxes), side-by-side paragraphs, or any number of other specialized functions found in Word. If you've ever had any problems using Word, though, you'll probably have the same problems using Write. If anything, Write is one program that unabashedly shows its roots.

The Write Stuff

Launching Write immediately transports you into the idiosyncratic world of Microsoft word processing. Like Word from Version 1.0X on, Write does not feature dynamic pagination, so each document appears as a continuous scroll without on-screen page breaks. Page breaks become visible only after you select PAGE PREVIEW from the File menu or REPAGE from the Document menu.

Once you get past this stage, however, Write performs the basic word-processing operations such as cutting, pasting, and simple formatting quite well, and you don't run into any more Microsoft quirks until you mess around with multiple-column formatting, about which more later.

For a low-end word processor, Write packs a full complement of features, many of which hint teasingly at what can be found in Word 3.01, whereas still others are holdovers from the bigger program.

Hand-me-downs

Write's spelling checker falls into the latter category. Yes, this is the same, expandable 80,000-word dictionary that's included with Word, and no, Microsoft has not incorporated a word count into this one either. It is, however, very fast, and easy to use — as is Write in general.

Page Preview is a similar retention. By selecting it, you can view...
The Write Choice?

Write's PAGE PREVIEW command is identical to Word's. The icons on the left let you see the document in magnified view, position page numbers, change margins and page breaks, and choose a one- or two-page view.

Choices, choices. Write can save a document in any of seven different formats, but remember, it doesn't save the document you're working on—it saves a copy of that document. Giving the file an identifiable name is extremely important, unless you enjoy chaos.

Selecting a column in a table is just an Option-drag away. Once you've selected it, you can perform any of the normal formatting functions you'd expect. The highlighted icon is the Vertical-line Icon, which will insert a vertical line in the document at whatever point it is placed on the ruler.

your document in reduced view (either one or two pages at a time), change margins and page breaks by dragging a line, and place page numbers. You cannot, however, edit text; to do that, you have to return to the normal mode.

The FOOTNOTE function is a good example of a simplified Word feature. When you select the FOOTNOTE command from the Document menu (or type Command-E), Write opens the Footnote window at the bottom of the current window and enters a reference number in the document and in the Footnote window. Write will continue to number the footnotes automatically and will renumber them if you add any more notes. You also have the option, in the Page Setup window, of having the notes appear at the bottom of the page or as end notes.

The difference between Write's footnotes and Word's is largely a matter of degree. Word, for example, gives you the choice of using your own specifically defined characters (such as asterisks or letters) instead of numbers, as well as a choice of separators, to divide your text from your footnotes. Write does not. Admittedly, these aren't the types of features most people are likely to use—or need—on a daily basis, but the differences provide a good example of the kind of editing Microsoft employed in producing Write.

YOUR CHOICE OF SAVINGS PLANS

For compatibility, Write lets you save a document in one of seven different formats: Normal (i.e., as a Write or Word document), Text Only, Text Only with Line Breaks, MS-Word 1.0 (also MS-Works), MS-Word (MS-DOS version), MacWrite, and Interchange (or Rich Text Format). All this flexibility is great, but you need to observe one caveat. When you choose to save a document in a format other than Normal, Write does not save the on-screen document but instead saves a translated copy of the document. Therefore, you have to be careful to give this translated copy a name that distinguishes it from the Write version; otherwise you run the risk of chaos. What's more, if you make any changes to the Write document, those changes will not be reflected in the translated version when you save because the translated document isn't linked to the Write original. To get your changes to appear in a translated version, you must choose SAVE as and retranslate the edited document, making sure that you name it in a way that distinguishes it from or writes over any earlier version. Because the translation process is so inelegant, use it only on finished documents; using it on drafts is too much trouble.

PICKING A COLUMN AND PORTING A GRAPHIC

A special feature that Write shares with Word is the ability to select and format a column within a table. To do this, set up a table using the tab stops on the ruler (you have a choice of flush left, flush right, centered, or decimal), and end each row of entries with a Shift-Return, which allows the table to be formatted as one paragraph. To select a column, simply Option-drag across it until everything you want is highlighted. That
done, you can then change fonts or font sizes, add italics and boldfacing, cut, copy, paste, or whatever.

Write also allows you to mix graphics and text, although why a program intended for the — in Microsoft's own words — "casual word processor" even needs graphics importation is a good question. Nonetheless, it can be done.

Importing graphics is essentially a cut-and-paste operation. After creating an image in a graphics program or after selecting a piece of clip art, copy it to the Clipboard, quit the graphics program (or use Switcher), and enter (or reenter) Write. Position the cursor where you want the artwork to appear and choose Paste. Write will then pop the image into place. Unlike some programs, Write allows text to reside on the same line as a graphic, but it will not flow text around an image (a missing feature that creates big problems when you format a document in multiple columns).

Once you have pasted in the graphic, Write allows you to crop, resize, or scale it, but, surprisingly, the latter feature isn't mentioned in the manual. To crop or resize a graphic's frame, click on it to select it, then drag one of the "handles" until the frame is the desired size. To rescale (that is, to shrink or enlarge) an entire image, follow the same procedure, but Shift-drag the handles.

**THE WRONG STUFF**

In general, Write handles the basics of word processing quickly and well, but it starts getting into trouble when you ask it to do things that it really isn't equipped to handle. It's almost as if Microsoft deliberately included some less than ideally implemented high-end features so that users would get annoyed and rush to place their upgrade orders. There is no better example of this problem than Write's multicolumn option.

The whole idea of multiple columns in a program such as Write seems odd to begin with. After all, people who just want to write a memo or occasional letter usually don't need to put their writing into columns, and yet Microsoft says those are the people at whom Write is aimed. It's this feature — more than any other — that suggests that Microsoft views Write as an expensive come-on for Word.

**MULTIPLE HEADACHES**

Microsoft has had a long-standing love/hate affair with multiple columns, and Write keeps that ambivalent relationship intact. As anyone who's ever used Word knows, Microsoft supports multiple columns; it just doesn't want you to see them.

Write's multiple-column feature is both simpler to use and more limited than Word's. In Word, you have the choice of newspaper-style snapping columns or side-by-side paragraphs. The number of columns is left up to you, provided you do some basic arithmetic and make sure that the number of columns plus the space between them does not exceed the width of the paper minus the margins (got that?). In Write, the choice is easier: snapping columns or nothing.

To use Write's multiple-column format, choose the PAGE SETUP command from the File menu. At the bottom of the Page Setup window is a row of four numbered radio buttons for the number of columns you desire (one is the default) and a box...
in which you can specify the amount of space between columns. After making your choices, click on OK (or type Enter or Return) and voilà! Your document will now appear on-screen in Microsoft's version of multiple columns: a single, skinny column running down the left side of the screen. To actually see on-screen how the document will be printed, you have to choose PAGE PREVIEW, but remember, if you want to do any editing, you'll have to go back to normal view.

At this point, some problems may occur — for example, you look at the screen and only part of your text is there. What's probably happened is that you set the column spacing too wide, so you should try entering a smaller number in the spacing box. (You can either do the arithmetic described earlier or use trial and error.) The important thing to remember is that Write will not warn you if your spacing is incompatible with the number of columns and margins, which points out another oddity. Because Microsoft has already limited the number of columns to a maximum of four, it could just as easily have gone ahead and set the column spacing to a fixed value based on the number of columns, because this is supposed to be a back-to-basics word processor. The spacing box is an unnecessary extra step, and it's hard to understand why Microsoft thought it was important enough to include it.

**MY CHART RUNNETH OVER**

But if you think the spacing feature is odd, wait until you try combining multiple columns and graphics. If the imported graphic is wider than one column, Write doesn't respect it. Instead, it simply lets the graphic flow over the text in the next column(s), and, unlike Word, which lets you correct the problem by placing the graphic in a separate section, Write doesn't have an acceptable solution.

In this situation, your choices are either to forget about multiple columns or to keep the multiple columns but rescale the graphic. Assuming it's important to keep the document in multiple columns, rescaling is the only option, but it comes with severe limitations. As long as the graphic is a relatively simple piece of clip art, rescaling should be acceptable, but if that graphic contains important information (an Excel chart, for example), you'll find that rescaling renders any text unreadable — generally well before it's been reduced to the desired size.

**THE TROUBLE WITH TITLE PAGES**

But wait! The fun doesn't stop there. Write offers a Title Page option that prevents headers, footers,
or page numbers from appearing on the first page. It’s a good idea and makes it much easier to create a title page in Write than in Word, but unfortunately, the multiple-column option works globally, so the title page is formatted into columns along with the rest of the document.

To separate the title-page text from the body of the document, you must insert a page break, but Write interprets page breaks in multicolumn format as column breaks. As a result, if you enter one page break after your title, your “title page” will actually appear as a title column, with the body text starting in the second column on the same page. (If it’s any consolation, however, there won’t be any headers, footers, or page numbers on that page.)

If you’re still determined to have a title page, Write requires you to enter as many page breaks as you have columns, which results in the bizarre sight of a few lines of text followed by two, three, or even four page breaks. Remember, though, that the title page is also going to be in multiple columns, so your title will not spread across the page but instead will be squashed into a narrow column. The only solution is to create the title page as a separate document and to start your page numbers at 2. As was the case with graphics importation, Microsoft included a nice feature and then didn’t follow through to make sure it worked properly.

HAVEN’T I SEEN YOU BEFORE?

Write’s pedigree is one that you will no doubt be seeing more of in the near future. It’s a devolved hybrid, but this raises questions about the product itself.

Write is supposed to be a word processor for, again in Microsoft’s own words, “customers who write short memos, letters and other simple documents,” but Word 3.01 comes with a Short Menus option that limits Word’s power and accomplishes much the same thing. In fact, a comparison of Word’s menus in this mode and Write’s menus reveals that they’re virtually identical. The difference is that when Write users need more power, they have to pay a substantial upgrade fee; Word users already have the power and aren’t stuck with a white-elephant program of limited utility.

Even Microsoft seems confused when it comes to separating the two programs. An overview document in the Sample Documents folder does not mention Write at all, but Word is mentioned 22 times. In an overview document that accompanied my review copy, Write was misidentified as Word three times, and fully a third of the document was spent hyping features that Write doesn’t even offer, such as style sheets, integrated outlining, and custom menus. What’s more, you get a good idea of where Microsoft is headed when you unpack Write and find that the largest item in the box, after the mouse pad and manual, is the Word upgrade card.
The POINT of Perfection!
Twice the Speed. Twice the Resolution.

Let's get right to the POINT.

ProPoint sets the standard in perfection for precision cursor control. Advanced optical technology and digital electronics make ProPoint the most reliable and accurate device available on the market.

Abaton's custom firmware delivers high resolution precision and the control needed with today's sophisticated desktop publishing and other design applications. At 200 counts per inch with built-in acceleration, the speed and accuracy of cursor placement is unrivaled.

ProPoint's ergonomic design complements the new Macintosh system profile. Productivity is dramatically increased (up to 60%) because it is always at your fingertips and your eyes never leave the screen.

The POINT of no return—LIFETIME GUARANTEE.

Abaton's patented technology and solid state design is so advanced and so reliable that we are backing ProPoint with a lifetime guarantee.

Abaton—commitment to perfection.
ProPoint $159.95

Pick up a ProPoint for your Macintosh SE, Macintosh II, or Apple II GS at your local authorized Apple dealer or call 1-800-444-5321 for the ProPoint dealer nearest you.

Apple and IBM Apple Mouse are registered trademarks and Macintosh is a trademark of Apple Computer, Inc. Kensington Turbo Mouse is a trademark of Kensington Microwave Ltd.
The Write Choice?

KNOWING YOUR WRITES

Write is one of the first of a new generation of trickle-down, knock-off programs, and it probably won't be the last. Although it does its assigned tasks reasonably well, it doesn't do anything Write 3.01 can't do better. What's more, Write is a poor value. Write's street price is around $110, and Word's is about $240; Microsoft's upgrade price from Write to Word is $220, however, which means that the total cost of the upgrade is $90 more than the cost of buying Word in the first place.

For anyone considering buying a word processor, Word 3.01 is still the powerhouse of choice, and even if you don't need all its features right now, you can take comfort in the fact that that power is only one command — vs. an upgrade card and a check — away. And if learning time is an issue, Write isn't going to save you anything there either because it's not substantially easier to learn than Word is. Given the choice, spend a little more now, and you'll save money in the long run. Go for the source, and pass up the trickle.

Finding a Word Processor That's Jusst Right

In the beginning, choosing a word processor for the Mac was easy — there was MacWrite, period. Not only was it the only one available, but it was also free. Now, things are more complicated. Programs such as Microsoft Word 3.01 have expanded the application's domain into page-layout territory, and FullWrite Professional and WordPerfect promise to go even further. All of which leaves someone who's looking for a simple, basic word processor in a quandary.

Fortunately for that person, such programs are available, and the first one to consider is — surprise, surprise — MacWrite. In its latest incarnation (Version 5.0) from Claris (remember, it's not Apple anymore — it's Claris; once again, Claris), this venerable program has had most of its earlier limitations, such as its dearth of Command-key equivalents, and its file-size restrictions, removed, and a spelling checker has been added. It still doesn't let you open multiple documents, which makes cutting and pasting material between files extremely laborious, and it doesn't allow multiple-column formatting, but for anyone writing letters, memos, or short reports, it's probably more than enough.

For those needing more power, there's T/Maker's WriteNow, a program that looks and feels like MacWrite but that also lets you have multiple documents and columns on-screen and adds features such as gutter margins.

Of course, planning for the future is important. You don't want to lose the use of your older documents just because you decide to switch to a high-end program a few years later. For people who want to keep this option open — and it is a good idea — WriteNow (Version 2.0) is an excellent choice because you can save your documents in Interchange (or Rich Text Format), which programs such as Word 3.01 can read directly. The advantage over programs such as MacWrite that can save only in straight-text format is that RTF files retain their formatting, so you won't have to reformat manually in the bigger program. This difference may not sound like much of an advantage, but if you have a lot of files, or even just a few large ones, it can be a real time-saver.

A good, low-end word processor must be easy to use and learn but still offer enough features to remain flexible as your needs change. For these reasons, buyers on a budget would do well to consider WriteNow.
The right combination of hardware and software can turn a drab presentation into a multimedia success.

This is an article about desktop presentations. Except that it isn't. It's actually about desktop publishing. But not really. It is about the potential of the Macintosh as a creative presentation tool, wherein it does more than merely simplify the show-and-tell process. To paraphrase Marshall McLuhan, the Macintosh is the message.

The confusion here is a result of the need for catch phrases and simplistic ideas — in other words, marketing. "Desktop presentations" mean slide shows and overhead transparencies that accompany lectures or discussions and the handouts that go with them.

You know about presentations of this kind: They're the class lectures and sales meetings that you've slept through most of your life. On the rare occasion when you didn't doze off during a presentation, it was usually because a dynamic individual made the topic interesting. Rarely was the written or visual information enough to keep your attention by itself.

But there's a change in the air. When desktop publishing began, there were a frightening number of poor, if not downright ugly, desktop publications because most people didn't yet know what to do with design or how to plan a page to make it interesting. If history repeats itself, we'll have to endure plenty of mediocre desktop presentations over the next several months. But if the analogy continues to hold, it won't be long before we begin to see some incredibly innovative and exciting Macintosh-based presentations.

Computers, especially the Mac, make it possible for people to do things they couldn't otherwise do because of a lack of skill or resources or both. By pushing the Macintosh to its limits, you can transcend your own limits.

You can use the Mac at every step...
of the presentation process — before, during, and after — including:

- brainstorming for ideas
- organizing and outlining your thoughts
- preparing text and artwork for your own notes and for handouts
- displaying animation or sequences of screens on the Mac’s screen. For large groups, you’ll need some pricey hardware to project the display, but small groups can sit around a Mac or a full page display monitor.

And don’t stop there. When appropriate, incorporate sound into the presentation. Digitized sounds require a lot of disk space, but they can be a lot of fun. You can also use the Macintosh as a front-end control system for other audiovisual equipment, such as driving actual slide projectors, videodiscs, or tapes. Develop evaluation and feedback forms on the Mac and use them to tabulate the results to analyze the effects and effectiveness of your presentation.

You can do much of this using familiar, old standby word-processing, graphics, and page-layout programs. But specialized presentation software makes it much easier and may point you in directions that might not have otherwise occurred to you.

POWER PRESENTATIONS

You’re confronted with an important speaking opportunity: Perhaps you’ve been chosen to present your department’s latest project to the president of your corporation, or you have an opportunity to present your new-product ideas to a group of venture capitalists. You need to plan your talk and develop some visual aids to keep your audience interested and to make sure they remember what you said.

Whenever you need to present ideas to a roomful of people, you need a display system that everyone can see. Basically, this means an overhead projector, a projected computer display, or a large computer monitor.

The latter options provide more visual interest and make greater use of the Mac in the presentation itself, but they may be difficult to organize and set up. Although a VideoWorks II presentation running on a large screen is impressive, the work involved in creating the presentation may be too great for the task at hand. And in many cases it’s necessary for a presentation to be portable so it can be made to various groups in different locations at short notice. I’ll get to the fancy hardware soon enough, but for the moment, consider the humble transparency.

A presentation designed to be displayed on an overhead projector is portable and easy to prepare because you can photocopy virtually any Macintosh output onto acetate and project it on the screen.

Your choice of software will depend on several factors, such as how often you’ll need to update or edit your presentations and what presentation media (slides, overheads, handouts) you will use. One of the most versatile software tools available is PowerPoint from Microsoft. Although you can use draw and paint programs in conjunction with a word processor to get the job done, PowerPoint lets you do more and in a lot less time.

PowerPoint is a start-to-finish slide-preparation program. You use storyboard forms to brainstorm, then organize, your thoughts and plan out a slide show, putting ideas into the correct sequence. You can then create slides with common borders and a common theme.

You can develop a common background that incorporates your company logo or project name. You can design a border that automatically surrounds all the slides you create. With PowerPoint’s drawing tools, you can edit the background separately and paste in scanned images, clip art, or other graphics.

One of PowerPoint’s specialties is creating bullet charts. You can easily create text charts that list the significant points of an argument, with different fonts and text styles for key points. It’s important not to go overhead with font styles, but the judicious application of a large typeface or special style can enhance the visual impact of a slide.

PowerPoint automatically aligns borders and page numbers for overhead transparencies. Or, if you want to use 35mm slides instead, PowerPoint can very quickly format each image to the correct dimensions. Microsoft has announced plans for a future release of PowerPoint that will interface directly via telecommunications with the nationwide network of Genographics slide service bureaus.

Of course, a presentation is not much good if your audience forgets what you said. With PowerPoint you can easily attach formatted text to each slide in your presentation to outline the substance of your speech at the beginning, reinforce significant points along the way, and summarize the presentation.
PowerPoint offers a variety of printing options. You can print multiple slides per page, giving your audience a neat, concise copy of your presentation to take home. You can also print the text attached to a slide, with each slide on a single page, so you can supply your audience with the notes you made to help you along with the narrative of the presentation.

MORE POWER TO YOU

MORE is the culprit that started this whole mess of desktop presentations, so if you want to go after someone, make it Dave and Peter Winer at Living Videotext. (I much prefer the phrase they coined — “meeting technology” — to “desktop presentations,” but marketing rears its ugly head again.)

MORE is an outline processor, but the name is a hint that there's something, well, more. The more in MORE is graphics because the software can not only display Mac graphics along with outlined information, but it can also instantly generate bullet charts and tree charts from outlines. You can set MORE to cycle through a series of charts at set intervals and thus create automated slide shows. (Version 1.1c works in color on the Mac II.)

Because it is an outline at heart, you can use MORE to take a presentation from the brainstorming stage through planning and creation and into public display.

Cricket Presents is from a company that already has considerable expertise in the presentation graphics arena with Cricket Graph and Cricket Draw. This program takes you from conception to finished product and lets Mac II users work in WYSIWYG color. Apple sees Cricket Presents as an important product, and it got considerable coverage at the Seybold Desktop Publishing Conference last September (although it was not yet shipping at the time this article was written).

You can get an optional device driver that lets you transmit screens to an Autographix service bureau for output to any of several devices, including laser, thermal, and inkjet printers, film recorders, and slide makers.

HyperCard needs little description here. Its merits and failings have been dissected and splattered throughout every Mac publication for several months now. I mention it here because HyperCard is one of only two or three products that can take presentations in entirely new directions.

HyperCard's ability to act as a front end to external audio and video systems — such as CD, CD-ROM, videodisc, and videotape — makes it possible to design simple Mac applications, then use the Mac to run complex, interactive audiovisual presentations. So much work is being done in this area right now that you could see an explosion of HyperCard-based, interactive video systems in the near future.

VideoWorks II is an animation graphics and sound program. Often used to animate presentations for Macintosh shows, it isn't often thought of as a business presentation tool, but it should be. VideoWorks II makes it easy to build animated short “movies” with clip art or original artwork and back them up with digitized sound. With a Mac II, VideoWorks II creates glorious color “movies” that you can display on a large-screen color monitor. With VideoWorks II, you can make an animated short film as a sales tool, audience warm-up, or attention-getter for a fraction of the cost and with much less expertise than would otherwise be possible.

Shortly before this article went to press, an exciting new presentation tool was shown at the Macworld Expo in San Francisco. The product? A HyperCard driver for VideoWorks II.

MacroMind announced the product quietly, and most of the visitors to the company's booth missed the demo because they were caught up watching VideoWorks II in color on a giant-screen monitor. Still, a few observers were aware that this small announcement could have a huge impact on desktop presentations.

VideoWorks II is already a great tool for animated presentations. But
And Now Presenting...

the new driver means that you can incorporate VideoWorks II animations into HyperCard stacks. The combination could provide an incredibly powerful, yet easy-to-use, environment for animated presentations. Keep your eyes open for this one.

SLIDING HOME

For truly stunning output, a variety of graphics-output hardware is available. It ain’t cheap, but if you do a lot of presentations, it can really pay off. Desktop slide production also gives you more control over the final result — not to mention the ability to fuss around personally with those last-minute changes we all like to make.

ImageMaker is a high-resolution (8000 lines) 35mm film recorder that generates color slides directly from a Macintosh. The MacDriver software supports most Mac programs, including the key presentation packages MORE and PowerPoint, and it is expected to support Cricket Presents. ImageMaker can show up to 6 background colors and 16 foreground colors.

Although expensive and somewhat limited in terms of font, graphic, and color support, in the long run ImageMaker can save money over the cost of using a service bureau to prepare slides. It’s also considerably less expensive than dedicated slide-making systems now in use in some large businesses.

SlideWriter is a higher-end film recorder with more features and a higher price tag. Like ImageMaker, SlideWriter records Mac screens directly onto 35mm slide film, but it can do so with up to 256 colors per image. It can also handle 3-D and scanned images. Unlike ImageMaker, which can handle only PICT format images, SlideWriter can also shoot Paint graphics.

Hewlett-Packard’s ColorPro is a compact, desktop, eight-pen plotter that creates gorgeous color reproductions of graphs, charts, designs, and so on, either on a special glossy paper or directly on transparency sheets. Fonts are not supported: the plotter has a single built-in font for text on slides or charts. The only other drawback is that electronically it bears little resemblance to either an ImageWriter or a LaserWriter and so it requires driver software, which is not supplied with the machine.

Most CAD/CAM and similar graphics programs have drivers built-in because plotters are widely used in these areas, but Mac business software generally does not come with a

Command Performance

A presentation can capture an audience by itself if it’s creative, well-planned, and makes innovative use of the tools available. It can also die an untimely death if it looks too much like every presentation you’ve ever seen. Even the best presentation hardware and software can’t save a fundamentally boring or unorganized presentation.

There are some basic principles to follow in any presentation:

• Know your audience and design the presentation accordingly.
• Don’t let the presentation take itself too seriously. Use humor when appropriate (see item directly above this one).
• Plan the presentation with a clear objective in mind, and stick close to the objective throughout. Detours waste time and send people into slumber. Don’t let a captive audience feel captive. The show must go on, but don’t let it go on and on and on...
• Keep each slide, overhead, chart, or screen simple so the point it’s trying to make doesn’t get muddled.
• Make sure the slides follow an ordered sequence that leads the audience from introduction to conclusion in logical steps.
• Follow the fundamental rule of TEWYGTE: Tell ‘Em What You’re Gonna Tell ‘Em, Tell ‘Em, and Tell ‘Em What You Told ‘Em. Start out by stating the goals of the presentation and what you want the audience to come away with. Then elaborate on each point. Be sure to cover the who, what, why, when, where, and how for each point, as appropriate. Finally, sum up with an outline of what action you want your audience to take. If you don’t know what you want your audience to do, they won’t either.
• Make effective use of color, graphics, and text formatting on slides, but don’t let your color distract or nauseate your audience; let the design of a presentation be as meaningful as the content.
• Consider timing carefully. Keep the length of the overall presentation under control. Make sure that each slide or frame or scene is displayed long enough to be read and understood, but not so long that the quicker-minded in the audience doze off while waiting for the next one.
• During the presentation, don’t be afraid to pause if you need a moment to collect your thoughts.
• If you have the expertise available, use a multimedia approach.
• Be bold with visuals and display techniques.
• Rehearse your presentation. Out loud. Preferably in front of a critical (but friendly) audience. Listen to their feedback and critique yourself. Fix the weak spots. Repeat as necessary.
• A “hook” — a promise of something intriguing to come later on — can keep an audience on the edge of their seats. A line such as “Later on, I’ll explain how this can increase productivity by 50%” will pique their interest. (Hitchcock recognized that telling an audience a bomb would go off in two hours made a much more interesting movie than having the bomb go off right off the bat.) Set up the joke and hold the punchline for later on. Or tell ’em the punchline, and promise to tell the joke later on.
• Anticipate questions. Answer them in the presentation or have a good response ready.
• Try to control any space-filling phrases you use as a crutch (such as “Um,” “Well, I mean,” or “You know”) or any nervous gestures you use too much. Audiences like to play “count the ‘You knows.’”
• Do use body language and dramatic gestures where appropriate, but don’t force them. If it doesn’t feel natural, it won’t look natural.
• Involve the Macintosh in every step of the process, including the final display, if possible. Not only is it an extremely effective tool, but also its feelings get hurt if you use it to do all the homework but then it misses the party.
Introducing JT Fax™ for the Macintosh™. It's the smallest, most lightweight, and simplest way yet to gain full facsimile features from an Apple® Macintosh. Just plug it into the printer or modem port to open up a whole new world of desktop publishing and transmitting.

