

FLASH! Apple's 14 New Network Products

**MacUSER
LABS**

RATES FAX MODEMS

\$2.95
\$3.95 CANADA

MacUser

AUGUST 1989

Get On-Line!

Resource Guide:
Dial-Up
Business Services

Word Processing
Shoot-Out
MacWrite II vs.
WriteNow

Power Up Your
System with
INITs and cdevs

At Last!
AppleTalk 2.0
Token Ring
for the Mac

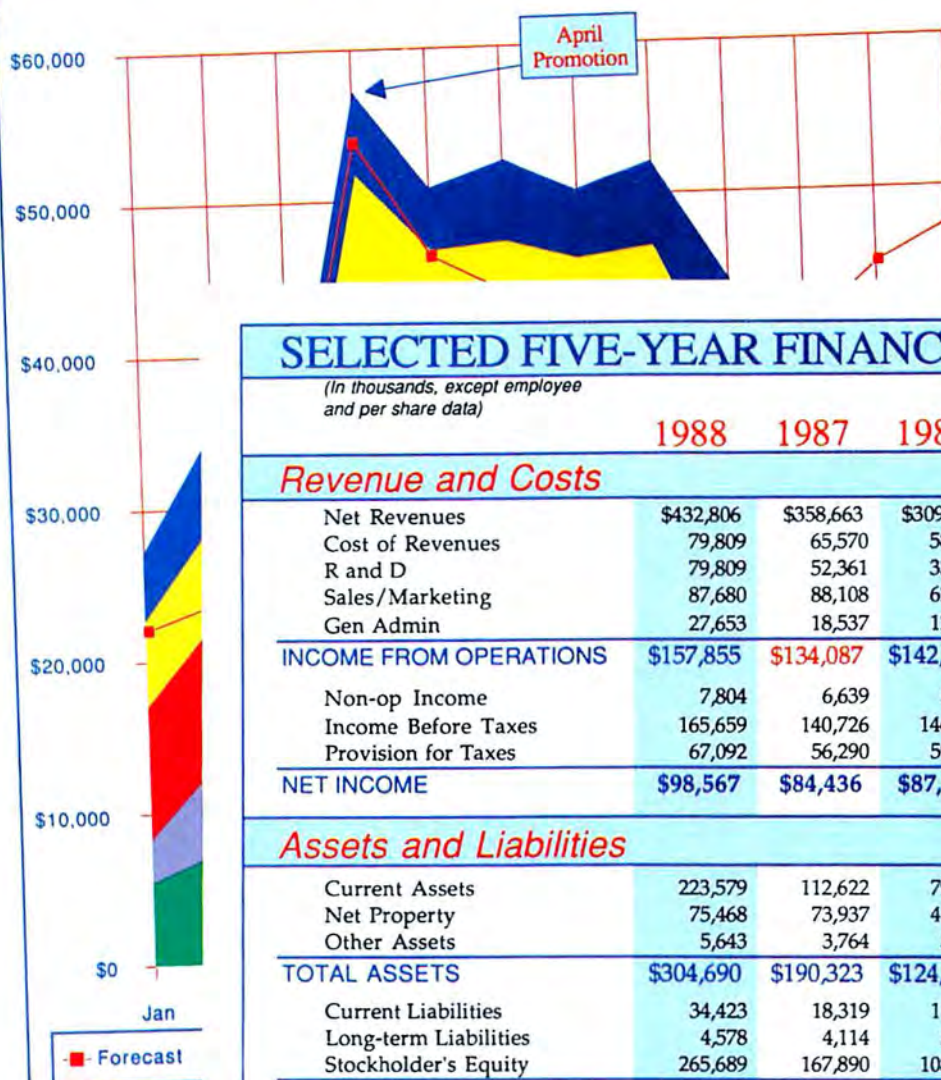
**PLUS HOT NEW MAC
REVIEWS**

Acknowledge
Acta Advantage
Intelligent Data Computer
Smartcom II
MicroPhone II
Red Ryder . . . and more!



Special Report:
Telecom
Hardware
and
Software

Monthly Profit By Product Line



SELECTED FIVE-YEAR FINANCIAL DATA

(In thousands, except employee and per share data)

	1988	1987	1986	1985	1984
Revenue and Costs					
Net Revenues	\$432,806	\$358,663	\$309,266	\$239,656	\$207,907
Cost of Revenues	79,809	65,570	58,344	40,710	40,215
R and D	79,809	52,361	33,081	21,420	20,676
Sales/Marketing	87,680	88,108	62,490	48,999	26,409
Gen Admin	27,653	18,537	12,594	7,306	4,520
INCOME FROM OPERATIONS	\$157,855	\$134,087	\$142,756	\$121,221	\$116,088
Non-op Income	7,804	6,639	3,715	2,008	1,387
Income Before Taxes	165,659	140,726	146,471	123,229	117,475
Provision for Taxes	67,092	56,290	59,321	49,908	47,577
NET INCOME	\$98,567	\$84,436	\$87,150	\$73,321	\$69,898
Assets and Liabilities					
Current Assets	223,579	112,622	79,282	44,256	44,055
Net Property	75,468	73,937	41,209	24,957	19,374
Other Assets	5,643	3,764	3,673	2,402	1,899
TOTAL ASSETS	\$304,690	\$190,323	\$124,164	\$71,615	\$65,327
Current Liabilities	34,423	18,319	11,599	5,077	9,940
Long-term Liabilities	4,578	4,114	3,602	3,293	3,146
Stockholder's Equity	265,689	167,890	108,964	63,245	52,242
TOTAL LIABILITIES & EQUITY	\$304,690	\$190,323	\$124,164	\$71,615	\$65,327
Working Capital	189,642	173,468	127,766	119,489	77,041
Number of Employees	3,456	2,727	1,681	1,390	1,086
Common Stock Data					
Net Income per Share	\$1.13	\$1.64	\$1.94	\$1.90	\$2.59
Book Value per Share	\$4.56	\$3.56	\$2.29	\$1.46	\$0.78
Cash and Investments	\$2.65	\$1.60	\$0.83	\$0.64	\$0.48
Average Shares Out	87,535	83,258	44,956	38,634	26,984
Shares Out/Year-end	86,790	51,305	26,589	15,905	9,082
Key Ratios					
Return on Net Revenues	23%	23%	28%	31%	34%
Return on Total Assets	32%	44%	70%	102%	107%
Return on Stock Equity	37%	50%	80%	116%	134%

As you can see, there's more than one way to highlight: Now pick from 256 fonts. Change row height. Shade. And get used to the sound of applause.

So have we. Introducing Microsoft Excel 2.2.

Back in 1985, not long after the Macintosh® was unveiled, Microsoft® Excel became the most compelling reason to buy one.

Within minutes, it was the spreadsheet standard on the Macintosh. And before we knew it, a full 9 out of 10 Macintosh spreadsheet users were swearing by it.

They still are.

But while many consider Microsoft Excel to be one incredible spreadsheet, we've been working on a way to change all that. The result: Microsoft Excel version 2.2 has just come to the small screen.

In simple mathematical terms, let's just say that 2.2 is greater than 1.5. In more technical terms, let's just say that now your spreadsheets aren't limited to 1MB of memory — version 2.2 taps every ounce of power from even the 8meg machines. Which means very soon you'll be creating spreadsheets of outrageous proportions.

Equally outrageous is how much faster you'll be able to perform your calculations: Try up to 40% faster, thanks

to our advanced intelligent recalc.

As for presentation? Version 2.2 lets you highlight data in ways you never could before: You can pick from 256 different fonts per sheet, including up to six styles and eight colors. You can change row height. You can shade. And basically pack your documents with more visual punch than ever before.

You can also add notes to any cell on a worksheet, or macro-sheet, so key assumptions are documented — and printable. Plus, thanks to our new built-in tools, you can even audit things like cell precedents and dependents.

Microsoft Excel version 2.2. Another improvement designed to make Mac® enthusiasts even more enthusiastic. Something 90% of you are already used to.

And you other 10% easily can be.

Microsoft®
Making it all make sense.



Used to be, 1MB was enough. Now with Microsoft Excel 2.2, you can take full advantage of the 8 megs in today's most powerful Macintoshes.



90% of Macintosh
spreadsheet users
have been working
on this program.

File Edit Formula Format Data Options Macro Window					
128					
Financials-MS Excel 1.5 doc					
Selected Five - Year Financial Data					
<i>(In thousands, except employee and per share data)</i>					
	1988	1987	1986	1985	1984
Revenue and Costs					
Net Revenues	\$432,806	\$318,663	\$309,266	\$239,656	\$207,907
Cost of Revenues	79,809	165,570	58,344	40,710	40,215
R and D	79,809	52,361	33,081	21,420	20,676
Sales/Marketing	87,680	88,108	62,490	48,999	26,409
Gen Admin	27,653	18,537	12,594	7,306	4,520
Income from Operations	\$157,855	(\$5,913)	\$142,756	\$121,221	\$116,088
Non-op Income	7,804	6,639	3,715	2,008	1,387
Income Before Taxes	165,659	726	146,471	123,229	117,475
Provision for Taxes	67,092	294	59,321	49,908	47,577
Net Income	\$98,567	\$432	\$87,150	\$73,321	\$69,898
Assets and Liabilities					
Current Assets	223,579	112,622	79,282	44,256	44,055
Net Property	75,468	73,937	41,209	24,957	19,374
Other Assets	5,643	3,764	3,673	2,402	1,899
Total Assets	\$304,690	\$190,323	\$124,164	\$71,615	\$65,327
Current Liabilities	34,423	18,319	11,599	5,077	9,940
Long-term Liabilities	4,578	4,114	3,602	3,293	3,146
Stockholder's Equity	265,689	167,890	108,964	63,245	52,242
Total Liabilities and Equity	\$304,690	\$190,323	\$124,164	\$71,615	\$65,327



Macintosh IIx

MacUser

Features



90 Custom Calling

BY DANIEL J. ROSENBAUM

Long-distance information on telecommunications programs, with a giant features chart that shows who's got the right numbers. Plus: E-mail front ends and on-line business services.

Telecom

114 Measure for Measure

BY PAUL D. LEHRMAN

The best music-notation software ever? See how Finale scored when we put it to the test.

131 What's INIT for You?

BY TED LANDAU

Power up your System with INITs and cdevs. How to make them customize your desktop, save your screen, protect your data, handle your mail, and more.

138 Word Wrestlers MacWrite II vs. WriteNow

BY RUSSELL ITO AND JAMES FINN

Hot new versions of two old favorites duke it out. Which word processor is faster? Easier? More powerful?



In Focus

REVIEWS

45 Quick Clicks

EDITED BY RUSSELL ITO

Hands-on reviews of new Macintosh products:

- 45 MacDot
- 47 Acta Advantage
- 50 Prototyper
- 58 PC Tools Deluxe
- 62 MicroNet III-620
- 64 Accu-Weather Forecaster

BRIDGES

197 Currents

EDITED BY HENRY BORTMAN

The scoop on Apple's new network products.

201 Monitoring Your Network

BY JOHN RIZZO

You tune up your car — why not your network? Network-monitoring programs to keep things running smoothly.

204 Trouble Shots

BY KURT VANDERSLUIS

The passive-star topology is the toughest to troubleshoot, but getting it right can make a big difference in network performance.

DTP

163 Between the Lines

EDITED BY AILEEN ABERNATHY AND SALVATORE PARASCANDOLO

Apple's fantastic new font technology, smooth moves from Quark, and reviews of 3-D graphics and eight collections of (mostly) business graphics.

169 Fine Print

BY DAVID HOLZGANG AND SALVATORE PARASCANDOLO

How to be sure you get the fonts you want from your service bureau.

HYPERSPACE

188 NewsLinks

EDITED BY LAURA JOHNSON

Script Library tracks your scripts, SpeakEasy empowers handicapped users, and Intelligent Developer brings an affordable expert system to the Mac.

193 Card Tricks

BY MICHAEL SWAINE

Make HyperCard work as a database.

NEWS

30 New on the Menu

EDITED BY RUSSELL ITO

Easy equation processing, real-time stereo 3-D design, and an animated paint program.



AUGUST 1989

**VOLUME 5
NUMBER 8**



MacUser Labs

Fax Modems

**MacUSER
LABS**

148 The Fax Factor

BY GORDON McCOMB, OWEN W. LINZMAYER,
AND THE MACUSER LABS STAFF

Today's hottest communications technology is happening right now on the Mac. We torture-tested fax modems and their software. Is now the time to buy?

Departments

20 Mail Merge

FROM THE MAC COMMUNITY

Readers check out the Knowledge Navigator, get back to VAX, and share shareware tips.

181 Tip Sheet

COMPILED BY GREGORY WASSON

Scan complex text faster, add and remove fonts from applications, make MacPaint default to pixels, and read IBM TIFF files.

207 Help Folder

BY CHRIS ESPINOSA

Check spelling in Spanish, print Greek letters, get a compact-disc player talking to your Mac, and connect an 800K drive to a Mac II.



247 Updates

Latest versions of current programs.

253 Scrapbook

EDITED BY KRISTI COALE

Get Cosmic with Osmo, build a house in minutes, and synchronize with the *Book of Changes*.

219 MiniFinders

234 Marketplace

248 Advertiser Index

251 Coming Soon



Mac Tools

131 INITs and cdevs: Silent helpers behind the screen.

Columns

9 Paul Somerson • Editor's Desktop
System 7: The countdown begins.

33 William Zachmann • Macintosh Analyst
Apple's fame in *Fortune*.

77 Louise Kohl • Control Panel
The Mac in society.

81 Jim Seymour • Mainstream Mac
Made for each other.

85 Robert R. Wiggins • Pinstripe Mac
The good Word.

258 John C. Dvorak • Devil's Advocate
Another store point.

Cover Photo By Mel Lindstrom

MacUser

Publisher Martin Mazner
Associate Publisher Jeffrey Miller

ZIFF-DAVIS PUBLISHING COMPANY

President William Lohse
Group Vice Presidents
William Lohse, J. Scott Briggs
Executive Vice President Steven C. Kahler
Senior Vice President, Marketing
Paul H. Chook
Vice President, Operations Baird Davis
Vice President, Production Roger Herrmann
Vice President, Controller John Vlachos
Vice President, Creative Services
Herbert Stern
Vice President, Research Marian O. White
Vice President, Classified Advertising
Alicia Marie Ivans
Vice President, Circulation Bert Lacy
Vice President, Circulation Services
James Ramaley
Subscription Director Paul Stafford
Single-Copy Sales Director
Robert Woltersdorf
Vice President, Marketing Services
Ann Pollak Adelman
Vice President, Development Seth R. Alpert
Director of Planning Gary A. Gustafson
Production Director Walter J. Terlecki

ZIFF COMMUNICATIONS COMPANY

Chairman William B. Ziff, Jr.
Vice Chairman Philip B. Korsant
President Kenneth H. Koppel
Senior Vice President Philip Sine
Senior Vice President Hugh Tietjen
Vice Presidents William Phillips,
J. Malcolm Morris, Steven C. Feinman,
Tom Thompson
Director of Development Jonathan Cohler
Treasurer Tom Thompson
Secretary Benram A. Abrams

If you want to subscribe to *MacUser*, if you have a question or complaint about your subscription, or if you're moving, call or write *MacUser*, P.O. Box 56986, Boulder, CO 80321-6986; (800) 525-0643. New subscriptions and address changes take 6-8 weeks. For back issues (subject to availability), send \$7 per issue, \$8 outside U.S., to Ziff-Davis Publishing Co., P.O. Box 5999, Cherry Hill, NJ 08034; Attn: F. Hunter, (609) 354-4975.

MacUser (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Co., a division of Ziff Communications Co., One Park Ave., New York, NY 10016. Editorial Offices: 950 Tower Lane, 18th Floor, Foster City, CA 94404. Telephone: (415) 378-5600. U.S. subscription rates are \$27 for 12 issues, \$45 for 24 issues, and \$62 for 36 issues. Additional postage for Canada: add \$18 per year to the U.S. rates for surface mail. Single-copy price is \$2.95 (Canada \$3.95).

POSTMASTER: Send address changes to *MacUser*, P.O. Box 56986, Boulder, CO 80321-6986. Second-class postage paid at New York, NY 10016 and at additional mailing offices.

Entire contents copyright © 1989 Ziff-Davis Publishing Co., a division of Ziff Communications Co. All rights reserved; reproduction in whole or in part without permission is prohibited.

MacUser is a registered trademark of Ziff Communications Co. The following are trademarks of Ziff Communications Co.: Mainstream Mac, Pinstripe Mac, Quick Clicks, MacUser Labs, Open Window, Devil's Advocate, The Help Folder, Control Panel, NetWorkShop, Bridges, Scrapbook, Macintosh Analyst, MiniFinders.

EDITORIAL

Editor-in-Chief Paul Somerson
Executive Editor Louise Kohl
Managing Editor Nancy Groth
Senior Editor/Features John Anderson
Senior Editor/Departments Jon Zilber
Features Editor Michael Miley
Senior Technical Writer James Finn
Associate Editor Gil Davis
Associate Editor/Reviews Russell Ito
Senior Staff Writer Salvatore Parascandolo
Assistant Managing Editor Claire Hamilton
Chief Copy Editor James S. Bradbury
Senior Copy Editor Eva Langfeldt
Copy Editors Shari Lynn Allison, Jane Magid, Jeffrey Rodgers, Mary Schuyler
Assistant Editors Kristi Coale, Laura Johnson
Editorial Administrator Shirley French
Editorial Assistant Michele Stokol
Reader Support Victoria Juarez
Contributing Editors Dennis Brothers, Chris Espinosa, Paul D. Lehman, Carlos Domingo Martinez, Dave Peltz, Daniel Rosenbaum, Jim Seymour, Ezra Shapiro, Michael Swaine, Greg Wasson, William Zachmann
Contributing Business Editor Robert R. Wiggins
Contributing Anti-Editor John C. Dvorak
Foreign Correspondent Dan Cochran
Assistant to the Editor-in-Chief Rosemary Neece

TECHNOLOGY

Executive Editor/Technology Jeffrey S. Young
MacUser Labs Director Andrew Eisner
Labs Editor Aileen Abernathy
Senior Technical Writer Henry Bortman
Technical Editor John Rizzo
Associate Project Leader Kevin Countryman
Software Engineer Stephan Somogyi
Lab Administrator Michael Sanchez

DESIGN & PRODUCTION

Art Director Lisa Orsini
Associate Art Director Diane Dempsey
Art Assistant Peter A. Gould
Technical Art Director Michael Yapp
Technical Art Assistant Mark W. Sweeney
Junior Designer Jeffrey Felms
Production Director Carlos Lugo
Production Manager Brenda Falco
Composition Supervisor Renee Johnson

CIRCULATION SERVICES

Circulation Managers Charles Mast, Melinda Kendall
Customer Service Kimberly Armstrong

ADVERTISING

Eastern Advertising Director Suzanne M. Zellner (617) 375-4681
National Account Manager Kathleen F. Lyman (415) 378-5612
National Telemarketing Manager Chris M. Tice (415) 378-5692
Mid-California District Manager Jeannine Barnard (415) 378-5674
Mid-California District Sales Representative Keith Newman (415) 378-5628
Northwest District Manager Leslie Hutchison (415) 378-5605
Northwest District Manager Susan Williams (415) 378-5699
Northwest Telemarketing Manager Marti Gallagher (415) 378-5659
Southwest District Manager Roy J. Kops (213) 387-2100
Southwest District Manager Lisa Zimmerer (213) 387-2100
Southwest Telemarketing Manager Carolyn A. Mueller (415) 378-5635
Northeast District Manager Gina Ciampa (617) 375-4680
Northeast District Sales Representative Michele Lipstein (617) 375-4683
Northeast Telemarketing Manager Amanda Waterfield (415) 378-5657
Southeast/Mid-Atlantic District Manager William Corsini (212) 503-5416
Southeast/Mid-Atlantic Sales Representative Angelo M. Turco, Jr. (415) 378-5658
Southeast/Mid-Atlantic Telemarketing Manager Elynn Kozlowski (415) 378-5664
Midwest District Manager Arthur Kossack (312) 346-2600
Midwest Telemarketing Manager Ariane Casey (415) 378-5622
National Advertising Coordinator Kim Riskas (415) 378-5606
Classified Advertising Director Kathryn Cumberlander (212) 503-5115
Group Director of Marketing William R. Delaney (415) 378-5640
Marketing Manager Karen Davis (415) 378-5624
Marketing Services Coordinator Dori Harshman (415) 378-5604
Assistant to the Publisher Donna Candelori (415) 378-5602
Business Manager Rosemarie Carbone

Founding Publisher Felix Dennis

HOW TO REACH US

PRODUCT ANNOUNCEMENTS AND UPDATES

MacUser is always looking for new and unusual products for our New on the Menu, News Line!, Quick Clicks, and Scrapbook sections, as well as for feature coverage. If you've got a product that you'd like to tell us about — whether it's new or an upgrade — send your letters and/or press releases to Michele Stokol, Editorial Assistant, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

TECHNICAL DIFFICULTIES AND HELP

Although we can't offer any telephone assistance, *MacUser* welcomes your technical questions. If you've got a Mac question or problem, send it to Chris Espinosa, The Help Folder, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Chris works for Apple, and if he can't give you an answer himself, he'll find someone who can. Because of the volume of mail we receive, we can't answer all of your questions, so we also recommend that you take advantage of your local user groups. You can find the one nearest you by calling Apple toll-free at (800) 538-9696, ext. 500.

TIPS, HINTS, AND PROGRAMS

We love to get tips and hints (on a disk, please) from our readers. Any tips should be sent to Tip Sheet, c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. We can't print every tip, but we try our best to pick the most interesting and representative ones for publication. We'd also like to hear from any programmers who are interested in contributing to our utilities disk series or labs benchmark disk series. If interested, contact Michele Stokol at the same address.

WRITING FOR MACUSER

If you have an idea for an article you'd like to write, we'd like to read it. Send a query letter with samples of your writing (published if possible) and some information about your background to Louise Kohl, Executive Editor, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. No calls please. Since we rarely buy unsolicited manuscripts, save yourself some work and don't send us a completed article without writing first. Please allow 4-6 weeks for a reply.

PERMISSIONS AND REPRINTS

Material in this publication may not be reproduced in any form without permission. Please send permission requests to Chantal Lavelanet, Licensing Director, and reprint requests to Jennifer Locke, Ziff-Davis Publishing Co., a division of Ziff Communications Co., One Park Ave., New York, NY 10016.

COMPLAINTS ABOUT ADVERTISERS

MacUser's editors are not responsible for the content of the advertisements in the magazine, although our publisher makes every effort to prevent fraudulent and misleading advertising from appearing in the magazine. However, if you bought a product advertised in *MacUser*, are dissatisfied, and can't resolve the problem, write (do not call) Elizabeth McGinnis, Advertising Department, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Include copies of relevant correspondence and please be as specific as possible.



MacUser is an independent journal, not affiliated in any way with Apple Computer, Inc.
Printed in the USA.

CANVAS™ 2.0 BEATS MACDRAW™ II

MACDRAW II LIST PRICE \$395.00



MACUSER MAGAZINE NOVEMBER, 1988

Key Features:*

- All the standard drawing tools
- Unlimited layers
- Ultra-fine hairlines
- Editable arrowheads
- Smooth polygons
- Object libraries
- ± 32x magnification/reduction
- Text rotation
- High precision
- 8 available colors
- Auto-dimensioning of lines

CANVAS 2.0 LIST PRICE \$299.95



MACUSER MAGAZINE APRIL, 1989

Key Features:*

- All the standard drawing tools
- Unlimited layers
- Ultra-fine hairlines
- Editable arrowheads
- Smooth polygons
- Object libraries
- ± 32x magnification/reduction
- Text rotation
- Much higher precision
- 16.7 million available colors
- Auto-dimensioning of lines & arcs
- Join & split smooth curves
- PostScript® gray scales in 1° increments
- Continuous Bezier Curves
- Area & perimeter calculations
- Powerful Auto-Duplication options
- Central Object Control dialog
- Skew, perspective & distort effects
- Tear-away rulers
- Magnetic guide lines
- Complete set of bitmap editing tools
- Import & export of TIFF files
- Auto-tracing of imported bitmap images
- 72-2540 DPI. bitmap resolution
- PixelPaint™ compatible color palettes
- Editable, micro-adjustable airbrushes
- Full-feature DA version included.

5 MICE. NO WAITING.

MacDraw owners: Trade up to Canvas 2.0 for just \$99. Simply send your MacDraw Master Disk to Deneba at the address shown below, along with check or credit card info (card #, issuer, expiration date & signature).

We'll send you Canvas 2.0. The new big cheese in drawing programs.

If you want to see the Canvas difference for yourself, send us \$995 to receive a fully-featured Demonstration Copy.

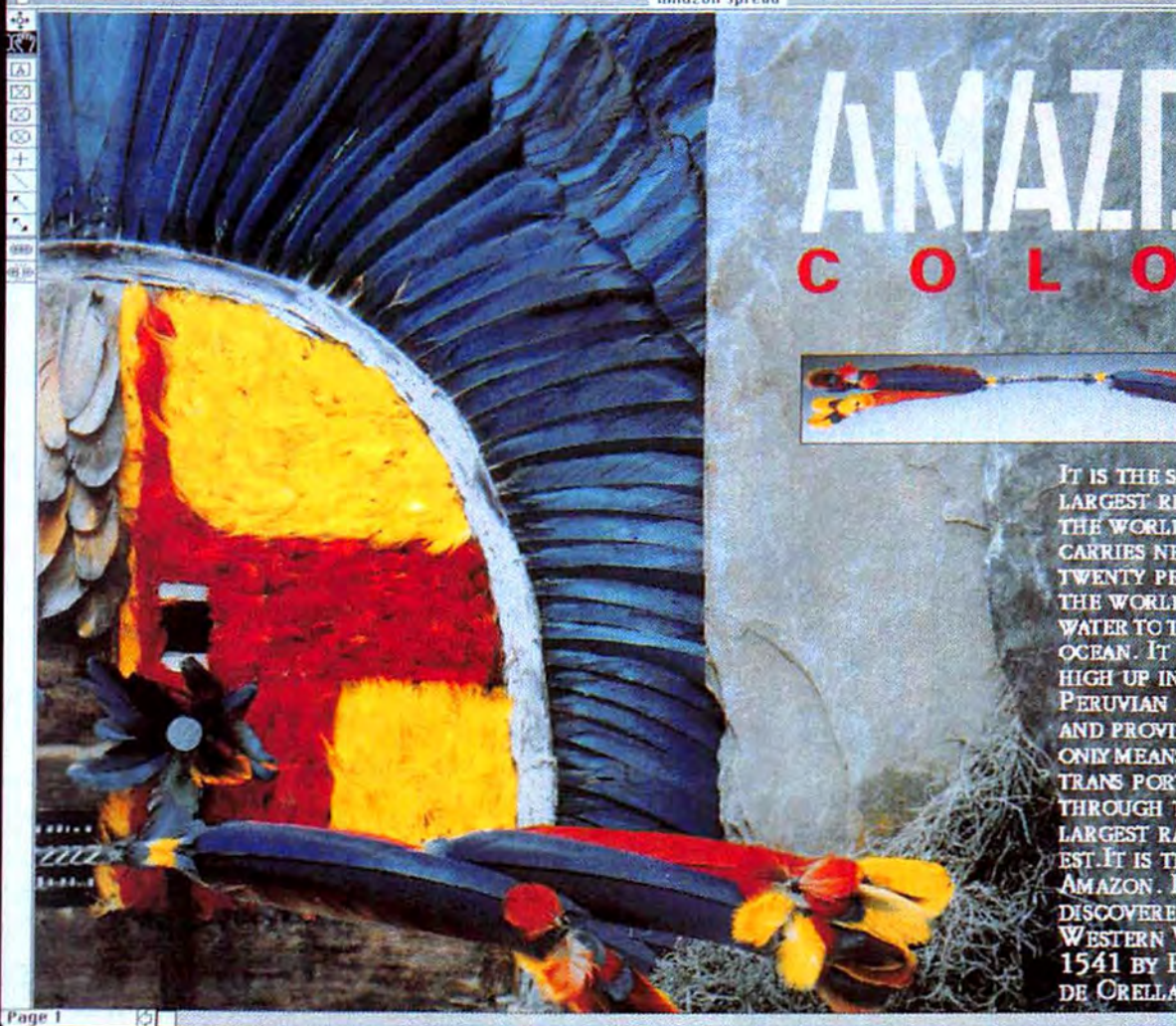
Deneba
SOFTWARE

3305 Northwest 74th Avenue Miami, Florida 33122
1-800-6CANVAS In Florida: (305) 594-6965

© 1989 Deneba Systems, Inc.
All product names mentioned are trademarks of their respective holders.

*Partial list

Please circle 80 on reader service card.



RADIUS PRESENTS THE TWO MOST COLORFUL PAGES IN THE HISTORY OF MACINTOSH.

Now for the first time in the history of Macintosh, you can work across two full pages with the photographic quality of 24-bit color. Introducing the Radius DirectColor™ Series.

Completely compatible with Apple's 32-bit QuickDraw, it's the precise electronic medium for working with real colors, real type and real photographs across two full pages.

With simultaneous access to every one of the Macintosh's 16.7 million colors, our Radius DirectColor/24™ is the perfect tool for retouching color photographs or producing high quality publications.

If you don't require the full Macintosh palette of colors, the Radius DirectColor/16™ lets you work with 32,768 colors simultaneously. And, upgrading to Radius DirectColor/24 is as simple as adding video RAM.

For those of you who use only 256 colors at one time, there's the 8-bit Radius Color Display™ System.

No matter which Radius color system you choose, you'll be working across two flicker-free, paper-like pages that give you 30% more working area than commonly seen on other 19 inch displays.

Which means the view of your work is never cropped off at the sides or chopped off at the bottom.

Naturally, you'll also reap the benefits of all the classic RadiusWare™ features.

Including Tear-off Menus in every application. The ability to capture any portion of your image as a PICT file. Small or large menu bars. And direct control panel access.

So if you've been waiting to work with real colors across two real pages, visit a Radius Authorized Dealer. You can find one near you by calling 1-800-227-2795*.

And get ready to make some colorful history of your own.



The Radius Color Display showing two full pages. (1152 x 882 pixels)



Other color monitors crop off the sides and chop off the bottom (1024 x 768 pixels)

radius

radius™
Intelligent Hardware™

*If you live outside the continental United States, call 1-408-954-6852 for the name of a Radius International Distributor.

© 1989 Radius Inc., Radius, the Radius logo, Intelligent Hardware, Radius DirectColor, Radius Color Display and RadiusWare are trademarks or registered trademarks of Radius Inc. All other brand names or trademarks or registered trademarks are the property of their respective holders.

Please circle 141 on reader service card.

PRESENTING THE WRITEMOVE
PORTABLE PRINTER.

Most printers are sentenced by their own sheer bulk to lifelong confinement on a desktop.

But now GCC Technologies™ has created a printer for the Macintosh® with considerably more freedom than that. It's called WriteMove™: the "biggest" printer ever to come in an incredibly small package.

WriteMove weighs a scant three pounds. It measures just 2"x6½"x10¾". (Any smaller and you couldn't get the paper in.)

But it's the only ink jet printer of any size that gives you almost unlimited freedom to reduce and enlarge type and documents. Because it's the only one with outline fonts—imaging software that provides functionality otherwise available only with laser printers.

As a result, you can use WriteMove to compose documents with word processing software like Microsoft® Word, or desktop publishing programs like PageMaker.* And then silently print them out at 192-DPI resolution. In other words, you get much

higher print quality than the ImageWriter® II, for not much more money.

Which could bring a whole new meaning to the phrase "freedom of the press."

To exercise that freedom, see your authorized GCC Technologies dealer for a WriteMove demonstration. For the one nearest you, call (617) 890-0880.*



*In Canada, (800) 263-1405. ©1988 GCC Technologies, Inc. GCC Technologies and WriteMove are trademarks and the GCC Technologies logo is a registered trademark of GCC Technologies, Inc. Macintosh and ImageWriter are registered trademarks of Apple Computer, Inc. PageMaker is a registered trademark of Aldus Corp. Microsoft is a registered trademark of Microsoft Corp. Suggested manufacturer's retail price: \$699.

INTRODUCING THE MOST INGENIOUS PORTABLE PRINTER SINCE THE PENCIL.



Please circle 154 on reader service card.

We spend a lot of time attending demonstrations of new hardware and software. Over the past few months, we've noticed a curious trend — whether the product we were seeing functioned flawlessly or barely worked at all, the vendor showing it off would inevitably lean forward and chant “just wait until System 7.”

This repeated mantra had a hypnotic effect. What was Apple up to? Was it on the verge of another system breakthrough with as much impact as the original Mac interface? Was it preparing a proactive response to the flashier systems from Sun and NeXT? The thing was supposed to do everything from employing Display PostScript, to allowing true protected-mode multitasking, to making all DAs obsolete, to growing hair on balding men and curing warts.

Then Apple opened the kimono at its recent

to every user (see this month's Newsline). Scalable fonts (and the new Layout Manager) mean far-sharper displays and enhanced flexibility in creating custom documents. InterAp-

plication Communication (IAC) architecture will let you link (“live paste”) a spreadsheet program to your word processor so that last-minute changes in a particular spreadsheet are automatically reflected in the report you're writing about it. (Live copy/paste will also make accessing remote mainframe databases as easy as looking up something on your own hard disk.)

Virtual memory can save on pricey RAM, so long as you're using a IIx, a IIcx, or an SE/30, or if you have a II with an optional PMMU coprocessor. Under System 7, applications that are “32-bit clean” (written to adhere strictly to Apple's internal memory-manager guidelines) can juggle lots of complex space-hogging color images. The new Print Architecture can let any printer work in the background rather than tying up your system, handle color output, and eliminate reformatting bottlenecks.

EDITOR'S DESKTOP

System 7 and Counting

Developers' Conference. Actually, in terms of the quantity of information released, Apple took off the kimono and hung it in the closet.

One reason for this stark disclosure was obvious — Apple wanted

Apple's jazzed-up 32-bit QuickDraw can tame 64K times as many colors as its current incarnation. And its Sound Manager makes it a snap to hook up MIDI devices, store sounds a lot more efficiently on your disk, and synchronize sound with graphics.

What this announcement really says is that the Mac market, like the rest of the desktop-PC industry, is splitting into two groups that industry guru Bill Machrone once termed the “haves” and the “have lesses.” At one end of the spectrum, casual users will hum along contentedly with single-megabyte, monochrome, 68000-based systems. At the other end, mainstream corporate users will want as much horsepower as the Mac can crank out, and they'll demand beefed-up host/micro links, vast helpings of RAM, a streamlined communications manager, and 16 million colors on-screen. (For color to become the standard, we'll need a generation of fast, affordable color printers. But System 7 anticipates this.)

What does all this mean for the everyday serious Mac business user — the bread and butter of the industry? Some analysts would contend that many business users are pretty much satisfied once they've crossed the ease-of-use threshold. According to this scenario, they've flocked to the Mac because it lets them get their work done without a lot of fiddling and arcane commandspeak. They don't want to know from MIPS or CL/I or fancy kerning. System 7 may lack real muscle, the wags argue, but do users really care about such exotica?

Absolutely. Mac users are

Actually, in terms of quantity of information released, Apple took off the kimono and hung it in the closet.



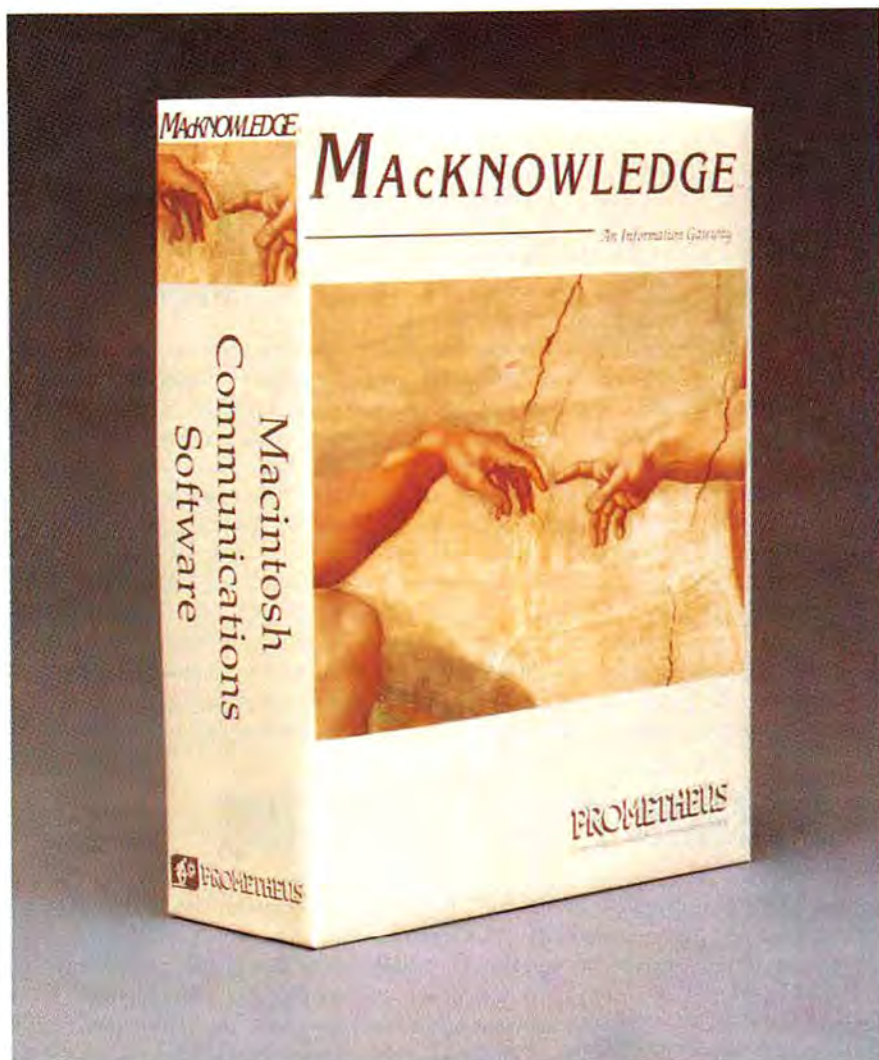
BY PAUL SOMERSON

to show that it was still in there swinging, both against middleweights like NeXT and at bruisers like OS/2 and Presentation Manager. It wanted to tell the world that it would stand toe-to-toe with any contender for years to come. Even its code name for this new system carried a lot of punch — Big Bang.

Well, OK, the revelations did show that Apple is serious about slugging it out in the corporate market. Its new virtual-memory (VM) and 32-bit addressing schemes will allow high-end systems to handle immense applications that use up to 4 billion bytes of memory. Its Database Access Manager (DAM) gives users access to remote big-iron SQL databases. And the new Macintosh File System Manager shatters the current limit of 2,000 entries in the Desktop file.

Now just a second. You mean you don't use 2,000 icons on your desktop? Or run software that requires even a *single* gigabyte of space, let alone four times that amount? Or spend all day hooked to an off-site mainframe pulling down data? From your point of view, should the code name have been Big Deal?

That's really not fair. System 7 does offer tangible benefits



FIRST TIME?

For the first time (or even expert) communications user, the experience of using a modem or logging onto a service can be, frankly, quite trying. Until you try MacAcNOWLEDGE™ - created to give you all the power of your Mac without compromising the interface.

Speaking of interfaces, you can create custom information interfaces with TAL. TAL, our next generation scripting language, allows you or your users timely, accurate and effortless access to information. And that's as important as the information itself.

We start you off with immediate access to BIX, Compuserve, Delphi, Dow Jones, MCI Mail and The Source as well as the ability for MacAcNOWLEDGE to "learn" to access any system.

By the way, if your looking for a modem for your Macintosh, inside or out, 2400 to 9600 BPS, ProModems come ready to use with MacAcNOWLEDGE and, if necessary, the cable included.

PROMETHEUS®

Communications products from a communications company

7225 SW Bonita Rd, Tigard, OR 97223
(503) 624-0571 FAX (503) 624-0843

envelope pushers. Just because they like ease of use doesn't mean they don't appreciate real muscle. System 7 offers some small immediate pluses, but most of the juice is in making sure the architecture of the future isn't overly constrained.


Technologically aware users won't be disappointed. And remember that these are the folks to whom others turn for advice and recommendations.

The immediate beneficiaries are the Mac software developers, to whom System 7 means a concrete, visionary future and a beefed-up set of tools (eight slick new managers and more than a dozen enhanced ones). Once *they* take advantage of its power, we'll all benefit handsomely.

This Apple disclosure really says that the Mac has finally caught up with itself. (Of course, some would argue that Apple is caught up *in* itself.) While most of its interface has been properly intuitive and simple, installation and customization weren't as easy as they should have been. The Finder didn't actually find. Making the Font/DA Mover work properly was a challenge to many users. System 7 plugs up most of the holes. And it's not a memory-glutton like OS/2.

As important as what Apple announced is what it didn't. While MultiFinder does let you run more than one application concurrently, it doesn't yet handle preemptive scheduling, multiple CPUs, or protected memory. When I'm running half a dozen applications at once, I want the ones with priority to get the disproportionate attention they deserve when they need it. And I don't want the whole house of cards to come tumbling down just because one of the six applications goes south.

Finally, one scandal that still is unresolved — Apple doesn't add any intrinsic assistance to making automatic backups. (At least it's consistent with industry standards; neither does IBM.) Apple does crow that the "extensible" nature of the new system will let it add such backup capabilities in the future, but users need such an easy, automatic feature *today*. Ask yourself honestly — are you totally backed up? Is your network?

Well, just wait until System 8. 

Resellers - Prometheus Products are proudly distributed by Micro D and Bonsu

Please circle 188 on reader service card.

Built to scale

If you design on a Mac II, a screen that's too small will cramp your style. That's why you should be looking into a SilverView from Sigma Designs.

At 21", this landscape monitor offers the biggest viewing area anywhere. A full 16" x 12" 2-page spread including rulers and margins.

Which means you can finally work in actual size. A fact that's also made possible by SilverView's 72 dots per inch typesetting standard.

Something else should weigh in our favor.
The gray scale.

Besides black and white, there are SilverView models offering 16 or all 256 different shades of gray. So what you used to leave up to the imagination can now be in all your work. Like subtle halftones or delicate shadings.

SilverView's also remarkably comfortable to work with. Its high contrast flat-screen virtually eliminates glare and distortion. And its unusually high refresh rate delivers rock solid images that never flicker.

To find out just how much better your work can look, call Sigma Designs at (415) 770-0100 today.
Then never scale down your ideas.



The SilverView™ family of high resolution 21" display systems offers the largest viewing area available anywhere.

SilverView's full size two page display is achieved with a new 21" flat screen monitor, which provides nearly 16" x 12" of active display area.

The SilverView two page display allows you to display two full pages simultaneously, in actual size at 1152 x 870 pixels, because we are not only big but we are also 72 dpi.



All SilverView systems have a paper white display, a high 76 Hz refresh rate, and a flat screen to eliminate glare and provide

you with a high contrast, rock solid image.

Finally, with your choice of three models offering 2, 16 or 256 grey levels, SilverView



represents the premium display system for publishing, graphic design and imaging applications.

SilverView, the performance leader and the most comfortable monitor ever made.

SILVERVIEW



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


Please come to

Visit us at the
Macworld Exposition
in Boston, MA
August 9-12, Booth 1540
Bayside Exposition Center

Hold on to your hats! Hold on to your feet! And hold on to your original packaging and documentation! Because, MacConnection is now offering 30 and 60 day money-back guarantees on products from selected companies. (Look for the companies which are marked with a ★ and listed in red.) If you are dissatisfied with your purchase of these products for any reason, just call for a hassle-free return authorization.

We only carry the latest versions of products. Version numbers in our ads are current at press time. Also, all of the software we sell is not copy-protected, unless indicated otherwise by (CP).

The four-digit number next to each product is the product's ITEM NUMBER. Please refer to this number when ordering. Thank you.




Acius ... 30 day MBG
4th Dimension 1.0.6—Multiple award-winning database combines high level of power with the ease of a full Macintosh interface. Buy now and receive a free upgrade to 2.0 ... special \$349.



Informix
Wingz 1.0—Graphic spreadsheet for Apple Macintosh easily combines numbers, words, graphs and graphic images on a single worksheet and prints to a single page. \$259.

1616	Professional 3-Pak	359.
1618	Retail Business 3-Pak	359.
Dac Software		
4502	Dac-Easy Light 1.0	42.
★ Intuit ... 30 day MBG		
2425	Quicken 1.5	32.
★ Layered ... 30 day MBG		
5207	atOnce! 1.0	295.
★ MECA ... 60 day MBG		
2796	Managing Your Money 2.0	125.
★ Monogram ... 30 day MBG		
2779	Business Sense 1.2	279.
★ Nantucket ... 30 day MBG		
2971	McMax 2.0	175.
★ Niles & Associates ... 30 day MBG		
5101	Grant Manager 1.75	249.
★ Nolo Press ... 60 day MBG		
2981	WillMaker 3.0	32.
★ North Edge Software ... 30 day MBG		
2986	Timeslips III 1.1	169.
Satori		
3978	Components GL 1.0	389.
3324	Project Billing 1.56	389.
4987	Project Billing + 1.56	589.
3323	Legal Billing II 2.56	389.
4986	Legal Billing II + 2.56	589.
SoftView		
3471	MacInUse 2.04	42.
3473	TaxView Planner 1988-92	64.
★ Survivor Software ... 30 day MBG		
3289	MacMoney 3.02	61.

★ BrainPower ... 60 day MBG		
1532	DataScan 1.03	\$115.
1534	MathView Professional 1.1	139.
1537	StatView 512+ 1.2	152.
3960	ArchiText 1.03	175.
4066	The Analyzer Bundle (includes DataScan, DesignScope, and StatView 512+) ...	319.
★ Bravo Technologies ... 30 day MBG		
1539	MacCalc 1.2D	83.
★ Chang Labs ... 60 day MBG		
1611	C.A.T. 2.0	229.
Claris		
4196	FileMaker II 1.0	229.
1125	MacProject II 1.0	379.
★ Fox Software ... 30 day MBG		
4580	FoxBASE +/Mac Runtime	155.
4195	FoxBASE +/Mac 1.1	205.
4844	FoxBASE +/Multi-User	315.
ICOM Simulations		
5206	Formulator 1.0	89.
Individual Software		
4720	101 Macros for Excel 1.5	37.
Informix		
4955	Wingz 1.0	259.
★ Microsoft ... 30 day MBG		
2866	File 2.0A	129.
2884	Works 2.0	189.
2865	Excel 2.2	255.
★ Nolo Press ... 60 day MBG		
4228	For the Record 1.02	29.
★ Odesta ... 30 day MBG		
3014	GeoQuery 1.0	199.
4211	DataDesk Professional 2.0	289.
3013	Double Helix II 2.0R51	339.
★ Paracom ... 30 day MBG		
4664	Milo 1.0	159.
★ Preferred Publishers ... 30 day MBG		
4780	Database 1.1	75.
★ ProVUE ... 60 day MBG		
4582	Panorama 1.1	205.
★ Rubicon Publishing ... 60 day MBG		
3272	Dinner At Eight-Encore Edition (CP)	45.
Satori		
3320	BulkMailer 3.23	78.
3321	BulkMailer Plus 3.23	189.
★ Synergy ... 30 day MBG		
3129	KaleidaGraph 1.10	119.



Abacus Concepts ... 60 day MBG
StatView SE+ Graphics 1.03—Remarkably powerful yet easy-to-use statistical analysis program with presentation quality graphics for the Plus or SE. Prints your graphs in color. \$225.

ACCOUNTING & FINANCE

★ Aatrix Software ... 30 day MBG		
3976	Aatrix Payroll 3.05	99.
4021	Aatrix TimeCard 2.0	109.
4020	Aatrix TimeMinder 2.1.2	159.
3958	Aatrix Payroll PLUS 3.1	159.
Bedford Software		
4977	Simply Accounting 1.04	209.
★ Chang Labs ... 60 day MBG		
1613	Rags to Riches Ledger 3.1	119.
1614	Rags to Riches Payables 3.1	119.
1617	Rags to Riches Receivables 3.1	119.
1622	Rags to Riches 3-Pak	289.
1612	Inventory Control 2.6	239.
1615	Professional Billing 2.9	239.

NUMBERS & DATABASES

★ Abacus Concepts ... 60 day MBG		
4482	StatView SE + Graphics 1.03	225.
4481	StatView II 1.03	295.
★ Access Technology ... 60 day MBG		
1346	Trapeze 2.1	149.
★ Acius ... 30 day MBG		
1010	4th Dimension 1.0.6	special 349.
4024	4th Dimension Runtime 1.06	229.
Ashton-Tate		
4098	Full Impact 1.0	249.
Blyth Software		
4318	Omnis 3 Plus/Express 3.3	399.
Borland International		
1508	Reflex Plus 1.01	189.

Boston this summer.



Electronic Arts

Studio/1 1.0—For the first time...easy, incredible animation. Create an object, define a path, and Studio/1 does the rest. Automatically move and rotate objects in full 3D. Create spinning titles in seconds. Great for animated clip art ... \$99.

GRAPHICS & DESIGN

- ★ **Aegis Development ... 60 day MBG**
- 4956 Showcase F/X 1.0 ... 199.
- ★ **Altsys ... 30 day MBG**
- 4830 KeyMaster 1.0 ... 52.
- 1194 FONtastic Plus 2.02 ... 52.
- Bright Star Technology**
- 3962 HyperAnimator 1.5 ... 99.
- Broderbund Software**
- 4065 PosterMaker Plus 2.5B ... 35.
- 1427 Print Shop 1.3 ... 35.
- 4501 Drawing Table 1.0 ... 75.
- ★ **Casady & Greene ... 60 day MBG**
- 1575 Fluent Fonts 2.0 ... 27.
- ★ **Challenger ... 30 day MBG**
- 1610 Mac3D 2.1.2 ... 119.
- Claris**
- 1123 MacPaint II 2.0 ... 99.
- 1117 MacDraw II 1.1 ... 309.
- 4815 Smart Form Designer 1.0 ... 309.
- 4814 Claris CAD 1.0 ... 629.
- Cricket Software**
- 4346 Cricket Paint 1.0 ... special 65.
- 1667 Cricket Draw 1.1.1 ... special 139.
- 5086 Cricket ColorPaint 1.0 ... 179.
- ★ **Deneba Software ... 30 day MBG**
- 1769 Canvas 2.0 ... 159.
- ★ **DreamMaker ... 60 day MBG**
- 4088 MacGallery (MacPaint format) ... 27.
- Dubl-Click Software**
- World-Class LaserType Vol. 1-6 ea. 45.
- World-Class Fonts! ... ea. 45.
- WetPaint Clip-Art ... ea. 45.
- Electronic Arts**
- 5289 Studio/1 1.0 ... 99.
- 4315 Studio/8 1.0 ... 309.
- ★ **Emerald City ... 30 day MBG**
- 5168 Smart Art 1.0 ... 89.

- ★ **Enabling Technologies ... 30 day MBG**
- 1871 Pro3D 1.2 ... \$285.
- Clip 3D Art ... each 57.
- ★ **Foundation Publishing ... 60 day MBG**
- 2385 Comic People ... 22.
- 2384 Comic Strip Factory 1.6 ... 39.
- ★ **Generic Software ... 60 day MBG**
- 4319 Generic CADD Level 1 1.1 ... 85.
- ★ **Graphsoft ... 30 day MBG**
- 4993 MiniCad+ 1.V5 ... 519.
- ★ **Great Wave ... 30 day MBG**
- 2272 Crystal Paint 1.0 ... 27.
- Innovative Data Design**
- 2417 MacDraft 1.2B ... 145.
- 4707 Dreams 1.0 ... 269.
- ★ **Linguist's Software ... 60 day MBG**
- Foreign Language Fonts ... call
- ★ **MacroMind ... 30 day MBG**
- 4953 VideoWorks II 2.0 ... 175.
- 4952 VideoWorks II HyperCard Driver 1.2 60.
- 4954 VideoWorks II Accelerator 1.1 ... 115.
- 5087 MacroMind Director 1.0 ... 449.
- Olduvai Software**
- 4667 Art Clips ... 51.
- 4850 Art Fonts 1 ... 55.
- 4851 Art Fonts 2 ... 55.
- ★ **Paracom ... 30 day MBG**
- 4597 Swivel 3D 1.0 ... 249.
- 5028 Model Shop 1.0 ... 379.
- ★ **Silicon Beach ... 60 day MBG**
- 3504 Silicon Press 1.1 ... 52.
- 3506 SuperPaint 2.0 ... 129.
- 3980 Digital Darkroom 1.1 ... 195.
- 3507 Super3D 2.0 ... 325.
- ★ **Solutions Int'l. ... 60 day MBG**
- 3446 The Curator 1.05 ... 75.
- ★ **SuperMac Software ... 60 day MBG**
- 3380 PixelPaint 2.0 ... 199.
- ★ **Symmetry ... 30 day MBG**
- 4160 PictureBase-WetPaint ... special 79.



Microsoft ... 30 day MBG
PowerPoint 2.01—Create powerful presentations in less time and with less effort. Persuasively present your thoughts on overheads, full-color 35-mm slides, flipcharts, and audience handouts. Includes Genigraphic support. ... \$255.

- ★ **T/Maker ... 30 day MBG**
- 3633 Christian Images ... \$35.
- ★ **3G Graphics ... 30 day MBG**
- 3942 Images with Impact: Graphics 1 ... 52.
- 4583 Images with Impact: Business 1 ... 65.
- ★ **Zedcor ... 60 day MBG**
- 3986 DeskPaint & DeskDraw 2.01 ... 69.



Layered ... 30 day MBG

atOnce! 1.0—Easy to learn, high speed small business accounting package. All 4 modules (GL, AR, AP, and Payroll) can be open simultaneously. "Finally...powerful yet simple accounting software"—*New Accountant* 2/89 ... \$295.

PUBLISHING & PRESENTATIONS

Adobe Systems

- 1138 The Collector's Edition ... 79.
- 4816 The Collector's Edition II ... 139.
- 5001 StreamLine 1.0 ... 239.
- 1142 Newsletters/Publishing Pack 1 ... 249.
- 4565 Forms and Schedules Pack 2 ... 299.
- 4566 Presentations Pack 3 ... 299.
- 1137 Adobe Illustrator '88 1.6 ... 299.
- MacConnection carries the entire Adobe Type Library (volumes 1-95). Listed below are Adobe's newest typefaces at press time.*
- 4829 82 Antique Olive ... 125.
- 5210 83 Life ... 95.
- 5239 84 Concorde ... 125.
- 5240 85 Gothic 13 ... 95.
- 5241 86 Cochin ... 125.
- 5242 87 ITC Bauhaus ... 125.
- 5243 88 Sabon ... 125.
- 5244 89 Hiroshige ... 245.
- 5245 90 Arnold Bocklin ... 125.
- 5246 91 Dom Casual ... 95.
- 5247 92 Post Antiqua ... 95.
- 5248 93 Folio ... 125.
- 5249 94 Linoscript ... 95.
- 5250 95 VAG Rounded ... 125.
- Aldus**
- 1330 Freehand 2.0 ... 349.
- 4751 Persuasion 1.0 ... 385.
- 1331 PageMaker 3.01 ... 389.

And visit us at



Intuit ... 30 day MBG

Quicken 1.5—Automates routine financial tasks, delivers comprehensive financial reports, even links directly with MacIn Tax. Perfect for anyone who'd rather spend their time earning money instead of keeping track of it. . . . \$32.

★Altsys ... 30 day MBG

1195 Fontographer 2.4.1 (CP) 229.

Broderbund

4465 DTP Advisor 1.0 47.

★Casady & Greene ... 60 day MBG

MacConnection carries the entire collection of *Fluent Laser Fonts* ea. 46.

4839 Vivid Impressions 69.

4838 Quill Pack (Vol. 8 & 20) 105.

4836 Headline Pack (Vol. 10-12) 145.

4837 Modern Pack (Vol. 7, 14-18) 195.

4834 Distinctive Pack (Vol. 8, 19-22) 195.

4833 Classic Pack (Vol. 3-6, & 13) 195.

Cricket Software

1668 Cricket Graph 1.3 115.

1670 Cricket Presents 2.0 289.

★DreamMaker ... 60 day MBG

4840 Cliptures: Business 1 85.

4841 Cliptures: Business 2 85.

★Farallon Computing ... 30 day MBG

4684 ScreenRecorder 1.0 132.

2199 MacRecorder 2.0 165.

Letraset

2621 Ready,Set,Go! 4 4.5 275.

2619 Image Studio 1.5 275.

4709 LetraStudio 1.0 289.

★Microsoft ... 30 day MBG

2878 PowerPoint 2.01 255.

★Postcraft Int'l. ... 60 day MBG

3157 Laser FX 1.7 99.

Quark

4621 QuarkStyle 1.0 189.

3230 Quark XPress 2.1 499.

★Softstream Int'l., Inc. ... 60 day MBG

4996 UltraSpec 1.0 95.

★Springboard ... 30 day MBG

3530 Certificate Maker 2.0 24.

4497 Top Honors 1.01 59.

4500 Springboard Publisher 1.0 109.

★T/Maker ... 30 day MBG

3635 EPS Illustrations 75.

5167 EPS Business Art 75.

PROGRAMMING & HYPERMEDIA

★Beacon Technology ... 30 day MBG

4967 HyperBible (King James) 1.0 149.

4968 HyperBible (New International) 1.0 179.

Borland International

1511 Turbo Pascal 1.1 \$68.

Broderbund Software

5237 Whole Earth Catalog (CD ROM ver.) 89.

★Digitaltalk ... 60 day MBG

5166 SmallTalk/V Mac 1.0 129.

★DreamMaker ... 60 day MBG

4115 MacGallery (HyperCard format) 27.

★Hyperpress Publish. ... 30 day MBG

4233 Icon Factory 1.0 29.

5089 Script Library 1.0 29.

5090 Silver Screen 1.0 42.

4265 Script Expert 1.0 46.

Individual Software

4719 101 Scripts & Buttons Hypercard 1.0 37.

★Manx Software ... 60 day MBG

4068 Aztec C 3.6B 65.

4317 Aztec SDB 65.

4316 Aztec C UniTools 65.

4069 Aztec MPW C 3.6B 99.

4075 Aztec C + SDB 3.6B 99.

★Microsoft ... 30 day MBG

4471 QuickBasic 1.0 65.

★OWL International ... 30 day MBG

3082 Guide 2.0 99.



Abbott Systems ... 30 day MBG

CanOpener 1.0—The one program to open all your files. You can search and retrieve text, pictures and sounds from anywhere. It even works with corrupted files. \$65.

★Silicon Beach ... 60 day MBG

5100 SuperCard 1.0 129.

★SmethersBarnes ... 30 day MBG

1478 Prototyper 2.0 149.

★Symantec ... 30 day MBG

4644 Just Enough Pascal 1.0 49.

3421 Think's Pascal 2.0 85.

3420 Think's C 3.01 149.

TENpoint0

1338 Reports! 1.2 69.

4638 Focal Point II 1.0 119.

★TML Systems ... 30 day MBG

3548 TML Source Code Library II 1.1 42.

4989 TML Pascal II 3.0 (w/o MPW 3.0) 59.

3549 TML Pascal II 3.0 (w/MPW 3.0) 115.

Trendware

5203 Stack Cleaner 29.

5202 HyperTools #1 1.02 52.

5199 HyperTools #2 1.03 52.

True BASIC, Inc.

3587 True BASIC 2.01 59.

★Zedcor ... 60 day MBG

3985 ZBASIC 5.0 99.

UTILITIES

★Abbott Systems ... 30 day MBG

5236 CanOpener 1.0 \$65.

★Affinity Microsystems ... 60 day MBG

1014 Affinifile 1.1 45.

1016 Tempo II 1.02 89.

★Berkeley Systems ... 30 day MBG

1541 Stepping Out II 2.01 52.

Beyond, Inc.

4203 MenuFonts 2.02 29.

★Casady & Greene ... 60 day MBG

2269 QuickDEX 1.4A 32.

★CE Software ... 60 day MBG

1727 CalendarMaker 3.0 27.

1728 DiskTop 3.0.4 27.

4689 MockPackage Plus Utilities 4.4 27.

1729 QuickKeys 1.2 53.

Central Point

5040 Copy II Mac 7.2 24.

5041 PC Tools Deluxe Mac 1.1 46.

★Dantz Development ... 30 day MBG

5255 Retrospect 1.0 169.

Dubl-Click Software

1824 Calculator Construction Set 1.04 35.

Electronic Arts

1843 Disk Tools Plus 1.01 (Batteries Incl.) 31.

★Fifth Generation ... 60 day MBG

4287 PYRO! 3.3 (screen saver) 15.

3954 PowerStation 2.5 35.

3955 Suitcase II 1.2.2 45.

5178 FastBack II 1.0 109.

★FWB Software ... 30 day MBG

2232 Hard Disk Partition 2.0 41.

4683 Hard Disk DeadBolt 1.0 53.

★HJC Software ... 30 day MBG

4803 Virex 1.41 69.

ICOM Simulations

4084 On Cue 1.3 35.

Ideaform

2419 DiskQuick 2.10 27.

2420 MacLabeler Plus 3.0 42.

★Kent Marsh Ltd. ... 30 day MBG

2591 The NightWatch 1.03 87.

2592 MacSafe 1.08C 87.

★Lundeen & Assoc. ... 60 day MBG

2683 WorksPlus Command 2.0 57.



Dantz Development ... 30 day MBG

Retrospect 1.0—Allows backup and archiving to any Mac storage media, including disks, tape, file servers, and optical disks. Features compression, DES encryption, automatic file selection, browsers, and calendared operation. \$169.

the Macworld Expo.

MEDIAGENIC

4591	Open It! 1.0	\$49.
	★Microlytics ... 60 day MBG	
2732	GOfer 1.0	47.
	★Microseeds Pub. ... 60 day MBG	
4848	INITPicker 1.0	27.
4210	Screen Gems 1.0	42.
2913	Redux 1.5	52.
	Olduvai Software	
4503	MultiClip 1.0	51.
3031	Icon-It! 1.1	39.
	★PCPC ... 30 day MBG	
3175	HFS Backup 3.0	54.
	★Solutions Int'l. ... 60 day MBG	
3448	SmartScrap & The Clipper 2.0	46.
3449	SuperGlue II 2.0	62.
	★SuperMac Software ... 60 day MBG	
3381	Sentinel 2.0	89.
3383	SuperSpool 5.0	53.
3382	SuperLaserSpool 2.0	79.
3378	Multi-User SuperLaserSpool 2.0	199.
3377	DiskFit 1.5	53.
3379	Network DiskFit 1.5	199.
	★Symantec ... 30 day MBG	
4728	MacSQZ! 1.51	52.
4729	S.U.M. 1.1	65.
5176	S.A.M. 1.0	65.



HJC Software ... 30 day MBG

Virex (latest version)—The first comprehensive solution to the threat of Mac computer viruses. Detects both their presence and repairs infected programs. Combats all known Mac viruses. Excellent update services are available. ... \$69.

	★Symmetry ... 30 day MBG	
3318	HyperDA 1.1	35.
	★Williams & Macias ... 30 day MBG	
3779	DiskFinder	29.
3783	myDiskLabeler w/Color 2.9.11	29.
3784	myDiskLabeler w/LaserWriter 2.9.11L	34.
3780	ImageWriter Label Pack (Qty. 216)	16.
3781	LaserWriter Label Pack (Qty. 216)	20.
4976	Sticky Business 1.0.4	99.
	Working Software	
3788	Findswell 2.0	36.
	★XTree ... 30 day MBG	
5177	XTreeMac 1.0	52.



Solutions International ... 60 day MBG

SuperGlue II 2.0 with GlueNotes—Creates an electronic printout of almost any document, which can be viewed, copied, annotated or communicated without the original application. ... \$62.

WORD PROCESSING

	★Access Technology ... 60 day MBG	
3959	MindWrite 2.1	95.
4109	MindWriteExpress 2.1	129.
	★Aegis Development ... 60 day MBG	
1133	Word Tools 1.2	42.
	Ashton-Tate	
1324	FullWrite 1.0	265.
	★Deneba Software ... 30 day MBG	
4700	BigThesaurus 1.0	59.
1767	Comment 2.0	59.
1768	Coach Professional 3.0C	115.
	Electronic Arts	
1543	Thunder II 1.0 (Batteries Included)	52.
	★Lundeen & Assoc. ... 60 day MBG	
2684	WorksPlus Spell 2.0	46.
	★Microlytics ... 60 day MBG	
2733	Word Finder 2.0	36.
4870	Electronic WordFinder 220	79.
	★Microsoft ... 30 day MBG	
2885	Write 1.0	79.
2882	Word 4.0	255.
	★Niles & Associates ... 30 day MBG	
5048	EndLink 1.0	59.
4602	EndNote 1.1.1	82.
	★Preferred Publishers ... 30 day MBG	
4781	Vantage 1.0	59.
	★Sensible Software ... 30 day MBG	
4692	BookEnds 1.0E	53.
3375	Sensible Grammar 1.1D	53.
	★Symantec ... 30 day MBG	
3422	More II 2.01	255.
	★Symmetry ... 30 day MBG	
4504	Acta Advantage 1.0	65.
	★T/Maker ... 30 day MBG	
3639	WriteNow 2.0	109.
	★WordPerfect ... 60 day MBG	
3800	WordPerfect Mac 1.0.2	185.

Working Software

3792	Spellswell 2.0G	\$45.
4693	Quick Letter 1.0	75.

MUSIC & EDUCATION

	★Ars Nova ... 60 day MBG	
1215	Practica Musica 2.1	75.
	★Bogas Productions ... 60 day MBG	
1461	Studio Session 1.2 SE	49.
4255	Super Studio Session 2.0	69.
	Bright Star Technology	
1402	Alphabet Blocks 1.0	32.
3961	Talking Tiles 1.0	69.
	Broderbund Software	
4314	Type! 1.0	20.
1423	Jam Session 1.1 (CP)	30.
1422	Geometry 1.2 (CP)	59.
4067	Calculus 1.2 (CP)	59.
	Coda Music Systems	
4367	MacDrums 1.01 (CP)	31.
4483	Perceive 1.0	50.
	Davidson & Associates	
1734	Math Blaster! 1.0 (CP)	27.
4978	Speed Reader II 1.0 (CP)	36.
	Electronic Arts	
4619	Mavis Beacon Typing 1.2B (CP)	33.
1846	Deluxe Music Construction Set 2.5	84.
	First Byte	
5294	The Puzzle Storybook (ages 3-8)	27.
5293	Dinosaur Discovery Kit (ages 3-8)	27.
3941	Smooth Talker 2.1	33.
	★Great Wave ... 30 day MBG	
2277	TimeMasters 1.0	22.
2276	KidsTime 1.2	26.
4334	NumberMaze 1.0	27.
2273	ConcertWare+ 4.0	39.
2271	ConcertWare+ MIDI 4.0	79.
	Learning Company	
2670	Reader Rabbit 2.1 (CP)	32.



Software Ventures ... 30 day MBG

MicroPhone II 3.0—The newest version of the top telecom software adds ZMODEM; on-screen color icons; and color and sound support for XCMDs and XFCNs. ... \$219.

Want it sooner?

Mindscape

- 2748 The Perfect Score: SAT 1.0 \$46.
★ Personal Training Sys. ... 60 day MBG
MacConnection carries the entire PTS collection. A partial listing follows.
 4946 Excelerate (beginner level) 29.
 5194 HyperEasy (beginner level) 39.
 5196 MasterWorks (beginner level) 39.
 5278 Learn FileMaker (beginner level) 39.
 4852 PageTutor (beginner level) 39.
 4947 LearnWord (beginner level) 39.
★ Simon & Schuster ... 60 day MBG
 3305 Typing Tutor IV 1.2 35.
★ Spinnaker ... 30 day MBG
 2329 SAT Score Improvement 1.0 (CP) 57.
★ Springboard ... 30 day MBG
 4493 Atlas Explorer (CP) 28.
★ Think Educational ... 60 day MBG
 3615 MacEdge II 1.0 (CP) 27.
★ Unicorn ... 30 day MBG
 3751 Animal Kingdom (CP) 27.
 3756 Math Wizard (CP) 27.

ENTERTAINMENT

Access Software

- 4655 World Class Leader Board Golf 28.
Activision
 4475 Quarterstaff (CP) 30.
 4486 Manhole 30.
 5127 Manhole CD ROM 35.
 4592 Zork Zero (CP) 35.

Broderbund Software

- 4099 Shufflepuck Cafe (CP, air hockey) 24.
 4229 Where/World Carmen Sandiego? (CP) 27.
 5233 Where/USA Carmen Sandiego? (CP) 30.
 4965 Auto Duel (CP) 27.
 4966 SimCity (CP) 27.
 1421 Ancient Art of War (CP) 27.
 4540 Ancient Art of War at Sea (CP) 27.

Bullseye

- 1544 Ferrari Grand Prix (CP) 32.
 4074 P51 Mustang Flight Simulator (CP) 32.

★ Casady & Greene ... 60 day MBG

- 2268 Crystal Quest 2.2C 26.
 4119 Crystal Quest w/Critter Editor 2.2C 42.

★ Discovery Software ... 30 day MBG

- 4408 Arkanoid 27.

Electronic Arts

- 1842 Chessmaster 2000 (CP) \$28.
 4064 Chuck Yeager Flight Simulator (CP) 32.
 4588 Life & Death (CP) 32.
 4945 The Hunt for Red October (CP) 32.

Epyx

- 2037 Sub Battle Simulator 29.
 4660 Sub Battle Simulator for Mac II 29.

MicroProse

- 4697 Pirates! (CP) 32.
★ Microsoft ... 30 day MBG

- 2868 Flight Simulator (CP) 33.
Miles Computing

- 2765 Fool's Errand (CP) special 27.
 5253 The Puzzle Gallery 27.
 2767 Harrier Strike Mission II (CP) 32.

Mindscape

- 4083 Balance of Power 1990 (CP) 30.
 5290 Captain Blood (CP) 30.
 3987 Colony (CP) 30.
 4596 Deja Vu II (CP) 30.
 5252 Gauntlet (CP) 30.

PCAI

- 3144 MacGolf 2.0 (CP) 35.
 4320 MacGolf Classic (CP) 54.



Chang Labs ... 60 day MBG

Special—Rags-to-Riches GL 3.1—Thru August 31, 1989 place an order of \$250 or more (any products) from MacConnection and you may also purchase this top-rated accounting module for only \$19. Limit 1 per customer.

- 4321 Lunar Rescue (CP) 34.
 4517 Road Racer (CP) 39.

Sierra On-Line

- 3397 Leisure Suit Larry (CP) 23.
 3396 King's Quest III (CP) 29.

★ Silicon Beach ... 60 day MBG

- 3502 Beyond Dark Castle special 27.
 3501 Apache Strike 32.
 3503 Dark Castle 32.

★ Simon & Schuster ... 60 day MBG

- 3303 Star Trek Kobayashi Alternative (CP) 24.
Sir-Tech

- 3347 Mac Wizardry (CP) 35.
★ Softstream Int'l., Inc. ... 60 day MBG

- 4071 MacMan (w/adaptor) 23.
 4072 The Solitaire DA 23.
 4995 Cribbage Tutor 26.

- 4073 Colour Billiards 38.
★ Spectrum Holobyte ... 30 day MBG

- 4175 Solitaire Royale (for Mac SE) 20.
 3464 Tetris 20.
 4472 Tetris (color version) 24.

- 3462 PT-109 26.



Dow Jones ... 30 day MBG

News/Retrieval Membership Package—Allows off-line set up of personalized reports to retrieve and analyze key data from Dow Jones News/Retrieval's 50+ databases. Includes five free hours of service \$24.

- 3459 Falcon 2.0 32.
★ Spinnaker ... 30 day MBG

- 2328 Sargon IV (CP) 29.
★ Springboard ... 30 day MBG

- 4988 Hidden Agenda 36.
★ SubLogic ... 60 day MBG

- 4698 Jet (CP) 32.

NETWORKS & COMMUNICATIONS

★ Abaton ... 30 day MBG

- 4589 InterFAX Modem 359.
★ CE Software ... 60 day MBG

- 5172 QuickMail (1 user add-on) 45.
 5174 QuickMail (5 user Pak) 175.
 5173 QuickMail (10 user Pak) 259.

★ CompuServe ... 60 day MBG

- 1676 CompuServe Information Service 24.
 1673 CompuServe Navigator 2.1 45.
 1674 Standard Service/Navigator Bundle 59.

★ DataViz ... 60 day MBG

- 1823 MacLink Plus/PC 4.0 139.
 4842 MacLink Plus/Translators 4.0 115.

★ Dove Computer ... 60 day MBG

- 4939 FastNet III 450.
 4938 FastNet SE 450.
 4937 FastNet SCSI 925.

★ Dow Jones ... 30 day MBG

- 5295 News/Retrieval Membership Pack 24.
 1785 Desktop Express 1.03 95.
 1786 Market Manager Plus 2.0 189.

★ Farallon Computing ... 30 day MBG

- 4208 Timbuktu 2.0.1 65.
 4866 Timbuktu Remote 1.0.1 195.
 4867 Timbuktu 30-Pack 2.0.1 1395.

- 2201 TrafficWatch 1.08 139.
 2203 PhoneNET PLUS (DIN-8) 35.
 2204 PhoneNET PLUS (DB-9) 35.

- 4869 PhoneNET Connector 10-Pack 225.
 4868 PhoneNET Repeater 325.
 2206 PhoneNET StarController 1199.

★ Freesoft ... 60 day MBG

- 2219 Red Ryder 10.3 54.
Hayes

- 2300 Smartcom II 3.1 88.
 2307 Smartmodem 2400 429.

- 5170 2400M (internal) 419.
 5169 2400M (internal w/Smartcom II) 459.



Deneba ... 30 day MBG

Canvas 2.0—The only object-oriented draw program to receive a 5 mouse rating from MacUser magazine. Includes continuous multi-point Bezier curves, and instant auto-trace conversion of bitmapped images ... \$159.



“Next time I’ll fly MacConnection.”

Dear MacConnection,

I have been dealing with your company almost since your first ads appeared. I knew you were good, but I think you’ve overdone it now.

About two weeks ago, on a Monday night, I called you from New Jersey to

request that you send *Filemaker II* to my destination in California. Upon my arrival there the next day, I was surprised to find my package waiting for me, and it was in better shape than I was. Next time I’ll send my luggage by United, and I’ll fly MacConnection.

Raymond C. Andrews, M.D.
Imola, Italy

MacConnectionTM 1-800/622-5472

MacConnection, 14 Mill Street, Marlow, NH 03456 1-800/622-5472 603/446-7711 FAX 603/446-7791

© Copyright 1989 PC Connection, Inc. MacConnection is a division and trademark of PC Connection, Inc., Marlow, NH.

Just for the record, all the ads in this series feature photographs of real live MacConnection customers and the real live letters they wrote us. Really!

Expo-se yourself to

Insignia Solutions

4089 SoftPC 1.3 \$249.

Intel Corporation

5119 2400 Baud External Modem 179.

★LaCie, Ltd. ... 30 day MBG

4975 LaCie Utilities 1.0 (Includes SilverLining, SilverPlatter, and SilverServer) 89.

★Lamir ... 30 day MBG

4984 Acknowledge 1.0 329.

★Microsoft ... 30 day MBG

2875 Microsoft Mail 1.37 (1-4 users) 195.

2872 Microsoft Mail 1.37 (5-10 users) 325.

2873 Microsoft Mail 1.37 (11-20 users) 489.

2874 Microsoft Mail 1.37 (21-32 users) 639.

★Nuvotech ... 60 day MBG

3000 TurboNet ST (DIN-8) 30.

3001 TurboNet ST (DB-9) 30.

5277 TurboBridge 359.

★Practical Peripherals ... 30 day MBG

3100 1200 Baud External Modem 77.

3102 2400 Baud External Modem 179.

3089 Mac Communications Pack 1.5 225.

★Shiva ... 30 day MBG

3444 NetSerial X232 289.

4347 NetBridge 349.

4942 TeleBridge 349.

3443 NetModem V2400 479.

★Software Ventures ... 30 day MBG

3454 MicroPhone 1.5 119.

3455 MicroPhone II 3.0 219.

★Solutions Int'l. ... 60 day MBG

4308 BackFAX (reqs. Apple FAX modem) 125.

★Synergy ... 30 day MBG

3130 VersaTerm 4.0 89.

3131 VersaTerm-PRO 3.0 179.

★TOPS ... 30 day MBG

3723 TOPS Mac 2.1 149.

3726 TOPS for DOS 2.1 119.

3724 NetPrint 2.0 119.

4715 InBox Connection Mac 2.2 75.

4714 InBox Starter Kit 2.2 199.

4188 TOPS Teleconnector (DIN-8) 29.

4598 TOPS FlashBox 125.

3725 TOPS Repeater 129.

3720 TOPS Flashcard 169.

★Traveling Software ... 60 day MBG

3729 LAP-LINK Mac 2.0 83.

INPUT/OUTPUT

Caere

4476 OmniPage 1.1 \$559.

★Cutting Edge ... 30 day MBG

3988 CE 105ADB Keyboard w/QuickKeys 135.

★Datadesk ... 30 day MBG

1819 MAC-101 Keyboard (beige) 145.

1820 MAC-101 Keyboard (platinum) 145.

1821 MAC-101 Keyboard (ADB) 145.

Foreign Keyboards available call

★Kensington ... 30 day MBG

2576 Turbo Mouse for Mac Plus 3.0 109.

2547 Turbo Mouse ADB 3.0 109.

Koala

2593 MacVision 2.0 219.

★Kraft Systems ... 60 day MBG

2600 3-Button QuickStick 39.

4082 3-Button QuickStick ADB 51.

Kurta

2604 IS ADB 8 1/2" x 11" Tablet 255.

5161 IS ADB 12" x 12" Tablet 385.

5162 IS ADB 12" x 17" Tablet 625.

2605 Cordless 4 Button Cursor 65.



Kurta

ADB Graphics Tablet—Enables user to move screen cursor to draw, sketch, and trace more accurately than with a mouse. Please see our line listing for sizes and prices.

Cordless 4 Button Cursor \$65.

★Logitech ... 30 day MBG

5082 ScanMan Mac 349.

★LYNX Computer ... 30 day MBG

1211 LYNX Trackball 65.

1212 LYNX Trackball ADB 65.

★Microseeds Pub. ... 60 day MBG

4843 WristMac 1.0 149.

5018 WristMac Executive 1.0 199.

★Mobius Technologies ... 60 day MBG

4846 MultiScreen 315.

★Mouse Systems ... 30 day MBG

2808 A+ Mouse 65.

2809 A+ Mouse ADB 85.

★Nutmeg Systems ... 30 day MBG

2994 15" Monitor for Mac SE 999.

4096 19" Monitor for Mac SE 1349.

4097 19" Monitor for Mac II 1449.

4849 LCD Interface (Kodak DataShow) 399.

Olduvai Software

5138 Read-It! OCR Personal 2.0 99.

3034 Read-It! OCR 2.1 249.

★Orange Micro ... 30 day MBG

4488 Grappler Spooler 39.



Datadesk ... 30 day MBG

MAC-101 Keyboard—Includes macro program, Masterstrokes, to assign keystrokes and mouse clicks to 15 function keys. Beige, platinum, or ADB version \$145.
Foreign keyboards are also available call

3036 Grappler C/Mac/GS 2.0 79.

4076 Grappler LQ 1.5 103.

4487 Grappler LS 1.0 103.

★PCPC ... 30 day MBG

5005 SHADOWGRAPH Monitor

(gray scale, incl. CGC/2 Card) call

5004 CGC/2 Graphics Card call

★PTI/DataShield ... 30 day MBG

4845 MacDirector 109.

SoftStyle

3282 Printworks (Dot Matrix) 3.5 43.

3283 Printworks (HP laser) 3.6 85.

Summagraphics

4298 BitPad Plus ADB 325.

★Thunderware ... 30 day MBG

3648 ThunderScan 5.0 with PowerPort 189.

4994 LightningScan 409.

3645 Mac II Power Accessory 42.

MEMORY & DRIVES

★Cutting Edge ... 30 day MBG

3989 800k External Disk Drive 149.

5133 20 Meg Hard Drive 439.

3990 30 Meg Hard Drive 499.

3991 45 Meg Hard Drive 599.

5275 65 Meg Hard Drive 649.

5276 80 Meg Hard Drive 749.

★Dove Computer ... 60 day MBG

FastNet networking products call

1801 SCSI Interface/Port 109.

1807 MacSnap 524E 189.

1809 MacSnap 524S 249.

1811 MacSnap 548 449.

1812 MacSnap 548S 499.

1800 MacSnap 2SE 319.

1797 MacSnap Plus 2 319.

1804 MacSnap 2S 399.

1793 MaraThon 020 MSE1 585.

1794 MaraThon 020 MSE2 (1 Meg) 979.

1795 MaraThon 020 MSE3 (math chip) 779.

1796 MaraThon 020 MSE4 (1 Meg/chip) 1159.

5192 MaraThon 020 MSE5 (4 Meg) 1369.

5193 MaraThon 020 MSE6 (4 Meg/chip) 1559.

4663 MaraThon 030 Accelerator 32 Mhz 999.

Epson

5132 40 Meg Raw Drive (25ms) 436.

5204 70 Meg Raw Drive (25ms) 586.



Practical Peripherals ... 30 day MBG

Mac Communications Pack—Includes external 2400SA Modem, cable, and top-selling communication software. Hayes compatible, auto-answer. A superior value \$225.

our overnight delivery.

★LaCie, Ltd. ... 30 day MBG

- 4983 Maxcie Internal Drive Kit \$59.
4982 Maxcie External Drive Kit 189.

★PCPC ... 30 day MBG

- 3177 HD-WSI (Apple HD-20 to SCSI) ... 269.
3189 MacBottom HD 45 SCSI call
4658 MacBottom HD 84 SCSI call

DISKS

★Verbatim ... 30 day MBG

- 3772 3 1/2" DS/DD Disks 16.
3297 Sony 3 1/2" DS/DD Disks 16.
2214 Fuji 3 1/2" DS/DD Disks 17.
2792 MAXELL 3 1/2" DS/DD Disks 17.

★Verbatim ... 30 day MBG

- 3773 3 1/2" HD Disks (1.44 Meg) 39.
3298 Sony 3 1/2" HD Disks (1.44 Meg) ... 39.
2215 Fuji 3 1/2" HD Disks (1.44 Meg) ... 39.
2793 MAXELL 3 1/2" HD Disks (1.44 Meg) 39.

ACCESSORIES

★Avery ... 60 day MBG

- 4864 3 1/2" Disk Labels (Qty. 250) 13.
4865 3 1/2" x 1 1/16" Address Labels (Qty. 3750) 15.
4811 8 1/2" x 11" Transparencies (Qty. 50) 22.
4807 1" x 2 5/8" Laser Labels (Qty. 3000) . 24.

★Computer Coverup ... 60 day MBG

- 1723 ImageWriter II Cover 8.
1722 ImageWriter LQ Cover 8.
1725 Mac SE Ext. Keyboard Cover Set ... 10.
4657 LaserWriter II Cover 10.

★Ergotron ... 60 day MBG

- 2004 Mouse Cleaner 360° 15.
3992 The Muzzle (covers power outlet) ... 62.
2000 MacTilt SE 68.

★Goldstein & Blair ... 30 day MBG

- 2267 The Macintosh Bible (2nd Edition) ... 20.

★I/O Design ... 30 day MBG

- 2379 MacLuggage Imageware II 49.
2376 MacLuggage Macinware Plus 64.
2381 MacLuggage Macinware SE 75.

Kalmar Designs

- 2531 Teakwood Rolltop Case (holds 45 disks) 14.
2532 Teakwood Rolltop Case (holds 90 disks) 21.
2533 Teakwood Rolltop Case (holds 135 disks) 31.

★Kensington ... 30 day MBG

MacConnection carries the entire line of Kensington's accessories. Partial listing below.

- 2589 Universal Printer Stand \$15.
2545 Universal Copy Stand 22.
4971 Modem/FAX Protector 20 25.
4973 Power Tree 20 27.
4974 Power Tree 50 54.
2559 Apple Security Kit 34.
2556 Maccessories Anti-Glare Filter 33.
2568 Maccessories SuperBase 34.
2585 Printer Muffler 80 43.
4070 System Saver SE 52.
2566 System Saver Mac (platinum) 64.
2546 Maccessories A-B Box 64.
5064 Apple Color Monitor Polarizing Filter 65.
5065 Full Page Display Polarizing Filter .. 65.
5066 Two Page Display Polarizing Filter .. 135.
4941 Mac II Monitor Stand 65.
4643 Mac II Stand and Cable Kit 65.
2561 MasterPiece Mac II 105.
5229 PowerBacker 330 269.



Farallon Computing ... 30 day MBG

MacRecorder 2.0—Record and play compressed sound in HyperCard. Newest version has improved editing tools, and includes XCMDs and XFCNs for volume and record adjustments. Plays in stereo on a Mac II or SE/30 \$165.

★MacConnection ... 60 day MBG

- 4623 Solid Oak Disk Case, made by New England craftsmen (holds 90 disks) ... 29.

★Mobius Technologies ... 60 day MBG

- 4470 Fanny Mac QT 60.

★Moustrak ... 60 day MBG

- 2694 Moustrak Pad (standard 7" x 9") ... 8.
2692 Moustrak Pad (large 9" x 11") 9.
2693 Moustrak Pad L/F (9" x 11") 10.
Moustrak Designer Series ea. 12.

Ribbons

- 3255 ImageWriter II Ribbon 4.
3261 ImageWriter II 4-color Ribbon 9.
3270 ImageWriter II Rainbow Six Pack. ... 20.
3260 ImageWriter LQ Black Ribbon. 17.

★Simon & Schuster ... 60 day MBG

- 4230 The Fully Powered Mac book 24.

★Sopris Softworks ... 60 day MBG

- 4016 MacPlus Cover (navy) 15.
4171 Mac SE Std. Keyboard Cover (navy) ... 15.
4019 Mac SE & Ext. Keyboard Cover (navy) . 15.
4017 ImageWriter II Cover (navy) 11.
4168 ImageWriter LQ Cover (navy) 13.
4018 LaserWriter II Cover (navy) 17.
4012 High Trek ImageWriter II carry case. 49.



Targus ... 60 day MBG

Mac SE & Extended Keyboard Carry Case—Made of a special dust and water-resistant material that's as strong as Cordura but much smoother so it won't wear out your clothing. Closed-cell foam protects against jolts \$75.

- 4013 High Trek Mac Plus carry case 59.
4014 High Trek Mac SE & ext. kybd. case 69.
4861 SE Protection Pak (std. keyboard) ... 65.
4862 SE Protection Pak (ext. keyboard) ... 75.

★Targus ... 60 day MBG

- 3618 ImageWriter II Carry Case 49.
3617 MacPlus/SE Carry Case 59.
4015 Mac SE & Ext. Kybd. Carry Case ... 75.

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.
- International orders U.S. \$250 minimum.
- Upon receipt and approval, personal and company checks now clear the same day for immediate shipment of your order.
- Corporate P.O.s accepted subject to credit approval.
- COD max. \$1000. Cash or certified check.
- 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. All items subject to availability. Prices subject to change without notice.
- To order, call us anytime Monday through 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 credit card orders phoned into MacConnection weekdays by 8 PM EST will ship Airborne the same night for delivery the next business day (i.e. not Saturday or Sunday), 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.

Cutting Edge ... 30 day MBG

800k External Disk Drive—Features the latest in technology. Compatible with 512E, Plus, and SE. Includes LED disk access light. Formats disks as 400k or 800k HFS. \$149.





MAIL

M E R G E

A Mr. Angus McBean of Atholl Brose, Pennsylvania, notes with interest Apple's recent announcement that it has joined a consortium of high-tech companies exploring the future of high-definition television (HDTV). "The technology is one thing," writes McBean, "but they also need to develop suitably high-tech programming to show off its capabilities. Maybe an MTV-style version of *Inside Macintosh* for computer professionals — sort of an MITV." Uh-huh.