Measuring only 3½"x6"x1" JT Fax allows you to send or receive documents between your Macintosh and any other facsimile machine or JT Fax-equipped Macintosh or IBM PC. The JT Fax Manager allows you to schedule transmissions at cost effective times to single and multiple locations. It works just as if you were printing with any Macintosh program using a standard printer driver, producing documents that rival LaserWriter™ quality. And besides its small size, JT Fax carries a small price.

For more information, write: Citizens Computer Center, P.O. Box 737, Higginsville, MO 64037-0737. Dealer inquiries welcome. In Missouri, call 816-584-7727. Call toll free today, 1-800-426-1679.

Please circle 79 on reader service card.

Citizens Computer Center
And Now Presenting...

plotter driver. Driver software is available from third parties, though, and it is usually easy to install in almost any Mac application.

OVER THEIR HEADS

Instead of using an overhead projector to display transparencies that were once Mac screens, why not just use the overhead projector to display the screen itself? You can’t exactly mount a Mac to the display table of an overhead projector and expect to get anything but a melted Mac, but you can connect your Mac to a liquid-crystal-display (LCD) projection screen.

These units are small — about 12 inches square and an inch or so deep. They act as external monitors for the Mac, with signals sent through a video-interface card of some kind. The LCD screen sits on the overhead-projector table and displays the actual workings of the Mac screen in crisp, clear detail on a large screen, as if it were showing a transparency. The LCD display changes in real time with the Mac screen — although LCDs can’t refresh quite as quickly as the Mac screen, so animation can be a little blurry.

Seen on the Macintosh for the first time at the Macworld Expo last August, several of these units are now available. They’re expensive (starting at about $1500) but what a great idea! They help overcome one of the serious problems of using a Mac as a display system with large audiences.

The Flat-Screen Overhead from ASK LCD has the lowest price with the trade-off in resolution. The Flat-Screen Overhead displays 640 X 200 pixels. The Stretch-A-Sketch LCD Presentation Tool from Network Specialties (distributed by authorized Apple dealers) and the MacViewFrame from nVIEW are similar, but they offer 640 X 400-pixel displays.

The PCV 6448C from In Focus Systems is a 640 X 480-pixel-resolution display system. Its bigger brother — the PCV 6448C+2 Ultimate Presentation System — adds 1 megabyte of on-board RAM to store up to 75 screens, and it has an infrared remote-control unit that lets you cycle through a presentation without sitting at a keyboard.

Kodak’s Datashow HR projection pad should be shipping by the time you read this. It has a 512 X 342-pixel display and a high-contrast, black-and-white display. (The liquid crystals in most other units are blue, yellow, or green rather than true black-and-white.) A built-in fan lets the unit sit on a projector all day without any image degradation caused by heat.

LET’S PUT ON A SHOW

In the early days of desktop publishing (those many years ago — what is it, two now?), few people really knew what to do with the tools available, but everyone wanted to try their hands at newsletters, bro-

GET MORE FROM YOUR MACINTOSH...INVESTMENT

INTERNAL DRIVES

For Macintosh SE,II
OME 45i- 45 Megabytes $899.95
For Macintosh II
OME 100i- 100 Megabytes $1199.95
OME 140i- 140 Megabytes $1599.95

MEMORY

For Macintosh Plus
RamPlus 2 $349
Expands to 2 Megabytes RAM
RamPlus 4 $849
Expands to 4 Megabytes RAM NOTE: RamPlus may not be physically compatible with internal devices.
For Macintosh Plus,SE
Ram II $599
Expands to 2.5 Megabytes RAM
NOTE: Due to space considerations surface mount is recommended for the Macintosh SE.

VIDEO

HIGH RESOLUTION COMPOSITE VIDEO ADAPTERS
for Mac 512, Plus, & SE Monitors & Projectors also available
For Mac SE $149.95
For Mac512/Plus $99.95

Monitors/Projectors Call for Quote
VISA/MC/AMEX Discover Accepted
Dealer Inquiries Invited

Mac II to NTSC (Television) Converter
Connects your Macintosh II to NTSC video.
Record your Macintosh images to video tape, or use for live presentations. Compatible with Apple & Spectrum Video Cards.
GenLocking Version Available April. $599.

All OPEN MAC products:
- Are Manufactured by OPEN MAC Enterprises - Are User Installable - Preserve Manufacturer's Warranty - Carry a minimum 1 Year Warranty - Are stocked for rapid shipment - Are listed at a Discount Price - Credit Cards not charged until shipment.

OPEN MAC Enterprises
415/682-0440
2280 Bates Avenue, Suite J, Concord, CA 94520

Please circle 87 on reader service card.
Aztec C

C WITH THE POWER TO GO THE DISTANCE . . .
WHATEVER THAT DISTANCE MIGHT BE.

When you have a challenging program to develop, be sure that your C compiler has the power to see you through to the end. Quickly, and without the hidden limitations that less powerful compilers can surprise you with.

What you need is a professional compiler. Aztec C from Manx Software has professional power that allows you to fully explore the workings of your imagination . . . and bring your project home a winner.

No other C Compiler gives you so much freedom to create, no matter how large the task. And with Version 3.4, Aztec C is the only C Compiler to provide unlimited data size and unlimited program size. That means no segmentation. Unlimited static and global areas. Unlimited array size.

Imagine the programming possibilities.

STANDARD FEATURES:
- Optimized C with 68010/68020 & 68881
- Macro Assembler with 68000/680x0 & 68881
- Fast Overlay Linker
- Symbolic Debugger
- Support for Mac Plus, 512KE, SE, and II
- Macintosh Libraries
- UNIX Libraries
- Universal Systems 4.1 & Vol. 5 Compatibility

EXTENDED FEATURES:
- UNIX utilities make, diff, vi editor and grep
- MPW Compatibility
- Profiler for code optimization
- Assorted tools and utilities

Available for the Macintosh, Apple II, Amiga, MS-DOS/PC-DOS, CP/M-86, TRS-80, ROM, and others.

AZTEC C IS AVAILABLE IN THE FOLLOWING VERSIONS TO SUIT YOUR NEEDS:

<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aztec C68K/Mac-p</td>
<td>Professional System</td>
<td>$199</td>
</tr>
<tr>
<td>Aztec C68K/Mac-d</td>
<td>Developer System</td>
<td>$299</td>
</tr>
<tr>
<td>Aztec C68K/Mac-c</td>
<td>Commercial System</td>
<td>$499</td>
</tr>
</tbody>
</table>

Aztec C Prime $75

An inexpensive but powerful C development system including C compiler, 68k assembler, linker, libraries, example programs, and utilities.

Order Now At No Risk Or Call For Information

CALL 1-800-221-0440
In NJ or outside the USA, call 201-542-2121
Telex: 4995812 Fax 201-542-8386

Aztec C is available on a thirty-day money back guarantee. Call now and find out why over 50,000 users give Aztec C one of the highest user-satisfaction ratings in the industry.

Please circle 194 on reader service card.
Upscale Your Macintosh SE.

Mach II/SE gives your Macintosh acceleration and performance

*Performance* is the name of the game when you run large compute-intensive applications; CAD, CAE, graphics, desktop publishing, office automation. Dove's Mach II/SE accelerator with its 68020 processor gives you performance comparable to a Macintosh II and it makes your Macintosh faster and easier to use than any PC or PS/2™.

The Mach II/SE is synonymous with Value. An advanced product design guarantees product reliability, performance and expandability. The Mach II/SE is fully compatible with Dove's MacSnap™, FastNet™ and soon to be announced graphics products—further enhancing your SE’s applications and networking value.

**Mach II/SE Benefits**

- Cost effectively quadruples your SE’s performance
- Supports maximum memory configurations up to 5 megas
- Provides an optional 68881 math co-processor
- Programmable LCA technology coupled with the 68020 equals flexibility and assures simple software upgrades
- Installs easily in 10 minutes without modifications
- The best choice for running processor and memory intensive applications

Like all Dove products the Mach II/SE will help you soar to new heights of productivity. For more information and the name of your nearest dealer call us at 1-800-622-7627.

1200 North 23rd Street
Wilmington, North Carolina 28405
919-763-3918

Please circle 24 on reader service card.
And Now Presenting...

And last, but never least, more users will discover the joys — and the pitfalls, from which spring new products — of using the Macintosh as the best supporting actor in a desktop presentation.

It was like a Mickey Rooney and Judy Garland movie, the two of them rousing the neighborhood with the cry, “Hey, gang, let’s desktop publish!”

It didn’t take long for the technology to mature and for corporate information departments to catch on. Desktop presentations are just beginning, so those few people who have shown a real interest are still focusing on the basics — simple slide shows and transparencies.

Three things will push desktop presentations into maturity. First, more technology — such as color, video, and digitized sound — will create new presentation options. Second, the market will spawn innovative start-up companies — such as systems integrators, software publishers, and storefront service bureaus — that will evangelize the technology.

And last, but never least, more users will discover the joys — and the pitfalls, from which spring new products — of using the Macintosh as the best supporting actor in a desktop presentation.

MATH TYPE

The Mathematical Equation Editor for the Macintosh

Put equations like this in your documents and presentations:

$$\frac{4}{\pi} \int_0^w \int_0^{e^{-(x^2 + y^2)}} dx dy = 1$$

See what people are saying about MathType:

... we recommend MathType because it is the easiest to use, ...
— David Sachs, MacWEEK, January 5, 1988.

... MathType is easier to use and produces better-looking results, ...

MathType™ knows the rules of mathematical typesetting, so all you do is point, click, and type. Spacing, positioning, and font selection are all done automatically. Works as a desk accessory or an application with any word processor or desktop publishing program. MathType is available now for only $149. Call or write for a free demo disk and brochure with sample output.

For More Information

SOFTWARE

Cricket Presents: $495. Cricket Software, 30 Valley Stream Parkway, Malvern, PA 19355; (215) 251-8990.

HyperCard: free with all new Macs or $49.95 to registered owners. Apple Computer, 20525 Mariani Avenue, Cupertino, CA 94044; (408) 996-1010.

MORE: $295. Living Videotext, 117 Easy Street, Mountain View, CA 94043; (415) 964-6300.

VideoWorks II: $195. Distributed by Broderbund, 17 Paul Drive, San Rafael, CA 94903-2101; (415) 492-3200.

HARDWARE

ColorPro... $150. Hewlett-Packard, 16399 W. Bernardo Drive, San Diego, CA 92127-1899; (800) 538-8787, in CA (408) 736-4133.

DataPro... $499. ImageMaker: $4995. MacDriver software and cables: $149. Presentation Technologies, 743 N. Pastoria Avenue, Sunnyvale, CA 94086; (800) 345-7050, in CA (408) 749-1959.


Dataframe 30XP $799
Dataframe 60XP $1199
Everex 20D $550
Everex 20 Deluxe $595
Everex 40D $1025
Everex 40 Deluxe $1095
Everex 40 Internal $925
Everex 60 Meg Tape $925
Nova 20 $645
Nova 30 $745
Nova 30 Internal $725
Nova 50 $975
Rodime 100Meg $1150
Rodime 20 Plus $699
Rodime 45 Plus $1075
Rodime 450 RX Internal $925

ORDERS: All Other Inquiries: 800-634-9315 404-535-8806
Big Macro Attack

WorksPlus Command feeds new macros into an old program. See if it works for you.

WorksPlus Command, the second add-in program for Microsoft Works from Lundeen & Associates, firmly establishes Tim Lundeen as a premier software dentist. If his first package, WorksPlus Spell (an excellent spelling checker and winner of a 1987 MacUser Eddy Award), filled some nasty cavities and gave Works a brighter smile, this one provides Works with a full set of dentures.

WorksPlus Command is a sophisticated macro program that adds a rich selection of features to Works' limited capabilities for integration, and it will delight the most demanding power user as well as the person who merely wants to get a little more oomph from Works' four applications.

WorksPlus Command offers three levels of assistance for the frustrated Works aficionado. First, it acts as a simple macro recording and playback program, so you can construct your own commands from any sequence of keyboard entries, mouse actions, or menu choices. Since WorksPlus Command is available wherever you are in Works, you can use it to automate complex or repetitive tasks that involve any or all of Works' individual modules.

Second, the package comes with a large assortment of macros that are ready to run. You can build tables of contents and indexes; define word processing style sheets; turn the word processor, spreadsheet, or database into an automatic phone dialer; iterate a spreadsheet; perform a search-and-replace operation in the spreadsheet or database module; perform case conversions; and so on.

Third, WorksPlus Command contains a full macro programming language, so you can code your own commands or edit prerecorded ones. WorksPlus Command knows all about selecting document windows, parsing text to extract attribute information, displaying custom dialog boxes on the screen, assigning variables and one-dimensional arrays, and using if/then/else branching by Ezra Shapiro

BY EZRA SHAPIRO
Big Macro Attack

and similar control structures. If you
have any experience at all with either
Pascal or C, WorksPlus Command
will be familiar and comfortable.
Even if you don’t have a program-
ing background, the logic behind
WorksPlus Command is clean
enough that you should be able to
master the rudiments in a few explor-
atory sessions.

E ven if you don’t
have a
programming
background, the logic
behind WorksPlus
Command is clean
enough that you should
be able to master the
rudiments in a few
exploratory sessions.

GIVE ME THE WORKS
Like WorksPlus Spell, WorksPlus
Command blends itself seamlessly
into Works. After running through a
straightforward installation routine,
you’ll discover that Works’ Window
menu has grown three new com-
mands: Run Macro, Record Macro,
and Show Macros.

Macros themselves are associated
with specific documents (like Excel
macros). When you load a file for
which you’ve created macros, the
macros become available for you to
use on that document (or on any
other file that’s open at the moment
—if you’ve clicked a box in the ma-
cro’s original document, that gives it
“global” status).

The Run command opens a dialog
box that allows you to choose a ma-
acro by name (you can avoid this step
by assigning Command keys when
you write macros). When you select
a macro, WorksPlus Command
shows you some status information:
name of the macro, source docu-
ment, and any Command key equiv-
alent. Click radio buttons to either
cancel or run, and you’re in busi-
ness.

If you choose the Record com-
mand, WorksPlus Command begins
keeping track of what you’re doing,
and a flashing “R” appears at the
right side of the menu bar. You can
just continue to work away merrily,
or you can interrupt the process to
insert a pause, prompt for user input
with a dialog box that the program
builds for you, or declare mouse or
cursor actions as either relative or
absolute. (The concept is the same as
relative and absolute cell references
in a spreadsheet.) When you’re done
recording, give your creation a name
(and a keyboard shortcut if you
want), and you’ve got a new com-
mand that appears on the Run list.

The show command displays a list
of the macros attached to the docu-
ment window that’s currently select-
ed. Use this command if you want to
edit existing code or start writing
from scratch. WorksPlus Command
opens a window for you and adds a
macro menu to the menu bar. The
menu allows you to code a macro,
paste functions, build dialog boxes,
insert and toggle breakpoints, and
even set passwords so only the initi-
ated can use the command.

BEHIND THE SCENES
For the technically minded, here’s
what WorksPlus Command is actually
doing. When you first install the
program, it checks to see whether
you’re using Works 1.0 or 1.1 — it
runs with either version — and modi-
ifies itself to display the Microsoft
Works icon instead of its own. There-
after, when you click the Command
icon, it loads itself into memory as a
layer between Works and the Macin-
tosh operating system, trapping both
input and output. The user is un-
aware of this process, of course; the
only signs of WorksPlus Command’s
presence are the new menu entries
and the fact that Microsoft Works
documents now show up in the
Finder as Command documents.

WorksPlus Command does not phy-
sically modify the original Microsoft
Works program; in fact, clicking on
Works brings it up without loading
WorksPlus Command. As long as
WorksPlus Command is installed,
A short macro to remove all user-specified page breaks. The program displays a message built with *WorksPlus Command*’s dialog editor that reads “Scanning document,” then moves through the text, parsing a line at a time looking for the page-break character. If it finds the character, the macro selects and replaces it with a null string (“”), then moves on to the next line, repeating the process.

Building dialogs with *WorksPlus Command* is simplified with the Dialog Editor, an amazing little toolkit. Boxes, buttons, and text are created by selecting menu items; every element can be moved, expanded, or reduced using the mouse. No programming is required. Dialog boxes are associated with specific documents (as are macros); dialogs are merely called by name from your programs.

Every object created with the Dialog Editor has a set of attributes displayed in this parameter box. You can change the text displayed, determine the default status (whether a box is checked or not), which button is executed when you hit the Return key), and so on. Once you’ve drawn the box itself, the Prev Item and Next Item buttons let you easily flip through your dialog items.

*WorksPlus Command* automatically reduces any text macro to a compiled form when its document is loaded or as soon as you notify the program that a new macro is finished; this makes for faster execution. Again, you needn’t worry about this step. Compilation merely chews up a little time at inconspicuous moments.

**COMMAND PERFORMANCE**

The macro recording mode is as easy to use as similar implementations in other products; expect no problems here. I found I did have to be careful with choosing between relatively absolute positions, but that was no surprise. Editing macros is a breeze if you’re making minor changes; major redesign requires serious programming, however.

The collection of macros included with the product is excellent. Even if you never record or write a macro yourself, this assortment is well worth *WorksPlus Command*’s $99.95 price. About the only thing I missed here was a dummy script or two for automating telecommunication log-ons — a critical feature missing from *Works* itself. However, recording such a macro proved to be no big deal.

I have a bit more trouble endorsing the programming aspects of the package, though I don’t mind the language itself. Programming is programming, and one should expect a little brain-bending. However, for reasons that are technically beyond me, macros must be indented to run successfully, and indentation requires the use of the Command-[ key for a indent and the Command-] key for a hanging indent. This is the reverse of accepted proofreading symbols, so there’s always an uncomfortable moment of hesitation for me. I also find myself instinctively using the Tab key, which is a no-no. This system means you can’t move text in from a word processor or the Clipboard (unless you’re transporting from one macro document to another). I can’t really see why anyone would want to use an outside editor to create a macro, but should you want to, you can’t.

Documentation is tight and dry.
Big Macro Attack

Macros for Works: A Select Menu
WorksPlus Command comes with several macros that will increase your productivity with Works. Here's a sampling of the macros that come with WPC:

<table>
<thead>
<tr>
<th>Macro</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>DialDown</td>
<td>Dials a number (selected text in word processor, or selected cell in database or spreadsheet).</td>
</tr>
<tr>
<td>FillDown</td>
<td>Fills down in a database.</td>
</tr>
<tr>
<td>FreezeMergeDoc</td>
<td>Freezes a copy of a word-processor MERGE from a database document.</td>
</tr>
<tr>
<td>IndexEntry</td>
<td>Makes an index entry reference for the selection.</td>
</tr>
<tr>
<td>InfoOnSelection</td>
<td>Displays information about a database or spreadsheet selection.</td>
</tr>
<tr>
<td>Iterate</td>
<td>Iterates a spreadsheet to solve circular references.</td>
</tr>
<tr>
<td>RemovePageBreaks</td>
<td>Removes all user page breaks in the current word-processing document.</td>
</tr>
<tr>
<td>RenamePageBreaks</td>
<td>Renames the database used for the word-processor's MERGE-file entries in the selected text.</td>
</tr>
<tr>
<td>ResizPicture</td>
<td>Resizes the selected picture per your input.</td>
</tr>
<tr>
<td>SaveAllDocs</td>
<td>Saves all existing documents to disk (doesn't save Untitled).</td>
</tr>
<tr>
<td>SearchAndReplace</td>
<td>Searches and/or Replace for a database or spreadsheet document.</td>
</tr>
<tr>
<td>ShowMarkers</td>
<td>Shows all word-processor markers in the selected text.</td>
</tr>
<tr>
<td>HideMarkers</td>
<td>Hides all word-processor markers in the selected text.</td>
</tr>
<tr>
<td>DeleteMarkers</td>
<td>Deletes all word-processor markers in the selected text.</td>
</tr>
<tr>
<td>UpperCase</td>
<td>Converts selected text to upper case.</td>
</tr>
<tr>
<td>LowerCase</td>
<td>Converts selected text to lowercase.</td>
</tr>
<tr>
<td>MixedCase</td>
<td>Converts selected text to leading capitals.</td>
</tr>
<tr>
<td>BoldItalic</td>
<td>Converts selected text to bold italic.</td>
</tr>
<tr>
<td>HeadingEntry</td>
<td>Makes a new section heading or converts to a new heading style.</td>
</tr>
<tr>
<td>ResetHeadings</td>
<td>Reformats all headings to match new header templates.</td>
</tr>
<tr>
<td>MakeIndex</td>
<td>Makes an index from marked entries.</td>
</tr>
<tr>
<td>MakeTableOfContents</td>
<td>Makes a Table of Contents.</td>
</tr>
<tr>
<td>MultiColumnMerge</td>
<td>Generates multicolonl database labels from a word-processor's PREPARE TO MERGE document.</td>
</tr>
<tr>
<td>AddStyle</td>
<td>Adds (defines) a new style rule.</td>
</tr>
<tr>
<td>ResetStyles</td>
<td>Resets all style rules after editing style templates.</td>
</tr>
<tr>
<td>SelectStyle</td>
<td>Selects a style rule for a new section.</td>
</tr>
</tbody>
</table>

Explanations of the recording mode and the provided macros are clear and concise, but the programming section is really more of a reference than a full-blown tutorial. Newcomers to programming are likely to be baffled by syntax and conventions; it's all there, but it ain't gentle. I'm not sure I can honestly demand a thick training manual from a program that costs under a hundred bucks; I have to hope that WorksPlus Command sells well enough for someone else to write the equivalent of Danny Goodman's HyperCard tome.

The program works beautifully with WorksPlus Spell. In fact, you can throw away the WorksPlus Spell support files because WorksPlus Command has the necessary code built in. All you have to do is run a small program provided with WorksPlus Command to enable the spelling menus.

Note that using WorksPlus Command pushes Works far beyond the 512K limit; you really need a megabyte of RAM to run it. And if you've only got a megabyte, say farewell to Switcher and MultiFinder.

REACTIONS
I find myself at a loss on how to evaluate WorksPlus Command. It's strongest if you reassess Works itself as a program in light of WorksPlus Command as an addition.

This package is certainly impressive enough to pull Works from its berth as a novice-level package into the heady realm of power tools, but WorksPlus Command suffers because of Works' inherent weaknesses and the difficulties of being an add-in rather than an integral part of the package. WorksPlus Command's performance is excellent, though it's dragged into the mire by the slowness of Works on elementary operations such as scrolling, sorting, and file import. You can define style sheets for your text documents, but you still can't use logical fields in your databases — Works doesn't have them. Likewise, you can construct complex iterative macros for your spreadsheets, but you're not going to speed up Works' recalcul time — you're stuck with the speed deficiencies of the basic program.

WorksPlus Command lacks an internal help system, which cripples the ease of coding a new macro, but implementing one would have both made the program top-heavy and set up a natural confusion with Works' own help system. And I'm sure my hassles with program editing could have been avoided if Command had been designed into Works from the start.

On the whole, I still have to recommend that you purchase a full-featured standalone package for any application of which you're a heavy-duty user. However, the addition of WorksPlus Spell and WorksPlus Command to the picture means that you can push Works much further than Microsoft seems to intend. For many people, a Lundeen-enhanced copy of Works becomes an admirable substitute for Microsoft's big programs.

EZRA SHAPIRO IS A CONTRIBUTING EDITOR FOR MACUSER. HE IS ALSO EDITOR AND PUBLISHER OF A NEWSLETTER CALLED TECHNOLOGY & ADVERTISING.

MACUSER RATING

WorksPlus Command

Follows Mac Interface ★★★★★ ★★★★★
Printed Documentation ★★★★★ ★★★★
On-Screen Help None
Performance ★★★★★ ★★★★★
Support ★★★★★ ★★★★★
Consumer Value ★★★★★ ★★★★★

"Good things do happen when you put a little color in your life. Since I started printing on Pro-Tech Laser colors, my reports have received much more notice. And so have I."
—Executive Secretary

"We’ve had a great year. I wanted my Year End Report to look as good as our sales figures, so I printed it on Pro-Tech Thermal Transfer Paper."—Marketing Manager

"We have every kind of computer printer you’ve ever heard of. Now I can get the right paper for every one of them with the Pro-Tech Computer Paper line. I really appreciate the value of Pro-Tech."
—Purchasing Agent

Why people love their Pro-Tech Computer Paper.

Who wouldn’t love a computer paper specially designed for the printer they use?

The Pro-Tech family of specialty computer papers and film provides the consistency and reliability required for superior image quality and is specifically designed for dot matrix and daisywheel, ink jet, laser and thermal transfer printers as well as pen plotters. Pro-Tech enhances your printer’s performance. And your image.

The complete line includes: Laser Papers for hi-speed and desktop laser printers (in white and colors, 25% cotton and other special finishes), Ink Jet Paper, Thermal Transfer Paper, Pen Plotter Paper, Printer Papers (in bond, 25% cotton and other special finishes) and Transparency Film. You’ll love them.

Yours Free! For free samples of the right paper for your printer, contact Pro-Tech today. Return this coupon to: Pro-Tech Sampler Kit, c/o James River Corporation, Groveton Division, Groveton, NH 03582 or call toll-free Mon-Fri 8:00-5:00 EST...
1-800-521-5035
In MA: 413-589-7592

Name ____________________________
Title ____________________________
Company _________________________
Address __________________________
City _____________________________
State _____________________________
Zip _______________________________

My computer printer is a __________________________
(Manufacturer – Make – Model No.)