WRITE TO

Letters to the Editor, c/o *MacUser*
950 Tower Lane
18th Floor
Foster City, CA 94404

All letters become the property of *MacUser*, and we reserve the right to edit any letters we print.

■■■■■■■■■■
COMPILED BY JON ZILBER

Peripheral Vision

Paul Somerson's "DOS-to-Mac Conversion" (June '89) should delight the folks at Apple Computer. Perhaps they will listen to you when you point out the simple and obvious things they have been missing. For example, our small, new, avant-garde university has saved at least \$500,000 on typesetting in just three years, thanks to our Macs. But for many applications — such as accounting — we still have to struggle along with other computers for the simple reason that the Mac cannot readily be made to use low-priced peripherals such as third-party printers and paper bins. We can't imagine how Apple ever expects to invade the business offices of America when Macs can't print a decent letter without a LaserWriter.

Ralph D. Winter
Pasadena, CA

System 7.0 — parts of which are expected to be released by the end of 1989 — promises to broaden printer choices by simplifying the process of writing drivers for third-party printers. — JZ

Knowledge on Tap

Your readers may be interested to know that a copy of the Knowledge Navigator video Louise Kohl mentions in her April '89 Control Panel column can be obtained by virtually any academic library and at most public libraries through the OCLC interloan system. It is included in a keynote address given by John Sculley at EDUCOM '87. To obtain the VHS cassette, librarians should request OCLC cassette 17562069 or 17503272. The tape also includes some interesting interactive-video demonstrations that use the Mac.

Kenneth L. Dudley
Grand Rapids, MI

It's about Time

Many thanks for your review of our CD-ROM, Time Table of Science and Innovation (May '89). None of your competitors have reviewed the disc, but now that CD-ROM titles are being stocked in software stores, the future of this technology is a good bit closer.

There are a few points we want to set straight. The main stack has 5,539 cards (or stories), not "just over 500," and the

next version will have more than 6,000. Also, where the Time Table proposes extensive historical linkages, a source is directly cited (often James Burke, the master of these things).

Peter Black
President, Xiphias
Marina Del Rey, CA

Macs Ax Lax VAX?

I read the article "Making a Small Net Work" (May '89) and came away with terminal depression (no pun intended). Most of the professionals who use the VAX system in my office have never mastered even the basics, so the system is greatly underutilized. I would love to have a Mac in the office and, in my ignorance, have even recommended that we scrap the VAX, put Macs on every desk (about 50), and connect them all together into one big happy family.

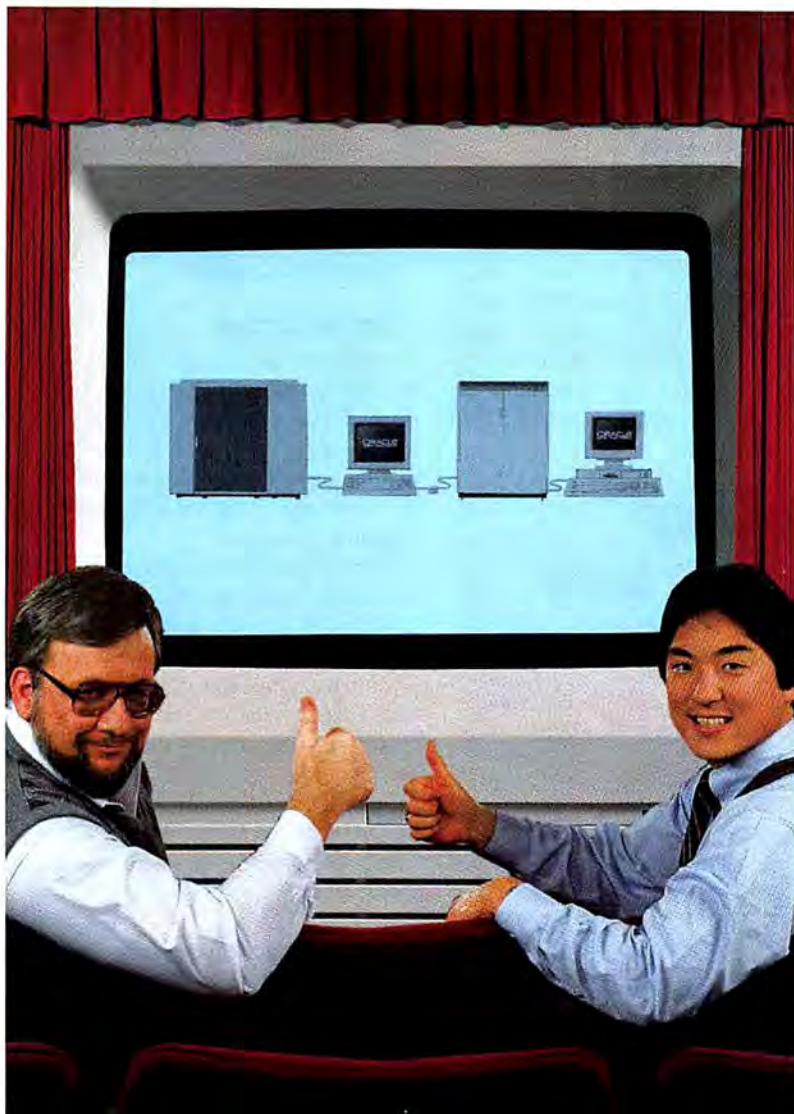
But after reading your article, I soon realized that this is not the answer. If our computer illiterates cannot figure out how to use a VAX menu, they simply don't use the system. With an interconnected Mac system, they would be creating the wrong kinds of folders, putting them into the wrong places, and generally screwing up the system. It seems that one still has to choose between having really good interoffice communication (which is essential for our office) and having the type of flexibility that the Mac provides (which we can grudgingly live without).

Walter L. Williamson
Atlanta

Congress of Libraries

As a librarian who has spent the past ten years trying to remind the public that the business of the library is to bring people and information together, I was gratified to see Louise Kohl's wish list for networking computers and libraries (Control Panel, May '89). Many of us librarians have been beating our brains out trying to keep libraries in people's minds in their quests for information. One of our greatest fears is that public libraries might become out-of-date, replaced by private-sector information services. Most public libraries cannot find the money to buy into the hardware and on-line services needed to keep up with

"Two thumbs up!" ORACLE for Macintosh. Only \$299.



"I like the seamless way ORACLE gives HyperCard full-power database and networking capabilities. Teaming the total flexibility of HyperCard with the strength of SQL is a masterstroke!"

Dan Shafer, Author of Hypertalk Programming

"I like the seamless way ORACLE opens up minis and mainframes to 4th DIMENSION. Teaming the total flexibility and strength of 4th DIMENSION with SQL is a masterstroke, indeed."

Guy Kawasaki, President of ACIUS, developers of 4th DIMENSION

Finally, there's one thing these two guys can agree on: ORACLE® for Macintosh. That's because ORACLE for Macintosh now turns both HyperCard and 4th DIMENSION into full-function SQL databases. It also gives them transparent connectivity to over 80 different systems, including PCs, DEC VAXs and IBM mainframes—even IBM DB2 and SQL/DS databases.

Special Limited Time Offer

Whatever application you're currently using—HyperCard or 4th DIMENSION—ORACLE for Macintosh gives you industry-standard SQL. And for a limited time, ORACLE for 4th DIMENSION is included *free* with every copy of ORACLE for Macintosh. \$299* delivers our stand-alone version for your Macintosh. \$999** delivers all this, plus transparent access to remote ORACLE and IBM databases on your host systems. So call today. Our 30-day money-back guarantee is your assurance we'll deliver a four-star performance. ★★★★★

ORACLE®

COMPATIBILITY • PORTABILITY • CONNECTABILITY

Call 1-800-ORACLE1, ext. 7635 today.



Dear Oracle

Macintosh Direct Sales

20 Davis Dr. • Belmont, CA 94002 • 1-800-ORACLE1, ext. 7635

I have (check one) ☐ HyperCard 1.2 ☐ 4th DIMENSION Version 1.0.6.
Enclosed is my ☐ check, or ☐ VISA ☐ MasterCard ☐ AmEx credit card
authorization for:

- ☐ × \$299 ORACLE for Macintosh Developer's Version \$ _____
(Includes HyperCard Interface and ORACLE for 4th DIM.)
- ☐ × \$199 ORACLE for 4th DIMENSION \$ _____
Available June 1989. (I already have ORACLE for
Macintosh and 4th DIMENSION.)
- ☐ × \$999 ORACLE for Macintosh Networking Version \$ _____
(Includes an unrestricted license of ORACLE for Macintosh,
SQL*Net Networking Software and protocols for Macintosh
and, for a limited time, ORACLE for 4th DIMENSION.)

Please add appropriate sales tax \$ _____

Shipping and handling \$ 15.95

Total (Offer valid only in USA) \$ _____

NAME _____ TITLE _____

COMPANY _____

STREET (no P.O. boxes please) _____

CITY _____ STATE _____ ZIP _____

TELEPHONE _____

CREDIT CARD NO. _____ CARD EXPIRATION DATE _____

SIGNATURE _____ TODAY'S DATE _____ MACUSER.MAG

*Stand-alone version licensed for developers only. Requires Macintosh SE or II with 2 MB of RAM, 5 MB hard disk space, floppy disk drive, and HyperCard 1.2. Includes 30-day installation support, ORACLE database, Hyper-SQL (HyperCard Interface), SQL*Plus, OCI and Pro-C (Macintosh Programmer's Workshop required for programming usage), System Stacks and Example Stacks. **Full networking version is \$999 and includes SQL*Net (for database communications), Async 3270, DECnet, TCP/IP support, Alisa System's TSNnet DECnet protocol and drivers and Kinetic's TCP/IP protocol and driver. Accessing database software on other machines requires a separate protocol handler and gateway software for the other machine. Call for additional information. Copyright © 1989 by Oracle Corporation. ORACLE is a registered trademark of Oracle. The other companies mentioned own numerous trademarks. 1RBA

CRYSTAL Quest™

WITH
CRITTEREDITOR™

Make Your Own Game!



**Best
New
Recreation
Program!**



Crystal Quest: \$49.95
Crystal Quest & CritterEditor: \$79.95

Casady & Greene Inc.

POB 223779, Carmel, CA 93922
Information: (408) 624-8716
Orders: (800) 331-4321
In CA: (800) 851-1986

Please circle 175 on reader service card.

information technology; it's hard to invest in a computer network when you're trying to find the money to keep your branches open. It would be wonderful if one (or several) of the big hardware or software companies could help set up a big demonstration project to show that libraries are not just books and librarians don't just say "Shush!" They also say "Network!"

Walter Kafton-Minkel
Portland, OR

On the Sea Level

Here at the Discovery Bay Marine Laboratory, I have had my Mac Plus and ImageWriter II in non-air-conditioned circumstances by the sea for a year. I minimize the flow-through of the salty, humid air in the room, especially when it is stormy out; do not idle the printer (which Apple says won't run on our 50-cycle power); and have cheesecloth taped on all

vents and drive openings to keep bugs out, hemipteran and colloquial. So far no problems, except for an earthquake during which I attributed the movement to a flickering screen. When the reality dawned on me, I wondered if I should save the file instead of diving under my desk. It's scary what a computer can do to your survival instincts.

William R. Allison
Discovery Bay, Jamaica

Signs of Success

Thank you for running an item about my American Sign Language font (New on the Menu, June '88), which contributed greatly to the worldwide dissemination of more than 1,000 copies of these freeware fonts. I learned a few lessons from this experience.

Some requesters forgot to include self-addressed, stamped envelopes; blank disks; and proper postage to reach me and get their disk back. And you wouldn't believe the number of 5.25-inch blank disks I had to return to readers who expected to use the font on their Apple II computers.

Some folks made up for the shortcomings of others, including extra disks or a couple of dollars as a donation to the effort; overall, the gains outweighed the losses.

Here are some reminders for readers responding to offers from freeware and shareware publishers:

- Note the machine for which the offer is intended.
- Include all specified SASE requirements.
- Please initialize disks before sending them (my Mac had to work overtime for those who didn't).
- Include clear instructions if you have any special requests (e.g., to use single-sided disks).
- Package your disks properly to prevent them from being mangled on either leg of their journey.



Dear Mr. Sculley . . .

Here's your chance to participate in a monthly open letter to the top brass at Apple Computer. Our question this month concerns warranties: Is Apple's standard 90-day warranty satisfactory? Would you be willing to pay higher hardware prices for a longer warranty? Or should extended support remain optional?

Last month we asked how you felt about rumors that DAs might become history under System 7.0. Now that Apple has revealed some of its intentions, you can rest assured that reports of the death of DAs have been greatly exaggerated. Some of your favorite DAs may not be compatible with System 7.0, however, because of dramatic changes in System architecture. So we still want to know what you think about DAs in general. Should Apple love 'em or leave 'em? What's on your list of Desert Island DAs (those gems you can't live without)? Send your comments on DAs and warranties (and suggestions for future topics) to Dear Mr. Sculley . . . c/o *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.





House.



Senate.

We found a measure they could both agree on.

Up on the hill it looked like another split along party lines. Both Macintosh and PC users fought for access to the same information. Until a TOPS network brought them together in bipartisan agreement, that is.

TOPS Tech Specs

- TOPS supports AppleTalk and FlashTalk running on twisted-pair cabling (telephone wire), and EtherTalk on thick or thin Ethernet cabling.
- All IBM PCs, PS/2 Models 25 or 30, or compatibles require TOPS FlashCard, 3Com EtherLink II or Western Digital EtherCard Plus. PS/2 Models 50 through 80, or compatibles require 3Com EtherLink/MC card.
- TOPS can be configured as a distributed, dedicated, or combination server network.

Maybe that's why TOPS has been voted the de facto standard for easy Mac-to-PC connectivity by some 600,000 users. All you have to do is install TOPS software in each Macintosh and PC on the network, add a network card to each PC, and you've got a quorum.

A polished diplomat in any arena, TOPS easily trades data from Lotus 1-2-3 to Excel, Microsoft Word PC to Word Mac and most other Mac and PC applications.

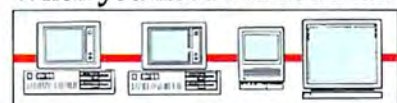
And if you're looking to discuss the issues with other networks and systems, such as Novell, AppleShare, and Sun NFS, TOPS provides the perfect forum.

No wonder, when it comes to making connections, TOPS is the people's choice. Call the TOPS Division of Sun Microsystems at 1-800-445-TOPS, ext. 306.



TOPS[®]

When you need connections.



From outside the U.S. and Canada, call TOPS at 1-415-769-8700, ext. 306. Or write to TOPS, 950 Marina Village Parkway, Alameda, CA 94501. For information on European distribution, call 44 276 51440.

Better is

The new 16" MultiSync® 4D and 20" 5D both offer compatibility with a wide range of graphics boards and computer systems.

NEC's award-winning MultiSync technology, now available in larger, digitally controlled, high-resolution color monitors.



Both are optimized for the IBM PS/2, PC/AT/XT (and their 100% compatibles) and the Mac II. Both offer a microprocessor-based digital control system for preset and custom graphics modes, instant screen

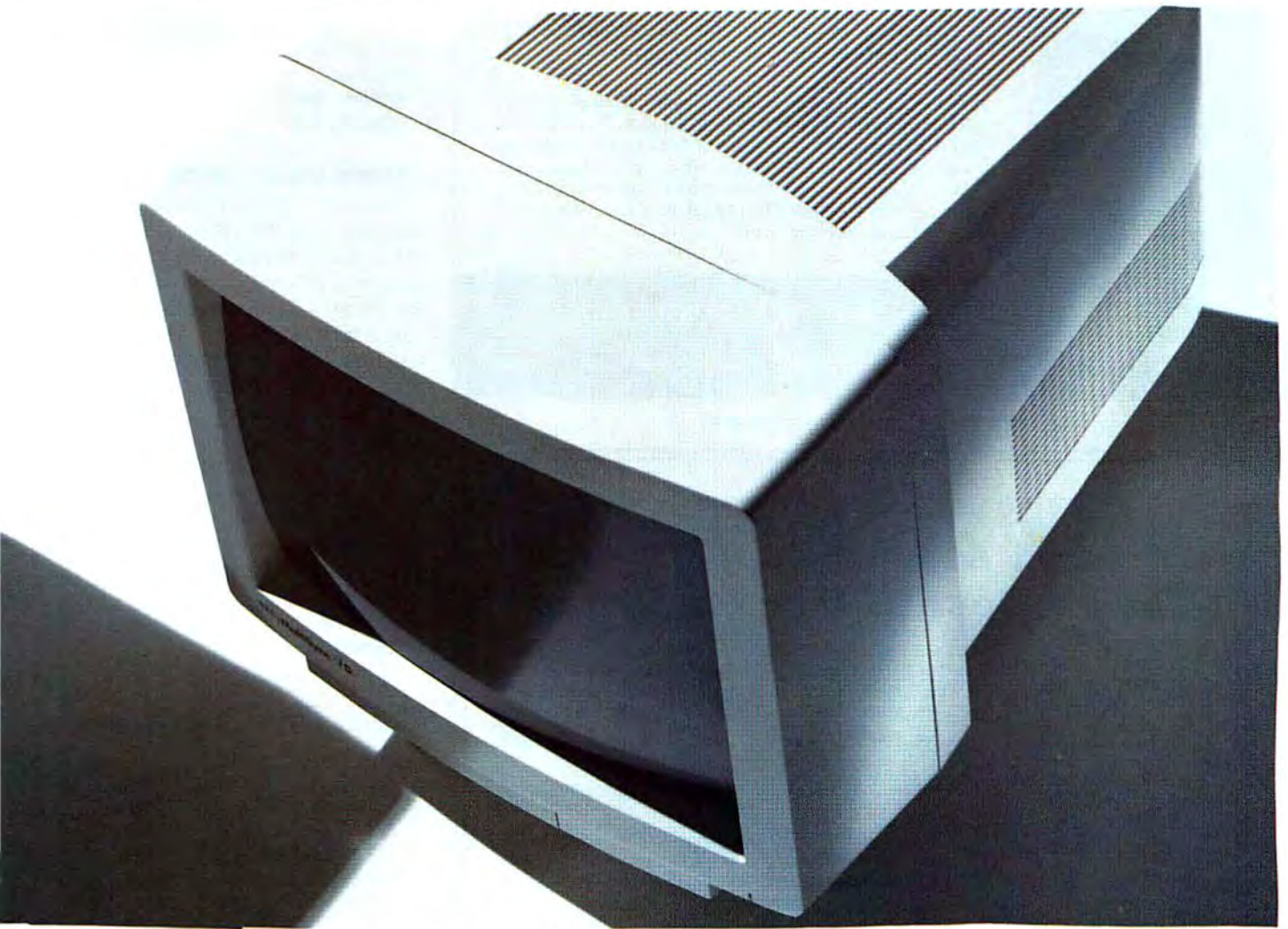
MultiSync is a registered trademark of NEC Home Electronics (USA) Inc.**C&C**

Computers and Communications

bigger.

configuration and optimal image. And both give you great resolution—

the 4D, from VGA up to 1024 x 768; the 5D, from VGA to 1280 x 1024.



The only difference: one is for large ideas. The other, for extra-

IBM PC/ATXT and PS/2 are registered trademarks of the International Business Machines Corporation.

large. For literature, call 1-800-826-2255. For details, call NEC Home

MAC II is a registered trademark of Apple Computer, Inc.

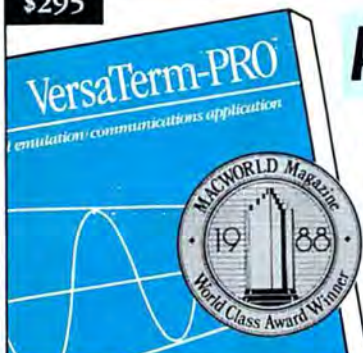
Electronics (USA) Inc. 1-800-FONE-NEC.

©1989 NEC Home Electronics (USA) Inc.

NEC

Please circle 160 on reader service card.

\$295



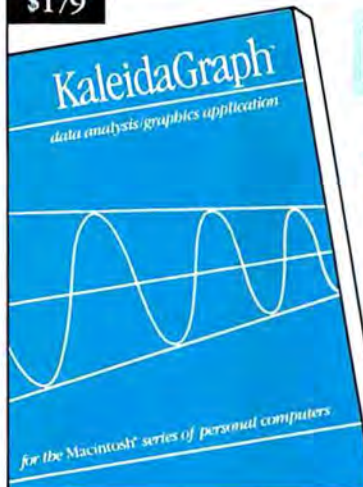
Access text and graphics mainframe applications from one easy-to-use program

■ **EMULATE** industry standard text and graphics terminals, including the DEC VT100, DG D200, Tektronix 4014 and Tektronix 4105 ■ **COMMUNICATE** with a wide variety of mainframe computers or information services ■ **TRANSFER** files using popular protocols, including XModem, YModem and Kermit ■ **BACKGROUND** operation is supported under MultiFinder.

developed by



\$179



Import data, analyze the data, and generate scientific and business graphics from one easy-to-use program

■ **FLEXIBLE** data import facilities ■ **FAST** operation (5 to 20 times faster than Cricket Graph™ version 1.2) ■ **LARGE** data sets supported (32,000 data points per variable) ■ **FEATURES** including: curve fitting; log, linear, polar and probability plots; high-resolution printing ■ **PROGRAMMABLE** RPN Calculator and Algebraic Formula entry.



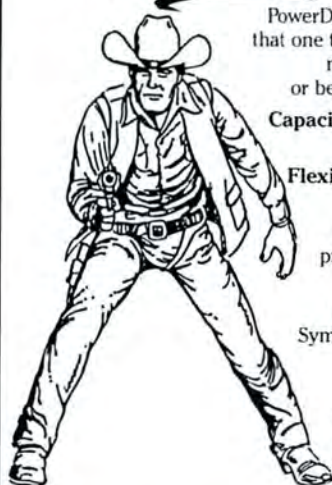
SYNERGY SOFTWARE

2457 Perkiomen Ave., Reading, PA 19606, 215-779-0522

Please circle 147 on reader service card.

POWERDRAW 3.0

The Fastest CAD on the Market



PowerDraw is designed to be fast. Lightning fast. Because we know that one thing you can never get enough of...is time. PowerDraw can make the difference in finishing the job in a couple of days... or before lunch. And PowerDraw has a lot more than just speed.

Capacity: Up to 220,000 drawing objects. Unlimited layers per file. Have up to 20 windows open simultaneously.

Flexibility: Customize PowerDraw to **your** needs with a built-in programming language.

Compatibility: Exchange files with other Macintosh CAD programs or with other CAD platforms using the PowerDraw DXF Translator. PICT and PICT2 formats are supported.

Features: You name it. PowerDraw has it. Built in plotting. Symbols as instances or objects. Interactive snap. Bezier curves. Tool & die precision. Full auto-dimensioning. Full color. And the largest, most complete tool box in CAD history.

All this and much more packaged into a program with the shortest learning curve in the industry.

Designed specifically for the Macintosh® by...



Engineered Software

P.O. Box 18344
Greensboro, NC 27419
Phone: (919) 299-4843
Fax: (919) 852-2067

Write or call for the PowerDraw dealer nearest you.

Please circle 181 on reader service card.



Incidentally, here is my new address — 4 Nottingham Way N., Clifton Park, NY 12065 — for readers interested in ASL Fonts or in the new compiled version of my practice program for new signers.

Richard L. Smith
Clifton Park, NY

Chinese Food for Thought

The article "Word Processing with Character" (May '89) gave a good survey of Chinese computing on the Mac. Another product, which wasn't mentioned in the article — Apple's own ZhongWen-Talk system, the Chinese counterpart to KanjiTalk — can be easier, but only if you have friends in Hong Kong or Taiwan who can obtain it for you. Like KanjiTalk, it is not a word-processing system but an operating system that lets you enter Chinese characters as 2-byte codes. So in HyperCard, for example, the Chinese characters can be processed as text instead of as graphics, reducing the size of the stack.

Edmund Lai
Campbell, CA

CLARIFICATIONS

MacPaint Continues

Although Claris intends to integrate many of MacPaint's features into a future version of MacDraw II, a headline in the May '89 Newsline overstated the case; the company has no immediate plans to discontinue MacPaint.

Type Righter

In the February '89 Tip Sheet, the tip on how to access the draft-mode fonts of the ImageWriter when using Word will work if you select Typewriter, not ImageWriter, in the Chooser.

A Slip of the Tuck

The price for EDCO Services' Letr-Tuck was incorrectly reported in the December '88 issue. The correct price is \$99 for either the Mac or PC version, or \$149 for the pair.



IIx



IIcx



II

Nobody Tops A II



Color for the Mac II: We offer brilliant 8-bit Standard Color and 24-bit or 32-bit photorealistic True Color — and video imaging systems — all fully QuickDraw™ compatible. Our 8-bit ColorBoard with built in Pan and Zoom lets you use affordable smaller displays, including Apple's® 13", or equivalent — and move rapidly around a "virtual" 19" display. Upgrade to our 19" Trinitron display later. Or buy one now!

Monochrome for the Mac II: Our 1-bit monochrome display offers fast refresh for no flicker, high performance, and true 72 dpi WYSIWYG to keep you as productive as humanly possible.

Like RasterOps.

Turn on your Mac II and get ALL the performance. Get RasterOps. For accurate color on your choice of monitor that fits your budget. And razor-sharp 72 dpi WYSIWYG monochrome. Because RasterOps leads the industry in power performance graphics. Color or monochrome, we offer the best solution for your Mac II.



So call now, for our brochure and the name of your nearest RasterOps dealer.

Hotline: 1-800-952-6300, Dept. X32

"We're Changing The Way People Look At Computers™"

2500 Walsh Avenue, Santa Clara, CA 95051

All registered and unregistered trademarks are the sole property of their respective companies.

RasterOps

We can tell you all the terrific ways Apple Desktop MediaSM can help you express your ideas.

First Apple created Desktop Publishing. Now there's Apple Desktop Media.SM

And it's turning the common desktop into a complete production center for all ways of communicating. Even including animation.

There's no way we're going to be able to show you all that on this page.

So we've prepared a special videotape. And we'll send it to you free and without obligation.

If you'd like, you can stop reading right here and just clip the coupon.

But if you want a bit of a preview, please continue.

Print Delivery. You probably already know how an Apple[®] Macintosh[®] computer can help you produce better-looking memos and reports. And do them faster than ever before.

But that's only the beginning.

Because now you can add even further impact. By incorporating high-quality graphic images into your work.

That includes photographs. And material from 35mm slides. With the ability to modify and retouch right on screen.

You can create a variety of special effects.

Or use highly stylized type, including a 3-D look. And flow it around anything.

And you can still print from your desktop. In color or black-and-white.

You can even print to a Linotronic for camera-ready art or final film.

Slide Delivery. Making slides or overheads used to require the services of an outside laboratory.

And the services of messengers to take things back and forth from the outside laboratory.

And all of the above every time you wanted to make a change, however small.

But now, with a Macintosh, you can do everything at your desk.

Because we've made creating 35mm slides or overheads just as easy as we've made the medium of print.

And you can still get the final product with a click of the mouse.

Live Delivery. When most people see what Apple has started here, they hardly believe it's possible.

And when they sit down to try it, they hardly believe how easy it is.

But the fact is that, right from your desk, you can make yourself seen and heard in ways that used to require a full production team.

You can create your own interactive demonstrations with HyperCard[®]. So, instead of going through everything, people guide themselves to just what they want to know.

You can even gain the impact of motion. With full animation. (The first time you make something travel across the screen, or see one of your characters walking, you'll feel as if you've done magic.)

Of course, you can add a

full voice-and-music soundtrack.

One Person. One Desk. All Media. The whole idea of Apple Desktop MediaSM is to allow you to work in every medium from a single, simple, and superbly integrated platform. Where you're free to choose whatever medium is most appropriate for your message and your audience.

All in a way that's fun to learn and easy to do. And gets you the first-rate results you want in far less time than ever before.

Naturally, the Macintosh products you need, as well as any associated equipment and software, will depend on what you want to accomplish. But you can start as modestly as you like and grow from there.

Someday, people may look back on Apple Desktop MediaSM and call it the single most pivotal point in our search for richer and better ways to communicate.

But mere words won't get us any further.

Mail the coupon on the right and see it all on our free videotape. Or, for faster service, use our toll-free telephone number.

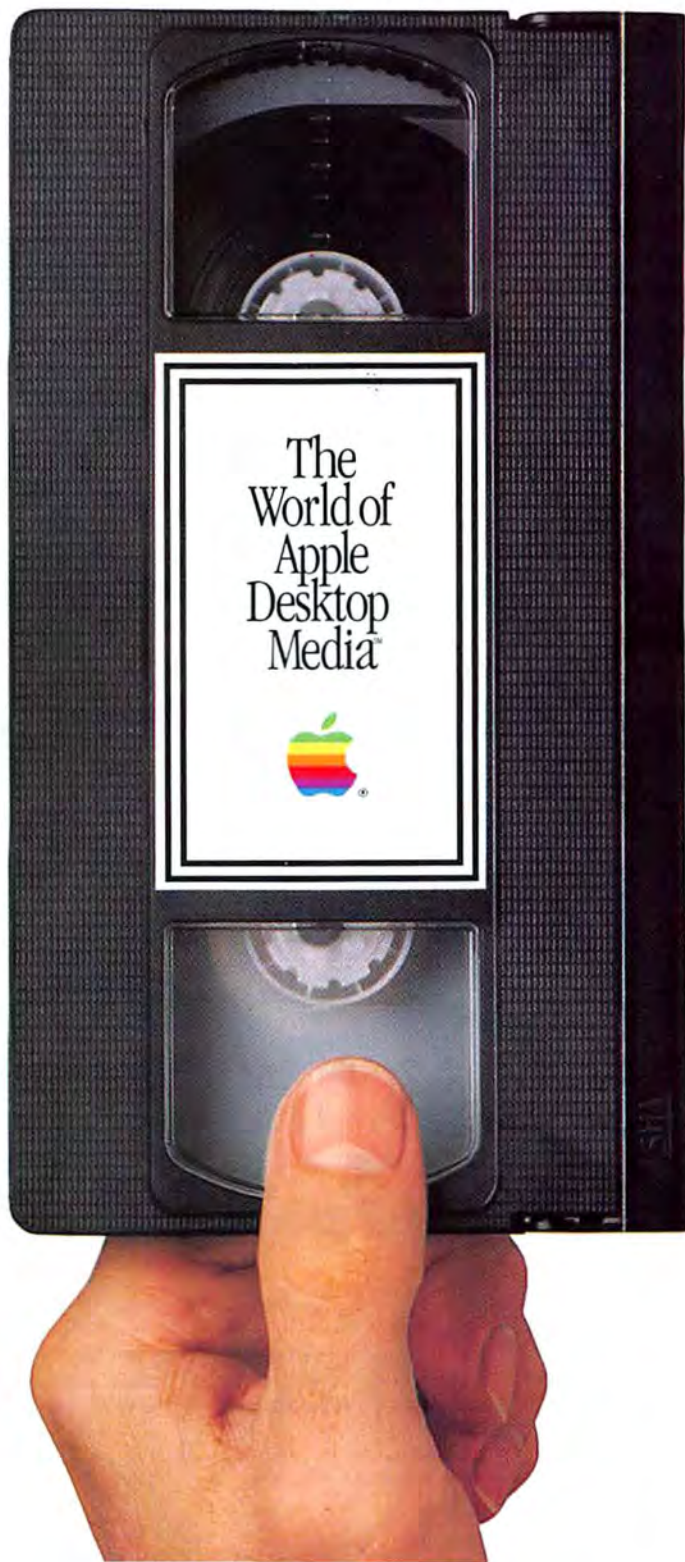
You'll find out just how much impact you can generate without even leaving your chair.



The power to be your best.TM



But we'd rather show you.



Mail this coupon or call
toll-free 1-800-446-3000, Ext. 200.

Mail to:
Apple Desktop MediaSM Videotape
Apple Computer, Inc.
P.O. Box 751630
Memphis, TN 38175-9967

Please send me your free videotape
explaining and demonstrating Apple
Desktop MediaSM. I make no promise
other than to watch the tape (about
15 minutes long). I don't have to
return the tape to you.

Name _____

Address _____

City _____

State _____ Zip _____

Phone _____

MU2

Offer expires September 30, 1989.
Quantities are limited.
One videotape per customer.

EDITED
BY
RUSSELL
ITO

3-D In, 3-D Out

At the recent National Computer Graphics Association (NCGA) show in Philadelphia, Tektronix showed a jaw-dropping hardware/software package called CAChe (computer-aided chemical modeling). CAChe is a molecular-modeling program with 3-D input control, stereo 3-D output, and exceptional speed. If you work with molecular management, those features should excite you; even if you're not a chemist, you may be interested in the hardware components of the system, which can be used separately for a variety of leading-edge applications.

First let's consider the 3-D pointing device. Face it: When it comes to 3-D freedom, the mouse and trackball are quite limited.

The Tektronix device looks and works much like a trackball, but the ball sits in a shallow cup so it can be grasped and turned in any direction. It has three entirely programmable mode buttons. In the demo system, the buttons were in rotation, translation, and scaling modes in any or all of the three axes. The ball is a serial device, which means it's widely compatible. Tektronix is planning an Apple Desktop Bus (ADB) version for release in late 1989, but no price was announced.

The heart of the molecular-modeling system is a Motorola 88000-based application coprocessor board. This 20-megahertz pipelined reduced-instruction-set computer (RISC) processor is the

key to the system's speed. Tektronix has also developed FORTRAN and C compilers for developing applications that exploit the 88000 board. The board, called the ImPact Coprocessor for the Macintosh II, is available for \$10,495 for a basic configuration with a 32K data and instruction cache (upgradable to 48K) and 2 megabytes of RAM (upgradable to 32 megabytes). The \$995 Software Development Toolkit runs under MPW and includes a symbolic debugger, an assembler, a C compiler, and interface libraries for access to the full Mac II Toolbox; the FORTRAN compiler and additional libraries are optional.

For live stereo 3-D, Tektronix's stereo frame-buffer board fits in a

Mac II and drives a liquid-crystal, stereo frame shutter that covers the monitor's screen. The unit is flicker-free and transparent to the naked eye, but it reverses the polarity of the emerging screen's image at 120 hertz, which provides each eye with a left or right view at 60 hertz per eye. The viewer wears cross-polarized glasses so that each eye sees only the image meant for it. The board is double-buffered, capable of showing two frames while two others are being updated. The 3-D viewing system is not currently sold separately, but it wouldn't hurt to write or call Tektronix about it at P.O. Box 500, Beaverton, OR 97077; (503) 627-7337.

— Salvatore Parascandolo

Motion Sickness

Following on the heels of Electronic Arts' Eddy-winning Studio/8 color paint program is Studio/1. Studio/1 is an elegant black-and-white paint application with an interface, tools, and capabilities that closely follow its color predecessor's. In some areas, Studio/1 even surpasses Studio/8.

In addition to its painting tools, which include editable Bezier curves and polygons, eight configurable airbrushes, and controllable gradient fills, Studio/1 has these power features: resolutions from 72 to 300 dots per inch (dpi); a separate layer for PostScript text that can be edited and that prints smoothly; a perspective plane for completely tiling an area with copies of a selection; masking of one or more areas of a page; intelligent selection tools; and, quite unexpectedly, *animation*.

Although Studio/1 can't boast the object-oriented animation of VideoWorks and MacroMind Director, its animation powers com-

mand respect. It starts with flip-book animations and builds from there with a set of animation tools that includes intelligent options, shortcuts, and special effects — and it's easy to use. It features tweening, sound synchronization, variable playback speeds, pauses, acceleration and deceleration, real-time recording of mouse-dragged objects, calculated 3-D rotation and translation of selections, and templates that define a motion and let you select the object to be animated.

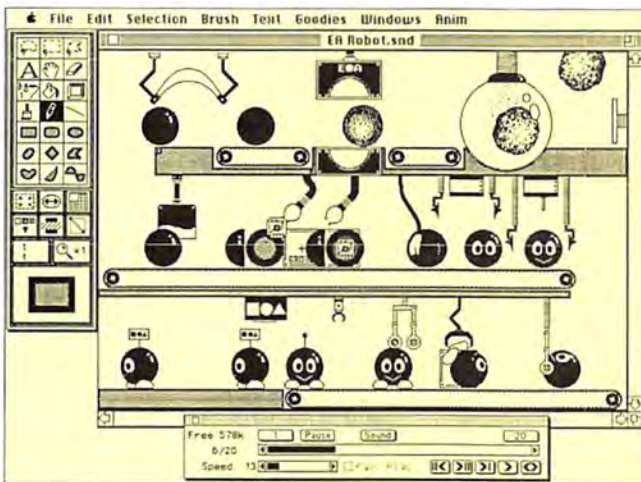
You can construct and paint objects with an animated brush. For example, you might create a brush as a flying bird; as you move the brush, the bird flaps its wings and each of its intermediate positions is recorded onto the main animation. The result is a bird that flaps around on your screen.

Studio/1 can also import and edit PICT files from applications such as Swivel 3D, Super 3D, and VideoWorks. It comes with a free-

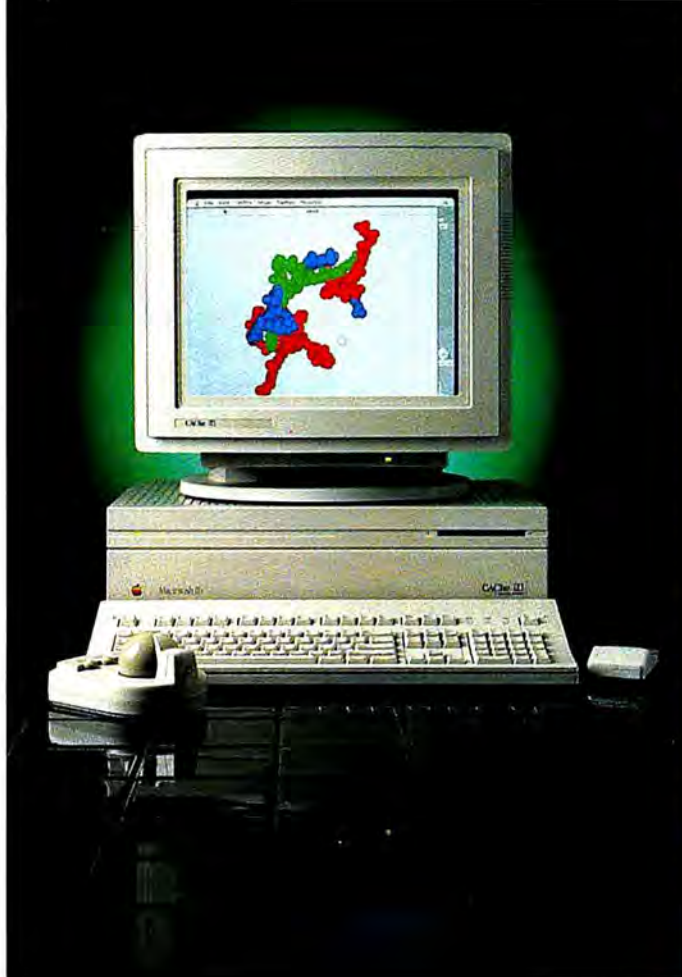
ly distributed XCMD for running Studio/1 animations in HyperCard. Excited? Animated? This program has a list price of \$150

and comes from Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404; (415) 571-7171.

— Salvatore Parascandolo



Studio/1's painting and animation tools were used to create this factory, in which a rough stone gets tumbled smooth; polished/split, and equipped with brains, a battery, and feet; and then shuffles away — all in 20 frames.



Tektronics' Cache workstation offers stereo 3-D viewing — advantageous for using its molecular modeling software. It's a Mac II assisted by a RISC processor, stereo hardware, and a 3-D trackball.

Spreadsheets with Fuller Impact

Just when you think Wingz has won the battle of the programmable spreadsheets, Ashton-Tate launches a new salvo. Version 1.1 of Full Impact has more application-development and customization features with the use of X-Macros, which are similar in function to HyperCard's XCMDs.

Full Impact's FullTalk macro language uses XMacros to access C or Pascal (Lightspeed and MPW) code. XMacros let you customize menus and Command keys and create applications with new functions. They also give programmers access to the Macintosh Toolbox. Nonprogrammers will be able to use and store libraries of XMacros created by third-party developers.

For those who would rather not program in C, Ashton-Tate is giving away XMacro libraries and complete applications on MacNet and CompuServe. For example, a

stock-quote application automatically dials up and logs into CompuServe, finds the appropriate section, and locates the latest price of stocks you have previously told it to find.

Some of the tools being put on-line include XMacros that let you attach customizable dialog boxes and hierarchical menus to Full Impact. Another XMacro adds sound to your spreadsheet by playing SND resources. They can work as background tasks so they won't prevent spreadsheet calculations. Ashton-Tate plans to make the source code for these XMacros available.

Full Impact 1.1 is the same price as version 1.0, \$395, and comes as a free, automatic upgrade for registered owners of Version 1.0. Contact Ashton-Tate, 21020 Hamilton Ave., Torrance, CA 90502-1319; (213) 329-8000.

— John Rizzo

NEWS LINE!

EDITED BY GIL DAVIS

System 7.0 Preview

SAN JOSE, CA — Apple outlined some of the capabilities of System 7.0, an ambitious yet "seamless" upgrade to the Mac operating system, at its System Software Press Seminar. System 7.0 will remove a number of limitations, such as the 8-megabyte memory limit, while adding powerful features such as more flexible printing, improved font management, and the ability to customize the System through user-defined scripts. Apple did not announce a ship date for System 7.0, characterizing the presentation as a disclosure of upcoming technology (underscored by the fact that all speakers wore informal attire).

Virtual memory, using hard-disk space as an extension of RAM, will enable users to run large applications or simultaneous multiple applications with as little as 2 megabytes of real RAM. Only the Mac SE/30, II, IICx, and IIfx, which have, or can accommodate, paged-memory capability, will be able to use virtual memory.

Full 32-bit addressing will enable a total contiguous reach of 4 gigabytes of virtual memory or 128 megabytes of RAM.

Outline-font technology will scale printed or displayed fonts to any size with much less jaggedness than current font-scaling techniques. Existing applications will use these new fonts without modification, and many major font publishers have already announced production of their fonts in this new format (refer to this month's DTP section).

A new **Finder** will be able to really find a file by opening its folder as the front window, with the file highlighted and ready for action. Document views (by Icon, by Name, and so on) will be customizable. You'll be able to assign several names to one file and use those aliases in multiple folders, allowing redundant organizational schemes without requiring redundant copies of files. (This will even work for files on a remote server.) Applications will join DAs on the Apple menu.

Installation of fonts, DAs, sounds, and other System resources will be accomplished by simply placing them in the System folder. They can be removed just as easily by dragging them out.

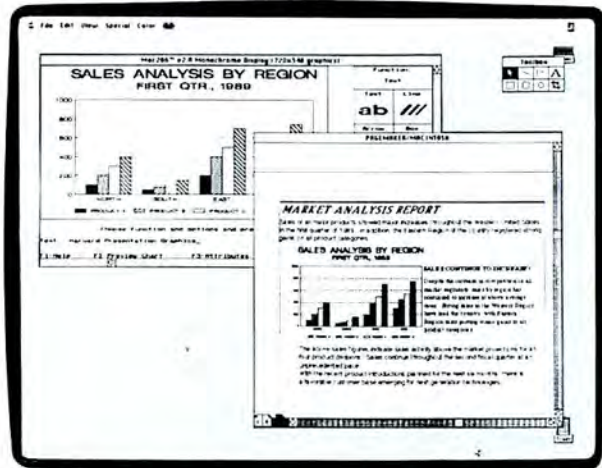
InterApplication Communications (IAC) lets programs share data, locally or over a network, in real time or on demand. For example, one application can process data from another program and return the results in a standard format. **Live Links** between documents will enable a section of a document created in one application to be "published," so that one or more documents created in other applications can "subscribe" to it — similar to file sharing, but extending the concept to parts of documents, including text, graphics, and numeric data. When a published document is saved, the change is reflected in other documents that subscribe to it (e.g., that have pasted it in). Applications will communicate with each other using a standard protocol driven by *Apple Events*, and these intra-application messages can be handled immediately, if the addressee is active, or they can be stored and forward-

HIGH PERFORMANCE

MS-DOS[®]

for MACINTOSH[™]

with Mac286/86 2.0



PERFORMANCE THROUGH HARDWARE

The Orange Micro[®] Mac286[™] brings the power of an IBM[®] AT[™] to your Macintosh II[™]. Multiprocessing of MS-DOS and Macintosh applications *at the same time* is now possible. Get the true speed of an IBM AT with the Mac286, the highest performance MS-DOS compatibility solution available for your Mac II. Containing its own memory and powerful 80286 processor, the Mac286 benchmarks at 8.2 on the Norton Computing Index. That's *six times faster* than any software based solution.

If you own a Mac SE, the Mac86[™] is your most powerful MS-DOS solution. Upgrade your SE with the Mac86 to get the optimum performance of an IBM XT[™] and Macintosh in one system.

PERFORMANCE THROUGH APPLICATION COMPATIBILITY

The Mac286 and Mac86 open up new windows of opportunity by insuring compatibility with all major MS-DOS application packages. In fact, you can use MS-Windows[™], AutoCad[™], Lotus 123[™], Lotus Symphony[™] or Flight Simulator[™] while simultaneously executing your favorite Mac program. Fortran, Pascal, and C language compilers can be run in the Mac286 or Mac86 windows. You can now turn your Macintosh II into a full development system.

PERFORMANCE THRU FILE SHARING

Transport files from your Mac286 or Mac86 window through the TOPS network to another Macintosh. Copy and Paste graphics from an MS-DOS charting program directly into Microsoft Word[™], PageMaker[™] or MacWrite[™] on your Macintosh. Transport files easily back and forth between Macintosh and MS-DOS formats by using the Mac286 file utilities. With two quick steps, files as complex as AutoCad designs or as simple as text files can be transferred back and forth between the Mac286/86 and the Macintosh.



1400 N. Lakeview Ave., Anaheim, CA 92807
(800) 223-8029, In CA (714) 779-2772

IBM, AT and XT; Macintosh, Macintosh II and Macintosh SE; MS-Windows, MS-DOS, Flight Simulator and Microsoft Word; PageMaker, AutoCad, MacWrite, Mac286 and Mac86, Norton Computing Index, Lotus 123 and Lotus Symphony, TOPS are registered trademarks of IBM Corporation, Apple Computer, Inc., Microsoft Corporation, Aldus Corporation, AutoDesk Corporation, Claris Corporation, Orange Micro, Inc., Norton Utilities & Software Company, Lotus Development Corporation, and Sun Microsystems, Inc., respectively.

© Orange Micro, Inc., 1989

Please circle 16 on reader service card.

NEWS LINE!

ed later. User-written scripts will automatically drive a complex series of multiapplication functions.

Database access will be facilitated through a common language, CL/1, allowing Macs to query and modify data residing at remote sites, including mainframes. The connection and update mechanism can be totally transparent; the user need not know where the published data resides.

Communications will be simplified for file transfer and terminal emulation. Users will be able to add new terminals or features simply by dropping files into the System folder.

Printing will be far more flexible. A single document will be able to have a mix of portrait- and landscape-oriented pages. Background printing will be possible with all printer types. You'll be able to redirect queued print jobs to any accessible printer — overriding the original Chooser selection.

Developing and upgrading applications will be simplified because Apple will provide "toolboxes" containing much of the underlying logic that software developers must now each reinvent for themselves. This should yield shorter development times and smaller, more powerful, and more stable applications with more consistent interfaces. System 7.0 will include toolboxes for communications, database access, and printing.

Any Mac from the Plus on up will be able to run System 7.0, but it will need at least 2 megabytes of RAM. Apple intends to move its entire product line to System 7, but it will continue to ship System 6 with 1-megabyte Macs and will provide technical support for both versions. (And networked printers will operate on networks that include a mix of Macs running the two Systems.)

All existing applications that follow published Macintosh programming standards will run under System 7.0 and will immediately take advantage of a few of its features. Most System capabilities, however, will be available only through application-software upgrades (which may simply need to tap into the System-level routines). Developers will receive early releases of System 7.0 and its tools this fall.

Aldus Goes to Hell

SEATTLE, WA — PageMaker Color Extension will soon have a direct link to the Chromacom color prepress systems marketed by Hell Graphic Systems. Once the link is completed in early 1990, PageMaker users will be able to send files directly to high-end Hell prepress systems, which will produce four-color separations of documents containing photographs and other scanned images.

This desktop-to-prepress link will be based on Aldus' Open Prepress Interface (OPI). Unlike Quark and Letraset, which have exclusive interfaces linking their page-layout programs with prepress systems from Scitex and Crosfield, respectively, Aldus developed OPI as a universal handshake that will eventually connect PageMaker to all the prepress players. Several prepress vendors have endorsed the new standard, but Hell is the first to reach a formal agreement with Aldus on implementing it. The two companies will also offer joint programs for customer training and technical support.

was flying back from Europe last spring when Brian O'Reilly's excellent article on Apple in the international edition of *Fortune* caught my eye. I was particularly struck by how differently John Sculley and other Apple executives tell their story when talking to a writer from *Fortune* than when they are talking to Mac enthusiasts.

Perhaps we can just write it off as business machismo when these executives talk to a major business publication. Nevertheless, one can't help but wonder whether the attitudes expressed to *Fortune* aren't perhaps the way John Sculley and "his people" really think.

as a superior religion.

There is, therefore, a potentially positive side to the attitudes that Sculley and others at Apple displayed when talking with *Fortune*. To the extent that their efforts result in better focus for Apple and the Macintosh, more timely and reliable development of new products, and more concern about being objectively useful for business users, they should be applauded.

It is difficult, however, to avoid the uncomfortable sense that

MACINTOSH ANALYST

Apple Management: An Oxymoron?

Sculley is quoted as saying critically, "This has always been a right-brained company that flitted from idea to idea." Talking about the discipline that Allan Loren has brought to the company, Sculley remarks, "Allan scared the hell out of people, and

I'm thrilled. I knew a tough guy from the East Coast demanding implementation would be unpopular."

It seems that Sculley's "tough guy" business macho ethos has been making progress against the old California mystique at Apple. Apple's vice president for human resources, Kevin Sullivan, is quoted in O'Reilly's piece as saying, "As we

a previously unmanifested dark side to all of this is working its way to the surface in the *Fortune* article. Bringing in a capable manager to focus the energies of a company is one thing; rejoicing that he "scared the hell out of people" and professing to be "thrilled" about it may be something else again.

Apple has plenty of real challenges and opportunities to prove that it can continue to grow, to innovate, and to provide leadership in the personal-computer market. Macho posturing and fantasy role playing will do nothing toward meeting those challenges or seizing those opportunities.

Apple needs to make important strategic decisions over the next year or two. For all the "Apple II Forever" talk a few years back, Apple cannot both maintain the old architecture at the low end and also develop a workable strategy for low-cost Macintosh alternatives. A decisive move forward toward a true multi-tasking operating-system environment is a pressing requirement at the high end.

Apple's still-shaky UNIX strategy must be brought up to market speed. Competitive challenges from IBM and compatible systems, as well as from UNIX and Steve Jobs' NeXT, require responses. A portable Mac is sorely needed. More powerful systems at the top end of the product line must be introduced as well. Apple also needs to do something about the growing frustration of software developers over incompatibilities among system-software releases.

Sharpening the focus of the organization, making tough choices concerning allocation of resources, and committing to achieving objectives are all necessary components for Apple's future that cannot be achieved by tough-guy posturing. Apple must preserve something of the spirit that built the company in the first place if it is to evolve into a more mature organization that can continue to grow and innovate in the future. Let's hope Mr. Sculley remembers that.



BY WILLIAM ZACHMANN

The Apple Family Tree



move from countercultural to mainstream, all that California stuff doesn't mean as much. My 81-year-old mother shouldn't have to like surfing before she can consider using a Macintosh."

Apple's current management structure (current, at any rate, as this is written; I wouldn't be the least surprised were it to change again before this column is in print) — pitting Loren's Apple USA marketing organization against Jean-Louis Gassée's research, product development, and manufacturing units — reinforces the impression of cowboy management by conflict. Speculation on inner conflicts is rife as talk is heard of a possible departure by Gassée.

I have been one of the more vocal critics of the inward-turning tendencies of the Most High Holy Cult of the Sacred Macintosh. I have argued strongly that, excellent as the Macintosh is, it should not be treated as an object of worship and reverence.

I have advocated a more mature approach that remembers that computers, however nifty, are still only tools. I have suggested that Apple and the Macintosh will gain wider acceptance only if the latter is presented as a more effective tool rather than

No other hard drive stacks up to Jasmine.

Year after year, Jasmine has set the standards by which other hard disk drives are compared.

Now, in 1989, we've raised those standards. With a new series of DirectDrives™ that are more reliable, affordable, and technologically advanced than ever.

DirectDrive 20	\$549
DirectDrive 40	\$699
DirectDrive 80	\$999
DirectDrive 100	\$1199
DirectDrive 140	\$1499
DirectDrive 300	\$2795

Of course, while continually pushing the boundaries of technology, we've never forgotten that there are some things technology alone can't provide. Like the joy of spending not a penny more than necessary to acquire the very best. Or the satisfaction of owning a hard-working, reliable piece of hardware. Or the feeling of confidence that comes from dealing with a company dedicated to customer service.

So it's only to be expected that this new series of external hard disk drives gives you more than more megabytes for your money. With each 1989 DirectDrive you also receive our exclusive, 30-day money-back guarantee and no-nonsense, two-year warranty.

But that's not all. Jasmine DirectDrives come bundled with over \$500 worth of the most advanced utility software available—absolutely free. Including Symantec™ Utilities for Macintosh, which lets you recover data from a mistakenly-initialized hard disk. Redux™ from Microseeds, perhaps the easiest, most powerful way to back up your data. DriveWare™ and DEScripter™, our comprehensive operating and proprietary encryption tools. Plus DemoWare™ and over 5MB of Public Domain and Shareware software.

To order a new DirectDrive call 1-800-347-3228 in the U.S. or 1-415-282-1111 worldwide. Our knowledgeable staff is ready to answer your questions Monday through Friday from 8 am to 6 pm (Pacific Standard Time). MasterCard, Visa, or American Express cheerfully accepted.



 **Jasmine**
1-800-347-3228

Video Analysis

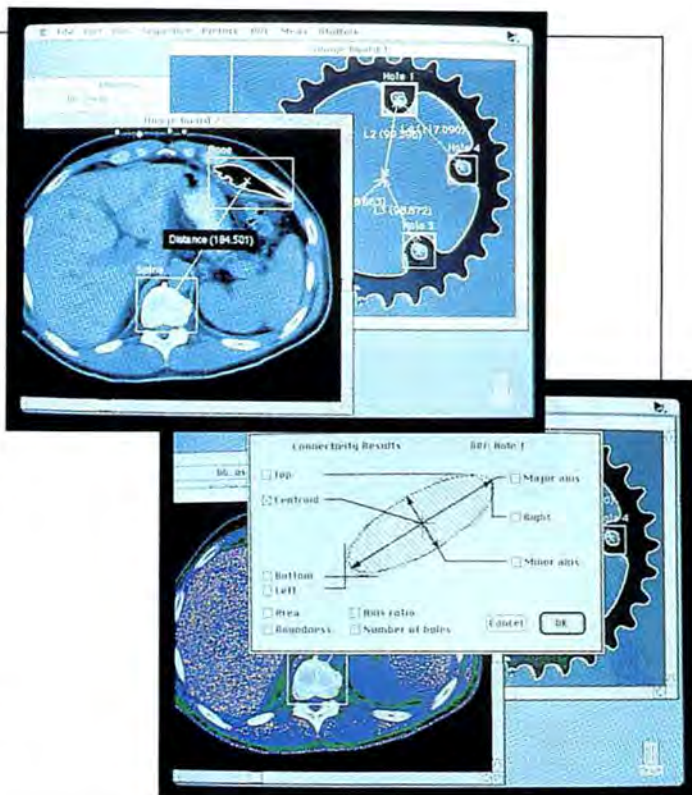
Most people would probably be upset if they found out that many of our best scientists, engineers, and doctors spend hours every day watching videos. Don't worry — we're not talking about "Gilligan's Island" reruns. With more information being presented in the form of video images, scientists need tools that can quickly make sense of complex images, which is why Automatrix's Image Analyst and Data Translation's QuickCapture were developed.

QuickCapture is a gray-scale frame-grabber board for the Mac II that captures video images for analysis, which is where Image Analyst takes over. Once an area of interest has been defined, Image Analyst sharpens the edges and lines; enhances the overall area; counts objects; and determines density, shape, size, relative position, and more.

Image Analyst directly supports QuickCapture, but the products are also available separately, so you can use a different frame grabber. Image Analyst lists for \$1,995, QuickCapture for \$1,595. Both are available from Data Translation, 100 Locke Drive, Marlboro, MA 01752-1192; (508) 481-3700. Image Analyst is also available directly from Automatrix, 755 Middlesex Turnpike, Billerica, MA 01821; (508) 667-7900.

— Russell Ito

Image Analyst lets you analyze captured video images. The screen above shows the method of measurement. At right you see a CAT scan of a human abdomen, displaying the measurement between the spine and a rib.



The 9,600-Baud Connection



Connect is the first commercial on-line service to offer 9,600-baud V.32 access to regular subscribers. Connect offers a bundle of a 9,600-baud V.32 modem, cabling, and its MacNET telecommunications software (which features a Mac-like graphical user interface), all for \$999. Peak access rates are \$12

per hour for 9,600-baud service, \$6 per hour off-peak; charges are \$8 and \$4 per hour for access at 2,400 and 1,200 baud, respectively.

Connect also provides a gateway service to MCI Mail as well as MCI's associated fax service, which lets you send faxes via MacNET as easily as sending elec-

tronic mail. Connect recently opened a subsidiary based in Munich, West Germany, to provide European users with easier access to the service. Contact Connect at Bubb Road, Cupertino, CA 95014; (408) 973-0110 (voice) or (408) 973-0497 (fax).

— Stephan Somogyi

When Continents Collide

The Earth moved. For Hemingway, it was a once-in-a-lifetime experience; for geophysicists, it's just another day at the office. Terra Mobilis is a program that shows what geophysicists mean when they say, "We've come a long way, baby."

Terra Mobilis helps teach users about Earth's history and continental drift. Using 3-D line drawings, you can study selected continents or regions in any of seven views, rotating them around any point while remaining cartographically correct. You can even move continents, creating supercontinents.

Terra Mobilis' most interesting feature, however, is its ability to create animations depicting how the Earth's tectonic plates have

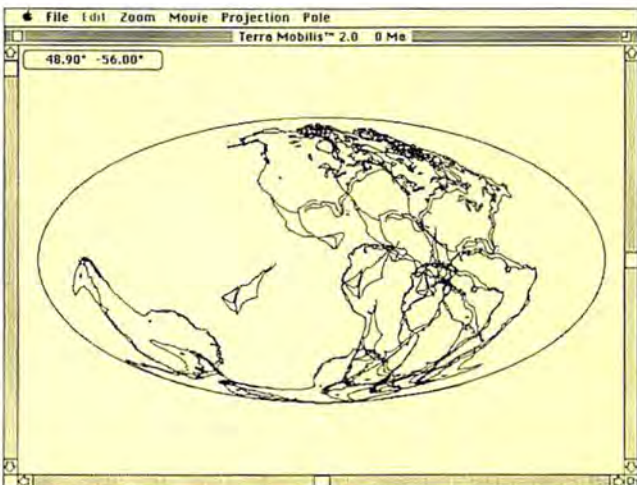
drifted over the past 600 million years.

To create an animation, select the continents or regions you'd like to study, and then specify the start, stop, and interval times in millions of years. The resulting depictions can be saved as MacPaint- or MacDraw-compatible files.

If you'd like to see how far the Earth has come and where it might be going, check out Terra Mobilis 2.2.

Terra Mobilis lists for \$295 (educational version) or \$795 (industrial version). For more information, contact Earth in Motion Technologies, 6601 Kirby Drive, Suite 529, Houston, TX 77005; (713) 529-8930.

— Russell Ito



How far we've come! Terra Mobilis lets you see how the continental plates have drifted over the past 600 million years. Here you can see the paths for North and South America.



Disposable

There are a lot of removable storage systems that work today but are expensive disposable systems tomorrow. There will probably be a lot more.

There are a lot of fly-by-night mass storage companies that are here today but gone tomorrow. There will undoubtedly be a lot more.

There are a lot of "crash and burn" "at your own risk" "unbootable" and "unreliable" storage systems out there. There will frightfully be a lot more.



Removable

But of all the removable storage systems, there is one that stands superior — The PLI Infinity 40 Turbo, "Best New Storage System of 1989."

Only the Infinity 40 Turbo includes FREE time-saving utilities (\$436 retail value): TurboCache, TurboOptimizer, TurboBack and TurboSpool.

And you can rely on PLI's experience and support. PLI has been making quality drives for the Macintosh since 1985.

The PLI Infinity 40 Turbo — Don't settle for less!

Peripheral Land Incorporated
47421 Bayside Parkway, Fremont California 94538
(415) 657-2211 • FAX (415) 683-9713
Please circle 47 on reader service card.

For a Dealer nearest you call ...
(800) 288-8754

 **PLI**
PLI MUSE AD-05

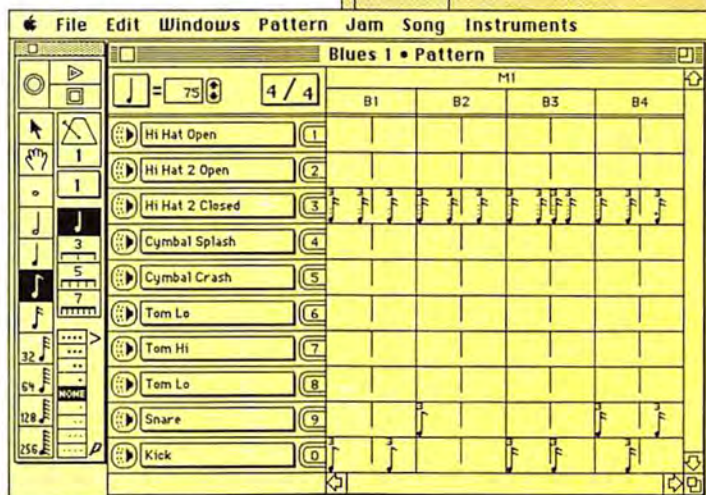
The Keyboard Percussionist

Playing a keyboard usually means playing something that looks like the business end of a piano, but in this computerized age, that's no longer true. Different Drummer, from Primera Software, is a case in point. This rhythm generator lets you create and play patterns with ten instruments, directly from your Mac keyboard.

Different Drummer uses the numeric keys across the top of the keyboard to trigger the individual instrument tracks. After selecting the desired instruments from pop-up lists, you can create a rhythm pattern either by improvising or by using the program's quantization grid. All the necessary tools — notes, accents, beats — are provided on a palette, so you can build your masterpiece one beat at a time. For users preferring the free-form approach, the program automatically quantizes notes to align them to the nearest subdivision of the beat, which ensures that you have the proper number of beats per measure.

Different Drummer is MIDI-compatible and works directly with the Mirage Ambient, Roland 505, and Alesis HR16 synthesizers. To start tapping out a new rhythm, plunk down \$99.95 and get in touch with Primera Software, 650 Cragmont Ave., Berkeley, CA 94708; (415) 525-3000.

— Jeremy Mazner



Different Drummer's Song window lets you create songs from collections of patterns. The Patterns window lets you create rhythmic patterns and control up to ten instruments from your keyboard.

BOLDLY GO WHERE NO MAC HAS GONE BEFORE

Macintosh® users can finally choose from the thousands of software programs only available for the PC.

With SoftPC.*

The only software package that brings true MS-DOS® compatibility to a Mac II, IIX, or 68020-accelerated SE.

SoftPC enables you to run all the PC best-sellers — Lotus® 1-2-3®, WordPerfect®, etc. — on the Mac. And those PC programs develop in-house for special purposes.

You can even use PC and Mac programs at the same time, thanks to SoftPC and Apple's MultiFinder.™ Copy and paste between PC to Macintosh applications.

And when you finish, all information can be stored on the same Macintosh hard disk.

THERE'S NO REASON TO BE AFRAID

No boards... No hassles... SoftPC is easy to install and upgrade. Just like you'd expect from any Macintosh application. Double-click. That's it.

SEEING IS BELIEVING

Don't take our word for it.

Visit the nearest computer dealer and ask for a demonstration of SoftPC. SoftPC will open a whole new universe for you.

To find the dealer closest to you, call 800-848-7677.

Insignia

Insignia Solutions Inc.,
254 Germaine Way
Sunnyvale,
California 94086
Tel: (408) 522-7600
FAX: (408) 753-9541

*Trademarks and ® registered trademarks of their respective companies



Please circle 88 on reader service card.

Menus without a Bar

"Have mouse, will travel."

The larger your screen, the more likely you are to mumble that phrase under your breath as you drag the cursor from your work to the menu bar and back again. At these times, what you really want is a pop-up menu right where you're working, and that's exactly what Magic Software's POWERmenus gives you.

POWERmenus comprises eight INITs, the most important of which is called POWERmenus. The POWERmenus INIT gives you access to any application's menus wherever the cursor is located if you simply hold down the mouse button while also pressing a user-definable modifier (Shift, Command, Option, Control, or a combination of these keys). All the application's menus appear in a vertical, hierarchical list, and if any of the menus contain pop-out menus, they will appear as the next level in the hierarchy.

The other INITs (Magic Software calls them gadgets) are

Alarms, Applications (for selecting applications directly under MultiFinder), Controls (for direct access to anything in the Control Panel), DAs (for direct access to your DAs), Dialer (a telephone dialer), Notes (a note pad with random access to notes — the first line of each serves as a title in a

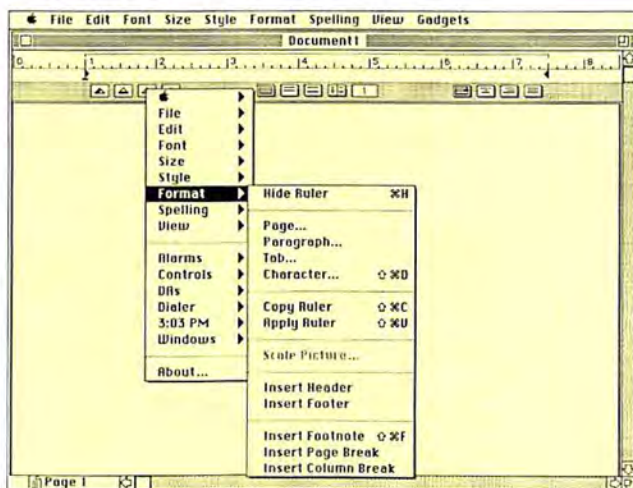
selection list), Time, and Windows (for switching windows).

POWERmenus is completely user-definable. You can switch the application or gadget menus off or on, have the gadget menu appear on the right side of the menu bar, and choose where the menus appear with respect to the

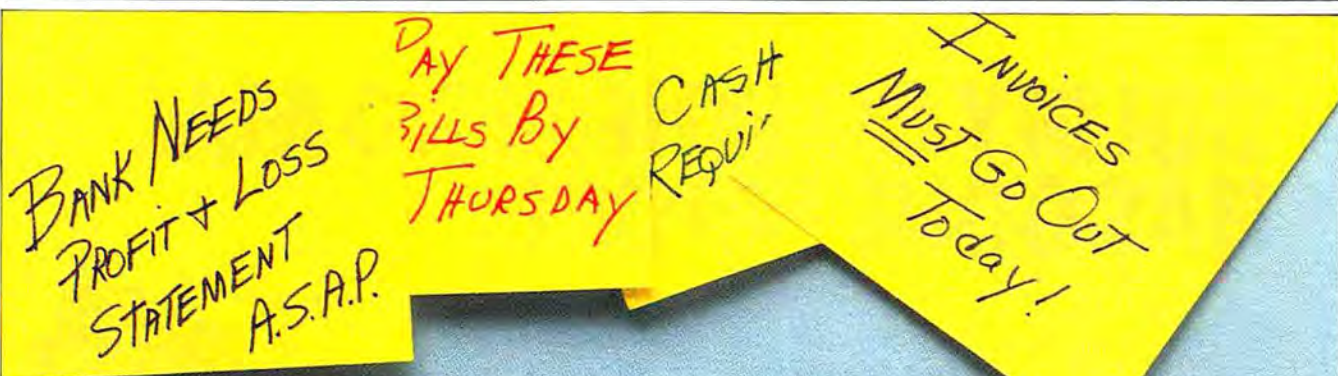
cursor (above it or to the side).

POWERmenus can save large-display users a lot of mousing around. List price is \$79.95. To find out more, contact Magic Software, 1602 Cascio Drive, Bellevue, NE 68005; (800) 342-6243 or (402) 291-0670.

— Russell Ito



POWERmenus aren't just for power lunches anymore. POWERmenus is a collection of eight INITs that let you access any application's menus from anywhere on the screen with a modified click.

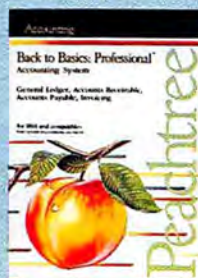


Accounting for the Rest of Us. Back to Basics: Professional™

Like your Macintosh, Back to Basics: Professional™ is an easy-to-use system that really performs. So now you don't have to be an accountant to keep your books like one. And at just \$199, Back to Basics: Professional is a small investment that pays off in big ways:

- Professional Double-Entry Accounting System
- 4 Modules for One Low Price—Integrate or Use Stand-Alone
 - General Ledger
 - Accounts Payable
 - Accounts Receivable
 - Invoicing *New!*
- Perfect for the Home Office or Any Small Business
- Hands-On Practice and Tutorials

ONLY
\$199



- Technical Support Hotline Available
 - 30-Day Money-Back Guarantee
- A click of the mouse opens accounting file drawers and arranges the contents of your desktop. So you can finish your accounting quickly, and get back to the real business of earning money.

Take control of your bookkeeping, and start making more of your money today! To order, call the toll free number below or see your dealer.

Macintosh 512K, 512Ke, Plus, SE, Mac II, ImageWriter I, II, or LaserWriter (LaserWriter cannot print checks); and a minimum of 2 disk drives. Hard disk is required for Mac 512K and is recommended for other machines. IBM and Apple II versions available. Call for details.

To Order by Mail Send \$199 plus \$5 Shipping and Handling* to:
(in Georgia add applicable sales tax.)
*Call for international rates.

Peachtree Software

A Member of the Intelligent Systems Family

4355 Shackleford Road, Dept. MCU, Norcross, Georgia 30093

1-800-247-3224

(Or Call 1-404-564-5800)

Please circle 54 on reader service card.



SYMANTEC UTILITIES PROTECTS SMART PEOPLE AGAINST HARD DISK CRASHES THE SAME WAY AIR BAGS PROTECT DUMMIES.

"SUM, or to be more precise, Symantec Utilities for Macintosh, is the slickest and most important set of utilities you can get for your Mac. To have a hard disk and not have SUM is sheer folly."

Steven Bobker, Chief Scientist, MacUser Magazine, 9/88, 5 Mice, Highest Possible Rating



Strong language. But well founded. Because in addition to six other indispensable utilities, SUM features Guardian, the ultimate software for protecting your

SEVEN INDISPENSABLE HARD DISK UTILITIES:

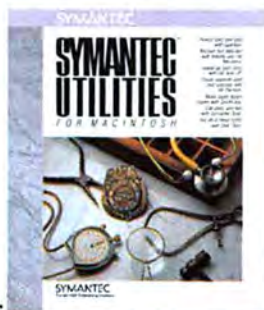
Guardian—protects and restores hard disk data and deleted files. **Disk Clinic**™—easy-to-use troubleshooting interface. Restores hard disk data in case you have a crash before you can install Guardian. **Virus Protection**—protects systems against "viruses." **HD TuneUp**™—optimizes hard disks. **Symantec Tools**—views and edits data and resource forks of a file or volume in HEX or ASCII. **QuickCopy**™—makes fast floppy copies. **HD Partition**—separates hard disks into separate volumes which can be encrypted.

Mac's hard disk *before* a crash. Like an air bag, Guardian stays out of sight, loading automatically every time you turn on your Mac. It protects invisibly by updating a "map" of your hard disk data. So that, in a crash, your data is safe. Because Guardian uses the "map" to locate it and recover it. In minutes.

Smart Mac users who want complete, yet effortless protection for their hard disk data should follow Steven Bobker's advice and "Get SUM." Today.

See your dealer or order today: (800) 228-4122 Ext. 675F

Please circle 92 on reader service card.



SYMANTEC

Symantec Corporation, 10201 Torre Avenue, Cupertino, CA 95014. 408/253-9600. MacZap owners call 408/446-9994 for a low cost upgrade. HD TuneUp, QuickCopy, and Disk Clinic are all trademarks of Symantec Corporation. Other products are trademarks of their respective holders. © 1988 Symantec Corporation

See Us At MacWorld Expo, Booth #5104, World Trade Center

Formulator = Output

Word processors are great at handling all kinds of expressions except one difficult type: mathematical. The problems of kerning and leading when you're mixing text and equations are beyond the abilities of most word processors, creating the need for a new software category: the math processor. The latest entry, Formulator, comes from across the Atlantic via ICOM Simulations.

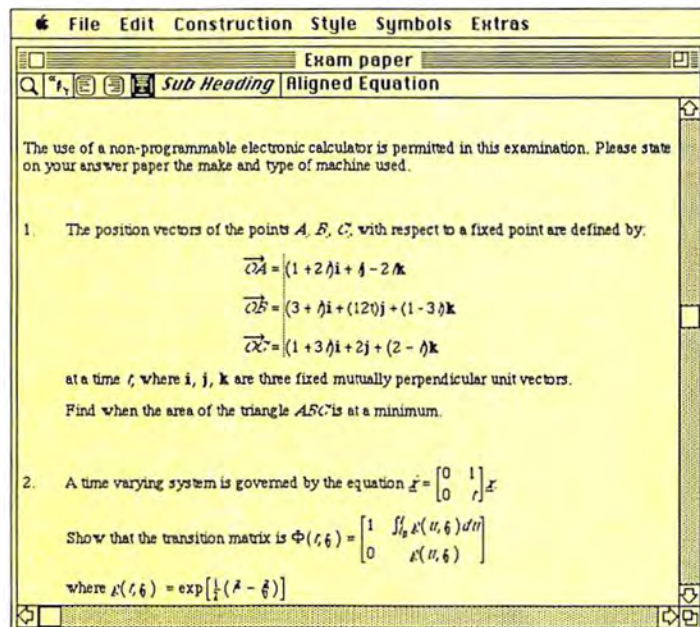
Unlike some of its competitors, Formulator is strictly for output. It has no evaluation capabilities; it makes only your *equations* look good, not you. For anyone who needs to mix text and math, however, Formulator might do the trick. It has a built-in text editor, automatically italicizes variables, changes type size for super- and subscripts, offers a complete Greek character set as well as special symbols, and more. Formulator can also output in TeX while remaining completely WYSIWYG. So you can have all the typesetting advantages of TeX without the hassle of trying to learn it.

In addition to the mathematical symbols you'd expect, such as roots, integrals, and summations, Formulator will also create matrices, chemical formulas, and multiple limits. And since equations

have a tendency to sprawl when they're proportionally spaced, Formulator also supports kerning. In fact, you can even use Formulator's kerning function to create compound symbols.

To find out if Formulator is the \$149.95 answer to your problems, contact ICOM Simulations, 648 S. Wheeling Road, Wheeling, IL 60090; (312) 520-4440.

— Russell Ito



Formulator can't solve your problems, but it can make your problems look nice. This math processor is designed for anyone who needs to print equations.

Make the Optimal Choice.

Just look at a few of the many reasons that make the Optima Series an unbeatable value:

- Not a kit - All products are fully assembled & tested.
- Our drives come preformatted and have been tested for 72 hours. Beware of other manufacturers who make *you* do the testing!
- Precision engineering & stringent quality control allow us to offer a full 2 year warranty.
- 30 day moneyback guarantee - No questions asked.
- Flexible internal models let you keep your SE's second floppy or return it for a \$50 rebate. Adding an Optima 31 hard disk can cost as little as \$349!

New!!!

\$699 OptiView
Full Page Display
for Mac SE. Call
for details.



OPTIMAL
TECHNOLOGY CORP.

650 Main Street, Amherst, MA 01002
(413) 256-1257 (413) 256-1258



Ready to run!
All necessary cables
and software included.

Optimal Drives --

Choose our easy to install internal models or our attractive external models. We're so confident you'll find them to be the fastest, quietest, and best drives available that we guarantee it with our no questions asked return policy!

New Low Prices!!!

	Internal	External
Optima 31 (28 ms Seagate)	\$399	\$499
Optima 40 (12 ms Quantum)	\$549	\$649
Optima 48 (28 ms Seagate)	\$499	\$599
Optima 80 (12 ms Quantum)	\$819	\$919
1 Meg SIMMs	\$179	(Call for Current Price)

Call (800) 637-0088



Prices include UPS ground shipping; call for expedited shipping costs. No surcharge for Visa and MasterCard. Massachusetts residents add 5% sales tax. Call for purchase order pricing and terms. Technical support telephone number provided with the purchase of all products. Prices, specifications, and policy subject to change without notice. Optima, Optima 31, Optima 40, Optima 48, and Optima 80 are trademarks of Optimal Technology Corp.

Please circle 78 on reader service card.

Hard Bargain.

The easy decision has already been made: you're going to buy a hard disk drive. The more difficult question is which drive to buy.

Ehman would like to help make your decision easier by giving you an unbeatable bargain on a 30MB Hard Drive.

The best hard bargain in the industry. Just \$449 gives you Seagate technology and reliability, (the same drive that Apple uses), Ehman's reputation for quality and an obsession with efficiency and service.

And now that we're bundling our hard drives with "PC Tools Macintosh", you'll have all the utilities

PC Tools not included with 20MB drives.



Since 1985 Ehman has been manufacturing the highest quality Macintosh peripherals at the lowest prices.

you need to maximize your efficiency on the Mac. After all, you bought a Macintosh computer to help make you more efficient.

Ehman now helps you do it for less.

Ehman has been

a leading manufacturer of quality Macintosh peripherals since 1985, giving us advanced technical design skills, manufacturing expertise, and back-up service from skilled personnel.

That's a combination that's pretty hard to beat. But if you're still unconvinced that this is the best bargain you'll ever find on a hard drive, we'll give you 30 days to make up your mind. Purchase the drive, try it for 30 days and see if it isn't everything you've always wanted in a hard drive. If

it isn't you can return it to us with no questions asked. Add to that a two-year limited warranty and you've got an offer that's hard to pass up.

So don't. Call

1-800-257-1666, U.S., or 1-307-789-3830

Worldwide, from 9 a.m. to 9 p.m.

EST Monday-Saturday. Overnight delivery via Federal Express. Visa, Mastercard, and American Express welcome.



This is a very simple and easy to understand guarantee. If, for any reason, you are not satisfied with the performance of an Ehman Hard Drive, return it to us. We'll either refund your money, 100%, or we'll replace it. That's it. No other conditions or exceptions. We just want you to be satisfied. We're not interested in fine print, just a fine product. We gladly guarantee yours.



HARD DRIVE PRICES

Size (Mb)	Internal	External
20	\$329	\$399
30+	\$379	\$449
45	\$449	\$529
60+	\$499*	\$579
80+	\$599*	\$679
45MB Removable Drive		\$849



1-800-257-1666



SEE YOU AT MACWORLD
BOSTON
BOOTH NO. 521

*Good on Macintosh II models only. SE Drives also available. All product names mentioned are trademarks of their respective holders.

Please circle 131 on reader service card.

Wham, Bam, Thank You, SPAMM

If your Plus or SE is hungry for speed, feed it SPAMM. The System Program for Accelerated Macintosh Mathematics (SPAMM) is a utility that preempts and accelerates the math functions that are normally handled by the Standard Apple Numeric Environment (SANE). It's designed to benefit the Mac Plus, SE, and 512KE, which don't have math coprocessor chips. It doesn't have the speed of a dedicated coprocessor, but it speeds up math-intensive calculations substantially. According to SPAMM's developer, a VersaCAD resizing operation took about half the time with SPAMM. I tested it with Super 3D on a Plus and an SE and found improvements of 12 percent to 27 percent; the more floating-point math is involved, the greater the speed. (Programs with built-in math routines, such as some spreadsheets and 3-D modeling applications, will not be affected by SPAMM's presence.)

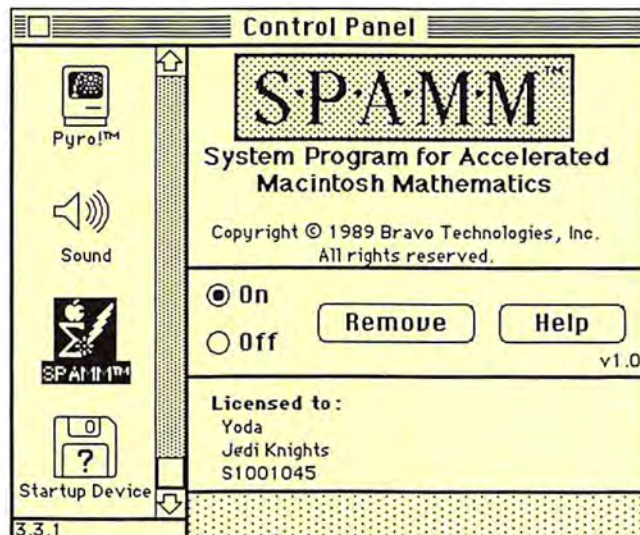
SPAMM is a subset of tried-and-true math routines originat-

ing in MacCalc, a veteran spreadsheet application that boasts high-speed recalculation (see "Fitted Sheets," April '89). Although SPAMM calculates floating-point values to 15 decimal

places (compared with 19 places for SANE), many applications benefit more from speed than precision. The developer is working on a faster version of SPAMM that will let you opt for greater speed

(at the expense of some precision). This \$79 utility is available from Bravo Technologies, Inc., P.O. Box 10078, Berkeley, CA 94709-0078; (415) 841-8552.

— Salvatore Parascandolo



SPAMM's mathematical acceleration can be toggled from the Control Panel. You can even tell it to release its RAM space.

StuffIt in Stores

Software lasts forever, but not so little boys ... or, at least, so it seems. Raymond Lau, the wonder-kind of compression who gave us StuffIt (figuratively only — StuffIt is shareware, not freeware), is off to college, so he won't have time to support StuffIt as shareware anymore. He's signed an agreement with Aladdin Systems, which will now support the shareware version and distribute future versions commercially. In his spare time, Lau will develop new products for Aladdin. (Yes, it's true that he was only 16 when he started distributing StuffIt.)

— Russell Ito

INTRODUCING SYMANTEC ANTIVIRUS FOR MACINTOSH (SAM).

A virus. It sneaks in on a floppy, by modem or over your network. At first, you see nothing. Or maybe a few glitches. Then it spreads, replicating in every file, in every folder. Destroying irreplaceable data. Permanently. Left unchecked, it could ruin all of your hard disk data. And shut down an entire network.


Protect yourself with SAM. SAM is the only virus protection that scans every floppy you insert, and every file you get electronically. It's the only way to eliminate viruses before they enter your system. Before they can do any harm.

SAM destroys the nVir, Scores, Hpat, INIT 29, and ANTI viruses. And with an advanced scanning algorithm that detects software variations, it keeps new, unnamed viruses from sneaking in. SAM checks

SYMANTEC

Symantec Corporation, 10201 Torre Avenue, Cupertino, CA 95014. 408/253-9600.


Rumor Manager

 We recently had a chance to walk around several Apple engineering labs on a weekday between 8:30 and 9:30 A.M., so we didn't actually see any engineers. However, the signs, T-shirts, and other evidence made most of the things we saw perfectly obvious.

Before we tell you exactly what we saw, we have to remind you that Apple engineering starts many projects, very few of which actually make it into production. Many make it to the working prototype stage, however, since that's the best way to see if things actually work. This report covers only the most likely production candidates. Also, remember that Apple is very sensitive about leaks, so please don't talk to anyone about anything you read here.


Our first stop was the biotechnology lab. We saw new mouse designs in profusion — they seem to breed. There were joysticks, enhanced keyboards, and what can only be called ESP sensor devices — in two versions. One was a

lightweight, skeletal bicyclist's helmet (remember, these are prototypes), and the other was a pendant to be worn on a necklace (code name: Diamond). We couldn't get either one to work, but from the stack of bug reports on the desk, it's clear that they do work in some fashion.

 Moving right along, we discovered a room that seemed to be the screen technologies lab with a green T-shirt tacked to the door. It was clear from the debris in it that a fairly nasty war was in progress. It looks like one side is developing and championing "normal" thin-film transistor (TFT) color screens, although some of the undamaged prototypes appeared to be made from things other than common garden-variety thin-film transistors. They were clearly TFT descendants, however.

The other side of the lab was filled with elaborate boxes (some seemed to be ovens) and numerous EPA toxic-material and radia-

tion-warning signs. Apple engineers are well known for their somewhat, uh, unusual sense of humor, but these signs did not appear to be part of a joke. Having taken a good look at some of the specs lying about, we'd guess that this faction's screenlike devices are based on rare-earth meshes. Unfortunately, only one of the screens was on, and it looked like a basic, run-of-the-mill TFT screen. It had a 15.67-inch diagonal measurement (the Rumor Manager always carries a good tape measure and stopwatch) and appeared to have about 700-x-500-pixel resolution. Image quality and contrast were decent but nothing more. The whole package was about an inch thick and very light, but it was connected to a rather large, noisy transformer.

 Aside from the one you know about, the laptop lab had no fewer than 18 prototypes. They ranged in size from about 3.5 pounds with a standard size, high-resolution Macintosh screen (al-

though without an on/off switch) to some 13- and 17-pound units that looked ready to ship. All of them were 68030 units, and most of them could run on battery or regular AC power. The baby laptop used ordinary (but expensive) lithium cells.

Have you heard any good rumors recently? Started any yourself that you'd like to take credit for? Can you share your "knowledge" with us? Does your legal department agree? Will you share anyway? If we use your rumor, we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted.

Our U.S. mailing address is Rumor Manager, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Our electronic addresses are MacUser (on MCI Mail), 74206,420 (on CompuServe), and X0259 (on AppleLink). No calls, please; the Rumor Manager has an unlisted number and much prefers it that way.

WHAT A VIRUS ATTACK COULD DO TO YOUR COMPUTER SYSTEM.

every floppy, and every bit on your hard disk or file server. It's total protection against known and new viruses. From the people who brought you Symantec Utilities for Macintosh (SUM).

Virus attacks are serious, so get serious about protection. Put SAM's unparalleled virus prevention, detection and elimination power between you and attacking viruses. Do it today. Because without SAM, your system is in grave danger.

Please circle 44 on reader service card.

Symantec AntiVirus for Macintosh and SAM are trademarks of Symantec Corporation. © 1989 Symantec Corporation

See Us At MacWorld Expo, Booth #5104, World Trade Center

See Your Dealer, Call for
Our Free "Virus Crisis"
Educational Pamphlet, or
Order Now for Only \$99.95 on
Our 30-Day Money-Back
Guarantee, (800) 228-4122 Ext. 640F





The easiest way to learn Macintosh software is to play it by ear

The fastest way to learn software is to have an expert sit beside you and talk you through the program, step by step. With your hands on the keyboard, trying each new skill as it's explained, learning is a snap.

So Personal Training Systems gives you that expert—on an audio cassette. Each 90-minute tutorial contains the cassette, example files on a disk, and a quick reference card. It's like having your own private tutor . . . only this one works anytime, anywhere, and doesn't charge by the hour.

In addition to training on the Macintosh itself, tutorials are available for Microsoft Excel, Word and Works; Aldus PageMaker and Persuasion; Adobe

Illustrator 88; and HyperCard. Since we offer beginning, intermediate and advanced levels for each software program, there's sure to be one that meets your needs.

All our tutorials are unconditionally guaranteed. You'll learn how to use your Mac or favorite software program—without opening a book or attending a class—our money back.

So if you're looking for a fast, convenient, affordable way to learn, contact Personal Training Systems by calling 1-800-TEACH-99, or mail in the coupon below. Because we know you have better things to do with your time.



☐ YES, please send me information on
Personal Training for:

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Macintosh | <input type="checkbox"/> FileMaker |
| <input type="checkbox"/> Excel | <input type="checkbox"/> HyperCard |
| <input type="checkbox"/> Word | <input type="checkbox"/> Persuasion |
| <input type="checkbox"/> PageMaker | <input type="checkbox"/> Works |
| <input type="checkbox"/> Illustrator 88 | |

Name _____
Company _____
Street _____
City _____ State _____
Zip _____ Number of Macs _____

PERSONAL TRAINING SYSTEMS
P.O. Box 54240 ■ San Jose, CA 95154 ■ 408-559-8635
800-TEACH-99

MACUSER 8/89

Please circle 60 on reader service card.



QUICK

CLICKS

This month we lead off with MacDot, Advanced Matrix Technology's 24-pin dot-matrix printer that emulates Apple's ImageWriter LQ; Acta Advantage, Symmetry's successor to Acta, its DA outliner; Prototyper 2.0, SmethersBarnes' software prototyper; PC Tools, Central Point's utilities grab bag; MicroNet's Ili-620, a quick 600-megabyte internal hard drive; and Accu-Weather Forecaster, Metacom Software's meteorological marvel.

CONTENTS

MacDot.....	45
Acta Advantage.....	47
Prototyper.....	50
PC Tools Deluxe.....	58
MicroNet Ili-620.....	62
Accu-Weather Forecaster.....	64

EDITED BY RUSSELL ITO

HARDWARE

MacDot

Since its announcement in August 1987, Apple's ImageWriter LQ printer has been beset with setbacks and problems. Almost a year after its arrival, Apple was still shipping a printer driver that occasionally printed words on top of each other in the Best quality mode. (The latest driver, version 2.0, fixes this problem.) There still isn't much software that takes advantage of the machine's sophisticated paper-handling abilities. Also, the printer was so unbearably noisy that Apple finally agreed to swap any LQ with a quieter, refurbished printer.

Despite this, Advanced Matrix Technology, part of a Singapore-based group of companies, has tried to emulate the LQ, but the result is a poor imitation.

Looking for an easy way into the decidedly uncrowded Macintosh printer field, AMT outfitted its sophisticated Accel-500 dot-matrix printer with a plug-in emulation card that instantly makes it ImageWriter-compatible. With the card in place, the Accel-500, a PC workhorse, becomes the MacDot, an ImageWriter impersonator.

The advantage of this instant transformation, from AMT's point of view, is

that it doesn't have to develop and distribute a special printer driver for the MacDot — Apple supplies (and updates) the ImageWriter drivers with its system software. From a user's standpoint, there's the advantage of not having to learn or do anything special to use the MacDot as opposed to an ImageWriter. And if your office uses Macs and PCs, the MacDot makes sense, since it can be switched back to the PC printer, the Accel-500, easily.

Another advantage to the MacDot is that it can emulate either the ImageWriter II or the LQ (although why anyone would want to emulate the II, with its slower speed and less-crisp characters, is a mystery). The MacDot is also much faster in Draft mode than the LQ, has a larger buffer, is quieter than the LQ (at least the nonrefurbished models), and has a much better design for making hardware changes (no more infernal DIP switches!). There's also a two-year warranty.

The MacDot costs \$1,590 — about \$200 more than Apple's LQ. Are these advantages worth the extra \$200? To answer that question, you need to examine the disadvantages of buying a non-Apple printer that emulates the ImageWriter LQ.

Consider the fonts you need in order to



Advanced Matrix Technology's MacDot is a 27-pin, letter-quality dot-matrix printer that emulates the Apple ImageWriter LQ. It uses Apple's LQ drivers for compatibility, but it doesn't have an AppleTalk option, and it costs nearly \$200 more than the LQ.

PHOTOGRAPHY: PETER ALAN GOULD

Diskette Labels for Laser Printers



Use Avery Laser Diskette Labels to customize your 3 1/2" & 5 1/4" diskettes from your HP, Apple and other popular desktop printers.

A special adhesive assures the labels won't peel off in your disk drive.

Ask for Avery Laser Printer Labels for 3 1/2" diskettes (product #5196) and 5 1/4" diskettes (product #5197) wherever computer and office supplies are sold. For a free sample pack, call 1-800-535-3232 ext 30.



get full 216-dot-per-inch (dpi) letter-quality resolution. As explained in my Quick Click of the ImageWriter LQ (January '89), you need a font size that's three times the size you want in order to print at 216 dpi. Apple provides a disk with the LQ with the jumbo sizes for Times, Helvetica, Courier, and Symbol. AMT, however, leaves it up to you to track down a copy of these fonts—a task that's not nearly as easy as it sounds, since not every Apple dealer will have them.

Even worse, the MacDot manual never talks about the necessity of these fonts, how to install them, or where to get them. In fact, the manual is the Accel-500 manual with only two additional pages that address the installation of the MacDot emulation card. This is a serious problem. The LQ manual spends many pages explaining how to print, how to use the software options, and the need for the special font sizes. You get zilch with the MacDot manual. Even savvy users could hardly be expected to know the ins and outs of superlarge font sizes that are available only from cooperative Apple dealers. Advanced Matrix should have done a

ImageWriter LQ, Paper Path Options v2.0

Paper Feed: ☒ Automatic ☐ Hand Feed

Sheet Feeder Options: Bin 1 Bin 2 Bin 3

First Sheet From: ☒ ☐ ☐

Remaining Sheets From: ☒ ☐ ☐

*PLEASE NOTE: Some applications treat each page of a print job as the first page. These applications cannot take full advantage of the Sheet Feeder Options. Instead, they print each page from the bin you select in the First Sheet From option.

Quality: ☐ Best ☒ Faster ☐ Draft

Head Scan: ☒ Bidirectional ☐ Unidirectional

Page Range: ☒ All ☐ From: To:

Copies:

OK Cancel Help Options Help

The dialog boxes you see when using the MacDot printer are identical to the ones you see when using the ImageWriter LQ because the MacDot uses Apple's own software. The emulation is not 100 percent, however. Try as you may, you can't get the MacDot to print bidirectionally in any mode but Draft.

The selected device is not responding as an ImageWriter LQ. Please check the port selection, cabling, and device type.

Cancel

This disquieting dialog box was a frequent sight during testing of the MacDot. Once this bug is corrected, AMT can quickly slip the improvement into production just by inserting a different emulation card in the printers it ships.



MacDot 1 1/2

List Price: \$1,590

Manufactured by: Advanced Matrix Technology, 765 Flynn Road, Camarillo, CA 93010; (800) 992-2264.

Requires: ImageWriter II or LQ drivers; jumbo fonts for 216-dpi printing.

better job of emulating Apple's documentation. A dealer might be willing to give you the large fonts but most likely will not let you copy Apple's manual.

Moreover, the ImageWriter emulation is still buggy, although the plug-in card makes it easy for AMT to correct and re-install improved emulations. For example, the Mac often loses contact with the printer, especially if you've paused or canceled a print job, and it displays an only slightly helpful dialog box. The MacDot's paper-handling accessories are much more expensive than the LQ's. There's no AppleTalk option available for the MacDot, and the letter-quality print speed is slower than the LQ's.

If the MacDot printer were immensely less expensive than the LQ, you might be willing to overlook its shortcomings, but for \$200 more than the LQ, you're entitled to expect more than what Apple provides, not less. Unfortunately, the MacDot doesn't deliver.

— Dave Vallulis

WORD PROCESSING

Acta Advantage

Acta Advantage is an outliner that works both as a DA and as an application — although it is more powerful as a DA. The only reason to use the application version is for its WYSIWYG page preview and its printing format features. For the real work — the spontaneous thinking — the DA is the way to go.

Symmetry has added several features to keep Acta updated. The original version, a DA, couldn't print directly and

Once you understand the tree and family structure, it's easy to use the system and keep things straight.

didn't have type-style capability. Symmetry recognized the need to develop its product long before realizing that it also had to teach people how to use it. The package now includes a 75-page manual that describes how you can leverage the power of this outlining package.

Acta Advantage's relationships are structured hierarchically. Once you understand the tree and family structure, it's fairly easy to use the system and keep things straight. Topics that are located directly beneath each other are called sisters. Subtopics, which are to the right of mother topics, are called daughters. Topics that are beneath and one level to the left of mother topics are called aunts.

To start using Acta Advantage, you simply open a new outline.

To keep track of the family relationships, Acta Advantage uses a simple and ingenious system. To the left of each topic is a triangle marker. A solid triangle indicates that the topic has no daughters, and a hollow triangle means that a family exists. Double-clicking on a hollow triangle collapses the topic, concealing the daughters; double-clicking again expands it, so you can keep the screen as clear or cluttered as you wish.

Collapsing topics is one way you can zero in on information in the outline; another method is called shrinking. When you shrink a topic, everything but the first line of text, or the first 16 dots of a graphic, disappears. An arrow that points down precedes the topic, indicating that it has been shrunk.

To move information around in your outline, you use standard Mac commands for cutting, pasting, dragging, adding, and deleting text. If you hold down the mouse button, all the family information related to a topic will be highlighted.

Acta Advantage organizes your information using the classic outline method or labeled format. The main topics, the mothers, can be labeled with section numbers such as 1, 2, 3, and so on. The daughters, the first indentation in the outline, can be labeled 1.1, 2.1, 3.1, and so on. The aunts can be labeled 1.1.1, 2.1.1, 3.1.1, and so forth. Or if you prefer, you can use a combination of letters and numbers such as A for the heading, or mother, A for the first indented daughter, and 1 for the first indented aunt.

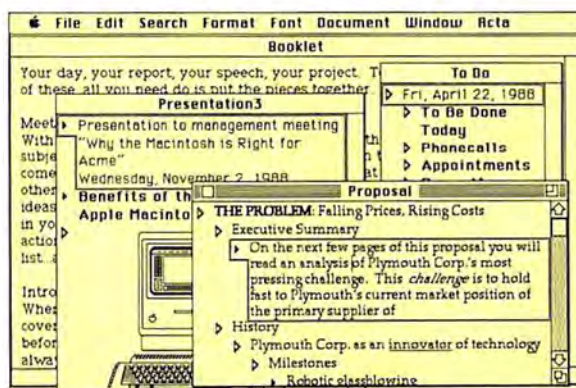
A twist on the classic outline format is the use of bullets instead of numbers or letters. Acta Advantage allows you to define any Mac character as a bullet. You could use ampersands instead of bullets, for example. However, you can't mix characters within topics at the same level.

Acta Advantage has a simple find-text function that lets you breeze through single outlines, looking for words or phrases. The program can also sort alphabetically, numerically, or reverse-numerically. Unfortunately, it can't search through multiple

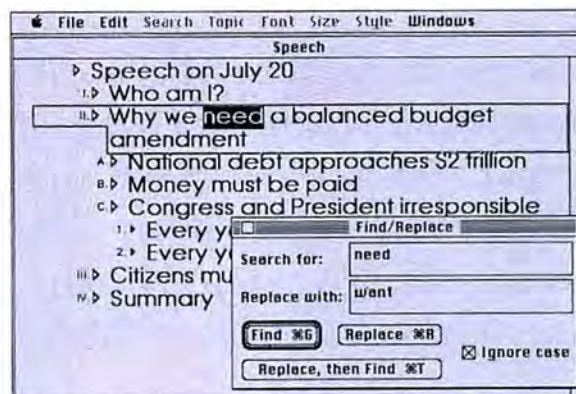
outlines on disk or in multiple windows simultaneously.

Through the Mac interface, the program can use a host of different type styles, both on-screen and in print. The type styles can be changed in an entire outline, as well as by topic or within a topic. Different type styles make it easy to see changes in the sections of an outline and to highlight important points.

Acta Advantage includes a smart pasting feature that allows you to bring information in from other applications, such as spreadsheets or word processors, through the Clipboard. This feature translates the information on the Clipboard into Acta format, automatically splitting it into topics. Wherever a carriage return appears, Acta Advantage interprets it as the end of one topic and the beginning of



Acta Advantage is a powerful outliner in a DA. You can nest outlines up to 2,000 levels deep, with multiple fonts (including topic-specific fonts) and graphics.



Acta Advantage packs a simple find/replace function. Unfortunately, it can't search through multiple outlines in multiple windows or on-disk simultaneously.

Wanted For Murphy

According to Murphy's Law, if a floppy disk can fail, it will. Usually after you put a 90-page document on it.

That's why you should use 3M diskettes. They're built to make things go right for a change. With our

exclusive formulation and Mark Q Manufacturing Process, they break Murphy's Law millions of times a day. Year in and year out.

And our engineers have taken the same fanatic approach with all our

er Breaking y's Law.



data storage products: diskettes, data cartridge tapes, computer tapes and optical disks. So when you get

down to it, there are only two choices.

Use 3M diskettes and break Murphy's Law every day of the week. Or use something else. And give Murphy's Law a chance to break you.

For more information about formatted diskettes, call 1-800-888-1889, ext. 10.

3M

Please circle 37 on reader service card.



MiniCad+™

*Let Others Speak
for Us*

"Congratulations to everyone involved in producing MiniCad+. Combined with the MiniCad Plotter driver, this is definitely a System for design, drafting, analysis, and production of drawings on the Macintosh. The add-ons like macros, on-screen spreadsheet, hierarchical symbol editing and other improvements amount to a professional CAD program presented in a well documented manual, which I was glad to see in binder form...I have investigated other CAD programs....notably VersaCad and I don't think any of these have any advantage over MiniCad+. In terms of options and attributes MiniCad+ definitely has an edge over all others."...B. St-Jean, National Museum, Canada

"MiniCad+...is in our opinion, in power per dollar the best CAD program for the Mac...I think one of the best new features is the MiniPascal command language."...John S. Gates, AIA

"I have been using MiniCad+ for some weeks now and I must say it is a fantastic improvement on the last release of MiniCad. I particularly like the new 3D features which are easier to use"...Andrew Herron, Herron Associates

**Act now Only: \$695
Demo: \$19.00**

- Mastercard & Visa accepted
- Call or write today to order:

**Graphsoft • 8370 Court Ave., Ste. 103A,
Ellicott City, MD 21043**

- In USA:301-461-9488
- In Canada:604-380-6911
- In Australia:61-7-369-1204



Graphsoft

Macintosh Plus, SE, II &, IIX are trademarks of Apple Computer Inc.

Please circle 84 on reader service card.

another. Although this assumption may not always yield the desired results, it saves time.

Other tools used to import or export information are the format drivers, which are stored in the System folder. The format drivers translate Acta documents to MORE and ThinkTank formats, and translate from Acta to MacWrite, WriteNow, Works, and Rich Text format. Symmetry

**Acta Advantage
has tremendous
inherent power. If
you need to orga-
nize your thoughts
quickly, this pro-
gram is for you.**

plans to do the same for WordPerfect. Another format driver can read Scrapbook files into Acta, and Acta topics can also be PICT images.

Acta Advantage's topics are limited to 32,000 text characters (graphics are unlimited), and outlines can be nested to 2,000 levels.

Acta Advantage is a simple program with tremendous inherent power. If you need to organize your thoughts quickly, Acta Advantage is for you.

— Ken Landis



**Acta
Advantage** ★★★★★1/2

List Price: \$129

Published by: Symmetry, 761 E. University Drive, Mesa, AZ 85203; (800) 624-2485 or (602) 844-2199 (in AZ).

Version: 3.0 (DA); 1.0 (application)

Requires: 512KE or later; mixing fonts requires System 6.0 or later.

Application Size: 77K (DA); 112K (application).

Copy Protection: None

LANGUAGES

Prototyper

One of the best ways for a Mac programmer to learn about the system is to examine source-code examples. The only problem is that often the source-code examples don't address your needs. For novice programmers, it's often tough to ferret out the application-specific parts of the code from the essentials. If you're lucky enough to find a bare-bones piece of code, it's usually not documented as well as a beginner might like.

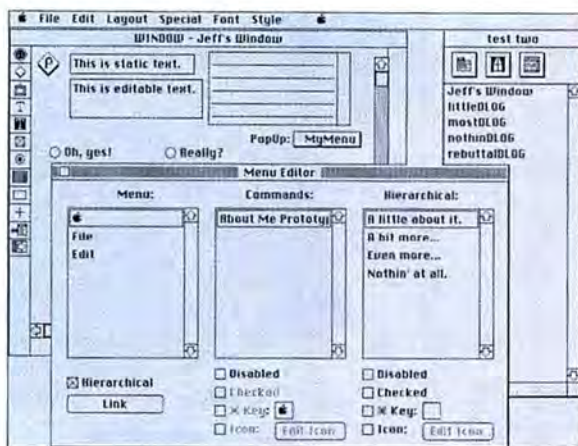
To create a Mac application, programmers don't simply sit down and start writing code. First, a full program specification must be written to define what the windows, menus, and dialog boxes will look like and how they will act. Once the specification has been written, initial coding can begin. A prototype is then built to mimic the interface functionality, and it is exhaustively tested and revised until there is a smooth, clean interface. This test/revise cycle is expensive and time-consuming.

SmethersBarnes attempts to meet the need for both code examples and prototyping in one package — a set of code generators called Prototyper.

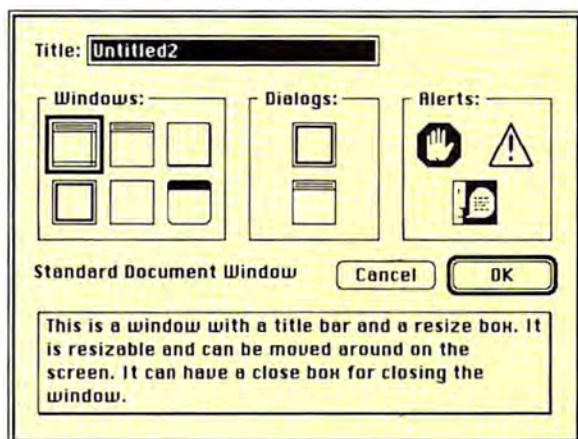
Prototyper 2.0 is an application specification program. It allows users to create a program interface. A link facility and the ability to run your prototype let you see how well the prototype works. The tools available in Prototyper include editors for windows, menus, and icons.

The Window dialog box lets you select from the standard Macintosh window, dialog box, or alert types. When you choose a window type, a worksheet opens. The zone for the window is displayed in the contents of the worksheet. Zones (Prototyper's term for the area taken up by any Mac object, such as a window, button, or text item) are manipulated in the standard way; anyone familiar with MacDraw or any object-oriented graphics program will immediately know how to move or resize them.

The palette located on the left side of the worksheet shows all the objects you can use in the window. They include buttons, icons, pictures, static text, editable text, check boxes, radio buttons,



Prototyper is both a prototyping and code-generating environment. The list of windows in the prototype is at the right, the menu editor is open in the middle of the screen, and the main window is open behind it, showing some of the zones possible in Prototyper.



Prototyper's Window dialog box lets you select any of the standard Macintosh window, dialog box, or alert types.

lists, rectangles, lines, pop-up menus, and scroll bars.

To add one of these objects to your window, select the corresponding icon and drag a zone for it. After it's placed, you can edit any object-specific information such as a button name, icon shape, or text legend.

The application's menus are created with the Menu Editor tool, which supports Command-key equivalents, custom menu-item styles, icons in the menu bar, and hierarchical menus. Prototyper supports only one level of hierarchical menus. SmethersBarnes indicates that this was intentional, since Apple's human-interface guidelines recommend that you don't nest hierarchical menus more than one level deep.

In addition to supporting almost every aspect of the Mac interface, Prototyper also implements a few extras. Although you can't create a text-editing or graphics window in Prototyper, you can use a

special demo window to simulate them.

After specifying the look of the user interface, you can use the link facility to set up the prototype's functionality. You can establish links between all the items, making it possible to open and close windows, enable and disable menus or menu options, bring up standard file and print dialog boxes, and enable and disable buttons.

To run the prototype, you can select either QuickLook — to do a quick simulation of the specific zone you're working on — or Run — to run the whole prototype. When you run it, Prototyper closes all the work windows and simulates your prototype as if it were an actual application. You can refine the program's interface until it's exactly the way you want it.

You'll want to generate some code next. Prototyper comes with source-code generators for LightspeedC 3.0, MPW C 2.0 and 3.0, Turbo Pascal, Lightspeed

Pascal, MPW Pascal, and TML Pascal II. The code generators produce resources for all the interface items created and generate source code to create an application. If you're using Prototyper to learn Mac programming, you can tell it to generate fully documented code; if you're prototyping, you can suppress most of the comments to save disk space.

After you've generated the source code, load it into the chosen development system, compile it, and you've got an application with a user interface but without any functionality. The result is rewarding, but in many ways it's similar to a movie set: It looks great, but there's nothing behind it.

It's impressive, but it's not perfect. Although Prototyper supports lists, the code generated doesn't actually implement them in a useful fashion. To get them to function, you still have to do some significant programming. The same is true of icons, pictures, and highlighting default buttons.

Prototyper is useful for quick and easy application mock-ups, but it's more useful as an instructional tool — generating the code for a window, for example, and then examining it to learn about it. Prototyper's code is a little too sparse to qualify it as a useful automatic application generator, but it's still a fascinating and informative tool to help you learn Mac programming.

— Jeffrey Sullivan



Prototyper



List Price: \$295

Manufactured by: Smethers-Barnes, P.O. Box 639, Portland, OR 97207; (503) 274-2800.

Version: 2.0

Requires: Mac Plus, two 800K drives or hard drive, System 4.1.

Compatibility: All Macs with 1 megabyte.

Application Size: Prototyper 290K; C code generator, 245K; Pascal code generator, 240K.

Copy Protection: None

OVERNIGHT DELIVERY
ONLY \$3.00
(See details below)



Quicken (Intuit) NEW Version 1.5!

Forget financial hassles with Quicken, the world's #1 selling finance software. It's the absolute fastest, easiest way to do your personal or small business bookkeeping. Quicken slashes the time you spend on your finances by automating all your routine financial tasks, from printing recurring checks without typing, to providing detailed tax deduction summaries instantaneously. Flexible, comprehensive financial reports on screen or on paper...income and expenses by category, budget vs. actual comparisons, and more. (finance) \$32.

HYPERWARE

Activision	
Focal Point II	119.
Reports for HyperCard	69.
Bantam	
Complete HyperCard Handbook	23.
Beacon Technologies	
HyperBible International Version	195.
HyperBible King James Version	159.
BrainPower	
ArchiText	179.
Bright Star Technology	
HyperAnimator	99.
HyperPress Publishing	
Script Expert	46.
ICOM Simulations	
HyperTMON	75.
MacroMind	
VideoWorks II HyperCard Driver	60.
MicroMaps	
HyperAtlas	64.
Power Up	
HyperTutor	29.
Silicon Beach	
SuperCard	135.
Springboard	
Family Matters	28.
Symmetry	
HyperDA	35.
TimeWorks	
HyperWorks Organizer	60.
Trendware Corporation	
HyperTools #1 or #2	ea 59.
Stack Cleaner	29.

UTILITIES

Affinity	
Tempo II	89.
ASD Software, Inc.	
FileGuard	129.
Berkeley System Design, Inc.	
Stepping Out II	52.
CE Software	
DiskTop 3.0.2	27.
QuickKeys (macro programmer)	52.
Caere	
OmniPage 1.0	559.
Central Point Software	
Copy II Mac (with MacTools)	20.
PC Tools Deluxe For Mac	45.
Design Software	
MacTree Plus	46.
Emerald City Software	
Lasertalk 1.0	187.
Fifth Generation	
FastBack II	109.
PowerStation	32.
Pyro	15.
Suitcase II	45.
HJC Software, Inc.	
Virex	69.
ICOM Simulations	
On Cue	36.
Insight Development	
MacPrint	79.
Kent Marsh	
MacSafe or NightWatch	ea 87.
LaCie Ltd.	
SilverServer	89.
Magic Software	
AutoSave II	29.
POWERICONS	
POWERmenus	39.



Word 4.0 (Microsoft)

Latest version of the best-selling document processing program. Complete WYSIWYG editing; powerful customizing features. Create newsletters with multiple columns. Tabs are a breeze. Tell Word how many rows and columns, and it generates your table with automatic text wraps within cells. Word also has a spelling checker, hyphenation, style sheets, a glossary, automatic indexing, mail merge and much more. (word processors) \$255.

Mainstay	
AntiToxin	65.
Capture	42.
TypeNow	27.

MacSnap Memory Upgrades (Dove)

1 Meg surface mount CMOS SIMMS for the Macintosh Plus, SE and Mac II. Expand your Plus or SE to 256K using MacSnap 2S. Preserves future expandability. Only \$399. For maximum memory in the Plus and SE, or a 4 meg expansion for the Mac II, the MacSnap 4S utilizes state of the art low profile 1 Meg surface mount CMOS SIMMS. Only \$798. The MacSnap 8S expands the Mac II to 8 Megs for the Ultimate in power and memory. Only \$1596. MacSnap 256K surface mount products are also available for the SE and Plus Included with each MacSnap product is the high-performance Ram Snap software utility. (memory up-grades)

GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.

TimeMinder (Aatrix Software)

Save time and money. Keep track of the time you spend on each project. TimeMinder lets you enter data manually and accommodates the cost of materials and services. At the end of the month or billing period, it prints out reports and invoices in a variety of formats. If you work on retainer or on variable rates, TimeMinder takes care of all the details and lets you concentrate on the job! (business) \$159.



Microlytics

GOTer	43.
Olduvai	
ClipShare	99.
FontShare	149.
MultiClip	36.
PCPC	
HFS Backup 3.0	54.
SuperMac	
DiskFit 1.5 or SuperSpool 5.0	ea 53.
Sentinel 2.0	89.
SuperLaserSpool 2.0	79.
Symantec Corporation	
S. A. M.	69.
Symantec Utilities for Macintosh	65.
XTree Company	
XTree Mac	52.

DESK ACCESSORIES

Affinity	
AffiniFile	46.
Casady & Greene	
QuickDEX	32.
Exodus Software	
ExpressWrite	65.
Retriever	59.
Preferred Publishers	
Database	75.
Vantage	59.
Solutions	
SmartScrap & The Clipper 2.0	46.
TENpointO	
Open IT!	49.

LANGUAGES

Digital, Inc.	
Smalltalk/V MAC	139.
Manx Software Systems	
Aztec C or Unitools	ea 65.
Aztec C+SDB or C+MPW	ea 99.

Pixel Paint 2.0 (SuperMac)

The first and best selling color paint program for Macintosh color systems has now been enhanced. Equipped with a new set of powerful features for graphics, desktop publishing and color prepress work. Comes with built-in Pantone color picker, color separator with screen angling, and PixelScan (new color scanning utility). Choose PixelPaint as your complete solution for color graphics. (graphics) \$199.



Microsoft

QuickBasic	6.
SmethersBarnes	
Prototyper	14.
Symantec	
CAPP's Lightspeed C or Pascal	4.
Lightspeed C 3.0	16.
Lightspeed Pascal	9.
Zedcor	
ZBasic 5.0	9.

COMMUNICATIONS

CE Software	
QuickMail 2.0	20.
CompuServe	
CompuServe Navigator	4.
DataVIZ	
MacLink Plus w/Cable 3.0	13.
FreeSoft	
Red Ryder 10.3	5.
Hayes	
Smartcom II 3.1	8.
InSignia Solutions	
Soft PC (Mac II)	24.
Lamir	
Acknowledge	32.
Software Ventures	
Microphone III	22.
Solutions	
BackFAX (req. Apple Fax modem)	12.
Traveling Software	
Lap-Link	8.

DATABASE SOFTWARE

Acius	
4th Dimension	38.
AEC Management Systems	
AEC Information Manager	11.



FREE OFFER

The brand new edition of the popular **POWER USER'S TOOL KIT - Version 2.0** is now available. Seventeen great programs on one handy disk compiled by Steven Bobker. It includes a complete virus detection and repair kit!



And it's **FREE** with any purchase. You pay only \$1.50 postage and handling (if you want the disk). The programs are shareware, so you can try the software free of charge. If you wish to continue, some authors ask that you send them a small fee (\$5-\$25). Many of the programs are absolutely free. All of the details are explained on the disk, which is yours to keep anyway.

FREE CATALOG

You'll also receive our brand new 1989 catalog. Hundreds of new products, product reviews and updates. Plus answers to all your questions about compatibility, copy protection and features. **Take a look at the MacWarehouse specials and call us with your order to receive your free catalog and THE POWER USER'S TOOL KIT.**

Under the Mac Drives (Cutting Edge)

NEW! Price breakthrough!
The Cutting Edge Under the Mac Drive hard disk drives are quiet and reliable with access times down to 20 ms making it almost three times faster than most. Push button external SCSI address switch and removable SCSI terminators allow easy daisy chaining up to 7 SCSI devices. Sizes available 20 megs to 80 megs (see line listings) 20 meg only \$439. 30+ meg only \$499.

800K Drive

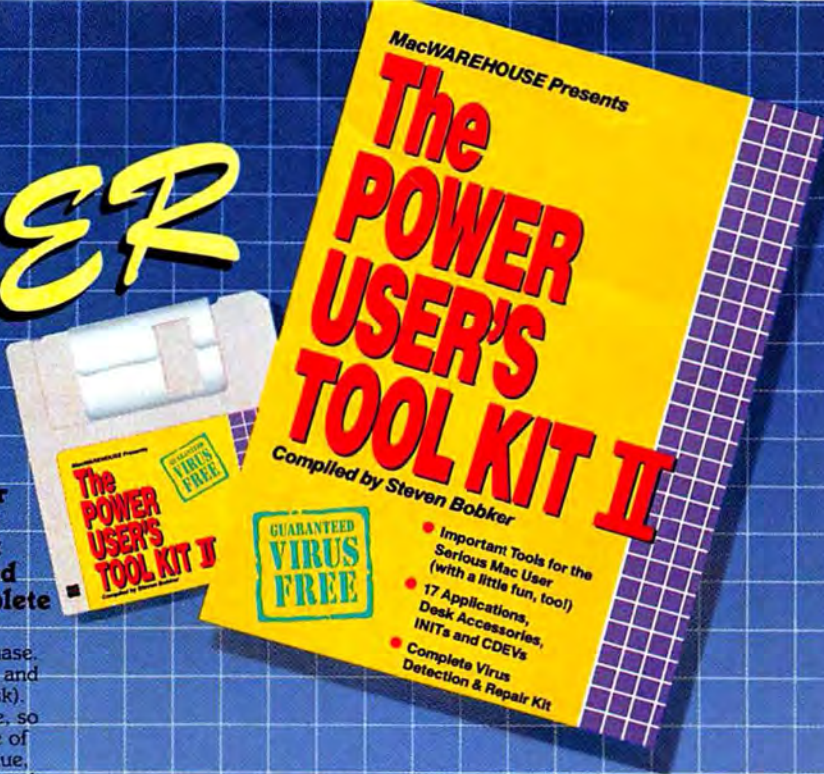
The Cutting Edge 800K drive's attractive styling, quiet performance, and high-tech reliability make it our most popular floppy drive. Features an LED light to indicate disk access and a hinged door over the disk insertion slot to keep the mechanism clean. One year warranty. (disk drives) \$149.



MacWAREHOUSE 1690 Oak Street
P.O. Box 1579 Lakewood, NJ 08701

I don't need to order right now, but please **RUSH** me my **FREE** copy of the brand new MacWarehouse Catalog.

NAME _____
ADDRESS _____ APT# _____
CITY _____ STATE _____ ZIP _____

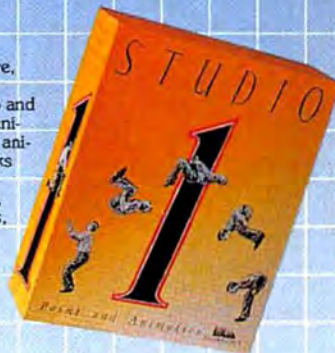


The Complete Half-Page Scanner (The Complete PC)

Low-Cost easy to use Half-Page Scanner for the Mac Plus, SE and II, gives you a quick solution for adding 200, 300 or 400 dpi graphic images to your documents. It can scan virtually any printed image in just seconds! Just press the button and move the scanner across the image. The SmartScan software (included) lets you easily scan and position multiple images on a page. Will also resize, scale, rotate, crop and edit your picture. Export to almost any paint or publishing program. (input/output) \$379.

Studio 1 (Electronic Arts)

Animation made easy! Make your presentations come alive, move and rotate objects in full 3D...automatically. Scan your logo and make it fly, visualize concepts via animated story boarding. Templates, animated clip-art and HyperCard stacks included. Ideal for presentations, training demos, educational stacks, desktop publishing. Works on Plus, SE, Mac II. (graphics) \$109.



CHOOSE 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)

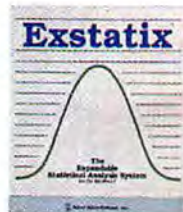
Inquiries: 201-367-0440
Canada: 800-255-6447
FAX # 201-905-9279

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)



FROM MacWAREHOUSE™



Exstatix
Powerful data analysis package combining advanced statistics with 2-D and 3-D presentation quality color graphics, including a rotating 3-D scatter plot and 3-D bar chart. (statistics) \$219.



Wingz
The first Graphic Spreadsheet. Number crunching power that's unsurpassed. Page perfect presentations in one window, on one page, with one product! Combine text, graphs, charts, illustrations and worksheet data printed on any page. (business) \$269.



Bill-IT Version 2
Bill-IT is an integrated program that handles billing for any small business that works from a straight forward inventory or services list. Track sales, write invoices, keep accounts receivable, maintain your customer list, provide automatic billing and print statements. (finance) \$99.



MacTilt SE
The MacTilt SE elevates a Mac SE 4-inches, provides a full 30° tilt and 360° rotation. Models are also available for Apple II[®] MC, Apple 13" Color and Mac Plus Monitors. (accessories) \$68.

Zedcor
Desktop 2.0 69.

DESKTOP PUBLISHING PRODUCTS

Adobe
Illustrator 88 299.
Streamline 239.
Aldus
PageMaker 3.01 389.
Broderbund
DTP Advisor 47.
Emerald City Software
Smart Art I-Text Effects 89.
Icom Simulations
MacKern 119.
Letraset
ImageStudio or Ready, Set, Go! 275.
Olduvai
Read-It! 2.0 (OCR) 249.
Read-It! Personal 99.
Quark
Xpress 499.
Springboard
Springboard Publisher 109.
U.S. MicroLabs, Inc.
FontSizer 79.



The Complete Page Scanner (The Complete PC)

A versatile personal scanner for desktop publishing. Compact and flexible lets you scan any printed or written page, text, drawings, photographs and other artwork, into desktop publishing or word processing documents. Scan at 200 or 300 dpi. Use SmartScan software (included) to resize, scale, rotate, crop, and edit your picture. Export to almost any paint or publishing program. (input/output) \$799.

NETWORKING PRODUCTS

Connect Inc.
MacNet 43.
Farallon
Timbuktu 2.0.1 65.
TOPS
TOPS 2.1 149.
Full Line Available Call.

Fonts

Adobe
Fonts (All Avail.) Call.
Forms and Schedules 299.
Presentations 299.
Altsys
Fontastic Plus 2.02 52.
KeyMaster 52.
Beyond, Inc.
MenuFonts 2.02 29.
Letraset
LetraStudio 289.
LetraFonts (various) ea 69.
Olduvai
ArtFonts Vol. I or 2 55.
Orange Micro
Alphabits 69.

CAD/CAM

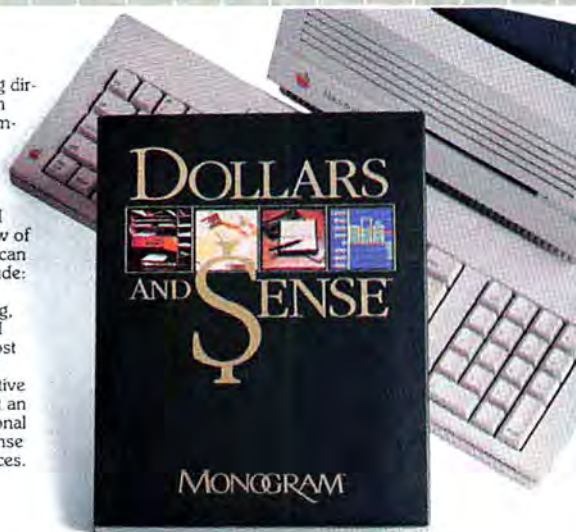
Claris
ClarisCAD 629.
Generic Software
Generic CADD Level 1 85.
Graphsoft
Blueprint 349.
MiniCad Plus 519.
Innovative Data
MacDraft 145.
Dreams 275.

FINANCIAL AND ACCOUNTING SOFTWARE

Aatrix
Checkwriter 20.
Payroll 3.5 99.

Dollars and Sense (Monogram)

Cash flowing in the wrong direction? Turn the tide with Dollars and Sense, the complete financial management program from Monogram Software. Balance sheet? Chart of accounts? Customized reports? They're just a few of the financial insights you can gain. Other features include: Automatic double entry accounting. Check printing. "What if?" bill paying; and import/export to/from most popular spreadsheets. If you'd like to make a positive financial statement or just an assessment of your personal value - let Dollars and Sense take charge of your finances. (finance) \$81.



The Complete Page Scanner (The Complete PC)

A versatile personal scanner for desktop publishing. Compact and flexible lets you scan any printed or written page, text, drawings, photographs and other artwork, into desktop publishing or word processing documents. Scan at 200 or 300 dpi. Use SmartScan software (included) to resize, scale, rotate, crop, and edit your picture. Export to almost any paint or publishing program. (input/output) \$799.

Odesta
Data Desk Professional 289.
Paracomp
Milo 159.
Select Micro Systems, Inc.
Exstatix 219.
Wolfram Research
Mathematica (SE) 450.

MUSIC AND SOUND

Altech
MIDI Interface 59.
MIDI Basic 30.
Bogas Productions
Super Studio Session 2.0 75.
Coda
MacDrums 32.
Perceive 52.
Electronic Arts
Deluxe Music Construction 2.5 84.
Esthetic Engineering
Music Mouse 49.
Farallon Computing
MacRecorder (records sound) 135.
Graphic Notes
Music Publisher 375.
Impulse
Audio Digitizer w/SoundWave 139.
Passport Designs
Master Tracks Pro 3.0 259.
NoteWriter
Resonate 189.
Listen 2.0 62.

EDUCATIONAL/PERSONAL

BrightStar
Talking Tiles 69.
Bootware Software
ResumeWriter Pro 75.
Davidson
Math Blaster 27.
Speed Reader II 36.
Fair Tide Technologies
Navigate! 209.

Payroll PLUS or TimeMinder 159.
Brown-Wagh Publishing
MacLedgers 159.
Service Industry Accounting 209.
DAC
Dac-Easy Light 42.
Intuit
Quicken 1.5 32.
MECA
Managing Your Money 125.
Monogram
Business Sense 279.
Dollars and Sense 81.
ShopKeeper Software
Bill-It 99.
Survivor
MacMoney 3.02 61.

STATISTICAL ANALYSIS

Abacus Concepts
StatView II 339.
StatView SE+Graphics 229.
BrainPower
StatView 512+ (requires 512k) 149.
D2 Software
MacSpin 2.0 189.

Navigate! (Fair Tide Technologies)

Enter the world of Digital Chart Navigation. NAVIGATE! allows you to display the precise position of your yacht on a detailed chart. Displays land mass, shoal lines, buoys and many other navigation aids. Has full course planning and tracking features. Includes interface for a position sensor (LORAN, SATNAV, GPS) and one chart. Available in color or mono. **Navigate! mono (personal) \$209.**



MORE FOR YOUR MONEY...

Ashton-Tate	
dBase Mac	295.
Claris	
FileMaker II	229.
Fox Software	
FoxBASE+Mac	265.
Odesta	
Double Helix II	339.
GeoQuery	199.
ProVUE	
Panorama	205.

BUSINESS SOFTWARE

Access Technology	
Trapeze 2.1	149.
AEC Management Systems	
FastTrack Schedule	115.
Aldus	
Persuasion 1.0	385.
Ashton-Tate	
Full Impact	249.
BreakThrough Productions	
Market Master R/A	245.
Claris	
MacProject II	379.
SmartForm Designer w/Assistant	309.
Cognition Technology	
MacSMARTS PRO	249.
Cricket	
Cricket Graph 1.3	115.
Cricket Presents	289.
HyperPress Publishing	
Intelligent Developer	249.
Informix	
wingZ	269.
MetaComet	
Accu-Weather Forecaster	59.



WordFinder 2.0 (Microlytics)

WordFinder is a thesaurus program that helps you find the best words to express your best thoughts. Quickly. Since it's a desk accessory, it works with almost any Mac application. Designed for the modern business user and writer. (spelling) \$33.

Microsoft	
Excel 2.2	255.
PowerPoint 2.1	255.
Works 2.0	189.
Nolo Press	
For the Record	29.
WillMaker	32.
Power Up	
FastForms! Construction Kit	89.
Satori	
Bulk Mailer 3.3	79.
Softview	
FormSet	55.
MacInUse	42.
Symantec	
More II 2.01	255.
Symmetry	
KeyPlan	339.
Synex	
Mac Envelope 4.1	59.
Vertical Solutions	
FastLabel	49.



ProArt Professional Art Library (Multi Ad Services)

Clip Art from an Industry Leader. The Pro Art Library contains over 100 EPS illustrations in each of the three volumes (Business, Holidays, and Sports). Created by talented illustrators, these tasteful, high quality images will improve the appearance of all your DTP projects. Floppy disk versions include a durable binder, with a pictorial index. \$95. each CD-ROM version \$229. (graphics)

WORD PROCESSORS AND OUTLINERS

Access Technology, Inc.	
MindWrite 2.1	95.
Ashton-Tate	
FullWrite Professional	269.
Claris	
MacWrite II	239.
Microsoft	
Word 4	255.
Write 1.0	85.
Niles & Associates	
End Note	82.
Symmetry	
Acta Advantage w/DA	65.
T/Maker	
WriteNow 2.0	119.
WordPerfect Corp.	
WordPerfect	185.
Working Software	
QuickLetter	75.

SPELLING CHECKERS

Aegis Development, Inc.	
Doug Clapp's Word Tools	42.
Deneba Software	
BigThesaurus	54.
Spelling Coach Pro	105.
Electronic Arts	
Thunder II	52.
Microlytics	
Word Finder 2.0	33.
Sensible Software	
BookEnds or Sensible Grammar	ea 53.

GRAPHICS

3G Graphics	
Images w/Impact	
Graphics & Symbols 1	59.
Business 1	69.
Aegis Development, Inc.	
Showcase F/X	199.

Aldus	
Freehand 2.0	349.
Broderbund	
Drawing Table	76.
PosterMaker Plus	35.
Casady & Greene	
Vivid Impressions Vol. 1	69.
Claris	
MacDraw II 2.0	309.
MacPaint 2.0	99.
Cricket	
Cricket Color Paint	179.
Cricket Draw	168.
Cricket Paint	99.
Deneba	
Canvas 2.0	159.
Dream Maker	
Clippures, Business Images	95.
MacGallery	27.
Electronic Arts	
Studio/1	109.
Studio/8	319.
MacroMind	
MacroMind Director	479.
VideoWorks II	199.
Miles	
Mac The Knife (All Volumes)	32.
Multi Ad Services	
ProArt: Bus., Sports or Holidays	ea 95.
ProArt: Trilogy CD format	229.
NuEquation	
NuPaint	99.
Olduval	
Art Clips	59.
Paracomp	
Swivel 3D	289.
Silicon Beach	
Digital Darkroom	259.
Super 3D 2.0	325.
SuperPaint 2.0	129.
SuperMac	
PixelPaint 2.0	199.

FastLabel 1.2.1

End label hassles with FastLabel - the revolutionary way to print labels on the Image-writer and laserwriter. Preformatting instantly creates labels. One step text loading from any commercial database. Save hours of your valuable time! (business) \$49.



XTreeMac

New from XTree Company—XTreeMac™ simplifies disk management by disk contents within it's unique Directory Tree. It finds, launches and retrieves deleted files, even after you've emptied the trash. Copies or moves files from multiple drives simultaneously. Everything that Finder does, and more. (utilities) \$52.



Images w/Impact Business 1

Create professional presentations with over 170 sharp, contemporary PostScript Images. Contains computers, occupational and public symbols and much more! (graphics) \$69.



Generic CADD Level 1

Easy to learn and use drawing tool gives you true CAD capabilities including 256 layers, floating point precision and Bezier curves. NEW FEATURES include snap; direct PICT file support. Symbol Libraries also available. Great for beginners! (cad/cam) \$85.



- VISA and MASTERCARD accepted. No surcharge.
 - Your credit card will not be charged until your order is shipped.
 - If we must ship a partial order, we pay the freight on the remaining portion.
 - All U.S. shipments are insured at no extra charge.
 - C.O.D. orders accepted (add \$6.00 including shipping) — \$1,000 maximum. Cash, money order, or cashier's check.
 - Corporate purchase orders accepted subject to credit approval.
 - All products are covered by a 120 day limited warranty.
 - CT residents add 7.5% sales tax. NJ residents add 6.0% sales tax.
- SHIPPING**
- All orders add \$3.00 per order. We ship Airborne Express overnight unless UPS ground delivers overnight. (Some rural areas require an extra day.)
 - Orders placed by 7:00 pm Eastern time (weekdays) for "in stock" items ship same day (barring system failure, etc.) for overnight delivery.
 - C.O.D. orders ship via UPS (Blue Label) if you are more than 2 days from us via UPS ground. Charge is \$6 including shipping.
 - Alaska, Hawaii, outside continental U.S., APO/FPO call 201-367-0440 for information.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion.

I'm Kerry, call me at:

1-800-255-6227

(1-800-ALL-MACS)

Inquiries: 201-367-0440 Canada: 800-255-6447 FAX: 201-905-9279

MacWAREHOUSE™

1690 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)



GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.

OVERNIGHT DELIVERY ONLY \$3.00

AutoSave II (Magic Software)

Never lose data due to forgetfulness, power failure or system errors ever! From any program AutoSave II will automatically save your work using a time interval (1-99 minutes) that you set. \$29.

POWERICONS

POWERIcons makes a clone of an application's icon that can be placed in any folder or even on the desktop. Documents and folders can be opened automatically by the POWERIcon. \$39.

POWERmenus

Put your menus where your Mouse is! With just a click the menu bar will appear next to your mouse pointer in ANY application on ANY monitor. Includes eight POWERgadgets. (utilities) \$39.

MacEnvelope 4.1 (Synex)

MacEnvelope gives your mail that "special touch". You can create layouts, adjust fonts and styles, import graphics, and print in color (on the imageWriter II). It even prints Postal Bar Codes giving you the most reliable postal deliveries possible (saves money on bulk mailings!). Stores up to 1600 names and addresses and sorts alphabetically or by zip code. (business) \$59.

HyperPress Publishing

Silver Screen 42.
Miles Computing
Puzzle Gallery 27.
Mindscape
Balance of Power, Deja Vu ea 30.
Nemesis
Go Master 49.
Joseki Tutor 30.
PCAI
Lunar Rescue 34.
MacGolf 2.0 35.
MacGolf Classic 54.
Road Racer 39.
Spectrum HoloByte
Falcon 2.0 32.
PT109 or Gato ea 26.
Solitaire Royale or Tetris ea 20.
The Software Toolworks
Chessmaster 2100 32.
Life & Death 34.
The Hunt for Red October 32.

Macinware Carrying Cases (I/O Designs)

The I/O Design family of carrying cases protects your Mac and it's peripherals whenever you need to take them with you. The outer covering is made of luggage quality lightweight woven nylon with web strap reinforcement. The interior is padded to protect the equipment. Full line available (accessories) \$75.

MEMORY UPGRADES/ACCELERATORS

1 MEG SIMMS Call.
Dove (full line available)
FastNet SCSI 785.
FastNet II or III Call.
MaraThon 030 Accelerator 999.
MaraThon LAN 020 MultiFunction Boards 312.
MaraThon SP or Multi-Comm Call.
MacSnap 2S 399.
MacSnap 4S 798.
MacSnap 8S 1596.
MacSnap 524E 187.

DISK DRIVES/BOARDS

CMS
MacStack 20 Meg 559.
MacStack 30 Meg 595.
MacStack 45 Meg 789.
MacStack 60 Meg 829.
Cutting Edge
800K External Floppy Drive 149.
Under the Mac 20 Meg 439.
Under the Mac 30+ Meg 499.
Under the Mac 40+ Meg 559.
Under the Mac 65+ Meg 649.

DailyDouble HorseRacing



DailyDouble HorseRacing

Spend a day at the race track. Histories of nearly 400 races. 1 to 4 players. \$19.

GrailQuest

Offers hours of entertainment for those who enjoy adventure games. Features interactive, digitized graphics and sound. (games) \$19.



Arkanoid

The #1 Coin-OP Game has come to the Mac, offering the breathtaking animation, digitized sound and dazzling game play you've been seeking! Guaranteed to push you to the limit and beyond! (games) \$27.

Lunar Rescue



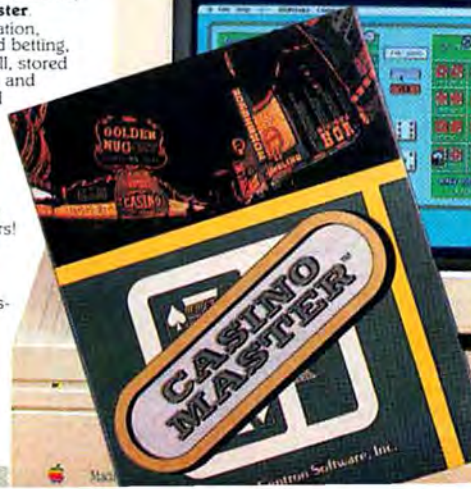
Lunar Rescue

An intense space adventure incorporating arcade-style action and free-market trading strategies. Transport vital supplies between lunar colonies, explore terrain, buy and sell commodities. (games) \$34.

Under the Mac 80+ Meg 749.
Dayna Communications
Dayna File Single 360K (5 1/4") 529.
Dayna File Dual 360K (5 1/4") 1.44M (3.5") 669.
Dolphin Systems Tech
Integra 20 Meg 549.
Integra 30 Meg 599.
Integra 40 Meg 769.
Integra 60 Meg 819.
Integra 80 Meg 1179.
Flipper 150 Meg Tape Backup 1439.
Flipper Removable 44 Meg 1195.

Casino Master (Centron)

Become a Master of Casino Gambling! Five separate casino games include BlackJack Ace, CrapsMaster, Roulette Master, PokerMaster, and Baccarat Master. Exact table simulation, mouse control-led betting, selectable bankroll, stored win/lose statistics and complete manual included. Now available in dazzling color in the Mac II version!! Recommended and used by professional gamblers! Buy individual games for \$27, each or get the 5 game Casino Master Package for \$49, or the Deluxe Mac II color version for \$55. (games)



Learning Company
Reader Rabbit 32.
MicroTech
Elementary Signer 49.
Finger Signer 29.
The Software Toolworks
Mavis Beacon Teaches Typing 35.
Voice & Video Instruction Videos
HyperCard or Pagemaker 3.0 ea 35.
Word 4.0 Video Tape 35.

GAMES

Access Software, Inc.
World Class Leader Board 28.
Artworx
Daily Double Horse Racing 19.
GrailQuest 19.
Broderbund
Ancient Art of War At Sea 27.
Shufflepuck Cafe 24.
Where in the World is Carmen 27.
Bullseye
Ferrari Grand Prix or P51 ea 32.
Centron Software, Inc.
BlackJack or CrapsMaster ea 27.
CasinoMaster (5 pack) 49.
Discovery Software
Arkanoid 27.
Electronic Arts
Starfleet I: The War Begins 36.
Chuck Yeager Adv. Flight Trainer 32.



FROM MacWAREHOUSE



Mac - 101 Keyboards
(DataDesk Intl.)
Features 101 keys including a numeric keypad, a separate T-shaped cursor keypad, Cancel Key, Option and Command keys at both ends, definable function keys, plus scrolling, page control, and zooming keys. Comes with free macro software and manufacturer's two year warranty. (input/output) \$145.



Smack-a-Mac
Stressed out by your computer? Get relief with Smack-a-Mac. Poke it...Punch it... Pick it up and throw it... or if your Mac is behaving well smack it with a kiss. Comes with users guide. (accessories) \$9.



SmartOne Modem
Receive electronic mail, check out stock portfolios or flight reservations. Features include Quicklink, MacNet, Compuserve, auto dial and a two-year warranty. (modems) \$149.



Basic Needs Hardtops
Printer and keyboard covers, made from high impact ABS plastic, fits right on the keyboard or printer, and provides SOLID protection against dust, spills and falling objects. Also ideal for guarding against damage while in transit. (accessories) \$15.

Kennect Technology	
Drive 2.4	375.
Rapport	229.
MiniScribe	
20Mb Raw Int. Drive	379.
45Mb Raw Int. Drive	549.
Mobius	
MultiScreen Video Card	349.
PCPC	
MacBottom Hard Drives	Call.
Peripheral Land, Inc.	
Infinity Turbo 40 Meg	1235.
Turbo Floppy 1.4	329.
UniMac	
3.5 Int. Drive Kit	99.
Quantum	
Quantum 40 MB Raw Drive	545.
Quantum 80 MB Raw Drive	897.

MODEMS

Abaton	
InterFax12/48	325.
Best Data Products	
SmartOne 2400/1200	149.
EPIC Technology	
2400II Internal Modem	315.
Hayes	
Smartmodem 1200	299.
Smartmodem 2400	449.
Smartmodem 9600 (V series)	985.
Prometheus	
ProModem 2400 SE Int.	209.
Promodem 2400M	199.
Supra	
Supra Modem 2400	149.
US Robotics	
Courier Modems	Call.

BLANK MEDIA

B.A.S.F.	
DS/DD (box of 10)	15.
Sony	
DS/DD (box of 10)	16.

INPUT/OUTPUT

Cambridge North America	
MacLite portable computer	799.
The Complete PC	
Half-Page Scanner	379.
Page Scanner	799.
Cutting Edge	
CE-105 ADB Keyboard	125.
DataDesk	
Mac 101 Keyboards	145.
Kensington	
New Turbo Mouse	109.
Koala	
MacVision 2.0	219.
Kraft	
ADB Joystick Premium III (SE&II) ..	51.
Kurta	
IS/ADB Tablet	259.
Cordless 4 Button Cursor	65.
Mouse Systems	
A+ Mouse (512/Plus or SE/II)	Call.
Seikosha America	
Seikosha Printer (dot-matrix)	235.
Summagraphics	
Bit Pad Plus	325.
ThunderWare	
LightningScan	409.
ThunderScan 5.0	189.

ACCESSORIES

Avery	
Labels (all sizes available)	Call.

Fastkeys (SoundSight)
Speed up your computing by 50%! Bring the keyboard to your fingertips. Imagine simply pressing Fastkeys on your mouse, trackball or pad to perform everything from printing to deleting. Execute mouse operations INSTANTLY! Shift-Select is now a one hand operation as well as cut, paste, copy, quit, undo, open, close... Virtually anything you choose. (accessories) \$39.



Basic Needs	
Hard Top Keyboard	15.
Hard Top Imagewriter	17.
Nylon Ripstop Dust Covers	14.
Utility Pac	11.
Computer Friends, Inc.	
MacInker (IW & IW II)	41.



Dolphin Subsystems
(Dolphin Systems Tech.)
The intelligent choice for Apple Macintosh mass storage. **Integra** Zero footprint external hard drives from 20mb-100mb capacity. **Flipper 44mb** removable hard disk high performance (25ms) offers unlimited storage and convenient portability. **Flipper 150mb** high speed SCSI tape with FileX/Backup. (disk drives) see line listings for prices.



Curtis	
Disk Holder (holds 40)	9.
Jewel Surge Suppressors	
Free Curtis Clip with purchase	Call.
Ergotron	
MacTilt-SE	68.
MacTilt II-RGB	75.
Goldstein & Blair	
The Macintosh Bible	20.
I/O Designs	
ImageWare II Carrying Case	49.
Macinware IIx Carrying Case	89.
Macinware Mac II Carrying Case	99.
Macinware Plus Carrying Case	64.
Macinware SE Carrying Case	75.
Monitorware Apple RGB Case	79.
Kensington	
Anti-Glare Filter	33.
Apple Security Kit	34.
Mac II Stand w/Cable Kit	65.
MasterPiece Mac II	105.
System Saver	64.
Mobius Products	
Fanny Mac QT	60.
SE Silencer	39.
Orange Micro	
Grappler L/Q or LS	103.
Smack-a-Mac	
Smack-a-Mac	9.
SoundSight	
FastKeys	39.
Targus, Ltd.	
Deluxe Plus/SE-XKB Case (black) ..	75.
ImageWriter II Case (black)	49.
Mac Plus/SE Case (black)	59.

I'm Kerry, call me at:

MacWAREHOUSE
1-800-255-6227

OVERNIGHT DELIVERY: ONLY \$3.

If you're already a MacWarehouse customer you know that nobody beats our service. Our helpful telephone staff is standing by, seven days a week. Place your order by 7:00 pm Eastern time (weekdays) and it's processed immediately for overnight delivery. Call us toll free right now.



Please circle 13 on reader service card.

**WE'VE HIT
BOTTOM ON
OUR 'TOPS'
PRICES!**

\$145

With a list price of \$249 you save over **40%** on TOPS network software for the Mac. TOPS is the one network solution to link all the computers in your office - including PC's. Call Mon-Fri. 10AM-6PM EST. MC/Visa accepted.

MacWorx

**800-635-5785
FAX (212) 353-9781**

**IF WE TOOK
OUT A FULL
PAGE AD, OUR
APPLETALK
CONNECTORS
WOULD COST AS
MUCH AS
FARALLON
PHONENETS!**

\$19

Save 58-68% off
PhoneNet's list
price, and get the
original CompuNet
AppleTalk connector
from Trimar!

\$19 for 20+ order • \$24.95 for 1-20 • P.O.'s accepted

MacWorx

**800-635-5785
FAX (212) 353-9781**

Please circle 191 on reader service card.



REVIEWS

UTILITIES

PC Tools Deluxe

Utility sets have always been popular with users and publishers. Following Symantec's success with SUM (Symantec Utilities for Macintosh), Central Point collected a set of its best programs and is selling it as PC Tools Deluxe, the same name it used for utilities packages for DOS machines. However, the seven applications, two DAs, and two INITs included in this package are Mac programs, not ports from other systems. PC Tools Deluxe evolved from Central Point's best-selling Copy II Mac (see Quick Clicks, March '89). Several of the better programs in Copy II Mac are also included with PC Tools Deluxe.

One of the main reasons to buy a utilities package is to recover crashed disks or deleted files. PC Tools Deluxe uses a

pair of applications that are quite good at recovery, if you've taken some preparatory steps before your disk crashes or your files are deleted. The applications are called Mirror and Rebuild. Mirror creates and automatically updates an al-



The Locate DA is one of 11 utilities included in Central Point's PC Tools Deluxe. Locate can search for a variety of names and text strings in open and closed files and then show you what it finds in context.



PC Tools Deluxe \$\$\$1/2

List Price: \$79.95

Published by: Central Point Software, 15220 N.W. Greenbrier Parkway #200, Beaverton, OR 97006; (503) 690-8090.

Version: Mostly unmarked; MacTools, 7.2; Optimizer and Mirror, 1.1.

Requires: System 3.2 or later; Mirror requires System 4.2 or later.

Compatibility: 512KE or later.
Program Sizes: MacTools, 107K; Mirror, 17K; Optimizer, 22K; PC Backup, 63K; PC Secure, 51K; PC Secure DA, 39K; Rebuild, 21K; Locate, 83K; Fast Copy, 54K; INITs and help files, 33K.

Copy Protection: None

ternative disk map and directory. Rebuild uses that file to recreate what seems to be gone.

Both have bare-bones interfaces, but that doesn't matter. They're simple to use, and they work. The initial versions of Mirror had a few problems that resulted in unusable files in rare circumstances. Central Point sent free updates to all registered owners as soon as it fixed the problem.

There's still one problem with Mirror: It can't split the files it creates, and if you have 50 or 60 megabytes on a hard disk, the Mirror file will become too large to store on an 800K floppy. Recovery is always easier if you can work from a floppy, since Rebuild doesn't have to painstakingly search the hard disk for the Mirror file.

Deleted files are best taken care of by MacTools and its accompanying CPSSDeleteTracking INIT. Again, you need to do some advance preparation if you plan to use this feature: Place the INIT in your System folder and restart the Mac.

MacTools is a powerful and respected Mac utility. It's easy for beginners to use, and it has enough power to satisfy most

"For convenience, flexibility, and speed,
"...the 45MB removable
is the clear winner."

—MACWORLD, November 1988



Whichever
DataPak
you choose,
you get unlimited storage
capacity, take-it-home
portability, lock-it-up,
security, quick back-up,
instant access to archived
data—plus a 45 MB real
hard disk inside the
cartridge. With an average
access time of 25ms and
1:1 interleave, they're
actually faster than most
conventional hard disks.

DataPak—Single 45mb
removable media cartridge

DataPak duet—Dual 45mb
removable media cartridges

DataPak hd—45mb removable
with 40, 85, or 120mb hard drive



For a FREE MACWORLD reprint
or the location of your nearest dealer,
call 800-522-7979 (9:00-5:00 PST)

DataPak, DataPak duet, DataPak hd, DataCart are trademarks of MASS microsystems, Inc. All rights reserved on MACWORLD quotes and are used with permission of MACWORLD. Totem, Bernoulli, are trademarks of Iomega Corporation. MegaDrive, Megathoppies are trademarks of Jasmine Technologies.

Please circle 122 on reader service card.

Multiple choice.

SuperMac standard graphics subsystems. A complete family of graphics cards and monitors for your business and your budget.

The first. And still champion.

When Apple® introduced the first color Macintosh®, SuperMac™ was first with a large display. The SuperMac 19" color monitor, combined with our 8-bit Spectrum color graphics card, extended the performance of the new Mac®. And enabled new users to work more effectively with the sophisticated new wave of color software.

Today, SuperMac gives you even more ways to improve your work. With a new generation Spectrum/8™. And a complete family of color, grayscale, and monochrome subsystems. So you can choose the right graphics card and monitor for your work—and your budget.

And take full advantage of desktop publishing and presentation programs. Databases and spreadsheets. On *any* Macintosh II or SE system.

The Spectrum/8 (Series II) card for the Macintosh II. Get 256 colors or shades of gray on the most popular monitors. Including ours.

The Spectrum/8 supports all of Apple's standard graphics modes—1, 2, 4, and 8 bit. With up to 256 colors or shades of gray on a 1024 x 768 pixel display, the full area of SuperMac's 19" monitor. For sharp, brilliant images that look just the way they'll print.

And its unique Virtual Desktop™ gives you the same area on smaller monitors, like Apple's 13" color or 12" monochrome displays. Just move your mouse, and hardware pan allows you to instantly view any part of an

image that can't be displayed on screen at once. And hardware zoom gives you 2x magnification with a single keystroke.

And when 256 colors aren't essential, the Virtual Desktop lets you work in 2-, 4-, and 16-color modes. So you can reduce the number of colors on screen to enlarge your display up to 4096 x 1536 pixels.

The Spectrum/8 works with SuperMac's 16" and



See your document on screen exactly as it will print. Or, use software features—like PageMaker's *Fit in window*, to see two pages at once.



19" high-performance color monitors, based on Trinitron® technology. With our standard 19" color and grayscale displays. Plus Apple's 13" color and 12" monochrome monitors.

It's the only card that does it all. In color or grayscale. For large screens or small.

SuperView for the Macintosh II family and Macintosh SE. To make the biggest projects as simple as black and white.

Designed exclusively for our 19" monochrome monitor, SuperView™ provides a display nearly five times larger than the Macintosh SE's built-in screen.

So you'll have all your work, like large databases and spreadsheets, right before your eyes. Exactly like it will print.

And SuperView's new software provides dual-screen, zoom, and projection screen modes to help you get the most out of your SuperView/Mac SE monitor combination. Plus big cursors and menus, and a built-in screen saver to make small work of even your largest tasks.

Spectrum/8. The only card that does it all. On most any color or grayscale monitor. The choice is yours.

Now there's a Spectrum/8 (Series II) designed just for the Mac SE/30.

We're first again. Supporting Apple's first compact color machine, with the Spectrum/8 for the Macintosh SE/30. Delivering the same high-performance capabilities we pioneered for the Macintosh II. Including the ability to support multifrequency monitors, and industry-standard NTSC monitors and projection equipment.

The choice is yours, at your authorized SuperMac dealer.

See your authorized SuperMac dealer today. And choose the SuperMac standard graphics subsystem that's right for your Mac, your business and your budget.

Use hardware pan to move instantly to any part of an image. Even if it doesn't fit on screen. And zoom to see your work at up to 2x magnification.

The first. And still champion.



485 Potrero Avenue • Sunnyvale, CA 94086
408-245-2202

advanced users. The disk includes the newest version (7.2) of this excellent tool.

Optimizer is a hard-disk defragmenter. It worked safely and quickly on the hard disks I used. However, it's not as effective as ALSoft's Disk Express, the only program that can totally defragment a full hard disk. Optimizer was updated to version 1.1 in the free mailing to registered users. It performed well in my tests: Fragmentation was always reduced to an acceptably small figure.

Locate is a DA that searches closed files, checking for filenames and arbitrary text strings. While no program of this type is truly quick (searching one megabyte per minute is excellent), Locate ranks near the top in speed. It can search in the background regardless of whether MultiFinder is running.

PC Backup is a fast hard-disk backup program (see "Hard-Disk Backup: Moving and Storing," July '89). It can back up to floppies, other hard disks, the Apple tape drive, and removable cartridges. It lacks some of the advanced features of Redux and DiskFit, but it is a safe and capable program. It performs full and incremental backups as well as full and selective restores. These are all the backup features most users need.

Fast Copy is a close cousin of the latest version of Copy II Mac (all it lacks is the bit-copy option). It's a fast, well-proven disk-copy program (you can't use it to copy individual files or sets of files). The Track Editor lets knowledgeable users repair some damaged files automatically.

PC Secure is a file-encryption program that comes in application and DA form. In the USA-only version, it uses the secure DES encryption scheme. It works only on files, not on folders or volumes.

I'm not a fan of encrypting files, believing that removing all possibility of physical access is a better solution, but if you have to encrypt a file (say, to mail it to someone), PC Secure is easy, virtually idiot-proof, and effective.

The documentation is the best Central Point has produced for a Mac product to date, but it's still difficult to get through in places and can be intimidating to a new user. The disk also includes an outdated version (3.6) of Apple's Font/DA Mover:

Everyone should be using version 3.8 or later.

PC Tools would be better if its elements were more integrated (like SUM's). It doesn't have the smoothness Mac users have come to expect. Still, every hard-disk owner should have and use the hard-disk backup and recovery tools that are included. When you consider the price of PC Tools Deluxe and the amount a crash can cost you, it's a bargain.

— Ellen Hirame

HARDWARE

MicroNet Ili-620

Most Mac hard drives are sold by virtue of brand names, but if you look behind the labels, you'll find that most of the vendors are buying OEM (original equipment manufacturer) drives, putting them in cases, and packaging them with software drivers.

MicroNet Technology was founded on the principle that the name inside the box (the OEM of the drive mechanism) is as important as the name outside. Company founder Charles McConathy equates changing the drive mechanisms without telling consumers to General Motors' putting Chevy engines into Oldsmobiles. MicroNet's commitment to quality ranges from extensive testing of all drives (up to 24 hours for some mechanisms) to complete customer support (company president McConathy

maintains an active presence on CompuServe's MAUG forums). MicroNet also believes in matching drives to processors in terms of speed, so its drives for the Macintosh II are faster and have a larger capacity than the drives for the SE, which are, in turn, faster than the drives for the Plus.

The Ili-620, an internal drive, is one of the flagships of the company's Macintosh II line. It's an Imprimis (Control Data) Wren V full-height 5.25-inch mechanism with an average access time of 16 milliseconds (there are faster drives available, but this speed is quite respectable). The drive is easy to install, requiring only a Phillips screwdriver. (As always, if you're not comfortable about the prospect of opening your Mac II, have your dealer install the drive for you.)

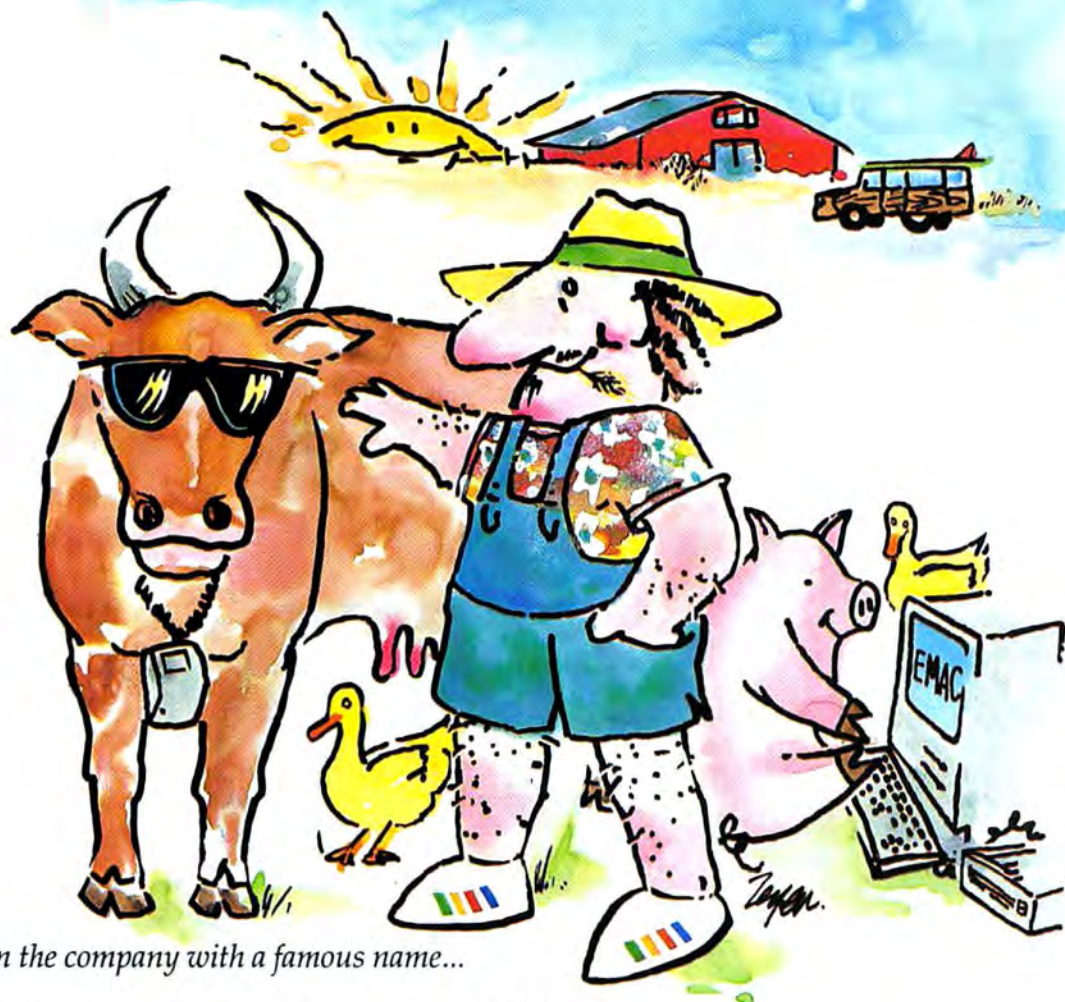
Once installed, the Ili-620 is ready to use, since it has been tested and formatted. The Ili-620 is an outstanding performer with 584 megabytes of available storage. The Wren V mechanism is very fast, and you should notice an immediate improvement in performance, particularly if the Ili-620 is replacing a low-capacity (20- to 80-megabyte) hard disk.

However, there are some problems with using such a high-capacity hard disk. Because of the way the Macintosh file system works, the minimum allocation unit for the drive is 9K, so even a 1-byte file will use 9K of disk space. There's another problem with how the Finder manages the Desktop file: The Finder's Desk-



The Ili-620 is an Imprimis Wren V full-height drive. It comes with a special mounting bracket and fits easily into a Macintosh II.

PHOTOGRAPHY: PETER ALAN GOULD



From the company with a famous name...

EMACdonald

"Old MacDonald had EMAC. Ee-ey-ee-ey-oh. And with EMAC he had great peripherals. Ee-ey-ee-ey-oh. With a hard drive here and a tape backup there, here a network, there a combo, everywhere a modem. Old MacDonald had EMAC. Ee-ey-ee-ey-oh."

Sequestered away in his little corner of the American heartland, Old MacDonald could have been content surfing those amber waves of grain and hanging out with the barnyard animals. But he set out to make the best darned Macintosh® compatible peripherals instead. A regular cornucopia of products all designed to

give the Mac® the ultimate productivity boost. Internal and external hard drives. Tape backup systems with capacities from 20MB to 155MB. A 2400 bps modem. Ethernet® and AppleTalk® network adapters to tie it all together. And everything's as sturdy as Old MacDonald's cows, but a heck of a lot easier to operate.

EMAC - A full line of products and support from the company with a history of success.

EMAC 
A Division of Everex Systems, Inc.

Please circle 151 on reader service card.



Impact series of hard drives and tape backups • Internal hard drives for Mac II and SE • Hard drives and hard drive/tape backup combinations
Stand-alone tape backup • Modem • Network adapters

48431 Milmont Drive, Fremont, California 94538 • For information call 800/821-0806 ext. 2222

Above information subject to change without notice. EMAC and Impact are trademarks of Everex Systems, Inc. Macintosh, Mac, Ethernet and AppleTalk are trademarks or registered trademarks of other respective owners. EMACDonald and his Dancing Bovines are registered with the Scratch-n-Sniff Talent Agency. Available for Coming Out parties, Shopping Mall ground breakings and the unveiling of new diet plans. ©1989 Everex Systems, Inc. All rights reserved.

top file is currently stored as a resource file, which limits how many resources it can hold. The explanation is very technical, but basically it means that you can have only 1,500 to 2,000 files on a disk.

Fortunately, there are ways around both problems. To circumvent the Desktop file problem, you can use the Desktop Manager, which is an INIT that comes as part of AppleShare. Apple has not made it available except as part of AppleShare, although it is rumored to be part of the next major system-software update. The Desktop Manager replaces the standard Desktop resource file with two data files, and it lets you have as many files on the disk as fit.

There are some drawbacks to Desktop Manager. Some users find that they get more "The application is busy or missing" messages when they double-click on document files. And disks cannot always be unmounted (that is, when you drag the disk icons to the Trash can, the icons don't go away).

There is another way to get around the desktop-file problem that also solves the allocation-block problem: partitioning. When you partition a drive, it's divided into multiple, smaller, logical drives. Each smaller drive has a smaller allocation-block size (4.5K for a 300-megabyte drive, 1.5K for an 80-megabyte drive, 1K for a 40-megabyte drive). Since each of the logical drives appears as a different disk to the Finder, they have individual Desktop files, which avoids the problems with large Desktop files. When testing this

drive, we used SilverServer from LaCie as the partitioning software, and it worked very well. Be sure to select software that does true partitioning, because some partitioning software — such as MultiDisk — does pseudopartitioning, which does not decrease the allocation block size.

Overall, the MicroNet Ili-620 is an excellent value. The drive is very fast, and MicroNet stands behind its reliability. The manual covers the installation process and how to care for the drive, and it even includes a section on how to use HFS (the Macintosh's Hierarchical Filing System) more effectively.

—Robert R. Wiggins

COMMUNICATIONS

Accu-Weather Forecaster

Everyone is interested in the weather — if only to remember to take an umbrella. Accu-Weather Forecaster brings you up-to-the-hour weather information in a combination telecommunication and weather-analysis package. It provides access to the Accu-Weather database (the same one used by professional news organizations) and displays the information in maps, charts, or text reports.

Forecaster's primary source of data is the hourly station reports compiled by the National Weather Service. Before calling Accu-Weather, the program asks you to define a data request. A typical query might include local readings for a 24-hour period, the latest reports from stations in your region, and — for the big

**At the core of
Forecaster
is a slick
telecommu-
nications routine.**

picture — data from the "top 100" national stations. As you add elements, the program estimates and displays the total connect time (in this case, about seven minutes) for the data package.

At the core of Forecaster is a slick telecommunications routine that minimizes connect time. One command calls out, logs on, downloads the data, logs off, converts the raw data for use by the program, and saves it on disk — all without any user intervention. As the data comes in, you can read it on-screen, although at 2,400 baud that can get hectic.

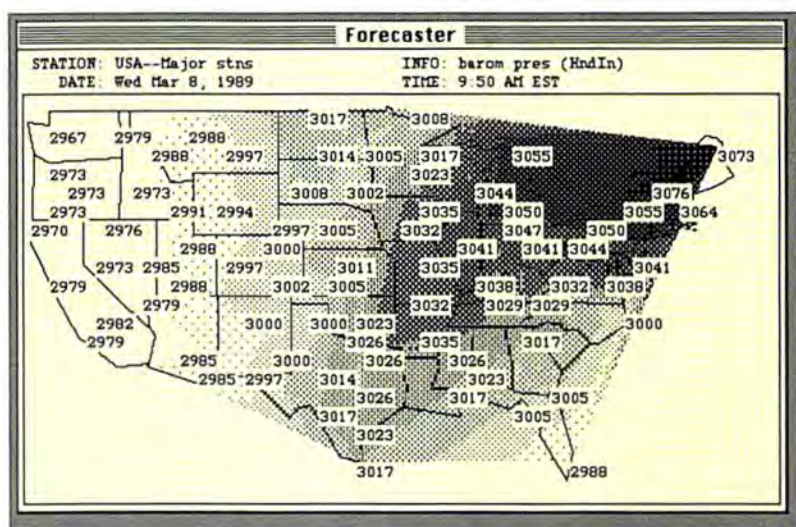
Forecaster can either display a chart with the 24-hour readings of your local

MicroNet Ili-620

List Price: \$4,995

Manufactured by: MicroNet Technology, 13765-A Alton Parkway, Irvine, CA 92718; (714) 837-6033.

Requires: Macintosh II with low-profile SIMMs (also available as an external SCSI drive for any Macintosh with SCSI port).



Accu-Weather Forecaster is a telecommunications and weather-analysis package. This illustration shows unusual conditions on the morning of March 8. Despite high barometric pressure over much of the East Coast, a large storm sits just off the coast of the Carolinas.

The Right Choice... WriteNow.



"BEST NEW WORD PROCESSOR"

—MacUser Magazine, May 1989

"READER'S CHOICE"

—MACazine, January 1989

"GOLDEN GAVEL AWARD"

—MacGuide, Winter 1988



AWARDS & RECOGNITION

WriteNow is the highest-rated word processor in the Macintosh world. MacUser Magazine said it best—*"WriteNow wins best new word processor hands down."*





EASY-TO-LEARN, EASY-TO-USE

If we were to pick one word that our customers use to describe WriteNow, it's *usable*. A great word processor is more than just a stockpile of features—it's the *usability* of those features, how easy they are to learn and use, and how they feel under your fingertips when doing *real work*. Everyone claims ease-of-use, but WriteNow actually delivers it—and our awards and ratings prove it.

BUSINESS POWER & PERFORMANCE

WriteNow has all the power business users need, including: Mail merge; 100,000 word spelling dictionary; multiple columns; in-line graphics; format accelerators (style sheet equivalents); outline indenting, character and word counting, fixed and flexible line spacing, and much more. As important, WriteNow is the fastest word processor in the Mac world, whether you've got a small Mac 512KE or a loaded Mac IIcx.



	<i>Copy & paste large area</i>	<i>Search for a word</i>	<i>Spell check document</i>	<i>Change indents & double spacing</i>	<i>Undo ruler changes</i>
 WriteNow 2.0	6.7 sec.	2.9 sec.	7.4 sec.	23.3 sec.	1.6 sec.
 MacWrite II	45.9 sec.	40.2 sec.	33.6 sec.	44.7 sec.	24.7 sec.
 MS Works 2.0	1 min. 50.8 sec.	35.7 sec.	5 min. 13.4 sec.	2 min. 24.1 sec.	1 min. 14.5 sec.
 MS Word 4.0	21.6 sec.	11.0 sec.	3 min. 55.1 sec.	39.4 sec.	25.8 sec.

All tests performed starting with a 12-page text document on a Macintosh Plus with a 20 megabyte hard disk. Full repagulation performed when necessary.

© 1989 T/Maker Company. All rights reserved. The following are registered and unregistered trademarks of the companies listed: WriteNow, licensed to T/Maker Co; Macintosh, Apple Computer, Inc; MacWrite, Claris Corp.; Microsoft, Microsoft Corp.



T/Maker.

For more information:

T/Maker Company

1390 Villa Street

Mountain View • CA • 94041

Telephone: (415) 962-0195

FAX: (415) 962-0201

Please circle 29 on reader service card.

GET A NETW

Until now, there have been two kinds of personal computer networks. Inexpensive ones that aren't quite real. And real expensive ones.

But Dayna[®] has a better alternative.

Namely, DaynaNET.[™] The first real network at a realistic price.

Here are the facts.

DaynaNET is a high-performance network. It's file server-based, so high performance doesn't become low performance as you add users. And you get high performance without a high price tag. Because you can use an inexpensive IBM[®] AT or compatible as your file server.

Better yet, DaynaNET includes a sophisticated multi-level security system that makes it easy to share what needs to be shared. And to protect what doesn't.

It also offers advanced print services like spooling and queuing. So users can keep using instead of waiting for backlogged printers.

Unlike lesser networks, DaynaNET can handle an almost unlimited number of Macintosh[®] and PC users at the same time. And a single file server can support up to 4 separate workgroups on LocalTalk[®] or Ethernet.

What's more, DaynaNET offers you a direct path to other computer systems and networks. It can be upgraded to Novell's Advanced or SFT NetWare[®]. And then our file servers can be bridged to theirs.

DaynaNET is one of the few networks that's 100% AFP and PAP compliant. Which means that it will work perfectly with everything Macintosh.

As well as everything else made according to Apple's[®] rules.

Yet as good as it is, DaynaNET can be made even better. By using it with DaynaTALK[™], the fastest LocalTalk network accelerator on the market. And DaynaMAIL[™], our top-notch E-Mail system.

DaynaNET. You can find networks that do less or cost more. But why would you want to?

For details, dealers and demos, call (801) 531-0203. Real soon.



DaynaNET allows high performance networking in either large or small Macintosh and PC workgroups.



Dayna
POWER TO SHARE.

Please circle 5 on reader service card.

Dayna is a registered trademark of Dayna Communications, Inc. DaynaNET, DaynaMAIL and DaynaTALK are trademarks of Dayna Communications, Inc. DaynaNET is a unique version of NetWare. All other names mentioned are trademarks or tradenames of their respective holders. © 1989 Dayna Communications, Inc.

REAL ORK.



Dayna **NET**

Local Area Network for
Macintosh and IBM PC Workgroups

For LocalTalk



NET
Local Area Network for
Macintosh and IBM PC Workgroups
For LocalTalk

station with up to three variables (for example, barometric pressure, temperature, and precipitation), or it can build a "picture" of the current conditions at any of the reporting stations. These pictures represent slices of the atmosphere from sea level to 15,000 feet. Cloud cover and precipitation are shown at their appropriate altitudes, and bar graphs of pressure, temperature, and precipitation are shown alongside. These local views are a nice touch.

Forecaster constructs a 48-state map and zooms in for regional plots. Eleven variables may be mapped, and in all cases, data may be displayed as numerical values, pattern shadings, or both. The satellite views of cloud cover, the radar images of precipitation, and the maps of

Although Forecaster is incomplete as a professional analytical tool, having access to the Weather Service "hourlies" may be worth the price.

upper-air winds make for especially interesting viewing.

Unfortunately, the maps are the weakest part of Forecaster. They lack geographical detail and, most importantly, do not convey information clearly. Pattern shadings are employed to differentiate values. They work best with the satellite cloud-cover views, but the often-indistinct boundaries are inadequate for displays of barometric pressure. Color (for the *USA Today* look) would help, but the program does not support it. If you overlay numerical values, the small maps get cluttered, and they can't be expanded for large screens.

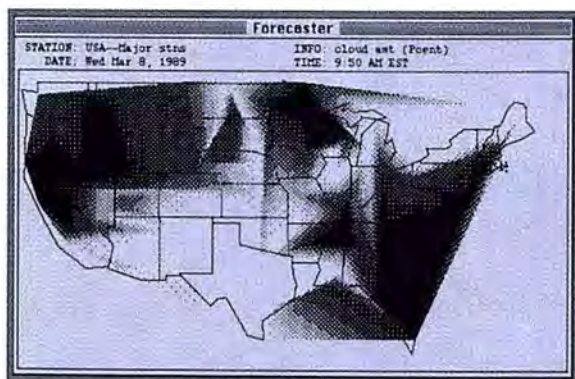
Weak maps undermine the program's utility as a forecasting tool. I would have loved to see a map with isobars (lines connecting barometric pressure readings), but Forecaster can't generate one. I was reduced to drawing isobars by hand on printouts of maps with numerical labels. Also, the ability to superimpose two or more variables, such as temperature and pressure,

on the same map would be invaluable for plotting out frontal systems. Another major improvement would be the inclusion of Canadian data. As far as Forecaster is concerned, the weather stops at the border of the contiguous U.S. — which also omits Alaska and Hawaii.

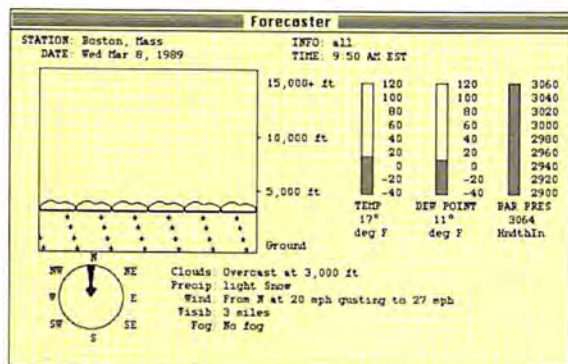
Better reports (aviation, marine, and such) are available if you access the Accu-Weather database interactively. But that significantly increases your on-line time and cost. Access charges are highest from 5 P.M. to midnight. To get the best rates, you must call between midnight and 5 A.M. — not the most convenient times.

Although Accu-Weather Forecaster is incomplete as a professional analytical tool, having access to the Weather Service "hourlies" may be worth the price of admission for some. I know of no other way to get this data as quickly or as efficiently. It is adequate for those interested in general information, hobby, or educational use, but professional forecasters should look elsewhere.

— Carlos Martinez



Accu-Weather Forecaster's satellite view shows the extent of cloud cover. But a high-pressure mass of cold air over eastern Canada pushes the brunt of the storm out to sea.



Accu-Weather Forecaster's maps let you study curious weather behavior. The local picture in Boston best illustrates the anomaly. A light snow is falling despite the extremely high pressure reading. However, 20 miles west, in Worcester, the sky is clear.



Accu-Weather Forecaster

List Price: \$89.95; Accu-Weather Connect Fee, \$39.95 (personal), \$59.95 (educational), \$79.95 (commercial); access rates vary: monthly minimum billing, \$10, \$20, and \$25 respectively; 50 percent surcharge for 2,400 baud.

Published by: Metacommet Software, P.O. Box 31337, Hartford, CT 06103; (203) 223-5911.

Version: 1.05

Requires: 1 megabyte and one 800K drive; 300-, 1,200- or 2,400-baud Hayes-compatible modem. Printer highly recommended.

Compatibility: All Macs with 1 megabyte.

Application Size: 250K
Copy Protection: None

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

Quicken is easy because it looks like your paper checkbook. There's nothing new to learn.