JAMES RIVER CORPORATION
GROVETON DIVISION
Groveton, NH 03582

Because the right paper and film makes all the difference™

Please circle 57 on reader service card.
Fight or Flight

Falcon lets you earn your wings without enlisting.

Like just about every would-be jet jockey from Korea on, do you dream of attending the Navy’s “Top Gun” school — or running through the demanding “Red Flag” exercise at the Air Force’s advanced training school? Do you like the idea of becoming an Officer and a Gentleman, an heir to the Red Baron of World War I and the Spitfire and Mustang pilots of World War II? Do you want to be an ace?

Yes? But do you have what it takes to lift off in a hot new $20-million fighter and fly low and fast into enemy territory? Can you navigate quickly enough to avoid a barrage of accurate surface-to-air missiles without losing control of your plane and crashing? Can you drop your bombs on the enemy runway and your air-to-ground missiles on the enemy HQ? Can you maneuver your Falcon F-16 quickly enough to get onto the MIG-21’s tail, his “six,” and stay there long enough to shoot him down? And, when all is said and done, can you coax your frisky (and possibly damaged) plane down safely onto your home runway?

Do you, in short, have enough of the right stuff to make the grade?

One way to find out is to enlist for a four-year tour at your nearest Air Force or Navy recruiting station. Another is to beg, buy, or borrow (don’t you dare copy!) Falcon, the new combat flight simulator of General

BY JAY PALMER
Fight or Flight

The "Sarge" will help you arm your bird with combinations of weapons and supplies. At First Lieutenant level, you can carry unlimited weight. At higher ranks, you must choose according to the mission. Sometimes the Sarge will have what you want, but often he will be out of stock. Whatever, watch your total weight and listen to the man; he gives good advice.

The view from the left side of the cockpit as you approach an enemy bridge. Note the yaw and pitch indicators showing the plane in level trim, fuel gauge indicating over 60 pounds, a compass heading south of east, a backup airspeed gauge showing about 300 knots, and the landing gear indicator (no lights confirm wheels up). Program upgrades also show a backup altimeter.

The ACM (Air Combat Maneuvers) menu lets you select a whole range of different maneuvers for the enemy MIG to perform, including breaks, loops, Yoyos, and scissors. In this case, the plane is halfway through an Immelmann. The square ComEd radar screen below the HUD shows the MIG to be on a heading of 26 degrees, doing 383 knots at 24,000 feet. The signal "joker" warns that fuel is low.

There is a choice of 12 different missions of varying difficulty, some air-to-air and some air-to-ground.

Dynamic's top-of-the line F-16 "Fighting Falcon" fighter-bomber. It comes from Spectrum HoloByte, the same software company that brought the World War II submarine simulator, GATO, and Orbiter, the 1980's space shuttle simulator, to the Mac screen.

BEST OF BREED
The F-16 is an entirely different breed of animal that takes up and off where GATO and Orbiter, both now rather dated and basic simulators, leave off. Although it's not without flaws — some more serious than others — Falcon is a combat simulator that easily outperforms its current competition, Microsoft's Flight Simulator, Miles Computing's Harrier Strike Mission 2, and Bullseye Software's Fokker Triplane.

Falcon will not run on all Macs since it requires a minimum of one megabyte of RAM. It will not run with Switcher, and the RAM cache must be switched off. The program is not copy protected, but this is a complicated game, and would-be F-16 pilots will be lost in the clouds without the detailed and complex 140-page manual.

From the moment you boot the two 800K disks that constitute Falcon, you know you've got something special. First there's some nifty opening music and sound effects of jet combat, just to get you in the right mood. Then up pops the "Duty Roster," a screen listing ten active players with their military ranks, call signs, and total merit points. To start, click one of the "rookie" slots and choose your call sign.

That automatically brings up the "Rank & Mission" screen. First choose a rank from First Lieutenant up through Captain and Major to Colonel, bearing in mind that however nice it may be to wear those eagles on your shoulders, the higher the rank, the more difficult it is to fly the F-16 and the more accurate those enemy MIGs and SAMs become. Start out as a First Lieutenant. Then choose the maximum number of MIGs you want to fight; Mac 512s and 512Es can only handle one, Pluses and SEs can take two, and Macs with a 68020 accelerator card can cope with three. Beginners click none.

There is a choice of 12 different missions of varying difficulty, some air-to-air and some air-to-ground. The easiest mission is the "Milk Run," where the target buildings are in your own friendly territory and there are no enemy MIGs or SAMs. More difficult missions involve air-
Modern Artist Color Paint program meets the need of the professional artist while its unmatched ease of use is ideal for business or educational color graphics. 5.5 million colors are available simultaneously along with a wealth of special effects, such as 3-D shading with positionable light source, custom brushes, finger painting with wet canvas, air brushes and much, much more. More features than any competition at less than half the price, only $199.00.

The PanChroma™ CHC-335 200 dpi desktop color printer gives you superb color prints on paper or directly on overhead transparency. The PanChroma design is simple and reliable and the 1000 colors available are brilliant. You can print files from our Modern Artist color paint program or from other PICT files, $4,500.00. “B” size model available.

TV-Producer, professional graphic overlay board for the Macintosh II. Desktop video at your fingertips to create business, technical, promotional video presentations. TV-Producer's selectable chroma-key and genlock capabilities can also be used in broadcast production applications to merge graphics with a video source for special effects and computer generated animation. No extra memory required. Extremely simple operation. TV-Producer is installed and used as a desk accessory. $599.00, RGB, broadcast and PAL options available.

ORDER TOLL FREE
1 800 547-3303

Computer Friends ©
14250 NW Science Park Dr.
Portland, Oregon 97229
tel (503) 626-2291, fax (503) 643-5379 tlx, 4949559 CF.
Please circle 201 on reader service card.
Fight or Flight

to-air combat against increasing numbers of MIGs or bomb and missile attacks on SAM sites, bridges, buildings, and runways.

Like *Fokker Triplane and Harrier* (but unlike *Flight Simulator*), all of *Falcon*’s flying is done in a small artificial world unique to this game. However, within its obvious limits, it is an extensive combat arena, mixing mountains, lakes, rivers, and fields with roads, bridges, and other man-made targets.

**ARMS AND CONTROL**

Your final decision concerns armament. This is important for everyone except First Lieutenants who, by virtue of their lowly rank and skills, are permitted to carry unlimited bombs, missiles, cannon shells, and stores. Higher ranks are limited by weight, drag, and the type of weapons selected.

If you are simply hunting MIGs, take some of the different kinds of Sidewinder air-to-air missiles. If you are bombing bridges or buildings, try to take at least one Sidewinder for emergencies, but load up with Maverick air-to-ground missiles and several types of bombs. If you expect SAMs to be a threat, make room for an ECM (electronic countermeasures) pod. If you are after a distant target, take a spare fuel tank.

You have one friend and ally, your “Sarge” or ground crew chief. Be nice to him even if you’re a Colonel and he’s an enlisted man; you don’t want to get into serious trouble and find he “forgot” to arm the ejection seat. More importantly, read very, very carefully what he has to say about your weapons and stores load — he will alert you if you try to take on too much or if there are maneuvers that you shouldn’t attempt.

The F-16 can be flown in three different ways — using the mouse, a joystick or the keyboard — but the program was written for the keyboard, and in many respects that remains the easiest method of controlling the plane. At higher ranks and more advanced flying skills, however, Spectrum Holobyte’s top F-16 aces suggest that switching to the mouse provides greater maneuverability. (This reviewer, a private pilot qualified to fly Cessna and Piper single-engine aircraft, found that it was too easy to over-control the F-16 using the mouse and that the keyboard, at least at first, was preferable.)

**REALISTIC INSTRUMENTS**

You’ll need more than good reflexes to come through intact. The cockpit dashboard has an array of instrumentation, including an RPM gauge, altitude direction indicator, stores control panel showing what weapons you are carrying, and a 360-degree radar warning screen. The single most important instrument is your final decision concerns armament. This is important for everyone except First Lieutenants who, by virtue of their lowly rank and skills, are permitted to carry unlimited bombs, missiles, cannon shells, and stores. Higher ranks are limited by weight, drag, and the type of weapons selected.

If you are simply hunting MIGs, take some of the different kinds of Sidewinder air-to-air missiles. If you are bombing bridges or buildings, try to take at least one Sidewinder for emergencies, but load up with Maverick air-to-ground missiles and several types of bombs. If you expect SAMs to be a threat, make room for an ECM (electronic countermeasures) pod. If you are after a distant target, take a spare fuel tank.

You have one friend and ally, your “Sarge” or ground crew chief. Be nice to him even if you’re a Colonel and he’s an enlisted man; you don’t want to get into serious trouble and find he “forgot” to arm the ejection seat. More importantly, read very, very carefully what he has to say about your weapons and stores load — he will alert you if you try to take on too much or if there are maneuvers that you shouldn’t attempt.

The F-16 can be flown in three different ways — using the mouse, a joystick or the keyboard — but the program was written for the keyboard, and in many respects that remains the easiest method of controlling the plane. At higher ranks and more advanced flying skills, however, Spectrum Holobyte’s top F-16 aces suggest that switching to the mouse provides greater maneuverability. (This reviewer, a private pilot qualified to fly Cessna and Piper single-engine aircraft, found that it was too easy to over-control the F-16 using the mouse and that the keyboard, at least at first, was preferable.)

**REALISTIC INSTRUMENTS**

You’ll need more than good reflexes to come through intact. The cockpit dashboard has an array of instrumentation, including an RPM gauge, altitude direction indicator, stores control panel showing what weapons you are carrying, and a 360-degree radar warning screen. The single most important instrument is your final decision concerns armament. This is important for everyone except First Lieutenants who, by virtue of their lowly rank and skills, are permitted to carry unlimited bombs, missiles, cannon shells, and stores. Higher ranks are limited by weight, drag, and the type of weapons selected.

If you are simply hunting MIGs, take some of the different kinds of Sidewinder air-to-air missiles. If you are bombing bridges or buildings, try to take at least one Sidewinder for emergencies, but load up with Maverick air-to-ground missiles and several types of bombs. If you expect SAMs to be a threat, make room for an ECM (electronic countermeasures) pod. If you are after a distant target, take a spare fuel tank.

You have one friend and ally, your “Sarge” or ground crew chief. Be nice to him even if you’re a Colonel and he’s an enlisted man; you don’t want to get into serious trouble and find he “forgot” to arm the ejection seat. More importantly, read very, very carefully what he has to say about your weapons and stores load — he will alert you if you try to take on too much or if there are maneuvers that you shouldn’t attempt.

The F-16 can be flown in three different ways — using the mouse, a joystick or the keyboard — but the program was written for the keyboard, and in many respects that remains the easiest method of controlling the plane. At higher ranks and more advanced flying skills, however, Spectrum Holobyte’s top F-16 aces suggest that switching to the mouse provides greater maneuverability. (This reviewer, a private pilot qualified to fly Cessna and Piper single-engine aircraft, found that it was too easy to over-control the F-16 using the mouse and that the keyboard, at least at first, was preferable.)

**REALISTIC INSTRUMENTS**

You’ll need more than good reflexes to come through intact. The cockpit dashboard has an array of instrumentation, including an RPM gauge, altitude direction indicator, stores control panel showing what weapons you are carrying, and a 360-degree radar warning screen. The single most important instrument is...
the square Comed (or combined map/electronics display). Pressing the “C” keys toggles between a map mode, showing the position of the plane and key targets, and radar mode. In radar mode, the Comed provides vital information about enemy MIGs, including their heading, speed, altitude, an intercept angle, and closing speed.

Taking off is a matter of turning on the engine, adding power with the “+”, and releasing the wheel brakes by hitting “W.” Watch the speed build up and, at around 150 to 200 knots, rotate the stick and put the plane into a climb by pressing the 2 on a numeric keypad. (The 8 puts the plane in a dive, 4 banks it to the left, and 6 banks it to the right.) You get side and rear views from the cockpit (and glimpses of different instruments) by pushing the 3, 7, and 9 keys. If your plane maneuvers are too violent, hold down the Shift key while moving the control surfaces. All controls are duplicated on the alphabetical keyboard.

The view to the front is the important one, showing the plane’s line of flight, the gun and missile sights, and most of the key instruments and indicators. One of the very best features of Falcon is its HUD, or heads-up display. In modern fighters, the HUD is a specially treated piece of glass in the front of the canopy that lets the pilot see crucial information without taking his eyes off where the plane is going.

The computer version of the F-16 offers several different HUDs, all pretty true to life, and each different depending on whether the pilot is shooting missiles, dropping bombs, using his cannon in a dogfight, or coming in to land. All HUDs display airspeed, compass heading, G-force, altitude, the flight path ladder or angle of climb and dive, and the yaw velocity to left or right.

Beyond that, air-to-air HUDs show the number of missiles or cannon rounds left, the range to an enemy plane, and whether or not missiles are locked on. The ILS (instrument landing system) HUD provides a visual reference to an ideal approach-to-landing glide path.

The combat HUDs are particularly well done. As in a real Falcon, two twin circular cones of vulnerability on the HUD help the pilot make an instant decision about whether or not an enemy MIG can be hit by a missile. At the same time, the LCOS, or lead computing optical sight, indicates just where an enemy plane is heading. This is a vital aid since missiles take a few seconds to lock on and pilots need to aim at the point the enemy plane will be, not where it is.

Air-to-ground HUDs vary according to the type of bomb or missile, with different aiming points and range-to-target data. Using the
April is Mac Month at Egghead. Nowhere else will you be able to try out more Mac software. In fact, nowhere else will you even be able to find this much Mac software. And every piece of MacIntosh software we carry will be on sale at Egghead's Everyday Discount Prices of up to 50% off suggested retail. (We're sensitive to Macroeconomics.)

Of course, as is our custom, we'll beat any advertised price in town. (Our "Egg
Beaters' policy.) And if you're not completely satisfied with your Mac software, you can return it within two weeks for a full refund.

So stop into Egghead during Mac Month. Just call 1-800-EGGHEAD for the store nearest you.

**Egghead's Mac Month**
Fight or Flight

2,000-pound bombs and the antirunway Durandel bombs, *Falcon* permits sophisticated “pop-up” bombing runs, the same method used by NATO pilots to deliver tactical nuclear bombs and get the hell out of the area. The air-to-ground to straight and level flight and saves you and your plane from instant computer death. In a dogfight, use the “A” key to turn on a rudimentary autopilot that will try to track the enemy plane. No matter what you do, it’s a rare novice who isn’t shot

**W**hen you are at the controls of *Falcon*, you feel as if you’re at the controls of a modern fighter-bomber rather than a computer.

Maverick missile is even more impressive: The missile is visually locked on to its target outside normal ranges with a TV camera image displayed through the Comed screen.

One very useful aid in combat is the so-called Black Box, the simulator’s flight recorder. Option B pauses the action while the Mac screen displays a three-dimensional graphlike depiction of what is happening, showing the path of the F-16 and any MIGs in the vicinity.

For quite a few hours of flying time, a new F-16 pilot may find it all too much. For those in desperate straits, two suggestions: use the “P” key to freeze the action and take time to think about your next move. The apostrophe (‘) key returns the plane down regularly early on. Expect to crash many times on landing before managing to touch down successfully, too.

**INCREASINGLY TRUE TO LIFE**

At the lowest levels, the F-16 hardly performs like the real thing. But as you gain more skill and move into higher and higher ranks, the simulation becomes increasingly realistic. First Lieutenants, for example, can’t crash — they simply bounce back up into the air. Their planes have “super engines” that provide instant acceleration, and they carry unlimited weapons and an endless supply of gas. Novice pilots don’t black out from G-forces, no SAMs are launched, and enemy MIGs are unarmed.

Higher ranks face a very different world. A Colonel’s F-16 is the hardest to fly since the engines can stall and the plane’s performance is affected by the weight and drag of the armaments and stores. Ejecting pilots can be captured or killed and can black out in tight turns. MIG flares are totally effective, and the enemy planes’ missiles and guns are very accurate. Just to make matters more interesting at this level, ground SAM sites launch two different kinds of anti-plane missiles. To put it bluntly, F-16 Colonels have a short life expectancy.

The very qualities that make the computerized F-16 dangerous for flyers provide the best part of the program. When you are at the controls of *Falcon*, you feel as if you’re at the controls of a modern fighter-bomber rather than a computer. When you start a bombing run, come up against a MIG, or see the threat receiver come on from a SAM launch, the adrenaline flows, and you begin to sweat. There are so many different controls and things that need to be done quickly and correctly that, unless you are a real hot shot, you come close to pilot overload, the real-life cause of many a modern jet accident.

One potentially appealing aspect of *Falcon* was introduced in a late February upgrade that came too late to be included in this review. It apparently allows two F-16 pilots to link their Macs’ modem ports with an ImageWriter printer and dogfight one another. A future upgrade is planned that will permit dogfights over a 1200-baud modem.
THE DOWN SIDE

For all its many topnotch features, *Falcon* has some weaknesses and flaws. Most obvious, at least to a pilot, is the fact that some of its controls, most particularly its flaps and trim, do not perform as they do in the real world. Instead of decreasing the stalling speed, *Falcon* flaps are merely an additional braking aid on landing. The trim, which should permit small adjustments in the plane’s rate of climb and descent, merely swings the nose up and down and right and left without altering its heading.

At the same time, the simulator’s radar, according to military pilots, does not function as it should: stall warnings come during — rather than before — a stall. Worse, the emergency combat autopilot is dangerously stupid and unreliable: In its effort to keep turning until it gets you on the enemy’s tail, it can spin the plane into the ground.

The cockpit graphics are easily the best since *Fokker Triplane*, the top of the pack till now. But they’re still not perfect. Unlike *Flight Simulator*, *Falcon* has no lag in updating the view, but it lacks *Flight Simulator*’s ability to factor in clouds, bad weather, and unexpected failures of key instruments.

Most irritatingly, there is no way for a pilot to program in his or her choice of flight default values. There should be, for example, a special rank, say a visiting British Squadron Leader, where a pilot can specify that his F-16 will combine features of different ranks, say a First Lieutenant’s “super” engine, the limited fuel of a Captain, the blackout possibilities of a Major, and the fighting capability of a Colonel. It would also be nice if pilots at upper ranks could opt to turn off the threat of SAMs to permit them to concentrate on MiGs and ground attack.

A final weakness, the limited variety of *Falcon*’s landscape world, is one that Spectrum Holobyte intends to correct. Unlike *Flight Simulator*, *Falcon* will not fly in a projection of the real world. But Spectrum Holobyte is planning an upgrade that will introduce an additional “combat world.” This will have more detail for ground objects and a whole new range of targets, including moving ships, trains, and truck convoys. F-16s will be able to fly through cities to bomb specific buildings. The enemy will fly highly maneuverable MiG-29s.

EARNS WINGS

Even with these drawbacks, the company claims the game echoes the real performance of the plane with a high degree of accuracy. The Pentagon would not comment, but a retired Air Force Colonel, a former F-16 pilot now working with real flight simulators, visited Spectrum Holobyte to research just how and where the company dug up its information. (See the sidebar.)

Until the promised improvements materialize, F-16 pilots will have to be content just blowing up bridges and shooting down MiGs. Do enough of that, stay alive, and build up a high enough score, higher than anyone has achieved to date, and there is a surprise in store: A secret message will come up on the Sierra Hotel screen asking the top ace to call the software company.

So wind up your engine, load your missiles, and set off for MiG alley. Good hunting — and watch your six! 🚔

JAY PALMER IS A FINANCIAL JOURNALIST WHO FINDS FLYING HIS MAC SAFER — AND CHEAPER — THAN THE REAL THING.

**MACUSER RATING**

**Falcon** ★★★★½

- **Follows Mac Interface**: ★★★★★
- **Printed Documentation**: ★★★★★
- **On-Screen Help**: None
- **Performance**: ★★★★★
- **Support**: ★★★★★
- **Consumer Value**: ★★★★★

**Comments**: A few flaws but the best flight simulator now available. *Best Feature*: Gut-tightening, sweat-making realism when dogfighting MiGs, dodging SAMs, and bombing targets. *Worst Feature*: A small program world with a limited — and ultimately boring — number of different targets. *List Price*: $49.95. Published by Spectrum Holobyte, 2061 Challenger Drive, Alameda, CA 94501. (415) 522-1164. Requires one megabyte of memory. Not copy protected.
Has anybody figured out what HyperCard is yet? An application? System software? A universal data standard that lets you store text, data, graphics, sound, and even logical structures in a common format that can be shared by diverse applications? An intuitive programming tool that does to programming languages what calculators did to logs? A dessert topping?

We're pretty sure it's not that last item, but whatever it is, the stacks keep stacking up. It's still too soon to subject stackware to our grueling reviewing process. So while the stackware authors get their bearings, we'll be giving you a glimpse of what HyperCard can do in Flash Cards. We've collected some of our favorites in the following pages. (You can find the shareware and freeware stacks on bulletin boards and the commercial stacks at your local software emporium.)

Some of these stacks are neat products; others are neat ideas. We hope they inspire you to create your own HyperCard stacks. And we hope you'll send a copy of your stack to Flash Cards, c/o MacUser, Suite 250, 110 Marsh Drive, Foster City, CA 94404.

---

**Stack 'em Up**

The Public Domain Exchange, a quarterly magazine for Apple and Mac users, joins the Hyper bandwagon with its series of stackware for business, personal use, productivity, communications, and games. pCalc, a paper-tape calculator, by Charles M. Davis, is just one of the selections available through the winter edition. From The Public Domain Exchange, 2074C Walsh Avenue, Santa Clara, CA 95050.

---

**Flip Floppies**

Flip through all your floppies with this stack meant for those who don't own a hard disk. It allows you to create category buttons easily. Enter your disk information, and you can zip through your files by clicking on the disk buttons. HyperDisk is shareware from Bill Steinbruegge, 750 East Parker Lane, Salt Lake City, UT 84106.
Heart Throbs

All in One

This stack on echocardiography was developed as a tool for medical education. It uses animated cartoons of heart movements and anatomy illustrations for reference. Cardiac Imaging Project from Patrick J. Lynch, Biomedical Communications, Yale University School of Medicine, 333 Cedar Street, I-E93 SHM, New Haven, CT 06510.

This stack is an introduction to Interleaf Publisher, the desktop-publishing package that does it all: integrates word processing, graphics, chart generation and page layout. From Interleaf, Ten Canal Park, Cambridge, MA 02141.
Tuning In

Store your tunes on the player cards. Vary the notes' duration, pitch, and tempo to achieve the sound you want.

HyperTunes by Joe Niski, 3764 SE Stephens Street, Portland, OR 97214.

Bull's-Eye

Let your Mac keep track of your dart scores — if you play cricket or O1 games. Most useful if your Mac and your dartboard are in the same room. Dart Keeper from Tom Wuthrich, 417 South Seventh, Apartment 2, Ann Arbor, MI 48103.

Name That Strummer

Test your knowledge of rock guitarists. This stack includes musical clues and other hints to help you guess their identity.

Name That Guitarist from Greg Neutra, Box 194, Cerrillos, NM 87010.
This stack of 250 New England recipes has additional features that will generate your shopping list, calculate ingredients for the number of people you're serving, match recipes to ingredients on hand, and let you add your own recipes. Does everything but the shopping and cooking. HyperChef from Bright Ideas, 52 Exeter Street, Portland, ME 04102.

Answer the 70 questions on the Keirsey Sorter and get a brief description of your temperament (one of four types — Promethean, Apollonian, Dionysian, and Epimethean). Click "My Style" for your more detailed personality style. From R & D Intelligent Systems, 510 North Park Springs Court, Agoura, CA 91301.
DaynaFile. The Search For IBM PC File Compatibility Is Over.

Tired of hacking through the jungles of MS-DOS in search of data file compatibility for your Macintosh™? Or fighting a tangle of networks, cables, and add-on cards, just to edit a simple file?

Discover DaynaFile,™ the simple, practical solution to IBM PC file compatibility.

DaynaFile is an external disk drive that lets your Macintosh read from and write to a DOS-formatted data disk.

A SCSI port connects it to the entire family of Macintosh computers from the Macintosh Plus to the SE and Macintosh II, without an add-on card.

Imagine what that means. With a simple disk drive, you can now access thousands of IBM data files created by programs such as Lotus 1-2-3™, dBase III,™ WordPerfect™ and AutoCAD™—with the ease of Macintosh. Just point and click.

And, as a single or dual-drive unit, DaynaFile can handle all the IBM personal computer file formats you have to deal with, in both 51/4" and 31/2" disks.

That's the compatibility you've been hunting for. So call us today. And call off the search.

(801) 531-0203
Book-It Easy

It wasn't easy until HyperBook Maker took the guesswork out of printing your stacks in book format. You select the card size and format; HyperBook Maker figures the correct placement of the cards. Your pages (with a manual reinsertion of pages) come out printed on both sides, in the right order, collated, and ready to be stapled. From Ideaform, PO Box 1540, 612 West Kirkwood, Fairfield, CA 52556.

Open Stack...

Introducing HyperDA—the desktop accessory stack browser. Open and browse any stack, copy text and graphics and even search a stack all without leaving the current application. And, HyperDA works on any Mac with 512K of memory or more.

For more information see your dealer or call 1-800-624-2565.

Screen Them Out

This expanded version of Electronic Call Screening (originally appeared in our Jan '88 Flash Cards) answers with your pre-recorded greeting. From Kanode Associates, 4709 E Sandra Terrace, Phoenix, AZ 85032.
From... The most sophisticated Data Cartridge in the world.
Lifetime Warranty, Made in U.S.A.
Call for Current Sale Prices!

Precision Data Products™
P.O. Box 8367, Grand Rapids, MI 49501
(616) 432-3433 • FAX (616) 432-4914
MICHIGAN 1-800-632-2680
NATIONWIDE 1-800-848-3469

Please circle 226 on reader service card.