Quicken prints checks even on laser printers. Pre-approved by all financial institutions, Quicken checks are easily ordered through the form in the package.

Quicken gives you these reports in seconds:

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

Quicken eliminates work. It instantly writes recurring checks without typing.

End Financial Hassles. Quicken®, \$49.95

Quicken is the absolute fastest, easiest way to do your personal or small business finances. It saves you hours of time while perfectly organizing your finances. With Quicken, you'll always know exactly how much money you have and where it's going.

Forget Financial Hassle

Quicken is so automatic, it does your financial work for you. It actually learns your regular bills. Just confirm the payment amounts on your auto loan, utilities, and other bills. Quicken does 14 bookkeeping steps and hands you the printed checks already addressed for mailing. All you do is sign them and seal the envelopes.

Finish Financial Work in Seconds

Instead of dreading tax time, use Quicken to print itemized lists supporting each tax deduction. Or, let Quicken deliver other detailed reports such as income and expenses by category, P&Ls, and budget vs. actual comparisons. Quicken provides complete reports on screen or on paper almost instantaneously. Quicken will finish in seconds the same work that used to take you hours.

No Accounting Mumbo Jumbo

Quicken is as easy as the pen and paper you use now. You'll see the familiar checkbook and check register right on your screen. The only thing that changes is how fast you finish your financial chores. This is bookkeeping that's totally hassle-free.

The World's #1 Selling Financial Software

Here's why Quicken is the world's most popular:

...an all-around excellent product. It is one of the best implementations of the Macintosh user interface that we've seen; it's very fast even when running from floppy disk.

—David Beaver, MacWeek

Quicken is a great program. ... Its combination of an outstanding implementation of the Mac interface, sophisticated keyword-searching techniques, and a readable, well-designed manual make it the industry standard. ★★★★★

—Ken Landis, MacUser

For Personal and Small Business Use

No other financial software provides more flexibility to handle the wide range of personal or business needs. Quicken is for service and manufacturing businesses, doctors, consultants, designers, retailers, as well as for households. Quicken is ideal for anyone who wants relief from bookkeeping hassles.

Specifications:

Software Compatibility: Exports data in SYLK format for use in spreadsheets like Excel®. Exports data to HyperCard™.
Hardware Compatibility: All Macintosh with 512K RAM. All printers, including laser printers. Also available for IBM and compatibles, Apple IIe, IIc, IIxPlus, and IIcGS.
Capacity: Unlimited number of bank accounts. Unlimited number of transactions. Unlimited number of income/expense categories. Maximum amounts to \$9,999,999.99.
Other: Unlimited FREE technical support. Not copy-protected. Checks are preapproved by all financial institutions in the U.S. and Canada. Sample checks and order form are enclosed in Quicken package.

Try Quicken FREE for 30 Days

Order Quicken from the coupon below, or through our toll-free 800 number. If you're not completely satisfied with Quicken for any reason, simply return it for a full refund. No questions asked.

Quicken

\$49.95

I want to try Quicken on your no-risk 30-day guarantee. If I'm not completely satisfied, I may return it within 30 days for a full refund. Quicken for \$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 _____

☐ Macintosh version ☐ IBM version

☐ Apple II version ☐ DeskMate version

☐ 3 1/2" disk ☐ 5 1/4" disk

☐ Check enclosed (no purchase orders, please).

☐ Visa ☐ MasterCard ☐ Am Ex

Card Number _____

Expiration Date _____

Intuit

540 University Avenue
Palo Alto, California 94301

MU 0889

Programs Plus



Nisus by Paragon Concepts

With **Nisus**, word processing takes a dramatic new direction. Only **Nisus** has unlimited undos, graphics within text, recordable macros, Easy Grep, effortless indexing, editable page preview, on-screen line numbers, intelligent spell checking, plus all the search and replace power of QWED/M. And it's not just for super-users — **Nisus** needs only a Mac Plus or larger. **\$259.**

MODEMS

Abaton InterFax 12/48	325.	MacCompack (2400SA	
Anchor Automation		w/Microphone & Cable)	225.
MacPac 2400E w/software & cable	179.	Prometheus Promodem 2400M Ext.	
Best Data Products		(Software & Cable)	199.
SmartOne 2400/1200		Promodem 2400SE Int.	Special 199.
w/software & cable	Special 169.	Promodem 2400MII (II, IIX, IICX)	269.
CMS CMS 2400BMX	179.	Supra Corporation	
Hayes Microcomputing		Supra Modem 2400	149.
Smartmodem 1200	295.	U.S. Robotics	
Smartmodem 2400M w/smartcom II	499.	Couner 1200 (Hayes Compatible)	199.
Practical Peripherals		Couner 2400 (Hayes Compatible)	349.
Practical Modem Mini 1200SA	77.	Ven-tel	
Practical Modem 2400SA	179.	Mac2400E (Int. Mac II w/MS Works)	369.



Puzzle Gallery by Miles Computing

Puzzle Gallery: At the Carnival. The author of *The Fool's Errand* brings you 40 attractions stuffed with 180 challenging new puzzles, complete with 58 different digitized sounds and Mac II color. Can you survive Hazard Park? **\$32.**

NETWORKING SOFTWARE & HARDWARE

CE Software		Shiva NetModem V2400	479.
Quick Mail 1-10 users 2.0	259.	Net Serial X232	289.
Farrallon PhoneNET AppleTalk		Net Bridge or TeleBridge	349.
PhoneNET Din 8 or DB9	35.	TOPS	
Timbuktu	65.	Tops 2.1 Mac	Special 149.
TraficWatch	139.	Tops Dos or Net Print	119.
Timbuktu Remote	195.	Tops FlashBox	Special 125.
LaCie Silverserver	89.	Tops Repeater	129.
Magnus FileMagic	65.	Tops FlashCard	169.
Microsoft Microsoft Mail 1-4 users	195.	InBox-MacConnection	45.
Olduvai Software Clip Share	109.	InBox-Starter Kit	Special 149.
Font Sharer	149.	Tops Teleconnector Din8 or DB9	39.



GOfar by Microlytics, Inc.

GOfar is the ultimate desk accessory for finding hidden facts. Give **GOfar** a phrase, fact or date and send him looking through floppies, hard disks, ram disks and most networks. Search for up to eight items simultaneously. **GOfar** allows you to view, cut and paste. Multifinder and Hypercard compatible plus AND, OR, NOT and Nearby search criteria. **GOfar** a real find. **\$43.**

PRINTERS & DIGITIZERS

Digital Vision Computer Eyes-Mac	209.	LogiTech ScanMan	Special 349.
Koala Technologies Corp.		Seikosha SP1000 (Imagewriter comp.)	235.
MacVision 2.0 (Digitizer)	219.	Summagraphics Bit Pad Plus	325.
Mac Director	109.	ThunderWare ThunderScan	189.
Kurta IS ADB Tablet	255.	LightningScan	409.
Cordless 4 Button Cursor	65.	Mac II Power Accessory	42.



ProModem 2400SE by Prometheus

NEW! The ProModem 2400SE, an internal, 2400 baud modem for the Macintosh SE or SE/30. The 2400SE can be upgraded with MNP error correction and data compression. Includes modem and MACNOWLEDGE communications software. **\$199.**

EDUCATIONAL/CREATIVE SOFTWARE

Ars Nova Practica Musica 2.1	75.	Electronic Arts Mavis Beacon Typing	33.
Barron's Barron's SAT	35.	Deluxe Music Construction Set V2.5	84.
Bogas Productions		First Byte	
String Quartet, Country or Heavy Metal	14.	Dinosaur Discovery Kit, Puzzle	
Super Studio Session	69.	Storybook or Rhyming NoteBook	27.
Bright Star Technology		Great Wave Software KidsTime	26.
Alphabet Blocks	32.	Number Maze	27.
Talking Tiles	69.	Crystal Paint	27.
Broderbund		Individual Typing Instructor Encore	26.
Sensei Geometry, Calculus or Physics	59.	Learning Company Reader Rabbit	32.
Type!	20.	Mindscape Perfect Score SAT	
Where in the World is Carmen SanDiego?	27.	w/The Perfect College	46.
Where in the USA is Carmen SanDiego?	32.	Niles & Associates End Note	82.
Coda Mac Drums	31.	Nordic	
Perceive	51.	MacKids Educational Prog. (ea)	28.
Davidson & Associates		Simon & Schuster Typing Tutor IV	35.
Speed Reader II	36.	Springboard Top Honors	59.
Math Blaster or Word Attack!	27.	Family Matters or Atlas Explorer	28.



DiskFit 1.5 by SuperMac Software

Now there is no excuse for not protecting the information on your hard disk! Quickly and automatically, **DiskFit** performs an incremental back-up of your hard drive onto standard or high-density floppies, cartridges, tape or other hard drives. Allows you to select the type of files for back-up and finder-readable storage format lets you copy single files from the back-up media in the Finder. **\$53.**

BUSINESS SOFTWARE

Abacus Concepts StatView II (Mac+, SE, II w/68020 & 68881)	299.	Nolo Press WillMaker 3.0	32.
StatView SE+ Graphics	225.	For the Record	29.
A.E.C. FastTrack Schedule	Special 115.	Paracom Milo	159.
Ashton Tate Full Impact	249.	Power Up Fast Forms	89.
BrainPower ArchiText	175.	Pro Plus WallStreet Investor V3.0	469.
Chang Laboratories C.A.T.	Special 229.	Satori Software	
MacCalc	85.	Bulk Mailer 3.2	Special 78.
Claris MacProject II	379.	Bulk Mailer Plus	Special 189.
Smartform Designer	309.	Select Micro Systems, Inc.	
Individual 101 Macros For Excel	37.	Exstlatix	215.
Mainstay Capture	39.	MapMaker	215.
Mac Flow 3.0	125.	SoftView MacInUse	42.
Mac Schedule	115.	Form Set Business Forms	55.
Meta Software MetaDesign	199.	Synex Mac Envelope 4.10	Special 55.
Micro Planning International		Mac Invoice	29.
Micro Planner 6.0	325.	Systat	
Microsoft Microsoft Works 2.0	189.	Systat 3.2	
Microsoft Excel 1.5	255.	(Specify MacPlus, SE or Mac II)	459.
		Fastat	Special 165.

Overnight \$3



Simply Accounting by Bedford Software

Simply Accounting, for small to medium size businesses, is sophisticated enough to please CPA's but simple enough to allow accounting and computer neophytes the power of a full accounting program. Includes general ledger, accounts payable, accounts receivable, payroll (50 state and federal tax schedules built-in), inventory and jobcost. It received a 7.9 rating from Infoworld and four mice from MacUser. \$219.

DESK ACCESSORY PROGRAMS

Affinity Microsystems		Jam Software	
Tempo II	89.	Smart Alarms w/Appt. Diary	65.
Affinifile	45.	Multi-User Appt. Diary w/Smart Alarms	119.
Casady & Greene, Inc.		Mainstay Think'n Time	59.
QuickDex 1.4A	32.	Solutions, International	
CE Software DiskTop	32.	Super Glue	49.
Deneba Software		SmartScrap & The Clipper V2.0	46.
Comment 2.0	62.	Symmetry HyperDA (Req. 512K)	35.



MAC-101 Keyboard by DataDesk

Replace your Mac's keyboard with the **MAC-101** by DataDesk. The positive tactile, firm feel 101 includes a full numeric keypad, 15 function keys, 6 page control keys, and a T-style cursor pad. Includes 101-Keys desk accessory software, a powerful macro utility that allows you to exploit the full power of the function keys in almost any Mac application. Available in ADB and non-ADB versions. \$145.

SPELLING & GRAMMAR CHECKERS

Aegis Development		Microlytics, Inc.	
Doug Clapp's Word Tools 2nd Edition	42.	Word Finder (Synonym Finder)	33.
Deneba Software Big Thesaurus	62.	Electronic Word Finder	79.
Spelling Coach 3.0 Professional	119.	Sensible Software	
Electronic Arts Thunder! II	52.	Sensible Grammar or BookEnds	53.
Lundeen & Associates		Working Software	
WorksPlus Spell	46.	SpellsWell 2.0	45.



FileGuard by ASD Software

FileGuard is the automatic file protection program that provides a comprehensive solution to all your problems of security and confidentiality. This integrated software will enable the user to easily encrypt and decrypt documents for protection against unauthorized access. **FileGuard** is so transparent that it will not alter the habits of Macintosh users in any way. \$129.

UTILITY SOFTWARE

Abbott Systems, Inc. CanOpener	79.	MainStay AntiToxin or ClickPaste	65.
ALSoft Master Juggler	64.	Microlytics, Inc. GOfier	Special 43.
MultiDisk	49.	Microseeds INITPicker	29.
Disk Express	49.	Redux	55.
Font/DA Juggler Plus	42.	ScreenGems	45.
A.S.D. FileGuard	Special 129.	Olduvai Software Icon-It!	45.
Berkeley System Design		MultiClip	55.
Stepping Out II	52.	Read-It! O.C.R. Personal	109.
Beyond Inc. Menu Fonts 2	28.	Read-It! O.C.R. 2.0	245.
Central Point Software		PCPC HFS Back-Up 3.0	54.
Copy II Mac (Includes MacTools)	20.	SuperMac Software	
PC Tools Deluxe Mac	42.	SuperSpool 5.0	53.
CE Software		SuperLaserSpool 2.0	79.
QuickKeys (Macro Program)	69.	DiskFit 1.5	Special 53.
MockPackage Plus Utilities	32.	Sentinel 2.0	89.
Farallon Computing Screen Recorder	133.	Symantec MacSOZ!	52.
Fifth Generation Systems		Symantec Utilities for Mac (S.U.M.)	69.
Suitcase II	45.	Symantec AntiVirus for Mac (S.A.M.)	69.
FastBack II	119.	Williams & Macias	
Power Station	35.	DiskFinder	Special 27.
Pyro!	15.	myDiskLabeler w/Color	29.
HJC Virex	69.	myDiskLabeler	
Icom Simulations On Cue	35.	w/LaserWriter Option	Special 34.
Insight Development		StickyBusiness	Special 99.
MacPrint	Special 79.	XTree Company XTree	55.



ScanMan Hand-Held Scanner by Logitech

Add images up to 4" wide to your documents fast and easily with **ScanMan**. Set scanning resolution from 100-400 dpi. Handy desk accessory software for scanning and editing your images. \$349.

DATABASE MANAGEMENT

Acus 4th Dimension	Special 385.	Generation Four	
Activision		Multiuser Business	
Reports for Hypercard	69.	Administration Series (each)	115.
Focal Point & Business Class Bundle	49.	Microsoft Microsoft File 2.0	129.
Apple Computer		Odesta Double Helix II	339.
HyperCard	42.	DataDesk Professional	285.
Borland Reflex Plus	189.	GeoQuery	199.
Claris		Preferred Publishers	
FileMaker II	229.	DAtabase	75.
Fox Software FoxBase+	205.	ProVUE Panorama	205.
FoxBase+ Multi-User	315.	Software Discoveries	
FoxBase+ Runtime	155.	RecordHolderPlus	65.



Cutting Edge 800K Drive by Cutting Edge

The **Cutting Edge 800K** floppy disk drive takes advantage of the newest technology to offer high speed, low noise, high reliability in a compact, stylish case. The **Cutting Edge 800K** floppy drive is compatible with all new ROM Macs including the Mac SE and Mac II. The **Cutting Edge 800K** would make an attractive addition to many Macs. \$149.



FAX: 203/381-9043
Inquiries: 203/378-3662
Canada: 1/800/344-7753
75 RESEARCH DRIVE
STRATFORD, CT 06497
1/800/832-3201

Programs Plus



MacPlot by Micro Spot

If you work with CAD, desktop presentations or business graphics then using a plotter and **MacPlot** will add a whole new dimension to your work. **MacPlot** has made plotting as easy as using an ImageWriter or LaserWriter. Print directly from within any application using the 'page setup' and 'print' commands from the 'file' menu. Easy and user friendly, **MacPlot** now supports more software packages and more plotters than ever.

ACCOUNTING PACKAGES

Aatrix Software		Layered Insight One Write	125.
Aatrix TimeMinder	159.	At Once!	Special 295.
Aatrix Payroll Plus	159.	Insight Expert INV or	
Bedford Software		Time Billing	Special 409.
Simply Accounting	Special 219.	Insight Expert GL, AR, or AP	Special 409.
Chang Labs		MECA Managing Your Money	127.
Rags to Riches Gen. 3-Pak 3.1		Monogram	
(GL/AR/AP)	289.	Business Sense	Special 279.
Rags to Riches GL, AR, or AP	119.	Dollars & Sense 4.0	81.
Check Mark MultiLedger	259.	Peachtree	
Payroll	189.	Back To Basics Professional	
Cash Ledger	129.	(GL/AR/AP/INV)	159.
Dac Software		Satori Software Components GL	369.
Dac-Easy Light	42.	Survivor Software	
Intuit Quicken	32.	MacMoney 3.0 (Enhanced Ver.)	61.



atOnce! by Layered Inc.

atOnce! is the next generation in high-speed small business accounting. Included in one seamlessly integrated module are four full featured applications: General Ledger, Accounts Receivable w/Billing, Accounts Payable & Payroll. **\$295.**

COMMUNICATION SOFTWARE

Compuserve		Insigna SoftPC	249.
Compuserve Starter Kit	24.	Prometheus MacKNOWLEDGE	125.
Compuserve Navigator	45.	Software Ventures	
DataViz		Microphone II v3.0	Special 219.
MacLink Plus/Translator	115.	Solutions, International	
MacLink Plus with Cable	139.	BackFax	125.
Freesoft		Synergy Software VersaTerm	64.
Red Ryder V10.3	54.	VersaTerm-Pro	185.
Hayes Smartcom II 3.1	88.	Traveling Software LAP-LINK	82.



FASTAT by SYSTAT

FASTAT is a new statistics and graphics package for the Mac that is accurate and easy to use. Use it for graphics, tables, financial projections and surveys. **FASTAT** has more features and statistical routines than Mac stat packages costing over twice as much. Fast help, 3D scatterplots and surfaces, MacDraw-like tools, and color make **FASTAT** spectacular. ... **\$165.**

GRAPHICS SOFTWARE

3G Graphics		WetPaint: Various Vol. 1-18 (ea)	45.
Images w/Impact Graphics & Symbols	59.	Electronic Arts Studio 8 (MacII)	309.
Images w/Impact Business 1	65.	Studio 1	Special 99.
Adobe Systems Adobe Illustrator 88	299.	Enabling Technology Clip 3D (ea)	57.
Streamline	239.	Pro3D	285.
Adobe Collector's Ed. 2	139.	Foundation Publishing Comic People	23.
Newsletters	249.	Comic Strip Factory	39.
Forms & Schedules	299.	Generic Software Generic CADD	89.
Presentations	299.	Symbol Libraries:	Call
ITC Garamond (9)	125.	Graphsoft Mini Cad +	519.
Helvetica Condensed (14)	239.	Informix Wingz	269.
Stencil, Hobo, Brush (53)	95.	Innovative Data Design	
Life (83)	95.	Residential Construction	139.
Concord (84)	125.	Dreams	269.
Gothic 13/Tempo (85)	95.	MacDraft 1.2B	145.
Adobe Fonts (Various volumes)	Call	Letraset ImageStudio 1.5	275.
Aldus Freehand	349.	MacroMind MacroMind Director	449.



Studio/1 by Electronic Arts

With **Studio/1** you can generate incredible animation easily. Create an object, define a path, and **Studio/1** does the rest. Create spinning titles in seconds. Move and rotate objects in full 3D! It's as easy as pressing one button to record your strokes, another to play them back. Import your animation directly into Hypercard. With **Studio/1** and Hypercard, you have everything you need to master artful presentations. **\$99.**

Altsys Corp. Fontographer 2.2	229.	MathSoft MathCAD	309.
Fontastic Plus 2.0 or KeyMaster	52.	Micro: Maps MacAtlas Hyper Atlas	64.
Ashton Tate Full Paint	67.	MacAtlas Professional	
Broderbund Print Shop	35.	(PICT/MacDraw Version)	129.
Drawing Tables	75.	Microsoft Microsoft PowerPoint 2.1	255.
Casady & Greene Vivid Impressions	69.	Micro Spot MacInteriors	199.
Quill Pack (vol. 8 & 20)	105.	MacPlot Series:	Call
Headline Pack (vol. 10-12)	145.	Miles Computing	
Modern Pack (vol. 7, 14-18) or		Mac the Ripper or Orchestra of Fonts	32.
Distinctive Pack (vol. 8, 19-22)		People, Places-Things or Taking	
Classic Pack (vol. 3-6, & 13)	195.	Care of Business	32.
CE Software Calendar Maker	32.	NuEquation Nu Paint	95.
Claris MacPaint II	99.	Olduvai Software	
MacDraw II	309.	Art Clip or ArtFonts 1, 2 or 3	55.
Claris Cad	625.	Paracom Swivel 3D	289.
Cricket Software Cricket Draw	167.	Silicon Beach Software SuperCard	135.
Cricket Paint	95.	SuperPaint 2.0	129.
Pictograph	85.	Digital Darkroom	195.
Cricket Graph	115.	Super 3D 2.0	325.
Cricket Color Paint	179.	Solutions International	
Cricket Presents	289.	The Curator (Catalog Your Art)	75.
Deneba Software Canvas 2.0		Springboard Certificate Maker	24.
(Includes Desk Accessory)	175.	Springboard Publisher	109.
Dream Maker		SuperMac Software Pixel Paint 2.0	199.
MacGallery (Hypercard or Paint)	27.	Symmetry	
Clutures (vol. 1 or vol. 2)	89.	Picture Base & Wet Paint Bundle	85.
Dubl-Click Software World Class Fonts:		Synergy KaleidaGraph	119.
Various Vol. 1-8 (ea)	45.	T/Maker Christian Images	35.
World Class Lasertype:		Click Art EPS Illustrations	75.
Various Vol. 1-6 (ea)	45.	Zedcor DeskPaint 2.0	69.



MacEnvelope 4.0 by Synex

MacEnvelope with Postal bar coding for your ultimate envelope printing. Saves postage, speeds delivery. Create/save layouts. Keep address files. Import/Export. Bulk printing. Graphics, colors. Sort by Zip. Any fonts, styles and sizes. **\$55.**

Overnight \$3

Specials good through
August 31, 1989

Now Toll-Free
In Canada
1-800-344-7753

Monday thru Friday
9 a.m. - 9 p.m.
(Eastern Time)

Saturday
9 a.m. - 6 p.m.
(Eastern Time)



TOPS 2.1/InBox/FlashBox by TOPS

With **TOPS (\$149)** you can transform any Mac with at least 512K of memory into a TOPS Network station. **InBox (\$149)** enables users to send and receive messages, memos, and files over a TOPS Network. With **FlashBox (\$125)** you can speed up your AppleTalk network and allow your Mac to communicate at the Flash talk speed of 770K bits per second.

HYPERMEDIA & LANGUAGES

Beacon Technology		Smethers & Barnes	
HyperBible King James	Special 159.	Prototyp	129.
HyperBible International	Special 195.	Symantec Lightspeed C	165.
Borland Turbo Pascal	68.	Lightspeed Pascal	95.
Bright Star Technology		Just Enough Pascal	49.
Hyper Animator	109.	TENpointO FocalPoint II	119.
Consulair		Trendware Corporation Stack Cleaner	29.
Mac 68000 Dev. System	57.	HyperTools 1 or 2	58.
Hyper Press Script Expert	49.	T.M.L.	
Manx Aztec C	65.	TML Pascal II V3.0	115.
Aztec C + SDB	99.	TML Source Code Library II	42.
Aztec C + MPW	99.	Zedcore	
Microsoft Quick Basic	69.	ZBasic 5.0	99.



Insight Expert Accounting Series by Layered Inc.

A series of stand-alone or fully integrated accounting modules for general ledger, accounts receivable w/billing, accounts payable, payroll, inventory control and time billing which gives you answers, advice and analysis. Now includes *Data Import!* **\$409.**

WORD PROCESSORS & DESKTOP PUBLISHING

Access Technology Mind Write 2.0	95.	Letra Studio	289.
Mind Write Express	135.	LetraFonts (Various Vol. 1-45 ea.)	65.
Aegis Showcase F/X	199.	Microsoft	
Allan Bonadio Associates		Microsoft Word 4.0	255.
Expressionist 2.0	79.	Paragon Concepts Nisus	Special 259.
Aldus Corporation		Preferred Publishers	
Aldus Persuasion	385.	Vantage	59.
PageMaker 3.0	389.	Quark, Inc.	
Ashton Tate		QuarkXPress V2.0	499.
FullWrite Professional	265.	QuarkStyle	189.
Broderbund DTP Advisor	47.	Symantec More II	255.
Caere Omnipage	559.	Symmetry Acta Advantage	65.
Claris MacWrite II	185.	T/Maker Company	
Design Science		WriteNow V2.0	109.
Math Type 2.0	99.	U.S. MicroLabs Font Sizer	79.
Emerald City Smart Art	95.	Word Perfect Corporation	
Letraset		Word Perfect	179.
Design Studio 1	459.	Working Software	
Ready, Set, Go! 4.5	275.	QuickLetter	75.



StickyBusiness/DiskFinder/myDiskLabeler by W&M

StickyBusiness (\$99) solves your business labeling problems! It's the best general purpose labeling program on the market. Comprehensive text, graphics and merge capabilities plus pre-formatted templates for all popular labels, cards and tags. **myDiskLabeler (\$34)** labels disks to keep you organized. **DiskFinder (\$27)** is the desk accessory that instantly locates files on mounted or unmounted disks.

BLANK MEDIA

Single Sided 3 1/2" Diskettes		Centech 3 1/2" DS/DD Color Disks (10)	19.
Bulk (Sony) 3 1/2" SS/DD Disks (10)	14.	Sony 3 1/2" DS/DD Disks (box of 10)	16.
Sony 3 1/2" SS/DD Disks (box of 10)	16.	Fuji 3 1/2" DS/DD Disks (box of 10)	17.
Double Sided 3 1/2" Diskettes		Maxell 3 1/2" DS/DD Disks (box of 10)	17.
BASF 3 1/2" DS/DD (box of 10)	17.	Verbatim 3 1/2" DS/DD Disks (box of 10)	17.
Bulk (Sony) 3 1/2" DS/DD (10)	17.	3M 3 1/2" DS/DD Disks (box of 10)	20.



HyperBible by Beacon Technology

HyperBible makes Bible study easy and fun! Features include: 100,000+ marginal note entries which categorize verses into almost 5,000 topics, studies of each book, studies of all the major characters, archeology articles, an electronic Bible Atlas, pronunciation of proper names. HyperCard based system. King James Version (**\$159**), New International Version (**\$195**).



4th Dimension by Acius

4th Dimension is the standard in Macintosh databases. It is easy enough for beginners, yet powerful for high-end users. **4th Dimension** will be up to 100 times faster! The need for programming is almost eliminated! All registered owners of Version 1.0 will get a free upgrade to Version 2.0! Buy now because Version 2.0 will be going up in price. **\$385.**



FAX: 203/381-9043
Inquiries: 203/378-3662
Canada: 1/800/344-7753
75 RESEARCH DRIVE
STRATFORD, CT 06497
1/800/832-3201

Please circle 62 on reader service card.

Positively A Plus



Bulk Mailer & Bulk Mailer Plus by Satori Software

Bulk Mailer (\$78) and **Bulk Mailer Plus (\$189)** can run circles around any simple database mailing program. Both powerful mail list management systems have the ability to print labels for up to 90,000 names per list. Each program contains duplication elimination, various sorting capabilities, ability to utilize all of the fonts and styles available with your system, mail merge and envelope printing, and more.



Flipper 44 & Integra HDs by Dolphin Systems

Dolphin Subsystems are truly the intelligent choice for Macintosh mass storage. Choose from fast **Integra** hard disks 20-80mb or **Flipper 44 (\$1139)** which offers unlimited storage with 44mb removable 25ms hard disk cartridges.

ACCESSORIES

Cutting Edge		Printer Muttler 80	43.
Cutting Edge MCK-105QK		System Saver Mac	
Keyboard w/Quickkeys	145.	(Beige or Platinum)	64.
DataDesk		Space Saver Printer Stand	17.
MAC-101 Keyboard/Beige		Super Base	34.
(128k/512k & MacPlus)	Special 145.	System Saver SE	52.
MAC-101 ADB Keyboard/Platinum		Masterpiece Mac II	105.
(Mac SE & Mac II)	Special 145.	New Turbo Mouse (Reg. or ADB)	119.
Ergotron		Universal Copy Stand	22.
Mousecleaner 360°	15.	Universal Printer Stand	15.
MacTilt (Mac, SE or II)	68.	Lynx Computer	
Muzzle	62.	Turbo Trackball (Mac & Mac+ or	
Farallon		Mac SE & Mac II)	65.
MacRecorder Sound System		Mobius	
(Mac SE or Mac II)	135.	Fanny Mac QT	
Goldstein & Blair		(Beige or Platinum)	60.
Macintosh Bible 2nd ed.	20.	Mouse Systems	
Impulse		A+ Mouse (MacPlus)	65.
Audio Digitizer w/soundware	139.	A+ ADB Mouse	
I/O Design		(Mac SE/Mac II)	85.
Mac Luggage in Navy or Plat.		Moustrak	
Macinware Plus Carrying Case	64.	MousePad 7" x 9" Size	8.
Macinware SE Carrying Case	75.	MousePad 9" x 11" Size	9.
Imageware II Carrying Case	49.	Orange Micro	
HDware (Hard Disk Case)	49.	Grappler Spooler	39.
Kalmar Designs		Grappler C/Mac/GS or Alphabits	79.
Teakwood Roll-Top Disk Cases:		Grappler L/Q or Grappler L/S	103.
Micro Cabinet (holds 45 disks)		Ribbons	
Double Micro Cabinet	14.	Available in Black, Blue, Brown,	
(holds 90 disks)	21.	Green, Orange, Purple, Red,	
Triple Micro Cabinet		Yellow, Silver & Gold	
(holds 135 disks)	31.	ImageWriter Ribbon	4.
Kensington		ImageWriter Black 6-pack	20.
Mouseway (Mousepad)	8.	ImageWriter Rainbow Pack	
ImageWriter or ImageWriter II Cover	9.	(6 Colors)	20.
Macintosh Plus/SE Dust Cover	9.	ImageWriter II-Four Color Ribbon	9.
Apple Security Kit	34.	ImageWriter LQ Black	17.
Antiglare Polarizing Filter	33.	ImageWriter LQ Four Color	20.
Mac II Stand and Cable Kit	65.	Seikosha Ribbon Black	6.
Mac II Monitor Stand	65.	Targus	
Power Tree Surge Suppressors		Imagewriter II Carry Case Bk.	49.
(10, 20, or 50)	Call	Macintosh Plus Carry Case Bk.	59.
Printer Muttler Stand (80 & 132)	24.	Deluxe MacPlus-XKB Bk.	75.

Visit Us In The Electronic Mall™ On CompuServe - GO **PP** PROGRAMS I U S



FastTrack Schedule 1.02 by A.E.C.

Create and update Gantt chart schedules quickly and easily! Draw bars on screen, using your unlimited library of bar types; add graphics and wrap-around text blocks; imports and exports activities, you're in charge! **\$115.**

OUR POLICY

- ★ VISA and MASTERCARD accepted. No 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.
- ★ All shipments insured; no additional charge.
- ★ Upon receipt and approval, personal and company checks now clear the same day for immediate shipment.
- ★ No sales tax except orders shipped within CT, add 7.5% tax.
- ★ COD maximum \$1000, cash or certified check.
- ★ 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. Prices subject to change without notice. All items subject to availability.
- ★ Call us anytime Monday thru Friday 9:00 to 9:00 Eastern Time, or Saturday 9:00 to 6:00 Eastern Time. You can call our business offices Monday thru Friday 9:00 to 5:30 Eastern Time at (203)375-3560.
- ★ Purchase Orders accepted at our discretion, for more information call (203)378-1926, 9:00 to 5:30 Eastern Time.

SHIPPING

- ★ **Continental U.S.:** Add \$3.00 per order to cover Airborne Express Overnight, unless UPS ground delivers next day. Some areas require an additional day.
- ★ All (instock items) ordered by 6:00PM Eastern Time Monday thru Friday will ship that evening. Barring computer failures or other catastrophes.
- ★ **Alaska, Hawaii, outside Continental U.S., APO and FPO;** call (203)378-3662 or write for shipping information.
- ★ Mail-in orders (especially from foreign countries), please furnish telephone or fax number.



Business Sense by Monogram

Business Sense is serious business software for the small to medium size business. It's easy to use and hard to outgrow. General Ledger, Accounts Receivable, Accounts Payable, Payroll, Invoicing and Budgeting functions are fully integrated in one powerful package. All this power is easy to use. If your business has what it takes, **Business Sense** from Monogram can take you all the way. **\$279.**

Overnight \$3



MacPrint 1.1 by Insight Development

Introducing **MacPrint 1.1**, an easy-to-use software package that lets you use virtually any Mac application on alternative printers. Including HP LaserJet+, series II, IID and compatibles and the HP DeskJet and DeskJet Plus. Use **MacPrint 1.1** for true WYSIWYG performance. Four Compugraphic font families are included with point sizes from 9 to 96. Completely transparent after installation. **\$79.**

DISK DRIVES/HARD DISKS/UPGRADES

1 Meg SIMMS	Call	MacSnap 548 (512K to 2MB)	459.
CMS		MacSnap 548E (512E to 2MB)	549.
SD Ser. MacStack SD20 (Mac+/SE/II)	555.	MacSnap 548S	
SD Ser. MacStack SD30 (Mac+/SE/II)	595.	(512E to 2MB w/SCSI)	589.
SD Ser. MacStack SD43 (Mac+/SE/II)	785.	MacSnap Plus 2 (MacPlus to 2MB Non Expandable)	439.
Cutting Edge		MacSnap 2SE or 1024 Option (1MB or MacII Memory Exp.)	439.
Cutting Edge 800k Drive	Special 149.	SCSI Interface/Port	109.
Cutting Edge Wedge XL 30 Plus SCSI Hard Drive	539.	Everex	
Cutting Edge Wedge XL 45 Plus SCSI Hard Drive	669.	EMAC-40IMP Plus	789.
Dolphin Systems		EMAC-60IMP	869.
Flipper 44	Special 1139.	Mobius Technologies	
Integra Series 20-80	Special Call	MultiScreen Video Card	349.



MicroPhone II V3.0 by Software Ventures

This stunning new version of the top telecom software for the Mac offers the most comprehensive collection of file transfer protocols including ZMODEM; unmatched power in scripting; color, sound and support for XCMDs and XFCNs. **\$219.**

Dove Computer		Personal Computer Peripherals	
FastNet Networking	Call	Platinum Color	
Marathon 030 Accelerator	999.	Optional Built-In Modems	
Marathon 020 Accelerator		MacBottom HD-45	
MSE 1 (16 Mhz)	585.	(45MB SCSI Hard Disk)	789.
MSE 2 (16 Mhz w/1MB)	979.	MacBottom HD-70	
MSE 3 (16 Mhz w/Math Co-processor)	779.	(70MB SCSI Hard Disk)	999.
MSE 4 (16 Mhz w/1MB & Math Chip)	1159.	MacBottom HD 84	
MacSnap 524E (512E to 1MB)	289.	(84 MB SCSI Hard Disk)	1249.
MacSnap 524S (512E to 1MB w/SCSI)	379.	Video Technology	
		Laser 800k External Drive	185.

C•A•T by Chang Labs

C•A•T lets you organize and keep track of the Contacts, Activities, and Time that are crucial to the effective operation of your business. **C•A•T** features data sharing within work groups, twelve changeable sorting categories, versatile custom report formatting and import/export capabilities for a wide array of Macintosh programs. **C•A•T** eliminates clerical drudgery with mailmerge, labelling and calendar functions. **\$229.**



ENTERTAINMENT SOFTWARE

Access		Infocom	
World Class Leader Board Golf	28.	Leather Goddesses of Phobos	15.
Accolade		Beyond Zork or Hitchhiker's Guide	15.
Hard Ball or Mean 18	27.	Zork Trilogy or QuaterStaff	30.
4th & Inches	27.	Zork Zero	36.
Activision		MicroPro Pirates	32.
Universal Military Simulator or Manhole	30.	Microsoft Flight Simulator 1.02	32.
Might and Magic	36.	Miles Computing Inc.	
Broderbund		Harrier Strike Mission II or	
Ancient Art of War or At Sea	27.	The Fool's Errand	32.
ShufflePuck Cafe	24.	Puzzle Gallery	Special 32.
SimCity	27.	Mindscape	
Bullseye Software		Balance of Power 1990 or	
P51 Mustang or Ferrari Grand Prix	32.	Crossword Magic	30.
Casady & Greene, Inc.		Deja Vu or Deja Vu II	30.
Crystal Quest	26.	King Of Chicago, Shadowgate or	
Crystal Quest w/Critter Editor	42.	Joker Poker	30.
Centron		Defender of the Crown, Colony	
Crapsmaster, Roulette Master		or The Uninvited	30.
or BlackJack Ace	27.	Practical Computer Applications	
Pokemaster or Baccaratmaster	27.	MacGolf	35.
Casino Master	49.	Lunar Rescue	35.
Casino Master (Mac II)	55.	MacCourses	29.



Go Master & Joseki Tutor by Toyogo, Inc.

Go: the oriental strategic board game. **Go Master (\$49)**: world's strongest playing program, "one of the most extraordinary automated aids to Go instruction developed" (MacWorld June '89). **Joseki Tutor (\$30)**: advanced corner-opening study.

Data East Super Hang On	27.	Road Racer	39.
Discovery Software		Mac Golf Classics	54.
Arkanoïd	27.	Primera Smash Hit Racquetball II	19.
Electronic Arts		Sierra On-Line Leisure Suit Larry	23.
ChessMaster 2100 or		Space Quest or Space Quest II	29.
Hunt for Red October	32.	Police Quest	29.
Chuck Yeager Flight Simulator		Silicon Beach Software	
or Life & Death	32.	Dark Castle or Apache Strike	32.
Starfleet I	37.	Beyond Dark Castle	32.
One-On-One, Pinball Construction Set,		Sir-Tech Mac Wizardry	35.
Seven Cities of Gold, SkyFox, or		SoftStream, Inc. Colour Billiards	35.
Patton vs Rommel	15.	Mac Man or Solitaire DA	23.
EPYX		Sphere, Inc. Tetris	20.
Sub Battle Simulator (Mac or MacII)	29.	GATO, Orbiter or Pt-109	26.
Hayden Software		Solitaire Royale	20.
Sargon IV	29.	Falcon 2.0	32.
Hyper Press Silver Screen	42.	SubLogic Jet	32.
Infinity Software, LTD.		Toyogo, Inc. Go Master	49.
Go or GrandSlam Tennis	25.	Joseki Tutor	30.



Smart One 2400XMAC by Best Data Products

The **Smart One 2400XMAC** — a complete package for the Mac. Includes free communication software, free cable assembly, free access to Compuserve and Connect Professional Information Network. 100% Hayes compatible. Two year warranty. **\$169.**



FAX: 203/381-9043
Inquiries: 203/378-3662
Canada: 1/800/344-7753
75 RESEARCH DRIVE
STRATFORD, CT 06497
1/800/832-3201

Apple can't touch this.



But you can.

"Clearly in a class by itself."

That's how *MACazine* 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

But MAC-101 can find them a real job. By using our *MasterStrokes* enhancement software to assign them dozens of mouse or keyboard commands.

Even functions that would otherwise need numerous keystrokes—

"Superb."

That's how *PC Magazine* 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 \$195—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.

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.

The only one Aldus® recommends for *PageMaker*®.

The only one Ashton-Tate™ recommends for *FullWrite*™ Professional.

And the only one Letraset recommends for *Ready, Set, Go!*™

Function is as function does.

Since the function keys on an Apple® Extended Keyboard don't relate to most Macintosh software, their only real function is to take up space.

or mousestrokes—can now be assigned to just one key.

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 tactile, positive-response keys.

Please circle 138 on reader service card.



Ours is the only keyboard that's recommended by their publishers for *Ready, Set, Go!*, *Word 3*, *FullWrite Professional* and *PageMaker*.



DATADESK

7651 Haskell Ave., Van Nuys, CA 91406 • (818) 780-1673
FAX (818) 780-7307

All individual trademarks and copyrights are acknowledged.

Mr. Sculley is fond of pointing out that this is the Age of Information. In this, as in his concern for the fate of the Amazon Rain Forest, Sculley is probably right. (Remember, you read it here first.) If you quibble with that characterization, just take a look at the recent-nonfiction table at your local bookstore. Every other title seems to include *information* — how to get it, what to do with it, how to keep it, why you want it. The Whole Earth people have come out with *Signal: Communication Tools for the Information Age* (edited by Kevin Kelly), and there's even a book called *Information Anxiety* (by Richard Saul Wurman).

Of course, Sculley is not the only person to belabor this point, nor is he the first or last. (I would like to be the last, but that's a faint hope at best.)



When this claim comes up at an Apple press event, the audience just nods — some in agreement, some in their sleep. Those of us who attend such things have heard it so often that we don't really bother to think about it. We should.

What exactly do we mean by "The Age of Information"? Well, children, the answer to that lies in the dim and misty past of the computer industry. The full implications of the answer lie somewhere in our future.

It's not as if somewhere early in the late 20th century there was an information explosion, and suddenly there was more information. Ultimately, the amount of information is constant; there's everything there is to know and there's what we've managed to uncover of it. The most radical change is in how we access information, rather than in the size of the database.

Which brings up interesting questions about the means of access and often-uncomfortable questions about who has that access. If access is limited only to those who "know" computers, we have a particularly insidious form of elitism. And elitism is no better just because you expect to be a member of the elite. Almost before computers first arrived, in all their behemoth glory, and pundits were predicting that personal computers were a chimerical pipe dream, people were already touting their virtues as information machines. In fact, there were two main attitudes toward computers from the beginning. They were going to usher us into a genuine brave new world of technological advances and universal social benefits and advancement. They were also going to put a lot of people out of work.

The plain facts of the matter are that we've seen very little of

the first, while the truth of the latter has been forced on a significant number of people. I started out working on newspapers in the southern United States that were still using what we called hot type. Large ingots of lead were melted down and fed into typesetting machines; one man, one machine. Shortly afterwards, punch tape came into play; one man, many machines. Then came "cold type," what we use today and call repro. No one was needed on the typesetting machines; it was a whole new ball game, requiring new skills and training. You'd be very hard-pressed indeed to convince those typesetters that computers benefitted society.

But in order to realize the social-benefit potential of computers, that's exactly what we have to accomplish: convince just about everyone that there's a solid, legitimate reason for putting up with the short-term difficulties of making computers a func-

The Soul of a New Society

tional part of everyone's life.

The early predictions about the benefits of computers sounded as if the age of science fiction were upon us; there would be computers in public places such as post offices, banks, and the like. We'd all have instant and painless access to any information we might need. Just pop around the corner and get a printout of the local newspaper or latest Congressional Record (annotated) (cleanly), check our bank balances, and so on.

Anyone who remembers the earliest computers can immediately see the basic flaw in these expectations: Easy, painless computer use was just not in the cards. Clearly, a version of the graphical user interface (GUI) was, if not required, devoutly to be wished for. Something was needed to make computer access easier and more intuitive for those who didn't live, eat, and breathe computers for a living. Then along came the Mac, to date the best and most widespread example of a GUI.

The Macintosh is, in fact, in a unique position — at least until the NeXT machine actually shows up in stores and someone comes up with a floppy drive for it. No matter how accessible and easy to use it is, however, even the icon-driven Mac has some basic, inescapable requirements: electricity and literacy are bottom-line. (I grew up off and on in a small

CONTROL PANEL

How we access information — not the size of the database — is what's really changing.



BY LOUISE KOHL

GOOD NEWS FOR SUITCASE USERS



HOW TO JUGGLE THE MOST FONTS FOR THE LEAST MONEY

ALSoft's NEW MasterJuggler 1.5 gives you amazing resource handling power with unprecedented access to an unlimited number of fonts, DA's, F-Keys and sounds. ■ Now, you can open up to 120 resource files instantly—that's 20% more files than with Fifth Generation's Suitcase™. ■ MasterJuggler 1.5 also has FontDirector™, the remarkable new feature which automatically eliminates all font NFNT numbering conflicts without resorting to utilities which modify your fonts. Suitcase can't even touch that. Not at any price. ■ Plus, only ALSoft's new MasterJuggler 1.5 lets you handily open applications or documents and switch between multiple applications from within any application. But just because you have Suitcase, doesn't mean you have to be stuck holding the bag.

HOW TO GET THE NEW MASTERJUGGLER 1.5 PACKAGE

IF YOU NOW OWN ANY VERSION OF:	SEND TO ALSOFT	LIMIT
	PROOF COST S&H	1 PER
Suitcase	Photocopy + \$25.00 + \$3.00	Customer
Font/DA Juggler Plus	of manual + \$25.00 + \$3.00	Customer
MasterJuggler	cover + \$25.00 + \$3.00	Customer
First time buyer	— \$89.95 + \$3.00	Unlimited
1.5 Update Only*	Registered \$10.00 + \$3.00	Registered

Whether you're in a large network, or you're one person juggling hot projects with a Mac and a mouse, the new MasterJuggler 1.5 will make a big difference.

ALSoft, Inc.
P.O. Box 927, Spring, TX 77383-0927
713/353-4090

ALSoft

Please circle 71 on reader service card.

CONTROL

paper-mill town in the Blue Ridge Mountains — sort of a suburb of Appalachia. Not far from where I lived, neither of these was in great supply.)

The realization of the full potential of computers is not simply a matter of better interfaces and CPUs; it's not even a matter of more-intelligent and more-global networks. It is a matter of education and social responsibility. The "Macintosh community" is not some specially blessed alternative world to society as a whole. All of

The line between the Mac and DOS worlds is an imaginary one, like national boundaries on the map.

us who make up the Mac community and the computer industry are first members of society. So if your answer is that "it's society's (or the government's) job," it might be time to realize that society — and the government — is just us, just people, not some separate magical entity.

Although it may make some (but not much) sense to ghettoize ourselves as the Mac community, separate from the DOS world, this is an arbitrary and imaginary division, like national boundaries on the map. Actually we are all card-carrying members of a nonexclusive group: Homo sapiens. And a certain responsibility comes with the job description.

We can take pride in being members of the Macintosh Revolution, as we take pride in being members of, say, the Democratic party or the National Honor Society or the Software Publishers Association. No more, no less. And this pride cannot replace responsibility to the greater community out there. We've been living with the dream and experiencing the reality for a long time now; it's time to bring them together and make the dream reality. ✎



MasterJuggler™
Resource Optimizer
\$89.95

DiskExpress™
Disk Optimizing
\$69.95

MultiDisk™
Disk Partitioning
\$69.95

Offer valid through 9/31/89
First time buyers and Registered
ALSoft owners can order by phone
for credit card purchases.

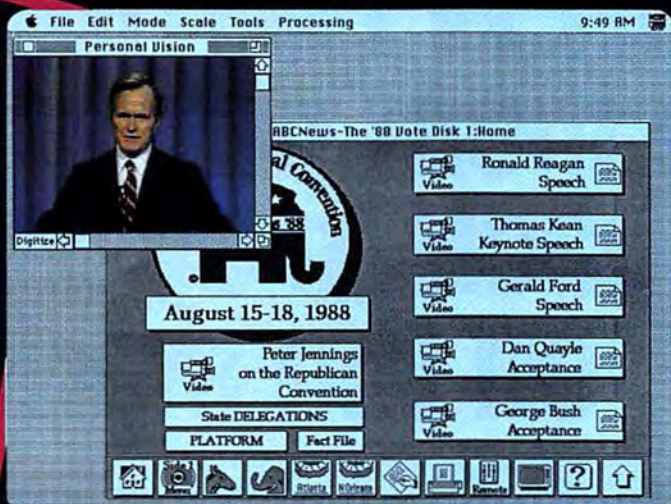
* Registered MasterJuggler
owners can update their earlier
versions to Version 1.5.

ALSoft, MasterJuggler, DiskExpress
and MultiDisk are trademarks of
ALSoft, Inc. All other trademarks
acknowledged. © 1989 ALSoft, Inc.
all rights reserved.

Live color images can be displayed, captured, and enhanced from any video source including camcorders, VCRs and laser disks.

Personal Vision™

DESKTOP VIDEO PRESENTATIONS



Imagine importing live video from a variety of sources directly into a window on your Macintosh II. Personal Vision™, the new video digitizer card also known as PV™, integrates video with the text and graphics of your favorite desktop publishing or presentation program. The "film clip" can also be interactive video managed through an expanded HyperCard™ or SuperCard™ stack.

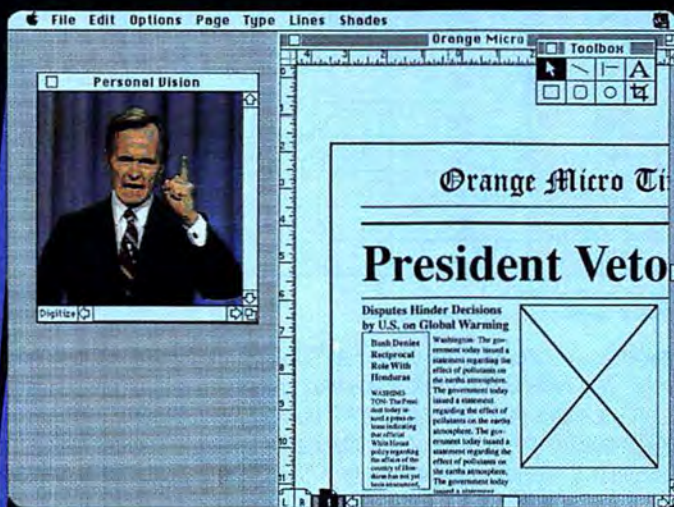
No longer limited by two dimensional computer graphics, PV brings vision to your presentations. For publishing applications, you can run PV in a window under MultiFinder™ and capture an image from your video source, digitize it, save it in any of eight standard file formats, or copy and paste it directly into PageMaker™, PowerPoint™ or your favorite program.

Typical applications for PV include: Multimedia training and education, security and personnel, video databases, desktop presentations and publishing, computerized video catalogs, and entertainment.

DEVELOPERS: "Inside Personal Vision" developer tools are available now. Built-in hooks, documentation and examples will let you access Personal Vision video directly from within your programs. Call today for more information.

Personal Vision™

FRAME GRABBING FOR DESKTOP PUBLISHING



The '88 Vote is a product of ABC News Interactive™, available from Optical Data Corp. Images were produced using Lasergraphics™ LFR™ film recorder. Personal Vision and PV Apple, Macintosh, Mac, HyperCard and MultiFinder, PageMaker, SuperCard, and PowerPoint are trademarks or registered trademarks of Orange Micro, Inc., Apple Computer, Inc., Aldus Corporation, Silicon Beach, Inc., and Microsoft Corporation, respectively.

Personal Vision™

Please circle 155 on reader service card.

Send now for your free
Introduction to Macintosh Video

Please send my copy of Introduction to Macintosh Video.

Name _____ City _____
Company _____ State _____ Zip _____
Address _____



© Orange Micro, Inc., 1989



1400 N. Lakeview Ave., Anaheim, CA 92807
(800) 223-8029, In CA (714) 779-2772

We couldn't claim that **NEW FASTBACK II** is the most powerful backup system on the market ...unless we had some powerful data to back it up.

Feature	FASTBACK II	DiskFit 1.5	Redux 1.5	HD Backup
Back up to any HFS device	YES	*	*	NO
Data compression	YES	NO	NO	NO
Auto-formats without time lapse	YES	NO	NO	NO
Restores backups from PC	YES	NO	NO	NO
Built-in macro	YES	NO	NO	NO
Scheduled macros	YES	NO	NO	NO
Multiple setup files	YES	NO	#	NO
Prints labels (ImageWriter & LaserWriter)	YES	NO	NO	NO
Speed: 1 mg/min Mac SE	1 min.	6 min.	3.75 min.	5 min.

* Most require a separate driver.

Allowed to save preferences, not multiple setup files.



And these are merely a few of the many exclusive features that make new **FASTBACK II** the fastest, easiest and most powerful backup software for the Mac you can buy. Only **FASTBACK II** gives you data compression and compatibility with virtually any HFS device. And you'll have data security features that assure the safest backup you can make. You'll have maximum file selection flexibility with powerful backup and restore options so you can easily tailor the process to your own particular needs. In short, you'll finally have a system that ensures regular backup. **FASTBACK II**. Specifically created for the Mac, and designed to fit smoothly into your corporate computing environment.

And a powerful \$40 exchange offer.

Save about \$149! Just send this coupon and the original title page of all your current backup manuals with payment of \$40* per copy, and we'll send you new **FASTBACK II**. Current users of Fastback can upgrade for only \$35.* This limited offer is subject to change and expires Oct. 31, 1989.

Number of **FASTBACK II** copies _____ Form of payment: ☐ Check ☐ Money Order ☐ VISA ☐ M/C ☐ Amex.

Signature _____ Check # _____ Amount enclosed* _____

Credit card # _____ Exp. date _____

Name _____ Title _____

Company _____ Phone _____

Address _____

City _____ State _____ Zip _____

Mail to: Fifth Generation Systems, Inc. • Fastback II Exchange/Upgrade Offer

11200 Industriplex Blvd. • Baton Rouge, LA 70809

*Residents of CA, NY, LA, TX must include applicable tax.

MU

Call about our
\$40 exchange offer.
1-800-873-4384

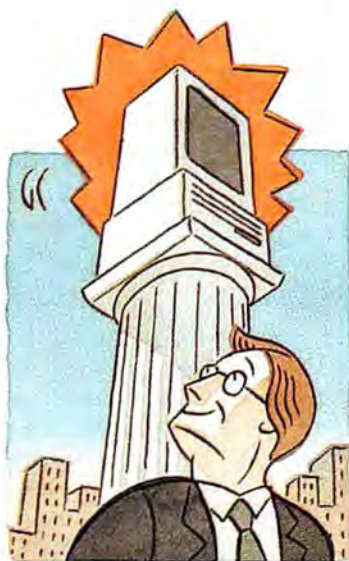


FIFTH GENERATION SYSTEMS

11200 Industriplex Blvd.
Baton Rouge, LA 70809
504-291-7221

DiskFit is a trademark of SuperMac Technology.
Redux is a trademark of Microseeds Publishing.
Macintosh, Mac, HD Backup, ImageWriter and LaserWriter are trademarks of Apple Computer, Inc.
This product is in no way associated with or has origination in Fisher Scientific or Allied Corporation.

Please circle 164 on reader service card.



Getting It Right

Know how sometimes something just feels right? A good mountain bike, maybe; or a favorite fountain pen; or a jacket that fits perfectly when you try it on? Or maybe a software program that follows the Mac interface so perfectly that you really did know how to run it the minute you booted it, and you still haven't cracked the manual?

Computers can be like that — once in a very great while.

The best example for me of the just-right computer — and the *only* example until recently — is Toshiba's T3100, a powerful MS-DOS laptop that appeared about three years ago. That was when the now-creaky Intel 80286 chip was riding high and IBM's PC AT was King of the Hill in the DOS world.

PC ATs, of course, are very much desktop computers — about the size of Mac IIs but heavier and clumsier. Only Paul Bunyan would try putting one on his lap, much less toting it around. But for their time they seemed very powerful, so we put up with their size and weight, and when we left the office we used something feeble, such as the Radio Shack Model 100 or Toshiba's early, klutzy T1100.

Then came the T3100. It was small — it fit into an attache case, though it also *filled* that attache case — and black and sleek. It had a dazzling, wiry-sharp electroluminescent display that made me forget about color. It had an internal hard disk. An internal modem. A great keyboard.

From the minute I saw the machine, I loved it. From the minute I worked with it, I knew I wanted one. And from the minute I got one — a month later — I began traveling with it. It now has about 500,000 miles on it, and I use it still.

It was the first personal computer that was absolutely *right*.

Why am I rhapsodizing about a three-year-old DOS computer? Because that quality of *rightness* is so rare in comput-

ing — and because I've found the second just-right computer I've ever worked with.

I'm talking about

Apple's new Mac IIcx — the tiny powerhouse that Apple's betting will quickly become its hot seller. Don't bet the other way, friends, unless you get very good odds. Get your hands on it, and you'll understand.

This time around, Apple designed not only a computer for Mac buffs but also one very close to what the corporate market wants. Talk to corporate PC users and buyers about what would make the Mac more than a distant second or third corporate standard, and they'll describe a machine much like the IIcx.

The Mac IIcx has more potential to be a breakout machine for Apple than even the original Mac II. The latter showed that Apple could slug it out, head-to-head, with the muscle machines of the DOS world. The IIcx shows that Apple has learned to fit that raw power into the world of the office.

Three years ago, Apple had four basic machines under devel-

opment, in the loosest sense of the term: the FatMac, the ColorMac, the FlatMac, and the TallMac. The first two were combined into what became the Mac II: a power-user machine with color. The laptop-portable FlatMac should show up by the end of the year. The TallMac was going to be the killer machine in the office. It was going to break through the biggest human-factors problem of the original Mac: the tiny, squarish screen.

You and I raved about the high resolution, easy-on-the-eyes phosphor and lack of flicker of the original Mac's display. And we liked the tiny footprint of the machine. But in business, that display was too small for many people. The huge success of larger-screen monitors, and especially portrait-format monitors, confirms that not everyone uses them for desktop publishing.

The tiny footprint, as charming as it was, also worked against getting the Mac into businesses. It was just *too* small and thus too hard to take seriously.

The Mac IIcx, with its Macintosh Portrait Display, solves both problems perfectly. The Motorola '030 chip in the box gives performance a real boost. And rather than being a limitation, the three-

MAINSTREAM **M** MAC

The IIcx is the best office computer I've ever used — Apple even got the little things right.



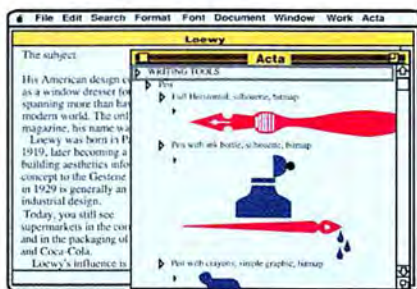
BY JIM SEYMOUR

For jotting, sorting, listing, planning or just outlining your success

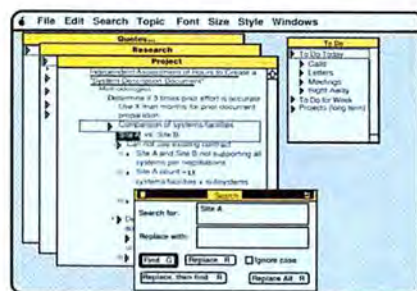
MAINSTREAM



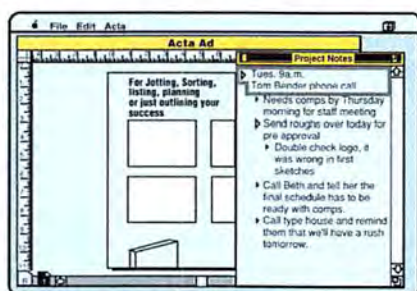
Enter words or pictures as mother-daughter topics. Drag to rearrange.



Use the desk accessory any time or work in the application (they use the same files.)



Sort, find/replace, mix fonts within topics, page breaks, page preview, print to disk, save as various formats.



Highly recommended for preliminary writing, presentation planning, agendas, simple databases, any type of organizing.



Thinking, planning, organizing...success is built one step at a time. For any endeavor, your best first step is the simple outlining method of Acta Advantage. Macworld editors named Acta their "favorite desk accessory." MacUser gave it 4 1/2 mice as "one of the absolute best outliners available."

Now there's Acta Advantage, desk accessory and stand-alone application. Just \$129 wherever you buy software.

Symmetry
CORPORATION

761 E. University Drive • Mesa, AZ 85203
800-624-2485 (In AZ 602/844-2199)

slot design of the IIcx CPU box exploits what has become an important Mac II-series advantage: you don't have to fill the machines up with add-in cards, because so much is built in by Apple.

Naturally, you can also get color monitors and video boards for the IIcx, and a bigger, two-page, Apple-labeled monochrome monitor as well. But that screws up the equation. That lovely little box, with the width-matched tall-screen monitor on top, is the best office computer I've ever used.

Apple even got the little things right. For example, the power and video cables provided with the monitor are more than six feet long — long enough to allow you to put the CPU unit on the floor or on an adjacent bookshelf. And there are even Apple Desktop Bus connectors for the keyboard and mouse on the monitor itself, so you don't have a maze of wires running everywhere.

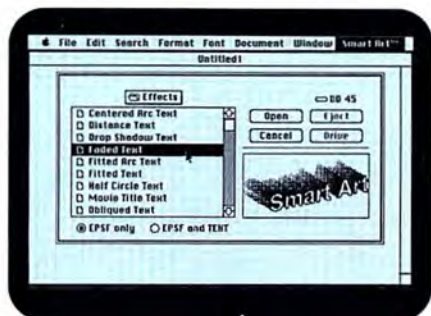
In the midst of this paean to one of the two best computers I've ever used, I now have to spill a little acid. Because Apple, still held in thrall by John Sculley's single-mindedness about gross margins *über Alles*, has committed another serious pricing mistake. At about \$9,000 list for a reasonable configuration, the IIcx is too expensive by at least a third. At exactly the wrong moment — just before the OS/2 wave breaks and just before Microsoft finally gets it together with Windows; just before the OPEN LOOK/Motif UNIX-graphical-interface wars break out into the open; just before Sun's incredibly aggressive SPARCintosh onslaught hits the stores; just before the NeXT people ship real computers, not "version 0.9" machines; just before the Chips & Technologies and other Mac-clone wars begin — Apple has gone for margins rather than market share.

That's a stupid gamble for Apple: this is the moment it should be extending its reach, building market share, locking customers into Apple-brand solutions. The box is just right. If Apple can fix the front-office problems of the IIcx, it can become the most important computer Apple has ever built.

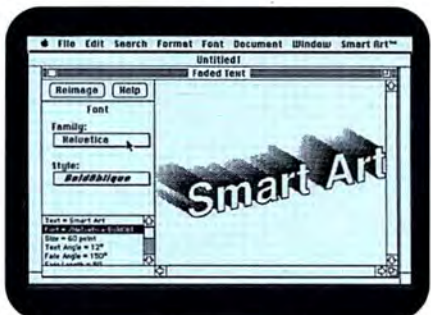
Acta and Acta Advantage are trademarks of Symmetry Corporation. Macintosh is a registered trademark of Apple Computer Inc.

Please circle 43 on reader service card.

CUSTOM EFFECTS IN YOUR FAVORITE FONTS*



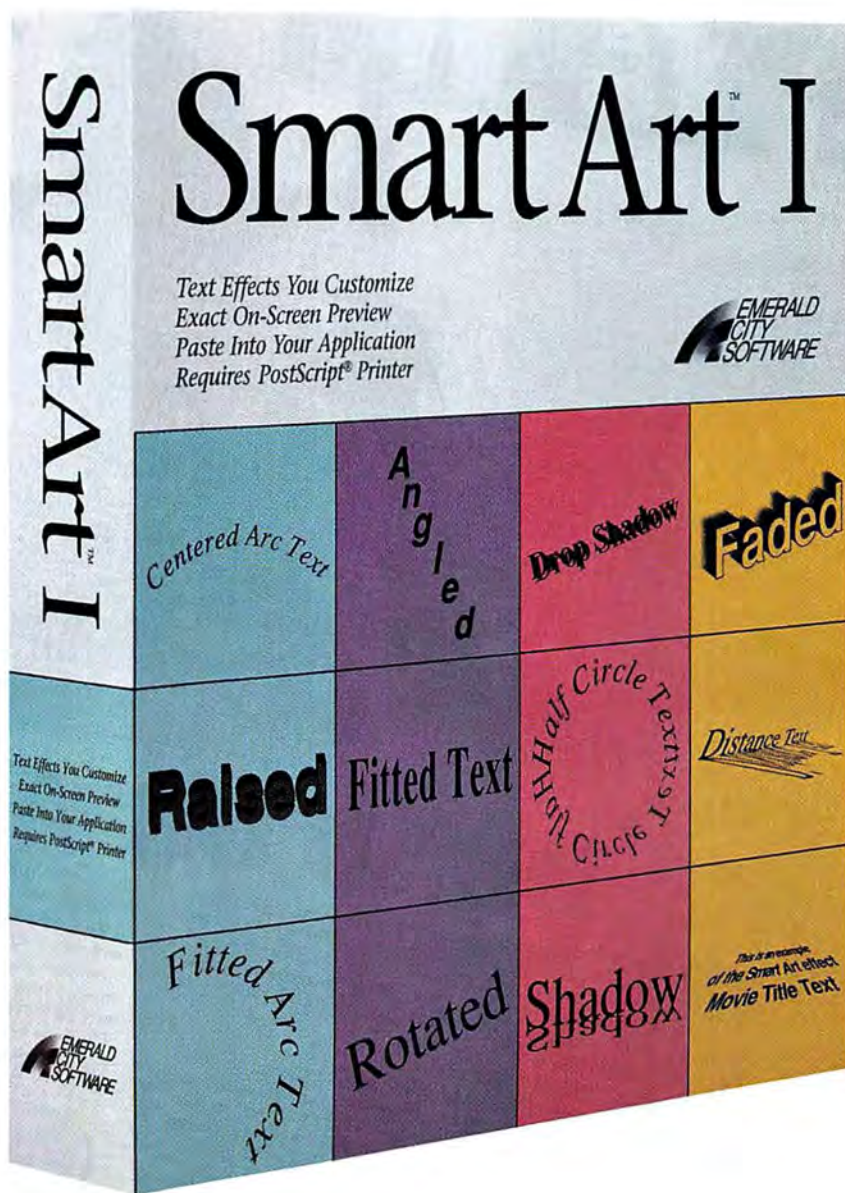
Bring custom text effects to your favorite word processor, desktop presentation or page layout program quickly and easily. Without leaving your application, select the effect you want...



Customize it with powerful yet simple controls. Change the font, size, gray and more. Then get a perfect on-screen preview from your PostScript® printer.



Paste or place the finished effect into your document. You will see a precise on-screen image which will be printed at the highest resolution of your printer. (Shown here in Microsoft® Word.)



*100% compatible with all Postscript fonts, including the Adobe fonts inside your printer, so there's nothing else to buy and your effects look great!

Smart Art I, an elegant desk accessory and 15 stunning effects, suggested retail price: \$149.95.



Emerald City Software, 800 Menlo Avenue, Suite 102, Menlo Park, CA 94025
Contact your dealer or call 800-223-0417, in CA 415-324-8080

Requires: Macintosh® Plus, SE, or II. LaserWriter®, LaserWriter Plus, LaserWriter II NT, LaserWriter II NTX, or other PostScript Printer

Compatible with: Microsoft Word, MacWrite, WordPerfect, WriteNow, FullWrite, PageMaker, Quark XPress, Ready Set Go!, Microsoft PowerPoint, MORE, Aldus Persuasion, Cricket Presents, Adobe Illustrator 88, Aldus FreeHand, Microsoft Works and most other applications.

Smart Art is a trademark of Emerald City Software. PostScript is a registered trademark of Adobe Systems, Incorporated. Microsoft and PowerPoint are registered trademarks of Microsoft Corporation. Macintosh and LaserWriter are registered trademarks of Apple Computer, Inc. All other brand and product names are trademarks or registered trademarks of their respective holders. Copyright© 1989. All rights reserved.

Please circle 25 on reader service card.

WANTED



DEAD OR ALIVE

Surrender your hard drive to Microtech and get a reward. A rebate reward worth up to \$200! With Microtech's new **STEP-UP™ EXPANSION PROGRAM**, all you have to do is brush the trail dust off your old drive, send it in, and receive a rebate on the purchase of a new Microtech drive.* You can also purchase new Microtech drives at our list prices *without* a trade-in.

HOW CAN MICROTECH OFFER A DEAL THIS GOOD?

It's simple. As one of the largest manufacturers of Macintosh peripherals, we understand your needs. We know you can't afford to be left in the dust by advances in technology. That's why we've developed the **STEP-UP™ EXPANSION PROGRAM** – a unique design philosophy that puts you on an easy, economical upgrade path... without throwing away your current investment.

WILL MICROTECH TAKE DRIVES FROM OTHER MANUFACTURERS?

You bet! Send us hard drives from Apple, SuperMac, CMS, Jasmine...anyone!** Working or not, we don't care how they're branded. Best of all, you'll have the satisfaction of purchasing a new Microtech hard drive, like our NOVA 80, rated the fastest, least expensive drive by Macworld†, or a Microtech R45 Removable Cartridge Drive. Of course, you'll still be entitled to Microtech's unprecedented five year warranty on NOVA hard drives, and two year warranty on

the R45.* You'll also be assured of the best service and support in the industry. How's that for shooting the pants off the competition!

Look for Microtech's exclusive **STEP-UP™ EXPANSION PROGRAM** with other Microtech products including Memory Expansion Boards, Accelerators, and Tape Backup Systems. It's another reason to trust in Microtech to support all your Macintosh peripheral needs. Call now to receive more information on our **STEP-UP™ EXPANSION PROGRAM**, Microtech products, or to order a new Microtech drive.

For powerful, affordable solutions, call Microtech. We *bear* you.

MICROTECH
INTERNATIONAL, INC.

29 Business Park Drive, Branford, CT USA 06405

1-800-325-1895
(203-488-7744 in CT)



MODEL	INTERNAL	EXTERNAL
NOVA 20	N/A	\$ 520.00
NOVA 40	\$ 569.00	\$ 649.00
NOVA 80	\$ 919.00	\$1,019.00
NOVA 100	\$ 999.00	\$1,099.00
NOVA 150	\$1,399.00	\$1,469.00
NOVA 320	\$2,699.00	N/A
MICROTECH R45	N/A	\$1,099.00

PURCHASE A MICROTECH DRIVE AT OUR EVERYDAY LOW PRICES WITHOUT A TRADE-IN OR RECEIVE A REBATE OF UP TO \$200 FOR YOUR OLD DRIVE. CALL MICROTECH AT 1-800-325-1895 FOR MORE INFORMATION!

©1989 Microtech International, Inc.
* Some restrictions apply. Terms and conditions of STEP-UP Rebate Program and warranties available upon request.
† All product names and logos are trademarks or registered trademarks of their respective owners.
‡ Macworld, May 1989.
Prices and availability subject to change without notice.

Please circle 134 on reader service card.

PINSTRIP MAC

Longtime readers may find the title of this column vaguely familiar. In the July '87 issue of *MacUser*, my column title was "Word 3, Users 0." That column was a thorough condemnation of the extremely buggy original version of Microsoft Word 3.0. "Word 3, Users 0" was one of the first negative pieces on Word 3 (the early reports were unanimously positive because most of the writers worked with beta-test versions and expected all the bugs to be ironed out before it shipped), but it wasn't the last.

Microsoft quickly released a bug-fix version, 3.01, but it



from Word 3, and the areas of improvement are further evidence of Microsoft's responsiveness to its customers.

One of the biggest complaints from Word users since 1984 has been that the program is just not "Mac-like" enough. This charge is rather curious — Word, being one of the most widely used Mac programs, is largely responsible for defining just what constitutes a Mac-like program. Even so, it never

quite seemed to feel as at home on the Mac as did its fellow word processors.

Well, Word 4 features many changes that make it more Mac-like, but in almost every case the old way was also retained,

Word 4, Mice 5

failed to squash all the bugs, and it wasn't until release 3.02 that Word 3 was really stable enough to use. By that time, the damage to Microsoft's and Word's reputation had been done. In its haste to avoid the numerous shipping delays experienced by competitive products such as FullWrite Professional, Microsoft had committed the worse sin of shipping an unfinished and unstable product.

After the debacle of Word 3, though, something truly amazing happened: Microsoft changed. From the bottom of the company to the top, people paused to examine the situation. High-level executives went out into the real world and talked to their customers and members of the press to find out what was needed to make Word better. Programmers considered new ways of doing things. As a company, Microsoft learned from its mistakes and vowed not to repeat them.

When the January '89 Macworld Expo rolled around, everyone expected to see the new, improved Word 4.0. "Not just yet," said Microsoft. "We're still debugging." More months went by, and still there was no Word 4.0. In anticipation of Word 4, Microsoft stopped shipping Word 3. The delay in finishing Word 4 meant that retail channels began to clear out, and Microsoft's sales began to fall, which meant lower earnings that, in turn, contributed to a drop in the company's stock price. But still Microsoft didn't waver. Never again was it going to let a short-term quest for immediate profits cost it the long-term loyalty of its customers.

New products would ship when they were ready, and not until they were fully debugged.

When Word 4.0 finally shipped in April, it was well tested, well documented, and well debugged. Microsoft has learned its lesson and deserves congratulations for having the courage of its convictions. But the fact that Word 4.0 was so thoroughly tested is only half the story. Word 4 is also a giant leap forward

meaning that Word 4 is completely flexible. The most significant change, from an interface perspective, is Page View, which makes Word WYSIWYG for the first time, although you can still have the speed of the old Draft mode if you prefer. Word 4 at long last has a standard Font menu, but the Format Character dialog box is also available. No longer are there functions or commands that can be performed only from the keyboard; every function (including indexing and table-of-contents notation) has a menu option. In fact, Microsoft has carried menu management to new heights, allowing you to completely customize which commands appear on which menus. Using this command customization, you can actually make Word 4 look like other word-processing programs.

A few areas in which Word was already strong still had room for improvement. One of Word 3's most powerful features was side-by-side paragraphs that let you create irregular columns, but that power came with some drawbacks. Word 4.0 replaces this mechanism with an even more useful table feature. A Word 4 table allows you to have access to a spreadsheet in the middle of

**If you've
become one of the
Word schizoids
who have a love/
hate relationship
with the program,
take a look at
Word 4.**



By ROBERT R. WIGGINS

ROLL OVER BEETHOVEN.

**LightningScan. Thunderware's
hand-held scanner for the Mac. Now
with gray scale conversion.**

Our new product roll-out is worth a little arm waving. That's because LightningScan lets you scan images up to four inches wide from books, mounted artwork, or anywhere else. You get switchable resolution up to 400 DPI. Software conversion to gray scale. A setting for text and line art. Plus three dither patterns that put limitless special effects right at your fingertips.

LightningScan comes with the application that helped make ThunderScan famous. Along with desk accessory software that works in concert with any Macintosh program. And to end this ad on an upbeat note, LightningScan can be yours for just \$549 suggested retail. So get rolling to your dealer and pick one up today.



LightningScan™
Hand Scanner for Macintosh®

21 Orinda Way, Orinda, CA 94563 415/254-6581 FAX: 415/254-3047



LightningScan, ThunderScan, Thunderware, and its logo are trademarks of Thunderware, Inc. Macintosh is a trademark of Apple Computer, Inc.
© Copyright 1989 Thunderware, Inc. All rights reserved.

Please circle 195 on reader service card.

PINSTRIPES

Word. Each column of a table can be formatted independently, which is how it replaces side-by-side paragraphs. And tables are WYSIWYG even in the Draft mode.


Word 4 also adds some little touches that Word users have long desired, such as a word counter. There's a lot more to Word 4 than there's room to cover in a column. This is not a review (but the title hints how I would rate the program if it were). For an in-depth review, you'll have to look back a month to "The Latest Word" in the July issue. And you *should* read an in-depth review. If you're like me, Word 3, with all its problems and shortcomings, was enough to turn you off Word forever. Or perhaps you've become one of the Word schizoids who have a love/hate relationship with the program. If you fall into either of these camps, you really should take a look at Word 4. It's come a long way, and you may find that your pet peeves were addressed, as mine were.

PINSTRIPES PICKS

Some other word-processing-related products you may want to look into for use in your business:

Thunder II (Electronic Arts). A spelling checker in a cdev. Can be automatically enabled in selected applications and offers both real-time and after-the-fact checking. Supports multiple dictionaries and glossaries and even checks for some capitalization and punctuation errors.

QuickLetter (Working Software). A letter writer in a desk accessory that makes dashing off letters quick and easy. Supports multiple open documents, default stationery, automatic vertical centering, address books, and PICT letterheads. Produces envelopes, too, including special messages.

MacWrite II (Claris). The original word processor for the Macintosh has been improved enough to move it into the intermediate word-processor category (see review in this issue). Substantially different from the old MacWrite, with features such as mail-merge and spell checking. Worth a look if you don't need all the power of Word. 

Laser Quality Under \$1000*!

The Hewlett-Packard® DeskJet with the Grappler® LS interface offers 300 DPI at 1/3 the price.

You purchased a Macintosh for its ability to produce quality output. Problem is, you can't afford a laser printer. At \$2000 and up, your only real alternatives have been dot matrix printers or regular trips to the local copy store.

Why settle for dot matrix output when you really need laser quality? The Grappler LS easily connects the DeskJet to your Macintosh, providing...

- 300 DPI resolution
- 14 pound portability
- Small footprint, smaller than an ImageWriter™ II
- Inkjet refills for less than \$20
- Compatibility with H.P. LaserJet, DeskJet, and LaserJet compatibles

Only the Grappler LS provides full 300 DPI graphics (*laser quality*), and allows you to print both portraits and landscapes. With the standard Apple printer driver provided in the Grappler, you get complete WYSIWYG text and graphics because your printer acts the way your Macintosh expects it to. The Grappler LS is fully compatible with hundreds of popular software titles including Excel®, MS Word®, MacDraw II®, Power Point®, Super Paint™, and PageMaker®. And because the Grappler LS comes complete with cable, Apple driver, Installer, fonts and a powerful spooler, there is no need for additional purchases.

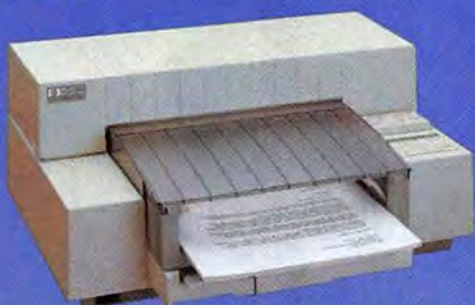
GRAPPLER LS list price: \$149

 **Orange Micro
Inc.**

1400 N. Lakeview Ave., Anaheim, CA 92807
(800) 223-8029. In CA (714) 779-2772

Grappler: Apple, Macintosh and ImageWriter; Hewlett Packard, LaserJet; and DeskJet; Excel; Panasonic; are trademarks or registered trademarks of Orange Micro, Inc., Apple Computer, Inc., the Hewlett Packard Co., the Microsoft Corp., Silicon Beach Software, Aldus and Panasonic Industrial Company, respectively. Other trademarks or registered trademarks are the property of their respective owners.

*Average total selling price. Printer suggested retail \$995.00



Until now, Macintosh dot matrix printing has meant only two things: 9 pin, narrow carriage output for about \$600, or high quality, wide carriage output for about \$1400. The Grappler LQ opens up a world of dot matrix printers for the Mac, at a fraction of the cost. These include popular Epson, Okidata, NEC, Toshiba and Star Micronics models, as well as all compatibles.

Now the choice is yours!

For example, consider the Panasonic 1124 printer. With output at 180 DPI and the ability to run continuous feed or multiple part forms, this sturdy printer will get the job done with crisp and clear efficiency.

The Grappler LQ uses a standard Apple printer driver so your printer will act the way your Macintosh expects it to, providing compatibility with hundreds of popular software titles (see Grappler LS above). The Grappler LQ gives you full 180 DPI output and allows you to print both portraits and landscapes (sideways on the page). And the Grappler LQ comes complete with cable, 3 fonts, Apple driver, Installer and a powerful spooler. All you supply is the Macintosh and the printer.

GRAPPLER LQ list price: \$149



**Average total selling price. Printer suggested retail \$529.95

The Panasonic® 1124 with the Grappler® LQ means
**Mac 24 Pin Printing
Under \$500!****



Why Should You Buy Your Macintosh® From CDA Computer Sales?

Full Availability, Low Prices

CDA offers **Macintosh** computers, complete ready-to-run Macintosh systems, add-on hardware, software and accessories all at low prices you can't afford to pass up. For peripherals and add-ons, check the extensive lists of some of the mailorder advertisers in this magazine. We carry those items plus more.

Why not simplify your life — buy it all in one place. At CDA we offer name brands such as **Apple®, Abaton, AST, Bose, Casio, CMS, Data Desk, Dayna, Dove, Epic, Everex, HP, Kensington, Microtek, Orange Micro, Panasonic, Practical Peripherals, Radius, RasterOps, Rodime, Shiva, Sigma Designs, Sony, Targus, Tops, Toshiba and more.** *Need software?* Pick a title, any title.

CDA's 30-Day

Customer Satisfaction Period

Our goal at CDA is customer satisfaction. If you're not 100% satisfied with your purchase you can take advantage of CDA's customer satisfaction period. Simply return the purchased goods within 30 days of receipt for a quick, courteous refund (Software, media, internal components, musical key-boards/accessories and freight charges excluded).

Knowledgeable Sales People

With the fast-moving pace of today's high-tech computer industry, it can be difficult to keep up with the latest advances and products. CDA's knowledgeable sales people help you with what you need to get the job done simply and affordably.

Service and Support

CDA offers a full 90-day warranty. After the 30-day satisfaction period we provide free repair services for an additional 60 days. Our excellent in-house service center and trained technicians provide a speedy turn-around time for your convenience. We welcome you to continue your service and maintenance with "CDA Computer Care". Our friendly tech support team will be happy to help you Mon-Fri, 9am-4pm EST.

Need more reasons?

Take a look at the great savings on complete Macintosh systems on the next page, or call one of our sales persons for our low prices on other items, or send the handy coupon for our free catalog — see for yourself.

All of CDA's ready-to-run Macintosh Systems include the *Macintosh Accessory Kit consisting of the latest Macintosh operating system, HyperCard software, a box of 10 diskettes, a package of computer paper, dust covers for the Macintosh, keyboard and printer, and a 9" x 8" mouse pad.

Macintosh Plus Entry System

- Macintosh Plus Computer w/
1 Megabyte of Memory
1 800K Drive
Keyboard & Mouse
- SystemGate 800K External Drive
- ImageWriter II Printer w/Cable
- Macintosh Accessory Kit*

Sugg. list \$2760

CDA Price \$2075

Package #8910 **Save Over \$680**
(delivery 83.50)

Above system with an external 30 megabyte hard drive by CMS instead of the 800K drive.
Sugg. list \$3260

CDA Price \$2399

Package #8912 **Save Over \$860**
(delivery 118.00)

Macintosh SE Super System

- Macintosh SE Computer w/
2 Internal 800K Drives
1 Megabyte of Memory
Keyboard and Mouse
- ImageWriter II Printer w/Cable
- Macintosh Accessory Kit*

Sugg. list \$3980

CDA Price \$2999

Package #X8970 **Save Over \$980**
(delivery 116.00)

Macintosh SE Hard Disk 40/2 System

Same as SE Super System except includes one 800K floppy drive, the Apple 40 megabyte internal hard disk and 2 megabytes of memory.
Sugg. list \$5180

CDA Price \$3849

Package #X8972 **Save Over \$1300**
(delivery 124.50)

New Macintosh SE/30 40 Meg Super System

- Macintosh SE/30 with
40 Megabyte Hard Disk
1.44 Meg Disk Drive
2 Megabytes of Memory
- Keyboard & Mouse
- ImageWriter II Printer w/Cable
- Macintosh Accessory Kit*

Sugg. list \$6180

CDA Price \$4449

Package #X8998 **Save Over \$1600**
(delivery 126.50)

Macintosh SE/30 Hard Disk 80/4 System

Same as the above system except includes the Apple 80 megabyte hard disk and 4 megabytes of memory.
Sugg. list \$7380

CDA Price \$5499

Package #X8997 **Save Over \$1800**
(delivery 132.00)

New Macintosh IICx Color System

- Macintosh IICx Computer w/
40 Megabyte Hard Drive
1 Megabyte of Memory
Extended Keyboard & Mouse
1.44 Meg Disk Drive
- Macintosh II Video Card
- Apple Hi-res. RGB Analog Monitor
- ImageWriter II Printer w/Cable
- Macintosh Accessory Kit*

Sugg. list \$7606

CDA Price \$5795

Package #X9850 **Save Over \$1800**
(delivery 152.00)

Macintosh IICx 80 Meg Color System

- Macintosh IICx Computer w/
80 Megabyte Hard Drive
4 Megabytes of Memory
Extended Keyboard and Mouse
1.44 Meg. Disk Drive
- Macintosh II Video Card
- Apple Hi-res. RGB Analog Monitor
- ImageWriter II Printer w/Cable
- Macintosh Accessory Kit*

Sugg. list \$10279

CDA Price \$7695

Package #8925 **Save Over \$2500**
(delivery 185.00)

If you do not see a system that meets your needs, call our toll free number and our knowledgeable sales people will help design a system specifically for you.

Shipping Information & Policies

Delivery charge includes shipping, handling and insurance. Charges quoted for above systems are for **DHL Door to Door Express Service** to the continental US, Alaska, Hawaii & PR. DHL to Canada add \$20 to above charges. DHL worldwide call or fax for rates.



Payment via Visa, MC, Amex, Discover, Optima welcome. Personal checks are held 10 days for clearing. No CODs please. **Leasing now available to qualified businesses.**

Apple Computers - CDA is not an authorized Apple dealer, therefore during the 90-day warranty period Apple items must be returned to CDA for warranty repair.



All prices subject to change. Apple, the Apple logo, Macintosh, HyperCard, IIGs, ImageWriter & LaserWriter are registered trademarks of Apple Computer Inc.

Ad #28-09
Ad #36-08

US/Canada Call Toll Free 800-526-5313

Outside US/New Jersey 201-832-9004

**CDA Computer Sales, 1 CDA Plaza
PO Box 533 Califon, NJ 07830**

Hours: Mon-Fri 9am-10pm,
Sat. 9am-5pm EST
Customer Service (201) 832-9007
Fax# (201) 832-9740

CompuServe's Electronic Mall- GO CDA

CDA

computer sales

Mailorder Exclusively Since 1980

Send this Coupon for CDA's Free Apple® Users' Catalog

Our latest color catalog offers a full line of Apple products featuring Mac IICx, IICx, SE, SE/30, Plus and Apple IIGs, complete system packages, hard disks, modems, scanners, printers, accessories and a list of hundreds of software titles.

CDA Computer Sales, 1 CDA Plaza
PO Box 533 Califon, NJ 07830

☐ **Yes,** Please send me your latest catalog!

Name _____

Address _____

City _____

State _____

Zip _____

Please circle 116 on reader service card.

Custom Calling

Need to reach out and touch some ones and zeroes? Here's help in choosing telecommunications software that fits the bill.

If you're ready to enter the vast world of telecommunications, you need to choose from a dizzying array of programs with a wide range of power and features. You can buy an off-the-shelf application that practically runs itself and meets your everyday needs perfectly. If you need a customized telecommunications tool that simplifies a complex interface or

enhances a simple one, you can find special programs that help you develop your own.

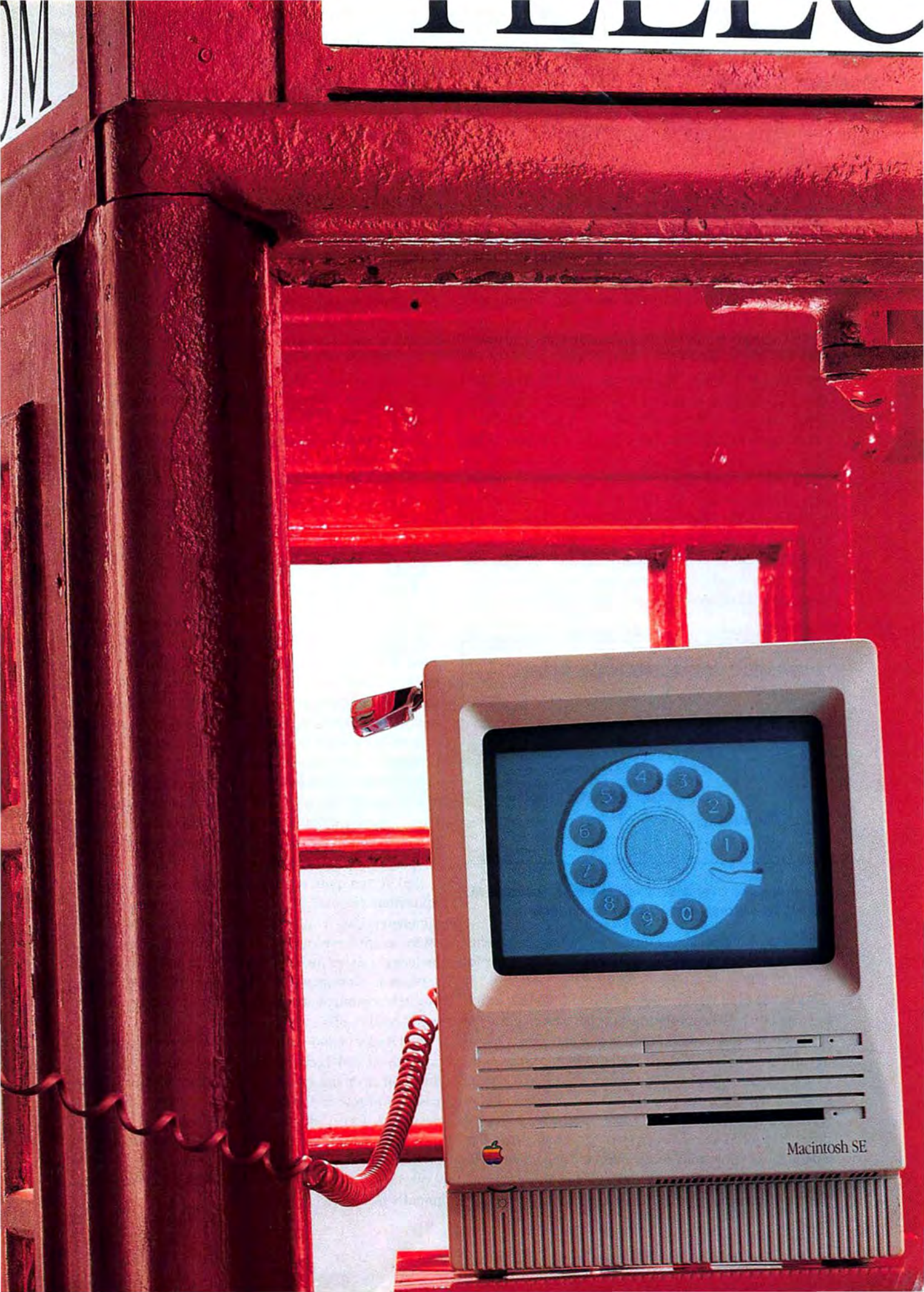
At the top of the heap is a handful of popular commercial telecommunications packages for general-purpose communications. They all have several features in common, such as emulation of a plain-text Teletype-style (TTY) terminal as well as the popular VT52 and VT102 terminals from Digital Equipment. All of them can exchange files, using the Xmodem and Ymodem protocols; all can save text from the screen to a file; and all offer a method for recording your actions (or some desired chain of events), usually with a scripting language.

These popular programs can operate in the background under MultiFinder, exchanging remote data while you do something else. Typically, if you're also running a processor-intensive program such as a big recalculating spreadsheet, or if you're searching a database, during file transfers you may have time-out problems, which are caused by a current limitation of the Mac's operating system.

In addition to the top commercial offerings, there are some well-executed but less-powerful programs. Some are installed as DAs and are always available, and some are freeware or shareware. Their features are presented in our comprehensive features chart.

By Daniel J. Rosenbaum





TELEPHONE



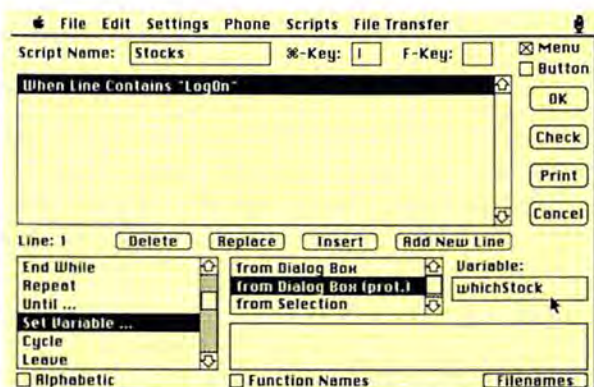
Macintosh SE

MicroPhone II 2.0



MicroPhone II, one of the best-selling communications programs for the Mac, is replete with features, logically laid out, well documented, flexible, and reasonably easy to use. It supports most major file-transfer protocols: Xmodem with MacBinary, CRC or checksum error checking, and blocks of 128 bytes or 1,024 bytes; Ymodem or Ymodem-G (putting the error-checking burden on your modem); and a configurable Kermit. Text transfers are also highly flexible.

Like most of the other programs, MicroPhone II lets you save communications parameters such as baud rate and word size in special files that you can name; one file may contain settings for MCI Mail, while another may hold settings for a mainframe session. Unlike most other programs, MicroPhone also keeps modem commands in editable files. If your modem is slightly or (like the Telebit Trailblazer) vastly incompatible with the Hayes standard, MicroPhone lets you tweak the modem file



MicroPhone's scripting facility minimizes typing by presenting all choices in a series of context-sensitive scrolling fields.

until everything is satisfactory. You can use a modem-command file with any communications-settings file for full flexibility.

At the heart of this flexibility is MicroPhone's scripting capability. Other programs may have more powerful scripting, but few combine their power and ease of use as gracefully. The scripting is menu-driven; every command, conditional phrase, and function name in the entire scripting language can be obtained from a series of context-sensitive scrolling fields that appear as you need them. You need to type only specific variable data that customizes expressions and conditional statements. The power-to-typing ratio is very high, which minimizes your chances for error.

In many cases, you can bypass the scripting language altogether and use the Watch Me mode, which records your mouse clicks, menu selections, and typed entries, and develops a script for you. That script can be edited like any other text-based MicroPhone script. A scripted procedure can be invoked in several ways: It can be assigned to a Command key or function key, placed in the Scripts menu, or triggered by a button at the bottom of the screen. You can change the button layout during communications sessions. Although the scripting language has limited support of dialog boxes and is entirely text-based, it offers far more capabilities than most users will need.

MicroPhone balances power and simplicity; it is well suited to mundane daily communications tasks but also packs the ability to automate some complicated jobs. It combines general-purpose utility and programming at its best.

Red Ryder 10.3



If it seems as if Red Ryder has been around forever, it's because it has. For most of its lengthy and distinguished life, Red Ryder has been shareware. In fact, its shareware version 9.4 is still in circulation, but version 10.3 is distributed commercially. Much like MicroPhone II, it is a full-featured, general-purpose communications program with a comprehensive scripting language.

Terminal emulation in Red Ryder is limited to TTY, VT52, and VT102, but the manual boasts about the accuracy of these emulations. The program features a utility that lets you use the Mac's numeric keys to simulate the keypad of an emulated terminal.

Red Ryder puts a wide range of controls at your immediate disposal. Scroll controls and communications parameters are icon-based and merely a mouse click away, as are screen archiving and printing. The program includes a timer linked to the cost of using an on-line service, so you can watch your money trickling away as you telecommunicate (it would be nice if the feature could be shut off).

Red Ryder includes a nicely implemented phone book, where you can keep numbers, passwords, and procedures for any number of services. The phone book can be password-protected, but watch out — if you forget your password, forget about the phone book too. You can define 30 buttons for macros and display the buttons 10 at a time. If you're using VT100 emulation, you can show a special status bar that emulates the four LEDs on the terminal's front panel.

On-line Business-Information Services

Getting business information with your Mac is simple. All you need is a telecommunications program and a modem. You can access hundreds of business-oriented databases directly, or you can use a gateway system such as Western Union's Infomaster. If you go direct, you'll need to pay subscription fees and learn each database's syntax. Through Western Union, there are no fees, and you can communicate in plain English. Why go direct? Because it's less expensive in the long run. The average cost for going direct is about \$100 an hour. If you use Infomaster, the cost can reach \$200 an

hour, depending on your search. major industries. Sources are as varied as *The New York Times*, *Business Week*, *Computerworld*, and *Women's Wear Daily*. A great way to keep on top of what's happening.

Dow Jones News/Retrieval

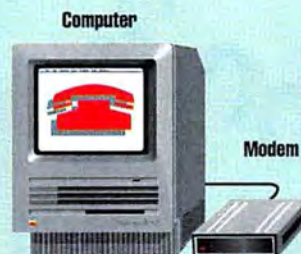
The most popular database in the world. Covers the stock, futures, and bond markets; provides Dow Jones business news and full text of *The Wall Street Journal*, as well as other business publications. Also provides several investment-analysis databases. The one-stop shop for any investor.

business executives. Discover the background of the most prominent business-people in the United States.

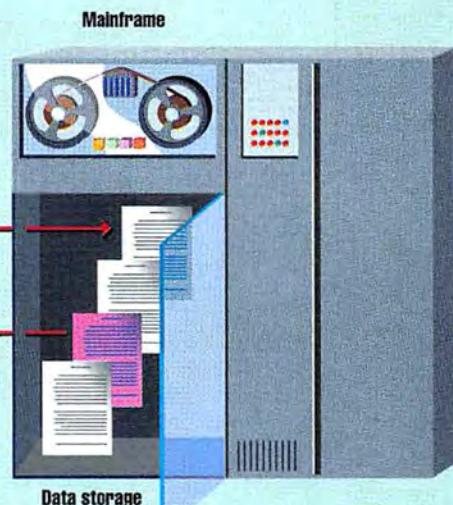
Trade and Industry ASAP

Focuses on 125 industry and trade magazines. Provides the full text of all articles in these publications — a necessity for staying abreast of the competition.

- 1 Telecommunications program instructs modem to establish communication with the on-line service's modem.



- 2 Front-end program simplifies the process of viewing and copying on-line data.



- 3 Retrieves desired data from mainframe and sends it to the Mac.

hour, depending on your search.

Sound too expensive? Not really. Every hour on-line is often equivalent to a full day's research in a library, and, even better, you can get information without ever leaving your Mac. Here is a short list of a few of the major business databases and their features:

ABI/INFORM

More than 300,000 business articles from more than 660 business and management publications worldwide. Especially useful for background research. Covers everything from accounting to z-scoring for bankruptcy.

Annual Reports Abstract

Summaries of annual reports of publicly held U.S. corporations. The database is compiled from filings with the Securities and Exchange Commission. Excellent for reviewing the history and direction of a company.

Business & Industry News

Abstracts of news items from more than 1,200 trade and business journals covering all

Dun's Marketing Services

The venerable Dun & Bradstreet credit reports on more than 700,000 U.S. businesses, as well as a directory of million-dollar-plus sales companies. Great for checking credit or estimating the size of a company.

Investext

Electronic copies of stock analysts' reports on more than 7,000 U.S. companies and 1,500 foreign companies. Provides a Wall Street view of potential investments.

LC MARC

The Library of Congress' on-line card catalog. Find the name, author, and publisher of almost every book published on any subject.

Magazine ASAP

The full text of articles from more than 80 general-interest magazines. Excellent source for background material.

Standard & Poor's Register

Biographies of more than 72,000 prominent

For a more complete description of these databases as well as hundreds of others, contact the companies (in the following list) that electronically distribute them.

Dialog Information Services, Inc.

3460 Hillview Ave.
Palo Alto, CA 94304
(800) 334-2564

Dow Jones & Co., Inc.

P.O. Box 300
Princeton, NJ 08543
(800) 257-5114

BRS Information Technologies

1200 Route 7
Latham, NJ 12110
(800) 345-4277

Western Union Telegraph Co.

1 Lake St.
Saddle River, NJ 07458
(800) 527-5184
— Ken Landis

RELATIONAL DATABASE FOR



Introducing Version 2

4th DIMENSION

An entirely new Dimension

4th DIMENSION version 1 set the standard for Macintosh databases.
4th DIMENSION version 2 revolutionizes information management by offering the most modern tool for personal, departmental, or distributed usage. It gives business an unquestionable reason to buy Macintosh.

R THE MACINTOSH

DIMENSION

Over 300 new features

Major database operations are from 10 to 100 times faster. More importantly, new functionalities, such as report and label generators, scripts, automatic bidirectional file relationships, data entry into multiple files, automatic button actions, high speed printing, and over 85 new commands save you hours.

Intuitive and configurable

Whether a first time user or an expert, the clear and superior 4th DIMENSION workspace releases your creativity and maximizes your efficiency. If you are in a hurry, just point-and-click to create stylish reports, quick mailing labels, or enlightening business charts. If you are a database professional, optimize your procedures with pointers and enrich your SQL interfaces by taking advantage of elaborate array management.

Secure and trustworthy

4th DIMENSION's new password system reflects the structure and intricacies of your organization. 4th DIMENSION also provides you with security and peace of mind thanks to the advanced technology which monitors the system environment and recovers from hard disk damage.

Transparent and extensible

The open architecture allows free and easy interchange of information. From mainframes to other personal computers it may be available wherever it may be. Multi-user capabilities are built-in. If you have TOPs, AppleShare, or 3Com 3-Plus you can let multiple users share a database. 4th DIMENSION is the connectivity leader. 4th DIMENSION is not merely "Macintosh". It is the best database for any personal computer. But don't take our word for it. Call today 800 421 9449 Operator 10, and for \$20 we'll send you a fully functional demo version.

1989 ACIUS, Inc. All trade names referenced are the trademark or registered trademark of their respective holder. ACIUS, ACI and 4th DIMENSION are registered trademarks of ACIUS, Inc. ACI

ACIUS

10351 Bubb Road, Cupertino, CA 95014 (408) 252-4444

Custom Calling



One of the enhancements to the commercial version of Red Ryder is an integrated telephone book. It lets you specify the settings and procedures for a service, but you have to embed the modem commands in a dialing string.

Red Ryder includes a full scripting language that gives detailed control over every parameter and gives fair access to dialog boxes. Like MicroPhone II, Red Ryder offers a recording facility that builds a script based on menu selections, icon clicks, and text entries. Manual scripting is not generally easy. Red Ryder includes a shareware version of CE Software's MockWrite DA — a mini-word processor with which you're supposed to develop what Red Ryder calls procedures. The procedure language is thoroughly documented, but while you're composing your script with the text editor, you have no scrolling command lists or icons to help you.


Red Ryder requires you to compile your procedures before they can be executed. Syntax errors can be caught during compilation, but the business of writing, compiling, debugging, recompiling, and so on may be a hindrance to writing simple procedures. The advantage of compiled procedures is that they execute quickly, and their encoded nature after compilation prevents unwelcome eyes from extracting passwords or special log-on procedures from your scripts. The scripting philosophy, however, focuses on speed and protecting procedures and passwords rather than on painless development.

Many people swear by Red Ryder; others swear at it. Once you are on-line, Red Ryder is a pussycat, especially with its well-designed status bar — the problem is getting on-line. When you tell it to dial a telephone number, Red Ryder requires both the number and the modem command to dial it, and you must repeat the procedure for every number. Using Red Ryder is a good way to learn the Hayes command set, but the program is hardly friendly. It has many exotic features, but the length and complexity of its menus are daunting. It could benefit from an option like Word's Full/Short Menus preference.

which hides the complexity when you don't need it.

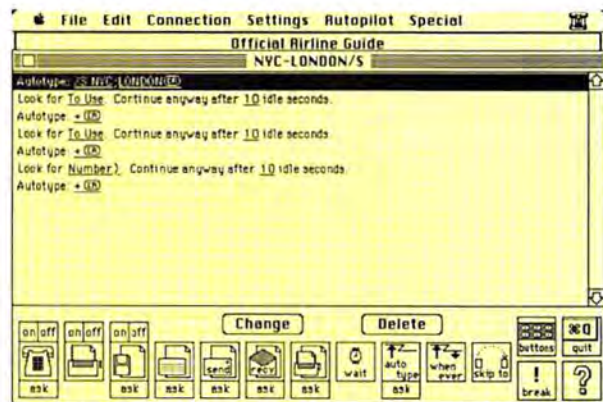
If there is one place that Red Ryder shines, it's in its value. It's significantly less expensive than the competing programs. It does what it is supposed to do — perform a wide variety of communications tasks. Other programs, however, seem to do it more elegantly.

Smartcom II 3.1A



Smartcom II is the communications software from Hayes, the 3,000-pound canary of the communications-hardware business. Version 3.1A of the program is a significant step in its steady improvement. Until recently, only Hayes modems worked with Smartcom II. Not even Hayes "compatibles" worked well. With the new version, however, the Georgia giant has finally acknowledged the existence of the rest of the industry, and that small step will help the company sell lots of copies of this fine program.

What's striking about Smartcom is the length to which its designers have gone to make it iconic but not cryptic.



With its iconic scripting language, extensive on-line help, and support for non-Hayes-brand modems, Smartcom II makes an excellent general-purpose communications program.

A bar of large icons at the bottom of the screen allows you to dial, print, upload, and download files; type preentered text sequences; and even draw pictures on the screen of a remote Mac that's also using Smartcom II. The icons are large, and not many can be displayed simultaneously, but the icon bar is context sensitive, and an appropriate icon set is shown as needed. The icons can be replaced by 128 user-defined buttons to which you can attach scripts or program functions. The icon bar can be moved or hidden. Smartcom's complete on-line help is convenient too.

Hayes calls its scripts autopilots, and you develop them by clicking on a series of icons and working through dia-

E-Mail Front-End

With several keystrokes, remote electronic mail (E-mail) services can put you in touch with thousands of people. These services are hosted on mainframes, which have vast storage capacities. They receive, store, and route messages and files for their users.

There are several E-mail services, each with its own set of commands, benefits, limitations, and costs. Some services charge by the byte, others by the connection. Some can transmit only text. Some can be called directly with a general-purpose communications program and a modem. Some require you to run a special program that simplifies your transactions with the system. Generally you can benefit by purchasing E-mail interface software, even though it may not be required.

Desktop Express

Desktop Express may be the most common front-end E-mail software on the Mac. It's published by Dow Jones, which also publishes *The Wall Street Journal* and Dow Jones News/Retrieval.

MCI Mail can normally handle only text, but Desktop Express lets you transmit spreadsheet data, word-processing documents, and databases — any file at all. Binary files sent with Desktop Express are also compatible with Lotus Express, a similar package for MS-DOS computers.

Desktop Express has shortcomings. Its interface is clunky, and it's full of windows that can't be resized or moved. It's also much slower than MCI Mail itself. Still, the flexibility



Desktop Express, the MCI Mail front end, lets you save an address for electronic, postal, or Telex delivery — or for delivery on a remote E-mail system.

Desktop Express adds to MCI Mail makes it worth investigating.

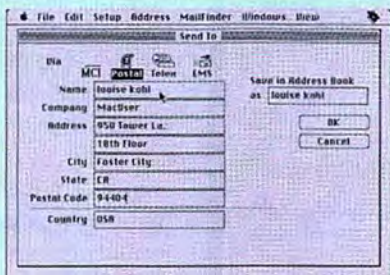
Access III

Access III is the gateway to AT&T Mail. First, Access works in the background, uploading and downloading messages while you do other things. Exchanging binary files is no problem

because AT&T Mail is designed to handle data and text.

You can define as many as ten keyboard macros and use them in lieu of the address book, which is curiously omitted from Access. With its built-in scripting language, you can write your own log-on and hang-up scripts.

While you're in Access, all application icons appear generic and all disk icons turn into floppies, but it doesn't seem to harm anything. Access has the overall feel of a tightly written program — compact and quick. A financial advantage of using Access: AT&T charges \$.20



Although its screen looks a bit odd, Access III handles the task of interfacing with AT&T Mail efficiently and simply.

or \$.45 for every message you create on-line. The fee, which can add up if you're a heavy user, is waived if you write your messages in Access III.

Navigator

Navigator is published by, and used for, CompuServe. It does far more than automate your E-mail: It manages your entire CompuServe account. Its chief purpose is to minimize on-line time, which costs a hefty \$12.50 per hour at 1,200 or 2,400 baud, plus communications surcharges.

It performs the time-consuming functions off-line that you'd normally do on-line, such as reading previously received E-mail and forum messages and writing new ones. You can also select the forum messages you'd like to see when you go on-line. Navigator logs on, downloads messages, and scans and summarizes forum messages and program libraries.

Version 2.1 of Navigator doesn't include an address book, occasionally gets stuck unpredictably, doesn't automatically upload to forums, and can't automate some gateway services such as the Official Airline Guides. Version 3.0, expected to be available by the time you read this, will include an address book and upload capability and will presumably be more stable.



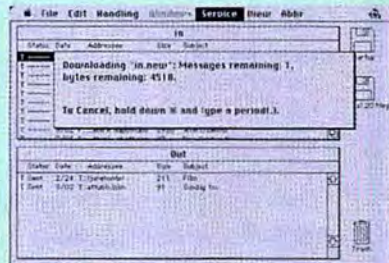
Navigator automates most CompuServe sessions, where time is money. Although version 2.1 doesn't automatically upload files, a new version is expected to.

If your usage pattern remains the same, Navigator can reduce your CompuServe bill by 50 percent.

MacNet

MacNet is the only on-line service that requires dedicated front-end software. You simply cannot use Connect's MacNet without it. When you first start MacNet, you work through a maze of icons and folders set up for specific services before finding the information you want. You can, however, put your frequently used icons into the first window, so you can go to those services directly.

MacNet is much easier to use than similar on-line service/software combinations. You can set the program to poll the service and set regular log-on times. The program is able to run in the background, but it slows other processes tremendously.



To log on to MacNet, you need this dedicated software, which uses a folder-and-icon metaphor to navigate through the service.

MacNet is much more limited as a service than the big ones such as CompuServe, and its need to download the graphics screens makes for slow operations. But it's an innovative service that can only improve with time. If you find on-line services too hard to understand, MacNet may be for you.

— Daniel J. Rosenbaum

Telecommunications Glossary

Baud — A unit of measure for the speed of data transmission that is essentially (but not always exactly) equivalent to bits per second.

BPS — Bits per second. A unit of measure for the speed of data transmission.

Checksum — A method of detecting transmission errors, based on the sum of a discrete packet of transmitted data. It's not foolproof.

CRC — Cyclic redundancy check. A method of detecting transmission errors that is more reliable than checksum error detection.

Kermit — A widely used communications protocol with excellent error-checking features that generally links microcomputers to mainframes. It has a set of standards that can be followed, but custom implementations exist.

MacBinary — A standard information-exchange format initially established for Mac-to-Mac communication but usable with other systems that store files exactly as they're received or transmitted. Any type of Macintosh file can be transmitted in MacBinary format.

Parity — A method of detecting transmission errors based on the consistent odd or even sum of the bits in each transmitted byte of information.

Scripts/macros/procedures — Programs that automatically perform simple to complex activities triggered by a button, menu selection, keystroke, time-based event, or the contents of a variable. They can be text-based or symbolic. You produce scripts or macros by describing actions in text form, making choices from menus or with buttons, or going through the steps while working in a recording mode.

Terminal emulation — The ability of a device, such as a computer equipped with special software, to mimic the functions of a dedicated terminal. Emulation includes acting and reacting as a specific kind of terminal would with both the host computer and the user. Some terminals can emulate other terminal types or models.

Transfer protocols — Rules by which information is exchanged between transmitting and receiving devices. There are several popular protocols. The transmitting and receiving devices must follow the same protocol at any given time.

TTY — Teletype. A basic terminal that handles only text, one line at a time, with a carriage return following each line.

VT52, VT100, VT102, VT220, VT240 — Various terminal models from Digital Equipment. Higher model numbers mean increased functionality. The VT100/102 is a common reference for terminal emulation, offering a good balance of text-based capabilities for most telecommunications needs. VT220 and VT240 are useful for graphics.

Xmodem — Originally a program for transferring data from one microcomputer to another. Only its protocol and error-checking method are now known by that name, and they have been incorporated into a wide variety of telecommunications software.

Ymodem/Ymodem-G/Zmodem — Communications protocols with enhanced abilities such as larger-sized data packets and transmission of multiple files.

— Salvatore Parascandolo

log boxes. The autopilots are flexible; they can ask which file to send, which to receive, what to type, what to print, and what to dial. The scripting process lets you copy steps from one autopilot to another and change from one to another. You can launch a HyperCard application and then return to Smartcom II, which puts all of HyperCard's strengths at your service, for either preprocessing or postprocessing your telecommunicated information.

You can save an autopilot by name, execute it, or retrieve it later for editing. Although autopilot script is basically text that can be reviewed and easily understood, all autopilots are edited through icons and prompted responses, thus isolating you from direct access to your script — and possible blunders. Overall, Smartcom II's scripting is not as powerful as MicroPhone's or Red Ryder's, but it's clear and easier to use, with help always available.

In fact, Smartcom II is the easiest of the general-purpose programs to learn and use. Aside from the icons, its functions are clearly labeled and logically laid out. If you need a program that can jump through hoops, you should look elsewhere, but if your needs aren't elaborate, you'll find Smartcom a solid and worthy performer.

DynaComm 1.02



DynaComm has had almost as many names as the Jefferson Airplane. First it was InTouch; then it was sold as InTalk. Now it's called DynaComm, but for all the names and some impressive features, it still feels incomplete.

Terminal emulation is one of the brighter spots of the program. Besides TTY, VT52, and VT100, DynaComm emulates the VT220, ADDS VP/60, IBM 3101, Televideo 925/950, and CompuServe Vidtex. The list is a strong clue to the program's apparent intent: providing connectivity with corporate minicomputers. Its strength is its detailed programmability and its ability to customize the user interface with dialog boxes, scrolling fields, and buttons.

DynaComm is capable of a range of file-transfer protocols as impressive as its selection of emulations. Besides the standard Xmodem, Ymodem, and MacBinary, the program speaks Kermit, Crosstalk, YTerm, the Connect protocol supported by Control Data mainframes, and its own proprietary format (compatible with MacTerminal 1.1). Another unusual (and welcome) touch is its support for non-Hayes-compatible modems, including the Telebit Trailblazer and Multitech's MNP line. DynaComm makes it simple to customize modem commands: You

EVERYONE PROMISES TO
TAKE FULL ADVANTAGE OF
THE NEW MACINTOSH...



WE GIVE IT TO YOU

MUSICAL

Travel

OF CONTENTS

hts	1
resident	2
e Employee Committee	3
perations	4
Division	5
ting	5
ufacturing	5
cial Services Group	5
al Corp. / Holding Company	5
tements	6
.	7
.	8
lights	9

QUARTERLY REPORT ARTICULATE DESIGNS

• Second Quarter • 1990 •



The Second Quarter of 1990 saw Articulate Designs strengthening its position as the leader in marketing communications in the Bay Area. The most significant event was the completion of negotiations with the Oakland Rebels,⁽¹⁾ a new football franchise, that will have Articulate Designs create the complete team image for the club—logo, uniforms, tickets, and marketing materials. The \$5 million deal calls for the consulting and design work into the mid-1990's.

The company posted profits of \$.15 per share this quarter, on \$244,568 of revenue, marking the third quarter in a row that profits have been increased. The acquisition of PeachTree Printing in the Fourth Quarter 1989 began to pay dividends, as the in-house production facility is saving costs in ha-

Product Comparison Chart

FEATURE

Text Wrapping
Outlining
Smart Search

✓
✓
✓

No
No
No

No
No

The world of Macintosh word processing just got a lot more sophisticated. And a lot simpler.

Presenting FullWrite Professional.™ It's the first word processor that fully utilizes the power of the new generation of Macintosh. Yet it's as intuitive as the Macintosh™ itself.

IN WRITING: FULLWRITE.

FullWrite gives you the power to create persuasive, hard-hitting communications in a lot less time. With a lot less effort.

How? With advanced page layout features that let you format a single page memo or a 400-page manual in seconds. And as you make changes, FullWrite updates the entire document immediately, re-wrapping text around illustrations and remembering things like page references and footnote numbering.

Best of all, you see your output on screen as you work. From indexes to hairline rules; from redline markups to kerning and leading control.

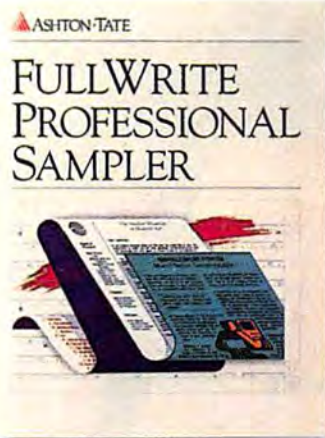
Layout, graphics, and outlining are all there when you need them.

But like the newest generation Macintosh, FullWrite is more than just the sum of its parts. It's a whole new way to communicate your ideas.

Free FullWrite Sampler.

Seeing is believing. Give us a call at 800-437-4329, ext. 2100.* We'll send you a full-capability product sampler, absolutely free.

There. You've got it in writing.



ASHTON·TATE®
MACINTOSH DIVISION

*In Colorado, call 303-799-4900, ext. 2100. Trademarks/Owner: FullWrite, Ashton-Tate, Ashton-Tate logo/Ashton-Tate Corporation; Macintosh/Apple Computer, Inc. © 1989 Ashton-Tate Corporation. All rights reserved.

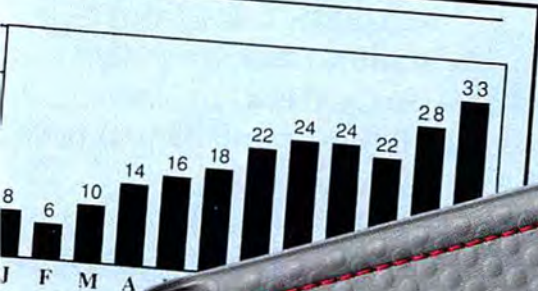
Please circle 98 on reader service card.

WITH THE NUMBERS TO

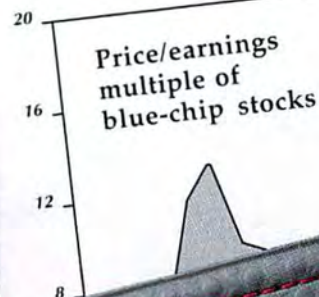
Economic Review

THE MEDINA GROUP

Summary of Results



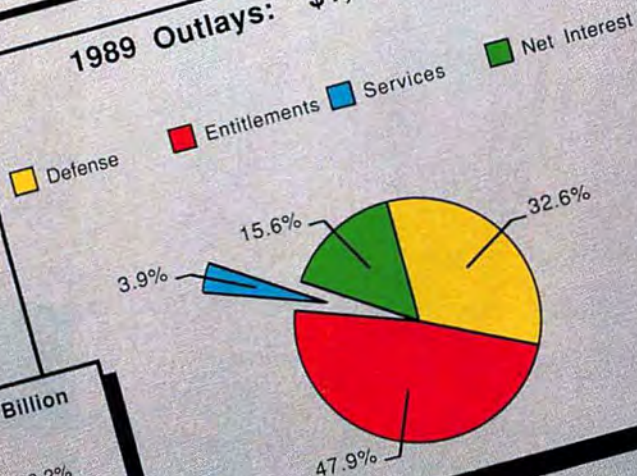
As you can see by the accompanying chart, the introduction of new products has been a significant factor in the company's growth.



Close-Up on Government Spending

Entitlements have become increasingly burdensome as a percentage of total government outlays. As a result, funds for social services have been reduced.

1989 Outlays: \$1,023 Billion



1985 Outlays: \$946 Billion



Addenda	
GNP	
2.8	990.5
23.1	1057.1
23.4	1151.2
-14.9	1285.5
-6.2	1417.0
-53.2	1523.5
-73.7	1699.6
53.6	1935.8
	2173.4

Spreadsheet software has taken a great leap forward.

Presenting Full Impact.™ It's the first spreadsheet to truly harness the power of the new generation of Macintosh computers. To convert the complexity of numbers into the power of communication.

BACK IT UP: FULL IMPACT.

Beginning, of course, with your numbers. Because now you can take them places they've never been before—quickly and intuitively. For example, create a chart—or several charts. Place them exactly where you'd like. Make your point clear with a paragraph of text. Then make it clearer by using different fonts. Or sizes. Or styles. Or all three. Sign your work with the company logo. And print it all on a single impressive page.



It's that powerful. And as easy as clicking on an icon.

Free Full Impact Sampler.

There's a lot more we could say. Like how we succeeded in inventing an intuitive way to create macros. Or how virtual memory lets you create

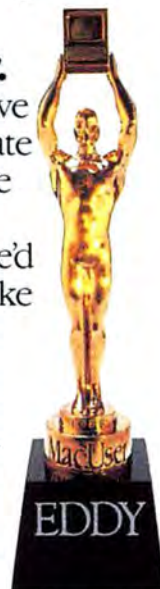
the largest Macintosh spreadsheets ever. But we'd rather let Full Impact make its own first impression.

So give us a call at 800-437-4329, ext. 3600* and we'll send you a full-capability product sampler, absolutely free.

We think you'll be impressed with our numbers.

ASHTON-TATE

FULL IMPACT SAMPLER



Best New
Spreadsheet
1989 MacUser



ASHTON-TATE®
MACINTOSH DIVISION

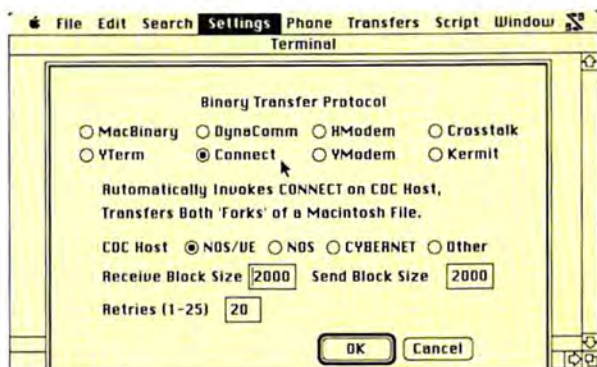
* In Colorado, call 303-799-4900 ext. 3600. Trademarks/Owner: Full Impact, Ashton-Tate, Ashton-Tate logo, Ashton-Tate Corporation, Macintosh/Apple Computer, Inc. © 1989 Ashton-Tate Corporation. All rights reserved.

Please circle 99 on reader service card.

Key Telecommunications Program Features Compared

Program name and version	Acknowledge 1.0	Blast 8.1	DynaComm 1.02	FrontEnd 2.0b3	Mac 240 3.0.1	Mac 3000 3.2
Price	\$495	\$195	\$295	\$180	\$199	\$150
Terminal emulation						
TTY	✓	✓	✓	✓		✓
VT52	✓		✓			
VT100/102	✓	✓	✓	✓	✓	✓
VT220	✓	✓	✓		✓	
Communication-related options						
Hardware handshake support	✓	✓	✓	✓		✓
Maximum baud rate	57,600	38,600	56,600	19,200	57,600	19,200
Supports non-Hayes-compatible modems	✓	✓	✓	✓	✓	✓
Supports full Mac 8-bit character set	✓	✓	✓	✓	✓	✓
Data capture						
Appends incoming data to an existing file	✓	✓	✓		✓	✓
Captures incoming data to a file	✓	✓	✓	✓	✓	✓
Copies table	✓		✓		✓	✓
Cuts, copies, and pastes data in the terminal window	✓		✓	✓	✓	✓
Sends all incoming data directly to a printer	✓		✓	✓	✓	
Size of screen buffer	variable	none	300K	user-selected	variable	512K
Protocol transfers						
Kermit			✓			
MacTerminal 1.1	✓		✓			✓
Supports MacBinary file format for all protocols	✓	✓	✓	✓	✓	✓
Xmodem	✓	✓	✓	✓	✓	✓
Xmodem with 1K blocks	✓		✓	✓		✓
Ymodem			✓			
Ymodem-G			✓			
Interface control						
Ability to get user input during scripting	✓	✓	✓			✓
User-definable menus	✓		✓	✓		✓
Interface						
Assigns a script/macro to a Command key	✓		✓			
Assigns a script/macro to an FKey	✓		✓			
Assigns a script/macro to an on-screen button	✓		✓			✓
Supports the Extended Keyboard	✓	✓	✓	✓	✓	✓
Automation/scripting features						
Automatic script/procedure generation	✓					
Prescheduled connection/unattended operation	✓	✓	✓			✓
Script/procedure debugger	✓		✓			
Script/procedure editor	✓	✓	✓			
Graphics features						
Copies text as graphics					✓	✓
Sends, receives, and displays graphics	✓				✓	
Sets the default background and foreground color						
Miscellaneous						
Built-in text editor	✓	✓	✓		✓	✓
Finds text in buffer	✓	✓				✓
Line-by-line send	✓		✓	✓	✓	✓
Multiple simultaneous sessions	✓	✓		✓	✓	

Custom Calling



DynaComm's greatest strength is its emulation of an extraordinary number of terminals and support for numerous file-transfer protocols.

can define 32 buttons for frequent commands or text strings, and eight buttons can be displayed simultaneously across the bottom of the screen.

DynaComm includes a full-featured scripting environment that is almost as complete as Red Ryder's but is presented differently. It provides you with five kinds of

dialog boxes, three kinds of buttons, and a scripting language that's not iconic — or like HyperTalk — but is manageable. Like Red Ryder, DynaComm requires you to compile your scripts before you execute them. Unlike Red Ryder, DynaComm includes a built-in text editor that you can keep on-screen during a terminal session.

There's a lot of power in DynaComm, if you can get at it. For example, to put up a button or a dialog box, you need to specify its corner points numerically; you can't just create it, drag it to size, and place it as you would with HyperCard. Like MicroPhone, DynaComm has a utility (actually a DynaComm script) that guides you through the creation of scripts, although it's not context-sensitive or nearly as easy to use as MicroPhone's.

Despite its considerable capabilities and power, DynaComm generally seems incomplete. When you pull down a menu, the lines that separate sections of the menu can be highlighted with the mouse. To get on-screen help, you need to execute a script that uses DynaComm's scripting powers to present a scrolling hierarchical topic set, but it's an inconvenient two-step procedure that

VersaTerm-PRO: Tektronix in a Mac

For most people, character-based terminals suffice — even VT100 emulation may be more than necessary. Folks who work primarily with graphics systems, though, should check out VersaTerm-PRO, because it emulates the Tektronix 4105 and 4014 graphics terminals. Aside from providing Tektronix emulation, the program also works in the standard VT modes and can emulate a Data General DG D200, which is handy if you're dialing into an installation running DG's popular CEO office-automation system. If Tektronix emulation is what you need, there's no choice but to get VersaTerm-PRO.

The Tektronix 4105 is a color terminal with some built-in graphics-rendering intelligence, which VersaTerm-PRO programs into the Mac, enabling it to convert Tektronix-specific graphics commands into Macintosh-compatible graphics commands. On a Mac II, VersaTerm-PRO shows Tektronix plots in either Tektronix or Mac colors. On monochrome Macs, VersaTerm-PRO assigns Mac patterns to Tektronix colors. This color-to-monochrome translation is straightforward, although you may have to play with the color-conversion tables to get an optimum

representation for your particular use.

Once you've captured a Tektronix graphic, you can save it in MacDraw, PICT, or TekPrint (vector) formats. You can select an on-screen graphic and copy it to the Clipboard as an object-oriented, MacDraw-

ferent from those of text-based emulation, so the layouts of menus and a couple of icons initially appear odd, but they eventually become familiar. The program may feel slow, especially in Tektronix modes, but that's more a function of the demands of the terminal than a fault of the program. Tektronix screens often require far more data than do simple text screens, so the plots may seem slow to appear. The faster your modem, of course, the less onerous the problem.

One of VersaTerm-PRO's drawbacks is that setting communications parameters requires several menus. VersaTerm-PRO is the only program in this roundup that lacks a full scripting language. It can record and play back simple macros, but it can't be instructed to make decisions based on current conditions. It has substantially less automation capability than MicroPhone II or Red Ryder, but its main strength is not programmability. If you need to talk Tektronix, however, VersaTerm-PRO is your program; after all, a Mac equipped with this program is much cheaper and multipurpose than a dedicated Tektronix terminal.

— Daniel J. Rosenbaum



VersaTerm-PRO lets your Mac emulate a Tektronix 4105 or 4014 graphics terminal. It runs in color on Mac IIs. On monochrome Macs, colors can be converted to patterns for on-screen differentiation.

compatible image. This procedure lets you interact graphically with a host system and then save and print your work locally.

The operation of VersaTerm-PRO is unfamiliar but ultimately not difficult. The needs of graphics-based emulation are dif-

Best Performer!



FoxBASE+/Mac: The Most Celebrated Mac DBMS Now Includes a Powerful Report Writer!

**New
Version 2.00!**

New FoxBASE+/Mac Version 2.00 is here—and stealing the show! In its first year, FoxBASE+/Mac won more awards—both in the U.S. and Europe—than any other DBMS ever created for the Macintosh! And Version 2.00 is faster and more powerful than ever—packed with innovative new features and language enhancements!

New FoxReport!

FoxReport lets you create virtually any columnar or free-form report—without *any* programming! FoxReport includes:

- **Page Layout:** Designate many layout settings for your report: number of columns, left margin setting, column width, space between columns, measurement size for each page, and more!
- **Report Layout Window:** Define the different areas within your report, using FoxReport's new "band" system. Start with the default bands: Page Header, Body, and Page

Footer, then bring in other bands like Title, Summary, Column Headers and Footers, etc.

- **Object Menu:** Control the Type Font, Sizes and Styles of text objects. Fill and Pen options let you change the color and shading of almost every object!
- **Page Preview:** "What-You-See-Is-What-You-Get" design ensures that the report on your screen is *exactly* as it will appear in print!
- **Label Generator:** Create labels of almost any size and configuration. You can even include pictures *anywhere* on the label space!

New Features!

- **Enhanced XCMD/XFCN Support:** Load up to 16 external XCMD's and XFCN's, then access them directly from within FoxBASE+/Mac 2.00 programs!
- **Language Enhancements:** Other features include: support for custom hierarchical menus, new commands to help handle resources, new system functions to improve filename and screen management, and much more!

Perfect Connectivity!

FoxBASE+/Mac 2.00's Multi-User version allows complete data and application sharing between networked Macs and PCs! (when used with FoxBASE+/LAN). It also runs on the most popular network systems: AppleShare, Novell and 3Com! . . . *And It's Faster Than Ever!*

Order or Upgrade Now!

FoxBASE+/Mac Version 2.00 is the *new* Leader of the Mac! And at only \$495 (\$695 for Multi-User), it's a phenomenal bargain! If you're already a FoxBASE+/Mac registered user, you can upgrade to Version 2.00 for just \$75!

To order your copy (or ask for a **FREE** demo disk), call (419) 874-0162. Or visit your local quality software dealer.

After all, when it comes to the Macintosh, *Nothing Runs Like a Fox!*

FoxBASE, FoxBASE+/Mac, and FoxReport are trademarks of Fox Software. Macintosh is a trademark of Apple Computer, Inc.

Fox Software

Fox Software, Inc. (419) 874-0162, Ext. 980
134 W. South Boundary Fax: (419) 874-8678
Perrysburg, OH 43551 Telex: 6503040827 Fox

Please circle 24 on reader service card.

FENDER RENDER vs.



BUMPER-TO-BUMPER.

Whether you're designing the next generation of a product or drafting the plans for a new building, you need to keep the whole project in mind. And now you can keep it in view as well, thanks to the Truevision HR Graphics card. The HR card lets your Mac® II display a sharp 1280 x 960 pixel image, 400% more than a standard Apple® monitor and 56% more than other 'high resolution' 1024 x 768 displays. Its 256 colors (from a 16.7 million color palette)

give you tremendous flexibility for engineering drawings, scientific visualizations, or 3D modeling for prototypes. And the HR supports a virtual desktop up to 2048 x 2048 pixels, allowing you to pan over large drawings in real-time, horizontally and vertically.

The HR card is QuickDraw™ compatible*, which means that you can run with virtually all Macintosh® software. And you may select the monitor of your choice from

manufacturers like JVC, Philips and SONY®. There are two Truevision HR cards available: the HR 2M (\$3995) addresses a virtual desktop of up to 2048 x 1024 pixels, and the HR 4M (\$5995) addresses up to 2048 x 2048 pixels. Get precise images and view large format drawings with the Truevision HR Graphics card. Take a test drive soon by visiting your Authorized Truevision Reseller, or call us at 800/858-TRUE for more information.



The HR Graphics Card works with the Macintosh II, IIx and IIcx.



Truevision, Inc.
7351 Shadeland Station, Indianapolis, IN 46256

Please circle 70 on reader service card.

INTERNATIONAL: Canada 416/499-9400 France 33-13-952-6253 Italy 39-2-242-4551 Switzerland 41-1-825-0949 U.K. 44-1-991-0121 West Germany 49-89-612-0010 Other International 617/229-6900. Suggested retail price is US domestic price, and is subject to change.

Unretouched screen displays of an Apple RGB monitor at 640 x 480 and an HR-compatible monitor displaying the same image at 1280 x 960 pixel resolution.

*All graphics cards with more than 1MByte of memory require 32-bit QuickDraw. QuickDraw is a trademark and Apple, Macintosh and Mac are registered trademarks of Apple Computer, Inc. SONY is a registered trademark of Sony Corporation of America. Image courtesy of Electric Image. PageMaker is a registered trademark of ALDUS Corp. AutoCAD is a registered trademark of Autodesk Inc.

Directory

Acknowledge 1.0

Prometheus
7225 S.W. Bonita Road
Tigard, OR 97223
(503) 624-0571
\$495

Blast 8.1

Communications Research Group
5615 Corporate Blvd., Third Floor
Baton Rouge, LA 70808
(504) 923-0888
\$195

DynaComm 1.02

FutureSoft
1001 S. Dairy Ashford, Suite 203
Houston, TX 77077
(713) 496-9400
\$295

FrontEnd 2.0b3

Kaz Business Systems
10 Columbus Circle
New York, NY 10019
(212) 757-9566
\$180

Mac 240 3.0.1

White Pine Software

94 Route 101A, P.O. Box 1108
Amherst, NH 03031
(603) 886-9050
\$199

Mac 3000 3.2

International Computer Consultants
1311 Clegg St.
Petaluma, CA 94952
(707) 765-9200
\$150

MacKermit 9(04)

Columbia University
612 W. 115th St.
New York, NY 10025
(212) 854-3703
\$20

MacLine 3.0

Touchstone
909 Electric Ave.
Seal Beach, CA 90740
(213) 598-7746
\$145

MicroPhone II 2.0

Software Ventures Corp.
2907 Claremont Ave.
Berkeley, CA 94705
(415) 644-3232
\$295

MockTerminal 4.4

CE Software
1854 Fuller Road, P.O. Box 65580
West Des Moines, IA 50265
(515) 224-1995
\$49.95

PacerLink 5.0b

Pacer Software
1900 W. Park Drive, Suite 280
Westboro, MA 01581
(508) 898-3300
\$2,000 (five users)

QuickLink II 1.0

Smith Micro Software
P.O. Box 7137
Huntington Beach, CA 92615
(714) 964-0412
\$99

Red Ryder 10.3

Freesoft
150 Hickory Drive
Beaver Falls, PA 15010
(412) 846-2700
\$80

SideKick/MacTerm 2.0

Borland International
1800 Green Hills Road
Scotts Valley, CA 95060

(408) 438-8400
\$99.95

Smartcom II 3.1A

Hayes Microcomputer
Products
P.O. Box 105203
Atlanta, GA 30348
(404) 449-8791
\$149

Telescope Pro VT100 1.2

Mainstay
5311-B Derry Ave.
Agoura, CA 91301
(818) 991-6540
\$125

TextTerm+Graphics 1.0

Mesa Graphics
P.O. Box 600
Los Alamos, NM 87544
(505) 672-1998
\$195

VersaTerm-PRO 3.0

Peripherals Computers
and Supplies
2457 Perkiomen Ave.
Reading, PA 19606
(215) 779-0522
\$295

A Picture or A Thousand Words!

KeyMaster™

Create PostScript fonts with existing Macintosh artwork imported from Encapsulated PostScript or PICT formats.

"To me, it's as easy as using Symbol or Zapf Dingbats fonts.

I'm using KeyMaster to create custom fonts with characters that aren't in normal typefaces - fractions, different size bullets,

- Doug Evans

Communication is the key to making an impact!

Whether it's with a picture or a thousand words, use KeyMaster, Fontographer, and FONTastic Plus to create the best possible impact using graphic images and type.

"To stay contemporary, you need contemporary design tools.

I have found Fontographer to be that. It's uniqueness is in the control you have over every aspect of the character ... It's the same with FONTastic Plus - it has that flexibility."

- Simon Tuckett

FONTOGRAPHER®

Professional PostScript typeface and logo design editor.

FONTASTIC™ PLUS

Bitmap font editor for the Macintosh.

ALTSYS CORPORATION

720 Avenue F, Suite 109
Plano, Texas 75074
(214) 424-4888

For more information, call Altsys or contact the dealer nearest you.

Suggested Retail: KeyMaster - \$99.95
Fontographer - \$395.00
FONTastic Plus - \$99.95

Please circle 159 on reader service card.



Michael Backes, film industry computer systems consultant, and Van Ling, creative and technical assistant to James Cameron, director of the new 20th Century Fox film The Abyss.

"We put the Jasmine DirectDrive through hell, but it got us through 'The Abyss.'"

"Fifteen months ago, we started working on a new underwater adventure movie called *The Abyss*. We needed a hard drive that could stand up to the worst possible circumstances. So we got two Jasmine DirectDrives.[™] And immediately, we put them in the worst possible circumstances.

"We took them down to a hot, dusty place called Gaffney, South Carolina, where the majority of the film was shot. We put them in dirty rooms. We ran them almost 24 hours a day for over a year. They were dropped, they were covered with dust, they were bounced from location to location, they were used and abused—and they still worked great. We put them through as much hell as *we* went through. If anybody could break a drive, we could, and we didn't. They really performed for us.

"Often, we wouldn't have time to back everything up, so we just had to rely on the Jasmine drives to run properly all the time. And, even when they were really put through the ringer and we thought we were going to lose everything, the Symantec[™] Utilities for Macintosh that come with the drives really saved us.

"We basically had the entire movie on those Jasmine drives. They were used to store storyboard scans, script changes,

animation tests, and various files covering every aspect of the film. This took up hundreds of megabytes of disk space, because the storyboards that we scanned into our Macintoshes[®] were constantly being revised and updated, and we couldn't afford to throw anything away during filming.

"The drives are still working great. We figure they'll probably have a long career in this business! And because they held up so well under pressure, so did we."

 **Jasmine**
1-800-347-3228



doesn't conform to Apple's interface specifications.

DynaComm appears poised on the edge of greatness. The interface needs to be cleaned up and the product polished. Clearly, its features could put it into the custom-telecommunications majors, but the presentation still seems somewhat bush-league.

Acknowledge 1.0



Acknowledge is less a communications program than a development environment for automating and customizing communications. Using it to log on to bulletin boards is like using an F-15 to hop over to the corner grocery store. The program helps you build graphic and icon-driven interfaces and hide every nut and bolt of the communications session from the user. The typical Acknowledge user will be an in-house specialist who needs to develop a customized stand-alone communications application.

Terminal emulation is not Acknowledge's claim to fame. Besides providing the standard fare, Acknowledge emulates Minitel and Prestel terminals, two ubiquitous European standards that are all but unknown in the States. The emulations appear to have been chosen for their commonality, not for any particular functionality. But to dismiss Acknowledge on the basis of a feature checklist would be a tremendous mistake — the program simply has no equal on the market.

At the heart of the Acknowledge program is TAL, the Telecommunications Access Language. TAL is a Pascal-like development language that enables you to design your own menu systems and dialog boxes — an entire user interface for a communications application.

TAL is not particularly easy to use for novices. It is a development system; if you are not comfortable programming or if you don't want to immerse yourself in interface issues, stay away. If your job is to support many users with special needs, you should give Acknowledge careful consideration.

One of the sample applications that comes with Acknowledge demonstrates its flexibility. It consists of a U.S. map divided into re-



A full-blown development system, Acknowledge is meant for designers of custom front ends. Its programming language, TAL, is reminiscent of an extended BASIC.

gions, each with a check box. Users can click on the region for which they want information and click on OK, and Acknowledge dials a remote computer and downloads data about that region. The users don't have to know anything about communications; the program does all the work.

Which Program Is Right for You?

It depends on whether you need special or general-purpose capabilities. For a customizable interface and connection to a wide range of minicomputers, DynaComm is a likely selection. As a communications-program development system for custom applications, Acknowledge is your program.

More difficult is choosing among MicroPhone II, Red Ryder, and Smartcom II. Any of these general-purpose applications will perform well, provided that it's used within its range of capabilities. If you want power but

you're cost-conscious, Red Ryder is a good choice. For harnessing your programming wits and the intelligence of the automated script recorder, MicroPhone II comes out on top. If you need a medium degree of automation and easy, iconic scripting, go with Smartcom II.

Daniel J. Rosenbaum is a contributing editor to *MacUser* magazine and has a monthly communications bill he's too embarrassed to reveal.

On the Horizon

At this writing, these events were in flux:

The publishers of Acknowledge announced MacKNOWLEDGE, a fully functional communications program written in Acknowledge's Telecommunications Access Language (TAL). MacKNOWLEDGE comes with scripts for accessing information and E-mail services. Moreover, MacKNOWLEDGE lets users create scripts with E-Z TAL, a simplified subset of TAL, for friendlier but less powerful scripting.

MicroPhone II 3.0 was in the final stages of development. Its new features will include support of non-Hayes-compatible modems, Zmodem protocol, the ability to use XCMDs, a buffered keyboard, the ability to search the screen buffer, support of the full Macintosh 8-bit character set, the ability to set background and foreground colors, an on-screen timer and billing meter, and extended scripting power.

— Salvatore Parascandolo

First QMS gave you PostScript printing in color. Now it's certified by Pantone, Inc.

The QMS
ColorScript™ 100.
The world's first color
PostScript printer.
Now more affordable.



When the QMS ColorScript 100 was introduced, it gave desktop publishers, graphic artists and designers what they had been waiting for—color printing for Adobe PostScript® applications. Now, Pantone, Inc. has certified that our printer is PANTONE® Color Capable. QMS and Pantone developed process color combinations for the ColorScript 100

which very closely simulate all colors in the PANTONE MATCHING SYSTEM 747XR, except for metallics and fluorescents. So the color you want is the color you get.

Even commercial printing proofs and in-house color separations can be produced with your QMS ColorScript 100. For both



flat and four-color process printing. For a fraction of the time and cost of conventional methods.

The printer has the advantage of a 68020-based Atlas controller running at 16 MHz, so you can see your results faster. You can print an 8½" x 11" page in just under one minute. An 11" x 17" page in just under two. And the quality is excellent. The ColorScript 100 uses a thermal transfer process that produces true 300x300-dot-per-inch resolution.

New Model 20—more affordable and upgradable

The original ColorScript 100 is the Model 30, with 8 megabytes of memory, a 20-MB hard disk built in, and the ability to print up to 11" x 17" pages.

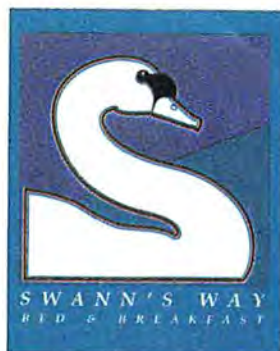
The new QMS ColorScript 100 Model 20 is more affordable. It has 4 MB of memory and the ability to handle letter-size (8½" x 11")/A4-size paper. It provides the same high-quality output as the Model 30, and can be fully upgraded to a Model 30 when your needs expand.

Compatibility is built in

Both models of the ColorScript 100 connect with Macintosh®, IBM®, Compaq® and other compatible PC's, along with mini-computers, workstations and mainframes. So your whole network can output in beautiful, accurate color. Using any of dozens of color-compatible applications.

The ColorScript 100 is yet another solution from QMS. Solutions that have made us a leader in imaging technology.

For more information on the QMS ColorScript 100, including a list of compatible software and information on financing, call 1-800-631-2692, ext. 223.



Pictured are just some of the ways designers are using the QMS ColorScript 100. The creative director at one design firm notes: "We're doing comps that used to take hours in minutes. The quality is fantastic." A computer design system manager in the Midwest says: "Our clients are getting more options, in less time, at lower costs."



SALES FORECAST



QMS®

Please circle 183 on reader service card.



Measure *for* Measure



PHOTOGRAPHY: GEOFF NELSON

**Is Finale all you'll ever
need in a music program?
Not unless what you need
is a lot of aggravation.**

When Finale was announced nearly two years ago by Coda Music Software as "the last music program you'll ever need," hope and skepticism ran equally strong in the computer-music community. Here was a program, the advertising said, that would integrate the highest quality of PostScript notation with MIDI recording and playback. It would be that Holy Grail of computer music, a program that could take a performance from a

By Paul D. Lehrman

Measure for Measure



Figure 1: Both of these passages are transcriptions of the same recorded MIDI data. The top one uses conventional quantization to the nearest sixteenth note; the bottom employs *floating quantization*, which determines how many notes are in a particular beat and quantizes that beat accordingly. Finale stores MIDI data separately from transcription data, so both of these versions play back identically over MIDI.

keyboard or other instrument and instantly transcribe it into music notation that was not only readable but also publishable. It would provide composers with powerful music-processing tools like those of the most advanced MIDI sequencers, with a front end based on true music notation, not numerical lists or cold graphic objects. Its \$1,000 price seemed almost modest, considering how the program promised to revolutionize the process of making music.

Industry veterans had heard these stories before. The history of computer music is littered with programs that promised to be all things to all musicians but tripped up on the complex task of generating music notation that was faithful to the subtleties of performance and the conventions of notation. So there were many who, while hoping that Finale could live up to its hype, weren't holding their breath (see "The Right Staff," October '88, for a review of other music programs).

Finale's release in late '88 did little to change anyone's mind. Its proponents hailed its amazing feats of notation generation, while its critics noted its confusing user interface, disappointing documentation, and

inordinate bugginess. Some were willing to spend months buried alive with the program to figure out how to use it, and others gave up in disgust after a few days or weeks.

After four months and five versions of the program, I agree that Finale has some remarkable, unique features that should be incorporated into every music program from this day forward. I also think the program is poorly designed and implemented, however, and for now would recommend it only to people with immediate specific needs that other programs can't meet.

Taking Notes

First the good news: Finale really can transcribe a keyboard performance better than any other program I've seen. One of the keys to this success is a *floating quantization* function (see Figure 1), which keeps notes that are played a little too short or late from ending up as a morass of

dots, ties, and microscopic rests while fast notes get lumped together as chords — sins many notation programs are guilty of. Furthermore, you can choose from among several quantization algorithms, so the subdivisions of a beat can be determined either by the number of notes played in that beat or by the absolute timing of those notes.

Another key feature is the ability to record a passage in free time, without a metronome, and then assign beat and measure *time tags* for notation purposes (see Figure 2). In this way, the most florid rubato improvisation can be transcribed clearly. Since the program keeps the recorded MIDI data separate from the transcription, the original performance, with all its subtle dynamic, durational, and timing information (which, if it were to show up in the notation, would likely render it unreadable), can be recalled and played back anytime.

Finale can also do wonderful things with chords. You can write a lead sheet, insert guitar-chord symbols, and then play it back while the program automatically generates all the notes of the chords (on their own

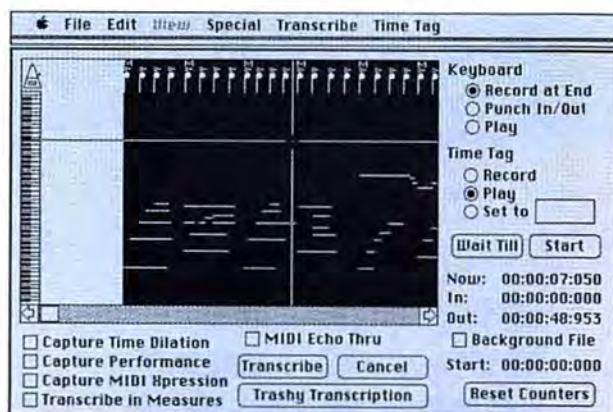


Figure 2: In the Transcription window, the lines are recorded MIDI notes, and the notes at the top are *time tags* that are added after the fact. The little *M's* above the notes indicate measure boundaries.

MIDI channel), using voicing and rhythm that you specify. If you play chords on a keyboard, the program can recognize them and print chord names at the appropriate places in the score.

You can write lyrics in an external word-processing program and import them into Finale via the Clipboard. Once it's there, each word or syllable

Finale handles
page layout
and supports
the most
bizarre time
and key
signatures.

can be tagged to a specific note; when that note is moved, the corresponding lyric goes with it. The program automatically spaces notes to accommodate syllables of different lengths.

Finale handles page layout, so no longer do you have to export music files to a layout program to get titles, page numbers, and text blocks onto a printed page. When a score is finished, individual instrumental parts can be generated automatically (even transposed parts for instruments such as clarinets and French horns), and you can tell the program which dynamic marks should appear in all parts and which are specific only to certain parts.

The most bizarre time and key signatures are supported, as are alternative clefs and note heads; reverse and split stems; crossed staves; grace notes; reduced measures (for alternative passages); and staves with fewer or more than five lines, for percussion notation or guitar tabulator. Printed output, whether on a Laser-

Writer or a Linotronic printer, is excellent, and the program can export files as either PostScript text or EPSF documents for customization or use with other graphics programs.

The Price of Power

If all this power were combined with the functionality of a good MIDI sequencer in an easy-to-use package, everyone else in the music-software industry could pack up and go home. But at this point in Finale's development, Coda's competitors don't have much to worry about, because the program has many, many serious problems.

Finale's designers made a major error at the outset, one common to programmers breaking new ground: they put all their energy into creating a program that was incredibly powerful, but they apparently gave no thought to how anyone would actually use it.

The user interface is utterly nonintuitive and un-Mac-like. For example, functions are accessible from a palette of tools at the left of the screen. Some, such as the Measure Add tool, which simply appends an extra bar onto the end of the piece, are simple; others, such as the Mass Mover tool, are complex, with many options and functions. Unfortunately, each tool behaves completely differently, and

a large part of learning the program is remembering, once you've chosen a tool, whether you're supposed to click on a note, a measure, or something else—or double-click, Option-click, or do some combination thereof.

For example, say you want to change a dynamic marking. Using the Staff Expression tool (everything in Finale has a Name), you can try double-clicking on the marking, but if it's above or below the staff, that won't work. Instead, you click on the note the marking is associated with, which may be nowhere near it. But if the note is on a ledger line, that won't work either—you have to click on the area of the bar where the note would be if it weren't on a ledger line. Then you click on the dynamic marking and edit it if you want.

Once you've figured out how to use a tool, you'll find all of its functions in dialog boxes. But these are not ordinary dialog boxes. Clicking on a check box or radio button in a dialog box yields unpredictable results—it may set up an option, open a new box, or actually *execute* the chosen option as a command and close the box. Click the wrong button inadvertently, and you end up performing an unwanted major edit on your music that you are powerless to stop. Worse still, Undo undoes almost nothing.



Figure 3: Pressing the Delete key won't do what you think it will—it will eliminate not only the measure selected but also the same measure on all of the staves above and below it. It is not Undoable.

The best thing next to your Macintosh



Now you can download spreadsheets, word processing documents, even name and address stacks from your Macintosh to the Cambridge Z88 two pound portable computer and take them with you, everywhere.

Change your files or create new ones on the Cambridge Z88 using the built-in word processor, spreadsheet and other applications. Upload them to your Macintosh when you return.

MacWrite, text and WKS files can be transferred between your Macintosh and the Cambridge Z88 using a cable that connects to your Macintosh's modem port, and software that uses a standard Macintosh interface.

Cambridge Z88 Systems for Macintosh users include the Cambridge Z88, cable and software to transfer files, carry case and batteries.

HyperCard With the optional HC Organizer stack, you can transfer names, addresses, phone numbers and to-do lists.

Memory Cambridge Z88 Systems for Macintosh users provide up to one

megabyte of memory, all available for your data files.

Display The Cambridge Z88's display is a supertwist LCD with eight lines by 106 characters.

Keyboard The Cambridge Z88 has a silent keyboard, so you can use it anywhere - in meetings, libraries, classrooms.

Batteries The Cambridge Z88 runs on 4 AA disposable batteries for up to 20 hours, and your data is safe for months - you won't even lose data when you change batteries.

Peripherals The Cambridge Z88 is only 8.25"x11.5"x.875", but it's a complete computer and can be used with a pocket modem, a serial or parallel printer.

Operating system With the Cambridge Z88's task-switching operating system you can have several documents open simultaneously, and quickly switch from one to another. When you return to a document - even after switching off - you'll find it exactly as you left it, without booting, loading, opening, saving, closing or quitting.

Macintosh & HyperCard are trademarks of Apple Computer, Inc.



Cambridge Z88 Systems for Macintosh users from \$699
TO ORDER OR FOR MORE INFORMATION

WEST & MIDWEST

800-366-0088

EAST COAST

800-888-3723

CAMBRIDGE NORTH AMERICA
424 CUMBERLAND AVE., PORTLAND, ME 04101

See us at Macworld Boston in Booth #2106

Please circle 189 on reader service card.

Measure for Measure

Boxes nest inside each other, sometimes a dozen deep, and getting out of them can make you feel like a rat in a maze. Trying to remember in which dialog box a function showed up and how you got there is like driving around Paris with a map of Rome. When you do stumble on the right dialog box, any settings you made in it previously have been wiped out, and the default settings they've reverted to are rarely anything you can use.

Even when you aren't fighting with dialog boxes, Finale makes many tasks unnecessarily difficult. Common editing tools that you find in any sequencer program are missing or are so convoluted as to be unusable. Shifting a track in time by any amount less than a measure is impossible, as is any kind of quantization, except when you're transcribing a MIDI performance. What you play as a string of eighth notes can easily get transcribed as sixteenth notes followed by sixteenth rests. If you want to change these to eighth notes, you have to find and turn on a function called Float Quant in the Note Mover



Figure 4: Finale doesn't recognize any fonts in your System that you haven't specifically loaded into a file, using an obscure function known as Data Check. When you perform a Data Check, however, some fonts seem to get scrambled (notice in the second staff how the lyrics have been reduced to a couple of specks — they were to be in a different font, but it hadn't been loaded into the file).

(it's on the Options submenu of the Special menu), use the Note Mover tool to copy the notes from the staff they're on to a blank staff, and then copy them back — and you can do this only one measure at a time.

Then there's my favorite maneuver: select the Mass Mover tool and click on one measure on one staff. Press the Delete key. That measure is gone, as is the same measure in *every staff* above and below the one you selected (see Figure 3). And I mean *gone*. You can close your eyes, clap your hands, and choose Undo until you get blisters on your fingers, but they ain't coming back.

Poor Docs

You'd think that well over 500 pages of documentation would give you the kind of help you needed to learn Finale, but in reality this gorgeous three-volume manual is for the most part a tool

Bugs aside, Finale still feels shaky, thanks to all its annoying habits.

glossary. The writers seem to have taken the designers' specification for the program, given it a pretty typeface, and put it into a nice binding. Basically, the manuals are totally useless if you're stuck in the middle of a task and don't know what to do next.

Essentially the only way to learn Finale is to read the manuals from cover to cover, trying out every tool, dialog box, and button as you go — not trying to actually accomplish anything — and hope that you retain enough that when you attempt to do a real project with the program, you will remember where to find the information you need each time you get stuck. Yes, there's an impressive-looking index, but it's actually done quite poorly and rarely leads you in the right direction.

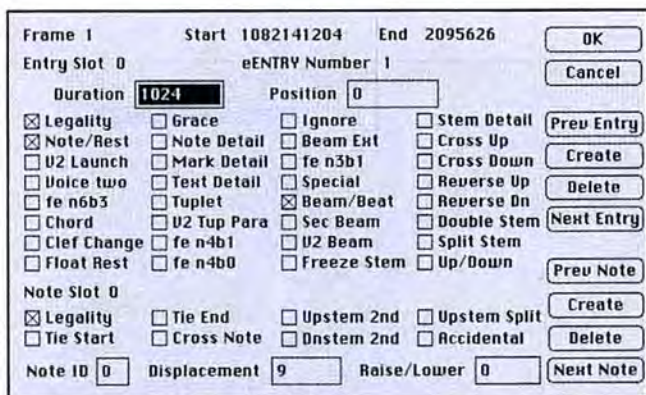


Figure 5: You can get to the Frame dialog box by pressing the Option key while clicking the mouse on a note — intuitive, isn't it? In the current version of the program, this box has no use, but clicking in one of the Legality boxes causes your file to self-destruct.

Measure for Measure

Shaky and Slow

Adding to my dissatisfaction with Finale is its distinct lack of robustness. Although the latest version (1.2.4) does not have as many bugs as the initial release (more than 100 were reported), it still has enough problems that while I was preparing this review, I uncovered a new anomaly or inconsistency nearly every day and crashed the program about twice as often. Things tend not to work the way they're supposed to, and you never know whether it's because you're doing something wrong, some obscure invisible variable got reset inadvertently, or the program is just screwing up.

Even if you ignore the bugs, the program feels shaky, thanks to its plethora of little habits that add to the annoyance factor. For example, you access certain functions, known as Meta tools, by holding down a number key while clicking, but unless you let go of that key at just the right time, the field in the dialog box fills up with the number you're holding — so if you're not careful, you'll transpose that passage by 6,666 half-steps (and it's not Undoable).

With the amount of data being displayed, it's understandable that Finale occasionally takes a while to redraw the screen, but the program has a habit of redrawing at the slightest provocation when you don't want it to. You can shut off the automatic redrawing, but then every time a dialog box appears and disappears, you lose a large portion of the screen. The program has a function that gets the screen to draw somewhat faster. It is called, for some reason, Display Lists On, and you may be lucky enough to stumble across it in the manual. Accessing it is about as obvious and predictable as everything else in the program: you hold down the Option key while choosing About Finale from the Apple menu.

In general, Finale is not a fast program. On a Mac II with 2 megabytes of RAM, just changing the clef on three bars of one staff of a four-minute film cue, 143 measures long and using 12 staves, took an astonishing seven minutes. Changing the key signature in the first 12 bars of that same piece likewise took seven minutes. Unless you never write anything longer than "Mary Had a Little Lamb," you don't want to even think about running the program on a Mac Plus or an unaccelerated SE, despite the company's claim that Finale runs on anything from a stock Plus on up.

MIDI

Finally, the MIDI implementation of Finale is terrible and has problems that every other MIDI-software designer solved years ago. If you stop playing a file before it ends, notes and controllers are left hanging. There is no MIDI echo function unless you are actually recording a track, so testing a phrase or sound on any synthesizer besides your main keyboard is impossible. Recorded MIDI data other than notes cannot be edited — only erased, and to accomplish this you must eliminate *all* the non-

note data in the entire bar.

Getting a file to play back over MIDI can be a nightmare of dialog boxes, buttons, and windows. Some Meta tools are available for playback, but they don't include all the important playback features, and they are not programmable.

As mentioned earlier, the program can import MIDI files, but there is no

You're left with a program that, although capable of amazing things, is a major drag to use.

floating quantization when it does so. All but the simplest (and most highly quantized) transcribed MIDI files end up looking like chicken scratches. A separate utility program, Finale PowerPlus, which does the actual conversion of MIDI files, is incredibly slow: the four-minute

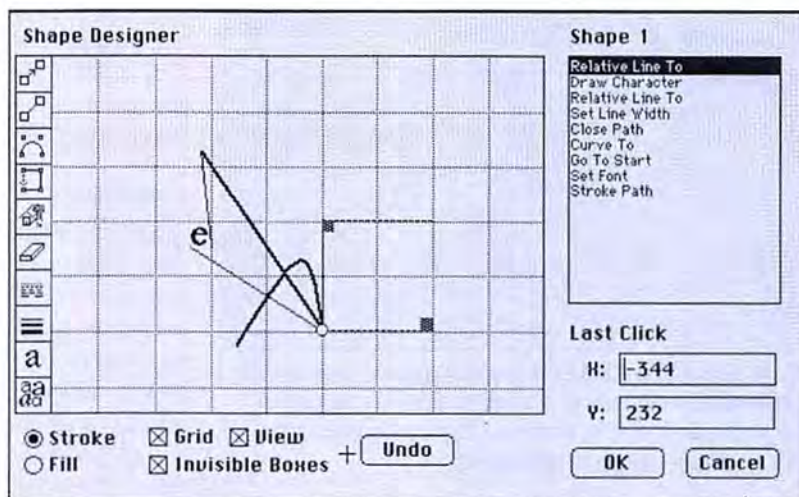


Figure 6: The Shape Designer window — difficult, treacherous, and poorly documented.

THE FIRST GRAPHIC SPREADSHEET.
THE LARGEST, FASTEST AND MOST VERSATILE SPREADSHEET EVER.

WINGZ™

“Wingz has more features than any Macintosh or DOS spreadsheet on the market, but is easy to use and learn.”
—MacGuide

“Wingz towers over Excel.”
“Wingz is fast. Faster than Excel or Full Impact.”
“The most extensive graphing capability of any current Mac program.”
—MacWeek

“If you use Excel, you'll be up and running with the \$399 Wingz almost immediately—the learning curve is not an obstacle to upgrading to it.”
“You get total control over visual elements of the spreadsheet...it produces graphs that are nothing short of awesome.”
—Newsday

“Wingz is a nice replacement for Excel.”
“Go for the gold and purchase Wingz.”
—InfoWorld

“The most exciting piece of software I've ever used on the Macintosh...Wingz opens up virtually the whole of the Macintosh box of tricks.”

“Wingz is as significant in its own way as MacPaint and HyperCard.”
—MacUser U.K.

MACUSER RATING
WINGZ ★★★★★

Available now for Apple® Macintosh® computers.

TO FIND A WINGZ DEALER NEAR YOU CALL (800) 331-1763, EXT. 1000

INFORMATION MANAGEMENT SOFTWARE FROM INFORMIX®

Copyright ©1989 Informix Software, Inc., Informix and HyperScript are registered trademarks and Wingz is a trademark of Informix Software, Inc. Apple, Macintosh, MacPaint and HyperCard are registered trademarks of Apple Computer, Inc. Microsoft is a registered trademark. Full Impact is a trademark of Ashton-Tate Corporation.

Please circle 197 on reader service card.

Measure for Measure

piece just described took 33 minutes to convert. Setting up which staves in a score go to which MIDI channels involves not one confusing screen, but two (which look like they should work identically but don't), and every time you start a new piece, you have to do it all over again.

Are We Having Fun Yet?

All the foregoing results in a program that, although capable of amazing things, is a major drag to use. The

inconsistencies in the tools, the poor documentation, the fragility of the code, and the near-total lack of Undos make it impossible for anyone to learn Finale by exploring or fooling around with it—which puts it at odds with much of the philosophy behind the Macintosh and is the kiss of death for a program that is supposed to enhance creativity.

There is just no straightforward, satisfying way to get started with Finale. All the program's functions,

regardless of how useful or obscure they are, get equal attention, so users have to learn an awful lot of extraneous information before they can accomplish even the most elementary task. Ironically, the program can be made much simpler and faster by using libraries and templates (some good examples of which are included in the package), as well as by customizing the tool palette in various ways, but these techniques are buried in the manual. By the time you've come across them, you've already had to deal with far more jargon and silly dialog boxes than you ever wanted to. Customizing Finale with a macro utility such as QuickKeys can certainly go a long way toward easing the pain of its use, but, again, you have to know the program very well before you can begin to take advantage of this possibility. It would help if Coda bundled a program such as QuickKeys with Finale, with a complement of preset keyboard shortcuts.

Fortunately, the current development team at Coda is aware of Finale's problems and is working hard to ameliorate them. As of this writing, there have already been two upgrades since the initial release, which have eliminated many bugs and cleared up some particularly

THE KISS OF THE SPIDER WOMAN

Music by John Kander
Lyrics by Fred Ebb

Copyright © 1989 Fazzolux Music Publishing Company, Inc., Kander and Ebb, Inc.

Figure 7: Broadway gives high regard to Finale: John Kander (the composer half of the team of Kander and Ebb responsible for such musicals as *Cabaret* and *Chicago*) is using Finale to score the forthcoming musical *Kiss of the Spider Woman*. Other Broadway composers using Finale to help them score at the box office include Cy (*Sweet Charity*) Coleman and Jerry (*Fiddler on the Roof*) Bock.

Update

At press time, Coda had announced plans to release Finale 2.0 in late '89, featuring a new menu-driven interface (cutting down on the dialog box chase) and new features (including an Undo command that can be used while editing), as well as completely new documentation.

THE FIRST GRAPHIC SPREADSHEET. THE LARGEST, FASTEST AND MOST VERSATILE SPREADSHEET EVER.

FREE WINGZ™ WEAR



WINGZ
WORLD TOUR '89

WINGZ™

FOR A LIMITED TIME ONLY.

Buy Wingz for the Macintosh® and get the Wingz World Tour black satin jacket free.*

For more information visit your Wingz dealer or call 1-800-331-1763, extension 1000.

*Available in the U.S. only, certain other limitations apply.
INFORMATION MANAGEMENT
SOFTWARE FROM INFORMIX®

Please circle 198 on reader service card.

Who says you can't get no satisfaction?

Many of the products we carry come with a 30 to 60-day money back guarantee from the manufacturer. And every piece of hardware we sell comes with our own 30-day money back guarantee. If you're not satisfied, send it back for a complete credit or refund (just be sure to keep your original packaging).

Now are you satisfied?

The Mac Zone
Our savings are huge. Our advice is free.

Zone Specials

Zedcor

Full featured bit-mapped & object oriented graphics program in a 30k (!) DA. Great for DTP.
DeskPaint/Draw 65.

SIMMS

Do it yourself memory upgrade? No problem! Each set of SIMMS comes with a complete installation manual.
Call for current prices.

Osicom

High performance hard disks at an affordable price! Pre-formatted with current system software. Just "plug and play".
MacBest see prices

Zedcor

BASIC compiler with an interactive programming environment. Create professional quality stand alone applications.
ZBasic 98.

True Basic

Excellent study aids for students of mathematics, designed as a supplement to school courses or self study programs.
Math Tutorials 33

Incomm

Telecommunications directly from your Mac II without cluttering up your desk. Plugs right into your Mac II NuBus slot.
2400 Int. Modem 199.

American Power Conversion

20 minutes of power after the lights go out. Protects computer & important data fits under Mac.
UPS 110SE 325.

Fujitsu

Pocket sized (if you have big pockets) 800k floppy disk drive in a 8" x 4" x 1" case. Doesn't take big pockets to afford it.
Systemgate 800k 155.

Software

3G Graphics - Images W/Impact

Business 1 65.
Graphics & Symbols 1 58.

A. Bonadio & Associates

Expressionist 2.3 78.

ACIUS

4th Dimension 1.06 388.

Adobe

Illustrator 88 297.
Streamline 248.
Adobe Postscript Fonts Call

AEC Management Systems

AEC Information Manager 415.

Affinity

Affini File 42.
Tempo II 79.

Aldus

Freehand 348.
PageMaker 3.0 387.
Persuasion 348.

Alp Systems

Mac Proof 3.2 114.

Alsoft

DiskExpress 1.5 45.
Master Juggler 62.
MultiDisk 45.

Ashton-Tate

dBASE Mac 294.
Full Impact 248.
FullWrite Professional 1.1 264.

Bedford

Simply Accounting 217.

Berkeley System Design

Stepping Out 2.01 51.

Blyth Software

Omnis 5 CALL

Bootware Software

ResumeWriter - Professional 60.
ResumeWriter - Student 18.

Borland

Reflex Plus 188.
Sidekick 2.0 67.
Turbo Pascal 1.1 67.
Turbo Pascal Tutor 1.0 55.

Bright Star Technology

Hyper Animator 1.5 77.

Braderbund

PosterMaker Plus 35.
Print Shop 35.

Caere

OmniPage 1.0 559.

Casady & Greene

QuickDEX 31.

CE Software

CalendarMaker 3.0 26.
DiskTop 3.0.4 + LaserStatus & Widgets 26.
MockPackage Plus Utilities 4.4 26.
QuickKeys 1.1 51.
QuickMail 2.0 (1-5 Users) 149.
QuickMail 2.0 (10 Users) 198.

Central Point Software

Copy II Mac (Version 7.2) 22.
PC Tools Deluxe 45.

Chang Labs

C.A.T. 228.

Check Mark Software

Cash Ledger 125.
MultiLedger Ver. 1.3 255.
Payroll 187.

Claris

Claris Cad 625.
FileMaker II 228.
MacDraw II 305.
MacPaint 2.0 99.
MacProject II 389.
MacWrite II 179.
SmartForm Designer 307.

Connect

MacNet 39.

Cricket Software

Cricket Color Paint 169.
Cricket Draw 167.
Cricket Graph 1.3 114.
Cricket Paint 94.
Cricket Presents 285.
Pict-O-Graph 89.

DataViz

MacLink Plus W/Cable 135.

Deneba Software

Big Thesaurus 53.
Canvas 2.0 158.
Coach Professional 115.
Comment 2.0 54.

Dubl-Click Software

WebPaint - bit mapped clip art
1 2 "Classic Clip Art" • 3 4 "For Publishing"
5 6 "Animal Kingdom" • 7 8 "Special Occasions"
9 10 "Printer's Helper" • 11 12 "Ind. Revolution"
13 14 "Old Earth Almanac" • 15 16 "Island Life"
17 18 "All The People" each set 43.
World Class Fonts
1 & 2 (Originals) • 3 & 4 (The Stylish)
5 & 6 (Giants) • 7 & 8 (Triples)
each two volume set 43.
World Class LaserType
Vol 1 - 6 each 43.

Electronic Arts

Disk Tools Plus 31.
Studio Eight 308.
Studio One 98.
Thunder II 49.

Emerald City Software

Smart Art 1 89.

Farallon

PhoneNet Din 8 (10 Pack, Mac, SE, II) 224.
PhoneNet: DB 9 or DIN 8 34.
Screen Recorder 132.
Star Controller 1145.
Timbuktu Remote 194.
Timbuktu Single User 64.

Fifth Generation

PowerStation 29.
Pyro! 14.
Suitcase II 44.

Foundation Publications

Comic Strip Factory 38.
Comic People (Vol. 1 - Office Days) 22.

Fox Software

FoxBASE+1.1 204.
FoxBASE+ Multi User V.1.1 314.

FreeSoft

Red Ryder 10.3 53.

Generic Software

Generic CADD Level 1 88.

Hayes

Smartcom II 87.

HJC Software

Virex 65.

Icom Simulations

HyperTMON 59.
ION Cue 1.3 35.
TMON 88.

Individual Software

101 Macros For Excel 36.
101 Scripts & Buttons for HyperCard 36.

Informix

Wingz! 269.

Infosphere

Liaison 198.

Innovative Data Design

Dreams 269.
MacDraft 1.2b 144.

Insight Development

MacPrint 75.

Insignia Solutions

Soft PC 245.

Intuit

Quicken 31.

Jam Software

Smart Alarms Single User 55.
Smart Alarms Multiuser CALL

Kent Marsh

MacSafe or Night Watch 87.

LaserWare

LaserPrint Color II 369.

Letraset

ImageStudio 274.
LetraStudio 288.
ReadySetGo! 4.5 274.
ReadySetShow (A.K.A. Standout!) 169.

Mainstay

MacFlow 114.
MacSchedule 114.
N'cryptor 28.
Think N Time 57.
Typenow 27.
V.I.P. (Visual Interactive Programming) 109.

Meca

Managing Your Money 2.0 124.

Mediagenic

Focal Point II 118.
Focal Point/Business Class 69.
QuickLetter 78.
Reports 1.2 69.

Micro Planning Software

Micro Planner Plus 6.1e 325.

Microlytics

GOfer 43.
WordFinder 32.

Microseeds

INIT Picker 28.
Redux 54.
Screen Gems 45.

Microsoft

Excel 2.2 CALL
File 2.0 128.
PowerPoint 2.01 249.
Quick Basic 65.
Word 4.0 249.
Works 2.0 188.
Write 78.

"Savings and service? Come on."

They said it couldn't be done—combining the absolute lowest prices with the absolute highest levels of service. Service that includes telephone help with product questions. \$3 overnight delivery. Faxed orders. And cheerful acceptance of company POs.

Then they called MacZone. And you know what? The doubters were converted to believers—and customers.

Now it's your turn. Check out the low, low prices in this ad, starting with this page of sizzling summer specials. Then give us a call. Ask us your toughest product question. Hand us an order (if it's for \$398 or more, we'll give you an Ergotron 360 mouse cleaner free*).

See? Savings and service *do* go together. At least they do when you enter the MacZone.



Abaton Quick Step Printer: \$3,295.

Uses the Crystal Print print mechanism, the Eddy Award winner for best new output device of 1989. And it's the fastest PostScript®-compatible printer in sheer processing speed. Full one-year and 90-day on-site warranty.



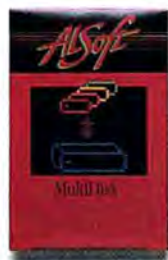
Taxan Monitor: \$1,395.

Gorgeous 19", two-page display monitor, 72 dpi, runner-up for Eddy Award in the display category. Includes interface card and high-quality polarizing anti-glare screen for easy viewing in any lighting.



S.U.M.: \$62.

S.U.M. stands for Symantec Utilities for the Macintosh, and it's *the* file recovery program for the Mac. If you believe in being prepared for anything that can happen, this one belongs in your disk case.



MultiDisk: \$41.

The top-of-the line disk partitioning program, from the hard disk experts who brought you Disk Express. Create multiple volumes on your hard disk—and resize partitions without losing their contents.



Studio 1: \$96.

At last—animation made easy. Simply create an object, define a path, and this magical program does the rest. Create spinning titles in seconds. It's simple, fun, fast—and cheap!



Abaton Scanner: \$1,495.

If you're serious about scanning, this is your scanner. 8 bit. 256 gray shades. 300 dpi resolution. And now at a fantastic price. It even comes with Digital Darkroom and a full one-year and 90-day on-site warranty.



Ergotron 360 Mouse Cleaner: FREE!

Order at least \$398 worth of products and get this handy mouse cleaner. You'll be surprised at how much better your mouse performs after a good cleaning.

*While supplies last.

Product Guarantees:

If you are not completely satisfied with a purchase, many of the products we sell come with a 30 to 60 day money back guarantee. Ask for details when you place your order.

1-800-248-0800

Canada: 800-248-0344 FAX (206) 881-3421

Our savings are huge. Our advice is free.



You're in good company when you enter the Zone.

Join the companies, government agencies, school systems, universities, and other institutions who have started saving with MacZone. We not only have the products, but also the knowledge to help make sure you get the right ones. Order the easy way—fax us your P.O. at (206) 881-3421.



Monogram	
Business Sense	268.
Dollars & Sense	80.
Nolo Press	
For The Record	28.
Will Maker 3.0	31.
North Edge	
Time Slips III	CALL
Odesta	
DataDesk Professional 2.0	288.
Double Helix Release 2	337.
GeoQuery 1.0	198.
Olduvai Software	
MultiClip	55.
Read-It! 2.0	249.
Read-It! Personal	105.
Paragon Courseware	
Nisus	255.
QUED-M	105.
Peripherals Computers & Supplies	
KaleidaGraph 1.1	118.
Versa Term Pro 2.20	189.
Versa Term 4.0	96.
Preferred Publishers	
Database	72.
Vantage	55.
Quark	
QuarkStyle	175.
XPress 2.1	495.
Select Micro Systems	
Exstatix or MapMaker 3.0	each 214.
Shana Enterprises	
Fast Forms Construction Kit	98.
Silicon Beach Software	
Digital Darkroom	249.
Silicon Press	48.
Super 3D (Enhanced) 2.0	297.
Super Card	129.
Super Paint 2.0	128.
SmethersBarnes	
Prototyper 2.0	CALL
Software Ventures	
Microphone 1.5	109.
Microphone II V 3.0	221.
Solutions	
backFax	126.
Curator	74.
SmartScrap & The Clipper 2.0	45.
Super Glue 1.05	48.
SuperMac Software	
Disk Fit 1.5	53.
Network Disk Fit	198.
PixelPaint 2.0	198.
Sentinel 2.0	98.
SuperLaserSpool - Multi User (1 To 5)	198.
SuperLaserSpool 2.0 - Single User	78.
SuperSpool 5.0	53.
Survivor Software	
MacMoney 3.1	60.
Symantec	
Just Enough Pascal	48.
Lightspeed C 3.01	159.
Lightspeed Pascal 2.0	92.
MacSQZ! 1.5	49.
More II	249.
S.A.M. (Symantec Antivirus for Macintosh)	65.
S.U.M. (Symantec Utilities for Macintosh)	64.
Symmetry	
Acta Advantage	64.