Insurance For Fried Apples?
When your surge protector fails will your insurance save you? SAFEWARE™ computer insurance covers power surges, lightning, theft, fire, accidental damage and more! Full replacement of hardware, media and purchased software for as little as $39 per year.

Total Value, Hardware, Media & Purchased Software Annual Premium
up to $2,000 $39 $0
$ 2,001-$ 5,000 $ 69 $ 69
$ 5,001-$ 8,000 $ 99 $ 99
$ 8,001-$11,000 $109 $109
$11,001-$14,000 $129 $129

For immediate coverage, information and rates on higher coverages, call

1-800-848-3469
Locally 614-262-0559 On Compuserve, GO SAF

SAFEWARE, The Insurance Agency Inc.
2929 N. High St., P.O. Box 02211, Columbus, OH 43202

Please circle 150 on reader service card.

But “they’re fun and not too shabby!”
An entertaining stack from Andy Ihnatko, 33 Marshall Street, Westwood, MA 02090.

A collection of MacUser tips from June ’86 to January ’88. This stack has search capabilities. MacUser Tips is shareware from Gary Whitlock, 375 Upper Colesburg, Elizabethtown, KY 42701.
New Stack of Old Ships

The Topsail Schooner

The entertaining and informative Stack of Old Ships contains illustrations and text descriptions of 60 classic wooden ships. Includes an appendix on the technology, evolution, and romance of these sailing ships. From Acme Dot Co., P.O. Box 5923 Titusville, FL 32783.

Just Scrolling Along

Dueling Scroll Field is a stack of fields, buttons, and scripts that let you mix text styles in a text field. One of many stacks from The Waite Group's upcoming book, HyperTalk Power User's Guide. From The Waite Group, 3220 Sacramento Street, San Francisco, CA 94115.

We're Working On It!
The premier issue of MacII REVIEW is currently under construction and on schedule.

MacII REVIEW's May '88 debut is chock full of interesting, useful and inspiring information—all specific to your MacII.

MacII REVIEW is a monthly journal—no advertising—focusing specifically on MacII applications, news, trends, and technical information regarding bugs, S/W and HW compatibility, system configurations, helpful hints, and more.

A yearly subscription (12 issues) is $87.00. We don't sell any advertising space to clutter our pages or influence our editorial coverage.

MacII REVIEW provides a lot of invaluable information you simply can't get anywhere else. You can count on MacII REVIEW to keep you and your MacII on the cutting edge and working effectively together.

30 Day Money Back Guarantee

MacII REVIEW can only be purchased via subscription. Within 30 days of the postmark on your first issue, you decide that MacII REVIEW is not your cup of tea, simply call or write to cancel your subscription and we will refund your $87.00 in full.

Make checks for $87.00 payable to MacII REVIEW and mail with your name and address to:

MacII REVIEW
240 Sunnyridge Avenue
Bldg. # 112
Fairfield, CT 06430

Please circle 66 on reader service card.
MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the MacUser editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in MacUser, the date of the review is shown. Next time you have to find products you can count on, count on MacUser!

MINIFINDER INDEX

BUSINESS ACCOUNTING .................................. 268
COMMUNICATIONS ...................................... 272
DATABASES ............................................. 269
DESKTOP MANAGERS .................................. 276
DESKTOP PUBLISHING .................................. 272
EDUCATION ............................................. 285
ENTERTAINMENT ....................................... 286
GRAPHICS & DESIGN .................................... 270
HARDWARE & ACCESSORIES ............................. 291
INTEGRATED SOFTWARE ................................. 268
LANGUAGES ........................................... 284
MUSIC .................................................. 291
NUMBER CRUNCHING .................................... 269
ORGANIZATIONAL TOOLS ............................... 275
PERSONAL FINANCE .................................... 268
SYSTEM SOFTWARE ..................................... 275
UTILITIES .............................................. 277
WORD PROCESSORS .................................... 274

INTEGRATED SOFTWARE

Jazz provides well-integrated modules for word processing, graphics, spreadsheets, databases, and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word processing, database, spreadsheet, and telecommunications functions. The telecommunications module includes both background up- and downloading. $295. Microsoft, 1601 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86)

Trapeze (version 2.0) is a powerful presentation worksheet that combines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. $395. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Dec 87)

BUSINESS ACCOUNTING

Accountant, Inc. V2.0 integrates accounts payable, accounts receivable, general ledger, and inventory modules. Prints checks, purchase orders, invoices, customized reports. Bare bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. $299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct 87)

Back to Basics Accounting is a powerful double-entry accounting software package for the small business user with GL, AR, and AP modules. Exclusive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (Mar 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. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78745. 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; customer and vendor info is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP (Dec 85)

Insight is a high-powered accounting program for the small- to medium-sized business. Modules include Accounts Receivable, Payables, and General Ledger; others are in the works. Requires 512K and hard disk. $395. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 86)

Rags to Riches integrates accounting modules (General Ledger and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Detailed, flexible report options. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (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. Requires 512K+, printer. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined setup 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 Or., Westminister, 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)

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. $119 federal; $65 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)
MINIFINDERS

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, 2630 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. Marvelin, 3420 Ocean Park Blvd., Santa Monica, CA 90405. NCP (Feb 86)

C.A.T. is a dedicated relational database for managing contacts, activities and time. Difficult to learn, but easy to use. Its rigid structure takes some getting used to, but links between types of data make it easy to keep track of important people and events. $299.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov 87)

dBase 3+ is a relational DBMS that includes a structured programming language to develop standalone applications. Palette icons as alternatives to menu commands will help novice users. Requires 1M+. $495. Ashton-Tate, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Feb 87)

Double Helix II is a powerful database that supports a multiuser environment with an upgrade. Uses an icon-based development system for easy creation of databases. $595, single user version. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Apr 88)

FileMaker Plus retains features of FileMaker and reads FileMaker data, also displays up to 8 files, uses “lookups” to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. $295. Nashoba Systems, 115 Triton Dr., Foster City, CA 94404. NCP (Nov 86)

FileMaker Plus retains features of FileMaker and reads FileMaker data, also displays up to 8 files, uses “lookups” to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. $295. Nashoba Systems, 115 Triton Dr., Foster City, CA 94404. NCP (Nov 86)

4th Dimension is a powerful relational database that creates stand-alone applications. Features a Pascal-like programming language environment. Simple, with significant power. $195. Aclius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov 87)

MacDewey (version 2.5) is a cataloging program featuring the Dewey Decimal Classification system. Uses predefined filled-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. $79.95. Mousetrap Software, 336 Coleman Dr., Monroe, PA 15146. NCP (Nov 87)

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. $59.95. 1M+ 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 dialogues. $495. Ellithy, 2929 Campus Dr., San Mateo, CA 94403. NCP (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 database for 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. Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. 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. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86)

Reflex Plus is a relational database with “smart” entry, and report design, but no overall programming facility. Simple to set up, yet fast. Graphic capabilities are quite limited. Version 1.0 reviewed. $279. Borland/Analytica, 4585 Scotts Valley Dr., Scotts Valley, CA 95066-9887. NCP (Feb 88)

Writer's Workshop maintains orderly records for writers. It can track manuscripts, income, and publisher. Based on and includes Runtime Help, $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 circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Nov 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 98073-9717. NCP (Prem)

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 workbook format is 125 columns by 65536 rows. A very flexible, pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphical 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+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766-9546. CP (Dec 86)

Multiplan, the first Mac product from someone other than Apple, is beginning to show its age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated scheduling, statistics, and graphics. It has solid spreadsheet, calendar, and database functions and reports can be customized using other software. Parameter Manager can also import data from Excel or Lotus 1-2-3. $495. SMS, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)
Minifinders

StatView 512+ is a very intuitive statistical analysis program with powerful 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 512K+ and 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

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 outlookers. Shareware and prelicensed versions available. $49.95 CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Dec 86)

Canvas is a Draw and Paint program that uses QuickDraw as its output language. Full of features, including free rotation and one- and two-point perspective. Also has graphics macro commands, unusual in a program this inexpensive. $195. Deneba, 7855 N.W. 12th St., Suite 202, Miami, FL 33126. NCP (Jan 88)

Chart can easily create area, bar, column, line, pie, scatter, and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. 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, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print FullPrint, MacPaint, MacDraw, and MacDraft documents in color using the ImageWriter II or ImageWriter I. Paint files set up as overlays are read into the program, and the program controls proper positioning and registration. $39.95. I/O Design, PO Box 156, Exton, PA 19341. NCP

Comic Strip Factory is an assembly program for creating comic strips. Includes a database of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in MacPaint format. $89.95. Foundation Publishing, 10301 Yellow Circle Dr., Minneapolis, MN 55343. NCP (Dec 87)

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 is just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. 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, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86)

Crystal Paint creates an electronic kaleidoscope. It is MacPaint’s Brush Mirrors gone wild in a small, simple, yet wonderful application. Does not work in color on Mac II. MultiFinder friendly. Requires 512K+ $49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Feb 88)

DeskPaint is a full-blown paint program as a desk accessory. Allows you to spruce up a graphic while in another application. Imports and exports MacPaint and TIFF images. Great for DTP, but not enough features to rival the leaders in paint programs. Zedcor, 4500 E. Speedeway, Tucson, AZ 85712-5306. NCP (Mar 89)

“Draw It again, Sam...” (v. 1.03) is an object-oriented graphics program, like MacDraw, that adds such useful wrinkles as indexed drawing, on-screen libraries, and color. Manual is weak. Requires 512K+ and an 800K disk drive. $150. Aba Software, PO Box 850, Frazer, PA 19355. NCP (Feb 88)

Easy3D is a three-dimensional, solid modeling masterpiece. Four variable light sources, powerful sculpting tools, and an extrude/cut interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. 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 Lindsey St., Bridgeport, CT 06606. CP (May 87)

FastForms! Construction Kit is both a fast and efficient business forms creator (a drawing program) and a specialized application (and DA) to fill out the data fields in your forms. $149 (US). Shana Enterprises, 9704 54th Ave., Suite 200, Edmond, Alberta T6E OAF, Canada. NCP (Nov 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different styles are included. All install easily in system. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223773, 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 fonts. $49.95. Altys, 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. Altys, PO Box 75086, Plano, TX 75086. NCP

FullPrint is an expanded version of MacPaint. Features include full-screen drawing, multiple documents opening simultaneously, brush editing, movable tool palettes, special text effects, and much more. It fills the gaps left by MacPaint. $99.95. Ashton-Tate 20101, Hamilton Ave., Torrance, CA 90502-1319. NCP (Jun 86)

GraphicWorks 1.1 is a powerful drawing and painting program that creates high-resolution bit-maps. Easels contain graphics, balloons hold text, and both reside on panels. Graphic primitives are now a separate tool. $149.95 Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct 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 images but the design is question-able 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 points are easily modified. $49. FolkStone Design, PO Box 86982, North Vancouver BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and powerful drawing technique. Program uses templates for precise and detailed art work. Requires 1M+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered (Jul 87)
State of the Art
Back-Up for the State of the Art
Computer...

MacUser
The Macintosh Resource

No matter what your RAM or why you use a Macintosh, the most you can get out of it is equal to what you put into it.

Otherwise all you have is an expensive desk-top paperweight.

That's why you need the state-of-the-art Macintosh magazine MacUser.

Every monthly issue delivers comprehensive benchmark test results of Macintosh hardware and software conducted by MacUser Labs, the publishing industry's only independent product testing laboratory—to help you select the products that will do the jobs you need done! You'll find hands-on tutorials and coverage on important applications including desktop publishing, graphics, telecommunications and networking—to help you increase the performance of your Mac. You'll find proven short-cut routines and techniques to provide you with new computing skills PLUS you'll find hundreds of mini-reviews covering the most popular hardware and software available for your Mac!

Subscribe to MacUser today and save up to 65% OFF the single copy price! Provide your system with State-of-the-Art information at affordable prices!

Give MacUser as a gift! It's the perfect gift for all business, educational and game users. Save up to 63% on each subscription you give!!

For Increased Power
Yes! I want to make my Macintosh a more powerful system! Begin my subscription to MacUser for:
- One year (12 issues) for $19.97. SAVE 58%!
- Two years (24 issues) for $34.97. SAVE 63%!

Savings based on annual single-copy price of $47.40.

For Greater Performance
Yes! I want to make my Macintosh a more powerful system! Begin my subscription to MacUser for:
- One year (12 issues) for $19.97. SAVE 58%!
- Two years (24 issues) for $34.97. SAVE 63%!

Savings based on annual single-copy price of $47.40.

For a Perfect Gift
Yes! I want to give hundreds of product reviews and comprehensive coverage on the Macintosh and its applications every month to a friend! Please begin a gift MacUser Gift Subscription for:
- One year (12 issues) for $19.97—a 58% Savings.
- Two years (24 issues) for $34.97—a 63% Savings.

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and all other foreign countries, US currency only. Basic annual subscription price is $127.00.

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and all other foreign countries, US currency only. Basic annual subscription price is $127.00.

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and all other foreign countries, US currency only. Basic annual subscription price is $127.00.
Plug More Power into Your MAC
Every Month with MacUser and Save Up to 63%!

- Exclusive benchmark test evaluations and comparisons from MacUser Labs!
- Hands-on tutorials!
- Hundreds of product reviews in every issue!
- In-depth coverage of all Macintosh applications including desktop publishing, graphics, telecommunications and more!
- Comprehensive and useful power user tips and procedures!

Subscribe today and save up to 63%—and guarantee delivery of the Macintosh resource every month! It's the only magazine Mac users need to maximize their performance and increase the power of their system!

Give MacUser as a gift! Deliver a friend or colleague a valuable desktop accessory and save up to 63%!
MINIFINDERS

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. $79.95 each volume; $149.95 set. Qualitas Trading, 6907 Norfork Rd., Berkeley, CA 94705. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download them to their machines. Very high quality and very simple to use. Wiliamette looks like Avant Garde. MicroFonts provides tiny, expanded, and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

LaserPaint's clumsy interface makes it a slow program. There's good laser output, if you persevere through the creation of a document. The support is scads better than the documentation, which is lousy. Version 1.1.4. $495. LaserWare, PO Box 668, San Rafael, CA 94915. CP (Jan 88)

LaserTalk is a PostScript-based tool that establishes interactive contact with laser printers. Preview window and on-line help make it a powerful tool. Requires 1M+ and a Post-Script Printer. $249. Emerald City Software, PO Box 2103, Menlo Park, CA 94025. CP until registered (May 88)

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., 1 Gulf + Western Plaza, New York, NY 10023. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces from facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 1M+ Mac required. $59.95. Shaherazam, PO Box 26731, Milwaukee, WI 53226. CP (Jul 86)

MacCalligraphy is the best simulation of brush painting in any graphics program. User-designed Seals and Touches enable you to design your own signature tools and the style of brush you use. Comes with a clip art disk. $175, Qualitas Trading, 6907 Norfork Rd., Berkeley, CA 94705. NCP (Feb 88)

MacDraft is an object-oriented graphics program. It sports advanced features such as variable scaling, single degree rotation, complex components, a FatBits-like magnification mode. Best used to complement MacPaint, not replace it. $269. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (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. Claris, 440 Clyde Ave., Mountain View, CA 94043. 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 freeware 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. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP

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 powerhouse. $249. Challenger Software, 18350 Redzie Ave., Homewood, IL 60430. NCP (Jan 87)

MapMaker produces maps and analyses of related geographical data. Additional data disks available. Documentation could be better. Requires 512K+; 2nd drive recommended. $295. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 87)

MGMS: Professional CAD for Macintosh offers more than 200 functions. Very complete, capable program. Groups, Dimensions, Libraries, etc., are standard. Sometimes confusing—designed for experienced, professional CAD user, not the novice. Full plotter support. 512K+ . $799. Micro CAD/CAM, 3230 Overland Ave., Los Angeles, CA 90034. NCP (Nov 87)

MiniCad V3.0 is a pro level CAD package. Vast array of features, many accessible only through Command/Shift/Option key combinations. Works in 2D or 3D with easy transition from one to the other. MacDraw-like interface makes it easy to learn and use. Requires 512K+. Diehl Graphsoft, 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct 87)

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. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a powerful graphic librarian. You can store and print pictures, clip art, and attach keywords for later search and retrieval. $69.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87)

PixelPaint is a color paint program with customizable palettes and lots of special effects. Slow OPEN and SAVE. Requires Mac II and 8-bit video card. $495. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (May 88)

The Print Shop makes it easy to create greeting cards, signs, banners, and letterheads. Uses its own special graphics and can import Paint files. Hard disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Slide Show Magician 1.3 is useful for creating full screen audiovisual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronzation, and digitized sound capabilities make this much more powerful than the original program. Multiple light sources, fine object placement, and orientation control, and a good selection of shapes. $495. American Intellware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from MacPaint; allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intellware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SunShine Graphics Library is a collection of 46 400K disks (to date) with a wide variety of high-quality digitized images stored as MacPaint files. $20/disk; discount scale for multiple purchases. SunShine, Box 4351, Austin, TX 78755. NCP (Feb 87)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of MacPaint and MacDraw — and then some. LaserBits provides digitization and there are 40 editable brush shapes. Requires 512K+ . $149.95. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

TrueForm takes a scanned image of a paper form and turns it into an electronic equivalent, complete with fields, for entering data. It can automatically sum numeric fields. Requires external 800K drive. $495; run-time version, $295. Spectrum Digital Systems, 2702 International Lane, Madison, WI 53704-3122. NCP (May 88)
MINIFINDERS

VideoWorks II is an easy-to-use animation tool — the best available on the Mac. Has an Overview mode that acts as a slide show carousel for presentations. Works in color on the Mac II. $195. Requires 1M+ and a 800K drive. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Mar 88)

WetPaint consists of two 3-disk sets of very high quality clip art. Also includes the Art Roundup DA, a good art browser/editor. Volume 1 or 2, $39 each; both volumes, $59. Available in PictureBase format for $15 extra per volume. Dubi-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the Mac 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. Dubi-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

TECHNICALITIES

JustText 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 2135, New York, NY 10116. NCP (Dec 89)

MacTEX (v. 2.0) is the TeX environment of choice for hardcore TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Requires 1M+ + $750 to use. FL Systems, 234 Eglinton Ave. East, Toronto, Ontario M4P 1K5, Canada. NCP (Apr 88)

PageMaker uses a graphics studio metaphor to make this layout program a natural for paste-up artists. Version 2.0 adds automatic kerning and hyphenation. Still the standard. Excellent documentation. Could use a global search and replace for design elements. Requires 1M+ + $495. Aldus, 411 First Ave. South, Seattle, WA 98104. NCP (Oct 87)

Portfolio: Designs for Newsletters provides over 20 templates for 2-page newsletters with pre-set columns, headlines, graphics, and captions. Documentation provides excellent tutorial in page design. Requires 512K+ + PageMaker. $79.95. Aldus, 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May 87)

QuarkXPress is a high-end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. $695. Quark, 200 S. Jackson, Denver, CO 80209. NCP (Sep 87)

Ragtime is an "integrated Page Processor" with text, graphics, and spreadsheets. 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, Anchorage, AK 99507. NCP (Apr 87)

Ready, Set, Go! has an elegant interface and excellent manual. Powerful word processor with hyphenation and spelling check and custom stylesheets. Requires 1M+ + $495. Letraset, 40 Eisenhower Dr., Paramus, NJ 07652. NCP (Feb 88)

Scoop could someday be the world's best desktop publishing program, but version 1.0 isn't it. There are various ways to cause the program to bomb which need to be fixed. The manual is poorly organized and lacks tutorials. $495. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Feb 88)

COMMUNICATIONS

AppleShare is the long awaited file server 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 reduced Finder. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

ComServe allows you to share a Hayes-compatible modem over an AppleTalk network. You can call out, but you can't call in. Works with most telecommunications packages. $195 per server. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. CP (Feb 87)

Desktop Express is a simple to use, semi-automated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded off for ease of use. Requires 512K+ + $149. Dow Jones, PO Box 300, Princeton, NJ 08543. NCP (Jan 88)

HomePak is a package consisting of HomeTerm, an excellent, simple telecommunications program with strong macro features; HomeFind, an electronic filler as good as HomeTerm is good; and Apple's Edit, a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sep 86)

InBox is an easy-to-use mail system. It's called up from a desk accessory. Has a very slick interface. Requires Mac not based, AppleTalk network. You can call out, but you can't call In. Ports MacBinary, Xmodem, and Hayes Verification protocol. $195 per user. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87)

InTalk comes with its own communications command language to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

MacTerm is a MacRemote, Hayes compatible modem over an AppleTalk network. Supports Xmodem and Hayes Verification protocol. Does not have macros nor any sort of auto-dial/auto-log-on capability. Best for those needing full-speed VT 100 or IBM 3278 emulation — it is superb at those. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microsoft Mail is an electronic mail system that runs under AppleTalk. Supports file transfers across the mail system. Full online 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. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

Red Ryder is a full-featured telecommunications program that supports MacBinary, Xmodem, and Kermit. Has big screen support, auto procedure creator, and up to 36 keyboard macros. This is the cream of the crop (in late 87). $80. Freesoft, 150 Hickory Dr., Beaver Falls, PA 15010. NCP (Dec 87)

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 pro-
Has that statistics package you thought was a tiger turned out to be something else?

Most Mac statistical packages call themselves 'professional,' 'comprehensive,' or 'complete.' But feed them some real problems, and you'll discover how toothless they really are. They can't do multivariate procedures or analyze financial time series or fit nonlinear models or compute large, multi-way cross tabs.

That's why, if you're serious about statistics, sooner or later you'll end up with SYSTAT. No other Mac package has SYSTAT's range of statistics and high resolution data graphics.

Mac Features: Pull-down menus, Clipboard, Desk Accessories and mouse control of spreadsheet data editor. Replay commands. Macintosh II® and 8020/68811 versions available.

Graphics: More than 50 business and scientific types with PostScript® support for Apple LaserWriter® (300 dpi). Two dimensional: Error Bars Scatterplots Line and Vector Graphs Vector, Dot, Bubble and Quantile Plots Bar Graphs (single, multiple, stacked, range) Box Plots (single and grouped) Stem-and-Leaf Diagrams Linear, Quadratic Regression LOWESS Smoothing Confidence Intervals (any alpha value) Smooth Mathematical Functions Rectangular or Polar Coordinates ANOVA Interaction Plots Histograms (regular, cumulative) Fuzzygrams Gaussian Histogram Smoothing Scatterplot Matrices (Casement Plots) Three dimensional: Data Plots Smooth Function Plots Vector Plots Linear, Quadratic Surface Smoothing Locally Weighted Least Squares

Statistics: Basic statistics, frequencies, t-tests, post-hoc tests Multi-way crosstabs with log-linear modeling, association coefficients, PRE statistics, asymptotic standard errors Nonparametric statistics (sign, Runs, Wilcoxon, Kruskal-Wallis, Friedman two-way ANOVA, Mann-Whitney U, Kolmogorov-Smirnov, Lilliefors, Kendall coefficient of concordance) Pairwise/listwise missing value correlation, SSCP, covariance, Spearman, Gamma, Kendall Tau, Euclidean distances Linear, polynomial multiple, stepwise, weighted regression with extended diagnostics Multivariate general linear model includes multi-way ANOVA, ANCOVA, MANOVA, repeated measures, canonical correlation Principal components, rotations, scores Multidimensional scaling Multiple and canonical discriminant analysis, Bayesian classification Cluster analysis (hierarchical, single, average, complete median, centroid linkage, k-means, cases, variables) Time series (smoothing, seasonal and nonseasonal ARIMA, ACF, PACF, CCF, transformations, Fourier analysis) Nonlinear estimation (nonlinear regression, maximum likelihood estimation, and more)


Mac screens

LaserWriter® graphics

Single copy price: $595 U.S. Canada: $695 Foreign; Site licenses, quantity prices. Call or write for further information.
SYSTAT, Inc. 1800 Sherman Avenue Evanston, IL 60201 312-864-5670

Systat. Intelligent Software.
MINIFINDERS

tocs. The large screen buffer can easily be archived. $149.
Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA
30092. NCP (Jul 86)
Telescaper is the power telecommunicator’s terminal program. Can
be configured to emulate any terminal. The documentation
does not adequately explain the many features. $125.
Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP
(Jun 86)
TOPS is a file server designed to network computers with different
operating systems. Supports 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). TOPS, 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. Supp­
ports 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
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. Docu­
ments can be printed out with differences highlighted. $99.
Legware, 33 Young St., Toronto, Ontario M5E 1S9, Cana­
da. NCP (May 86)

Document Modeler can automate much of a professional office’s
correspondence. Comes in two parts: Template Maker and
Document Maker. Initial setup requires time and is complex.
$299.95. Legware, 33 Young St., Toronto, Ontario M5E
1S9, Canada. NCP (Mar 87)

Doug Clapp’s Word Tools is a useful punctuation and style editing
program. It won’t turn you into a Proust, but it will help you
make your writing cleaner and clearer. Word counts among
different formats show discrepancies, but not to worry. Re­
quires 512K+. $79.95 Aegis Development, 2125 Pico
Bldg., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that allows you to create complex
mathematical equations from within an application. Equa­
tion manipulation has never been easier. $79.95. Allan
Bonadio Associates, 1579 Dolores St., San Francisco, CA
94110. NCP (Jul 86)

Kadmos Greek Font is a full character set of ancient Greek that
prints on any PostScript printer. Requires learning new typ­ing
skills, but excellent quality makes it worth the effort.
Allotype Typographies, 1600 Packard Rd., Ann Arbor, MI
48104. NCP (Oct 87)

Laser Author is a high-powered, technically oriented word proces­
sor. Good math setting capability. Has style sheets, word
count, and page layout capability. $199.95. Firebird Licen­
ses, 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. Unfortu­
nately, it has a few misspelled words. $59.95. DataPak,
14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct
86)

Lookup is an on-call, quick single word spelling checker. Designed
for the way writers really work. Uses the 93,000+ word
Spelliswell dictionary. $49.95. Working Software, 321 Alva­
rado, Suite H, Monterey, CA 93940. (Dec 87) NCP

MacGAS is a DA spelling checker with both small and extended
lookup features. Its best point is the excellent thesaurus, provides
antonyms & glossary. A slow checker, $99. EnterSet, 2380
Ellsworth, Berkeley, CA 94720. CP (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)

MacFortran™ and MacFortran/020™ V2.3
the world’s most popular FORTRAN 77 compilers for Macintosh

COMPILER

MacFortran —Full ANSI FORTRAN 77 compiler with debugger. Includes VAX, FORTRAN 8X, extensions, new linker
interface, supports Mac toolbox, overlays, virtual arrays, compiles to assembler source and has no
limit on code or data size. NCP $285.