HyperDA 1.1	34.
T/Maker	
WriteNow 2.0	109.
TML Systems	
TML Pascal II 3.0	58.
TML Pascal II 3.0 (w/MPW 3.0)	114.
TOPS	
InBox Personal Connection 2.2	55.
InBox 2.2 Starter Kit	185.
Net Print 2.0	117.
TOPS (DOS Version)	117.
TOPS (Mac Version)	145.
Traveling Software	
Lap-Link Mac 2.0	81.
True Basic	
True Basic Version 2.0	57.
True Basic Graphics Toolkits	
3-D, Business, Scientific	each 47.
U.S. Micro Labs	
FontSizer	65.
WordPerfect Corp.	
WordPerfect 1.02	184.
Xerox (Datacopy)	
AccuText (OCR Software)	745.
Zedcor Inc	
DeskPaint/DeskDraw 2.0	65.
ZBasic 5.0	98.

Entertainment

Access Software	
World Class Leader Board	27.
Accolade	
4th and Inches, Hardball, or Mean 18	27.
Brøderbund	
Ancient Art Of War	26.
Ancient Art Of War At Sea	26.
Autoduel, Lode Runner, Moebius, or Shufflepuck Cafe	23.
Sim City	27.
Where In The... ..	
...U.S.A. Is Carmen Sandiego?	27.
...World Is Carmen Sandiego?	27.
Bullseye Software	
Ferrari Grand Prix	31.
P-51 Mustang Flight Simulator	31.
Casady & Greene	
Crystal Quest 2.2	25.
Crystal Quest 2.2 w/Critter Editor	41.
Centron	
Casino Master B & W	44.
Casino Master Deluxe Color	49.
Data East	
Super HangOn	26.
Discovery Software	
Arkanoïd	26.
Electronic Arts	
Chessmaster 2000	28.
Chuck Yeager's Advanced Flight Trainer	31.
Mediagenic	
Cosmos Osmos	45.
Manhole	30.
Might & Magic	35.
Quarterstaff	29.
Shanghai	15.
Universal Military Simulator	29.

Microprose	
Pirates!	32.
Microsoft	
Flight Simulator 1.02	32.
Miles Computing	
Downhill Racer	23.
Fool's Errand	31.
Harrier Strike Mission II	31.
Mindscape	
Aussie Joker Poker, Balance Of Power	
1990, Colony, Crossword Magic, Deja Vu, Deja Vu II, Gauntlet, Shadowgate, Trust & Betrayal, Uninvited	each 29.
PBI Software	
NetTrek	34.
Strategic Conquest Plus 2.0	34.
PCAI	
Lunar Rescue	33.
Mac Racquetball	36.
MacGolf	34.
MacCourses	28.
MacGolf Classic	53.
Road Racer	38.
Shodan	
Leprechaun	36.
Silicon Beach Software	
Apache Strike, Beyond Dark Castle, Dark Castle	29.
World Builder	48.
Sir Tech	
Wizardry	35.
Software Toolworks	
Hunt For Red October	31.
Sphere	
Falcon 2.0	31.
Gato, Orbiter, PT 109	each 26.
Solitaire Royale	19.
Tetris (Mac II w/Color Monitor Only)	24.
Tetris (Plus, SE & Mac II - B & W Monitors)	20.
Spinnaker	
Sargon IV	28.
Three Sixty	
Warlock	29.
XOR Corporation	
NFL Challenge	58.
Pro Challenge	28.

Hardware

Abaton/Qume	
Quick Step/Crystal Print Publisher (Liquid Crystal Shutter Printer)	3295.
Best Data	
Smart One 2400 Baud Modem	145.
Smart One 2400 w/Red Ryder	189.
CMS	
TapeStack 60 (SCSI Tape Backup)	725.
CMS (Ext. SCSI Hard Disk)	
MacStack 20	529.
MacStack 30	545.
MacStack 60	699.
MacStack 80	799.
Connor	
Zone 100-SE/II (Mac SE & II Internal)	995.
Daystar Digital	
16MHz 68030 Accelerator SE	975.
25MHz 68030 Accelerator SE	1595.
33MHz 68030 Accelerator SE	2395.

33MHz 68030 Accelerator II	4680.
LI 200 Mc LocalTalk Board	279.
LI 200 Pc LocalTalk Board	179.
Dolphin	
Flipper 44 Meg Removable	1075.
Sonar 600 (Read Write Optical)	
Sony 600 MB Removable Disk	4795.
Dove	
SCSI Port Adapter	109.
MacSnap 524 (512k to 1mb)	192.
MacSnap 524e (512kE to 1mb)	185.
MacSnap 524s (512kE to 1mb w/SCSI)	240.
MacSnap 548 (512k to 2mb)	432.
MacSnap 548e (512kE to 2mb)	419.
MacSnap 548s (512kE to 2mb w/SCSI)	479.
Marathon 020 Mac SE Accelerator	
MSE1 (Board Only)	584.
MSE2 (Board & 1 Mb)	715.
MSE3 (Board & Math Co-Processor)	645.
MSE4 (Board, Math Co-Proc. & 1 Mb)	795.
Marathon 030 - 32MHz	
Mac II Accelerator	975.
Everex	
EMAC Impact 150 Tape Backup	1395.
EMAC-20d	515.
EMAC-60/60dt Deluxe	1895.
EMAC-60t (Tape Backup)	845.
EMAC-Impact 40 Plus	779.
EMAC-Impact 80	1195.
EMAC-Md2400 Baud Modem w/Built in Speaker Phone	225.
Incomm	
Midget 2400 Me (Mnp Class 4)	198.
Midget 4800 E (Mnp Class 5)	225.
Midget Internal 2400 Baud Mac II	199.
Turbo 9600 V.32 Baud Modem	635.
Irwin	
Excelerator XI 25 Mhz	1280.
Mac Zone	
Zone 40 External	745.
Zone 80 External	998.
Zone Seagate 45-External	645.
Macintosh	
SIMMs (100 Ns) Surface Mount	CALL
256k SIMM Module (120 Ns)	CALL
Magnavox	
Color Monitor 14" Analog	535.
Motorola - Math Co-Processors	
68882 - 16MHz	293.
68882 - 25MHz	425.
68882 - 33MHz	695.
NEC	
CD Rom Drive	845.
Nuvotech	
Phone Net To AppleTalk Adapter	6.
Turbo Bridge	345.
Turbo Net ST: DB-9 or DIN-8	36.
Turbo Net: Db-9	29.
Turbo Net: Din-8 (Plus, SE, & II)	25.
Orchid Technology	
Fax Modem 9600/9600	448.
Mac Sprint II, Cache Card	249.
Osicom Technologies	
MacBest 20 External	439.
MacBest 30 External	525.
MacBest 45 External	589.
MacBest 60 External	699.
MacBest 80 External	799.
MacBest 90 External	998.
MacBest 150 External	1598.

Everything we sell comes with special delivery.

It's our way of standing behind our hard drives. If a drive you buy from us goes down during its warranty period and we can't fix it over the phone, we'll ship a Zoner Loaner drive to you overnight. Now you know why we say our service is as good as our savings.



MacBest 170 External	1695.
MacBest 300 External	2275.
MacBest 30 Internal Mac SE	425.
MacBest 45 Internal Mac SE	439.
MacBest 60 Internal Mac II	595.
MacBest 80 Internal Mac II	750.
MacBest 90 Internal Mac II	895.
MacBest 150 Internal Mac II	1398.
MacBest 170 Internal	1595.
MacBest 300 Internal Mac II	1975.

PLI (Peripheral Land, Inc.)

Infinity 40 Turbo Removable	1235.
Infinity 40/40 Turbo Removables	2195.
TurboFloppy 1.4	325.

Quantum

Quantum 40 (SE, II, IIX Internal)	439.
Quantum 80 (SE, II, IIX Internal)	790.
Quantum 80 (IIXc Internal)	885.

RasterOps

ColorBoard 104 (24 Bit Color)	3895.
ColorBoard 108	1179.
ColorBoard 108+	1249.
ColorBoard 108+ SE/30	1439.
RasterOps/ Trinitron 19"	3398.

Seagate

Zone 30-SE/II (SE, II, IIX Internal)	425.
Zone 45-SE/II (SE, II, IIX Internal)	475.
Zone 60-II (II or IIX Internal)	550.

Shiva Corporation

Net Serial	289.
NetBridge	299.
NetModem V2400	459.

Sony

13" Color Monitor (II, IIX, or IIXc)	585.
--	------

SummaGraphics

Bit Pad Plus (12 X 12 Tablet - ADB)	324.
---	------

Supra Corp.

Supra Modem 2400 Baud	145.
-----------------------------	------

Syquest

Infinity 44 Cartridges Unformatted	115.
--	------

Teletbit

T-1000 9600 Bps Modem	699.
T-2000 19,000 Bps Modem	1399.
Trailblazer + 18,000 Bps Modem	1228.

Thunderware

Lightning Scan	405.
ThunderScan 5.0	187.

TOPS

TOPS Flash Box	123.
TOPS Repeater	128.
TOPS Flash Card (for TOPS DOS)	165.
TOPS Teleconnector (DB-9 or DIN-8)	38.

U.S. Robotics

2400 Baud Modem	347.
9600 Hst Baud Modem	685.

Xerox (Datacopy)

Datacopy 730gs (Gray Scale Scanner)	1595.
---	-------

Jam Session	28.
Coda	
Finale	895.
Mac Drums	31.
Perceive	51.

Electronic Arts

Deluxe Music Construction Set 2.5	84.
---	-----

Farallon

MacRecorder	134.
-------------------	------

Great Wave Software

ConcertWare Plus	38.
ConcertWare Plus MIDI	78.

Mark Of The Unicorn

Professional Composer V.2.2	395.
Professional Performer 3.0	395.

Passport Designs

MasterTracks Jr	99.
MasterTracks Pro 3.0	258.
Notewriter	185.
Passport MIDI Interface	97.
Passport MIDI Transport	340.

Resonate

Listen 2.1	62.
------------------	-----

Accessories

Abaton

Pro Point ADB (SE & II)	88.
Scanner 300/GS (8 Bit)	1495.
Scanner 300s (4 Bit)	1198.

American Power Conversion

Ups 110SE	325.
-----------------	------

Bantam Books

Mastering Wingz	22.
Complete HyperCard Handbook	22.

C-Enterprises

AB Box (Plus, SE & II)	38.
ABCD Box (Plus, SE & II)	62.

DataDesk

Mac 101 Keyboard (for any Mac)	144.
--------------------------------------	------

Datashield

MacDirector	114.
-------------------	------

Ergotron

MacTilt (for any Mac except II, IIX or IIXc)	68.
Mouse Cleaner 360°	14.

Golden Ribbons

ImageWriter II Ribbon - Multi Colored	8.
ImageWriter Ribbons - Black	4.

Kalmar Designs - Rolltop Disk File

Teakwood (Holds 135 Disks)	31.
Teakwood (Holds 90 Disks)	21.
Teakwood (Holds 45 Disks)	14.

Kensington Microware

System Saver Mac Fan	64.
Turbo Mouse (for any Mac)	109.

Kraft

Joystick (for any Mac)	49.
------------------------------	-----

Mac Packs - Gray, Navy, or Wine

ImageWriter Bag	49.
Plus/SE Bag	68.
SE Bag (Extended Keyboard)	74.

Mac Zone

7 Outlet Noise & Surge Protector	24.
800k Disk Drive	155.
Mouse Pad - Black, Blue, Gray, Red	6.
Mac Tool Kit w/Grounding Strap	15.

Maxell Disks

Cs-600X 150meg Tapes	32.
----------------------------	-----

Microsoft Press

Excel In Business	20.
Working With Word	19.

Mobius

Fanny Mac	59.
-----------------	-----

MSC Technologies

A+ Mouse (512k & Plus)	65.
A+ Mouse ADB (SE & II)	85.

Orange Micro

Grappler C/Mac/Gs	78.
Grappler Mac LQ	102.
Grappler Mac LS	102.
Grappler Spooler	39.

ScanCo

Mac Table & Cabinet (w/shipping)	445.
--	------

Sony - Blank Media

High Density - 10 Pack (1.44 Meg)	36.
High Density - Bulk (Min. 50)	3.25
Double Sided - 10 Pack	14.
Double Sided - Bulk (Min. 50)	1.29
Single Sided - 10 Pack	13.
Single Sided - Bulk (Min. 50)	1.20
40 Meg DC-2000 Tape Cartridge	23.

TEAC

150 Meg Backup Tape (Ct-600n)	32.
60 Meg Backup Tape (Ct-600h)	22.

Williams & Macias

Labels, 216 (ImageWriter)	16.
Labels, 216 (LaserWriter)	20.
myDiskLabeler (ImageWriter)	30.
myDiskLabeler (LaserWriter)	33.
Sticky Business	95.

Ordering Information

Our phone lines are open for orders:

Monday - Friday: 6AM to 8PM PST
Saturday: 8AM to 5PM PST

Products ordered before 7:30pmEST (4:30pm PST) shipped the same day.

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

- If we must ship a partial order, we never charge freight on the shipments that complete the order (U.S. only).
- Personal and company checks under \$1,000 clear immediately.
- Please allow one week for checks over \$1,000.
- Fortune 1,000 and Government checks clear immediately.
- Fortune 1,000, Government, School and Institutional PO's clear immediately.
- No sales tax, except for WA residents add 8.1% to total including shipping.
- Loan drives subject to availability.
- Your credit card will not be charged until products ship.
- All prices subject to change without notice.
- All items subject to availability.

Shipping Information

- \$3.00 for Federal Express Standard Overnight Service.
- Packages under 6 lbs. overnight.
- Packages over 6 lbs. second day air.
- APO/FPO orders shipped 1st class mail, charged by weight.
- Overseas: We ship to any destination in the Free World. We use the quickest and least expensive methods possible. Second day air service is available to most of Europe, Australia, and Japan.
- Software and hardware is subject to manufacturer's warranty.
- Defective items will be replaced immediately with like item.
- A returns must have an authorization number call 206-883-1975 x 199 Multiple Zones International.

The MacZone is a trademark of Multiple Zones International
6825 178th Ave. N.E. Suite 100 Redmond WA 98052

Zone Specials

Dolphin Systems

44 megabyte removable hard disk with average access of 25ms and a one year warranty. Excellent for hard disk backups.

Flipper 44	1075.
------------------	-------

Loop Software

This innovative desk accessory effectively manages MacPaint®, PICT, and EPS clippings from any application.

Picture Book	CALL
--------------------	------

Dream Maker

High quality business oriented EPS images of people, cartoons, objects, symbols, graphics and much, much more!

Cliptures	CALL
-----------------	------

MacZone

Expect only the best in high performance hard disks from the MacZone. Attractive metal "black box" enclosure.

Zone 40 & 80	see prices
--------------------	------------

Deneba Software

For professionals in business, design, graphics & engineering, with many features found in higher priced packages.

Canvas	158.
--------------	------

Ars Nova

Learning music theory? Try this interactive ear training in notes, chords and intervals. A teacher with infinite patience.

Practica Musica	74.
-----------------------	-----

Shana Enterprises

Forms generator DA lets you create & fill out forms on screen. Data can be easily exported to other programs.

Fast Forms	98.
------------------	-----

Best Data

Smart One 2400 baud modem with cable and communication software.

w/Quicklink	145.
w/Red Ryder	189.

Music

Ars Nova

Practica Musica 2.07	74.
----------------------------	-----

Bogas Productions

Super Studio Session	69.
Studio Session	48.
Brass, Country, Heavy Metal, Sound Effects, String Quartet	each 13.

Brøderbund

onerous design mistakes. Promised upcoming versions will pull some of the more commonly used functions out of deep dialog boxes and put them onto menus, where they will not only be more accessible but will also remember how you set them up, from one minute to the next. An editing module that will address MIDI data directly is also being promised, and

two books that contain some of the tutorial information so sorely lacking in the manuals may be available (separately) by the time you read this.

Until it becomes clear that the program will be successfully redesigned, I can recommend Finale only to orchestral composers who haven't got the money to hire a copyist to write out individual parts (but do have the money for a Mac II with lots of RAM, a LaserWriter, and the program) and to composers who need to automatically transcribe performances into notation. Everyone else should save their sanity and blood pressure and stay away for a while. ☹

Paul D. Lehrman is a *MacUser* contributing editor, who lives, breathes, eats, drinks, and sleeps music software. He even hopes to come across a program he likes someday.

408-983-1127

Call this number for a 30 day trial on

**The Best Priced
The Most Reliable
The Smallest**

Hard Drive Available!

**MacUSER
LABS**

"The Liberty 80 is the most compact (drive) and comes with some nice software"
MacUser

"Having used Liberty 80 megabyte hard disk drive for the last five months, I have to say that it is everything I had hoped it would be: compact, lightweight, quiet, fast, and durable enough to ride with me in my briefcase to all my road show demonstrations and talks. You can add me to your list of satisfied customers."

DANNY GOODMAN
Author: The Complete
HYPERCARD Handbook

"employ(s) the lightning-fast Quantum ProDrive80, now considered one of the most reliable and nimble hard-disk-drive mechanisms for the Macintosh."
MacUserLabs



Put a couple of dollars together to size the Liberty miniature drives.

Size 2"x5"x7", Wt. 3 lbs.

40MB (Quantum)	12ms	\$749
80MB (Quantum)	12ms	\$999
100MB (Conner)	25ms	\$1099
105MB (Quantum)	12ms	\$1299
90-250 volt option		\$50
Carrying case		\$29
Password-Volume partitioning		
Quantum ProDrive series		

Liberty 80MB
Systems **\$999**
120 Saratoga Ave. Suite 82
Santa Clara, CA 95051

MASTERCARD VISA

Order Today!

Please circle 76 on reader service card.



Finale

\$\$\$ 1/2

Follows Mac Interface	1
Printed Documentation	2
On-Screen Help	2.5
Performance	4.5
Support	4
Consumer Value	2.5

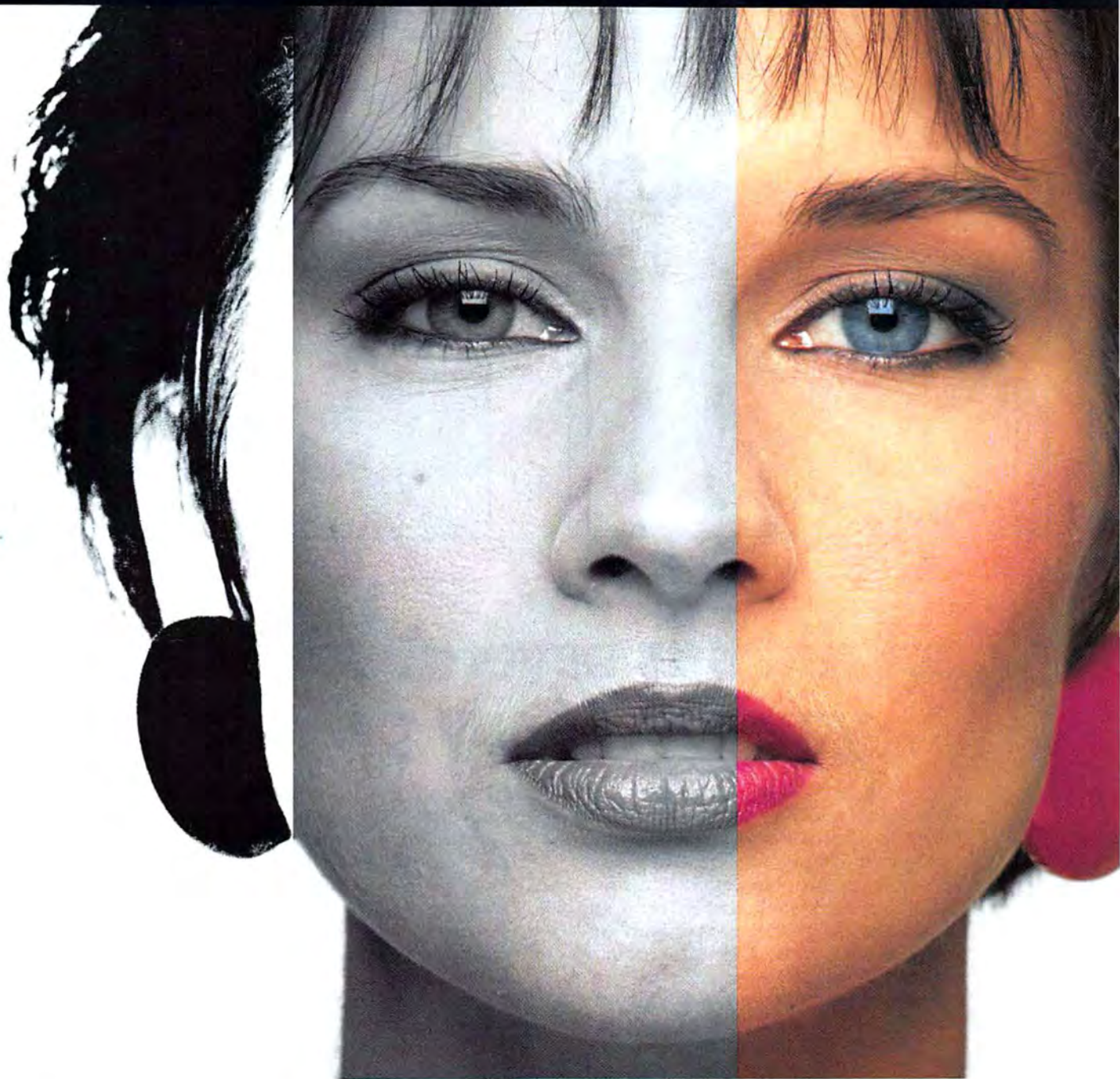
Comments: The most powerful music notation program for the Mac yet, with MIDI input and output. Has features that set standards for all music programs but is very frustrating to learn and use.

Best Features: Lets you accomplish almost any notational trick you want; transcribes keyboard performances better than anything before it.

Worst Features: Apoplexy-inducing user interface; lovely but almost useless documentation.

List Price: \$1,000. Published by Coda Music Software, 1401 E. 79th St., Bloomington, MN 55425-1126; (800) 843-1337. Requires Mac Plus or later and hard disk; Mac II or SE/30 with 2 megabytes RAM very highly recommended. Version 1.2.4 reviewed. Not copy-protected.

Any way you look at it... E-Machines still gives you more.



More Choice

E-Machines™ gives you more with a Complete Family of mono-chrome, gray scale, color. Even stereo 3D displays. More choices in full page screen sizes. More compatibility with all Mac models.

QuickView™

Only E-Machines gives you QuickView™ special features that let your Mac do more. Features like definable virtual screens with panning, multiple viewing resolutions, tracking menus, virtual screen previewing, software controls for brightness and contrast, plug-in memory upgrades for more room and more image definition.

MoreCare™

E-Machines leads the industry in

Please circle 18 on reader service card.

quality, warranty and support with MoreCare™. By getting the details right we build in quality. And, we back our display systems with unsurpassed service, a full year warranty and the industry's only available extended warranty.

More Innovation

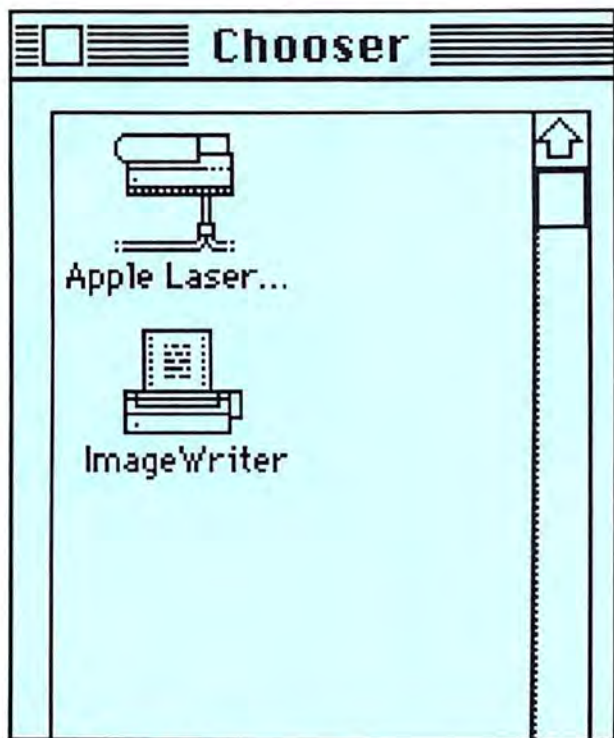
Look to E-Machines when you want more innovative display power than you can get from Apple, or anywhere else.

To find out where you can buy an E-Machines display, write to us at 9305 SW Gemini Drive, Beaverton, OR 97005, or call us at 503-646-6699.

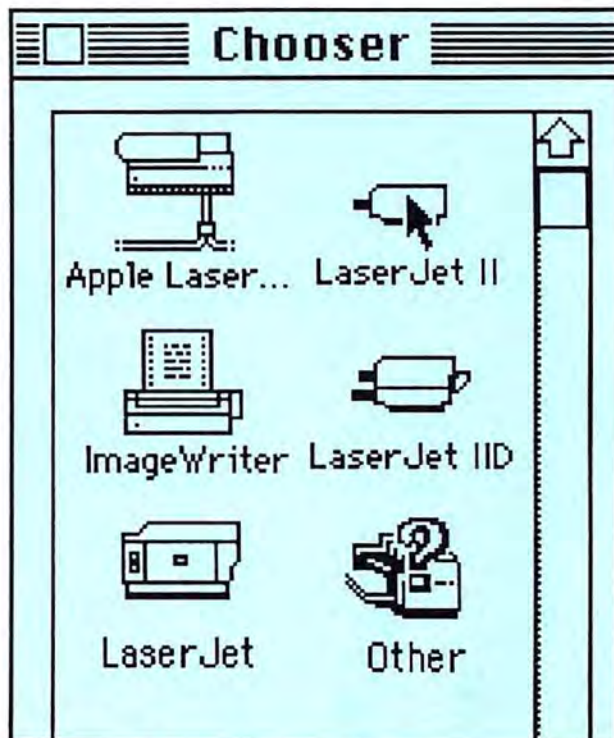


E-MACHINES
Prayer to See Your Best

© E-Machines 1989. E-Machines, QuickView and MoreCare are trademarks of E-Machines, Inc.



Before MacPrint.



After MacPrint.

MacPrint has several advantages you can easily point to.

In the dark days before MacPrint™, Mac users had only a few output options. Now your options are open. You can print virtually any Mac application on a whole range of high quality, lower-priced printers. Including HP LaserJet IID, LaserJet Series II and compatibles. MacPrint supports all HP internal and cartridge fonts. You can print two sides of a page and from dual bins in legal and standard sizes.

MacPrint is a chooser-level utility. It's exceptionally easy to use. In fact, once you choose the printer

on a simple set-up screen, MacPrint is completely transparent in action.

MacPrint displays all your printer's resident fonts for true WYSIWYG performance. If it can't find a resident font, it will create one based on the QuickDraw screen font. And MacPrint lets you print at your printer's maximum resolution: 75, 150, or 300dpi.

Here's one more advantage you can point to: MacPrint costs just \$149.

Call your local dealer or order direct from Insight.
(415) 376-9500.



**INSIGHT
DEVELOPMENT
CORPORATION**
Helping you get more from your printer.



PHOTOGRAPHY: TOM UPTON

What's INIT for You?

INITs and cdevs can work so well in the background that you might forget you have them. But without them, you and your Mac would be lost.

By Ted Landau

Have you ever wondered what all those files in your System folder do? In addition to basic files such as System, Finder, MultiFinder, printer drivers, and DAs, you're likely to find files named General, Map, and Startup Device. Although these files come from Apple, you'll find them explained in only the most recent version of the company's documentation. Similar files from other sources can add to the confusion — Suitcase, Findswell, and SuperClock, to name a few. Looking at the file types, you find that these items are either INITs or cdevs.

So why do you want these files in

your System folder? What do they do? Here are some answers.

The Early INITs

An INIT is an *initialization resource* — a System resource that is loaded into the part of the Mac's RAM called the System heap and run as part of the normal startup procedure. You can buy INITs commercially or download public-domain INITs from a bulletin-board service (BBS). INITs are generally neither menu- nor Command key-driven; they are designed to function automatically.

Part of the Macintosh System from

What's INIT for You?

the beginning, INITs were buried among the many resources within the System file. They performed a variety of low-level functions. Although some of these early INITs still exist in the System file, most have evolved to perform more general functions. Screen savers, for example, automatically darken the screen after a designated period of inactivity. This prevents burn-in damage to your screen if you should leave it unattended for a long time.

Several screen-saver DAs exist, but they share a common problem — the user has to remember to select the DA to activate the screen saver. To avoid this obstacle, developers looked to INITs. An INIT screen saver activates automatically when the Mac is turned on.

System Subject to Change

When INIT-based utilities first appeared, there was no way for the average user to install them into the System file. Developers invented their own installation methods, and some neglected to provide a way to remove INITs when they were no longer wanted. What users needed was an INIT equivalent to Apple's Font/DA Mover.

Responding to this need, Apple released INIT 31. It worked at startup, searching the System folder for any files of type INIT and loading the enabled ones it found. You could simply drag an INIT into the System folder and INIT 31 would do the rest.

Because INIT 31 executes only at startup, the Mac must be rebooted before a new INIT becomes active. To disable



an INIT, simply remove the file from the System folder and reboot. The INITs that are active in your System file will usually display a small square icon at the bottom of the screen during startup.

Inside the Control Panel

With System 4.0, Apple introduced the cdev (Control Panel device). You place cdevs in the System folder like INITs, but you can access and activate cdevs through Apple's

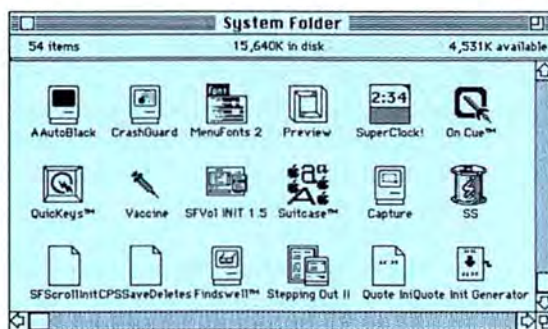
Control Panel DA. To view the cdevs, select the Control Panel from the Apple menu. All the active cdevs in the System folder will appear as icons in the scrollable column on the left. Clicking on any of these will change the Control Panel display to match the cdev.

Many cdevs will function without rebooting when they are placed in the System folder. However, another class of cdevs have INIT resources within them, and rebooting is necessary to load the INIT into RAM. These cdev-INITs provide a convenient way for users to modify INIT preferences without developers' having to write a separate Preferences application or DA. An example of a cdev-INIT is the freeware program Vaccine, with which you can choose whether the icon will appear at startup, for instance. For the change to take effect, however, you must reboot the Mac.

The Chooser displays device drivers — PRERs and RDEVs. The PRERs drive output devices such as Laser- Writers and fax modems; RDEVs, which may contain



Apple has included INITs (initialization resources) and cdevs (Control Panel devices) in the System folder since the dawn of the Macintosh. At first, these resources performed low-level functions such as adjusting the mouse speed. As Apple upgraded its system software, the functions of these resources grew — letting the user determine, for instance, levels of gray scale or color display on a monitor.



Third-party developers eventually produced INITs and cdevs that served more general purposes — screen savers, spelling checkers, and antiviral files. Users needed to be able to install and remove these files, so Apple developed INIT 31.

INIT resources, let you interact with a network. AppleShare and Microsoft Mail are two examples of RDEVs.

A No-Rules System

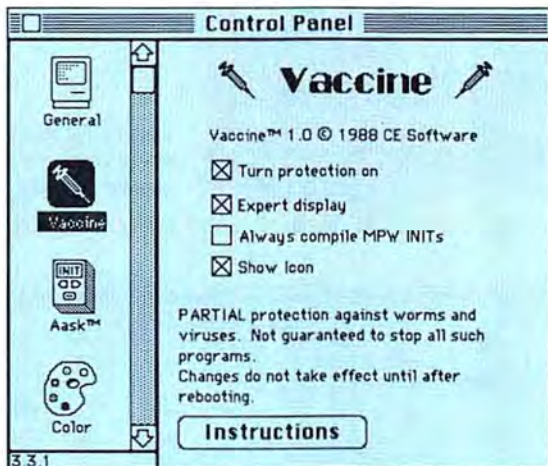
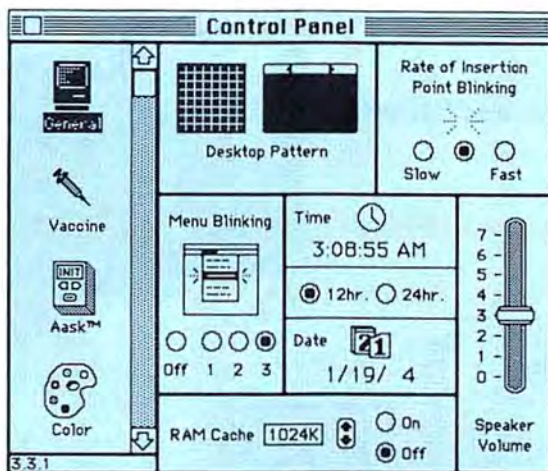
Some users mistakenly believe that because INITs, cdevs, and RDEVs come with the Macintosh, they must remain in the System folder for the computer to work properly. In fact, there's no reason why you shouldn't remove a particular INIT or cdev if you don't need it. When you update the System files, however, make sure you have updated all your currently used INITs and cdevs.

In System version 6.0 or later, the Finder lists INITs as startup documents, cdevs as Control Panel documents, and RDEVs (together with other file types that appear in the Chooser) as Chooser documents. These names are found in the Get Info window of a file or in the Kind column when files are displayed in a nonicon view.

Extra Time . . . Extra Space

If you grow impatient watching the "Welcome to Macintosh" message at startup, or if you frequently reboot your computer, then you experience a disadvantage of INITs. Because each INIT loads automatically at startup, it adds to the time you must wait before the startup is over. This extra time adds up if you have several INITs, although it is rarely more than a couple of minutes.

Another potential problem is that all INITs take up disk space. Since most INITs are small, their space requirements are not likely to cause a



The Control Panel basically functions as a Preferences box for your System. The General option, for instance, lets you change desktop color and patterns and speaker volume. Through this option, you can customize and activate cdevs, some of which require restarting to become active. These particular files contain INIT resources and are classified as cdev-INITs. The cdev-INITs let users set preferences for particular operations. One such cdev-INIT is Vaccine.



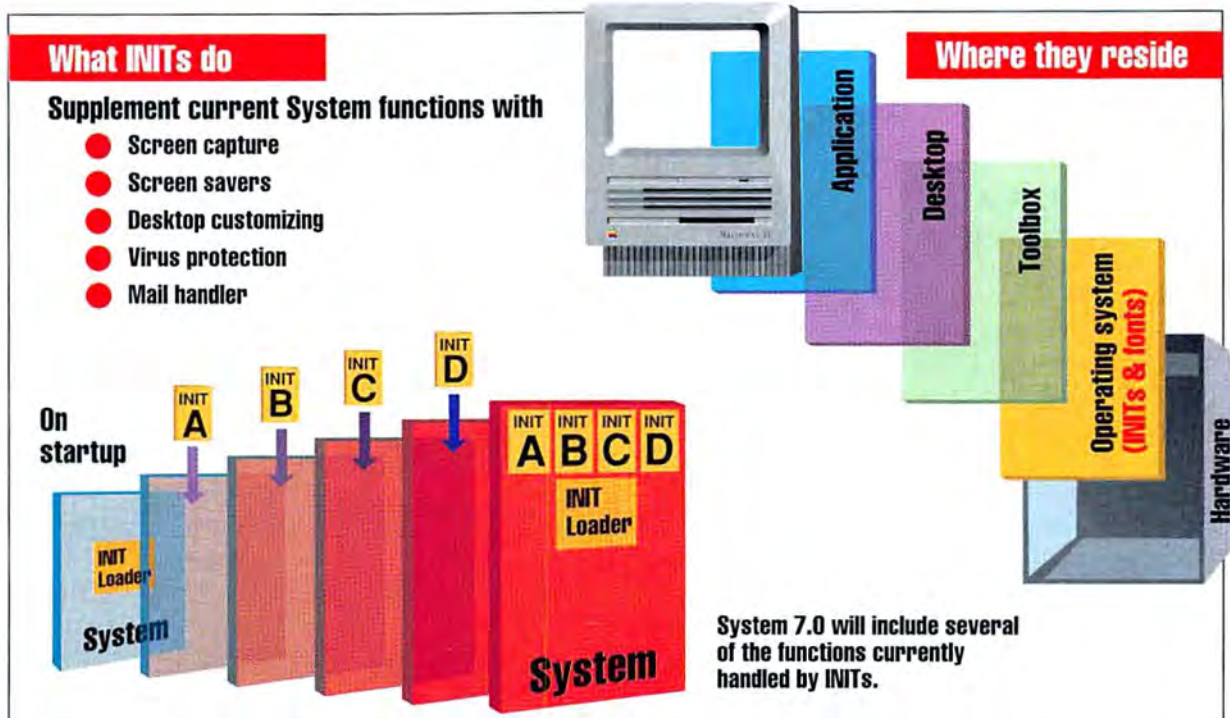
problem for a user with a hard-disk drive. But floppy-disk users will probably have to limit the number and type of INITs they place on their startup disks.

A much bigger INIT problem is that you may not be able to use all of your INITs because each one, after loading at startup, occupies some of the limited space in RAM. Depending on the nature of the INITs you use and how much RAM they require (they range from about twenty to several hundred kilobytes), you may find that there isn't enough memory left to run large applications such as HyperCard. Sometimes the problem isn't the amount of RAM involved: It is the location of the RAM being used. Some games, for example, use the region of RAM normally occupied by INITs — making the game unusable unless the INITs are disabled. This situation creates a problem of juggling INITs and RAM, which can be resolved by using an INIT manager.

Taking Care of Overkill

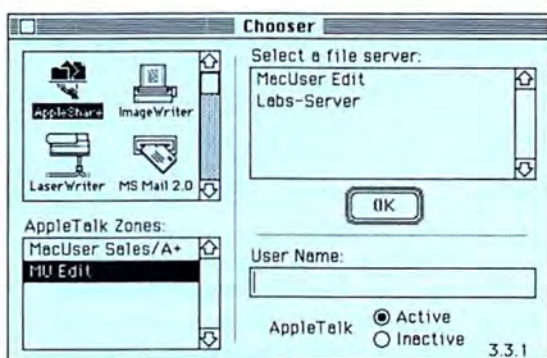
Inevitably, one INIT will conflict with another INIT or application. As a result, a program may malfunction, or the entire system may crash. Until now, trying to locate the problem INIT required tediously dragging each INIT from the System folder and rebooting the computer. INIT managers, a group of utilities that are also INITs, provide an easy and flexible solution. Holding down a specified key when the "Welcome to Macintosh" box appears interrupts the normal startup procedure and launches the INIT manager, allowing you to determine which

What's INIT for You?



INITs to use. This isn't the only way to activate an INIT manager, however. You can run them after startup, but to activate the changes, you must reboot the Mac.

The first commercially available INIT manager was CE Software's Aask, which was part of the upgraded MockPackage Plus Utilities. It is a cdev-INIT that displays the icons and names of all the INITs currently in the System folder. It lists all the cdevs that, like Aask itself, contain INIT resources. To turn an INIT off, click on its icon, and an X will appear over it. Click on the icon again, and the X disappears. Aask has buttons that simultaneously turn all the INITs on or off. To make changes that will remain in effect as a default, you can access Aask from the Control Panel at any time. Selecting Aask at startup provides the option of making temporary changes (changes that are in effect only until



The Chooser displays other System resources called device drivers — PRERs and RDEVs. PRERs are files such as LaserWriter drivers. RDEVs, which may contain INIT resources, let a user interact with a network — AppleShare is an RDEV.



the next restart). Aask also shows the amount (or an approximation, which is designated by a question mark following the amount) of RAM each INIT occupies, which can help you decide which INITs to turn off if you're low on memory.

INITPicker is a cdev that functions like Aask. Instead of displaying icons, it presents a scrollable list of the names of all the INITs in the current system. By clicking to place or remove check marks next to each name, you determine which INITs to run. Like Aask, INITPicker can be invoked at startup, where changes can be either temporary or permanent. For added convenience, holding down a Command key at startup either runs or skips all the INITs directly, bypassing the INITPicker screen altogether. INITs normally boot in alphabetical order, but with INITPicker, you can alter the order in which they boot by drag-

ging the name of the INIT to a new location on the list. This option helps resolve INIT conflicts that arise because of boot order; otherwise, the only way to do this is to change an INIT's name.

With INITPicker, you can open a Get Info window that shows vital statistics (such as creation and modification dates) for each INIT. This information would otherwise be available only from the Finder or other special utilities. Unfortunately, this feature occasionally crashes the system. Microseeds says that crashes occur only when INITPicker attempts to get information on a file containing a color icon resource. A fixed version of INITPicker should be available by the time you read this.

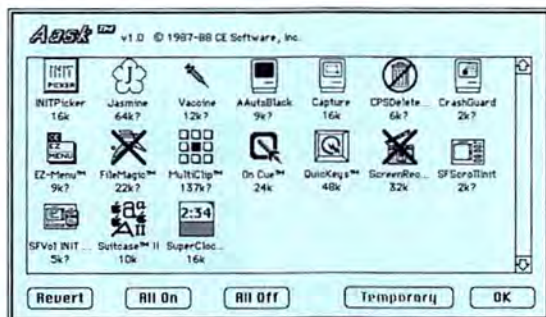
Not Like the Others

Unlike Aask or INITPicker, Inix is a combination DA and INIT. This dual-file arrangement makes installing Inix less convenient than installing Aask or INITPicker. Inix works like the Font/DA Mover. You enable or disable INITs by moving them between the on and off lists. What's really different about Inix is that it can create separate startup sets. One set, always designated as the current set, is the default file used at startup. By invoking Inix at startup, you can alter what the current set will be, or you can edit the existing one. Unfortunately, Inix does not have the temporary-change capability of the other programs, and it lacks any run-all or skip-all commands. Saving or opening Inix sets is less convenient than using the

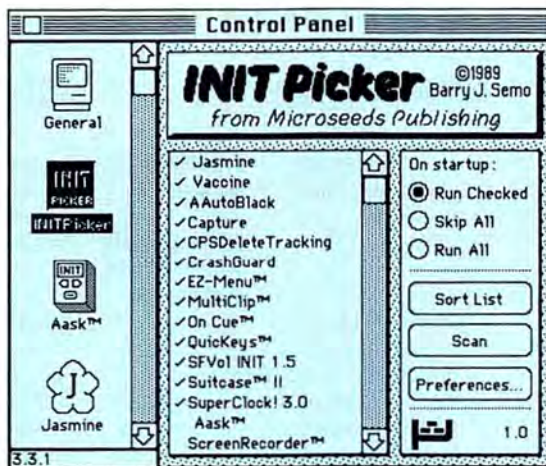


other programs' automatic saves. The final straw is that Inix, at \$79.95, is the most expensive of these programs.

There is a freeware INIT manager called INIT-cdev. It is a cdev that presents a scrollable list of INITs that you turn on or off simply by clicking on them. Although INIT-cdev can be accessed at startup, like Inix, it cannot make temporary changes. Those are basically all its features. Nothing fancy, but it works, and it's free.



If you're impatient and don't like long startups, or if you find that certain programs crash unexpectedly, you need an INIT manager. INIT managers, such as Aask, let you turn off some or all of your INITs. Within Aask, the Temporary button is active only when Aask is selected at startup. Holding down the space bar during startup will interrupt the normal procedure and bring up the Aask window. Selecting Temporary activates the changes until the next restart.



INITPicker, like Aask and Inix, is a cdev-INIT that you can activate in the startup procedure or afterward. With INITPicker, you can select the order in which INITs are loaded into the System heap at startup. By changing the loading order, you can avoid some INIT conflicts.

An Overall Look

All the INIT managers except INITPicker use the same basic mechanism to turn an INIT off. The INIT's file type is altered so that the operating system no longer recognizes it as an INIT — it is identified under the Finder as a document rather than as a startup document, and it loses its unique icon. While this feature is unlikely to cause problems, I found it a bit disturbing. INITPicker lets you turn off an INIT and doesn't change the file type, which I prefer.

All of these programs are fundamentally similar, and each does an adequate job. My top recommendation, however, goes to INITPicker, with Aask a very close second. Aask has the most pleasing and simplest interface to use — with its icon display and X technique for turning INITs on and off. Aask is also the winner in terms of size — at 11K, it is the smallest program reviewed.

INITPicker is slightly less pleasing to use but compensates with its added features. I especially like its ability to re-sort the INITs' boot order. The only thing missing from

This Year Call The Experts.

"We'll never make the
deadline Brother Gary,
we should have called
Ziff-Davis Reprints!"



Professionally designed reprints* of your review are available from Ziff-Davis Publishing Company. To discover the blessings of Ziff-Davis reprints, call us today at 212-503-5447.

*minimum quantity 500; 3-4 weeks delivery.

What's INIT for You?

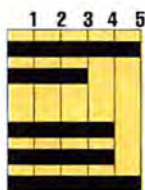


INITPicker is the list of each INIT's RAM requirements. INIT-cdev should be your choice if cost is the primary consideration. Inix, despite its unique ability to create sets, is simply too inconvenient in its implementation to compete with the other programs.

Ted Landau is a professor of psychology at Oakland University in Rochester, Michigan. When not teaching or researching, he is either using his Macintosh or writing about it.

Aask 1/2

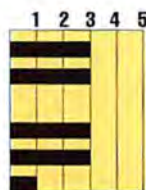
Follows Mac Interface
Printed Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: A simple and easy-to-use interface; consumes little hard-disk space. **Best Feature:** Lists the approximate RAM requirements of each INIT in the System. **Worst Feature:** Relatively slow in scanning the system for INITs. **List Price:** \$49.95 (\$15 for upgrade). Published by: CE Software, Inc. (from MockPackage Plus Utilities), 1854 Fuller Road, P.O. Box 65580, West Des Moines, IA 50265; (515) 224-1995. Requires a Macintosh 512KE or later. Version 1.0 reviewed. Not copy-protected.

Inix 1/2

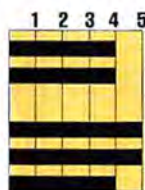
Follows Mac Interface
Printed Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: Because Inix is a combination DA and INIT, installation is less convenient than it is for other INIT managers. **Best Feature:** Lets a user combine different INITs as startup sets. **Worst Features:** Doesn't permit changes for only one use (before next restart), and making any modifications to INIT order is awkward. **List Price:** \$79.95. Published by: Natural Intelligence, Inc., 86 Richdale Ave., Cambridge, MA 02140; (617) 266-7858. Requires a Macintosh 512KE or later. Version 1.1 reviewed. Not copy-protected.

INITPicker 1/2

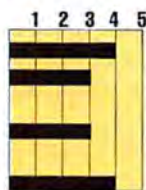
Follows Mac Interface
Printed Documentation
On-Screen Help
Performance
Support
Consumer Value



Comments: Has scrollable list instead of icon display, which lets you decide the loading order of the INITs. **Best Feature:** Has an easy way to turn INITs on and off. **Worst Feature:** Scrollable list of INITs makes it difficult to determine which INITs are on or off. **List Price:** \$39.95. Published by: Microseeds Publishing, Inc., 7030-B W. Hillsborough Ave., Tampa, FL 33615; (813) 882-8635. Requires a Macintosh Plus or later and System 6.0. Version 1.0 reviewed. Not copy-protected.

INIT-cdev 1/2

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



Comments: Freeware manager that does a pretty good job of managing INITs relative to its competitors. **Best Features:** Simple to use, and it's free. **Worst Features:** No support available, no easy way to modify a setup. **List Price:** Free (available on GENie and Compu-Serve). Published by: John Rotenstein, P.O. Box 165, Double Bay, NSW 2028, Australia. Requires a Macintosh 512KE or later. Version 1.0 reviewed. Not copy-protected.

Mac to any Fax



Now you can treat any Group III fax machine in the world as a remote printer for your Mac. With the Abaton InterFax™, you can print letters, reports, and memos in Los Angeles, New York, London, and Tokyo, even if your office is in Peoria.

And all your documents will look as good off the fax as they would off an ImageWriter. No blotchy letters, streaky lines, or dirty smudges like normal faxes. With the Abaton InterFax, even your fine print is perfectly legible.

And the InterFax gets your fax out fast. *MacWEEK* rated it the fastest fax for the Mac. That's because the friendly InterFax software compresses your file first, then sends it out. So it takes less time to transmit.

You can also use the InterFax as a Hayes-compatible data modem to communicate with other asynchronous devices. Which makes it a great deal as well as a great tool. But that's not the only way it saves you money. With the InterFax, you can schedule when faxes are

sent—like right before a telephone conference, or after hours when the rates are lower. And because the InterFax receives as well as it sends, you can screen faxes before you commit them to paper.

Since the InterFax works in background—with or without Multifinder—you can continue working in PageMaker, Excel, Word, or most other Macintosh applications while you're sending or receiving faxes. Which makes you even more productive.

If you want to know why *The Macintosh Buyer's Guide* rated the InterFax 9.3 (out of a possible 10), call Abaton at 1-800-444-5321. We'll fax or mail you more facts about

the InterFax. Then you can start faxing (and printing) all over the world.



Abaton

We Make Your Ideas Easier to Publish™

Abaton is a subsidiary of Everex Systems, Inc. Abaton, InterFax, and "We Make Your Ideas Easier to Publish" are trademarks of Everex Systems, Inc. Other brand names and product names are trademarks or registered trademarks of their respective companies. Earth photo courtesy of NASA.

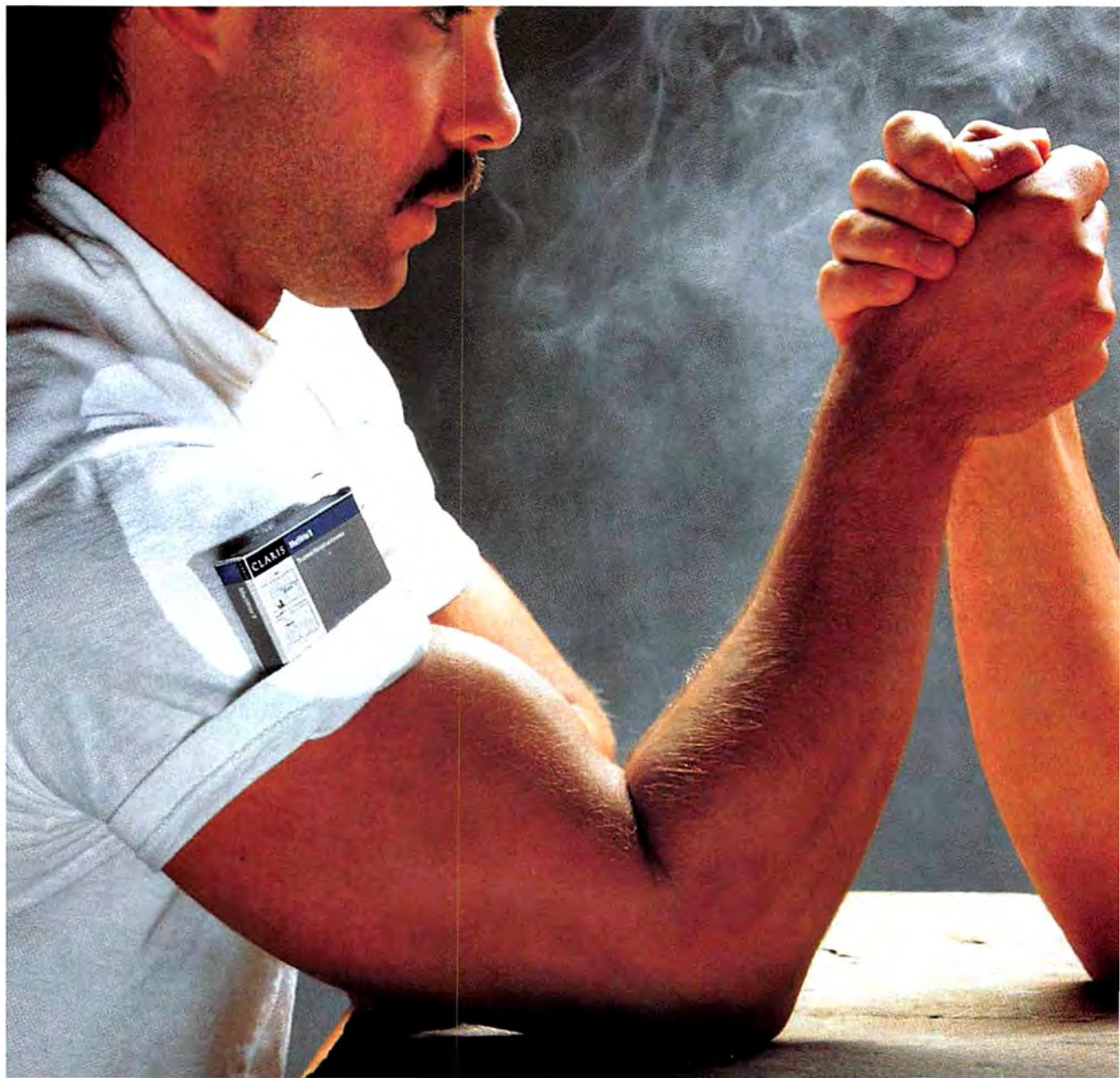
Please circle 66 on reader service card.

**What you want
may be just
what you get
in the
midrange word
processors
MacWrite II
and WriteNow.**

Word Wrestlers

The battle in word-processing Middle Earth continues. With great fanfare, Claris has unleashed MacWrite II. Not simply an upgrade of the venerable MacWrite, MacWrite II is a totally new program, rewritten from scratch to be the word processor for the rest of us.

Last October, T/Maker released version 2.0 of WriteNow for Macintosh, bringing this speedy word



processor up to date (see Quick Clicks, May '89). MacWrite II and WriteNow are now formidable midlevel word processors that are poised to compete head-on.

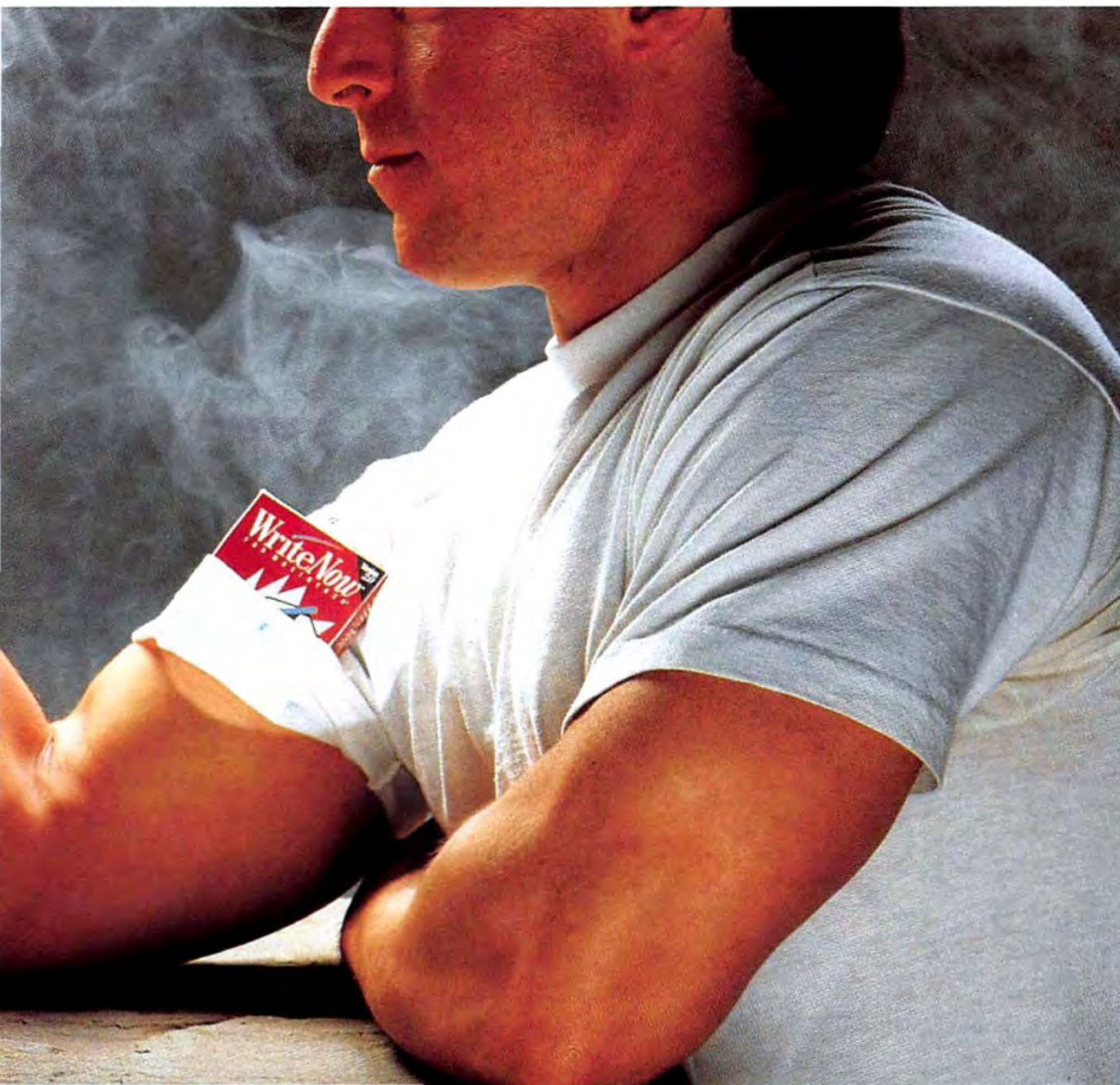
Both programs offer WYSIWYG editing of documents, which can have multiple columns, headers and footers, footnotes, and different margins for facing pages. Several documents can be opened concurrently, each in

its own window. Both programs include spelling checkers and mail-merge capabilities. Both give you precise control over line spacing and let you use any font size. Neither includes the very-high-end features — automatic generation of indexes and tables of contents, glossaries, style sheets, drawing tools, and sophisticated page-layout facilities — that are found in more-expensive word

processors such as Microsoft Word, Nisus, or FullWrite Professional. But for day-to-day word processing, either one has all the features you are likely to need.

Which is the better word processor? *MacUser* staffers Russell Ito and James Finn worked with both products, chose sides, and drew battle lines.

— **Laura Johnson**



PHOTOGRAPHY TOM UPTON

**The biggest change
in MacWrite II
is single-ruler
formatting.**

MacWrite II

Just over a year ago (June '88), I eulogized MacWrite version 5.0 as the VW Beetle of Mac software: a simple, familiar package that hadn't kept up with the times. Well, as expected, Claris undertook a major retooling, and the result isn't a Super Beetle; it's an Audi. MacWrite II equals — and in many ways surpasses — WriteNow, its immediate competition, and makes a bid for consideration among high-end word processors such as Word 4.0, FullWrite, WordPerfect, and Nisus.

Forget about comparing MacWrite II with its forerunner — this is a new program. In addition to multiple windows, MacWrite II's features include single-ruler formatting, a powerful Find/Change function, mail-merge, multiple columns on-screen, time and date stamping, automatic hyphenation, facing pages, gutter margins and headers and footers on odd or even pages, footnotes and endnotes, color support (the eight standard QuickDraw colors), a Revert to Saved option, a stationery feature for preserving commonly used formats, and the ability to save files in up to seven formats. And these aren't all the new features. In short, MacWrite II has made a move up in class that puts it several steps ahead of WriteNow.

Built-in Luxuries

Aside from the incorporation of multiple windows, the biggest change in MacWrite is single-ruler formatting. Instead of having a separate ruler for every paragraph,



By Russell Ito

WriteNow

First there was MacWrite, the software accessory to the 128K Mac, a dazzling concept crippled by early limitations and neglected for years.

Into this vacuum came T/Maker's WriteNow. Even version 1.0 seemed the very model of a basic word processor. It was fast, powerful, intuitive, and — almost unheard of in a first release — bug-free.

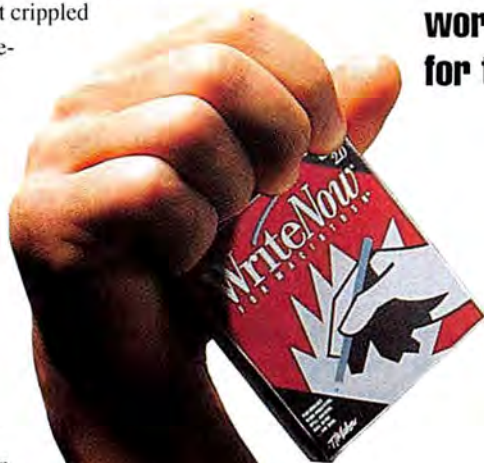
Early users were vocal, however, about several shortcomings in WriteNow 1.0. It lacked mail-merge, and you couldn't import or export documents without running a separate application. Version 2.0 responded to these complaints and more, adding dozens of useful new features while maintaining the original program's speed and simplicity.

Claris has finally updated the old MacWrite. Its progeny, MacWrite II, while a fine program, is nevertheless too little, too late.

Claris is being very cunning. MacWrite II costs more than WriteNow, and Claris is using that as a selling point, claiming that MacWrite II is more powerful and that the extra features justify the higher cost. The initial press coverage and reviews have bought this claim hook, line, and word processor.

But it just ain't so. The reality is that MacWrite II and WriteNow have different feature sets, each providing capabilities the other lacks. And features tell only part of the story. WriteNow is still the most solid and comfortable word processor for the Mac. Its functioning is clean, and you rarely find

**WriteNow is still
the most solid and
comfortable
word processor
for the Mac.**



By James Finn

MacWrite II MacWrite II uses a single ruler that shows the paragraph's settings based on the current cursor position. (Microsoft adopted this technique way back with Word 1.05.) The ruler, which can be hidden, can be used for most of your

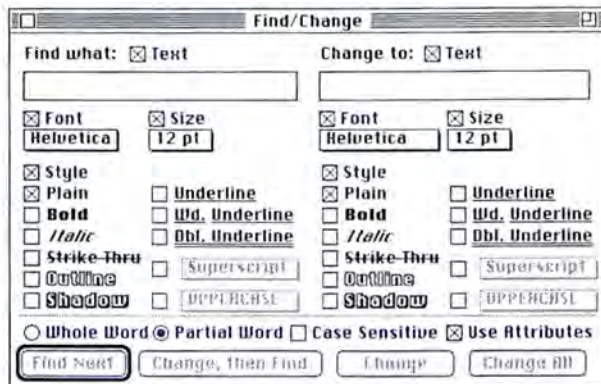


Figure 1: MacWrite II's Find/Change command produces this dialog box if you check Use Attributes. From here you can easily search and replace based on format. The Font and Size boxes conceal pop-up menus listing other choices. The Superscript and Uppercase boxes — though dimmed — also conceal pop-up menus that become active when their boxes are checked.

document's formatting, including indents, tabs, line spacing, and alignment. It also shows the currently available writing area, with a dotted line extending from the left to the right indent markers.

The ruler also packs a number of well-implemented shortcuts. Instead of restricting you to the usual click or

click-and-drag formatting, MacWrite II offers dialog boxes (accessed by a double-click) for increased speed and greater precision. For example, double-clicking on an indent marker brings up the Paragraph dialog box, where you can enter indents and line spacing. You can even hide the tab, line-spacing, and alignment icons, while leaving the rest of the ruler visible. The tabs and line spacing are good examples of MacWrite II's power. Tabs can be left, right, centered, or aligned, and leading tabs are also supported. You can choose the leading character (dashes, periods, whatever), and you can even choose the character you want to align on.

Line spacing is similarly flexible. You can click on the line-spacing icons for single-spaced, one-and-a-half-spaced, and double-spaced lines, or you can add or delete spacing half a line at a time.

Doing similar formatting in WriteNow is nowhere near this easy. WriteNow can't support alignment on any character without the insertion of an invisible character (a soft hyphen), and line spacing can be set only 1 point at a time. What's more, WriteNow's ruler resides in a separate window, so accessing it deactivates your document window. As a result, you can access the Font, Size, and Style menus or the tab, indents, and margins but not all of them at the same time. MacWrite II's Find/Change function is so powerful that WriteNow can't even begin

The implementation of mail-merge in MacWrite II may be the most elegant available on any Macintosh word processor.

Rebuttal

Jim's arguments in favor of WriteNow read like the word-processing equivalent of the seven angels dancing on the head of a pin. It's possible that as an average user, you might need to resort to the save before the last one, and it's possible that you might need to do a multiple indent on a structured document, and it's possible that you might need to adjust the position of superscript or subscript, but the odds of needing these features on a daily basis are roughly the same as your being struck by a meteorite while reading this.

Speed is important, but it isn't necessarily the most important thing. Users will always have to trade off power for speed. If you want the power to do a wide range of word-processing tasks, and to do them easily, MacWrite II is for you. But if speed and a limited feature set is all you want, go dance with an angel.

to touch it. You have complete control to search and replace based on font, size, and style from within a single dialog box — the only attribute you can't operate on is color (see Figure 1).

You can also create custom styles. So if, for example, you wanted to have an 18-point Helvetica, bold, shadowed, underlined, blue font continually available, you could create, name, and save it. It would then appear on the Style menu. (MacWrite II also automatically assigns keyboard equivalents to the first nine styles.) Unfortunately, custom styles aren't available in the Find/Change dialog box, and if you change or delete a custom style, text where that style has already been applied is not automatically updated.

yourself having to work around annoying design decisions that plague virtually all other Mac word processors, including MacWrite II.

What Claris Didn't Tell You

The "less powerful" WriteNow can do many things that MacWrite II can't. WriteNow lets you use as many headers and

ruler changes apply only to rulers identical to that of the first paragraph in the selection (see Figure A). This gives you most of the power of Microsoft Word's style sheets. You can easily reformat, say, all subheads as a group, without affecting paragraphs that are formatted differently. MacWrite II has nothing even remotely equivalent to this.

WriteNow

That's just the beginning. If you hold down the Command key, WriteNow's ruler changes become relative. For example, dragging the paragraph indent half an inch to the right while pressing the Command key adds half an inch to the indentation of all selected paragraphs. Using this tool, you can reformat a document and your indented quotations will keep their relative indentation. To make life even easier, WriteNow has menu commands that increase or decrease the indentation of selected paragraphs by the distance of one tab stop.

Even without these features, it is simple to format all footnotes as a group (see Figure B). Although footnotes display on-screen as they will print, you edit them in their own view, making it a snap to select them all for formatting. The same is true for headers and footers. The more expensive MacWrite II does not have this formatting muscle. It lets you copy and paste rulers (as does WriteNow); that's about it.

Many small items help make WriteNow a pleasure to use. It can display a border on-screen showing the physical area of the

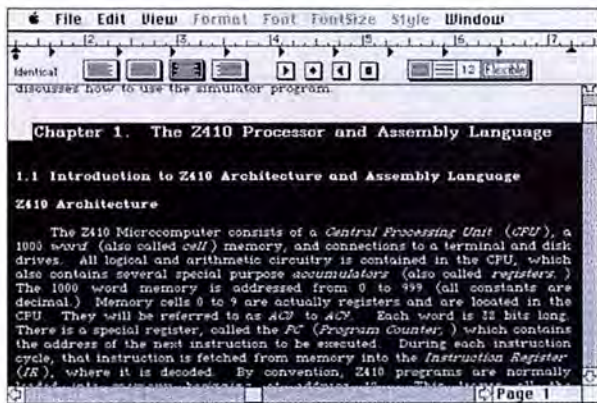


Figure A: WriteNow's "format accelerators" give most of the power of Word's style sheets. To reformat chapter headings without changing any other paragraphs, hold down the Shift key. Ruler changes will then affect only rulers identical to the Chapter 1 heading, the first paragraph in the selection (the word *Identical* appears in the ruler to indicate this).

footers as you want; each can appear on odd pages, even pages, or both. With MacWrite you are limited to just one header and footer (although you can have a different header and footer for facing odd and even pages).

WriteNow lets you select lines of text that should be kept together on a page, so that page breaks won't fall in awkward places. MacWrite doesn't. WriteNow's character styles include condensed and extended text; MacWrite's don't.

A WriteNow menu command converts selected text to uppercase or lowercase, or just capitalizes words. WriteNow supports fractional-width spacing on high-resolution printers, making documents look more professional. It permits multiple levels of superscript and subscript and even lets you adjust the offsets in 1-point increments. WriteNow saves the two most recent versions of your document; not only can you revert to the last version saved, but you can also recover the version before that. MacWrite II can do none of these things.

WriteNow also contains unique tools for document formatting. As with other word processors, you can select a series of paragraphs and then go to the ruler and make changes that are applied to all selected paragraphs. But WriteNow adds options that are a power user's dream. If you hold the Shift key down,

Rebuttal

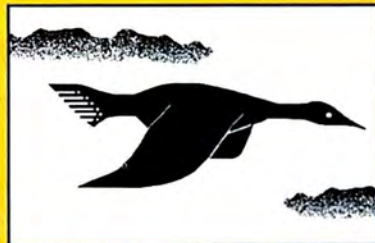
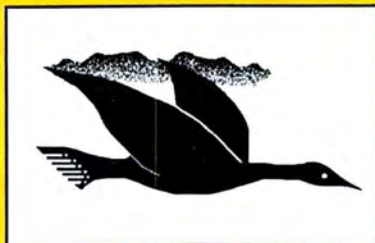
Russ' presentation should make it clear why I prefer WriteNow; even a supporter of MacWrite II acknowledges its numerous faults, while his claims of superiority are exaggerated.

MacWrite's feature set is just not as well thought out or functional as WriteNow's. MacWrite II has nothing equivalent to WriteNow's powerful ruler formatting tools, support for fractional spacing on laser printers, or multiple headers and footers.

WriteNow does have counterparts to most of MacWrite II's most powerful features. MacWrite's Find/Change function is terrific and one of the program's real strengths. But Russ' claim that WriteNow "can't even begin to touch it" is simply oversell. Most people will use this feature to do things like change all instances of Monaco font to Courier, or shadowed text to simple italic. WriteNow can do these things through its identical-font and style-change features.

A Microsoft Word-compatible mail-merge may be a "paradigm of ugliness," but it was actually requested by WriteNow 1.0's users. In short, the best word processor got even better, and, priced as it is, WriteNow is almost a public service.

ANIMATION IN LESS THAN 1 MINUTE WITH STUDIO/1™



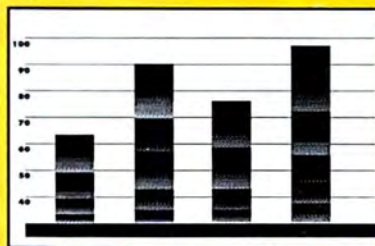
MOTION PICTURES IN 24 SECONDS

Automatic page flipping makes fluid animation as easy as moving the mouse.



CAPTIVATING TITLES IN 42 SECONDS

Set a start and end point, and Studio/1 does the rest.



DYNAMIC PRESENTATIONS IN 56 SECONDS

Studio/1 includes special animation effects for automatic transitions, fades and distortions.

1/2 PRICE LIMITED OFFER:

Get Studio/1 for only \$75 (plus shipping and handling) when you trade up from any Macintosh paint or animation product. Offer good until Nov. 30, 1989. Demo disks also available for \$10. Both offers good through Electronic Arts Direct Sales only. Call 800-245-4525 for details (M-F, 8-5 Pacific time).



All this, and a full-powered paint program too. 300 dpi editing, a PostScript® quality text layer, direct Apple Scanner® support, 3D perspective, editable Bezier curves, powerful selection tools and editing at 8 magnification levels, including zoomed-out mode. HyperCard® driver and animated slide show player included with Studio/1.



ELECTRONIC ARTS®

Studio/1 is a trademark of Electronic Arts. HyperCard, Macintosh, and Apple Scanner are registered trademarks of Apple Computer Inc. PostScript is a registered trademark of Adobe Systems, Inc. Requirements: Macintosh® Plus, SE, SE/30, II, IIx, IIcx; 2 disk drives or 1 disk drive plus a hard drive; System software 6.0.2 or later. Times represent animation renderings on a Macintosh SE. Other times may vary.

Please circle 128 on reader service card.

MacWrite II Added Features

The implementation of mail-merge in MacWrite II may be the most elegant available on any current Mac word processor. After creating a tab-delimited data document, you create a form letter. To insert data fields into that letter, you open the data file, using the Open Merge Data File command, and you're presented with a scrolling list of field delimiters and all the field names in your data document (see Figure 2). All you have to do is position the cursor in the letter and then double-click on the field name. Bingo, MacWrite II pastes in the field — surrounded by the proper delimiters. Conditionals are handled the same way.

WriteNow's mail-merge uses the Microsoft model, a paradigm of ugliness that requires comma-delimited fields that force you to surround any text containing a comma with quotation marks and to use international quotation marks («») for the field delimiters.

After mail-merge, the most commonly requested feature for a retooled MacWrite was probably multiple col-

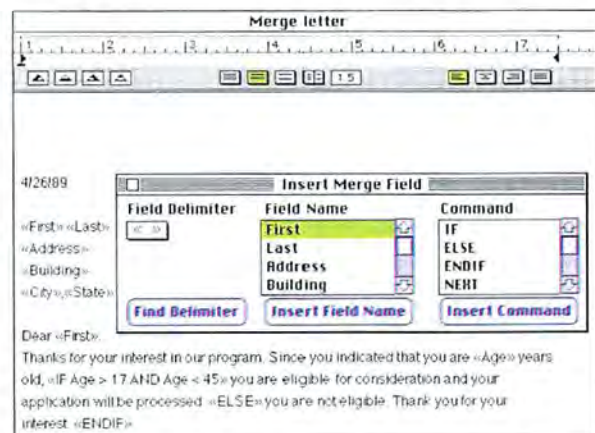


Figure 2: With MacWrite II's elegant mail-merge, you paste field names and conditionals into your document through the Open Merge Data File dialog box. The Field Delimiter box is a pop-up menu with other choices for delimiters. The two scrolling lists contain all the field names in the data document and all supported conditional commands. You insert fields and commands by positioning the cursor in the form letter and double-clicking on the field name or command.

umns. It's easy to set up a multiple-column document in MacWrite. You select the Page command from the Format menu and enter the number of columns you'd like (up to ten) and how far apart you want them. MacWrite II calculates the width of each column and reports that size to you at the bottom of the box (see Figure 3).

It isn't just the ease and elegance of MacWrite's multiple columns that are so pleasing — they're smart too. For example, if you designate a title page in a

page on which your printer is capable of printing, so you won't place text where it

can't be printed. A menu command gives a fast count of words, characters, and paragraphs in the entire document or in just the current selection. The spelling checker is simple and fast (see Figure C). It remembers what parts of the document it has checked and which words you told it to skip, so subsequent spelling checks go even more quickly.

Truth and Beauty — Beyond Features

Much of WriteNow's virtue is aesthetic. The program generally *feels* right, which unfortunately is not always the case with MacWrite II.

WriteNow runs on any Mac and is very fast in all operations on all machines, while MacWrite II needs at least a Mac Plus

WriteNow

MacWrite II's spelling checker is slow, and horribly so on a Plus or SE. And you can't get a word count without a spelling check.

and plenty of disk space. MacWrite II's biggest problem is its surprisingly poor performance on 68000-based machines. On Pluses and SEs, the program is slow enough that even a moderately fast typist like me can get ahead of the display — especially when writing footnotes.

MacWrite II's spelling checker is slow, and horribly so on a Plus or SE. When it finds a misspelled word, it suggests possible corrections, but it takes forever to compile the suggestion list.

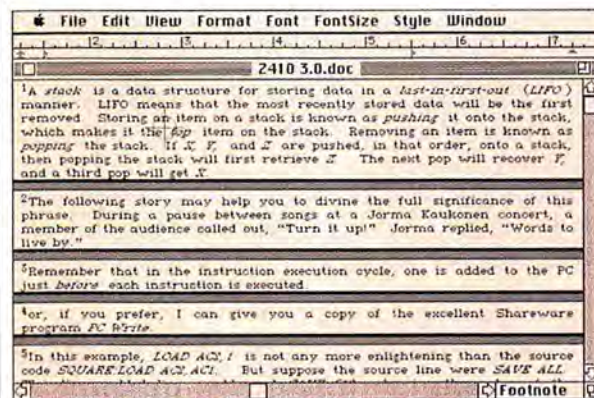


Figure 3: Footnotes in WriteNow are edited in their own window, making it simple to format them as a group. When you return to the normal view of the document, footnotes appear on the page exactly as they will print.

MacWrite II

multiple-column document, not only does MacWrite II prevent headers and footers from appearing on the first page, but it also prevents multiple columns from appearing on the title page. If you paste a graphic that's wider than a column into a document, MacWrite II automatically scales that graphic to fit. You can resize it vertically, but you can't stretch it across columns.

WriteNow, on the other hand, restricts you to a maximum of four columns, and setting the intercolumn spac-

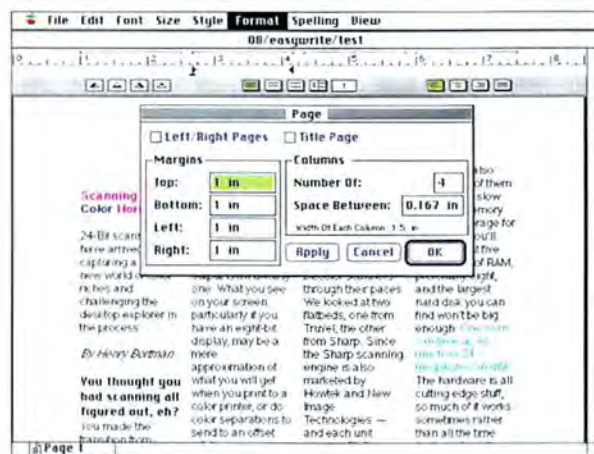


Figure 3: MacWrite II supports up to ten snaking columns in a document. You set the number of columns and intercolumn spacing in the Page dialog box. MacWrite II automatically scales a pasted graphic to fit within a column. The greatly improved ruler has a dotted line at the top that shows the available text area. The black triangles are indent markers. The icons are for tabs, line spacing, and alignment.

ing is such a convoluted process that it's almost painful. As for inserting graphics, WriteNow initially pastes in a cropped version of the graphic, which you then have to double-click on to scale automatically.

MacWrite II offers three major functions that WriteNow doesn't: on-line help (HyperCard-based), a Font menu that displays the font names in the actual typefaces, and a thesaurus (Microlytics' WordFinder). The Font-menu display is a nice touch, but I wish it were switchable as a preference. Showing dingbat fonts such as Cairo can be a problem. And if you have a lot of fonts, it can take a long time to launch the program.

MacWrite II also offers some powerful hyphenation options — WriteNow doesn't even have automatic hyphenation. MacWrite II lets you specify whether and where a given word should be hyphenated, and these specifications can be kept in an active list for use whenever you hyphenate a document.

What's more, you can't get a word count without a spelling check.

WriteNow

MacWrite II's ruler has no invisible grid for positioning tabs and paragraph indents. If you drag a tab near the the 2-inch mark, that's where it will wind up; *near* the 2-inch mark. To place it there exactly, you either have to type the position into a dialog box or possess unusual mouse dexterity. WriteNow's

WriteNow has a few quirks of its own. There is no quick way to set line spacing to one-and-a-half- or double-spaced. Setting up multiple-column documents is more difficult than necessary.

ruler snaps tabs and indents to an invisible grid that you can turn off when necessary.

There are other irritations. MacWrite II doesn't delete the space after a word unless you use the Cut command; deleting a word with the Delete key leaves the space. And documents created with earlier versions of MacWrite must be opened from within the application and translated; you can't double-click on them and have them launch MacWrite II.

WriteNow has a few quirks of its own. There is no quick way to set line spacing to one-and-a-half- or double-spaced. Setting

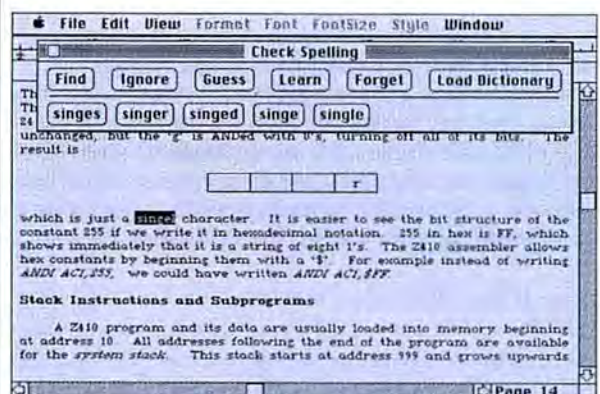


Figure C: WriteNow's spelling checker is simple and very fast. Here it offers suggestions for the misspelled word *singer*. It remembers which words you decide to ignore and which parts of the document you have already examined, which speeds up subsequent checks.

MacWrite II **Power, Not Speed**

But MacWrite II isn't perfect. On 68000 machines, everything is slow — there's nearly a 2-second lag before a pulled-down menu appears. The spelling checker in MacWrite 5.0 was pretty awful, and this one isn't any better. It's still slow, and it doesn't let you turn the suggestions list off. You also have to do a spelling check to get a word count.

MacWrite II has other minor shortcomings. There's no option to keep lines together, so you can't prevent a paragraph from being split. It doesn't delete the space after a word unless you use the Cut command. And you can't double-click on documents created in earlier versions and have them open right into MacWrite II. Another drawback is Claris' unresponsive tech support.

Claris has brought MacWrite a long way, and if it weren't for its poor performance on 68000 machines, I'd rate it much higher. I'd still recommend it over WriteNow. It has a more powerful feature set and a superb interface — including the best implementation of pop-up menus I've seen in any Mac program. With a few improvements, MacWrite may yet challenge Word and the other BMWs of word processing and leave the midsize models like WriteNow in the dust.

Russell Ito is the reviews editor at MacUser. He knows his Thomas Aquinas (the seven angels, etc.), and Jim, to your credit, you're no Thomas Aquinas.



MacWrite II



	1	2	3	4	5
Follows Mac Interface					
Printed Documentation					
On-Screen Help					
Performance					
Support					
Consumer Value					

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

Comments: Powerful, easy-to-use midlevel word processor that outclasses its competition.

Best Features: Excellent interface. Powerful Find/Change function. Elegant multiple columns and mail-merge.

Worst Feature: Poor performance on 68000 machines.

List Price: \$249. Published by Claris, 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168; (408) 987-7000. Requires Mac Plus or later, 1 megabyte RAM, two 800K drives or hard disk, System 6.0 or later; hard disk recommended for thesaurus, stationery, and help. Not copy-protected.

up multiple-column documents is more difficult than necessary, since you set intercolumn spacing by adjusting the columns' paragraph margins.

WriteNow

Why Not the Best?

Overall, WriteNow is faster and simpler than anything else around. I rarely have to look anything up in the manual. There are few complex dialog boxes; most commands are right there

Claris did a respectable job of updating MacWrite, but it's still second-best.

in the menu bar. And its novel feature set packs extraordinary power.

T/Maker will give you Sample WriteNow for evaluation. When you print, Sample WriteNow prints an identifying message on each page; otherwise it is identical to WriteNow. You can try it and decide for yourself.

Claris did a respectable job of updating MacWrite, but, for my money, MacWrite II has a long road to travel before it can claim to be better than second-best.

James Finn, senior technical writer, is developing a wordless processor and, if successful, may forget his name.



WriteNow 2.0



	1	2	3	4	5
Follows Mac Interface					
Printed Documentation					
On-Screen Help					
Performance					
Support					
Consumer Value					

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

Comments: Elegant, powerful, and extremely fast midlevel word processor.

Best Features: Speed, WYSIWYG editing, flexible "format accelerators."

Worst Feature: Multiple-column setup is unnecessarily complicated.

List Price: \$195. Published by T/Maker, 1390 Villa St., Mountain View, CA 94041; (415) 962-0195. Runs on any Mac. Version 2.0 reviewed. MultiFinder friendly. Not copy-protected.



**By Gordon McComb, Owen W. Linzmayer,
and the MacUser Labs staff**

ILLUSTRATION: RON CHAN

The Fax Factor

Today's fax modems have many admirable features. But wait — great stuff is just around the corner.

The biggest news in communications equipment today is the facsimile (fax) machine. By combining the immediacy of the telephone with the dissemination power of

the photocopier, the fax machine has established an unshakable foothold in millions of offices worldwide. Never mind that your best excuse for being late — "I mailed that report three days ago" — no longer holds water. Fax means instant gratification and no more little white lies.

Until recently, these machines could communicate only with each other. Then along came the fax modem, and overnight every fax machine in the world was transformed into a low-end, 203-dot-per-inch (dpi) printer that your Mac could access just as easily as the ImageWriter on your desk.

Unfortunately, at this time, the marriage of the fax modem and the Mac has resulted in a small crop of imperfect products. MacUser Labs torture-tested the three Macintosh fax modems available at press time: Apple Computer's AppleFax (both with and without BackFAX, Solutions International's replacement software), STF Technologies' FAXstf, and Abaton's InterFax 12/48. We judged each fax modem on its transmission speed, document-conversion efficiency, image fidelity, ease of use, and printing speed.

None of these units proved to be an adequate substitute for a stand-alone fax

machine. Although fax modems are relatively inexpensive (\$495 to \$699) and offer features not available in traditional fax machines, they do have inherent disadvantages that may not be obvious to prospective buyers (see "Weighing the Fax" sidebar).

If you want to get your money's worth from the fax modems currently available, most of the documents you send should already exist as Mac files, and you shouldn't expect to receive many faxes. On the other hand, if you can wait a few months, you'll be generously rewarded with some promising new products (see "On the Horizon" sidebar).

In this first look at Macintosh fax modems, we discuss the features to look for, what's wrong (and right) with the current products, and what's coming down the pike. Once the technology has matured, we'll be back with a more comprehensive evaluation of fax modems.

A Short History of Fax

The idea of transmitting pictures through wire from one location to another was first proposed in 1842 by Scottish psychologist and author Alexander Bain, and the first working facsimile machine appeared in 1854. Despite gradual improvements in the technology, the concept languished for more than a century, until the mid-1980s, when it caught on like brush fire.

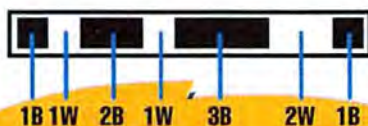
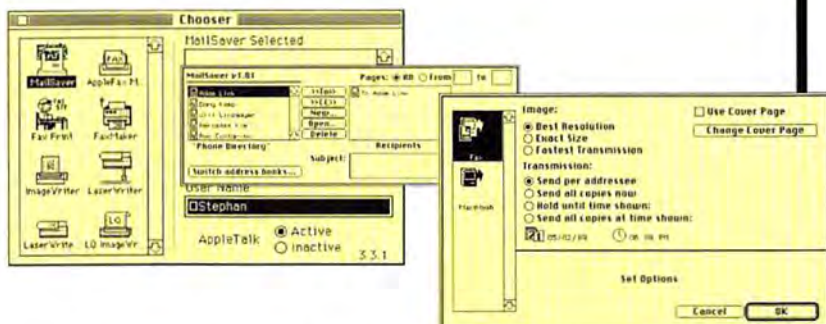
Why the sudden reawakening of fax? Digital transmission. Early fax machines were hamstrung by antiquated analog

MacUSER
LABS

How It Works

1. The Driver

Most fax modems come with a driver that can be selected with the Chooser. To send a fax from within an application, "print" a document to the fax modem and then specify options such as resolution and the recipient's phone number. An image of each page is created with a series of QuickDraw routines that the driver spools into a temporary disk file. It is then used to create the bit-mapped image that is sent via the fax modem.



2. Compressing the Document

Instead of transmitting every dot in the bit map, fax modems use a modified Huffman technique (specifically known as the CCITT T.4 compression standard) to

encode the length patterns of black and white dots. It can reduce the size of a typical text page by 80 to 90 percent. The compressed fax file can be saved to disk.



3. Handshaking

When instructed to send a fax, the modem calls the specified fax station and transmits a list of capabilities at 300 baud. The list includes speed, resolution, and page width and length. If the machines are incompatible, the transmission is aborted. If compatible, the machines test the telephone-line quality at their highest common speed, repeatedly falling back to the next lowest speed until the line-quality test succeeds, at which point transmission begins.



4. Transmitting

The software reads the compressed file from disk or memory and directs the digital signal from the computer into the fax modem, which converts the signal into the modulated analog signal used by telephone equipment. On the receiving end, the signal is demodulated, the information decompressed, and the image printed line by line (or saved to disk). After transmitting all the pages, the sending station either polls the remote fax station to transmit its own document or tells it to disconnect.

transmission. But in the early 1980s, a digital-communications standard called Group 3 was established by CCITT (an international standards committee based in Geneva), and corporate communications has never been the same since.

The Group 3 protocol is a vast improvement over previous fax standards. With its data compression and maximum speed of 9,600 baud, it lets fax machines transmit a full page in less than a minute, which is several times faster than the analog-transmission rates of the Group 1 and 2 standards. Furthermore, Group 3

offers greater resolution (203 x 98 dpi in standard mode or 203 x 196 dpi in fine mode), yielding sharper images.

An even more advanced protocol, Group 4, has already been established, but its widespread implementation must wait until the world's phone lines are upgraded to ISDN, a high-speed, all-digital standard. It's estimated that such a system won't be available in the United States until the late 1990s.

Suffice it to say, when most people talk about fax, they mean Group 3 fax. Many modern stand-alone fax machines are

compatible with the older standards, however. Among the fax modems we tested, only the AppleFax can communicate with most Group 2 machines. The other two units are Group 3-compatible only.

How Fast Fax?

Like a regular data modem, a fax modem is a hardware device that sits between the Mac's serial port and a telephone jack. But instead of sending data from one computer to another, a fax modem trades documents with other fax

stations, be they fax modems or machines (see "How It Works" sidebar).

Although fax modems are surprisingly similar to data modems both in appearance and functionality, they aren't interchangeable, because of differences in their communications standards. (The InterFax 12/48, however, is a double-duty unit that combines a 1,200-baud Hayes-compatible data modem with a 4,800-baud fax modem.) While the most popular data modems lumber along at 1,200 and 2,400 baud, Group 3 fax modems typically operate at 9,600 baud (see Glossary).

Of the three Macintosh fax modems we tested, only one — the AppleFax — is capable of 9,600-baud operation; the InterFax 12/48 and FAXstf have a maximum speed of only 4,800 baud. Although the latter are initially less expensive, their slower transmission speed can mean higher phone bills. Consider this scenario: You send a four-page document each business day from San Francisco to New York. At approximately 25 cents per minute (AT&T's standard daytime rates), you'll spend more than \$500 annually in long-distance calls with a 4,800-baud fax modem. This expense could be

Fax Transmission Costs



Although initially less expensive, 4,800-baud fax modems can rack up higher phone bills in the long run.

ILLUSTRATION: K. DANIEL CLARK

substantially reduced by substituting a 9,600-baud fax modem.

Software Does It All

Unlike fax machines, whose features are built into the hardware, Mac fax modems differ from each other mainly in their software, which handles tasks such as automatic dialing, group distribution, and polling (see "Fax-Modem Features" table). Early adopters needn't worry about their modems' quickly becoming obsolete, since improvements in features and

performance involve software revisions rather than expensive hardware upgrades.

The software for all three fax modems shares a common thread: The programs send faxes from within applications, using fax-modem drivers that come with the software package.

After you've copied the driver file to the System folder, you can select the fax modem with the Chooser DA, as if it were an ImageWriter or any other printer. Then from within any standard Macintosh application, you simply "print" the document — whether it is straight text or a sophisticated DTP manuscript replete with illustrations — to the fax modem, and a special dialog box appears in which you specify options such as telephone number, page range, and quality (either standard or fine resolution). The receiving fax station can be thought of as a printer located at another site, with the telephone lines providing the physical connection.

All this is well and good if everything you want to send exists as electronic files. But what about sending paper documents? These can be transmitted only if they are first digitized by a scanner (see "Gray Expectations," June '89). But don't purchase a scanner for this purpose alone, since the combined cost of a scanner and fax modem easily outstrips the price of a well-outfitted stand-alone facsimile machine, which does the job much more conveniently.

Covert Actions

Fax modems don't simply take a MacPaint document, for example, and



Weighing the Fax

Advantages

Low cost. At roughly half the price of comparably equipped stand-alone units, fax modems are a good buy for individuals and small businesses.

Convenience. If the documents you want to send already exist as computer files, there's no need to print a copy just to run through a fax machine. Also, if you must send additional copies in the future, it may be easier to pull the file from disk than to locate a printed original.

Security. Unlike documents sitting in the output trays of traditional fax machines, documents received by a fax modem are stored on-disk, hidden from prying eyes.

Low maintenance. Unlike fax machines, fax modems have no breakable moving parts and no paper that might run out or jam.

High-quality transmissions. Faxed documents are clear and crisp. Even when received by a thermal-printing, stand-alone fax machine, your Mac-generated faxes resemble LaserWriter output.

Drawbacks

Long print times. This is perhaps the biggest bane of fax modems. Printing just one ten-page document may take up to an hour. Without a print spooler, work on your Mac comes to a halt.

Network incompatibility. None of the modems reviewed are accessible by multiple users on a network. Without this capability, a separate modem is required for each workstation, or one Mac must be dedicated for fax use.

Huge files. Fax documents consume roughly 100K of disk space for each page. Makers of fax modems "suggest" a hard disk. In reality, a hard-disk drive is mandatory.

Lengthy conversion times. Prior to or during transmission, a document must be converted to the Group 3 fax format, a process that ties up your Mac.

No built-in scanner. Fax modems are great for sending Mac-generated documents but not printed originals. To send originals, you must add an optical scanner to your system, at significant expense.

— Owen W. Linzmayer

spit it out over the phone line. Behind the scenes, the fax driver first converts the QuickDraw description of the document to the standard data format specified by the Group 3 protocol. Only then can the fax file be transmitted.

With Abaton's InterFax, after the document is converted into a compressed fax file, you regain control of the Mac

and can continue to work while the transmission occurs in the background (you don't need MultiFinder). This ability to send and receive faxes in the background is vital; otherwise your Mac can be tied up for hours.

The software that comes with the FAXstf and AppleFax modems lacks this backgrounding capability. You must wait

until the entire fax has been sent (or received) before you regain control of the Mac. This problem is exacerbated in the case of the AppleFax by the fact that the driver performs its conversion to Group 3 format "on the fly" as the document is sent. Since you pay for the total time the telephone is off the hook, you wind up paying for the conversion. This serious



On the Horizon

MacUser Labs received several new fax modems too late to test for this report. Several other manufacturers also have fax modems scheduled for release by the time you read this (or shortly thereafter). We'll have a complete report in a future issue; meanwhile, here are some products to watch for:

By August, Abaton plans to ship the InterFax 24/96, a double-duty unit combining a 2,400-baud data modem with a 9,600-baud fax modem. We liked its predecessor, the 12/48 (reviewed this month), lamenting only the slow 4,800-baud transmission speed; the new hardware addresses this shortcoming. New software features for the 24/96 will include generation of cover pages, insertion of page headers in fax transmissions, and spooling of inbound faxes to a designated folder. It will also support the Apple and Abaton scanners and be able to save fax files in uncompressed TIFF format.

Most importantly, the new software will offer limited networking capabilities, allowing access to a single modem by multiple users. The entire package (modem and software) will retail for less than \$700. A nominally priced software upgrade will give registered owners of the InterFax 12/48 all the functionality of the 24/96, excluding the 9,600-baud capability.

Solutions International, publisher of BackFAX, will release its FaxGATE software as soon as version 2.0 of Microsoft Mail ships. Working in conjunction with BackFAX and Microsoft Mail, FaxGATE lets you send a fax via the mail server, which handles the transmission with an AppleFax-compatible modem. Only one fax modem is required for the entire mail network. No price had been set at press time.

Ricoh is poised to release the DX-1, a 9,600-baud fax modem that can connect to a stand-alone fax machine for use as a low-end Macintosh printer and scanner. The DX-1 is an intelligent device that baby-sits the fax machine and Mac. For example, if the fax machine runs out of paper, the DX-1 shunts inbound faxes to the computer for storage on a hard disk. It also offers full polling and a digital interface to all Ricoh fax machines. The DX-1 will retail for less than \$900, including unspecified OCR software.

The Tefax RA-2110 from Relisys is a stand-alone, 9,600-baud fax machine with thermal printer, scanner, and telephone handset that

can communicate with a Mac or PC via the serial port. Shipped with software for both platforms, the Tefax lists at \$1,595. The current version of the Mac software does not use the print method to send faxes. Instead, documents are either imported to the Tefax application in PICT format or created with the built-in editing tools. In August, Relisys will begin shipping the Tefax with BackFAX software.

At press time, Cypress Research planned to release FaxPro in June with a price of \$995. This double-duty unit combines a 9,600-

baud fax modem with a 2,400-baud data modem. A beta copy of the software appeared to be comprehensive and easy to use. Like BackFAX, it allows transmission and reception in the background without MultiFinder.

The TransFax from Genius is a 9,600-baud fax modem with sufficient internal memory to receive and store an eight-page document, even if the Mac to which it is connected is turned off. Priced at \$1,295, the TransFAX will be bundled with BackFAX and should be available late this summer.

Computer Friends is currently distributing Lightspeed's LightFax, a double-duty modem with 9,600-baud fax and 2,400-baud data-communications capabilities. The software we saw had limited background reception, similar to that of the FAXstf reviewed this month. The LightFax software does not use the printing metaphor to transmit a fax from within any

standard Mac application. Instead, documents must be created within the supplied fax editor. Computer Friends promises that software using the printing metaphor will ship in fall of 1989. The LightFax costs \$799.

By the time you read this, Circuit Research should be shipping its double-duty unit, the FlexFAX. Priced at \$895 and bundled with BackFAX, the FlexFAX combines a 2,400-baud data modem with a 9,600-baud fax modem. It's completely compatible with the AppleFax hardware, allowing it to transmit data at 9,600-baud to AppleFax and other FlexFAX modems.

Orchid's MacFax is a 9,600-baud fax modem that's also compatible with the AppleFax. Bundled with BackFAX, MacFax was slated to ship in June with a list price of \$599.

—Stephan Somogyi



Future faxes: The stand-alone Relisys Tefax (left) has it all. The Lightspeed LightFax (right) is a fast double-duty modem.

ANOTHER SUPRA VALUE!

Suggested Retail

\$179⁹⁵

Supra Modem 2400
MS AA CD OH RD SD TR MR

ON/OFF

Actual
Size

Compatible

The SupraModem 2400 is 100% compatible with industry-standard, intelligent "AT" commands and all commonly used protocols (including Bell 103/212A, CCITT v.22, and CCITT v.22bis). Since the SupraModem operates asynchronously at **300, 600, 1200, and 2400** baud, you can communicate at whatever rate you need to. All these features let you use the SupraModem 2400 to connect with most modems being used today.

Affordable

In addition to its low price, the SupraModem 2400 will save you money by letting you communicate at 2400 baud, thus decreasing your on-line time. The SupraModem 2400 incorporates the advanced Intel 89024MS chip set. This design utilizes fewer parts, assuring operation long after the one-year warranty period.



Supra Corporation

1133 Commercial Way / Albany, OR 97321 U.S.A.
Phone: (503) 967-9075 / Fax: (503) 926-9370
Telex: 5106005236 (Supra Corp)

Available at your local dealer or call
(800) 727-8772
Orders Only

Easy to Use

The SupraModem 2400 is very easy to use. It features autoanswer and autodial (tone and pulse) for performing phone tasks, and it has a programmable-volume speaker for monitoring call progress. Storing phone numbers and user configurations is also simple because of the modem's programmable nonvolatile memory.

These features and others are explained thoroughly in the comprehensive *SupraModem 2400 Operator's Manual*. Once you understand the basics, the modem's quick-reference card makes finding command descriptions and other modem information quick and simple.

And to make it even easier to begin telecomputing, the SupraModem 2400 comes with introductory packages for several popular on-line services.

Special package available for Macs!

The SupraModem 2400MC combines the standard SupraModem 2400 package with popular telecommunications software and a Peripheral-8 to RS-232 cable for connecting the modem to your Mac. **\$249.95.**

Introducing the Exciting New
SupraModemTM
2400

Please circle 85 on reader service card.

SupraModem 2400TM is a trademark of Supra Corp. / MacintoshTM is a trademark of Apple Computer.

Fax-Modem Features



AppleFax 1.2



BackFAX 1.02



FAXstf 1.0.3



InterFax 1.0

	Apple	Solutions	STF	Abaton
Company	Apple	Solutions	STF	Abaton
Price	\$699	\$245	\$695	\$495
Speed (baud)	9,600*	NA	4,800	4,800 [†]
Size (W x L x H, inches)	4.75 x 8 x 2	NA	3.5 x 6 x 1	5.75 x 8 x 1.25
Warranty	90 days	90 days	90 days	1 year

Transmission features

Background operation	no	yes	no ⁻	yes
Cover page	no	yes	no	no
Phone directory	yes	yes	yes	yes
Group distribution	yes	yes	yes	yes
Enveloping	yes	no	no	yes
Scheduled transmission	yes [†]	yes	yes [†]	yes
Auto-redial	yes	yes	yes	yes
LQ fonts provided	Times, Helvetica, Symbol, Courier	none	none	SWA Swiss, SWA Dutch

Reception features

Auto-answer	yes [†]	yes	yes [†]	yes
Polling	yes [‡]	no	no	yes ^{**}
Activity report	yes	yes	yes	yes
Magnification (percent)	none	none	50, 75, 200, 300	5-1,000
File formats (non-CCITT)	none	PICT, TIFF, MacPaint, Glue	none	PICT, TIFF, MacPaint

* Receives at 4,800 baud.

[†] Fax application must be running.

[‡] Only other AppleFax modems.

⁻ Can "background" under MultiFinder, but when activated it comes into the foreground.

[‡] Also includes 1,200-baud data modem.

^{**} Must transmit page before receiving.

Glossary

activity report — A log generated by the fax software and saved to disk that lists all documents sent to and received from fax stations, including any problems that are encountered.

auto-answer — The modem picks up the phone when it detects a ring and then establishes a connection with the remote modem.

auto-redial — The modem repeatedly dials a busy number until it gets through.

background operation — A multitasking feature that lets you continue to work in an unrelated application even as the fax software uses the modem to send and receive documents.

baud — The speed of data transmission, roughly corresponding to bits per second. All other things being equal, the higher the baud rate, the faster the transmission. The standard speed for Group 3 transmissions is 9,600 baud.

CCITT — The International Consultative Commission on Telephone and Telegraph, a commission charged with establishing standards for telephone communications, including facsimile transmission.

cover page — Typically the first page in any fax document. It contains such information as total number of pages, time and date of transmission, sender's name and phone number, recipient's name, and instructions to be followed on receipt.

enveloping — Transmitting multiple files as a single fax document. For example, a MacWrite manuscript and a MacDraw illustration can be placed in an "envelope" and transmitted as a single fax.

fall back — To decrease the rate of transmission, usually to accommodate a slower receiving fax machine or to compensate for excessive noise on the telephone line.

Groups 1, 2, 3, 4 — Transmission standards initially set by manufacturers in the early days of facsimile and eventually codified by the CCITT. Groups 1 and 2 are essentially

extinct analog protocols. Group 3 is a digital protocol that incorporates automatic compression and is the current worldwide standard for fax transmissions. A more advanced standard, Group 4, is likely to supersede Group 3 sometime in the late 1990s.

group distribution — The capability of transmitting the same document or envelope to multiple fax stations. Groups can be defined in customized telephone directories.

phone directory — A databaselike list of the names and phone numbers of the people to whom you commonly send faxes.

polling — Making one call and both sending and receiving a fax, or calling a remote fax location and requesting a transmission.

scheduled transmission — Unattended sending of documents at some later time, typically late at night when phone rates are lower.

Take this simple test to qualify for a great deal on MacWrite II.

Do you own Microsoft Word?

Yes No
☐ ☐

Do you own Microsoft Works?

☐ ☐

Do you own Microsoft Write?

☐ ☐

Do you own FullWrite Professional?

☐ ☐

Do you own WriteNow?

☐ ☐

Do you own Word Perfect?

☐ ☐

Do you own MindWrite?

☐ ☐

Do you own any version of MacWrite®?

☐ ☐

If you answered yes to any of the above questions, you qualify (not exactly rocket science, was it?).

And you can get MacWrite II (a \$249 value) for only \$75, or \$65 for registered MacWrite 5.0 owners. To find out more, follow these simple steps: look at the number below, pick up your phone and dial.

CLARIS™

Trade-in hotline 800-544-8554.

drawback diminishes the cost advantage of 9,600-baud transmission.

Fortunately for AppleFax owners, Solutions International offers BackFAX, a \$245 replacement software package for the AppleFax modem that, among other things, sends and receives in the background and performs document conversions off-line prior to transmission.

Midnight Caller

Another important feature of some fax modems is the ability to schedule transmissions to begin at a later time or date to take advantage of lower phone rates. With the InterFax and BackFAX units, as long as the Macintosh is turned on at the specified time, the fax application will kick in and send the document automatically in the background, even if you are working

in a different application — pure elegance in contrast with the Apple and STF software.

To schedule a transmission with Apple's software, you must save a QuickDraw description of the document, using the fax driver; quit whatever application you are in; launch the AppleFax application to specify when to send; and then be sure to leave the AppleFax application running at the designated time. This rigid procedure leaves the dirty work to you instead of to the Mac.

The FAXstf software is marginally better, in that you needn't launch the fax application and leave it running. Instead, you can have it running in the background under MultiFinder. When it's time to transmit, the application comes into the foreground and doesn't relinquish

control until the fax has been sent.

Better to Give Than to Receive

Ideally, when it comes to receiving faxes, fax modems should mimic fax machines — sit obediently in the background waiting for inbound faxes, that is. When the phone rings, answer it and accept the fax. The InterFax and BackFAX packages do just that. As a document is received, it is unobtrusively stored to disk. Your work continues uninterrupted.

In contrast, the AppleFax application must be running to receive a fax. Either you dedicate a Mac as a fax station (an expensive proposition), or you restrict inbound faxes to a time when you won't be using your Mac (inconvenient for sender and recipient). Furthermore, the AppleFax software receives at only 4,800 baud instead of at its 9,600-baud sending rate. Since the AppleFax program has no backgrounding ability, your Mac is tied up longer while receiving inbound faxes.

Like AppleFax's, the FAXstf software can't work in the background, so it must be running if you expect to receive a fax. If you use MultiFinder, however, it can lurk unobtrusively behind whatever you're currently doing. Once it detects an inbound fax, it immediately takes control of the computer until the entire document has been received.

Examining the Fax

One advantage that fax modems have over stand-alone machines is that inbound faxes are stored on-disk, away from prying eyes. No need to worry about office snoops looking at confidential material sitting in the output tray of the fax machine. It should be easy to examine saved fax documents on-screen or print hard copies at your convenience — but it's not.

Since faxes are received and stored in Group 3 format, you must use a fax-modem application to display them, and you need patience as the fax file is converted to QuickDraw for screen display. If you use InterFax or BackFAX, however, you can resave documents in a variety of graphics formats (such as PICT) that paint and DTP applications can recognize. If a fax you've received is pre-



The E-Mail Connection

Even without a fax modem, you may be able to send faxes from your Mac and not even know it. The major information systems and E-mail services now offer subscribers the ability to send faxes to any Group 3 fax station in the world. You can send text only, you can't receive anything, and it's a bit more expensive than the long-distance telephone call you must make to send a conventional fax. Still, it beats sinking hundreds of dollars into a fax station of your own. It even beats trekking down to the local copy shop and shelling out \$10 every time you want to transmit an occasional document.

Most commercial on-line services, including MCI Mail, AT&T Mail, CompuServe, EasyLink, The Source, and Connect (via MCI Mail), feature a fax option. Price, ease of use, and performance vary, but all the systems do the same thing — they let you send a fax about as easily as you send electronic mail.

For the most part, you either compose or upload your message just as you do regular electronic mail. When you're finished, you indicate that the document is to be sent to a fax station rather than to another subscriber's E-mail box. You enter the recipient's fax number, and away your document goes.

Speed is not an obvious issue with E-mail faxes until something doesn't show up on the far end. AT&T and MCI transmit their faxes almost instantaneously. EasyLink takes a few minutes, and CompuServe has been

known to take several hours.

Pricing is the thorniest issue of all, if only because it is the most complex. Besides the price of the transmission itself, you need to factor in annual fees, monthly minimums, and connect-time charges. All this makes comparison shopping for E-mail fax services about as easy as preparing your tax return with an abacus.

In general, MCI turns out to be the cheapest for short domestic faxes, followed by AT&T. EasyLink and CompuServe cost the same and are the most expensive. For longer domestic messages, MCI is cheapest by a wide margin, and AT&T becomes slightly more expensive than CompuServe and EasyLink.

International faxes are another matter. If the message is going overseas, AT&T is the cheapest service, followed closely by MCI. EasyLink is in third place, and CompuServe can cost almost twice as much as the cheapest service.

Which service should you use? Which ever one you currently subscribe to. Unless you're sending a lot internationally, the price and service differences are not substantial enough to warrant changing your on-line service.

If you're new to telecommunications and want to send faxes this way, check out AT&T Mail. For overall price, ease of use, and service, it generally comes out ahead of the competition.

— Daniel J. Rosenbaum

Capsule Reviews

AppleFax

With a maximum transmission speed of 9,600 baud, this fax modem has the potential to be the fastest of those reviewed, but not with Apple's software. **Pros:** Speedy hardware; clean interface; trades binary Mac files with other AppleFax units; enveloping; LQ fonts provided; pass-through port for additional serial devices. **Cons:** High price; no background operation, even with MultiFinder; 4,800-baud reception; slow printing; no screen magnification of received documents; polls only other AppleFax units; can't save in other file formats.

Apple Computer
20525 Mariani Ave.
Cupertino, CA 95014
(408) 996-1010
\$699

PHOTOGRAPHY: PETER ALAN GOULD



The current crop of Macintosh fax modems (clockwise from lower left): InterFax 12/48, AppleFax, and FAXstf.

BackFAX

Third-party replacement software for the AppleFax that puts Apple's application to shame. **Pros:** Full background operation, even without MultiFinder; fast conversion to fax format; cover pages; saves in multiple file formats. **Cons:** Expensive option for an already pricey fax modem; makes you reenable send and receive after every reboot; no enveloping, magnification, or polling.

Solutions International
30 Commerce St.
Williston, VT 05495
(802) 658-5506
\$249

FAXstf

This pocket-sized fax modem costs as much as the AppleFax, but it's only half as fast and offers few features. **Pros:** Easily portable; convenient carrying case; manual-send option. **Cons:** 4,800-baud operation; slow conversion and printing; pseudo-backgrounding capability; poor user interface; no enveloping, LQ fonts, or polling; can't save faxes in other file formats.

STF Technologies
P.O. Box 247
Higginsville, MO 64037
(800) 426-1679 or (816) 584-7727
\$695

InterFax 12/48

Offering the best price/performance combination of the units tested, this is also the only fax modem with a built-in, 1,200-baud, Hayes AT-compatible modem. **Pros:** Background operation; intuitive user interface; lowest price; fast conversion and printing; enveloping; variable screen magnification; LQ fonts provided; saves in multiple file formats; one-year warranty. **Cons:** Top transmission speed of 4,800-baud; can poll only after transmitting page.

Abaton
48431 Milmont Drive
Fremont, CA 94538
(800) 444-5321 or (415) 683-2226
\$495

dominantly text-based and you want to convert it into a word-processing file, you'll need optical-character-recognition (OCR) software such as Caere's OmniPage (see Quick Clicks, March '89). With AppleFax and FAXstf, all you can do is read or print a fax. There are no options to save in any other file formats, so you can't convert their faxes for use in graph-

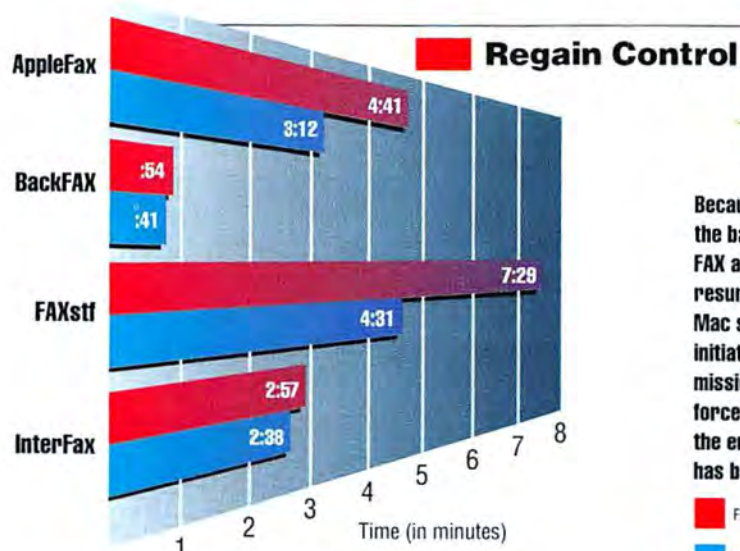
ics or text applications.

Because their resolution is higher than that of the Mac's 72-dpi screen, most faxes with small type are illegible on-screen. To read a fax, you must magnify it with the fax-modem software if possible. InterFax and FAXstf offer screen magnification of received documents; AppleFax and BackFAX don't. More-

over, without a large screen, you may not be able to display a full page. And if you want to pan around freely to see the entire document, you'll need lots of memory. The apparent solution to all these problems is to print faxes and look at them on paper.

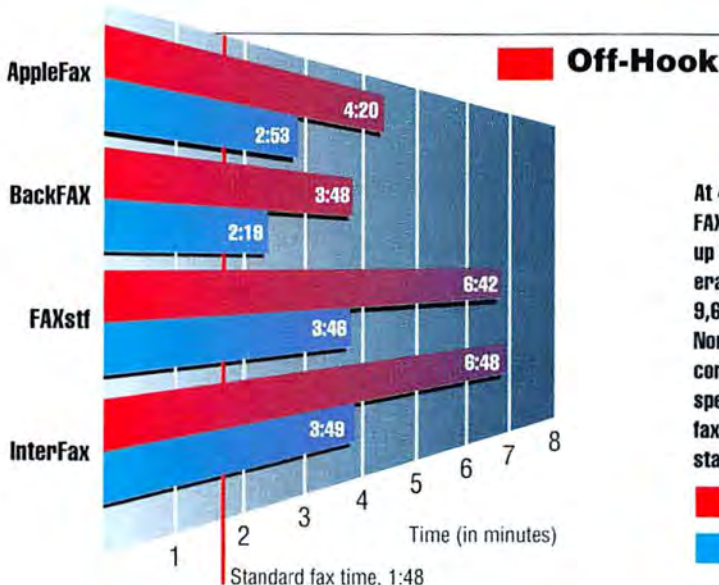
Unfortunately, printing faxes can take an incredibly long time, for two reasons.

Fax-Modem Comparison



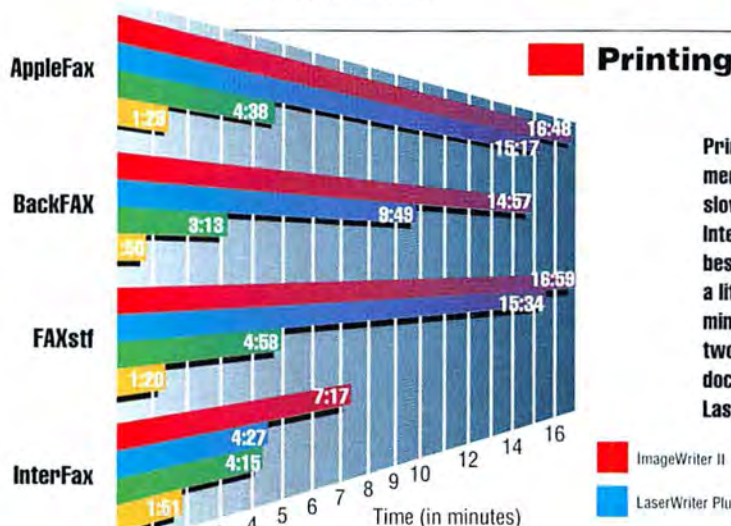
Because they work in the background, BackFAX and InterFax let you resume work on your Mac shortly after initiating a fax transmission. The others force you to wait until the entire document has been sent.

■ Fine Resolution
■ Standard Resolution



At 4,800 baud, the FAXstf and InterFax tie up the phone considerably longer than the 9,600-baud AppleFax. None of the modems come close to the speed of a stand-alone fax machine in standard resolution.

■ Fine Resolution
■ Standard Resolution



Printing fax documents is painfully slow. Overall, the InterFax performed best, requiring "only" a little more than 4 minutes to print a two-page test document on a LaserWriter Plus.

■ ImageWriter II ■ LaserWriter IINTX
■ LaserWriter Plus ■ LaserWriter IISC

The first is not the fault of the fax application: The documents exist as bit-mapped images, and PostScript printers are not designed with such images in mind. (The ImageWriter, a dot-matrix printer, can easily handle bit maps, but its impact print mechanism is inherently slow.) Second, with the exception of the InterFax, the fax applications use inefficient printing routines (see "Printing" chart).

Test Results

MacUser Labs developed a series of benchmarks to test not only the performance of the four fax-modem/software configurations but also the document quality they provide. For comparison purposes, we created a typical two-page document in PageMaker that contained both graphics and text and then performed all the benchmarks on a Mac II running MultiFinder. All faxes were sent to a Ricoh Rapicom 205, a 9,600-baud Group 3 stand-alone machine.

Background Operation. The first test concerns the "hassle factor" — the time between initiation of a fax transmission and the instant you can resume work on your Mac. The AppleFax and FAXstf applications — lacking background capability — are the losers here, since they don't relinquish control until the fax has been transmitted (see "Regain Control" chart). BackFAX requires only a brief interruption to convert QuickDraw to Group 3 format and then lets you get on with your work as it transmits unobtrusively in the background. Solutions International has years of experience refining QuickDraw conversion techniques for its Glue products. Its BackFAX application is more than twice as fast as InterFax's, which also runs in the background.

Pay Phone. Most important for calculating variable costs is the time spent off-hook while the fax modem is communicating over the phone lines. At 9,600 baud, the AppleFax modem is faster than both the 4,800-baud InterFax and FAXstf modems (see "Off-Hook" chart). For best performance, add the BackFAX software, which has an edge over Apple's because it converts documents before initiating the call.

BackFAX, the fastest of the lot, required 139 seconds to transmit our two-

page test document in standard resolution. By comparison, sending the same document between two stand-alone, 9,600-baud Group 3 fax machines takes 108 seconds, which is 22 percent faster than BackFAX's time.

Print Times. Another hassle factor is the time it takes to print a fax. Printing times are embarrassingly slow when compared with those of even low-end, stand-alone fax machines. In our tests, fine-resolution documents printed with a LaserWriter Plus required a "speedy" average of more than 2 minutes per page for the InterFax and a time of just under 8 minutes per page for the sluggish FAXstf (see "Printing" chart).

As the LaserWriter IINTX results show, greater throughput is possible if you use a printer with more memory, a faster CPU, and newer versions of PostScript and the Canon print engine. The LaserWriter IISC, a QuickDraw printer, is even faster, since the time-consuming QuickDraw-to-PostScript conversion isn't necessary and data is transferred over the SCSI bus rather than LocalTalk.

Image Fidelity. To evaluate image fidelity, we had each modem send the same two-page test document to a stand-alone fax machine, after which we scr-

Sticker Shock



utinized the reproduction quality of fonts and graphics. BackFAX, InterFax, and FAXstf were equally good in overall image quality, but the AppleFax exhibited pronounced scaling problems with the bit-mapped area of our graphics test page in standard resolution.

All the fax modems produced excellent text output. That's because we took care to use appropriate fonts for the text page of our test document. Specifically, we restricted ourselves to using letter-quality (LQ) fonts, which are three times larger than the fonts in the document. For instance, if you use 12-point Helvetica, the software actually uses the 36-point font when it converts the document to Group 3 format. LQ fonts are necessary to overcome the scaling problems ("jaggies") that occur when the fax software tries to compensate for the differing reso-

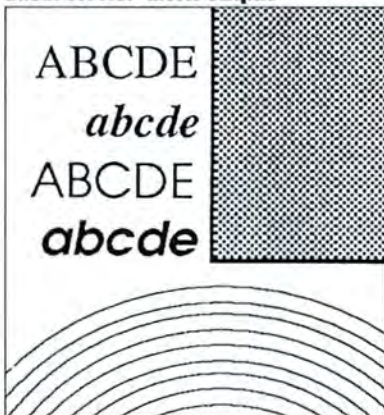
lutions of the Mac's screen (72 dpi) and the Group 3 protocol (203 dpi).

Unfortunately, the FAXstf doesn't offer any LQ fonts. To compensate for this omission, or if you're not satisfied with the LQ fonts that come with your fax modem, you can generate your own with U.S. MicroLabs' FontSizer utility (see DTP, April '89).

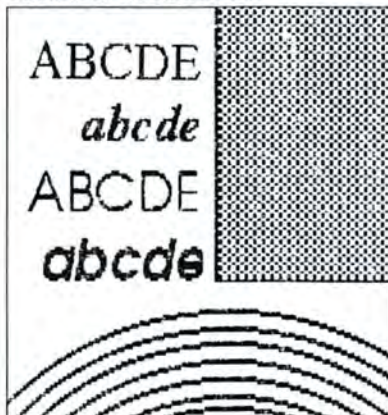
Ease of Use. We looked at seven factors: intuitiveness of the user interface; general feel of the product; ease of daily setup; and sending, receiving, addressing, and scheduling a fax. The winner was the Abaton InterFax because of its intelligently designed software, which gets out of the user's way and makes the computer do all the work. It has no Byzantine software-setup requirements, and neither sending nor receiving a fax requires user intervention.

Image Fidelity

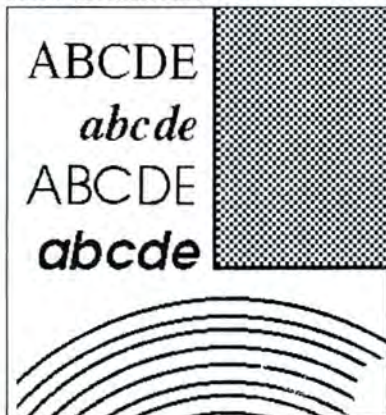
LaserWriter IINTX output



Standard-resolution fax



Fine-resolution fax



Even when received by a thermal-printing, stand-alone fax machine, Mac-generated fax documents resemble LaserWriter output. The image on the left is an enlarged sample of our test document as printed on a LaserWriter IINTX from PageMaker. The other images

show the same document as sent by BackFAX to a Ricoh Rapicom 205 fax machine. At 203 x 98 dpi, standard resolution provides an acceptable document, and fine resolution (203 x 196 dpi) is virtually indistinguishable from the LaserWriter output.

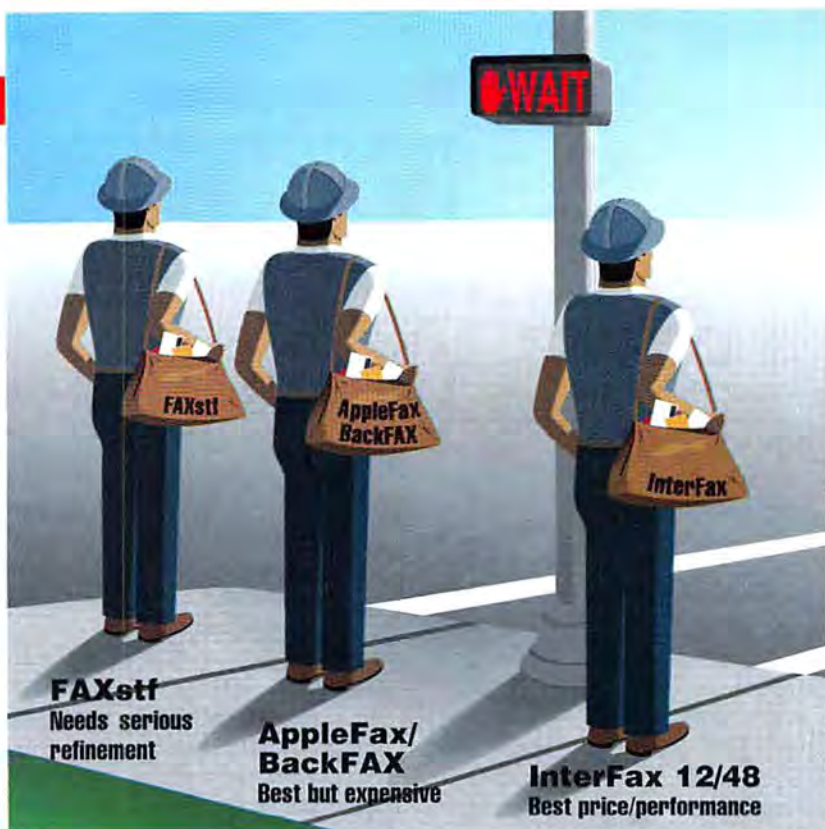
Executive Summary

After examining the current crop of fax modems, we came to one inevitable conclusion: This is not the ideal time to buy a fax modem for the Mac. Granted, fax modems are relatively inexpensive compared with fax machines, and they offer convenience, security, and high-quality transmission in a low-maintenance peripheral. The products reviewed are plagued by slow transmission and printing speeds and network incompatibility, however.

If you must have a fax modem *now*, the **InterFax 12/48** offers the best price/performance trade-off. At \$495, it's the cheapest modem we tested, yet it comes with a built-in, 1,200-baud, Hayes-compatible data modem. The software is intelligently designed, with a nice feature set and a smooth, intuitive user interface. The InterFax can send and receive faxes in the background, and it has the fastest printing times. Regrettably, the software is reined in by the 4,800-baud hardware, which slows transmission times.

The **AppleFax/BackFAX** combination offers the best of both worlds: good software and fast hardware (9,600 baud). But you pay dearly — the combined cost is \$944. If price is no object, however, this package is hard to beat.

The software that comes with the **AppleFax** and **FAXstf** modems needs serious refinement. Both products desperately need background operation and improved print



routines. STF Technologies is poised to release version 2.0 of its FAXstf software, but neither of these problems will be addressed.

Overall, it may be prudent to wait for the second generation of Mac fax modems. Many of the problems that afflict the fax modems reviewed here are likely to be resolved in the

near future. The most promising newcomers are fax modems that can be shared across a network.

Once these units reach the market, the long lines at the communal, stand-alone fax machine may become a thing of the past in Macintosh offices.

Although not as performance-oriented, Apple's software also has a clean user interface with familiar metaphors, such as putting multiple documents into an envelope. BackFAX makes you work harder — for instance, you must explicitly enable its send-and-receive capability after every reboot. Last is the FAXstf software, whose nonintuitive interface requires a series of convoluted steps for even mundane operations such as sending a fax.


Future Faxes

Without a doubt, the fax modems examined in this report represent only the first wave of an emerging technology. New fax modems will soon be flooding the market, and the current contenders will have to beef up their software to

compete. In any event, the 4,800-baud FAXstf and InterFax 12/48 will be hard-pressed to compete with the performance of newer fax modems, which are all likely to be 9,600-baud units (see "On the Horizon" sidebar).

Trends to look for: fax modems for multiple users on a network; double-duty units containing both fax and data modems; stand-alone fax machines, controlled through the Mac's serial port, that can be used as fax modems and low-end printers and scanners; and software with more performance-efficient transmission and printing routines as well as refined user interfaces.

Considering the foibles of the current crop of Macintosh fax modems, you may be better off waiting for the next generation. In the meantime, you should

take a look at "The E-Mail Connection" sidebar to find out about some low-cost alternatives to fax modems that are worthy of investigation. 

Gordon McComb writes frequently about computers and high technology. His latest book is *Working with Word, Second Edition* (Microsoft Press). Owen Linzmayer, formerly the technical editor of *A+* magazine, is currently doing time as a *MacUser* associate editor.

Kudos

MacUser Labs would like to thank the members of our advisory panel: Tom Evslin of Solutions International, Doug Troxell of STF Technologies, and especially Rich Blanchard and Glenn Voloshin of Cygnet.

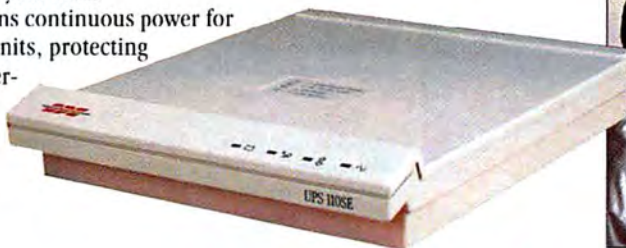
Bill's experiencing deja vu.

He *hates* deja vu.

APC's 110SE uninterruptible power supply for the Macintosh™ assures that you won't waste time recovering from the effects of power loss.

Common power disruptions like spikes, sags, and surges may cause you to spend needless hours rekeying lost data, unscrambling files, and just finding your original starting point. Hardly good use of your time.

The 110SE UPS maintains continuous power for file server or single Mac units, protecting your data from both under-voltage and overvoltage. Slender and small, it's the only UPS designed specifically for the Mac environment.



And the 110SE will signal PowerChute™, the software monitoring program from APC that gently and automatically shuts down AppleShare networks during extended power outages.

Contact your Apple dealer for more details. Make sure once is always enough with the 110SE from APC.



APC
American Power Conversion

350 Columbia Street • P.O. Box 3723 • Peace Dale, Rhode Island 02883 • Phone: (401) 789-5735 • FAX: (401) 789-3710 • Telex: 362636

110SE UPS is recommended for use with Macintosh SE (all models), Plus, 512 K, including systems with Apple or compatible external hard drive.
Macintosh, Mac and AppleShare are registered trademarks of Apple Computer, Inc.

Please circle 4 on reader service card.

THE NEW 44MB BERNOULLI TRIUMPHS OVER TIME AND SPACE.



The new 44MB Bernoulli™ sets new standards in performance and capacity for Macintosh® power users—users who want the growth and flexibility of removable storage. Because now Bernoulli offers 22ms effective access time and unlimited storage growth, 44 megabytes at a time.

But performance and capacity are just the beginning. Bernoulli reliability is second to none. Bernoulli's unique design resists head crash, a fundamental problem of conventional hard disks. Bernoulli Disks™ can also withstand over 1000 Gs of shock. In fact, they're the only removable disks that can take a fall from a desktop without data



loss. And Bernoulli Disks and Drives provide product life equal to or better than conventional alternatives.

Backup is easy and fast. Bernoulli lets you make disk-to-disk copies in as little as 3 minutes for 44 megabytes. And since Bernoulli Disks are removable, you can organize your projects on individual disks and keep all of them under lock and key.

Now your data can really go places, too. Bernoulli lets you share files between your Mac and PS/2's, PCs and compatible computers,* and with Bernoulli's ruggedness you can send disks across the office or around the world with-

out concern. And whether for growth or sharing, the 44MB Bernoulli lets you add additional storage for under \$3 per megabyte.**

Those are a few reasons why Bernoulli is the overwhelming leader in removable mass storage, with over 400,000 drive systems and 2.75 million disks in use worldwide. More important, 95% of those users recommend Bernoulli. So see your nearest Iomega Authorized Reseller, or call 800-453-3304 for complete benefits and specifications.

IOMEGA
Never ending storage solutions.

*Market provided with Iomega's Bernoulli File Exchange software. **Based on \$125 U.S. retail price per 44MB disk. Bernoulli and Bernoulli Disk are trademarks of Iomega. Macintosh is a registered trademark of Apple Computer, Inc. PS/2 is a trademark of IBM.

Please circle 3 on reader service card.

DTP

■ EDITED BY
AILEEN ABERNATHY AND
SALVATORE PARASCANDOLO

This month Fine Print offers practical tips on avoiding font problems when dealing with service bureaus. Desktop Reviews focuses on clip art: We review eight collections of EPSF and TIFF graphics, most of them with a business flavor. If your graphic embellishments look too flat, check out our appraisal of Clip3D — a sophisticated editable 3-D clip-art system.

CONTENTS

Between the Lines

163

Fine Print

169

Desktop Reviews

171

■■■■■
If you have a few tricks of the trade to share, send 'em to
DTP, c/o MacUser
950 Tower Lane
18th Floor
Foster City, CA 94404

BETWEEN THE LINES

Elastic Fonts on Demand

Apple has announced a new outline-font technology and format, and a new System capability for scaling such fonts to any point size smoothly, in print as well as on-screen. Apple isn't going into the type business, however; it will provide only a core set of fonts in the new format. Unlike Adobe's encrypted-font technology, Apple's format is published and completely open, inviting third-party font suppliers to develop or convert their own typeface offerings freely.

The current Macintosh font-display process depends on the existence of bit-mapped versions of each font in each size you use. If you use a point size for which you have no bit map, the system resizes the closest available one. With Apple's new font system, text will always be rendered at the full resolution of your screen, free of the jaggedness that was typical of resized bit maps. Apple says the new fonts will print at the best resolution of a given output device and will contain embedded information for optimizing the appearance of individual characters at various printer resolutions and in small point sizes.

The new format is optimized for speed by the Mac's new System 7.0 (the shipping date of which had not yet been announced at press time). Every Mac from a Plus on up and every printer currently supported by Apple will be able to reap the benefits of Apple's new font philosophy, in which existing bit-mapped and PostScript fonts are handled the way they are now.

A week before the Apple announcement, Adobe Systems announced its Adobe Type Manager (ATM), an INIT file that offers part of the functionality of Apple's newly announced outline-font system. ATM's main purpose will be to provide on-screen display of PostScript outline fonts automatically and transparently, in any size. ATM's operation will be transparent to both applications and

users, but it will work only with typefaces produced with Adobe's own fonts (more than 400 and counting) or with Adobe-licensed encrypted-font technology (coming soon from companies including Compugraphic, Monotype, and Varityper).

Although ATM focuses on screen type, its font-sizing benefits will extend to ImageWriter printing as well. Technically, even high-resolution non-PostScript printers can benefit, but some licensing issues are still unresolved. For ATM to work properly, your System folder must contain the downloadable PostScript outlines of the specific fonts you intend to use, even if they're fonts that normally reside in your PostScript printer. ATM is slated for wide distribution at a moderate price and is expected to ship by the third quarter of '89.

— Salvatore Parascandolo



A Font Strategy of Another Type

Quark has also been busy enhancing its approach to fonts. With QuarkXPress' upgrade to version 2.1, PostScript fonts are rendered smoothly on the screen at any point size, regardless of whether the bit map for the specified font size is available. Quark's implementation works

ILLUSTRATION: MARK W. SWEENEY



only for nonencrypted fonts, however; Adobe's fonts don't benefit. Kerning tables can now be created and edited within QuarkXPress. A Hyphenation and Justification menu item has been added,

as have a tracking editor and automatic baseline alignment. The upgrade is free to owners who purchased QuarkXPress after March 13, 1989.

— Aileen Abernathy



96 points



500 points



1,500 points

With Apple's, Adobe's, or Quark's type managers you can use large fonts at any time, and they'll look smooth on-screen in all sizes. This *w* was resized by a prototype of Apple's new System software. Note that the jaggedness doesn't increase as the character is enlarged.

Clippings

Freedom of Press, a purely software PostScript-compatible interpreter, will soon enable Macintosh applications such as Adobe Illustrator 88 and Aldus FreeHand to output to several families of non-PostScript devices in full 24-bit color and high resolution. The product should provide a cost-effective PostScript printing and imaging solution. Its abilities have already been thoroughly exercised on PC, Sun, and high-end graphics systems. The Macintosh II version should be available in August. Among the devices it drives are the Howtek PixelMaster ink-jet color printer; the Montage FR1 film recorder; Seiko's CH5303 thermal color printer; and Hewlett-Packard's LaserJet, DeskJet, and PaintJet printers. Like other non-Adobe interpreters, Freedom of Press won't work with Adobe fonts, but it will ship with equivalents of the 35 fonts

A Toolkit for the Graphics Professional

We believe that nothing in life should be more difficult than it has to be. And that doubly applies to computers. By adding the right tools, you can make your work both easier and more productive.

The Curator™ manages your art collection and converts artwork into different file formats.

Different paint and drawing programs store graphics in a number of ways. And unless your program speaks that

file's particular language, it can't read it. EPS, PICT, TIFF—we shouldn't have to memorize this alphabet soup. The Curator simplifies

life for you by acting as a multi-lingual interpreter.



The Curator handles Mac EPS, IBM, EPS, PostScript, TIFF, PICT, Paint, and Glue formats. But don't worry. The Curator remembers all this for you.

With a name we'd better

Make notes on your layout with GlueNotes, the electronic equivalent to those ubiquitous Post-it notes.

New Version
SuperGlue II
with GlueNotes

to a picture that doesn't already have

it, it can translate almost any standard format graphic into any other. It also catalogs all of your graphics, in these standard file formats. So you can find the artwork you need easily by thumbnail sketch, name, or keyword.

SuperGlue II™ with GlueNotes™ creates an electronic printout

While it can't add PostScript® or objectness

BETWEEN THE LINES

found in the LaserWriter. The \$495 package requires no dedicated hardware, and it should generate a large high-resolution ripple in the output-peripheral market. Contact Custom Applications, Inc., Building 8, 900 Technology Park, Billerica, MA 01821; (508) 667-8585.

Treacyfaces, a new digital-type foundry, shipped its first PostScript-compatible typefaces, TF Habitat and TF Forever, in March, with half a dozen more faces scheduled for release this year. Each \$170 package contains an original typeface in four type styles (roman, bold, italic, and bold italic). The scalable outline fonts and bit maps range from 10 to 24 points, and bit maps for 36 and 60 points are included for better screen display at larger sizes. The faces come with kerning tables containing more than 300 kerning pairs per type style.

For each typeface, Treacyface pro-

vides a graphics file that can be opened in Illustrator 88 or FreeHand. The entire character set, including control points, can be displayed and manipulated to create logos and other special type effects. In essence, Treacyfaces is giving away its font outlines. You can get the fonts and a free newsletter from Treacyfaces, 111 Sibley Ave., Second Floor, Ardmore, PA 19003; (215) 896-0860.

Kerningware is a two-part product that applies permanent kerning adjustments to your fonts — useful if your layout tasks involve lots of manual kerning. Part One of the package is a set of preconstructed kerning tables, readable by all major DTP packages. With these in your System folder, your fonts will automatically kern every time. Part Two is an editor that lets you create new kerning pairs or edit existing ones, saving your changes. The editor's interface has

both numeric and graphic tools. Kerningware costs \$250 and comes with kerning tables for all LaserWriter Plus, NT, and NTX fonts. For \$850, you get the editor and tables for Adobe fonts up to volume 39; \$1,050 gives you tables for the full Adobe font set; and \$1,200 buys a lifetime subscription to kerning tables for all future Adobe fonts. The prices are for site licenses (up to ten Macs). Contact Kerningware Marketing, Inc., 61 Sorlyn Ave., Toronto, Ontario M6L 1H7 Canada; (416) 247-7976.

Savin's Prism I is a full-color copier that may have a significant impact on desktop publishing. How? By beating color printers at their own game. Color printers are expensive, and each printout costs 50 cents and up. Savin's Prism I is \$17,000, but it produces striking color copies for 10 to 15 cents each. It reproduces highly detailed photographs as

like Solutions, have them.

of almost any document, which can be viewed and annotated without the original application.

Let's say you've just finished a layout and submitted it for approval. You send your supervisor an electronic printout (a computer file that looks exactly as if you printed it). After review, they make comments directly on the SuperGlue file (using a computer version of Post-it® notes).



Hail! Hail! SmartScrap & The Clipper were named best new desk accessories for 1987 by MacUser magazine.

Or try this. You want to incorporate a fully formatted, multi-page spreadsheet in your report. You use SuperGlue to make an electronic printout of it and, using normal cut-and-paste, simply "glue" it as an object-oriented graphic into your document.



OK, SuperGlue II won't fix china. But it will allow you to create electronic printouts of just about anything.

SmartScrap™ improves upon the Apple Scrapbook and The Clipper™ adds cropping and scaling tools.

Adobe Systems, Inc.

SmartScrap picks up where the Apple scrapbook left off, with multiple scrapbooks, scroll bars, a visual Table of Contents, and Marquee and Lasso. **The Clipper** provides cropping and scaling tools to any program you're using.

Solutions
INTERNATIONAL

Available from your dealer or Solutions International.
30 Commerce St., Williston, VT 05495, (802) 658-5506

Suggested retail prices: SuperGlue II—\$119.95; The Curator—\$139.95; SmartScrap & The Clipper—\$89.95.

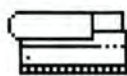
Please circle 163 on reader service card.

PostScript® is a registered trademark of

GREAT FACES

"Unusual Typefaces...
Interesting, Distinctive, and Inexpensive."

John Dvorak



Fluent Laser Fonts™

\$89.95 ea. PostScript + Macintosh or IBM PC

- | | |
|---------------------------------------|---------------------------------|
| 1 Bodoni Family | 12 Sans Serif Extra Bold |
| 2 Sans Serif Family | 13 Gatsby Light |
| 3 Ritz & Right Bank | 14 Micro Family |
| 4 Monterey Family | 15 Micro Extended |
| 5 Regency Script & Calligraphy | 16 Galileo Family |
| 6 Prelude Script Family | 17 Campanile & Gioia |
| 7 Coventry Script & Zephyr | 18 Alexandria Family |
| 8 Gregorian & Dorovar | 19 Jott Family |
| 9 Кириллица (Cyrillic) | 20 Gazelle, Kells, Death |
| 10 Bodoni Ultra Family | 21 Paladin, ABILENE |
| 11 Sans Serif Bold Family | 22 COLLEGIATE |

Save with Fluent Laser Fonts™ Collections

Quill Pack:	\$160	6 typefaces	includes vol. 8, 20
Headlines:	\$225	12 typefaces	includes vol. 10, 11, 12
Classic:	\$300	18 typefaces	includes vol. 3, 4, 5, 6, 13
Distinctive:	\$300	17 typefaces	includes vol. 8, 19, 20, 21, 22
Modern:	\$300	21 typefaces	includes vol. 7, 14, 15, 16, 17, 18

Please circle 176 on reader service card.



Fluent Fonts 2.0

"...the most useful and beautiful typefaces we've seen."—Macintosh



66 typefaces & borders
for the ImageWriter. **Only \$49.95**
Please circle 174 on reader service card.

Casady & Greene Inc.

P. O. Box 223779, Carmel CA 93922. FAX (408) 624-7865

Distributors: Bonsu, Ingram, Kenfil, Micro D, PC Micro Dealers, Softsel

Info: (408) 624-8716

Orders: (800) 331-4321

In CA: (800) 851-1986



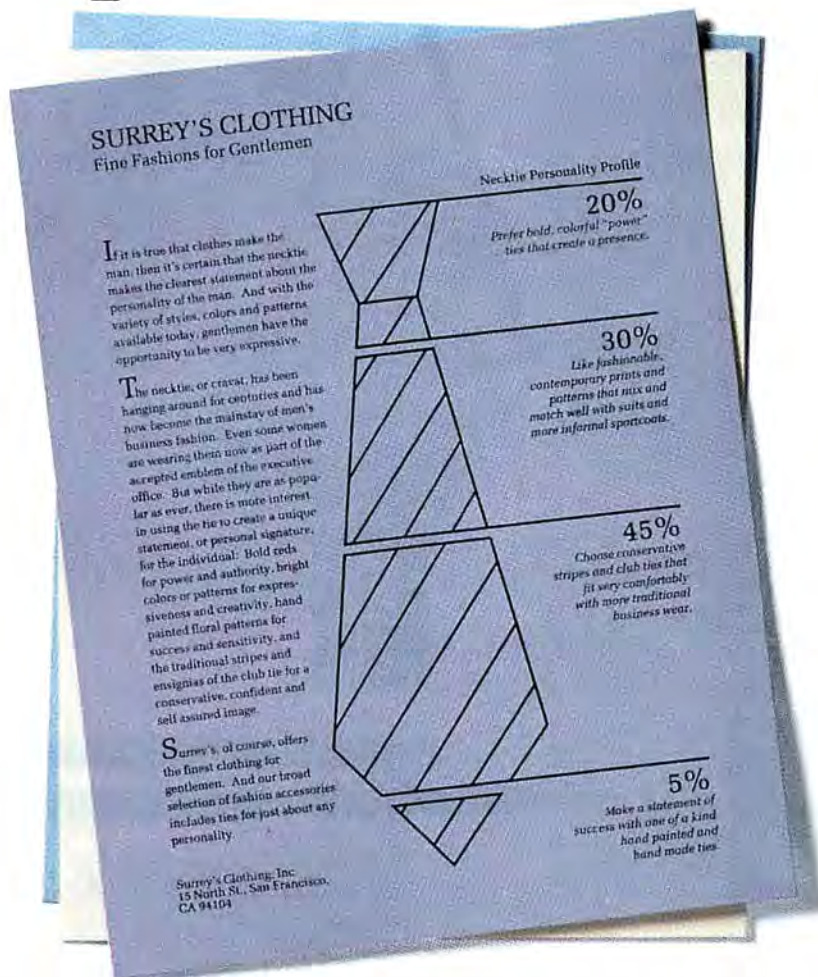
easily as it does block graphics. It has controls for exposure, color balance, and scaling, and the output is stable and smudge-proof, without the layered look and fragile surface common to thermal printer output. This copier could be an economical choice for short print runs. Moreover, the one-pass imaging process can cover paper or transparency stock up to 11 x 17 inches. In full color, it prints at 7.5 copies per minute; in one-color mode, it delivers 22 copies per minute. Contact Savin Corp., 9 W. Broad St., Stamford, CT 06904; (203) 967-5000.

Composition Toolbox, developed by Stonehand, is an integrated set of text-formatting routines for incorporation into other programs. The package rapidly performs complex functions such as irregular wraparound, column flow, kerning, hanging punctuation, hyphenation and justification, vertical justification, initial drop characters, and much more. This impressively speedy product should significantly accelerate the development of text-based products and result in more stable applications. Contact Stonehand, Inc., 118 Magazine St., Cambridge, MA 02139; (617) 864-5524.

QuarkEd is a new training program for QuarkXPress. Each \$995 module guides ten users through an eight-hour course. Training materials include manuals and nonprinting versions of QuarkXPress plus a trainer's guide. Module I is a hands-on introduction to QuarkXPress and design theory; Module II is a more advanced look at the program's design features. Quark's at 300 S. Jackson, Suite 100, Denver, CO 80209; (800) 356-9363 or (303) 934-2211.

Page Designs Quick! is a set of 120 layout templates for PageMaker 3.0x. The layout templates have resized and prepositioned picture zones, and text columns are laid out and ready for your immortal prose. The package comes with a pictorial directory and how-to manual, including layout and printing tips. Contact PAR Publishing Co., 6355 Topanga Canyon Blvd., Suite 307, Woodland Hills, CA 91367; (818) 340-8165.

What's the best way to dress up your printed documents?



Pro-Tech Computer Paper and Film

There's no better way to brighten your brochures, rev up your reports, or add a little sparkle to your in-house newsletters, handbooks, invitations, and overhead presentations.

Pro-Tech Computer Paper and Transparency Film is available for laser, impact, ink jet and thermal transfer printers, as well as pen plotters. In a wide range of colors and special finishes. So now you and your business documents can dress for success.



Pro-Tech

Because the right paper and film makes all the difference.™

Send for free samples. If you'd like a sample of the right paper for your printer, and information on how to dress up your printed documents, simply fill out this coupon and mail it to: Pro-Tech, James River Corporation, Electronic Imaging Products, 1500 Forest Ave. (#208) Richmond, VA 23288. Or call us toll-free Mon. - Fri. 9:00 - 5:00 EST at:

1-800-521-5035.

Name _____ Title _____

Company _____ Telephone _____

Address _____

City _____ State _____ Zip _____

My Computer Printer is _____

(Manufacturer - Make - Model No.)



JAMES RIVER CORPORATION
ELECTRONIC IMAGING PRODUCTS

© 1988 James River Corporation

MCU 8/89

Please circle 59 on reader service card.

Professional Tools of the Trade

QuarkXPress[®], electronic publishing software is a complete publication design and production environment. It combines all the tools you need to create truly professional-quality publications on the desktop.

MacUser magazine calls QuarkXPress "the most powerful page layout package for the Macintosh." And for good reason. No other program offers such precise control over type and graphics.

Set line leading with 1/1000-point accuracy. Control word and character spacing to within 1/200 em space. Or, take advantage of automatic features and let QuarkXPress set the type for you.

Because serious page composition means complete control over the graphic elements, QuarkXPress gives you the tools you need to import, place, and modify graphics in most of the industry-standard formats.

And with QuarkXPress you can bring your publications to life with color. Select from a 16 million-color palette. Or, choose one from the PANTONE MATCHING SYSTEM[®]. When it's time to print, use QuarkXPress to produce camera-ready spot and process color separations.

Best of all, QuarkXPress is true to the Macintosh[®] interface — so using it becomes second nature in no time!

To find out more about QuarkXPress, and where to reach an authorized dealer near you, call toll-free: (800) 356-9363.



Quark[™]

Quark and QuarkXPress are trademarks of Quark, Inc.

PANTONE[®] is a registered trademark of Pantone, Inc. *Pantone, Inc.'s check-standard trademark for color reproduction and color reproduction materials. Process color reproduction may not match PANTONE[®]-identified solid color standards. Refer to current PANTONE Color Publications for the accurate color.

Quark, Inc. • 300 South Jackson, Suite 100 • Denver, Colorado 80209
Please circle 87 on reader service card.





When your documents go to a service bureau for printing, they enter a different universe. Here's how to prevent them from printing as if they'd come from a different universe.

The Law of the Letter

You've produced a document with one of the popular page-layout programs. You've used several spectacular fonts, your layout looks great on the screen, and LaserWriter proofs confirm that all is well. You're now ready to have it produced at typeset quality on the Linotronic of a perhaps distant service bureau. The process is often seamless and painless. Unfortunately, misconceptions, miscommunications, and misadventures can occur. Font selection is one of the main reasons that the output you've so carefully designed and printed on your system can produce different printed results on another. Here's how to smooth the transition and get what you expect.

First, provide your service bureau with a copy of the finished laser output. Many service bureaus complain that customers don't do this. Without such proofs, they have to work blind, guessing at what you want. They can easily run your job without error indications and yet get output very different from what you expect.

Give the personnel at your service bureau a list of the font names and styles of all type in your document. It lets them check that all the fonts are present and available on their system. It also alerts them to potential font-numbering conflicts; bureaus familiar with such problems can take steps to prevent them. Many keep a list of problem fonts, particularly those created with duplicate font numbers, and can advise you on how to organize and harmonize your own fonts (see "Fonts by Number," July '89).


For any PostScript fonts you use, install screen fonts that match them. Many service bureaus can provide screen versions of the type styles they offer. Alternatively, most font manufacturers — including Adobe and Bitstream — provide screen fonts either gratis or at a nominal charge.

Fonts such as New York, Chicago, Geneva, and Monaco have been designed for legibility on a 72-dot-per-inch screen, but they're bit-mapped screen fonts with no PostScript equivalents. On a LaserWriter, if you choose Font Substitution, Helvetica, Courier, and Times PostScript will be substituted for Geneva, Monaco, and New York. These surrogates will print at the size(s) you've specified, but because their printed word spacing exactly matches their on-screen word spacing, the results will be either too dense or too sparse — and generally ugly.

With all other font choices, whether or not you've selected Font Substitution, if the LaserWriter has no corresponding resident font and your system has no matching downloadable PostScript font, you'll get a replica of the screen font that will be as jagged as what you see on-screen. If the service bureau doesn't have a PostScript font that you've specified in your document, its system will issue an error message and substitute Courier, which is seldom the best alternative but helps ensure detection of the error. To be doubly safe, always use PostScript fonts and always disable Font Substitution.

Here are two sure ways to avoid service-bureau font problems: When your document is final and perfect, go through the normal printing steps but press Command-F before clicking on the final OK in the Print dialog box. Instead of hard copy, you'll get a PostScript text file that your service bureau can print without the need for either the application that produced your document or its fonts. That information is all embedded in your PostScript file. If your proofing printer is something other than a LaserWriter, however, you must be sure to have the LaserWriter and Laser Prep drivers in your System folder, and you must have selected the nonexistent LaserWriter as

your printer in the Chooser for this procedure to work. Unfortunately, this insurance has its cost, because your file will be huge if it includes even a few PostScript fonts other than the 35 built into most PostScript-compatible printers. If you foresee possible last-minute edits at the bureau, include a copy of your document in its native format, because there's no simple way to edit a pure PostScript file. If this approach sounds inappropriate to you, try the next method.

Use Font/DA Mover to transfer all but the mandatory four fonts from your System file into one suitcase that your System opens automatically on startup, using either Suitcase or MasterJuggler. Give your service bureau both your document and your font suitcase. The people there will know to print your file with only your suitcase open. If you use PostScript fonts that your service bureau doesn't have, you must include these font files in your electronic package. 

David Holzgang is an author/consultant who specializes in electronic document processing. Salvatore Parascandolo is a very long name belonging to our graphics specialist.



**By David Holzgang and
Salvatore Parascandolo**



Ruby Callany
import/export

Martin Waterhouse
product analyst

James Hodgdon
research scientist

Val Scott
homemaker

Chris Shedenhelm
college student

Joe Kevin Hash
writer

Gary Sparks
stock options market maker

CompuServe introduces human intelligence for your Mac.

Thousands of people just like you have put their heads together to form one of the world's most advanced data processors—CompuServe's Mac® Forums. And they'd like you to join them.

Forum members share problems and solutions on our bustling message center. They access and contribute to huge data libraries teeming with the best shareware and public domain software anywhere. And they take on the latest computing topics in live, online conferences.

Nothing can make your Mac as intelligent or as friendly as CompuServe's Forum members.

To join CompuServe, see your computer dealer. To order direct or for more information, call 800 848-8199. If you're already a member, type GO MACINTOSH at any ! prompt.

CompuServe®

Please circle 119 on reader service card.

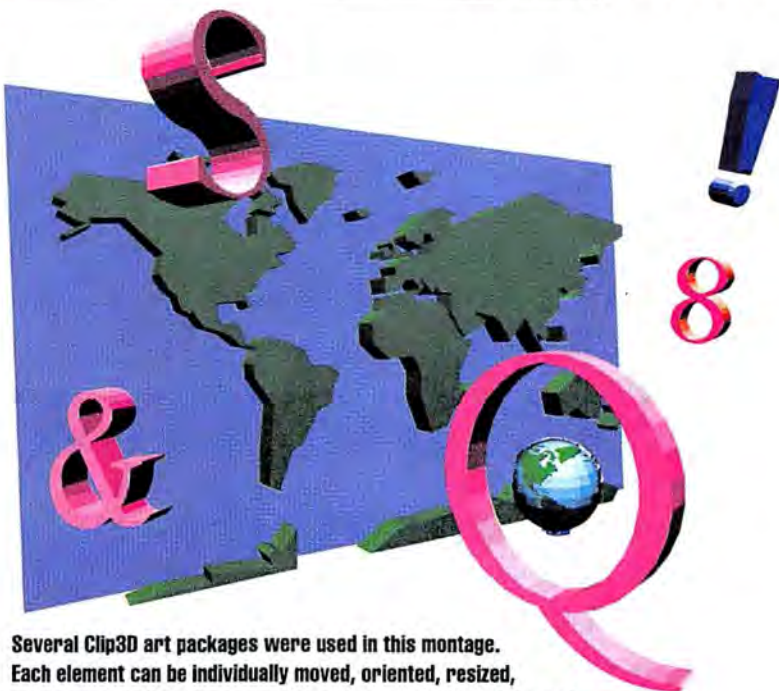
Clip3D

Clip art comes in several formats, each with its desirable traits, but Clip3D may well be the most versatile of all. This clip-art series from Enabling Technologies consists of 3-D color images in Pro3D format, bundled with a powerful editing program. Each Clip3D object is a true (electronic) solid, not a frozen picture. With the editor, you can collect objects from your libraries and position and edit them to build a unique scene. The editor does everything imaginable except create new objects. In addition to importing the included clip art, it reads any images created with Easy 3D or Pro3D.

You begin with a blank 3-D world and insert objects from your collection, progressively fine-tuning your layout. You can examine and manipulate your world from the left, right, back, front, top, or bottom, or in any simultaneous combination of three views. A Camera view can be at any distance and angle from your objects. That view is exactly what prints or gets saved.

Dual-function tools reside around the window's border. In the Camera view, the tools affect only your view of the scene, but in the object-editing view(s), the same tools affect the selected object(s). Thus, the enlarge/reduce tool can act as a variable zoom lens or as a means to change an object's size. Other tools let you stretch or compress and rotate objects or your view of the world. Selected objects can be permanently grouped for easier handling. For special effects, an object can form a hole or depression in another object, or it can "print" its cross section onto another object's surface. You can choose an object's color from an immense range, even on a monochrome Mac, where you must guess the outcome. You light your subjects with preset arrangements or manually adjust up to eight light sources. You can control the overall brightness and the degree of perspective.

This amazing editor is, unfortunately, a poor browser. You can't preview an item before adding it to a scene, and there's no simple way to undo an inadvertent inclusion of a mass of objects. You have to select each object individually



Several Clip3D art packages were used in this montage. Each element can be individually moved, oriented, resized, and colored. Letters can be combined to form striking statements.

and delete it. For protection, you can save before importing.

Clip3D's output quality is exceptional. On a LaserWriter, you get excellent halftones. With film recorders, Clip3D prints in a spectacular range of colors. It can also export scenes in MacPaint, object-oriented PICT2, halftone TIFF, or EPSF formats. The Save EPS output option lets you set the precise size of the final output and scales the image accordingly. It then produces a PostScript file, but (ouch) *without* an attached image you can display on-screen. When you include its EPSF files in layouts, they print quite beautifully, but all you see on-screen is a gray placeholder box with an identifying filename.

Each Clip3D art pack has a theme. The Fonts package contains five well-executed graphics fonts as individual letters and special characters. Accents has arrows, frames, chart elements, piping, and dingbats. Both of these art packs are excellent investments because they can enrich any type of graphic. Geography has a global map as well as outlines of individual nations, U.S. states, and continents. Business contains icons for business and stock-market activities, office furniture, currency, computers and peripherals, and more. Among the other

packages are Lifestyle, Messages, People, and Recreation.

The entire Clip3D collection is also available on CD-ROM. Since it's far more than a cut-and-paste product, you'll need a few sessions with it to get used to its 3-D nature and become productive. But the flair that Clip3D can add to your graphics is definitely worth the fuss.

— Salvatore Parascandolo



Clip3D



List Price: \$99 per package, including Clip3D editor.

Published by: Enabling Technologies, 600 S. Dearborn, Suite 1304, Chicago, IL 60605; (312) 427-0386.

Version: 1.0

Requires: 1 megabyte RAM.

Compatibility: Mac II and MultiFinder friendly, except that DAs don't activate on a Mac II while Clip3D is active.

Format: Pro3D

Application Size: 222K

Copy Protection: None

Even the best business document can seem pretty dull when it's gray, gray and more gray.

But everything looks smart when it's printed on the ColorQuick, the first color printer designed for the Mac. This 216-dpi ink jet printer works on your desk. Quickly, quietly, no fuss no muss. It prints all

Mac colors or those from any other palette. And you get smooth, beautiful backgrounds, graphics and type with bright, true colors. On transparencies or paper, up to tabloid size.

The ColorQuick.

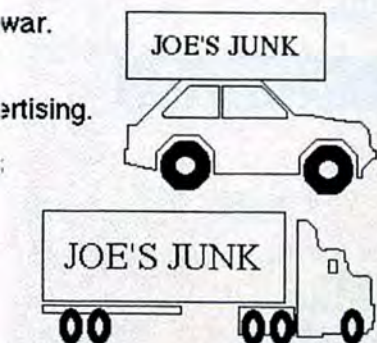
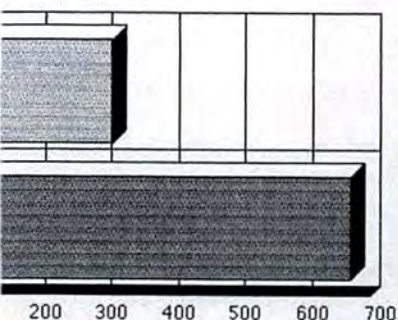
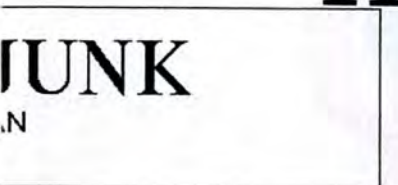
Who says you can't have beauty *and* brains? Call for the dealer nearest you, 1-800-835-6100, Dept. 3A.



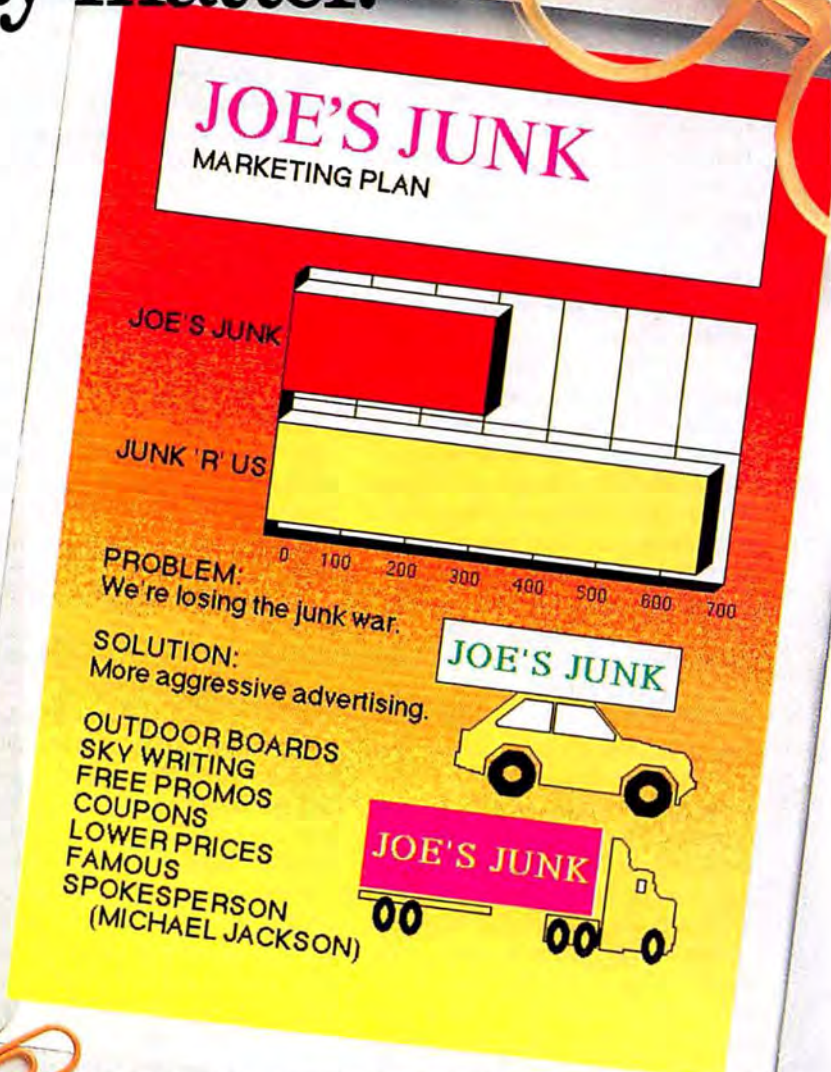
Tektronix®

The best and the brightest.

How to improve your gray matter.



ON)



Copyright © 1989 Tektronix, Inc. All rights reserved. Mac is a registered trademark of Apple Computer, Inc. The documents in this ad were created by an over-worked art director with graphics from Aldus Persuasion; application software Studio/8, © 1989 Electronic Arts; a Mac II; and printed on a Tektronix ColorQuick.

Please circle 171 on reader service card.

Clip-Art Collections

The clip-art boomlet continues unabated, thanks to the Mac's incursions into the business world. Most packages have a business flavor and are distributed in Encapsulated PostScript Format (EPSF), which provides high-quality output on printers from the 300-dot-per-inch (dpi) LaserWriter to the Linotronic. EPSF images can also be customized — reshaped, shaded, or colored — in Illustrator or FreeHand for maximum effect.

This month, Desktop Reviews covers eight clip-art packages that have appeared in recent months. The offerings range from simple EPSF borders and dingbats to full-fledged EPSF artwork to sophisticated TIFF images. Whatever your needs, you'll probably find them answered here.

Don't strike these packages from your wish list just because you use applications that can't import EPSF files (Microsoft Word, for example). Using a PostScript utility such as Postility, you can separate the PICT portion of an EPSF file and save it as a distinct file. Illustrator also provides an option for importing EPSF files into "hostile" programs (see *Between the Lines*, March '89).

Collector's Edition I

It would be surprising if the company that sprang PostScript on an unsuspecting world didn't produce some sort of EPSF clip art. Adobe's first incursion into this lucrative market is unsurprising and unsurprisingly good.

Collector's Edition I contains 280 graphic shapes, 65 borders, and 2 sets of font outlines. The graphics include squares, circles, crosses, arrows, stars, polygons, text boxes, and dingbats. The borders consist of continuous-line, dashed-line, and block types. The serif and sans-serif alphabets have all the punctuation marks (including some snazzy ampersands) and come in two forms: a regular set plus one constructed so you can use the letters for special effects such as drop shadows and multiple outlines.

The manual contains a pictorial index of all the graphics and describes numerous techniques for manipulating them, using sample business cards, menus, and brochures. The use and modification of borders receives special attention. The step-by-step instructions should facilitate border creation if not actually make it simple.

I recommend this collection to anyone who needs professionally drawn graphic accents, but there are two caveats. First, it helps to have some grounding in Illustrator or FreeHand in order to squeeze every drop of usefulness from this package. Generally speaking, the graphics are just not interesting enough as is — they cry out for manipulation. Second, be forewarned that the files are saved in Adobe's proprietary Illustrator format. You'll need Illustrator or Aldus FreeHand to open and save them in EPSF for use in page-layout programs.

Images with Impact!

3G Graphics' latest Images with Impact! collection, Business 1, maintains the same high standards of quality and EPSFinesse that graced its predecessor, Graphics & Symbols 1 (see "You Gotta Have Art," August '88).

The 175 images are grouped into 14 categories: Equipment, Hands at Work, Financial/Success, People, Communication, Computer Networks, Dingbats, Occupations, Public Service, Aerospace, Framers, Desktop Publishing, Phrases, and Travel. There's an excellent assortment of computers, including Macs, IBMs, and even a laptop. The Phrases category is unique to this collection; it includes 12 graphic words and phrases (such as "Agenda"), ready to enliven reports, memos, or invoices.

All the images are opaque, which means they block out anything that's behind them instead of having the background showing through white areas. The images are grouped, and many can be ungrouped and separated into individual elements with Illustrator or FreeHand.

For example, the media collage can be split into six pieces: a camera, microphone, film reel, filmstrip, and two slides.

The documentation includes a visual index and a booklet that shows you how to modify the images, and it provides creative, striking examples of the images being used in a variety of printed matter.

Images with Impact!, Business 1, contains superbly realized computer clip art. It's progressive, sharp, and imaginative. Several of the collections reviewed here are marked, to some degree, by this same professionalism, but what sets 3G Graphics' clip art apart is the extra "oomph" the company's artists put into their work. The collection's bear symbol (for you Wall Street types) not only looks like a bear, but it also has a slouch — an extra touch that lets the viewer know just what the bear symbolizes.

3G Graphics has surpassed itself in this second entry in its growing family of EPSF clip art and sets the standards against which similar products should be judged.



Images with Impact!'s clip art can be edited to meet any need. We took the original Framers image (above), ungrouped it, and moved things around. Then we reshaded the briefcase and added a Phrase.



Cliptures

Dream Maker Software has produced two collections of business-oriented EPSF clip art thus far, with varying results. Volume 1, Business Images, is nothing to write home about. The collection of 148 images is organized into nine categories: People, Cartoons, Credit Cards, Hands, Objects, Tools, Transportation, Graphics, and Symbols. The images were cre-

XCEEDTM YOUR MEMORY LIMITS



With the demands of today's software, you need memory products that exceed your existing system memory and enhance the sophisticated features of your Macintosh®.

That's why we developed our XceedTM Memory Expansion Kits — to provide maximum speed and performance for memory-hungry operating systems, power spread sheets and graphics programs, and to add flexibility when running software programs such as MultiFinderTM.

Xceed Memory Kits provide an additional 1 to 8 megabytes of RAM for your Macintosh Plus, SE, SE/30, II, IIx or IIcx. They feature fast, low power

CMOS* SIMM modules populated with superior quality DRAMs. Plus they're backed by our comprehensive service and warranty program.

So contact us today at 1-800-642-7661 for the name of your nearest Micron dealer. And start Xceeding your memory limits.

Micron. Working to improve your memory.

OEM standard and custom inquiries welcome.

* 256K SIMM modules are NMOS technology.

Xceed is a trademark of Micron Technology, Inc. Macintosh is a registered trademark, and MultiFinder is a trademark of Apple Computer, Inc.



MICRON

TECHNOLOGY, INC.

2805 E. Columbia, Boise, ID 83706 (208) 386-3900

Please circle 81 on reader service card.

ated in Illustrator, and 94 are opaque.

There are the usual hard-to-explain inclusions, including a variety of hand tools that seem better suited to a collection titled "Trades Images." Many of the images have a certain cartoon flavor that may not appeal to everyone. The booklet has a visual index and provides users with a few modest hints but no examples of the clip art in place on business cards, brochures, or newsletters — which would help get the creative juices flowing.

This collection is professional and well done, if not outstanding. Women are not inevitably depicted in supportive or subservient roles, but everyone does seem to be Caucasian.

Volume 2 of Business Images is a real treasure trove for anyone who needs high-quality clip art for professional purposes. The files include 216 primarily opaque images neatly divided into six categories:

Silhouettes, People, Cartoons, Graphics, Phones, and Computers.

The cartoon section that was so prominent in the first volume has been scaled down.

The section on computers (72 images in all) is truly superb; it rivals, perhaps even surpasses, the comparable portion of the Images with Impact! collection. The manual cum visual index is

well arranged and shows the images being used in a variety of ways. It also provides graphic-design hints.

The graphics have a clean, crisp, professional look. The styles include abstract, cartoon, realistic, and line drawings, one of which will probably meet your needs. Plus the collection includes thumbnail sketches and keywords, so you can catalog the art in Curator. At 60 cents per image, *Cliptures*, Volume 2, is a great buy and highly recommended.

Works of Art

Here's another collection of business-oriented graphics that deserves a serious look-see. Springboard Software's previous Works of Art collections were bit-mapped images; Laser Art, Business Selection, is the first EPSF offering in this series.

The 180 images of Laser Art, Business Selection — organized into 11 categories — are After Hours, Americana, Arts, Business, Celebration, Computer, Dingbats, Landscapes, Maps, Miscellaneous, and Travel & Transportation. The quality of the collection is generally quite good, and the overall impression is bright, clean, and modern. Everything is arranged well — the disks are even labeled with category names — and, at 55 cents an image, this collection is a real bargain.

It does, however, contain unnecessary images — mostly in the Miscellaneous section — that function more as filler than as business graphics. For example, it's hard to imagine the relevance a dog chasing its tail could possibly have in a corporate setting.

The manual is essentially just a visual index with little in the way of useful instruction on how to use or manipulate the graphics. One nice touch is that this manual credits the artists responsible for the drawings (Images with Impact! also does so).

ArtClips

This collection of clip art from Olduvai is peculiar, to say the least. The manual claims the collection of 112 EPSF images represents a new concept in Macintosh clip art and then states that many of the images are not really clip art at all, but artwork. This tack meshes with that of Olduvai's Post-ART collections, which strove to package "an art gallery on disk" (see "You Gotta Have Art," August '88).

The manual describes three



Works of Art Laser Art offers a Business Selection with 180 images, one of the best cost-per-image values.

categories into which the images supposedly fall: clip art, illustrations (defined as complex clip art), and art pieces. That's all very nice, but the visual index doesn't group the images according to this scheme, and most

people will be hard-pressed to classify the graphics this way. Thus, the whole business seems superfluous. Plus, there's absolutely no way to tell which graphic is on what disk, leaving you to search disk by disk.

As for the images themselves, 29 of the 112 graphics (or 25 percent) are fairly decent, abstract sports-related symbols. The other images are divided into 11 themes: Illustrations, Abstract, Home, Pictograms, Art, Food, Miscellaneous, Professions, Tools, Sports, and Olympics. Many of the graphics are merely modified versions of artwork from the Post-ART collections.

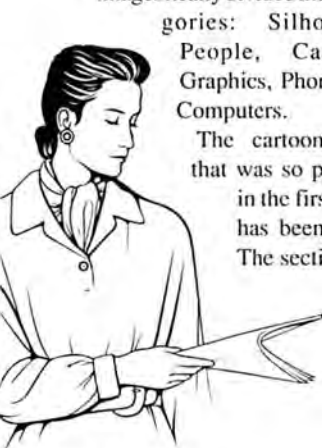
Generally speaking, the images are competently drawn, but they lack polish or verve. There's the usual ballast, such as a hideous image of rock star Billy Idol, a Roman bath, and the inside of an engine. The package also includes a downloadable PostScript font composed of clip-art images — basically another set of dingbats — and a HyperCard stack of design tips.

Vivid Impressions

Casady & Greene's first outing into the world of EPSF clip art is not a particularly successful one. Volume 1, Special Events, is one of the most expensive collections



Although Vivid Impressions is the only collection with color EPSF graphics, most images are modified duplicates of others in the package — a poor return for your dollar.



Olduvai markets ArtClips as "art work" rather than clip art.

The drawings in *Cliptures*, Volume 1, have a cartoonish cast (above right). Volume 2 is a much better package, containing images with a more refined look (above).



All computers emit electro-magnetic radiation that bathes the user through the screen. The figure on the left shows a visualization of electromagnetic radiation from the computer and in red from the screen. The photo on the right shows that the NoRad Shield™ virtually eliminates screen emitted electromagnetic radiation.

Now you don't have to accept the risks of Electro-magnetic Radiation emitted from your computer

You may have wondered, how harmful is it? Many writers, editors, and newspapers have wondered the same thing. Here are just a few examples.

This could be absolutely nothing, or it could be something that makes asbestos look small... *FORTUNE*

...we have to seriously consider whether the VDT might be causing some breakdown in the eye-focusing mechanisms.

Dr. James Sheedy, University of California

The New York Times

Women who used VDTs for more than 20 hours each week in the first trimester of pregnancy suffered almost twice as many miscarriages as women in other types of office work.

The New York Times

Now you don't have to meekly accept the risks. And you shouldn't. NoRad Corporation has introduced the NoRad Shield™ which virtually eliminates the through-screen non-ionizing electromagnetic radiation while disposing of glare, reflections, and the static electric field*.

FREE BOOKLET To get the facts, write or call and ask for our free booklet entitled, "How to reduce the stress, strain, and hazards from your computer."



The NoRad Shield eliminates glare, a major factor in eye strain and is available for all Macintosh screens, monitors, and displays.