MacFortran/020 —For the Mac II and accelerator cards. Works with MultiFinder and includes all of the features of
MacFortran PLUS 68020 and in-line 68881 support, a larger linker, Mac II ROM support. NCP $495.

UPGRADES TO V2.3

MacFortran —From Microsoft Macintosh FORTRAN V2.2 or earlier MacFortrans. Includes new binder, manual, compiler
and Assoft support. $50.

MacFortran/020 —Registered end users of MS Macintosh FORTRAN or MacFortran wishing to upgrade to MacFortran/020
should contact Assoft and receive $100 credit toward retail price.

Telephone Orders Welcome
(313) 853-0050

Please circle 82 on reader service card.
MINIFINDERS

Macsayl (version 1.1.0) is a spelling checker that installs as a desktop accessory. Works easily with MacWrite 4.5 and 2.2 and Word, but has some drawbacks. New version just available. Requires 512K+, two hard disk. $99. Creighton Development, 16 Hughes St., 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 desk accessory. works easily with ASCII files. Program combines names and addresses from a MacWrite is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most desk accessory. works easily with ASCII files. Program combines names and addresses from a MacWrite Is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most desk accessory. works easily with ASCII files. Program combines names and addresses from a MacWrite Is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most desk accessory. works easily with ASCII files. Program combines names and addresses from a MacWrite Is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most desk accessory. works easily with ASCII files. Program combines names and addresses from a

MergeWrite is a mail merge program for MacWrite (also works with Microsoft Works). Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. $49.95. Software Discoveries, 137 Kawr Dr., South Windsor, CT 06074. NCP (Dec 87)

MindWrite integrates outlining and word processing better than anyone. Version 1.1 fixes many problems of the earlier version. Sophisticated search and select options. Unimpressive speed. $295. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Feb 88)

QUED/M (v. 2.01) is an excellent text editor that saves documents in a form readable by most computers, and printers. Doesn't support graphics or multiple fonts. Programming language allows creation of database. $129. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 88)

QuickWord is a word processing accessory that adds sophisticated glossaries to MacWrite. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP


Spelling Champion is a fast and accurate batch-style spelling checker. Backup feature allows you to undo corrections in a paragraph. Works only with MacWrite 4.5. $39.95. Champion Software, 6617 Gettysburg Dr., Madison, WI 53705. NCP (Oct 88)

SpellSavell 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. Ver good dictionary, good value. $74.95. Working Software, 321 Alvarado, Monterey, CA 93940. NCP (May 88)

Thunder! is one of the best spelling checkers around. Features Learned Words (a superb glossary) and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 88)

Word 3.0 fixes many of the bugs of the justly maligned 3.0. Still, it's the most feature-laden word processor around. Also has Microsoft's somewhat unusual view of what the Mac interface is. Esoteric command key combinations. Requires 512K+ . $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073. NCP (Mar 88)

WorksPlus Spell is a speedy spelling and hyphenation checker for Microsoft Works. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. $59.95. Lunden & Associates. PO Box 30038, Oakland, CA 94604. NCP (Oct 87)

Write is a "beginner's" version of Word 3.0. More features than some word processors in its class, but not all of the features work well. Poor value, and expensive upgrade path to Word. $175. Requires 512K+. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 88)

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)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index card metaphor. It contains a programming language, HyperTalk. Requires 1M+. Free with new Macs, otherwise $49.95. Apple Computer, 20525 Mariarn Ave., Cupertino, CA 95014. NCP (Dec 87)

System Tools 5.0 is the Apple System upgrade for Mac Plus, SE, and II owners. It contains MultiFinder (a multitasking environment), a LaserWriter spooler, and a Control Panel resource to add color on the Mac II desktop. Takes 1M+. $49. Apple Computer, 20525 Mariarn Ave., Cupertino, CA 95014. NCP (Mar 88)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has primarily all the power of a standalone program, and then some. Can save files as Acta outlines, MacWrite or text files. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Business Class is a HyperCard stack that contains world travel information and itinerary planning. Uses maps to locate countries of interest, but it lacks United States domestic travel information. Requires 1M+ and HyperCard. $49.95. ActiVision, 2350 Bayshore Pkwy., Mountain View, CA 94043. NCP (Mar 88)

Calliope is a new type of outlining program. Chunks of information are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for MacWrite editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

Comment (previously known as Memorandum) is the electronic equivalent of Post-it Notes. Notes can be attached to many different types of documents. Doesn't work well with SuperPaint or Microsoft Works. An alarm clock feature alerts users of Timed Notes. $99.95. Deneba Systems, 14206 SW 136th St., Miami, FL 33186. NCP (Nov 87)

DecisionMap organizes data to facilitate decision making. Unique weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. $145. SoftStyle, 7192 Kalanianaole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere flowcharting. Complex, detailed program aimed at software pros. $250. Meta Software, 150 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 87)

FlowMaster charts your ad dollars in print, TV, billboard, and other mediums. Analyzes cost/benefit of a campaign in terms that even jaded Mad. Ave. execs will find innovative. Includes bar-chart and tabular output. Requires 512K+. $495. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 88)

Focal Point is a HyperCard stack that ties together a calendar, phone log, client accounts, and more in one easy-to-use organizational tool. Requires 1M+ and HyperCard. $99.95. ActiVision, 2350 Bayshore Pkwy., Mountain View, CA 94043. NCP (Mar 88)
MINIFINDERS

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)

Instant Expert is an excellent way to learn the mechanics of creating an expert system. The inference engine (that ultimately finds the answer) is visible. Lacks a true Mac interface. Version 1.0. $49.95. Human Intellect Systems, 1670 S. Amphlett Blvd., Suite 326, San Mateo, CA 94402. NCP (Jan 88)

MacProject allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependences and generate all needed printed reports. $195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Jan 86)

MacSMARTS can create small standalone expert systems. Features hypertext connections to Paint, PICT, SYLK, and text files. Still a little buggy. Requires 512K+. Version 1.03. $149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02139. NCP (Jan 88)

Micro Planner Plus is a great project management system. Outlines standing 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. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (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+.$395. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-3177. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full keyboard control is possible. Can store and paste graphics into outlines. Slide show feature allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)

DESK MANAGERS

Executive Office is a jack of all trades office application. Good database, 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 photos 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $795. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

PowerPoint is a comprehensive presentation creation tool. Handles 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98052-3177. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full keyboard control is possible. Can store and paste graphics into outlines. Slide show feature allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)
$149.95. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 85)

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)

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. $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, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original Sidekick DAs and adds two major new ones — MacPlan, (formerly Click-On Worksheet) and Outlook, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to 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, 19 Bolinas Rd., Fairfax, CA 94930. 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 all-
More sophisticated desktop publishers are using Microtek desktop scanners with their IBM-PCs and Macintoshs than any other. This was true in 1985, 1986, and is still true in 1987! Several independent surveys have verified this. Over 15,000 have chosen Microtek manufactured scanners.

Why do more people choose Microtek? One reason is Microtek's product "family." You can choose from four different image scanners; plus Optical Character Readers; plus Fax communication tools; plus Raster to Vector conversion software.

*International Data Corp. and Dataquest reports.

Macintosh is a registered trademark of Apple Computers, Inc. IBM is a registered trademark of International Business Machines Corporation.
**MINIFINDERS**

**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+. $39.95. ALSoft, Box 927, Spring, TX 77338. NCP (Feb 87)

**DiskFit** is a utility for backing up and restoring hard disk files. Creates a "SmartSet" of floppy disks so incremental backups only update files modified since the last backup procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

**DiskQuick** is an easy-to-use cataloging program. Criteria selection option for generating subcatalogs. Requires 512K+. $49.95. Ideaforms, PO Box 1540, Fairfield, IA 52555. 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. $34.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar 86)

**DiskTop** is a desk accessory Finder replacement of extraordinary power and ease of use. Comes with the useful LaserStatus DA and Widgets application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0. $7. $10 with new manual. $49.95. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Aug 87)

**DiskTools Plus** is a set of 8 useful DAs and applications. Earlier version was sold as Battery Pak. The DA Disk Tools II is a Finder replacement. Also included are an RPN calculator, Phone Pad, and Calendar Manager. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Mar 88)

**Doub-Click Calculator Construction Set** lets users design personalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desktop accessories or as clickable applications. $59. Doub-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

**Easy Checks** puts your check register (or credit card records or any other similar financial account) into a desk accessory. Creating forms is rough, can't save reports to disk and there's no LaserWriter support. Requires 512K+. $44.95. PAR Software, PO Box 1089, Vancouver, WA 98666. NCP (Apr 88)

**Eureqa: The Solver** is a free-form numerical equation solver. Standard trigonometric and logarithmic functions are available as is treatment of imaginary and complex numbers. $195. Boulevard International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Mar 88)

**Fastback for the Macintosh** is hard disk back-up software that is very quick if not very efficient. Doesn't automatically exclude applications. Creates a separate catalog disk. $99.95. Fifth Generation Systems, 1322 Bell Ave., Tustin, CA 92680. NCP (Apr 88)

**FedIt Plus** is the file and disk editor for everyone, from newest Macintosh user to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. $49.95. MacMaster Systems, 108 E. Fremont Ave., #37, Sunnyvale, CA 94087. NCP (Sep 86)

---

**Pearl Lisp**

**NOW SHIPPING**

Lisp is the premier AI language. . . . Pearl Lisp is a full-featured Lisp compiler with object-oriented programming and complete access to the Macintosh toolbox. Designed to exploit popular Lisp tutorials and priced under $100, there's no better way to explore the concepts and techniques of AI and Lisp programming.

**EXPLORE AI WITH THE EXPERTS**

**New**

**Object Logo 2.0**

Logos is the educational dialect of Lisp that has been popular in schools for over eight years. Object Logo is the latest in Logo development, featuring easy to learn object-oriented programming and graphics capabilities. There's no easier way to explore symbolic processing and advanced AI techniques. And now, make double-clickable applications.

**NOW SHIPPING**

To order CALL NOW (800) 521-1027 in MA (617) 868-7440

60-day money back guarantee

Shipping: US $5, Canada $10, Others $25

**Coral Software**, P.O. Box 307, Cambridge, MA 02142

**Please circle 106 on reader service card.**
Findswell is an indispensable utility that installs a new button in the Open Dialog box of virtually every Macintosh application. Press the button, type a search string, press Find and Findswell searches for any files that match. Click Open or double-click to open the correct file. Requires 512K+. $49.95. Working Software, 321 Alvarado, Monterey, CA 93940. NCP (Nov 87) FlashBack is a utility to back up 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. 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86) Font/DA Juggler Plus gives you unlimited access to almost any number of fonts, desk accessories, and sounds. Uses hierarchical menus. $59.95. Alsot, PO Box 927, Spring, TX 77383. NCP (May 88) 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 International, Box 989, Montpelier, VT 05602. NCP (Dec 86) Hard Disk Util uses patch files to allow users to mount and run specified programs on their hard disks. The list of patches is constantly expanding. $59.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP HFS Backup ranks as one of the preferred hard disk backup utilities. Back up by file/folder or last changes. Bootup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. 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. $39.95. PSI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sep 86) HyperDA lets you browse through HyperCard stacks through a desk accessory. A true equalizer for 512K Mac owners who cannot normally access stackware. Requires 512K+. $69. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (May 88) Icon-It! (v. 1.0) lets you create icons to use as an alternative to menu commands. Comes with 47 icon templates or you can create your own. $79.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Feb 88) LabView automates the repetitive task of controlling laboratory instruments. Rich icon-based language allows flow chart-type programming, but response is slow. Requires 512K+. $1995. National Instruments, 12109 Technology Blvd., Austin, TX 78727. NCP (Aug 87) LaserServe is a printer spooler for AppleTalk networks. After installation all operations done via a desktop accessory. Works with both MacServe and TOPS. Requires 512K+ and 800K drive or hard disk. $35 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 86)
**MINIFINDERS**

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)

MaclnUse tracks time spent in applications and saves information as text files. Installs on any disk, works in background. MF5, HFS compatible. Extremely valuable for tax purposes, client records, etc. $79. SoftView, 4820 Adchor 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. NCP (Pre) 

MacNOSy is a global disassembler. A very advanced user can use this program to look into the code of virtually any Mac program. This advanced tool can take you places no other Mac program can dream of going. If you have the skill to guide it, the documentation is sparse. For pros only. $90. Jask Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

MacSafe is a data file security program that allows you to place multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. $149.95. Kent Marsh Ltd, 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+. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacTree displays your files in the form of a hierarchical tree. Good idea, poor performance. Can’t view tree easily. Good search function. Requires 512K+. $69.55. Software Research Technology, 22901 Mill Creek Dr., Laguna Hills, CA 92653. NCP (Apr 88)

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 88)

Menu Fonts displays the names of fonts in the actual font instead of standard Chicago. Won’t work with programs that have a nonstandard Font menu or no Font menu. Comes with LockOut, a utility that gives password access to your Mac, and FastFormatter, a utility for formatting multiple blank disks. Requires 512K+. $15. Beyond Software, 3865 N. Oracle Rd., Tucson, AZ 85705. NCP (Jul 87)

myDiskLabeler is an excellent label maker. It can read directories and use large or small icons or anything desired. Comes with 54 precut labels. $44.95; with color printing ability (on the ImageWriter II), $54.95; with PostScript font capability (on the LaserWriter), $64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)

---

**CONSULT WITH A MAC EXPERT FOR $21.95 OR LESS**

**HyperCard Made Easy**

by William B. Sanders

This useful guide shows you how to create practical applications using HyperCard and how to use MultiFinder with HyperCard in developing stackware. Concisely written so that you can quickly develop programs to suit your needs, HyperCard Made Easy explains how to Paint and draw using HyperCard Author stacks and scripts so that you can develop professional-quality software quickly Calculate and format using HyperCard Accomplish recurrent proceedings quickly. A detailed discussion of how to set up and use MultiFinder shows you how to apply the stackware. Whether you’re a novice business user or a more advanced developer, this clearly written, practical guide will help you get the most out of your Macintosh computer. Softbound 352 pages, $19.95

**MacLANs: Local Area Networking with the Macintosh**

by Mark D. Veljkov

More than just a guide to LAN products and the Macintosh, this compendium of tips, suggestions, and products will help you make better decisions as you improve on-line communication. Explaining how the Macintosh fits into the world of LANs, the book covers The more technical aspects of LANs How to set up a LAN including cable and software selection LAN peripherals including add-on cards, bridges, and hard discs. You’ll also find a thorough discussion of how to troubleshoot your network, as well as numerous illustrations. Softbound 352 pages, $21.95

Available from your local bookstore or contact: Scott, Foresman and Co. Professional Books Group, 1900 E. Lake Ave., Glenview, IL 60025 (312) 729-3000. Prepayment required. MasterCard or VISA welcome.

Please circle 71 on reader service card.
Quick & Dirty Utilities, Volume One is a disk full of handy programs. Several desk accessories include a menu bar clock and a terminal emulator. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

QuickKeys lets you make full use of your keyboard. Assign any command (menu choices, DAS, etc.) or series of text blocks and/or command to any key or key combination. Enormously powerful: necessary for Apple Extended Keyboard owners. Requires 512K+. $99.95. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Jan 88)

RamSnap is a RAMdisk and disk cache in one easy-to-use package. Can store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

Read-It! (v. 1.0) is the best consumer value in optical character recognition software. Works with any scanner that saves images as a bit map, PICT or TIFF file. Comes with type tables that can be customized. Version 1.1, $395; ThunderScan version, $149.95. Olduval Software, 7520 Red Rd., South Miami, FL 33143. NCP (Apr 88)

Sentinel encrypts data files (or sets of files) using a super-secure DES or a super-fast SuperCrypt algorithm. Provides high-level security if you can keep your passwords secret. Requires 1M+. $149.95. SuperMac, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Apr 88)

SmartScrap and The Clipper are two useful desk accessory utilities for graphics work. SmartScrap is a major enhancement to the standard Scrapbook DA. The Clipper provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87)

Turbo Trackball ProPoint Turbo Mouse

New Turbo Trackball from Asher!

The Turbo Trackball is a versatile, reliable, easy to use and very accurate device for sophisticated desktop publishing, graphics, CAD/CAM, and many other applications. (For example, this entire ad, including the illustration was desktop published using the Asher Turbo Trackball).

Only the Asher Trackball gives you precise fingertip control in a space saving, low profile ergonomic package designed with a patented hi-tech encoder used in sophisticated aerospace instrumentation; like aircraft, missiles, torpedos, gyros and space shuttles.

Also Available for IBM PC/XT/AT computers.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Patented encoder</th>
<th>Opto-Mech</th>
<th>Opto-Mech</th>
<th>ASHER Turbo Trackball</th>
<th>ABATON ProPoint</th>
<th>KENSINGTON Turbo Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Asher Eng.</td>
<td>3rd Party</td>
<td>3rd Party</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Accuracy</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision</td>
<td>250 CPI</td>
<td>200 CPI</td>
<td>&gt; 200 CPI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual ADB Ports</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shift Lock Key</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTBF*</td>
<td>25 years</td>
<td>21.7 years</td>
<td>7.5 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTRF**</td>
<td>10 days</td>
<td>?</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left or Right</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 Day Money Back Guarantee</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warranty</td>
<td>Lifetime</td>
<td>Lifetime</td>
<td>90 Day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRICE</td>
<td>$119.95</td>
<td>$159.95</td>
<td>$129.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*MTRF Mean time to failure **MTRF Mean time to repair

To find out more, see your authorized Apple dealer or call 800-824-3522 (outside CA) or 818-960-4839 (in CA).

ASHER ENGINEERING 15115 Ramona Blvd., Baldwin Park, CA 91706
MINIFINDERS

SoundWave is a useful sound recording and editing utility. Works with waveforms; able to change sampling rates. Previously known as SoundCap, $199.95. Impulse, 6870 Shingle Creek Parkway, Minneapolis, MN 55430. NCP (Apr 88)

Stepping Out is a software virtual screen extender. Lets you create a screen as large as memory allows. 9-inch screen is a "view" to larger screen. Also has reduction features. Amazing, $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Mar 88)

Suitcase is a transparent program that automatically lets you use all your fonts and DAs. Foolproof and indispensable. Comes with Pyrol, the best screen saver. Requires 512K+. $59.95. Software Supply, 599 N. Mathilda, Sunnyvale, CA 94086. NCP (Nov 87)

SuperLaserSpool is a LaserWriter spooler. Very fast because it does conversion to Postscript in the background, but program lets users run several programs at once (up to 8). 5K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Jun 86)

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 nearly 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 (Jun 86)

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 Dennis Adler’s Extended User Area. $149. ICON Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download 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, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86)

WorksPlus Command lets you build and define macros for all Works modules. Predefined macros provide for an even tighter integration of program’s word-processing, spreadsheet, and database modules. Requires 1M+. $99.95. Lundeen & Associates, PO Box 30038, Oakland, CA 94666. NCP (May 88)

---

Personal Toolkit For Forms

Fast Forms is a powerful forms management system that allows you to create, customize, retain and reuse professional forms on your Apple® Macintosh™ computer.

You can use Fast Forms for anything from simple office memos to complex invoices, packing slips, order forms or even financial reports. And once created, the Fast Forms desk accessory (also included) lets you fill in and print your forms while using any other program! At last you can quickly address an envelope or print an invoice without interrupting your more important work.

The Fast Forms object oriented drawing program lets you create your professional forms with an impressive variety of design elements. Gray screens, hairlines, variable type sizes, text editing, customized horizontal and vertical grids, and printing and non-printing drawing planes are only a few of the useful features of Fast Forms.

Place data entry fields on your form where information is filled in. Fast Forms will format fields and even perform calculations automatically. When you fill in and print your forms you can optionally export the data, then later use your information with other applications such as your database, word processor or spreadsheet.

Fast Forms: your complete forms management system. Fast Forms gives you the ability to not only create and customize professional forms, but to use your forms effectively.

---

Please circle 64 on reader service card.

M A Y 1 9 8 8 M A C U S E R 2 8 3
Mac letter quality
with a Daisywheel
or typewriter

$82

MAC DAISY LINK™
(Cable optional $22.95)

A printer driver that supports any
Daisywheel printer or typewriter with
any Macintosh computer. Letter quality
results. Can be used with a laser printer. (Text
only in Qume or Diablo emulation.) Foreign
letter characters and sheet feeders supported.
Plus much more. Call for more information.

The PRINT-LINK™ continues to be the preferred tool
for dot matrix printers.

GDT Softworks Inc.
P.O. Box 1665, Point Roberts, WA. 98281
For Inquiries: (604) 291-9121
To Order: 800-653-6222

Macintosh™ is a trademark licensed to Apple Computer, Inc.
The PRINT-LINK™ & MAC DAISY LINK™ are trademarks of GDT Softworks Inc.

Please circle 139 on reader service card.

SONY

3½” Diskettes

Single-sided $0.6A12 1.09 ea., 100 +
Double-sided $0.6A12 1.54 ea., 100 +

SONY: MAC • PAC

Single-sided $1.05 1.02 .99
Double-sided 1.24 1.17 1.14

Sony labels $4 each, minimum 50

Please circle 109 on reader service card.
icons. $125. Mainstay, 5311-B Derry Rd., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth programming language. New, reduced price. $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K+. 50 Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional assembly language package. The two disk set provides an editor (Edit), an assembler, a linker, an executive, and a resource compiler. $195. Apple Computer, 20252 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, 20252 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabilities. Has a large appetite for RAM. Interpretation with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86)

MacScheme+ Toolsmith is a Mac version of Scheme, a LISP dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get Toolsmith. Requires 1M+. $395. Semantic Microsystems, 4470 S.W. Hall, Beaverton, OR 97005. NCP (Aug 87)

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. $99. Microsoft, 1601 N 36th Way, Redmond, WA 98073-9717. NCP

MIDIBasic is a library of simple, but highly useful routines for writing MIDI software. Good stuff. Sketchy documentation. Works with both Microsoft and ZBasic. Requires 512K+ plus BA-SC. $49.95. Micro Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Object Logo is an object-oriented programming language with access to the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

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'll need separate Toolbox disk with 56 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type database that provides fast and efficient administration of large data files in applications developed with TML compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. 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, 4241 Bay Meadows Rd., Jacksonville, FL 32217. 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, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating standalone applications that take 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

Alphabet Blocks teaches prereaders the letters and sounds of the alphabet. The digitized voice of an on-screen elf is clear and pleasant. Very intuitive. Requires 1M+. $49.95. Bright Star Technology, 1003 111th Ave., Bellevue, WA 98004. NCP (May 88)

American Discovery is an interactive United States geography game that teaches states, capitals, and, in a roundabout manner, postal codes. Suffers from small maps. Requires 512K+. $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 88)

Business Simulator is a training tool in a simulation game. Make decisions that manage the company through several stages over 25 years. Decisions become more difficult over time. Requires 1M+, 2 disk drives (one must be 800K). May be run from a hard disk. $69.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 87)

ChipWits is a combination game and teaching tool. Players create programs to maneuver robots through a set of 8 mazes. The programs are written in ChipWits' built-in icon-based programming language (IBO). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 88)


HyperTutor is a stack that teaches HyperTalk, Hypercard's programming language. Uses an interactive Test Mac on each card to write scripts. A variety of windows makes it good for both beginners and advanced programmers. $49.95. Tell-
MINIFINDERS

graphics, 936 S. Francis Drake Blvd., Kentfield, CA 94904.
NCP (Apr 88)

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
new introduction to musical notes. Sparse documentation.
$49.95. Great Wave, 5335 Scotts Valley Dr., Scotts
Valley, CA 95066. NCP (Oct 86)

LearnWord 3.0 is a three-part series of cassette/diskette
modules that explain the intricacies of Word 3.0. They do
the job, but remind you why your classes were more fun.
$49.95 per module. Personal Training Systems, PO Box
54240, San Jose, CA 95154. (Apr 88)

LXR-Test generates tests from a database of questions. Makes it
easy to modify and scramble test questions. Flexible output.
Requires Mac 512E or 2000k, or a hard-disk drive. $19.95 or $39.95, depending on features. Logic Exten-
sion Resources, 9651 Business Center Dr., Rancho Cuc-
amonga, CA 91730. NCP (May 88)

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 certifi-
cates for reaching certain levels. Can be used in a mul-
situte. $49.95. Palanimal Software, 12777 Jones Rd.
Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-
style game 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 pro-
vides comparison scores. $49.95. Mindscape, 3444 Dun-
deer Rd., Northbrook, IL 60062. CP

Sensel Physics is a capable, intelligent, well-designed study aid.
Covers Vectors to Thermodynamics to The Nature of Light.
Articulated experiments let you try out concepts. Provides three
options for each level. $59.95. Mindscape, 3444 Dun-
deer Rd., Northbrook, IL 60062. CP

Subl-Mac is a self-hypnosis program, combining subliminal, relax-
ation, and positive-self-image techniques. Flashes a brief
user-written message (against a diverisatory pattern) at
your subconscious. Dangerous near hard disks. Manual suf-
fers from terminal California-ese. $39.95. Psy-Den, PO Box
248, Champaign, NY 12919. NCP (Jan 88)

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+. $39.95.
Infocom, 125 CambridgePark Dr., Cambridge, MA 02140.
NCP (Apr 86)

Alter Ego simulates the entire life of a fictional character. The
player's reaction to each multiple-choice event shapes the
character's future relationships, job, health, etc. Spectacu-
lar. 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 (Jul 86)

The Ancient Art of War gives users a chance to relight some
famous campaigns on both strategic and tactical levels.
Campaigns can also be designed from scratch. Very play-
able, addicting game. Requires 512K+. Mac. $44.95. Bro-
derbund, 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 checkeredboard grid. The shifting
cycles of squares' colors keep the balance of power ever-
changing. One or two players. $39.95. Electronic Arts, 1820
Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Balance of Power is the world's first computer peacegame. This
simulation allows players to become either the President of
the United States or General Secretary of the Soviet Union.
Extraordinary artificial intelligence routines and general play
make this a classic. $49.95. Mindscape, 3444 Dundee Rd.,
Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen
and paper game of Battleship. Requires strategy on several lev-
els. Makes excellent use of Mac sound and graphics. Fun,
casual game, especially when the Mac is one of the players.
Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI
48197. NCP (Jun 87)

Beyond Zork is yet another installment in the famous Zork series of
text adventures. Find the fabled Coconut of Quendor to
restore falling magic in this top-level game. On-Screen
mapping and the Mac's window environment are taken ad-
vantage of. $49.95. Infocom, 125 CambridgePark Dr., Cam-
bidge, MA 02140. NCP (Apr 88)

Borrowed Time casts players as detectives who have to solve their
own murder — before it happens. This game requires play-
ers 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 bridge game 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. Artwork Software,
150 N. Main St., Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move
a new house and job and still maintain some degree of
sanity, not to mention a low blood pressure. Written by
Douglas Adams of Hitchhiker's fame. $39.95. Infocom, 125
CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will
appeal to both novice and master. You can view the board
from 2- or 3-D perspective and turn the board for a better
look. Play is smooth and easy, and the program responds by
voice. You may get tired of hearing "Gotcha," though.
$39.95. The Software Toolworks, 13557 Ventura Blvd.,
Sherman Oaks, CA 91423. CP (Jul 87)

Crystal Quest combines all the good elements of nearly every video
game ever made. Move a piece around to gobble up points
and crystals. Shoot the nasties and get through the goal
before you get you. Excellent sound effects. In color on the
Mac II. Requires 512K+. Greene, 15 Via Chualar, Monte-
rey, CA 93940. CP (Apr 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 Dun-
deer Rd., Northbrook, IL 60022. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a
collection of recipes from a nationwide sampling of restau-

Downhill Racer is an action game with three skier personalities,
four courses and four skill levels. There's something here for
every player, no matter how bad or good. Full digitized sound
If you just need a drawing tool, use one of these.

If you need a design tool, use Design/2.0™

A lot of tools can help you draw. But how many can help you design and keep track of complex system models?

Meta Software introduces Design/2.0, the integrated text and graphics processor that helps you design systems, flow charts, organizational charts, computer programs, communications networks, production line process diagrams, business plans, and more. Do it all faster and more efficiently than with manual tools or any other program.

Design/2.0 puts an end to time-consuming drawing and redrawing. Because it understands that objects in a diagram are related. Once you connect one object to another in a Design/2.0 diagram, it says connected. If you move or resize an object, Design/2.0 automatically redraws all associated objects, arrows, and subordinate objects.

You can also create and edit text in your diagrams. And associate text with any object or connector. Even establish hyperlinks that connect text across multiple pages.

As your model evolves, you can move detail to a subpage. In fact, you can build multi-level diagrams up to 9,999 pages. Design/2.0 automatically maintains the relationship and displays the hierarchy. So the big picture is easier to see. No matter how complex your model.

And now, trade in MacDraw or any PC drawing program for Design/2.0 by May 31, 1988 and get $25. Just send us your Design/2.0 registration card, indicating which drawing program you use. We'll mail you a check for $25. And start spending your time designing instead of drawing.

For more information about Design/2.0, call toll-free 1-800-227-4106.

Inside Massachusetts, 617-576-6920. Or return this coupon to: Meta Software Corporation, 150 Cambridge Park Drive, Cambridge, Massachusetts 02140.

Name
Title
Company
Address
City State Zip
Telephone

Meta Software

MacUser 5/88

Please circle 148 on reader service card.
**MINIFINDERS**

(very nice!) $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 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)

**Falcon** simulates an F-16 fighter jet with gut-tightening, sweat-inducing realism. Go against MiGs and dodge SAMs, screen calls and crowd sounds. Great graphics and a lot of fun for practice or play turn-on 32 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 Harvard Rd., Baltimore, MD 21214. CP (Mar 87)

**Mac Pro Football** is a terrific sports simulation that gives you the chance to tilt play. Offers 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 Harvard Rd., Baltimore, MD 21214. CP (Mar 87)

**Maze Survival** challenges players to destroy maze walls before roving bugs squash themselves against it. Bugs lay eggs to spawn a new generation. Repetitive. $34.95. Parallel Software, 7520A Red Road, South Miami, FL 33134. NCP (Aug 87)

**Maze Wars+** is an interactive, multiplayer game to be played on AppleTalk or through a modem link. Chase opponents through a four-level maze. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

**MicEdGames** is a collection of five educational games, MicAlphaBet, MicTime, MicStates, MicMatch and MicSpell, supposedly for ages 5 to adult. Games are sometimes cute but generally poor. Manual is poorly written. Some entertainment value. $19.95. MicEdWare, 4265 Midland Rd., Saginaw, Mi 48603. NCP (Dec 87)

**Mind Over Mac** features five games. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

**MoonMist** is an introductory level text adventure game. This is a typical haunted English castle story, not quite up to Infocom’s best. It has four versions, so it’s good for more than one play. $39.95. Infocom, 125 Cambridge Park Dr., Cambridge, MA 02140. NCP (May 87)

**MSFL: Pro League Football** is a professional football league simulation that encourages people to play people, not the machines. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No LaserWriter support. Requires 1M+. $49. MicroSports, PO Box 15799, Chattanooga, TN 37415. NCP (Apr 88)

**New Gammon** is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade or real-time game. An arcade or real-time game. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

**NFL Challenge** simulates coaching and watching professional football. Comes on two disks, one with program and System, the other statistical data. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

**Ogre** is a strategy tank game played on a hexagon grid. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

**PacMan-like game.** The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvu Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

**Pacman** uses digitized videos and sounds of professional players for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Oct 87)

**Mac Wizard** is a two-part package. The software portion is a decent pacMan-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvu Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

**MSFL: Pro League Football** is a professional football league simulation that encourages people to play people, not the machines. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No LaserWriter support. Requires 1M+. $49. MicroSports, PO Box 15799, Chattanooga, TN 37415. NCP (Apr 88)

**New Gammon** is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade or real-time game. An arcade or real-time game. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

**NFL Challenge** simulates coaching and watching professional football. Comes on two disks, one with program and System, the other statistical data. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

**Ogre** is a strategy tank game played on a hexagon grid. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

**PacMan-like game.** The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvu Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

Orbiter builds a real space shuttle on the Mac screen. A multitude of controls, intelligent on-board computer with speech capabilities, real-time graphics, and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orquest is a fantasy role-playing adventure with better-than-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 88)

Patton vs. Rommel is a traditional-style strategic war game. It covers events in Normandy in 1944. While complex, it's well-designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with text and graphics. The unique interface has some drawbacks, but The Pawn has humor, social satire, is entertaining, and is challenging. $44.95. Requires 1M+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

Pinball Construction Set lets users create their own pinball games, as elaborate or as easy as desired. Uses MacPaint for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 88)

Plundered Hearts brings gothic romance to interactive fiction in the familiar Infocom mode of puzzles, mazes, and riddles. You play a 17th century heroine dodging pirates to rescue her wrongly imprisoned father. Medium difficulty. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Jan 88)

Portal is an intriguing science fiction novel for kids that suffers from having a poor interface. Storyline: All of humanity is missing and you have to search through a database for files that reveal the mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. $49.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 87)

Puppy Love is a combined game and teaching tool. As you teach your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

Quarterstaff (v. 1.2) is a fantasy adventure game of the typical “good vs. evil” variety. Ability to use characters in other adventures gives this game a lot of potential for development. Requires 1M+. $49.95. Simulated Environment Systems, 800 South Pacific Coast Hwy., Redondo Beach, CA 90277. NCP (Mar 88)

Seven Cities of Gold is an educational program masquerading as an adventure game and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a vast wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

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, 1820 Gateway Dr., San Mateo, CA 94404. 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. Primateria Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Snake-Bar lets you guide a snake (or train or semi) through a maze, picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. $15. (shareware). Georges Malamound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec 87)

Soltaiire Royale is a collection of eight solitaire card games. The Tour mode cycles through each game. Tournament deals the same hand for several players. $34.95. Published by Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (May 88)

Space Quest is a three-dimensional, animated adventure in which you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Eamon System. Runs on any Mac. $49.95. Sierra On-Line, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Star Fleet I: The War Begins! is a space opera of the Star Trek variety. Rise through the ranks from ensign to admiral in this serialized adventure. Requires 512K+ $55. Interstel, PO Box 57825, Webster, TX 77598. NCP (May 88)

Stationfall is the sequel (finally) to Infocom's excellent Planetfall text adventure. Reunited with Floyd and sent to pick up requisition forms, you must solve the empty space station problem. As straightforward as other Infocom games; more so than some. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Nov 87)

Strategic Conquest Plus challenges you to discover an unexplored world and conquer it by manufacturing and deploying armies, ships, and planes. A two-disk game that doesn't support an external drive. Requires 512K+ $59.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. CP (Feb 88)

Sub Battle Simulator is a superior naval combat game. Fifty different missions and the ability to link missions keep it from ever getting boring. Requires 512K+ $39.95. Epyx, PO Box 8020, Redwood City, CA 94063. CP (Aug 87)

Tass Times In Tone Town is a slightly off-the-wall graphic adventure in which you need a flashy hairo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. 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. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Trust & Betrayal: The Legacy of Siboot requires negotiating with 6 artificial personalities in a struggle for power — not surprising considering that it comes from the maker of Balance of Power. Uses hieroglyphics to communicate in a fantasy world. Requires 512K+ $39.95. Epyx, PO Box 8020, Redwood City, CA 94063. CP (Aug 87)

Uninvited is an icon-based adventure game set in an extremely haunted mansion. Since you access the parser by double-
SCSI POWER
We've Got it From
20 Megabytes to 1.2 Gigabytes

SCSI Hard Disk Subsystems for the Macintosh Plus, SE or II

- "MacStack Series" - 20, 43, 60, 80, 102, 140 MB
- "TapeStack" - 60 MB Streaming Tape Backup
- "Compact Series" - 20, 40, 45, 100 MB
- "PRO-SE Internal Series" - 20, 40, 45, 100 MB
- "PRO-II Internal Series" - 20, 43, 60, 80, 102, 140, 150, 300 MB
- "Expandable Series" - 150 MB to 1.2 GB with Tape
- "DEC" Mass Storage Systems to 2.4 GB

Call today for the name and number of your nearest CMS dealer.

CMS Enhancements, Inc.
1372 Valencia Avenue • Tustin, CA 92680
Telephone: (714) 259-9555
Telex (023) 371-6711 • FAX (714) 549-4004

Macintosh is a registered trademark of Apple Computer, Inc.
CMS logo is a registered trademark of CMS Enhancements, Inc.
DEC is a registered trademark of Digital Equipment Corporation.
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, bobsleding, biathlon, and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr., PO Box 8020, Redwood City, CA 94063. 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, Charlestown-Ogdensburg Mall, PO Box 245, 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. Paliant, 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 included) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach, PO Box 261240, San Diego, CA 92126. NCP (Apr 87)

Xyphius 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

Your Personal Poet creates personalized greeting cards on the Mac. Comes complete with four greeting cards and matching envelopes. Requires 512K+. $29.95. Computer Poet, 773 E. Greg St., Sparks, NV 89431. NCP (Jun 87)

Zork II is a dungeon adventure video game that produces music with six voices of digitized sound. Excellent for transcription. Requires 512K+. $125. ARS Nova Software, P.O. Box 40629, Santa Barbara, CA 93140. NCP (Nov 87)

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. NCP

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. Supports Adobe Sonata music font. $69.95. Great Wave Software, 5353 Scovett Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87)

ConcertWare+MIDI is a composition and transcription program that can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles 8 tracks of 8 voices each. Requires 512K. Version 4.0. $149.95. Great Wave Software, 5353 Scovett Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87)

Jam Factory is a program for performing complex manipulations on MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+. MIDI interface, and MIDI synthesizer. $189. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

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. $99. Resonate, PO Box 966, Menlo Park, CA 94026. Jan 87

Music is a music composition and creation program that works with MIDI data in real time. Unique, entertaining, and very powerful,
MINIFINDERS

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. $1899. SuperMac Technologies, 295 N. Bernardo Ave., Mountain View, CA 94043.

DaynaFile hooks up to a SCSI drive to read MS-DOS disks in the Mac environment. Use Mac applications to manipulate data created with an IBM PC. Comes in both 5-1/4 and 3-1/2-inch formats. $959 for single floppy. Dayna Communications, 50 S. Main St., 5th Floor, Salt Lake City, UT 84144. (Jan 88)

FX-20 is a good 20-meg external hard drive. Good utility software. Reliable and reasonably quiet. Sits next to a 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 ($60). Requires SCSI port, 512K+, new ROM, $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

Hewlett-Packard Graphics Plotter is an eight-pen desktop top plotter that requires third party software to drive it. Fonts are limited to an optional Graphics Enhancement Cartridge that requires some BASIC programming. $1295. Hewlett-Packard, 16399 W. Bernardo Dr., San Diego, CA 92127. (Feb 88)

ImageMaker shoots 35mm color slides direct from the Mac. Supports most presentation software. Uses patterns to represent colors. Not fully compatible with the Mac II. Requires 512K+, $4959. MacDriver software, $149. Presentation Technologies, 743 North Pastoria Ave., Sunnyvale, CA 94086. (Feb 88)

IS/ONE tablet with Penworks software lets you use a corded or wireless pen or mouse and a high-res tablet for precise graphics input. Minor bugs with some applications and DA's. Keystroke macros can be launched from the tablet. Minimal documentation. Requires 1M+, $595 to $1145. Kurta, 4610 S. 35th St., Phoenix, AZ 85030. (Jan 88)

Jasmine Direct Drive 50 is a very quiet 1:1 interleave 50-megabyte hard drive and one of the fastest SCSI drives around. A small fan keeps it cool, but it's still quiet. $1159. Jasmine Technologies, 555 De Haro St., San Francisco, CA 94107. (Mar 88)

LaserWriter II NTX is Apple's top-of-the-line PostScript laser printer. It's faster than the LaserWriter Plus, with blacker blacks. Gray scale is less even than that of Plus. Requires 512K+, $4599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

LaserWriter II NTX is Apple's top-of-the-line PostScript laser printer. 68020 chip makes it very speedy; expandable to 12M; SCSI hard disk can be attached for fonts. Requires 512K+, $6599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

LaserWriter II SE is Apple's low-end QuickDraw laserprinter. Can be upgraded to NT or NTX reasonably fast. Requires 1M+, $2799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

MacBottom 45 SCSI and Internal Modem has a modem that fits into the top half of the 45-megabyte SCSI hard drive case. Comes with HFS Backup and Eureka. $1795. Personal Computer Peripheral, 4710 Eisenhower Blvd., Tampa, 33634. (Oct 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, 4710 Eisenhower Blvd., Tampa, 33634. (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)

MacMini2zer is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. $599. GTTO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacLarger is a 12-inch external monitor for 512K machines on up to the SE. Displays the same number of pixels as an internal monitor, only one-third larger. Bigger and brighter, but less crisp than the Mac's own screen. $449. Power R. 1606 Dexter Ave. North, Seattle, WA 98109. (Apr 88)

Mac-101 is a keyboard alternative that has a good feel to it. Has a keypad, 15 function keys, and more. The 101-Keys desk accessory lets you define macros. Comes in an ADB version for the SE and II. Requires 512K+. $1699.5. DataDesk International, 7650 Haskell Ave., Van Nuys, Ca 91406. Software NCP (Apr 88)

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further with MacSnap Plus 2. $399. NCP (May 88)

MacTable is an elegant Danish worktable that holds a Mac and printer with room to spare. The 30-inch deep by 60-inch wide table is made of particleboard and must be assembled. Cabinet is optional. Table, $269; cabinet, $129. ScanCoFurn, PO Box 3217, Redmond, WA 98073-3217. (Mar 88)

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 current mouse. $959. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacTilt/MacTilt SE 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. $99.5. Ergotron, PO Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for input. Capable of extremely fine results and special effects. Easy to use and well-documented. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video cameras. $995. 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)

Microtek M5SF-300C is a 300-dpi flatbed scanner. Really fast when used with optional MS-SCSI/C adapter. Comes with Versa-Scan Plus software (NCP) to scan and manipulate image. Saves images in a number of formats including TIFF and MacPaint. $1895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec 87)

Migrant Pocket Modem is a 300/1200 baud portable modem about the size of a 3 X 5 index card. Comes bundled with MacTerm 2.0, Botland's telecom DA. Manual is confusing, and tech support is minimal. $259. Migrant, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov 87)

Mouse Mover is a mouse pad-type surface that snaps onto 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 that year. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

Mousetrak is a fabric covered foam mousing pad. It will increase the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical
MINIFINDERS

office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

**NetModem** is a 1200-baud modem that can be accessed by all users on an AppleTalk network. The modem's display lights and the dial tone are simulated on-screen. Requires 512K+. $599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919. (Feb 88)

**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.

**One Plus One** is a user-installable memory upgrade for a Mac Plus. Adds 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $375. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

**Personal LaserPrinter** is a non-PostScript laser printer at a great price. Clumsy workarounds required in some applications. Printing can be slow. Requires 1M+.. $1999; Fonts Plus, $299. General Computer, 580 Winter St., Waltham, MA 02154. (Apr 88)

**Personal Writer PW15S** is a tablet-based handwriting recognition system that also allows graphics and macros. Number of misread characters is too high for general word processing. Requires 1M+. $895. Personal Writer, 1801 Ave. of the Stars, Los Angeles, CA 90067. Software NCP (Mar 88)

**PhoneNET** is an AppleTalk-compatible network. Network can be up to 3000 ft in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86)

**SuperRam 2 and SuperRam 4** are 2- and 4-megabyte RAM upgrades. Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. $499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct 87)

**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. $249. Thunderware, 21 Orinda Way, Orinda, CA 94563.

**TimeWand** is a bar-code reader with a built-in time/date stamping clock. Can be used with TimeWand Manager software, a database that's extensive though difficult to use. Poor docs, but good support. Requires 1M+. TimeWand 2K version, $198; TimeWand Manager, $489. Videx, 1105 NE Circle Blvd., Corvallis, OR 97330-4265. (Dec 87)

**TV Producer** is an add-in card that overlays Mac graphics and text onto a video signal. Software is clumsy to use. Requires Mac II, Apple video card, and video source. $599. Computer Friends, 14250 NW Science Park Dr., Portland, OR 97229. Software NCP (May 88)

Have you ever seen a good authoring system?

...there is a Course of Action™ and it's great!

Authorware

Authorware, Inc.
8400 Normandale Lake Blvd.
Bloomington, Minnesota 55437
(612) 921-8855

Course of Action is a trademark of Authorware, Inc.

Please circle 100 on reader service card.

Please circle 225 on reader service card.
Here's how you can get more information on products or services advertised in MacUser.

**COMPLETELY FREE!**
- Print your name and address clearly in the spaces provided on the card opposite.
- Circle the number(s) on the card corresponding to the reader service number(s) for advertised products or services in which you're interested. You can request information on any products or services in which you are interested, providing a reader service number appears in each advertisement!

**NO COST!**
- For quick reference, we have included both the page number and the reader service number on the Ad index.
- Now's the time to subscribe to MacUser. Just check the appropriate box on the attached card and we'll send you 12 issues, a full year for only $19.97—and we'll bill you later!

**NO OBLIGATION!**
- Detach and mail the card. Literature on the products or services you have indicated will be sent directly to you from the advertiser, free of charge. No postage is necessary if your card is mailed in the United States.
FREE INFORMATION FAST!
ON MACINTOSH PRODUCTS & SERVICES

MacUser
P.O. Box 40008
Philadelphia, PA 19106-9931

MacUser
P.O. Box 40008
Philadelphia, PA 19106-9931

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

COMPLETELY FREE!
NO COST!
NO OBLIGATION!
## SOFTWARE

**BUSINESS & PRODUCTIVITY**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABA Software</td>
<td>$89.95</td>
</tr>
<tr>
<td>Anglia Development</td>
<td>$44.99</td>
</tr>
<tr>
<td>Angel Words</td>
<td>$49.95</td>
</tr>
<tr>
<td>Affinity</td>
<td>$39.95</td>
</tr>
<tr>
<td>Adobe Photoshop</td>
<td>$79.95</td>
</tr>
<tr>
<td>Aldus</td>
<td></td>
</tr>
<tr>
<td>Pagemaker</td>
<td>$209.00</td>
</tr>
<tr>
<td>Adobe Illustrator</td>
<td>$209.00</td>
</tr>
<tr>
<td>Adobe InDesign</td>
<td>$209.00</td>
</tr>
</tbody>
</table>

**GAMES & EDUCATIONAL**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalon Hill</td>
<td></td>
</tr>
<tr>
<td>MacPro Football</td>
<td>$27.95</td>
</tr>
<tr>
<td>Hexedmar</td>
<td>Print Shop</td>
</tr>
<tr>
<td>Bullseye</td>
<td>Ferrari Grand Prix</td>
</tr>
<tr>
<td>Fokker Triplane</td>
<td>$29.95</td>
</tr>
<tr>
<td>Dallinger &amp; Associates</td>
<td>$27.95</td>
</tr>
<tr>
<td>StarFighter</td>
<td>$34.95</td>
</tr>
<tr>
<td>Venture's Business Simulator</td>
<td>$44.95</td>
</tr>
<tr>
<td>Speed Reader II</td>
<td>$37.95</td>
</tr>
</tbody>
</table>

## HARDWARE

**ELECTRONIC ARTS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chessmaster 2000</td>
<td>$29.95</td>
</tr>
<tr>
<td>Deluxe Music</td>
<td>$29.95</td>
</tr>
<tr>
<td>Deluxe Paint 2</td>
<td>$39.95</td>
</tr>
<tr>
<td>Paton vs Rommel</td>
<td>$26.95</td>
</tr>
<tr>
<td>Starfighter</td>
<td>$34.95</td>
</tr>
<tr>
<td>Venture's Business Simulator</td>
<td>$44.95</td>
</tr>
</tbody>
</table>

**APPLE**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple II</td>
<td></td>
</tr>
<tr>
<td>Apple IIe</td>
<td>$299.00</td>
</tr>
<tr>
<td>Apple IIc</td>
<td>$299.00</td>
</tr>
<tr>
<td>Apple IIe</td>
<td>$299.00</td>
</tr>
</tbody>
</table>

## ACCESSORIES

**Borland**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eureka</td>
<td>$127.00</td>
</tr>
<tr>
<td>Reflex</td>
<td>$59.00</td>
</tr>
<tr>
<td>Turbo Pascal</td>
<td>$59.00</td>
</tr>
</tbody>
</table>

**Microsoft**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>$99.95</td>
</tr>
<tr>
<td>Chart</td>
<td></td>
</tr>
<tr>
<td>Excel</td>
<td>$209.00</td>
</tr>
<tr>
<td>File</td>
<td>$109.00</td>
</tr>
<tr>
<td>Fontan</td>
<td>$167.00</td>
</tr>
<tr>
<td>Powerpoint</td>
<td>$239.00</td>
</tr>
<tr>
<td>Word</td>
<td>$239.00</td>
</tr>
<tr>
<td>Write</td>
<td>$199.00</td>
</tr>
</tbody>
</table>

**Mindworks Software**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindware</td>
<td>$169.00</td>
</tr>
<tr>
<td>Monogram</td>
<td>$89.00</td>
</tr>
<tr>
<td>DotTour &amp; Sense</td>
<td>$89.00</td>
</tr>
<tr>
<td>Navilocks Systems</td>
<td></td>
</tr>
<tr>
<td>Filermaker Plus</td>
<td>$209.00</td>
</tr>
</tbody>
</table>

**Software Ventures**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microphone II</td>
<td>$89.95</td>
</tr>
<tr>
<td>SuperMac</td>
<td>$84.95</td>
</tr>
<tr>
<td>Super Spool</td>
<td>$44.95</td>
</tr>
<tr>
<td>Super Laser Spool</td>
<td>$189.00</td>
</tr>
<tr>
<td>Diskit</td>
<td>$49.95</td>
</tr>
</tbody>
</table>

**Springboard Technologies**

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop Mac</td>
<td>$209.00</td>
</tr>
<tr>
<td>Desktop Mac</td>
<td>$209.00</td>
</tr>
<tr>
<td>Desktop Mac</td>
<td>$209.00</td>
</tr>
<tr>
<td>Desktop Mac</td>
<td>$209.00</td>
</tr>
<tr>
<td>Desktop Mac</td>
<td>$209.00</td>
</tr>
</tbody>
</table>

**Don't Settle for Less...**

TCP ships it FREE with a order of $100 or more.

**Distributor**

TCP COMPUTER PRODUCTS

**P.O. Box 1066**
**State College, PA 16804**

**Toll Free:** 1-800-468-9044

Please circle 123 on reader service card.
### Great Software!

Free Technical Support * Toll Free Ordering Line

#### Hypercard Stacks
- [ ] HC1 Business: 3 calculators, address book, taking notes, $9
- [ ] HC2 Personal Productivity: Checkbook, software & Lia, $9
- [ ] HC3 Modern BBS list, terminal progs, MAUG & Gene list, $9
- [ ] HC4 Sound/Speech: 13 Common Sounds, synthesizer, HyperMacTalk sound utilities, $9
- [ ] HC5 Fun: Annoying program, Star Trek, HyperGame, To Be or Not, $9
- [ ] HC6 Education: Electronics, chemistry, geography & biology, $9
- [ ] HC7 Utilities and Programming: Stack protection crackers, guide to HC programming, more, $9
- [ ] HC8 FunStuff: Screen savers, cartoons, pranks, more, $9
- [ ] HC9 Graphics: Excellent Sketches and sound animation, $9
- [ ] HC10 Games: World of Chess games, $9

#### Best of the Public Domain
- [ ] 86 Communications utilities, $9
- [ ] 106 Utilities, games, $9
- [ ] 125 File Manager, Keyboards, select plates, $9
- [ ] 143 PageMaker — $40 templates for PageMaker 1.2 or less, $9
- [ ] 153 Best of Business, Home, Finance, $9
- [ ] 163 Databases, mail, inventory, real estate, $9
- [ ] 159 CAD/CAM, Advanced Animation, $9
- [ ] 29 Red Ryder 94 terminal program, $9
- [ ] 102 Desk Utilities, modern, $9
- [ ] 168 Use Fonts, Photos, D/A's w/o installing them, $9
- [ ] 90 Boston 1-laser quality on imagewriter, $9
- [ ] 133 Beverly Hills Sharpest, Imagewriter, $9
- [ ] 62 Dungeon of Doom, Adventure game for micros graphics, $9
- [ ] 103 Best Games-Billiards, Megarods, $9
- [ ] 126 Star Trek with sound & graphics, $9
- [ ] 182 Hen prehensile games w/real player, $9
- [ ] 116 Clip Art Board Art, Sideshow, Vantage (2 disks) $9
- [ ] 466 Grafitti: Adults only pictures (2 disks), $9
- [ ] 166 Complete Sesame with compiler, $9
- [ ] 195 Simple Tools & language libraries, $9
- [ ] 154 Earthdwell — draw detailed 3D globes, $9
- [ ] 6,89: RedEdit: edit fonts & icons (2 disks), $9
- Add $4 (10 foreign) for shipping & handling or $2 (10 foreign) if ordering book only. CA orders add sales tax.

### Specials
- [ ] Any 3 disks + 1 year membership $39
- Any 5 disks* $39
- Any 10 disks* $59

*Specials expire May 15, 1988

Add $4 for shipping and handling or $2 for foreign orders (book only). CA orders add sales tax.

Enclosed $ by [ ] Check [ ] Visa [ ] MC

Card No Exp

Name:

Address:

City State Zip

***Public Domain***

**Exchange**

ORDER NOW! 800-331-8125

In CA 408-496-0624

Please circle 5 on reader service card.
### HARDWARE
- ACCELERATOR BOARDS
- ADD-ON-BOARDS
- BAR CODE
- CABLES
- COMMUNICATIONS
- COMPUTER SYSTEMS
- DISKETTES
- DISK DRIVES
- ENGINEERING
- GENERAL
- INSURANCE
- MACINTOSH II
- MEMORY UPGRADES
- MONITORS
- NETWORKING
- PERIPHERALS
- PLOTTERS
- POWER PROTECTION
- PRINTERS
- SECURITY

### SOFTWARE
- ACCOUNTING
- ARTIFICIAL INTELLIGENCE
- BACKUP SYSTEMS
- BUSINESS
- BUSINESS TIME MANAGEMENT
- COMMUNICATIONS
- COPY PROTECTION
- DATA BASE
- DATA MANAGEMENT
- DESKTOP PUBLISHING
- DEVELOPMENT TOOLS
- DUPLICATION
- EDUCATIONAL
- EMULATION
- ENGINEERING
- ENTERTAINMENT/GAMES
- FINANCIAL
- FONTS
- FORMS PROCESSING
- GENERAL
- GRAPHICS
- INVENTORY
- LANGUAGE TOOLS
- LEGAL
- MAIL ORDER
- MEDICAL/DENTAL
- MUSIC/MIDI
- NETWORKING
- ONE-OF-A-KIND
- PAYROLL
- PRINTER/PLOTTER DRIVERS
- PUBLIC DOMAIN
- REAL ESTATE
- RELIGION
- RENTAL
- SALES MARKETING
- SCIENTIFIC
- SECURITY
- SERVICES
- SHAREWARE
- STACKWARE
- STATISTICS
- TAXES
- TERMINAL EMMULATION
- TIMESETTING
- UTILITIES
- WORD PROCESSING
- ACCESSORIES
- BAR CODING
- BUSINESS OPPORTUNITIES
- CAD CAM
- COMPUTER INSURANCE
- COMPUTER LEASING
- COMPUTER SERVICES
- COMPUTER TRAINING
- DIGITIZERS
- EMPLOYMENT OPPORTUNITIES
- FURNITURE
- INSURANCE
- LABELS
- MAILING LISTS
- NETWORKING
- NOVELTIES
- PUBLICATIONS
- SUPPLIES
- USED EQUIPMENT

---

Advertise Rates and Information:
MacUser Marketplace

*MacUser Marketplace* is a special economical section for product and service listings. Advertisements are grouped by category and sold by column inches. Second color option available. Standard Directory Listings are also available for a minimum of 3 issues at $345.00 per issue ($1,035.00 total).

For additional information call 212-503-5115.

<table>
<thead>
<tr>
<th>Production Manager</th>
<th>Production Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne R. Brockinton</td>
<td>Bessi Dion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Account Manager</th>
<th>Account Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angelo M. Turco, Jr.</td>
<td>Mary Jo Nash</td>
</tr>
<tr>
<td>(212) 503-5115</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Advertising Director</th>
<th>Sr. Advertising Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathryn J. Cumberlander</td>
<td>Monica Dixon</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sales Manager</th>
<th>Advertising Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel L. Rosensweig</td>
<td>Linda Annis-Lopez</td>
</tr>
</tbody>
</table>

---

MacUser Marketplace Classified Advertising Staff
One Park Avenue, New York, NY 10016

---

MAY 1988 MACUSER 299
THE LOWEST PRICE!

MACsimize your Lisa/Mac XL with in stock 800k Disk Drives/20Mb HD/ RAM Upgrades/ HFS Full Technical & Networking Support Available!

Call our Toll Free Hotline for Latest Product Info. at 800-782-7823

DISK DRIVES

C-D ROM

NOW FOR THE MAC • TOSHIBA

3½" DS/DD 100% Certified Lifetime Warranty MAJOR MFG.
Color 3½" DS DD (5 Colors) $10 EA.
Color 3½" DS DG $1.00 EA.
Holder w/Lock $1.00 EA.

Quality Diskettes

SONY $1.99 ea.
3½" DS/DD QUAN-400 Includes labels and quality 2 for 1 replacement guarantee!
Shipping $4 per 100 diskettes
Order by phone or send your check to:
AMERICAN GROUP
(818) 765-3040
14200 Ventura Blvd, Ste 201
Sherman Oaks, CA 91403

DISKETTES

SONY DISKETTES

3½" DS/DD 100% Certified Lifetime Warranty MAJOR MFG.
Color 3½" DS DD (5 Colors) $1.00 EA.
Orange-Red
Yellow-Green-Gray $1.35 EA.
DD/DS Holders 80 3½" $1.75 EA.

MacUser Marketplace

To place your ad call
(212) 503-5115

The LOWEST
PRICE!

MEMORY UPGRADES

1 MB CMOS SIMMs $289
MacPlus 1 to 2MB RAM Upgrade $289
68000 Accelerators $195

HARD DRIVES

SuperMac

Dataframe XP-30 60,105,150,220 $395
CMS

240 Mb Stack $429
60MB, 80MB MacStacks 2.5ms, 195,750
140MB MacStack 2.5ms $195
150MB 40 SF Internals 2ms $495,750
200Mb Mac II Internal 4ms $600
280Mb 102 Mac II 5ms, 1125,1175
60 MB Tape $195

EOVER-EX

EMAC-10 Int Ext $335,540
EMAC 40 Int Ext, 29ms $890,985
EMAC 90 Int Ext, 15ms $1395,1450
EMAC 60 Tape Backup $195

F/ W SOFTWARE

MISCELLANEOUS

Circular 241 on Reader Service Card

BAR CODE

BAR CODE/MAG STRIPE READERS

Bar code and magnetic stripe (credit card) readers for the Apple Macintosh are available separately or in a single compact unit. All readers connect between the keyboard and the Macintosh, and require no additional software or ports. A powerful but simple program for printing Code 39 bar codes is also available.

TIPS ELECTRONICS

4047 Transport Street
Palo Alto, CA 94303

(415) 856-0033

CIRCLE 241 ON READER SERVICE CARD

BAR CODE

BAR CODE/MS Windows Compatible... Bar code and magnetic stripe (credit card) readers for the Apple Macintosh are available separately or in a single compact unit. All readers connect between the keyboard and the Macintosh, and require no additional software or ports. A powerful but simple program for printing Code 39 bar codes is also available.

TIPS ELECTRONICS

4047 Transport Street
Palo Alto, CA 94303

(415) 856-0033

CIRCLE 241 ON READER SERVICE CARD

GENERAL

FUJITSU/SONY

3½" DS/DD '1.00 ea.

DATASAFE 5¼ DS DD

W/TYVEK .39c

OUR FULL LINE OF SUPPLIES & PRODUCTS INCLUDE:

- Mousepads & Covers
- Modems & Head Cleaners
- Plastic & Teakwood Disk Boxes
- Hard Drives
- Public Domain Software

Comp-U-Save

414 Maple Ave., Westbury, NY 11590
(516) 997-6707

800-356-9997

CIRCLE 243 ON READER SERVICE CARD

GENERAL

category continued on next page
**Macintosh Service Parts & Systems**

Service parts & systems for the entire Apple line bought and sold. Send for free a catalog. Call for a quote on your system.

- Logic boards / Power supplies
- Custom chips / CRTs / Disk drives / Systems & more

Pre-Owned Electronics, Inc.
30 Clematis Ave, Waltham, MA 02154
Voice: (617) 891-6851/Fax: (617) 891-3556

**SHO' NUFF' APPLE STUFF**

Genuine Apple products +look! 800K drives, $300-1200 Baud Applemodem, $150 Macs that carry all cases, $45 MacWrite & MacPaint, $45 Used 512K Macintosh, $300 Used 402K drives, $75 Also MacPhone, $35 Overview $50, Dollars & Sense, $45 Kensington protector Motherboards & accessories! We buy, sell & home trades! Ask for Gary Richard COD & Visa/MC.

SHREVE SYSTEMS
845 Lark Avenue
Shreveport, LA 71105
(318)665-6743 4-9 P.M. C.S.T.

**INSURANCE**

The "all risk" Personal Computer Policy from DSI includes essential coverages not available with other policies: protection against loss of data (even from accidental erasure), loss of custom programs, and fraud. As low as $50/year. Coverage can be bound by telephone 9-4 Mon. thru Fri., (617) 267-7552.

DATA SECURITY INSURANCE
4800 Riverbend Rd., PO Box 9003
Boulder, CO 80301
(303)442-6900; (303)442-0500

INSURES YOUR COMPUTER

Data Security provides full replacement of hardware, media and purchased software. As little as $29 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 12pm ET (Mon. to Sat).

SAFEWARE, THE INSURANCE AGENCY INC.
2331 S. High Street, P.O. Box 62211
Columbus, OH 43202
(614)484-3469 (AT&T) or
(814)366-5959 (Com.

**MEMORY UPGRADES**

The Extender 4 Memory Upgrade

For the Mac Plus and Mac SE

The Extender 4, a new and easy approach to the 4 Meg upgrade. Prices start at $999 for the 2 Meg configuration. Upgrade from 2 to 4 Megs at any time. Simply purchase 64 standard 256K memory chips and plug them into the board. These chips may be purchased from DayStar, your Dealer or any other available source. Call for latest chip prices.

The Extender 4 is compatible with nearly all popular expansion boards and internal drives.

Our Quality Guarantee

Since 1984 we have been manufacturing quality electronics. Our upgrades carry a 30 day money back guarantee and a one year warranty. Dealer inquiries are welcome.

5556 Atlanta Hwy, Flowery Branch, GA 30542
Order Now 1-800-962-2077

**MEMORY UPGRADES category continued on next page.**
MacUser Marketplace

MEMORY UPGRADES

Upgrade to 2.5, 4, 5 or 8 megabytes with low-power, surface-mounted one meg SIMMS from Turbo Technologies, Inc.

Buy 4 SIMMS at our low prices and get a Macintosh Opening Kit (includes Torx Driver, Pryer Tool and Wrist Strap—a $19.95 Value) for FREE!

Turbo Technologies, Inc.
78 Maple Street
Roslyn Heights, NY 11577
1 (800) 542-7466
1 (516) 625-2658

CIRCLE 246 ON READER SERVICE CARD

MONITORS

BIG MAC™ 23" MONITOR
Displays sharp 23" high-resolution black and white image from Mac, 512K Plus, or SE. Includes composite video card, 25" cable, Mac-Tools, and instruction $1,595.00 complete system. Also premium 19" high-resolution monitor for Mac II using standard Apple video card. $2,295. Other monitor sizes and projectors available. Ideal for classrooms, boardrooms or shows.

PDS VIDEO TECHNOLOGY, INC.
1523 Santa Barbara, CA 93007
(805) 272-7990

MACLARGER VIDEO MONITOR
12" Monitor with same 512 x 342 image, 70% more area. Video board installs in minutes without cutting, drilling or soldering, runs 1 to 6 monitors parallel i.e. classroom.
12" Monitor alone $249
Video Board alone $249
Both $449 (specify Mac 512, Plus or SE)
Power R
1608 Dexter St
Seattle, WA 98109
(206) 547-8000

CIRCLE 247 ON READER SERVICE CARD

NETWORKING

PhoneNET® SYSTEM
The PhoneNET System creates an AppleTalk network with the convenience, added distance, reliability and flexibility of telephone wire. PhoneNET can use standard telephone cabling, even existing wiring. The system includes a PhoneNET PLUS Connector, PhoneNET Star/Network adapter with Star/Command and PhoneNET Manager, Traffic-Watch, and PhoneNET CheckNET.

FARALON COMPUTING
2500 Cimarron Street
Berkeley, CA 94704
(415) 849-2331

ETHERNET FOR THE MACINTOSH
Kinetics provides Ethernet hardware and software for all Macintosh computers. Products include:

• FastPath, an AppleTalk Ethernet gateway.
• EtherSC, an Ether-SC/Ethernet controller.
• EtherPort SE, aninternal Ethernet card that can be used with the Macintosh SE.
• EtherPort II: an Ethernet controller card for the Macintosh II.

All products are AppleTalk software compatible. Support for TCP/IP and other protocols is available.

KINETICS, Inc.
2500 Camino Diablo
Walnut Creek, CA 94596
(415) 947-0998

CIRCLE 248 ON READER SERVICE CARD

PERIPHERALS

Mac-cessory™
Your Hardware Mail Order Alternative
EVEREX Hard Drives
EMAC-20D Hard Drive
20 MB $498
EMAC-40D 40MB H.D.$958
EMAC-60T Tape BU. $836
3.3 Meg/Min. Formon on the fly
MD-2400 Modem $259
2400 Baud Replacematime
Mac SE Carrying Case $84.95
MacPlus Carrying Case $83.95

Valley Computers
1744 W. Park Circle
MC
Chagrin Falls, OH 44022
(216) 543-1952

CIRCLE 249 ON READER SERVICE CARD

ACCOUNTING

Turn-Key Accounting™
4 modules that run w/ Omnis 3.1
• RECEIVABLES/ORDER ENTRY
Back order control, prints invoices, delivery slips, aging anytime
• PAYABLES/PAYROLL-Checks, aging anytime
• INVENTORY-P.O.'s
• GENERAL LEDGER-Posting can be delayed until convenient

Modules: $195 licensed. $395 unlocked w/ recommended listing.
Software Products Division
22612 South Avlon Blvd
Cason, CA 90745-4190
(213) 825-6677

RESTAURANT MANAGEMENT

Total control for any size restaurant. System includes:

• Inventory control, menu management, help screens, documentation, hotline support
• Accounts payable, accounts receivable, restaurant payroll, and general ledger, at $75 each Accept VISA/MC Demo: Same. Mac Plus. & Omni 323 Dealers invited. $30 buck guar.

KELLEN SYSTEMS, INC
105 Narcissus St. #310
West Palm Beach, FL 33401
(305) 823-3358, (800) 458-8430

"SIMPLY NOTHING LIKE IT"

ShopKeeper SW Inc.
P.O. Box 30469
Tallahassee, FL 32315
(904) 222-8808

SOFTWARE/ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

Software/Accounting

ACCOUNTING

MacLock/MacCables
Mac Lock, finest security kit for Mac II, Mac II, Mac SE. Mac, keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinyl-covered steel 3/16" cables. Lock included. No tools required. $49.50. Mac Cables provide any length custom cables for Mac + (incl. keyboard or almost any computer need). $29 & up

MacPRODUCTS
2023 San Gabriel Valley Dr.
Walnut Creek, CA 94597
(714) 595-4838

SECURITY

MacLock/MacCables
Mac Lock, finest security kit for Mac II, Mac SE. Mac. keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinyl-covered steel 3/16" cables. Lock included. No tools required. $49.50. Mac Cables provide any length custom cables for Mac + (incl. keyboard or almost any computer need). $29 & up

MacPRODUCTS
2023 San Gabriel Valley Dr.
Walnut Creek, CA 94597
(714) 595-4838

SOFTWARE/ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

Clickmark Accounting™
Introducing
CheckMark MultiLedger
• General Ledger
• Accounts Receivable
• Accounts Payable
• Inventory Tracking
• Multiple Companies and Profit Centers

CheckMark Payroll
• Complete Payroll System
• Taxes for all 50 States
• Prints Checks, W-2's
• Employer Tax Reports
• Can be fully integrated with MultiLedger

CIRCLE 250 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

ACCOUNTING

MacUser Marketplace

Second Color Option Available

For more information call (212) 503-5115

MacUser Marketplace

Listings are grouped by category and sold by column inches.
**MARKETPLACE**

**ARTIFICIAL INTELLIGENCE**

**FamilyCare™ Software**
This comprehensive medical diagnostic expert system seems expensive, unnecessary tricks to a physician. It suggests possible symptoms and gives specific directions for medical care, home treatment, and medications. Includes hundreds of symptoms, injuries, and diseases of newborns through teenagers.

FamilyCare™ Software
Division of Lundin Laboratories, Inc.
29451 Greenfield Road, Suite #216
Southfield, MI 48076
(1-800) 325-3190 or (313) 559-4561

---

**BUSINESS**

**Excel Toolkits for Business Planning**

Practical worksheets, charts, macros, and complete application guide
- Business Plan: $69.95
- Financial Forecasting and Planning: $49.95
- Sales and Market Forecasting: $49.95

Infoplan
155 Forest, Palo Alto, CA 94301
(800) 336-5544 or (415) 325-3190
CIRCLE 251 ON READER SERVICE CARD

**ORDER HOUSE**
Integrated business environment, ORDER HOUSE is a multiluser, multitasking application that integrates all the functions of business. Includes order and purchase lists, invoices, inventory, and accounting. Also features notes and order lists, page margins, labels, and merged letters. We specializes in custom training. Demo with video training tape available.

Excel Software
724 Altman Way
Berkeley, CA 94710
(415) 943-1725

CIRCLE 251 ON READER SERVICE CARD

**Business Plan on diskette**

**MacBizPlan™**

Over 70 pages of outlines, guidelines, startet sentences & paragraphs, lists, suggestions... DMWX already typed into 22 MacWrite files — lots of good copy that can be edited into a comprehensive business plan. A tremendous head-start for marketing entrepreneurs, consultants & executives.

From Tools For Sales™

$79.95 (415) 941-9191
CIRCLE 251 ON READER SERVICE CARD

---

**MacEnvelope™**

Print envelopes with LaserWriter® or ImageWriter® quickly and easily. No more layout headaches. Save addresses and layouts. Use any fonts in your system. Use styles to add space and sophisticated to your envelope printing. Not copy-protected. $129.95 or larger.

SYNEX 629 Tenth St Brooklyn NY 11215 (718) 495-6293
CIRCLE 252 ON READER SERVICE CARD

**Small Business Accounting**

No small business should be without a shellbox Fin techniques. Low cost powerful tools accounting software 30 day satisfaction warranty. All accounting areas plus many extra features. Inventory input involving payroll, payables receivables banking mail merge to name a few.

$99.95 HD with MAC + SE or II
A. H. MUSSER SR.
1606 NW 21st St.
Gainesville, FL 32606
(904) 372-0656

---

**BUSINESS TIME MANAGEMENT**

Revolutionary!! Timeminder™ 1.7
Automatic time tracking program and D/IA. Time Minder features Time Billing, Project Billing, Auto warning of projects coming due. Employee Productivity reporting. Invoice Printing, Individual Client Ledgers, 2-page work notes. Manual Entry System, PauseTime D/A, Variable Project Search, much more...

$999

Atrix Software
P.O. Box 5559
Grand Forks, ND 58205-5559
Order line: 1-800-426-0554

---

**COMMUNICATIONS**

**TextTerm+Graphics**

New, MultiFinder version supports searching background file transfers, fast DEC VT100 and Tektronix (4014, 4105) terminal emulation. Reverse scrolling, editor, color, large screens & color. $195

Mesa Graphics
P.O. Box 600
Los Alamos, NM 87544
(505) 672-1998
CIRCLE 253 ON READER SERVICE CARD

**COMPUTER**

**HP3000, 9000 & 1000 Users**

Your Mac can talk to all HP computers with a terminal emulation program. Business Session emulates an HP 2392 terminal, running all HP software in the unique Macintosh environment. Graphic Session easily emulates an HP 2393, adding monochrome graphics capability. Color Session, coming soon, emulates an HP 2397 color graphics terminal. All products include text, intelligent file transfer, kev, memo, and much more.

$299

Atrix Software
P.O. Box 5559
Grand Forks, ND 58205-5559
Order line: 1-800-426-0554

---

**COMMUNICATIONS**

**Contact**
Burnouts emulation. Contact software emulates DEC VT102 terminals. Sophisticated data capture-all screen data can be used by spreadsheet, database, word processor, CANDE & KMDEM file transfer. Full Mac interface. Soft keys, multiple pages & addresses, password protection. Soon full file transfer capabilities, Interactive terminal emulation. Avenue Software, Inc.
1173 W. Cheval Blvd
Quebec QC G1N 2C9
(418) 682-2088

MAC-3000 TERMINAL EMULATOR

MAC-3000 provides users with full terminal emulation of a Hewlett-Packard 2392 A Block Mode Terminal. Features also include Master terminal compatibility for the IBM 2387 and DEC VT102 terminals. Additional features are key equivalents for HP screen commands file transfers, extended screen memory mouse oriented cursor positioning and much more. Retail $150

TEKTONICS
8 Mariposa Ave.
San Anselmo, CA 94960
(415) 454-1607

---

**DESKTOP PUBLISHING**

**MacUser Marketplace**
To place your ad call (212) 503-5115

---

**DESKTOP CATALOG™**

Preprintmaking products for Desktop Designers in Publishing, Presentations and Graphic Design. You've paid for the system and now it may outperform! We sell the products Desktop Designers need. For your free catalog. Call or write: Desktop Catalog
Customer Service
P.O. Box 7336-A
Boise, ID 83707
(800) 326-2386
(208) 384-5222

**MACPALETTE**

MacPalette by Microsoft enables you to print multicolored text and images using the ImageWriter II. MacPalette is compatible with existing documents from MacDraw, MacDraft, MiniCad, MacProject, MacWrite, Jazz, Microsoft Chart, Word, etc. (not MacPaint). It prints black as black and white as black. $69.
COMPSERVCO
800 Freedom Lane
Shoff, LA 70458
(800) 326-5533 or (504) 649-0464

**Interactive PostScript™ Program PostScript™ interactively over AppleTalk using the PostScript™ integrated program environment. Full featured editor, separate error message capture window & fast text selection tool. Great for the beginner, essential for the serious PostScript programmer. $59.95
MICRO DYNAMICS, LTD., Dept U
8556 Sixteenth Street, Suite 602
Silver Spring, MD 20901
(800) 364-7638 or (301) 589-0464

---

**MacUser Marketplace**

MacUser Marketplace
To place your ad call (212) 503-5115

---

**All U.S. Presidents Clip Art**

Drawn by a professional portrait artist

Verbex Corporation
1745 Del Avenue
Campbell, CA 95008
(408) 374-5940
(408) 374-5938
Visa or MasterCard Accepted

---

**M A Y 1 9 8 8 M A C U S E R 3 0 3**
**DEVELOPMENT TOOLS**

PSORT UTILITY
Fast sorting utility for fixed and variable record sorting on any size file. Multi-key sort in ascending/descending order. Select number of records to sort. Skip header blocks if required. Modules for Turbo, LS-Pascal for program development included. Stand alone program using PSORT includes sources.

$59.95 US or $74.00 Canadian. Great gift! MicroVisa $39.95

**KIERAN**
Interactive Learning Program for children, ages 2-6. Uses child's name in speech and pictures. Covers alphabet training, time telling, counting skills, upper/lower case, and mystery door! 4 mice rating in MacUser.

Great gift! MC Visa $39.95

**SOFTWARE DEVELOPERS**
Permanent Identification of your Company, Information, or Products.

**SOFTWARE DUPLICATION/PACKAGING**
3.5" / 5.25" / HIGH DENSITY

WEST COAST TELECOM
CALL: (503) 620-1888

**EDUCATIONAL**

**MacKids**
Call or write for your free catalog of Macintosh educational programs. Written especially for preschool to elementary students. $39.95 each. VISA/MC accepted.

800-228-0417 Nordic Software - 3939 N. 48th - Lincoln NE 68504 - (402) 466-6652

**ALGEBRA HOMEWORK TUTOR**
Revolutionary Homework Tutor lets you do your algebra homework or classwork on a Mac. Checks each step you enter, gives hints, posting practice problems, solves and explains examples, and prints completed homework. Easy editing. Standard Mac interface, and too much more to tell. Send for free brochure.

MISSING LINK SOFTWARE
Box 3290
South Amboy, NJ 08879
(201)721-2563

**FREE MAC EDUCATIONAL CATALOG**
Featuring: MICROGRADE - grade keeping. Easy course set-up, large class size, 100 assignments, personalized grading. Prints statistics/ various reports, MICROTEST II - create, update, generate and store exam materials. Easy question entry, large data-base, multiple test versions, separate answer keys. $95 each. $5 demos. AND MORE MAC TITLES!

CHARIOT SOFTWARE GROUP
3659 India Street MU#2
San Diego, CA 92103
(619)298-0202

**TEST GENERATION AND SCORING!**
LXR-TEST - the only complete testing system for the Mac! Rated "best testing tool on the market." (714) 980-0046 AppleLink: D0626

**ENGINEERING**

**CIVIL & STRUCTURAL**

NEW MacCADD for geomatics & structural properties of shapes. $145. CADD MAC available 1/88 (traditional CADD). MFL Guarantee Computing Inc. (formerly Erez Anzil SW) 113 McCabe Crescent
Thornhill, Ontario Canada L4J 256
(416)739-4011

**ENGINEERING**

**HI-RES GRAPHS & STATS**
Join scientific, educational, research & engineering instructors across the country analyzing data provided by user-friendly packages. ENGINEERING TOOL KIT, STATS TOOL KIT, PROCESS CONTROL CHART TOOL KIT, BIO-MEDICAL RESEARCH CHART TOOL KIT, Macintosh/MOS $99-129 ea.

SOFT-WARE TOOLS
P.O. Box 8751
Boise, ID 83707
(208)343-1437
Digital Logic Schematic/Simulation LogicWorks

Standard Features:
- Simulates a "live" circuit on screen.
- User defined device symbols and logic.
- Creates and simulates PNP's and FETs.
- Extends and component list format.
- Includes libraries of 74xx and 54xx devices and analog symbols.

$199.95 U.S.

Programmable Logic Development LPLC

Axon From Capilano Computing
LPLC allows a hardware designer to express a circuit in a high level language, then automatically produces an optimal code to burn in a RAM or other programmable logic device.

$299.95 U.S.

Capilano Computing
435-108th N. St. Suite 6
Bellevue, WA 98004
(604) 669-6343

MicroLogic is distributed by Micro Logic Technologies.

New version 2.0!

IMASSTM

- 40:COP450 family
- 100:1050 family
- 160:4050 family
- 640:6050 family
- 800:8050 family
- 680:6850 family
- 1680:1600 family
- 200:2050 family
- 1620:1605 family
- 2020:2005 family
- 230:2650 family
- 2320:2680 family
- 2620:2680 family
- 2650 family
- 2680 family

$99.95 ea.

Entertainment/Games

MacNocchi Cho-Choo

Parade me boys, is this the MacNocchi Choo Choo? Yes, it's a fun to play electronic train set. Build elaborate model railroad systems on your Mac and bring them to life with the click of a switch. Simply place desired images of tracks, engines, cars, scenery, etc., into configuration for layouts of one screen or more. Run at night. Use MacPaint for more scenery. $49.95 + $3.50 s/h. Contact us for more information.

Survivor Software Ltd.
1122 La Cañada Blvd, Ste. 450
Inglewood, CA 90304
(213) 410-9237

MacMoney

A personal and small business financial management program that's easy to use.

FLUENT LASER FONTS

- Professional, "python" appearance
- Provides better quality photocopies
- 11 sizes: 6-12, 14, 18, 24 & 36 pt.
- 70 fractions from 1/2 through 9/9
- Horizontal lines of varying length
- 2/1-pixel leading/space adjustment
- Additional mathematical symbols
- Two manuals provided on disc
- Save cost of expensive printer; only $15 ($15.98 in CA) + blank disc!

ADH Software
P.O. Box 67129
Los Angeles, CA 90067-0129

MAY 1988 MAC USER 305

MacUser Marketplace is a special economical section for product and service listings.
**MARKETPLACE**

**GRAPHICS**

**ClipArt**

**Illustrations**

PostScript & E.P.S. for Screen Viewing
- Click & Clip - Subscription: Clip Art - Quarterly

$39.95 per issue or $125. for a full year (4 issues)
- Click & Clip 300 - The Complete Library

500 illustrations - includes storage case and also a pictorial index of all illustrations. $395.

Order Today! Send Name, Address, and Phone No. to:
Studio Adv. Art, P.O. Box 18432-52, Las Vegas, NV 89114
Order Hotline (800) 453-1860 Ext. 641
Technical Support or Questions (702) 641-7041

**CADMOVER**

MacDraw, TogaCAD, VersaCAD, and MacDraft, and many other programs.

Drawings in both MacDraw, MacDraft, and MiniCAD, etc.

COMPSEFCO
800 Freedom Lane
Slidell, LA 70458
(800) 272-5533 or (504) 649-0484

**ADD COLOR TO YOUR MAC II**

Colorizer + the complete color accessory kit for the Mac II. Add color for PICT documents.

Customize screen colors with provided color coordinated decals, or create your own. The greatest thing since sliced bread. MacColor!

Save color screen images to disk or print them in color. $49.95 ($3 S/H). Visa/MC.

PALOMAR SOFTWARE, INC.
P.O. Box 2635
Vista, CA 92083
(619) 272-5322

**CADD**

CADMOVER creates multiple bridges between many I.D. and I.I.D. CAD systems in today's market. Graphic file formats which it can handle include: DXT, IGES, PICT, MiniCAD, MacDraw, MacDraft, and MSC/pal formats. This data transfer may be done by modem or by disk (such as the Dayna One or the Apple 5 25).

COMPSEFCO
800 Freedom Lane
Slidell, LA 70458
(800) 272-5533 or (504) 649-0484

**MAPS**

Maps of the USA, all 50 states, and world In Point, Draw (PICT), EPSF, and HyperCard formats!

Call for free brochure: 800-334-4291

**VersaCAD**

VeraCAD, with more than 40,000 systems in use worldwide, is now available on the Macintosh! Floating point precision guarantees 16 decimal place accuracy. Features include: DXT & IGES translators included, directly accesses the math coprocessor, sophisticated object attributes, grouping, and 250 layers.

COMPSEFCO
800 Freedom Lane
Slidell, LA 70458
(800) 272-5533 or (504) 649-0484

**LANGUAGES**

**ZBasic 4.0**

The fastest BASIC available for MacTUTOR

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.

**MACPLOT**

MacPLOT is the "choosier" level plotter driver of choice. It will plot any object oriented graphics produced on the Mac using the "print" command. It supports over 50 plotters.

**U.S. Presidential Candidates List**

Clip Art

Drawn by a professional portrait artist. Available, Presidential Candidates in Portrait and Cartoon Style. Various Corporations:

- 1745 Del Ave
- Carson, CA 90746

Order By Phone: (800) 866-5866

**Language Tools**

- **NEW HANDBOOK** Explains how to use the Macintosh, its keyboard, mouse, and disk drives.
- **LONGINT** $7.45
- **SELECT CASE** (now included in MBCP 4.0) saves your program.
- **EDIT** Memory mapping.
- **CREATE-CLICK Applic.'s** Memory Monitor DA and TRON DA lets you watch memory or variables.
- **MATHE'ACURACY** TO ORDER
- **BUILD-DEBUGGER** Memory Monitor DA and TRON DA lets you watch memory or variables.

**ZEDCOR**

MacFinder, ZEDCOR 5503 Speedway, Suite 27, Tucson, AZ 85710 includes shipping. USE $11 CAD, 125 Foreign Any with $124.00 or $125.00

Order Today! Send Name, Address, and Phone No. to:
Studio Adv. Art, P.O. Box 18432-52, Las Vegas, NV 89114
Order Hotline (800) 453-1860 Ext. 641
Technical Support or Questions (702) 641-7041

**GRAPHIC CONNECTIVITY**

CADMOVER, from RANEI SOFTWARE, will move your graphics files to the Macintosh from many sources, including, and PC's. CADMOVER is the utility program for moving between different computers. CADMOVER saves time, money, and effort. You'll never have to reconstruct drawings or illustrations again. CADMOVER reads and writes (DXT, IGES, DFX) and a variety of MAC files. Work Macintosh files back and forth with AutoCAD, VersaCAD, MacDraw, and many other programs. The uses for CADMOVER are limited only by your imagination. For a free call 703-838-8223.

Associated is a trademark of RANEI, Inc., VersaCAD is a trademark of the VERSACAD Corp., and MacDraw is a trademark of Microvista, Inc.

**MACPLOT**

MacPLOT is the "choosier" level plotter driver of choice. It will plot any object oriented graphics produced on the Mac using the "print" command. It supports over 50 plotters.

**CADMOVER**

CADMOVER creates multiple bridges between many I.D. and I.I.D. CAD systems in today's market. Graphic file formats which it can handle include: DXT, IGES, PICT, MiniCAD, MacDraw, MacDraft, and MSC/pal formats. This data transfer may be done by modem or by disk (such as the Dayna One or the Apple 5 25).

COMPSEFCO
800 Freedom Lane
Slidell, LA 70458
(800) 272-5533 or (504) 649-0484

**ADDITIONAL ON READER SERVICE CARD**

**READER SERVICE CARD**

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.

**FREE PRINT ORDER**

Only $89.99 - 60-Day Money-Back Guarantee

For Information, send $1.00 for catalog.
MacForth Plus is getting better all the time.

New version 3.53 supports MultiFinder in addition to the many standard features:
- local multitasking
- integrated text editor
- floating point
- built-in assembler
- built-in compiler
- extensive toolbox support

Call for a technical data sheet. 1-800-FORTU-OK

Creative Solutions, Inc.
4703 Randolph Rd., Suite 12, Rockville, MD 20852
301-986-0262 technical questions

SemperSoft Modula-2
for the Macintosh
Programmer's Workshop

* New 60000 native code compiler written expressly for the Macintosh
* Standard Modula-2 libraries plus all of Inside Macintosh Volumes I thru V
* Multi-Finder support
* compatible with MPW Pascal
* Library source included
* MPW bundle available

Semper Software
P.O. Box 225
Glen Ellyn, IL 60138
(312) 790-1253

NEW COMPUTER MUSIC CATALOG!
Largest music software selection anywhere! 80 pages of detailed info on the leading computer music products including synthesizers, educational software, sequencers, MIDI interfaces, accessories & more. Get the facts! Competitive prices. Visa/MasterCard Worldwide shipment! Send $3 for a 2-year catalog subscription.

DIGITAL ARTS & TECHNOLOGIES
Dept. MLZ, P.O. Box 11
Milford, CT 06460
(203) 874-9985

PAYROLL

TIME SAVER PAYROLL 4.0
NOW EVEN BETTER • FULL FEATURED
SYSTEM • salaried, hourly comm & tips
• 11 deductions incl. Fed/Stat/Loc taxes •
• 40k ded • Tax tables edited by user
Reports incl. 941, FUTA, SUTA & WI's
checks Requires EXCEL $95.00
• 3 s/h. Demo $15.00 (applied to purchase)
WESTERN SOFTWARE ASSOCIATES
110 E Donato Rd
Monte Creek, CA 95055
(415) 932-3999

PRINTER/PLOTTER DRIVERS

PRINTER CHOICE FOR MAC
MAC/DISYLINK 2.0
A new member of the GD/ driver family. It is a single printer driver that allows any daisywheel printer or properly interfaced typewriter to be used with any Macintosh computer. User configurable ($50.00)
THE PRINT-LINK 2.0 continues as the printer specific family member that supports a variety of dot matrix printers (9 & 24 pin) and inkjet printers. Supported printers top numerous to list. (62.00) Both install using 'Chooser'. Macintosh driver $22.95
GD/Softworks, Inc.
Point Roberts, WA 98281
To inquire (604) 291-9125
To order (604) 663-MACC (6222)

CIRCLE 206 ON READER SERVICE CARD

16 Day Rental on Mac Software

1-800-MAC-TSR0
(1-800-622-8770)

All Fees Apply To Purchase

Bus Sense-65.90, CalendarMaker-7.90, Canvas2.20, CryptoGroup-22.90, Coach-12.90
dBaseMac-44.90, DeskPaint-9.90, FastBack-12.90, Fontus-9.90, Gemini-7.90/up
MacProof-23.90, MaxMemo-33.90, MCSIM-149.90, MirroRamen-65.90, Minicad-74.90
PixelPaint-41.90, Post Am-10.90, Pronto-3.50, QuickDraw-13.90
RSC-41.90, Readl OCR-38.90, Sentinel-21.90, Suitcase-8.90
Video Works-12-26.90, MS Works-25.90, MS Write-22.90

Plus Hundreds More In Stock

And Hardware Too!

CMS SCSI Drive & Tape Units
SD20- $579, SD43- $387, SD60- $959, SD80- $1325
TS60E Tape Back Up- $799.00
MacScan LS 300 $1257, 2400 Baud Modems $199.00
Compare Terms, Price and Delivery—TSR Is The BEST!

Our Second Year for the Business Mac
TSR – 8177 S. Harvard – Suite 336, Tulsa, OK 74137

MacUser Marketplace
Standard directory listings available for a minimum of 3 issues at $345.00 per issue ($1,035.00 total).

Call (212) 503-5115

CIRCLE 278 ON READER SERVICE CARD
MacAppraiser
The New Standard for Appraisals from Macintosh
Simplicity at its best... Productivity at its highest.
Introductory Offer
3 Forms in 1 Package: LURAR, Condo & Income $395
- Stand-alone Program
- Very fast. includes Sketcher
- Prevents all calculations
- Prints on ImageWriter & Daisy
- Runs on all Macs except 128K
- Printing Demo Kit $10
BRADFORD AND ROBBINS
20656 Silver Oak Lane. Cupertino, CA 95014
Call (408) 996-2331
CIRCLE 282 ON READER SERVICE CARD

MacUser Marketplace
To place your ad call
(212) 503-5115

Real Estate Solutions
- Track™ clients' real estate interests, contact history, appointments & expenses. Real
data labels, autodater, XIRAS™ $395
- Lead™ manage buyer & seller leads, sales, and follow-up Measure effectiveness of Ad¬
client generation & sales activities. Reports. Graphs & XIRAS™ $595
- For Sale™ maintain all properties in a town or area including property descriptions, own¬
er occupants, contact history, assessments & sales info. Mail labels & XIRAS™ $604
- List™ property listing system for all types of properties. Includes desktop pictures. Ex¬
ports graphs, watching & sorting. User-customizable. Multi-User $795
- The Financial Analyst™ Reports for buyers & sellers, buyer qualification, home owner¬
ship benefits, BRR. amortization, depreciation, loan tables, & more $295
- Prospect™ Customizable client management system for any business. Contact history,
mail labels, reports, and autodater. $395
- HyperCard decks $15 each. 3 for $50. Call about new products planned for 1988.

Softworks Inc.
P.O. Box 2285
Huntington, CA 92648
(213) 924-1116
CIRCLE 281 ON READER SERVICE CARD

Scientific
TypeSet Quality
Equations Made Easy
Expressionist™
2 variable
Expressionist™ a Desk Accessory Equation Editor that generates
MacDraw™ quality Pictures for word processing and
desktop publishing. Macros, loop & math integrals, etc.
- Font and Ocas Eying:
- Keyboard Shortcuts
- Use with all WPs
$79.95
gilan bonadio associates
1570 Dickson #26, SF, CA 94110 (415) 282-5864
CIRCLE 285 ON READER SERVICE CARD

MacUser Marketplace
is a special economical section for product and service listings.

Security
ADVANCED COPY PROTECTION
Free Demo Diskette
The world's leading software manufacturers depend on Softguard copy protection systems.

Now Softguard introduces the MACLoK Kit™
- a complete software duplication/copy protection system for Macintosh computers.
- New hard disk support with install/uninstall.
- No source code changes.
- Compatible with all Macintosh systems.
- Each protection system unique.
- Stops all copybusters

SoftGuard Systems Incorporated
710 Lakeway
Suite 200
Sunnyvale, CA 94086-1013
Call (408) 773-9680
CIRCLE 286 ON READER SERVICE CARD

SHAREWARE

20 Megabytes of Stackware™
A 25 disk set consisting of many business, home, educational, and games programs - also beginning and advanced HyperCard™ tutorials and our FREE 650 program catalog disk.

All 25 disks for ONLY $99.95 plus shipping and handling. Also available individually for only $5.95.

Buy the Set and Save $99.00
VISA, MC, AMEX or (C.O.D. + $5.00)
800-892-1992 or 619-942-9998 (Foreign)
INTERNATIONAL SOFTWARE LIBRARY
425 10th Endroit Blvd. Endroit CA 92020
CALL 619-942-9998
CIRCLE 287 ON READER SERVICE CARD

Stackware

AUTHORS! AUTHORS!
WANT TO CASH IN?
Link your HyperCard stacks with the nationwide publishing house.
Why give away your super stacks when you can receive the highest royalty in the industry?
Join in a great partnership... today!
MaxStack
P.O. Box 2719
Oakland, CA 94602
CIRCLE 288 ON READER SERVICE CARD

SHAREWARE

MacRecorder™
MacRecorder records real sound into your Macintosh. MacRecorder is simple to use. Just hold it in your hand and speak into the built-in microphone, or record directly from your TV or stereo. Your package includes HyperSound™ stackware lets you record and work with sound from within HyperCard. Sound editing software records sound, then lets you edit and save the file in a variety of formats including HyperCard, StudioSession™, VideoWorks™ & Beep IMS's Farallon Computing.

MacRecorder™
2150 Kendige Street
Berkeley, CA 94704
(415) 849-2331

MacRecorder records real sound into your Macintosh. MacRecorder is simple to use. Just hold it in your hand and speak into the built-in microphone, or record directly from your TV or stereo. Your package includes HyperSound™ stackware lets you record and work with sound from within HyperCard. Sound editing software records sound, then lets you edit and save the file in a variety of formats including HyperCard, StudioSession™, VideoWorks™ & Beep IMS's Farallon Computing.

MacRecorder™
2150 Kendige Street
Berkeley, CA 94704
(415) 849-2331

Stackware category
continued on next page.
STACKWARE

Connect Your Desk To Your Business
A starter kit for the serious Hypercard office implementor. Includes tips, scripts, ideas & examples on an 800 K disk.

Sand Mailing Address and $49 (check or Money Order) to:

Executive Office Solutions
P.O. Box 28
Monroe, Oh 45050

CIRCLE 13 ON READER SERVICE CARD

FREE HYPERCARD NEWSLETTER!

HYPER-USER

RESOURCES FOR THE HYPERCARD COMMUNITY

Hyper-USER

to take care of all those Hyper-card projects. E minor with useful tips, tricks, stackware reviews, tutorials, and an extensive collection of free and shareware stacks. Finally a resource center dedicated to the Hypercard community!

Send 81.00 for PAX

CIRCLE 291 ON READER SERVICE CARD

HYPERCONTROL™

Overcome the limitations of hypercard with HyperCONTROL. Perfect for making tables, making reports. Print cards by selected buttons or submitting field searches. Reformat fields, multiple fields can be put on the same line. Save layouts as documents, faster printing. $99.95, Furn 1987

NORDIC SOFTWARE, INC.

3093 North 48th Street
Lincoln, NE 68504

(402) 466-0562 (800) 228-6417

CIRCLE 304 ON READER SERVICE CARD

COMPUTER-BASED TRAINING

Tap HyperCard's power in interactive Computer-Based Training development. Two 800K discs, 12 stacks. Formats, templates, routines and samples included. A great tool for trainers, educators and entrepreneurs. The "EZ Format" alone will save you weeks of time in program development. Send check for $115 payable to First Reference to:

First Reference, Inc.

216 17th Avenue #706
New York, NY 10036

(212) 730-8211

CIRCLE 305 ON READER SERVICE CARD

BASEBALL STAT & STACKWARE

Complete Baseball Stats 86 & 87 seasons in HyperCard, Excel, FileMaker, OverVue, Reflex, etc. Powerful database files that sort, rank, etc. Over 25 categories. Great for Fantasy players & baseball fans. $20/season or $30/both. We also carry a large collection of utility, public domain, etc. stackware at $17/full disk or $4.00/8 disk.

Sportsware Co.

440 Hoxton St.
Glencoe, CA 90202
(408) 842-0190

CIRCLE 306 ON READER SERVICE CARD

STATISTICS

RATS!!

Best-selling and most comprehensive econometrics & forecasting software available. Combines regression, time series and forecasting with data base management and high res graphics. All for only $300. Call today and find out how RATS can help you!!

1-800-822-8038

VAR Econometrics

P.O. Box 1318 Evanston, Il 60204

(312) 864-8772

CIRCLE 298 ON READER SERVICE CARD

CIRCLE 313 ON READER SERVICE CARD

CIRCLE 49 ON READER SERVICE CARD

MacUser Marketplace

To place your ad call

(212) 503-5115

MAY 1988 MACUSER 309
A/UX: Apple’s Worst Mistake

Apple’s enthusiastic adoption of A/UX (aka UNIX) is the biggest blunder in the history of the company. Make no mistake about it: the Lisa debacle, the “twisty” floppy, and the premature release of the buggy Apple III will pale in comparison to the decision to support and encourage A/UX applications. Thank you, John Sculley.

Let’s examine all the implications of this fiasco. First off, here’s a company that has been fighting tooth and nail to protect its proprietary market position. Gangs of grimacing lawyers sue every Tom, Dick, and Harry who tries to clone an Apple product. Now Apple adopts an operating system that allows easy ports to every competitor in the world. It’s not as though the Apple UNIX were some sort of oddball option like the p-System or MS-DOS on a card. This UNIX will eventually have the Mac interface. It’s a corporate thrust.

Already I’m told that people have seen the A/UX version of PageMaker 3.0 running on a Steve Jobs’ NeXT computer. The port from A/UX to any other UNIX is a piece of cake. So much for the software advantage of the Mac.

I was given a demo of the Wings spreadsheet product and was told that it was originally written for A/UX with assistance from Apple. The company is working on the native Mac OS version at the same time as it’s porting it to Sun, IBM, and every other imaginable machine. Why doesn’t Apple simply sign its own death warrant? If nothing else, Apple is putting itself into a price war with this tack. Why should anyone pay $10,000 for a Mac II if the package a person wants (such as PageMaker 3.0) runs as well on a cheaper machine?

Apple, of course, is aware that Sun Microsystems, NeXT Computers, and presumably others will be rolling out low-end workstations that will compete with the Apple Mac II. These are all UNIX boxes. Instead of holding tough and letting these clowns flop, Apple has decided to regroup with this UNIX strategy. Does Apple hope to compete with Sun in the UNIX marketplace? Sun is teamed up with the inventor of UNIX, AT&T, and has the top UNIX guru, Bill Joy.

On the other hand, Apple’s strength is its marketing prowess. There is no way Sun or NeXT or AT&T could possibly beat Apple customers wanted it.” I had to laugh. What Mac customer wants UNIX? Obviously it was a few freshman-college rubes at Apple who promoted the whole idea. Here’s the Pepsi challenge. Take a good look at anyone who tells you UNIX is great — the best. Tell me what you see. One thing for sure — you never see a mature individual. You see a kid. Usually a college kid. The only mature adults who promote the thing have a vested interest in its success. They use the college kids as their foil. Indeed, it works. Dopey executives figure these green kids must know something because they have bachelor’s degrees in computer science. So they go along with the program.

The program always yields the same results — disaster. The low-end of this business does not need or want UNIX. Never has, never will. Since the days of the 8086 machines a decade ago, these glassy-eyed UNIX nutballs have been pushing UNIX and doomed one firm or another to failure. Although the user of a $30,000 Sun workstation may think UNIX is great as a development tool (although he has to hand patch it to get it to work “just right”), the user of a $3500 system hasn’t the time to deal with UNIX.

The most recent low-end UNIX machines were the AT&T 7200 and the Fortune Systems 16:32. To make these things marketable, both companies had to encase UNIX in a bulletproof “shell” program, adding overhead and thus sapping already poor UNIX performance. Both machines are defunct and Fortune is dead broke. Apple is headed down the same path. Apple will start this doomed journey by installing its famed user interface as a shell program on top of UNIX. You can kiss response time and right “feel” goodbye. Moreover, Apple is promoting this interface as a standard at X-Windows meetings. Oh, if you don’t know, all the UNIX people are trying to standardize a windowing environment (called X-Windows) that will run on top of UNIX. So what is Apple doing in these meetings? Giving away its edge, that’s what.
Andrew Tobias' *Managing Your Money* ... the number one selling personal financial software for the IBM® PC. Now available for the Mac!

Software that makes your personal computer worth having.

1987 • 355 RIVERSIDE AVENUE • WESTPORT, CT 06880

Requirements: minimum 512K memory and two disk drives (1 drive must be at least an 800K).

Please circle 41 on reader service card.
BUY MORE TODAY, AND SEE AMERICA FOR FREE.

GET "A DAY IN THE LIFE OF AMERICA" (A $45 VALUE) FREE* WHEN YOU BUY AMERICA'S #1 PRESENTATION AND PRODUCTIVITY SOFTWARE.

Rick Smolan, creator of the "A Day In The Life" series, and David Cohen, President of Collins Publishing, used MORE to help organize and produce A Day In The Life of America. That's why from now until June 30, 1988 we'll give you their beautiful book as an incentive to improve your plans and presentations using MORE.

MORE combines an award winning outline processor and an instant presentation maker because all great presentations start with great plans. MORE is the best choice for organizing ideas and projects quickly. And then presenting them even on a moment's notice. It turns your outlines into bullet or organization-type charts, complete with your choice of borders and fonts instantly. Not just fast. Instantly. With just one mouse click. Which means you can make thousands of overheads as quickly as one. For planning, organizing, and presenting everything from morning meeting agendas to nation-wide projects, MORE is your instant answer.

MORE is the industry best-seller. And, it is a MacUser product of the year. So, get MORE at your dealer today. You'll turn ideas into picture-perfect results tomorrow. But act now. After all, A Day will only last so long.