NoRad

800-262-3260 Ext. 100

NoRad Corporation 1549 11th St.
Santa Monica, CA 90401 213-395-0800

NoRad Shield is a trademark of the NoRad Corporation.

Please circle 129 on reader service card.



Evidence mounts which shows a connection between non-ionizing radiation and skin irritation, eye damage, and an increase in miscarriages.

*99.999% E field attenuation from 20kHz to > 200 MHz.
H field > 50% above 30 kHz.



I've seen — at \$1 per image (\$1.55 if you don't count duplicates), you get the least return for your money.



Vivid Impressions contains six disks of seasonal or holiday clip art — one of the largest collections, at least in terms of disk space. It is also the only collection that contains color EPSF images. Unfortunately, color EPSF has limited support thus far. Unless you have a color PostScript



Planes, trains, and automobiles — representative offerings from ArtClips (Boeing 747), Works of Art (train), and Images with Impact! (car). Color was added to the car with FreeHand.

printer or are doing four-color separations, color EPSF clip art has little value.

There are approximately 80 files in all. I say "approximately" because many graphics are simply duplicates of other files on disk, but with varying pattern fills, positioning (some are just mirror images), and so on.



Ode to a feline: Vivid Impressions contains a delightful alphabet of cat characters.

In addition, the montage images (similar to those in Images with Impact!) are broken down into their component graphics, which are included as separate files. There's nothing wrong with this, but bear in mind that the advertising hype claims 130 images, a substantial percentage of which

are duplicates with alterations that can be produced quite easily with Illustrator or FreeHand.

The images are generally bare-bones, cartoonish graphics of the Hallmark school of seasonal art. The collection is almost saved by a seventh disk, which contains a delightful graphic alphabet comprising cats in various poses. It is not a true font — each majuscule is an EPSF file that needs to be imported separately — but you can use Altsys' KeyMaster to remedy that shortcoming (see Desktop Reviews, July '89).

DESKTOP REVIEWS

Metro ImageBase

Metro Creative Graphics has been the clip-art warehouse of the newspaper industry since 1910. Although most of its million-plus graphics aren't available for the Mac, Metro ImageBase's numerous packages of theme-related images let you access some of this traditional, popular clip art—if you're willing to work for it just a bit.

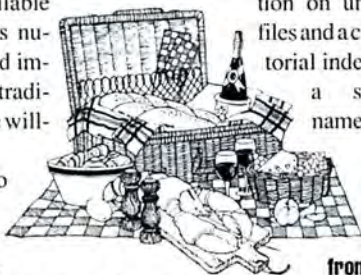
I looked at 2 of Metro ImageBase's 14 collections. ReportMaker and Newsletter-Maker each provide 100 images on 800K disks. Unlike most Mac clip art on the market today, these graphics are distributed as TIFF files. The images have been digitized at 300 dpi and can be customized in any program that reads TIFF (SuperPaint, DeskPaint, Studio/8, and others). Since the images are bit-mapped, however, they can't be printed at resolutions higher than 300 dpi, nor can they be ungrouped and manipulated the way EPSF images can.

What do the images look like? Well, just like most clip art you've seen for the past 79 years. They tend toward the old-fashioned, the sentimental, the sometimes silly icons and clichéd conceits of popular culture. They are generally more complex than EPSF images, both in content and in visual aspects such as shading.

TIFF images are typically huge (say, 400K each), so each graphic has been compressed with the shareware utility StuffIt. Thus, you need to unstuff each file before you can use it—and you'd better have a hard disk handy. The

ImageBase packages include UnStuffIt and the UnStuffIt DA, truncated versions of StuffIt.

The documentation includes information on unstuffing the files and a confusing pictorial index. Instead of a self-evident name such as Con-



The Metro ImageBase series,

from the granddaddy of newspaper clip art, offers traditional-looking images. Unlike most clip-art packages, these are TIFF files, which means they're huge. This picnic basket occupies 259K in uncompressed TIFF.

ference for an image, the index uses a cryptic code number such as N8210302. This number may be more precise than Conference1, Conference2, and so on, but it fails miserably in user friendliness. It took me ages to locate images, because the numbers tended to look alike.

The ImageBase collection is a nice change of pace from the usual EPSF collections, but the file sizes, old-fashioned images, and less-flexible TIFF format may limit its appeal. Unlike EPSF graphics, however, TIFF images don't require a PostScript printer. If you don't have access to a PostScript printer, the Metro ImageBase collection may be for you.

— Gregory Wasson



These clip-art renderings of people and work environments range from simple silhouettes (Cliqures, Volume 2, left), to people on the go (Images with Impact!, top), to occupation-specific images (Metro ImageBase, above).

PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

**For Fast Service Call
Toll Free, 1-800-972-5858**

MAGAZINE BINDERS

Hold your issues on individual snap-on rods.
\$9.95 each. 3 for \$27.95. 6 for \$52.95.



OPEN BACK CASES

Store your copies for individual reference.
\$7.95 each. 3 for \$21.95.
6 for \$39.95.



MacUser

c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134

Please send me: Quantity _____ ☐ Binders ☐ Cases
Payment by check or money order enclosed for \$_____*

Add \$1 per case/binder for postage and handling. (Outside USA, add \$2.50 per case/binder ordered. US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order \$15).

Card No. _____ Exp. Date _____

Name _____

Street Address _____

Sorry we cannot ship to P.O. Boxes. Thank you.

City _____ State _____ Zip _____

*PA residents add 6% sales tax.

SAVE OVER \$59.00!

Subscribe to MacUser and save over \$59 for 24 fact-filled issues that deliver hands-on power-user tips and techniques, in-depth coverage of business, professional and educational applications, AND hundreds of product reviews! PLUS, you'll receive side-by-side product comparisons and evaluations, based on hours of rigorous testing by MacUser Labs, the publishing industry's only independent product testing laboratory!

Don't hesitate—take advantage of this special offer and guarantee the delivery of more product reviews, more insights, and more information for your Macintosh!

One year (12 information-packed issues) only \$19.97—**SAVE OVER \$27!**

Two years (24 issues) only \$34.97—**SAVE OVER \$59!**

Savings based on annual single-copy price of \$47.40.

Mail the attached coupon.

MacUser

P.O. Box 52461
Boulder, Colorado 80322-2461

Begin my subscription to MacUser for:

- ☐ One year (12 issues) for \$19.97—**SAVE OVER \$27!**
☐ Two years (24 issues) for \$34.97—**SAVE OVER \$59!**

Mr.
Mrs.
Ms.

Please print

Company _____

Address _____

City _____

State _____

Zip _____

Savings based on single-copy price of \$47.40. Add \$18 per year for postage in Canada and all other foreign countries. U.S. currency only. Basic annual subscription price is \$27. Allow up to 60 days delivery of first issue.

4251



DESKTOP REVIEWS

Clip-Art Collections

Collector's Edition I



List Price: \$125 (30¢ per image)
Published by: Adobe Systems, 1585 Charleston Road, Mountain View, CA 94039; (800) 344-8335 or (415) 961-4400.

Requires: 1 megabyte RAM, PostScript printer, application that manipulates Adobe Illustrator files.

Format: Illustrator
Copy Protection: None



Images with Impact!

Business 1



List Price: \$129.95 (75¢ per image)
Published by: 3G Graphics, 11410 N.E. 124th St., Suite 6155, Kirkland, WA 98034; (206) 823-8198.

Requires: 1 megabyte RAM, PostScript printer.

Format: EPSF
Copy Protection: None



Works of Art

Laser Art, Business Selection



List Price: \$99.95 (55¢ per image)
Published by: Springboard Software, 7808 Creekridge Circle, Minneapolis, MN 55435; (612) 944-3912.

Requires: 1 megabyte RAM, PostScript printer.

Format: EPSF
Copy Protection: None



ArtClips



List Price: \$99 (88¢ per image)
Published by: Olduvai Corp., 7520 Red Road, Suite A, South Miami, FL 33143; (305) 665-4665.

Requires: 1 megabyte RAM, PostScript printer.

Format: EPSF
Copy Protection: None



Metro ImageBase



List Price: \$145 (69¢ per image)
Published by: Metro ImageBase, 18623 Ventura Blvd., Suite 210, Tarzana, CA 91356; (800) 525-1552 or (818) 881-1997.

Requires: 512KE or later, application that accepts TIFF files. Hard disk recommended.

Format: TIFF
Copy Protection: None



Cliptures

Volumes 1 and 2, Business Images



List Price: \$129.95 each (87¢ and 60¢ per image, respectively)
Published by: Dream Maker Software, 4020 Paige St., Los Angeles, CA 90031; (213) 221-6436.

Requires: 1 megabyte RAM, PostScript printer.

Format: EPSF
Copy Protection: None



Vivid Impressions

Volume 1, Special Events



List Price: \$130 (\$1 per image)
Published by: Casady & Greene, P.O. Box 223779, Carmel, CA 93922; (800) 331-4321 or (408) 624-8716.

Requires: 1 megabyte RAM, PostScript printer.

Format: EPSF
Copy Protection: None



Qume CrystalPrint Publisher™

So Fast, Your Imagination Will Soar.

The Publisher desktop printer is fast. Blazing fast. Faster than any other page printer in its class. That means your best, your most complex PostScript® documents are in your hands in seconds. Not minutes.

Your imagination isn't kept waiting or wanting. Because the Publisher delivers eye-dazzling, laser-crisp print from your PostScript applications. With graphics composed of fine lines, solid blacks and smoothly graduated grays. And layouts with precisely formed text. The result — elegant images not even Apple's top-of-the-line LaserWriter™ II_{NTX} can match.

The Publisher's price will capture your imagination, too. It's amazingly low. You get the power of the LaserWriter II_{NTX} for less than a LaserWriter II_{NT}. And that's a very big difference.

Plus, whether your preference is for Macintosh™ or IBM™ — no matter. CrystalPrint Publisher will send you to new heights in either world.

Call 1-800-223-2479 for more information, or the location of the Qume dealer nearest you. Don't wait. Let your imagination soar. See the Qume CrystalPrint Publisher today.



**"Best
New
Output
Device"**

1989 MacUser
Magazine
Editor's Choice
Award

Qume®

The Company with Peripheral Vision.

©Qume Corporation, 1989. Qume and the Qume logo are registered trademarks of Qume Corporation. CrystalPrint Publisher is a trademark of Qume Corporation. Apple is a registered trademark and LaserWriter and Macintosh are trademarks of Apple Computer, Inc. IBM is a trademark of International Business Machines Corp. PostScript is a registered trademark of Adobe Systems, Inc.

**Please circle 178 for information
Please circle 179 for dealer inquiries**



HARD DRIVES



MiniScribe
Solutions for Data Storage

HARD DRIVES
International
An IDN Company

Three great names, one low price!

The **BIGGEST** name in low priced hard drives comes to **MACINTOSH™**.

HARD DRIVES International . . .

- Our Multi-Million Dollar buying power assures the lowest possible prices.
- Friendly, knowledgeable sales staff will help you choose the drives you need.
- Factory-trained technicians in our Technical Department can assist you with trouble-free installation and setup of your hard drive.
- Helpful Customer Service Representatives provide service after the sale.
- All products include a **One Year Warranty** and our **30-day "Worry-Free" Guarantee**.

HARD DRIVES
International
An IDN Company

1912 W. 4th Street
Tempe, Arizona 85281
(602) 967-5128
FAX: (602) 829-9193

1-800-234-DISK

International Orders: (602) 967-7435

Phone Orders: 7am — 7pm Mon. — Fri.
10am — 4pm Sat. (MST)

Customer Service: 1-800-234-5197
TELEX: 405765



**Never A Surcharge
For MC and Visa**

Price and availability subject to change. All items are new with manufacturer's warranty. 5% surcharge for American Express and COD orders. PO's accepted 2% 10 days, NET 20, subject to 9% surcharge. 30-day Guarantee conditions: shipping & handling charges not refundable; product must be in original condition. Add \$20 shipping for Overseas Military APO/FPO EXPRESS Delivery. Hard Drives International is a division of Insight Distribution Network, Inc. MACINTOSH is a registered trademark of Apple Computers, Inc.

MCU 0889



**30-day
"Worry-Free"
Guarantee**

If for any reason, you are not completely satisfied with any product, simply return it for a prompt and courteous refund!

INTERNAL KITS FOR SE & II

20Mb Seagate	40ms	\$299
30Mb Seagate	40ms	\$359
42Mb Seagate	40ms	\$399
80Mb Quantum	19ms	\$775

INTERNAL KITS FOR MAC II ONLY

65Mb Seagate	40ms	\$479
160Mb MiniScribe	17ms	\$1222
340Mb MiniScribe	16ms	\$1795

These complete internal drive kits include the drive, UniMac™ formatting & partitioning software, hardware mounting kit, all necessary cabling, and How-To manual.

EXTERNAL DRIVES FOR MACINTOSH PLUS, SE & II

20Mb Seagate	40ms	\$379
30Mb Seagate	40ms	\$439
45Mb Seagate	28ms	\$499
60Mb Seagate	40ms	\$549
80Mb Seagate	28ms	\$599
80Mb Quantum	19ms	\$919
160Mb MiniScribe	17ms	\$1275
340Mb MiniScribe	16ms	\$1895

External drives include drive, UniMac™ external case, power supply, cabling, formatting & partitioning software.

TIP

S H E E T

Discover a shortcut in your favorite program? Send it to Tip Sheet at the address below. You can also send your tips to Greg Wasson via Compu-Serve: 73067,1151. In either case, make sure you include your full name and mailing address — otherwise we can't get a check to you. If we print your tip, you'll receive \$25, or \$100 if it's selected as Tip of the Month.

WRITE TO

Tip Sheet, c/o MacUser
950 Tower Lane
18th Floor
Foster City, CA 94404

COMPILED BY GREGORY WASSON

OmniPage

One of the reasons I bought an Apple scanner and Caere's OmniPage was to scan the contents page from magazines into HyperCard to create "card catalog" stacks. As good as OmniPage is, it still has trouble recognizing text and pasting the text blocks it does recognize in the proper sequence when illustrations crowd a magazine's contents page. The "artier" the page layout, the more difficult it is for OmniPage to differentiate between pictures and words. AppleScan's editing tools offer a good remedy for this problem, exploiting OmniPage's ability to recognize previously scanned images.

First, use AppleScan to get a picture of the page. The scanner settings should be 300 dots per inch (dpi), Line Art. After scanning, move to the document window and use the eraser, lasso, and selection-rectangle tools to eliminate graphics that crowd into text and to move text into groupings that are more easily handled by OmniPage. Save the document as a TIFF file.

Open OmniPage, choose Open from the File menu, and open the document you just saved. Choose Recognize from the Text menu. OmniPage runs through your newly designed page flawlessly and in record time!

Edward Settle, Jr.
Liberty, NC

Microsoft Word

If you need to create a split headline that has one part aligned left and another aligned to the right, there is a simple way to do it with Word without using tabs.

In your headings, type an Option-space between the words you want to keep together and use a regular space between the two sets of words. Select Justify (Shift-Command-J) and enter a Shift-Return at the end of the line. The two pieces of the heading will separate and jump to the left and right margins.

Hugh Faulkner
Covina, CA

Take advantage of Word's overstrike function to place text across a graphic. First, select Show ¶ from the Edit menu. Figure 1 was created by typing Com-

Word

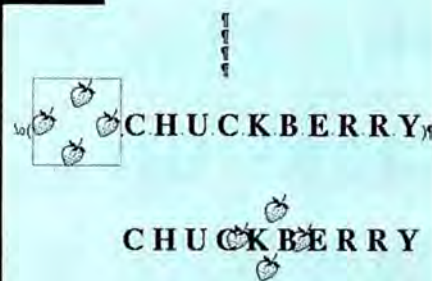


Figure 1: Most people use Word's overstrike feature exclusively with text. But with a little imagination, it can also be used with graphics, as in the wordplayful example shown here. The top image shows the actual commands and format with Show ¶ enabled; you get the WYSIWYG image shown on the bottom when you choose Hide ¶.

mand-Option-backslash, o, and a left parenthesis, inserting a graphic, and then typing a comma, the text, and a right parenthesis. To position the drawing as I did, select it by clicking on it and subscript it by 24 points using the Character command from the Format menu. Select Hide ¶ to see the result. You may have to experiment with different superscript or subscript values to place the graphic where you want it.

Lawrence C. Stedman
Fairfax, VA

Fractional line spacing (leading) is not really supported in Word, but since we wanted to print "galley proofs" that would match the body copy in our newspaper, we needed to find a way to get 10-point type with 10.5-point leading.

After much struggle, we discovered that by setting the text as 20-point type with line spacing of -21 points, and printing at 50 percent, we could get output that matched our PageMaker body text (set at 10 on 10.5) exactly. Remember: When printing with unusual line spacing in Word, you should always specify the leading as a negative value. Otherwise this trick will fail.

Douglas Barnes
Austin, TX

Looking into CAD?

See how VersaCAD on the Macintosh stacks up . . .

When it comes to professional CAD on the Macintosh®, only VersaCAD® offers a complete solution. Now in its fourth release, this bestselling software gives you high-precision color graphics . . . plus unique design capabilities based on Apple Computer's HyperCard™ information management tool.

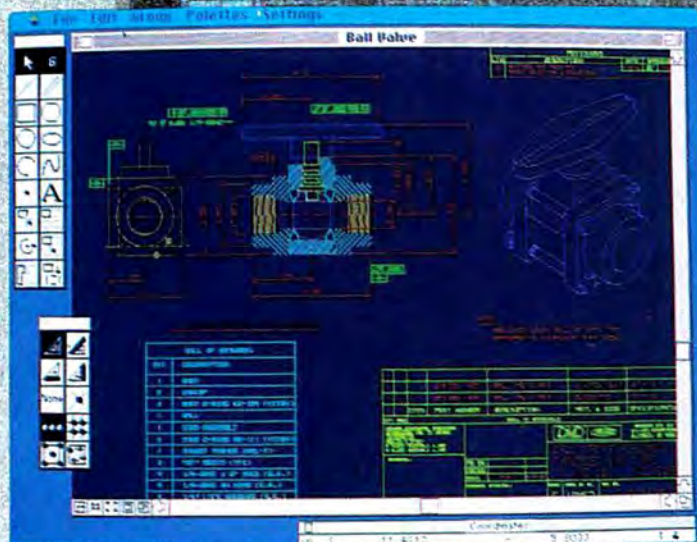
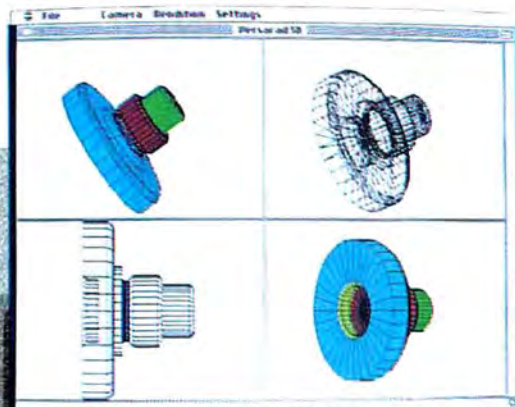
- 2D drafting rated "Best" at the National Computer Graphics Association shootout
- 3D color shading that's fast and easy, including multiple viewport display
- Exclusive HyperCard stacks for:
 - Bill of materials
 - Parametric design
 - Off-line plotting
 - Attribute database
 - CAD text processor
 - Drawing manager, and more.
- Proven two-way links to PC-CAD, workstations and thousands of productivity programs.

See for yourself how VersaCAD stacks up. Return the coupon for a free demo disk or call (714) 960-7720 today.

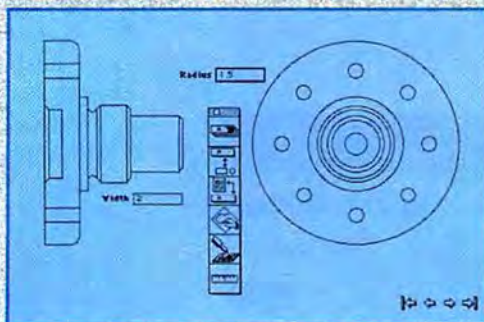
VERSACAD®

Macintosh
EDITION

Prime
Personal CAD/CAM



Library	Part Size	Description	Count	Cost
mesh 2	1/8"	nut	39	155.00
mesh 3	1/4"	steel rod	1	165.00
mesh 5	1/8" X 2"	ball	39	135.00
mesh 12	3/4" X 1/4"	shaft	12	75.00
mesh 13	1/32"	bearing	4	120.00
mesh 18	1/16"	steel bushing	15	155.00
mesh 19	1/4"	100 V electric motor	16	175.00
mesh 20	13"	base	8	85.00
mesh 21	22 1/4"	stand	15	125.00
mesh 23	4 1/8"	flange	7	45.54
mesh 24	1"	coupler	4	7.54
mesh 25	7/16" X 3"	adapter	22	124.25
mesh 33	6"	steel shaft	9	65.00
mesh 45	1 1/32"	brass flange adapter	1	15.75
mesh 49	5 29/64"	bracket	4	22.54



YES, send me a free demo disk (requires a Macintosh Plus or greater). MCU 8/89

Name _____
 Title _____
 Company _____
 Address _____
 City/State/Zip _____
 Phone _____

Please send to Demo Disk, Versacard Corporation, 2124 Main Street,
Huntington Beach, CA 92648.

Please circle 103 on reader service card.

MacPaint

PREF "myPrefs" ID = 128 from MacPaint					
00000000	0028	0004	0104	01CF	0<000'0e
00000008	0008	017B	0009	00D1	000{000-
00000010	00E0	0217	0028	007B	00000<0{
00000018	0000	0000	01E1		000000
00000020					
00000028					
00000030					
00000038					
00000040					
00000048					
00000050					
00000058					
00000060					
00000068					

Figure 2: MacPaint usually opens with inches as its default unit of measurement. But if you change this byte from 01 to 00 with ResEdit, the program will open with a default measurement of pixels.

Show Mouse Position command display in pixels, rather than the default of inches. Ordinarily you would have to change preferences every time you created a new document to see measurements in pixels.

Here's a little ResEdit surgery, however, that makes MacPaint 2.0 default to pixels. Exercise caution when working with ResEdit because you can ruin your application. Work only on a copy of MacPaint and leave the original alone — it's your backup in case you inadvertently do something fatal.

Open the copy of MacPaint, using ResEdit.

Open the PREF resource.

Open PREF ID=128.

Select the byte shown in Figure 2.

Type 00 for pixels, 01 for inches, or 02 for centimeters.

Quit ResEdit and click on Yes in the Save Changes dialog box.

Brian Sutter and Harl Wiguna
Lincoln, NE

MultiFinder

It's often necessary to return to the Finder from an open application for file information. But when you are working under MultiFinder, open documents obscure the desktop, hiding the disk icons you need. One way to open a disk's window from beneath the clutter is to eject it, using Command-Shift-1 or Command-Shift-2 (depending on what drive the disk is in) and then reinsert it. Reinsertion automatically causes the disk's icon to be selected (even if you can't see it). Then you will be able to open it with

Command-O, and its window will pop to the forefront.

Don J. Modesto
Tokyo

MacPaint

Programmers (and desktop publishers) think in pixels rather than inches. Programmers often do screen dumps of an application's windows and use MacPaint to spruce the dumps up or to experiment with different fonts, borders, and other elements. It's nice to have the

QuarterStaff

Choosing Print from QuarterStaff's File menu when the Map window is active prints out all areas or rooms currently mapped — at least when you output to an ImageWriter. If you're lucky enough to have a LaserWriter, you're in for a bit of a surprise. Hidden rooms and unmapped areas that have yet to show themselves

QuarterStaff

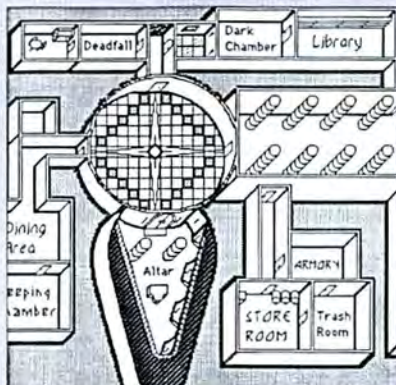
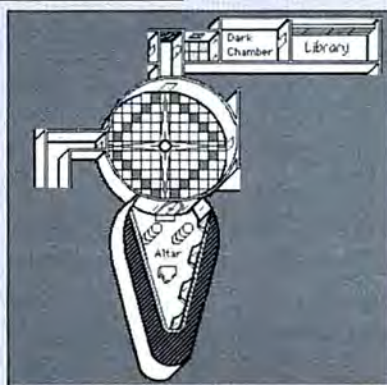


Figure 3: When you print out the QuarterStaff map window on a LaserWriter, unexplored, hidden, and unmapped rooms magically appear in the printout, as seen in this comparison of the on-screen (left) and printed (right) maps.

Smart investors always buy utilities.

You've invested in a Macintosh* to bring out the best in what you do. Now enhance that investment with SuperMac's family of easy-to-use utilities. Programs that protect your work. And help you do more in less time.

Don't let your printer regulate your business.

Why stop working just because you're printing? Let SuperLaserSpool and SuperSpool take control. So you can use your computer again seconds after you select "Print." Even if your documents are long and complex.

See if documents have printed, preview them, or zoom in to see part of a page up close. Or send several documents to the spooler and change the printing order later. Both products work faster under MultiFinder* than any other spoolers.

SuperSpool works with any ImageWriter*. And SuperLaserSpool is the only spooler that works with *all* Apple* printers. Plus, it's the only one compatible with PageMaker* 3.0.

MacWeek said, "The speed at which SuperLaserSpool returns control of the Mac to the user is impressive, in some cases even astonishing!"



Keep insider information where it belongs.

Lock up your confidential information with Sentinel, a program that lets you convert any document on your disk into a secure code. No one can open it without the password you define. Or a Cray* and about 50 years.

Documents and folders can be grouped together in convenient sets. Then choose one of three advanced encoding techniques, including DES, the U.S. government's official data encryption standard. Sentinel encrypts, locks and unlocks faster than any other program.

The critics at MacWorld said, "...Sentinel provides a simple, effective security tool that does exactly what it claims to do and does it well."

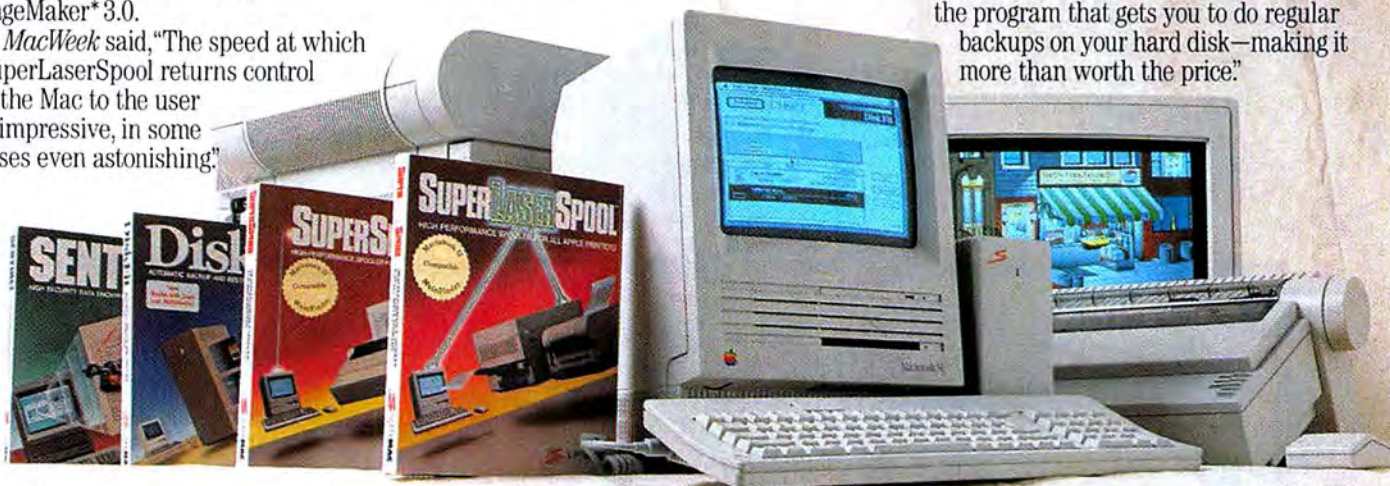


How to recover from a crash.

DiskFit copies files on your hard disk for safekeeping. If your disk crashes, DiskFit can completely restore them. Back up just once, and DiskFit makes a complete record of files called a SmartSet.* Then, DiskFit copies only new or modified files to the SmartSet, and deletes old files. You won't waste time copying files that haven't changed, or disk space storing old versions.

Create backups on floppies, tape, Bernoulli* cartridges or even other hard disks. Of whole volumes, documents, system or application files. And Network DiskFit* backs up AppleShare* or TOPS* networks.

As MacUser said, "DiskFit is so easy to use and so well designed that it may be the program that gets you to do regular backups on your hard disk—making it more than worth the price."



Add SuperMac's utilities to your Macintosh portfolio.

Put SuperMac's utilities on your buy list. To protect the investment you've made in your Macintosh system, and to do more work in less time.

You'll find our family of utility programs at authorized SuperMac dealers and leading software specialty stores.



SUPERMAC
SOFTWARE

485 Potrero Avenue
Sunnyvale, CA 94086

SuperMac is a trademark of SuperMac Technology. DiskFit, Network DiskFit, SmartSet, SuperSpool, SuperLaserSpool and Sentinel are trademarks of SuperMac Software. *Apple, Macintosh, ImageWriter and AppleShare are registered trademarks and MultiFinder is a trademark of Apple Computer, Inc. Cray is a registered trademark of Cray Research, Inc. Bernoulli is a trademark of Imago Corporation. PageMaker is a registered trademark of Aldus Corporation. TOPS is a registered trademark of Sun Microsystems, Inc. "Street" copyright © 1988 Bert Monroy. SuperMac products are available to resellers through major software distributors. SuperMac's family of utilities is compatible with Macintosh 512K, Macintosh Plus, Macintosh SE and Macintosh II personal computers. Copyright © 1989 SuperMac Software.

Tip of the Month

■ PageMaker can read IBM TIFF files, but other popular programs such as ImageStudio and Digital Darkroom can't. Certain utilities on the market can translate one format to the other, but all you really need is ResEdit.

First transfer the IBM file to the Mac (with a modem, network, or whatever), start ResEdit, and select the filename. Choose Get Info from the ResEdit menu, and change the file type from TEXT to TIFF. All your programs will now recognize this as a TIFF file and open it successfully.

James A. Collins
San Francisco

on-screen are revealed in the printout. It's like having X-ray glasses (see Figure 3).

Stephen Fein
Monterey, CA

Font/DA Mover

Sometimes you want to add and remove fonts from an application (as opposed to the System). On launching Font/DA Mover, you'll see a list of all the fonts in your System file. To open the font file of any application — or even a HyperCard stack — press the Option key while clicking on the Open button. Font/DA Mover works the same with applications as it does with System files: You can have two applications open simultaneously to swap fonts, or just one to remove them.

Bill Watling
Quintar, KS

LaserWriter

I just got around to reading the April '89 Tip Sheet and noticed a tip from Abby Trudeau about envelopes jamming in the LaserWriter. An even simpler solution is to open the door at the end of the LaserWriter II so the paper path is straight. I never have a jam when I open the door.

Kathy Farmer
Inglewood, CA

Illustrator 88

Your client says, "I like it, but can you make all the lines half as thick?" Professional Illustrator 88 users dread this scenario. But there's nothing to worry about. You don't have to spend hours changing stroke attributes for each path if you follow this simple procedure (see Figure 4).

Select the necessary paths and activate the scale tool. Click on one of the selected anchor points while holding down the Option key — this opens the Scale dialog box. To thin all selected paths uniformly, you must scale the object larger in this dialog box with Preserve Line Weights selected and then immediately scale the selection back to its original size with Scale Line Weights selected. Make sure you Option-click on the same anchor

point when reducing the object back down, so the object keeps its original position on the page. The percentage you enter to scale the object back to its correct size must be fractionally inverse to the percentage to which you enlarged it (for example, a 200-percent enlargement is remedied by a 50-percent scaling factor, 500 percent is remedied by a 20-percent factor, and so on).

If you want to make selected paths uniformly thicker, follow the same procedure, except choose Scale Line Weights while scaling up and Preserve Line Weights while scaling down.

Bill Planey
Fort Worth, TX

TIP

Illustrator 88

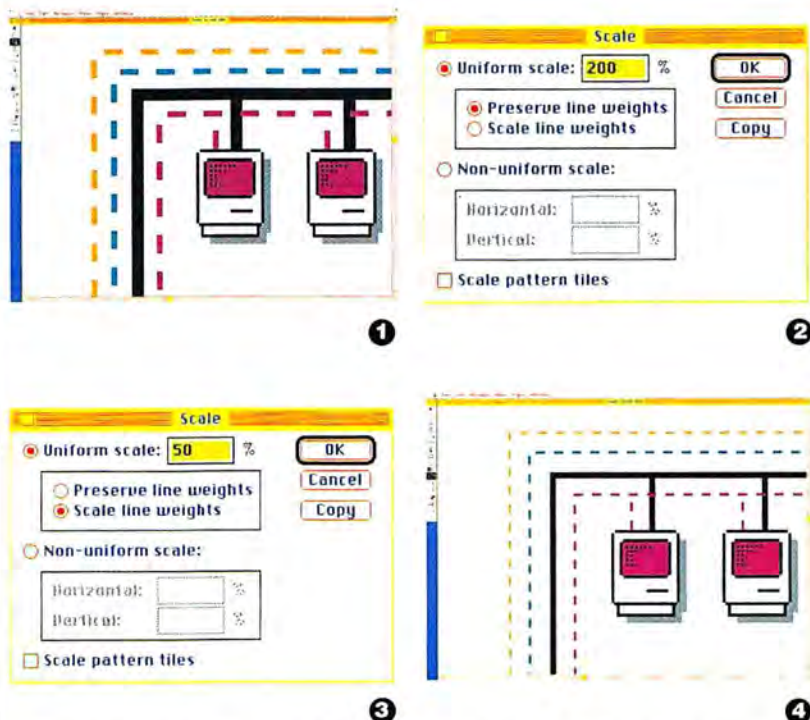


Figure 4: To rescale line weights in Illustrator, select the lines (1), scale them up (2), and scale them back down proportionally (3) — switching from Preserve Line Weights to Scale Line Weights. The lines will be lighter (4), and the scale of the graphic will be unchanged.

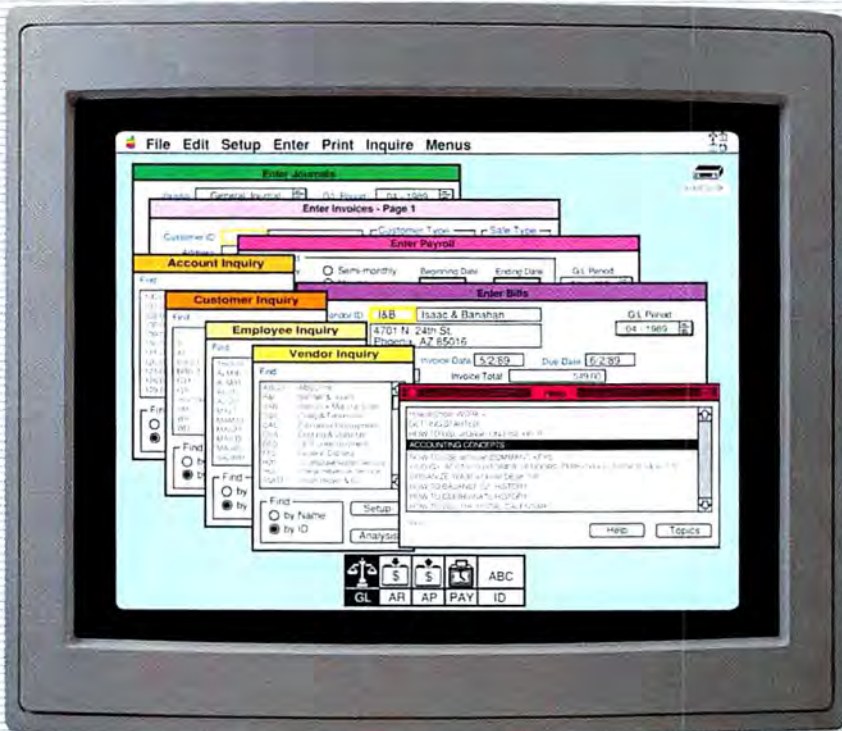
"Finally, the Macintosh has powerful yet simple accounting Software..."TM

atOnce!

New Accountant Magazine
February 1989

"I've died and gone to heaven...this is the accounting program I've been waiting for."
Vicki Lamparis President, Cactus Computer Services
Published Reviewer: MacGuide & MacUser Magazines

High-Speed Small Business Accounting



- ✓ **Seamless integration**
All modules can be open simultaneously. Data instantly updates throughout.
- ✓ **Designed for the 1st time user or the accounting pro**
Optimized for fast set up, quick learning curve and high-volume productivity.
- ✓ **Customizable financial reports**
User has complete control over the flexible financial reports - atOnce! can produce to meet unique managerial needs.
- ✓ **Complete On-line "Help" system**
Command "Click" on any field or button instantly opens "Help" dialog with instructions and exclusive "Rules-of-Thumb".
- ✓ **Instant "Look-up" and "Find"**
All accounts, customers, vendors and employees can be instantly found alphabetically or numerically. All look up windows can be open simultaneously!
- ✓ **Customizable Forms**
Now you can change fonts, styles, sizes, names and graphics on your checks, invoices and statements.
- ✓ **MultiFinderTM compatibility with true background operation**
Performs true background operations including printing the report queue.
- ✓ **Optional Mouseless Operation**
High-speed data entry with keyboard equivalents for hands-on operation.

atOnce!TM represents the next generation in accounting software. So easy to learn, the majority of business managers will be completely at ease doing their own accounting. So fast and flexible, professional accounting and bookkeeping firms can now use the Macintosh[®] as their platform of choice for handling numerous companies and volume data.

All modules (and up to 26 periods!) can be open simultaneously! Use atOnce!'s built-in financial

reports or customize your own. Queue your reports and batchprint them --in background! Full, context-sensitive help means "click" on any field, any button, anywhere, for instant "Help" and "Rules of Thumb". Use the mouse or keep your hands on the keyboard. We're talking productivity here, and that means *power*...especially when you can do it all...atOnce!TM

Call for sales information
and your atOnce! demo disk
(\$9.95 postage & handling)

1-800-622-4436

Layered Inc.
529 Main Street • Boston, MA 02129
617-242-7700 • Applelink:D0254

LAYERED INC.TM
The First Family in Macintosh Accounting

Please circle 106 on reader service card.

Canvas 2.0

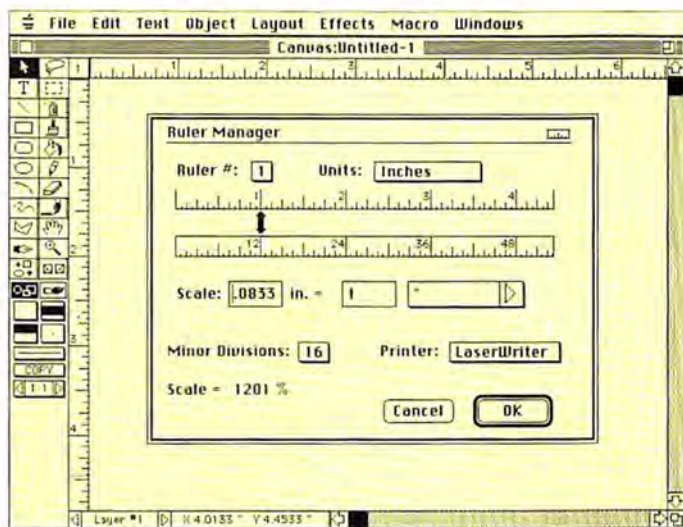


Figure 5: You can display small-scale fractions in Canvas 2.0 by leaving the right-hand value at 1" and adjusting the left-hand value accordingly.

Canvas 2.0

When using Canvas 2.0 for architectural or engineering drawings, choosing Show Dimensions in Fractions under Preferences will not give you fractions for small scales such as 1" = 1' or 1/2" = 1". You can't get fractions in your dimensions by typing in 1" = 1' in the Ruler Manager. If you want to display fractions on-screen for such scales, the right-hand side of the scale in the Ruler Manager box must always remain at 1". Then divide the left-hand side of the scale for whatever fraction of the inch you want. For example, if you need 1" = 1', use 1/12" = 1", which you enter as .0833 = 1". Fractions now appear in your auto-dimension lines (see Figure 5).

Lourdes Green
North Miami Beach, FL

TIP

MathType 2.0

Equations for Word Processing

Create publication-quality results like this by using MathType 2.0 with your word processor or desktop publishing program:

$$\left\{ \int_a^b \left(\sum_{i=1}^m \lambda_i(x) \right)^p dx \right\}^{\frac{1}{p}} \leq \sum_{i=1}^m \left\{ \int_a^b [\lambda_i(x)]^p dx \right\}^{\frac{1}{p}}$$

Unlike most other equation editors, MathType 2.0 automatically applies the spacing and formatting rules used by professional math typesetters as you build an equation using simple point-and-click editing. When used with LaserWriters and imagesetters, equations are output directly into PostScript, giving unprecedented quality and typographic control. MathType 2.0 features a new, customizable user interface and keyboard access to all functions. MathType 2.0 also includes a PostScript font containing characters used frequently in math and science but unavailable in standard fonts.

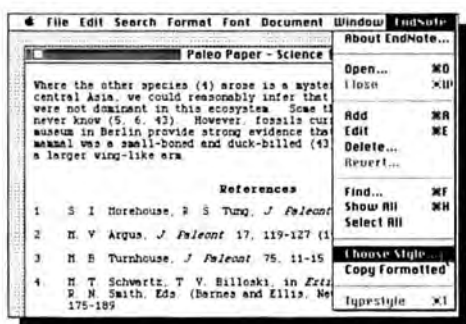
Let us show you how MathType 2.0 has set a new standard in equation editing. Ask for our brochure and free demonstration disk including mini-tutorial. MathType's suggested retail price is still only \$149.



Call or write for your
FREE demo disk

6475-B E. Pacific Coast Hwy., Suite 392, Long Beach, CA 90803 • (213) 433-0685

Please circle 53 on reader service card.



Bibliographies in Word!

Keep a database of up to 32,000 references. Create bibliographies automatically in the style you need. Access your database from your word processor using the EndNote DA. Also works with MacWrite, WriteNow and WordPerfect. \$129. See Minifinder under databases.

EndNote

A REFERENCE DATABASE
AND BIBLIOGRAPHY MAKER

Niles & Associates, Inc., (415) 655-6666
2200 Powell, Suite 765, Emeryville, CA 94608-1809



"Almost like magic, the bibliographic chores of your writing task are finished" (MacUser, February 89)

Please circle 46 on reader service card.

HYPER SPACE

This month bring order to your Home stack and recycle your best scripts with HyperOne and Script Library from Hyperpress. Find out where to get the latest educational stackware, and see just how friendly the Mac can be with SpeakEasy. Plus Mike Swaine explores using HyperCard as a database in Card Tricks.

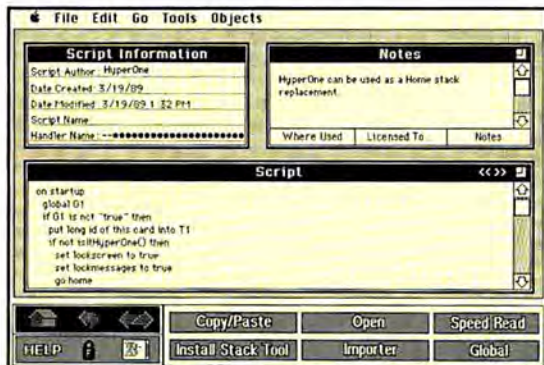
Script Collector

If you find yourself wasting valuable time rewriting the same line of script or searching through your stacks for that great script you created last year, last month, or even last week, then you might want to add Script Library to your Macintosh product bin.

You store a script in the Script Library by highlighting it, copying it to the Clipboard, and then executing a simple command. To use a stored script in another stack, just copy it onto the Clipboard, and it's ready to be pasted. Script Library includes a Notes field for annotating your scripts with useful information, a Licensed To field for keeping track of who's using your script, and a Where To field that records the original location of the script as well as

the names of the stacks to which you've copied it. Script Library comes with a selection of 25 scripts and is available for \$49.95 from Hyperpress Publishing, P.O. Box 8243, Foster City, CA 94404; (415) 345-4620.

— Victoria Juarez



Script Library becomes a recycling center for your best and most-used scripts. Scripts are easy to transfer from stack to Clipboard to library and are just as easy to place in new stacks.

Order in the Home Stack

HyperCard is often praised for its customizability. You can enhance this freedom to do it your way with HyperOne, a work-center stack from Hyper-

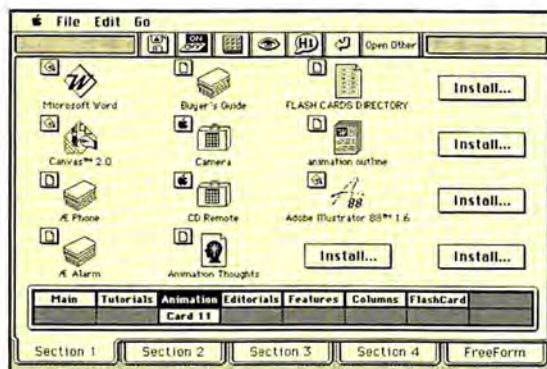
press. HyperOne is most useful as a Home-stack replacement. You can locate buttons for stacks, applications, and documents on your HyperOne Home card for quick access to your most-used programs. Or you can use a dialog box to get from Home to anything on your hard disk or CD-ROM drive.

HyperOne's Home stack is divided into five sections. Each section has 16 cards, on each of which you can keep all the files, applications, stacks, and notes used in a project (these are called work groups). You can install any application into any number of work groups.

Other features include a menu bar that gives you access to the Text Editor card and File Manager, and automatic compacting and stack-backup options.

HyperOne, priced at \$49.95, lets you change the way you approach work on your Mac. You can reach Hyperpress Publishing Corp. at P.O. Box 8243, Foster City, CA 94404; (415) 345-4620.

— Laura Johnson



This HyperOne work-group card offers instant access to all the stacks, applications, and documents for a particular activity. This card has been created to serve as the command center for all the tools in an animation project.

EDITED BY LAURA JOHNSON

Helping Handicapped Speakers

We all know the Mac is a friendly machine. When members of the Neuropsychology Department got together with the Software Development Group at Drexel University to create SpeakEasy, they made the Mac even easier to use.



In the SpeakEasiest Pictures stack, a user clicks on an icon, and the corresponding message is spoken.

SpeakEasy is part of a set of stacks, called ProsthesisWare, designed to help individuals with varying degrees of motor impairment perform everyday tasks. The stacks let you assemble, store, and speak phrases (using MacinTalk, which is included in the package), employing input techniques that get progressively easier. SpeakEasy lets users construct a phrase

by pointing and clicking on words in a scrolling list. With SpeakEasier, they use a modified trackball to select letters, symbols, and pictures. Using SpeakEasiest, they need only click on a symbol highlighted by a moving cursor to put a word or phrase into the Mac window. SpeakEasy costs \$24 and is available from Kinko's Academic Courseware Exchange, 4141 State St., Santa Barbara, CA 93110.

— Victoria Juarez

Teachers' Pet Stacks

HyperCard has been a boon to educators, who are producing a wealth of instructional stackware. Unfortunately, most of this software is not available commercially, and getting it to educators has been a real problem. So the University of Colorado at Denver and the Association of Educational Communications and Technology have set up a clearinghouse for instructional, administrative, and utility stacks. HISC (HyperMedia and Instructional StackWare Clearing-House), a nonprofit organization, offers its library of stacks on an individual basis. All you pay is the cost of postage and duplication. For submission guidelines or more information about HISC, contact Scott Grabinger, University of Colorado at Denver, Campus Box 106, 1200 Larimer St., Denver, CO 80204-5300; (303) 556-4364.

— Laura Johnson

Changing your mailing address?

It's a simple procedure to ensure that your next issue of MacUser will catch up with you as soon as you move.

Please send your NEW address PLUS your current mailing label to:

MacUser
P.O. Box 56986
Boulder, Colorado
80322-6986

Please allow up to 60 days for change of address to take place.

This is two of the best computers on the market.



It's a Macintosh, of course. But it's also a VAX. Thanks to a family of products from White Pine Software, Macintosh and VAX computers can communicate. These include emulators that allow the Macintosh to appear to a VAX exactly like a DEC terminal. And Reggie, which converts Macintosh graphics into DEC formats (ReGIS and SIXEL) for use by VAX applications or output devices.



And VMacS, which allows users to store and manage Macintosh files on the VAX's hard disks and tape drives.

For more information call or write: White Pine Software, 94 Route 101A, PO Box 1108, Amherst, NH 03031, (603) 886-9050.

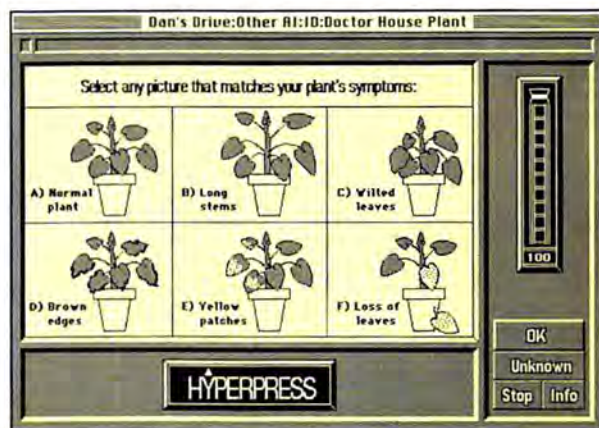
Please circle 118 on reader service card.

Intelligent Developer

When most software-engineering professionals think of expert systems, visions of \$60,000 list-processing (LISP) machines and \$10,000 programs dance in their heads. Products for the Macintosh are approaching the functionality of LISP-based tools, although the best products can still cost about \$5,000. Intelligent Developer — at \$395 — provides much of that power at a breakthrough price. HyperCard guru Dan Shafer and Hyperpress Publishing have teamed up to create a program that is a good midlevel expert-system tool and an excellent low-end delivery tool.

Intelligent Developer is a flexible set of expert-system development and delivery programs. Intelligent Developer Designer, the engineering segment of the suite, is a solid expert building tool that includes a forward and backward inference engine; rule, fact, and other knowledge editors; and a clean user interface. Intelligent Developer Builder creates stand-alone programs from your knowledge bases. IntelliCard, a HyperCard stack, places your knowledge base and a C-based inference engine into a HyperCard stack (see figure). Owners of Intelligent Developer can make up to ten copies of their knowledge bases with either IntelliCard or Intelligent Developer Builder and can work out additional copies and commercial distribution agreements by contacting Hyperpress.

At the core of the Intelligent Developer technology is the Designer. It allows knowledge engineers and domain experts to create, maintain, and execute knowledge bases. A knowledge base is a series of IF/THEN statements that capture the essential rules of thumb and knowledge used by a human expert in solving a particular problem. For example, if you were writing an expert system to help car dealers sort through inventory, you might define facts such as the color of a car, whether a particular car was in stock, and whether it had been washed, along with an output called Ford Taurus. A rule that could deduce whether a clean, black Ford



Intelligent Developer and its HyperCard derivative, IntelliCard, use the same inference engine and operate on the same knowledge base. IntelliCard offers all the normal HyperCard options, including sound and animation.

Taurus were available might look like this:

```
IF color = "black" AND (in-
stock = YES) AND (washed = Yes)
THEN car_available = Yes.
output (Ford_Taurus).
```

Fact types in Intelligent Developer include text, dates, times, integers, decimals, currency, and Yes/No. Some facts act as goals within the expert system, and all can be validated by using a range or list. Facts that need user responses require questions as a portion of their definition. All facts can have an explanation attached to them in case a user of your system wants to ask it why a particular fact is important.

Development in Intelligent Developer is relatively straightforward. Rules, facts, outputs, and databases have an associated editor. The user interface in Intelligent Developer Designer is not ideal, but it is functional. I hope future versions integrate the editing and creation functions while allowing for examination of other facts or rules within the editor.

Intelligent Developer Designer's debugging tools make up for what the editing environment lacks. Extensive reports help to cross-reference and list every item in a knowledge base, and the execution debuggers are unmatched by other systems in this price range. Setting the trace and debuggers steps you through a knowledge base one rule at a time and provides you with a complete picture of the system's reasoning.

The expert systems created with Intelligent Developer contain many excellent

interface features. For facts that require a list for validation, the software automatically generates the necessary radio buttons. Check boxes are generated for list-validated items that can have multiple values. Graphics can be called into a window to help make the environment a bit more inviting. A well-crafted expert-system application written in Intelligent Developer can be a good addition to your corporate repertoire.

Intelligent Developer Designer by itself is a good value, but with its delivery companions, it becomes a real bargain.

Intelligent Developer Builder embeds the knowledge base you write into a stand-alone application. The knowledge-engineering facilities, such as tracing and reports, are stripped out of the system, but the user interface you develop is delivered intact, which is important if you want to distribute knowledge bases that contain database information. If your knowledge base doesn't take advantage of databases, you may want to employ Intelligent Developer's other delivery option — IntelliCard.

With IntelliCard, you can inject your knowledge base into a HyperCard stack. Your completed stack will have the look and feel of your original application, but it will be a HyperCard document ready for any sounds, graphics, or animation you wish to add to it. The Intelligent Developer inference engine has been completely ported as a C kernel that resides in your stack.


Dan Shafer and Hyperpress have put together some incredible stack programming with IntelliCard. To create an application, you make a copy of the Intelli-

Card Master stack and execute the copy. By clicking on the Build an IntelliCard Stack button and selecting your knowledge base, you can have the original stack completely transform itself into an attractive image of your Intelligent Developer application. If you turn on the Watch Cards Go By option, you can examine the steps taken by IntelliCard to transform your boring expert system into a HyperCard work of art. Selecting this option slows down the creation of your stack, but it is well worth the time just to see what can be done in HyperCard.

Executing your IntelliCard stack differs little from executing an Intelligent Developer knowledge base. All the buttons, windows, and outputs you originally programmed are represented; they just look better. Certainty Factors, an expert-system method for capturing fuzzy knowledge (such as "maybe it's true," "I kind of remember it being about like that," or "I'm only this sure"), are translated from a sliding button in the development version to an even more attractive button in the HyperCard version. Nothing from the original program is excluded except the database links. By adding your own whiz-bang HyperTalk programming and add-ons from third parties, you can create some pretty impressive expert systems.

IntelliCard provides several tools for enhancing the interface. Clicking on the Designer Mode button lets you reshape and rearrange fields and buttons. When

you have added the finishing touches to your stack, a click on "Prepare Stack for Distribution" removes the licensed software (a few XFCNs from 101 Scripts and Buttons and other goodies). With prod-

ucts such as Intelligent Developer, we have an inexpensive way to turn the data collection of the '70s and '80s into the knowledge processing of the '90s. 

— Daniel W. Rasmus

America's LARGEST "Mac ONLY" Store...

POWER AND PRICE!

Call our Mac Specialists NOW for the latest powerful Macintosh components & peripherals at the NATION'S LOWEST PRICES!

\$3288
Our CPU Price With Package
Apple's List Price: \$4660

IICX

PACKAGE #4
\$6488
List \$8600, Save Over \$2100.

Mac II Packages

- 100mb. Hard Drive
- 2mb. Ram Memory
- 256 Color Monitor
- 1.44 FDHD Drive
- 101 Keyboard
- Mac Printer

\$2988
Our CPU Price With Package
Apple's List Price: \$4990

Mac II

PACKAGE #5
\$5988
List \$8800, Save Over \$2800.

SE

PACKAGE #1

- 2mb. Ram
- 800k Drive
- Mac Printer
- 101 Keyboard
- 30mb. Drive

\$3488
List \$6900, Save Over \$1900.

SE 30

\$2988
Our CPU Price With Package
Apple's List Price: \$4369

PACKAGE #6

- 30mb. Drive
- 101 Keyboard
- 800k Drive
- Mac Printer
- 2mb. Ram

\$4988
List \$5200, Save Over \$1700.

\$1988
Our CPU Price With Package
Apple's List Price: \$3169

Mac Friends

COMPARE OUR ATTITUDE, PRICING, WARRANTY & SUPPORT! WE'RE YOUR MAC STORE!

A NEW KIND OF COMPUTER STORE

Credit Cards Leases CODs ... OK!

Call for our Special Prices on Hard Drives, Monitors, Scanners, Laser Printers and More!

800 331-1322
TOLL FREE!

WE CAN BEAT ANY PRICE ... CALL US LAST!

Intelligent Developer



List Price: \$395

Published by: Hyperpress Publishing Corp., P.O. Box 8243, Foster City, CA 94404; (415) 345-4620.

Version: 1.0

Requires: 1 megabyte, two 800K floppy drives; hard disk recommended; IntelliCard requires HyperCard; Intelligent Builder applications require 512K.

Compatibility: All Macs with 1 megabyte; MultiFinder-friendly.

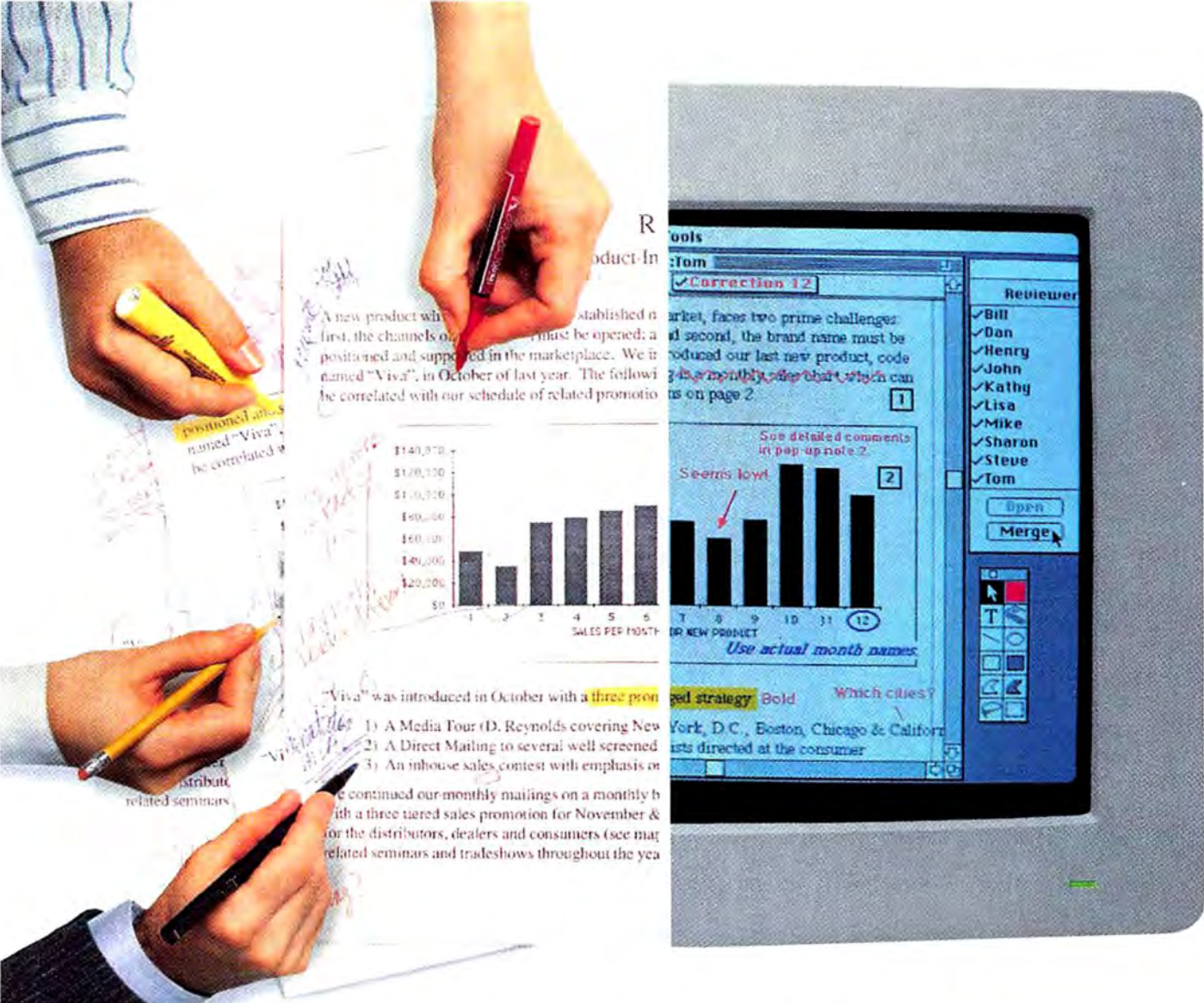
Application Size: 2.3 megabytes

Copy Protection: None

© 1989 Comp Mart, Inc. AD # 61

Mac, Macintosh™ APPLE COMPUTER, INC.

Please circle 86 on reader service card.



Make Your Mark, Together

Introducing MarkUp™, Workgroup Editing & Review Software

It's ironic that documents created with hi-tech efficiency revert to archaic methods for review: lots of paper, red pencils, scribbles, mail delays and wasted time. Now there's real improvement for group editing, review and approval — MarkUp.

Here's how it works: print an image of a Macintosh document to disk from any application with MarkUp Document Creator. Publish it electronically to a workgroup for review.

Group members don't even need the creating application, just MarkUp. Reviewers work simultaneously — on

a network or by transferring files — making comments on transparent overlays of the MarkUp document.

MarkUp provides tools to rewrite, annotate, highlight, strike out, correct, manage and approve documents of all types. It even keeps a journal and status of editing activity.

When review is completed, use MarkUp's powerful merge feature to combine a group's comments and print the annotated document as a basis to rework the original. Better yet, open the original document next to the MarkUp document with Multi-Finder and copy changes directly.

Please circle 2 on reader service card.

Real productivity improvement means working better — together! Whether your group numbers two or twenty-two, you'll produce higher quality documents in much less time. Reduce paper traffic, meetings and travel. Use MarkUp for reports, drawings, letters, spreadsheets and proposals.

Inquire about MarkUp today. Take a step toward making your mark, together.

For more information or the dealer nearest you, call:

Mainstay

5311-B Derry Avenue
Agoura Hills, CA 91301
(818) 991-6540

71 rue des Atrebatés
B-1040, Brussels, Belgium
322/733.97.91

I'll be "open on anything"; I want everybody in the game this time. This will be the last hand. This is the last Card Tricks column.

The original plan for this column was to publish some tools for builders of HyperCard stacks, examine the phenomenon of HyperCard, and possibly advance the art of stack development a little. At least the first two objectives have been met, with one glaring omission.

What the column has not yet dealt with, and what is thus dealt to this last Trick, is an examination of the most common use of HyperCard, and the most immediately utilitarian: as a tool for organizing information. The mundane likelihood is that more people have used (or adapted or emulated or cursed and transcended) the Address stack provided by Apple than have used any other stack, and by and large they



is identical with what the product will refuse to do for them. It's in the links: just as the power of many a nifty new gadget is stored in batteries that are notoriously Not Included, the power of hypertext is stored in the links, which . . . But you're way ahead of me.

The limitation is hypertext's, and it's HyperCard's only by association. But Apple could at least give us the hypertextual utility that the company's own guidelines for stack development seem to assume we have. Provide users with a map to the structure of your stack, Apple advises coyly, pointing

to the excellent map in HyperCard's Help Stack. I've tried, Apple, honestly I have, but it's a lot of work. What I need is a utility written in HyperTalk that traces the structure of a stack and constructs a picture of that structure with appropriately

CARD TRICKS

The Last Trick

have used it as a conventional simple database.

The promise has always been something more evolved. HyperCard, we were assured, would lead to a generation beyond conventional databases, to a rough beast called hypertext, and to The Freedom to Associate. Well, hypertext is slouching birthward, and although the software genealogists of

the future will probably not place HyperCard as a direct progenitor in any hypertext paternity suit, HyperCard will certainly not escape a sweep of Suspicious Characters Lurking Near the Scene.

As for "The Freedom to Associate," I recently ran the sentence fragment "The Freedom to . . ." through Apple's Localizer utility with the Language parameter set to English and got this translation: "The following function must be performed manually."

I'll be saying more about utilities like the Localizer (although not *just* like the Localizer) in *MacUser* in future months, but even users not possessing the Localizer utility have discerned the price of software freedom: What a software product gives them the freedom to do

scaled and labeled boxes and arrows. And then does it again when I alter the structure. I guess I don't mind too much that Apple hasn't provided such a tool, since it's given me the opportunity to create my own.

But that's just fun stuff, and God knows databases are not fun stuff. Bottomlinewise, this hypertext business just doesn't count the beans. This column still owes you a practical look at HyperCard's strengths and weaknesses as a conventional database and some ideas for overcoming the latter.

At the outset there are two size issues, and both of them weigh against HyperCard. First, HyperCard is really adequate only for small-to-medium-sized non-relational databases. HyperCard is plenty powerful enough to handle hundreds of cards (or records, as they are called in NormalSpace), but with thousands of cards, performance and capacity limitations may justify using a database program.

(The other size issue is the memory appetite of HyperCard itself. It's a machine-dominating application. For some Mac users, it's a machine-defeating application. Despite Apple's pronouncement that the Plus is now the bottom of the line, there are nonetheless Macintosh users whose machines cannot run HyperCard.)

For those properly megabyted, a problem remains: Since HyperCard is best suited to those many smallish databases that you may want to glance at rather than linger over, it would be decidedly more useful as an information manager if it were immediately accessible, even while you were using another program. It's not, unless you can afford to avail yourself of one of two solutions: to let HyperCard dominate your machine in exchange for its acting as a Finder substitute (I discussed this compromise last month) or to get a lot of memory and run HyperCard under MultiFinder.

What about the basic database functions — sorting, search-

HyperCard is really adequate only for small-to-medium-sized non-relational databases.



BY MICHAEL SWAINE

ILLUSTRATION: ANDY LEVINE

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 at 800-83-FONTS.

Adobe, developer of the Adobe® Type Library and PostScript® software, is the world's authority on electronic publishing.

This full-color, 11" x 15", 32-page *Font & Function*™ catalog is jam-packed with helpful tips and problem-solving advice from Adobe type and design experts. Plus, it's got samples, interviews and more than 300 high-quality Adobe typefaces for you to order. You'll see

FONT & FUNCTION



how easy it is to publish like a pro with your Macintosh® or IBM® PC computer, PostScript printer and a little help from *Font & Function*, the Adobe Type Catalog.

Get yours today. **FREE.** Just call 800-83-FONTS. Or write *Font & Function*, P.O. Box 7900, Mountain View, CA 94039-7900.



Adobe and PostScript are registered trademarks and the Adobe logo and Font & Function are trademarks of Adobe Systems Incorporated. Macintosh is the registered trademark of Apple Computer, Inc. IBM is the registered trademark of International Business Machines.

FREE.

01-11-02-2

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

I use a ☐ Macintosh ☐ IBM PC computer (Check appropriate box(es))

NAME _____	
TITLE _____	
COMPANY _____	
ADDRESS _____	CITY _____
STATE _____	ZIP _____ PHONE _____

Protects while you type!



- **Remains In Place** while you use your computer.
- **Avoids Costly Repairs** by protecting delicate electronics from dust, spills, smoke, ashes, staples.
- **Soft, Flexible**, retains normal keyboard feel.
- **Washable, Durable High-Tech Polymer** lasts years.
- **Hundreds of Models.** SafeSkin is available for most PCs, laptops, workstations and clone keyboards.
- **Office • Home • Factory • Classroom • Laboratory**

List Price \$29.95. Please call or write for free color brochure. Dealer inquiries encouraged.

SafeSkin™

KEYBOARD PROTECTOR

Merritt Computer Products, Inc. 5565 Red Bird Center Drive
Suite 150, Dallas, Texas 75234 (214) 339-0753 • FAX (214) 339-1313
In Canada call 1-800-663-1061

Please circle 115 on reader service card.

CARD

ing, and selecting; adding and editing data; and merging, importing, and exporting? Generally, HyperCard is superbly customizable, but the customizations either require user programming and run slowly, or they require third-party extensions. Fortunately, there are many excellent third-party external commands and functions, some of which I've mentioned here in past issues.

For me, that means that whatever I want to do, I can probably do it with HyperCard, and I use it for a lot of things. Since none of the various databases I maintain holds more than a thousand records, performance is not a problem. But if you don't program in HyperTalk, the fulcrum of the balance between HyperCard and a database program is elsewhere.

Sorting. HyperCard's sort capabilities are basic and adequate for simple databases. If you need anything more, you'll have to roll your own. If you program in HyperTalk, that's not hard to do; it is a disappointing exercise, though, since no HyperTalk script can possibly run fast enough to sort satisfactorily. External commands and extensions such as HyperHIT (available from SoftStream International) and HyBase (from Answer Software) are the best bet.

Searching, replacing, selecting. For moderate-sized databases, the search power HyperCard provides may be adequate, but for anything beyond string matching, you need to extend the product. This may mean programming, and you can construct query-processing engines of arbitrary complexity and (for moderate-sized databases) acceptable performance in HyperTalk. Or you can use externals.

Adding, editing. HyperCard is an interface, a generally good one for editing data records. What is seriously lacking for data entry, however, is any built-in filtering of input. Again, it's not hard to add filters that efficiently check, say, that the entry is in a valid date format, but this requires another extension involving programming or plugging in externals. The same goes for anything but the simplest merging, exporting, or importing. If your databases are not huge, however,

and you are willing to do some programming or searching for good externals, there's nothing like HyperCard's customizability for the price. And since the best software product is the one that behaves the way you want it to, customizability is awfully nice to have.

And raw performance is often overrated. Often what's more important than lightning-fast performance is the responsiveness of a highly interactive user interface. When you want to find an arbitrary string, for example, HyperCard's minimal solution is for you to type Command-F, the string, and Return. Within a second or so, you'll be looking at the first card containing the string, with the string highlighted.

In terms of performance, that's much better than thumbing through the pages of the dictionary, but in terms of information returned, it's not nearly as good. In the dictionary, you're also likely to see related words, possibly homophones, and all kinds of other entries for the same string. Anything you do to get this sort of contextual information out of HyperCard hinders performance — but you may not mind the delay if you consider the time well spent.

For example, I have a name-and-address database stack in which I generally just want to jump to a card based on a person's name. Rather than type the name, I scroll through an index field, find the name in context, and then click on the name to jump to the appropriate card. This approach is often slower than typing the name (depending on how fast I scroll versus how fast I type), but I prefer it because I get more information. I see the name in context, immediately noticing that I have duplicate cards for this person, for example.

And since I store the most commonly needed piece of information with the name in the index field (the person's main telephone number), I often don't need to go to the card at all. Such a solution requires some programming. A field script allows the lines of a field to act like buttons, and a stack script updates the index from the cards (I would hardly prefer this method if I had to type the person's name into the database twice). But it works the way I do, which is what I want.

Well, all bets are in. Since you've stayed in the hand to the end, you have the right to see the cards I'm holding.

First, I owe some debts, so let me pay off my markers. Thanks first to Dan Winkler for a good deal. (Everybody has already thanked Bill Atkinson sufficiently; Winkler actually wrote HyperTalk.) Second, thanks to Steve Bobker for opening this hand. This magazine owes him similar thanks, but I'm only paying off my own markers here.


But enough of that. To quote Kenny Rogers (something I rarely do), "You gotta know when to hold 'em, know when to fold 'em." And know when the game is over.

Although this is the last Card Tricks column I'll be writing for *MacUser*, I'm going to continue writing about HyperCard and developing scripts, here in *MacUser* occasionally, and regularly in my own HyperCard newsletter.

If you're interested in the newsletter, just write to me at Card Tricks, 31 Patrick Road, Santa Cruz, CA 95060. I've also put together a disk containing the current version of all the scripts I've published in *MacUser* as well as the indexed database stack and the stack-mapping utility (which I warn you is still very much under development as I write this) that I mentioned this month.

Some of these scripts have evolved significantly from their original incarnation, but all are still in the public domain. If you'd like to have the disk, just send me \$5 for parts and postage at the same address.

I tipped my hand back there when I alluded to writing about utilities, and it's time to lay all my cards on the table. Ever wish Apple did a better job of detailing the features of its operating-system software? Wonder just which of those files in your System folder are doing useful work for you and what maybe ought to be in the System folder but isn't? Interested in using System utilities, INITs, and ResEdit to customize or extend the capabilities of the system to make it better meet your needs? Well, next month I'll begin writing about such system-software issues under the heading "Beating the System."

Can you beat that? 

PROTECT YOUR COPIES OF MacUser

Make your collection of *MacUser* a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for *MacUser*, every order receives FREE gold transfer foil to personalize dates and volume numbers.

**For Fast Service Call
Toll Free, 1-800-972-5858**

MAGAZINE BINDERS

Hold your issues on individual snap-on rods.
\$9.95 each. 3 for \$27.95. 6 for \$52.95.



OPEN BACK CASES

Store your copies for individual reference.
\$7.95 each. 3 for \$21.95.
6 for \$39.95.



MacUser

c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134

Please send me: Quantity _____ ☐ Binders ☐ Cases
Payment by check or money order enclosed for \$_____*

Add \$1 per case/binder for postage and handling. (Outside USA, add \$2.50 per case/binder ordered, US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order \$15).

Card No. _____ Exp. Date _____

Name _____

Street Address _____

Sorry we cannot ship to P.O. Boxes. Thank you.

City _____ State _____ Zip _____

*PA residents add 6% sales tax.

THIS IS NOT A COMPARISON

Features	TurboNet ST™	PhoneNET Plus®
▶ Self-Termination	✓	—
▶ 5,000 Networking Feet	✓	—
▶ Lifetime Warranty	✓	—
▶ Traffic Indicator Lights	✓	—
▶ Surge Indicators & Protection	✓	—
▶ Noise Reduction Circuit	✓	—
▶ \$59.95 Suggested Retail	✓	✓

We wanted to do a comparison. You know, the kind where we do the little box with all the check marks on our side. But we found when you add up all the features, there's just no comparison. TurboNet ST simply outperforms PhoneNET Plus. Here's why:

NO TERMINATION HASSLES.

Ordinary connectors need terminating resistors to balance things out. So if you don't terminate your network in all the right places, it may not work right. But TurboNet ST, with its built-in self-termination, will connect anywhere it's needed, to make installation a breeze and network changes hassle-free.

TRAFFIC LIGHTS.

Sometimes, even the best networks won't work right. They act funny. Suddenly. Enter our traffic lights. LEDs flash at each connector with data traffic but are otherwise dormant, saving you hours of hair-pulling diagnostic time. They also absorb current spikes to protect your computer.



GET TO 5,000 FEET FAST!

Every AppleTalk® network has its limits. Even TurboNet ST. Only our limits are less limiting: up to 5,000 feet of network wiring without costly amplifiers or bridges. Even our best competitor runs out of steam at 3,000 feet. And every TurboNet connector is compatible with AppleTalk and other third-party network products.

OUR WARRANTY? HOW ABOUT A LIFETIME!

When you build TurboNet ST as strong as it is smart, you become confident about its life expectancy. And when you're Nuvotech, you put your warranty where your mouth is. Lifetime. No Questions. No Hassle. Nuff Said.

DON'T TAKE OUR WORD FOR IT.

After all, it's our ad so we can say whatever we want. Here's what experts say:

"With its phone-wire cabling, its self-termination and its often-useful LEDs, the TurboNet ST comes out on top in my rating of LocalTalk® compatible cabling systems."

— Gary Baker, LAN Magazine 12/88

IT'S YOUR TURN.

We've told you about the best connector on earth. If you don't know where on earth to find your Nuvotech dealer, just call us.

800-232-9922

(Inside California 415-331-7815)

REFINING THE ART OF NETWORKING.



Nuvotech, Inc.
2015 Bridgeway, Suite 204
Sausalito, CA 94965

Dealers: distributed by Micro D.
P.S. We also supply a *standard* TurboNet™ connector for \$49.95.

Please circle 102 on reader service card.

TurboNet ST, TurboNet and Nuvotech are trademarks of Nuvotech, Inc. AppleTalk and LocalTalk are registered trademarks of Apple Computer, Inc. PhoneNET Plus is a registered trademark of Farallon Computing, Inc. © 1989 Nuvotech, Inc.

BRIDGES

Apple's long-awaited Token Ring products were among the slew of connectivity and communications products announced recently. You can read about them in *Currents*. Check out how to check up on your network in "Monitoring Your Network." Trouble Shots shows you how to handle a passive-star network.

Apple's Communications Blitz

Yes, Virginia, there is a Token Ring card.

On June 12, Apple unveiled a host of new communications products — 14 altogether — in one of its most extensive rollouts. Topping the list was the long-awaited announcement of a Token Ring card, along with coax/twinax and serial cards.

Apple has said for a long time that it wants to extend the plug-and-play networking approach so that Mac users can access information anywhere on any network as easily as they share with other Macs in a LocalTalk work group.

Management-information-systems (MIS) managers have remained skeptical because Apple has largely failed to provide products, or even core technologies, that enable Macs to connect to large ex-

been waiting for. Apple will ship the **TokenTalk NB Card** (the NB stands for *NuBus* — still no support for SEs or Pluses), which runs at 4 megabits per second. TokenTalk NB is an intelligent card that has its own 68000 processor and half a megabyte of RAM. This enables the card to run multiple protocol sets simultaneously.

The card will come bundled with **TokenTalk** software and an **SMB File Transfer Utility**. TokenTalk will let Macs use AppleTalk protocols over TokenRing. The SMB File Transfer Utility will extend Apple File Exchange to allow file transfer between Macs and SMB file servers. Apple also announced **MacDFT**, which will provide multiple 3270 terminal sessions over a single connection to an IBM mainframe over

Apple Connects to the World



Announcing new connectivity products:

- TokenTalk NuBus Card
- AppleTalk Internet Router
- 4-port Serial Card
- Coax/Twinax Card
- MacDFT Software
- CL/1 Servers for MVS/TSO and VM/CMS
- MacX25
- ... and more

ILLUSTRATION: K. DANIEL CLARK

WRITE TO

Bridges, c/o *MacUser*
950 Tower Lane
18th Floor
Foster City, CA 94404

EDITED BY HENRY BORTMAN

isting internets dominated by PCs, UNIX workstations, VAX minicomputers, and IBM mainframes. With the June announcements, Apple answered its critics by providing the products that corporate managers have been demanding. Well, actually, it didn't provide *products*; it was more like promises. Nothing was *shipping*. But all *will* be shipping — honest — some soon, some by the end of the year, and some by this time next year. No pricing was available at press time, but hey, they're Apple products, so they're bound to be expensive.

Let's take them one by one, with Token Ring first, since it's the one everyone has

Token Ring, and **MacAPPC**, which will let Macs participate in LU 6.2 sessions (LU 6.2 is a communications protocol) via the Token Ring card.

AppleShare PC 2.0, an upgrade to existing software, will let PCs on a Token Ring share files stored on AppleShare servers. EtherTalk software will also be upgraded to 2.0, and AppleShare PC will support Ethernet as well as Token Ring connections. This AppleShare PC upgrade, when used in conjunction with the **AppleTalk Internet Router** or other AppleTalk Phase 2-compliant router, lets PCs on TokenTalk or EtherTalk networks print to LaserWriters.

SEE WHAT YOU'RE MISSING!



Limited quantities of MacUser back issues are available to complete your Macintosh documentation library. Just send \$7.00 (check or money order) for each back issue ordered (\$8.00 in Canada and all other foreign countries, U.S. currency) to:

MacUser

Ziff-Davis Publishing Company
P.O. Box 5999, Cherry Hill, NJ 08034
Attn: F. Hunter

Be sure to include month
and year of each issue ordered.

For availability of issues call:

1-609-354-4975

BRIDGES

Underlying these new products is AppleTalk 2.0, an upgraded set of network protocols. LocalTalk networks will still support only 254 nodes, because the 230.4 kilobits per second at which LocalTalk transmits is not enough bandwidth

AppleTalk 2.0,
an upgraded set
of network
protocols,
provides support
for 65,000
EtherTalk or
TokenTalk nodes.

to comfortably support more devices. But for EtherTalk or TokenTalk networks or internets containing EtherTalk, TokenTalk, and LocalTalk subnets, 2.0 provides support for 65,000 nodes. This capacity is due to a change in the way zones are identified. For EtherTalk and TokenTalk networks, individual nodes can be assigned to any logical zone, regardless of the physical network they are connected to.

To help interconnect LocalTalk, EtherTalk, and TokenTalk networks, Apple's new AppleTalk Internet Router, a software package based on AppleTalk 2.0 protocols that runs in the background, lets a Macintosh act as a bridge between networks. Each router can connect up to eight LocalTalk, EtherTalk, and TokenTalk networks.

Want more cards? In addition to the TokenTalk Card, Apple will offer a Coax/Twinax Card and a Serial NB Card, which are intelligent cards built on the Macintosh Coprocessor Platform. The Coax/Twinax Card provides 3270 access to Systems Network Architecture (SNA) networks. It will be bundled with MacDFT software, which allows up to five simultaneous 3270 terminal sessions.

Apple also announced a 3270 API (application program interface), which will be available to developers who want to build Macintosh applications that utilize

3270 connections.

The Serial NB Card contains four serial ports that can be configured separately. SDLC (Synchronous Data Link Control) protocol support is built into the card. MacAPPC sessions can be run with the serial card as well as over Token Ring. When MacX25 is used with the serial card, Macs can connect to X.25 packet-switched networks.

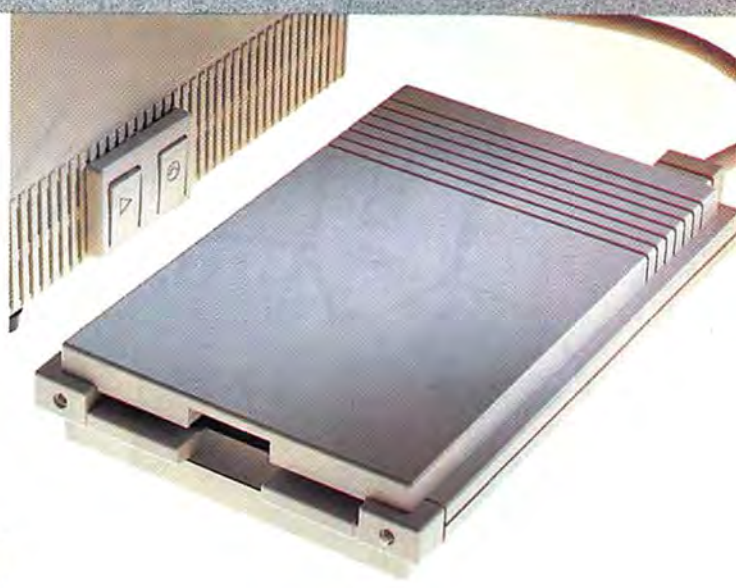
My favorite new product is MacX. Don't ask me why, since there aren't really any X Window applications except one that displays an icosahedron bouncing around on-screen. MacX is server software for the Mac operating system. No client software yet — although it is available on the Mac under A/UX. (Remember that with X Window, client and server are reversed from what you'd expect: The host machine on which the application runs is called the client, and the workstation [or display terminal] is called the server). MacX lets you put Macintosh-like windows, complete with zoom boxes and the like, around your X applications. It implements version 11, release 3, of the X Window system but does not support the DECwindows extensions. What that says about the Apple-DEC alliance is anyone's guess.

Continuing in the great vaporware tradition, despite the fact that more than a year has passed since it was announced, the CL/I server for VMS is not shipping (at least not at press time). Apple announced a CL/I Server for VM/CMS and a CL/I Server for MVS/TSO. VM/CMS and MVS/TSO are operating systems that run on IBM mainframes. These servers will provide access to DB2 (VM/CMS) and SQL/DS (MVS/TSO) databases. Apple has promised availability by the end of the year — mark your calendars, but don't hold your breath.

One more: Jumping into the world of high-speed data communications, the Apple Data Modem 2400 is precisely what its name implies — a 2,400-baud modem. Microcom Networking Protocol (MNP) classes 1-4, which provide automatic error correction, are built in.

So that's it. We hope to have prices and availability next month. As soon as we figure out how it all works or what it means, we'll let you know. ☺

Your old Macintosh can learn new tricks if given half a chance.



half a chance. the other half.

Don't be left behind by Apple's newest disk standard. Expand your 512e, Plus or SE beyond the Apple-FDHD bag of tricks.

This mouse-sized RAPPORT™ module enables *all* 720K MS-DOS, OS/2 and ProDOS disks to be read by your 800K drive—without the tangle of cables, dedicated modems or expensive software you might expect. RAPPORT, with an external Apple 800K drive, can then read *and* write those heretofore alien formats—while increasing disk capacity from 800K to 1.2Mbytes using *standard* 800K diskettes.

RAPPORT's other half, DRIVE 2.4 takes you beyond Apple's state-of-the-art high-density floppy drive: In addition to supporting all existing 3.5" disk formats by Apple and IBM, KENNECT's DRIVE 2.4 supports *two* new Very High Density formats which furnish 1.2Mbyte user space on standard-density media, and 2.4Mbyte on

High Density diskettes.

One drive does it all—quite a trick for your old Mac.

KENNECT's design team includes four of Apple Computer's six original engineers who are still motivated by showing the big guys a trick or two of their own.

"...transferring files between PCs and Macs? ...Kennect has come out with a brilliant addition to the genre—Rapport. It's small, but it packs a big punch... Rapport is a dynamite package." MacUser magazine



Dealer orders: 1-800/552-1232 (in CA: 408/370-2866), or call Softsel Computer Products at 1-800/645-7779 (Eastern US), 1-800/645-7775 (Central US) or 1-800/645-7778 (Western US).

120-A Albright Way, Los Gatos, CA 95030
800/552-1232 408/370-2866 Inside CA FAX: 408/370-0484 AppleLink: D2997



KENNECT™
TECHNOLOGY

KENNECT and RAPPORT are trademarks of KENNECT TECHNOLOGY. Macintosh, Apple, 512e, Plus, SE, FDHD and ProDOS are trademarks of Apple Computer, Inc. MS-DOS is a trademark of Microsoft Corp. IBM is a trademark of IBM Corp.

Please circle 161 on reader service card.

IMAGINE HOW CONFINED YOUR WORLD WOULD BE WITHOUT FASTPATH.®



FastPath is Kinetics' answer to Macintosh connectivity. Only FastPath lets you connect LocalTalk and Ethernet networks and manage the complex traffic of AppleTalk, TCP/IP and DECnet environments. Call us for information and a free copy of the Kinetics Network Primer, our user-oriented introduction to networking.

KINETICS
WE NETWORK NETWORKS.
KINETICS, A DIVISION OF EXCELAN.

CALL 1-800 243-8526 FOR FASTPATH

Kinetics, 1340 Treat Blvd., Suite 500, Walnut Creek, CA 94596 Tel: (415) 947-0998

Excelan Inc., 2180 Fortune Drive, San Jose, CA 95131 Tel: 1-800-243-8526 and (408) 434-2300

Excelan Europe, Ltd., Intec 2, Suite #17, Wade Road, Basingstoke, Hampshire, RG24 0NE England, U.K. Tel: (44) 256-842296

FastPath is a registered trademark and Kinetics is a trademark of Kinetics, a division of Excelan Inc. Mac, Macintosh, A/UX, AppleTalk and LocalTalk are registered trademarks of Apple Computer Inc. UNIX is a registered trademark of AT&T Bell. DECnet and VMS are trademarks of Digital Equipment Corporation. Illustration created by Max Seiblaugh on a Mac computer. © Kinetics, A Division of Excelan Inc. 1989 All rights reserved.

Monitoring Your Network

Why is the network slowing down? Why doesn't the printer work? How come I can't access the server? Who's on first? Network-maintenance tools can provide answers.

With more and more Macintosh networks cropping up, network managers have to be prepared to answer increasing numbers of questions. Fortunately, there are software tools that can help you answer — and even prevent — some of these questions. Farallon, Apple, and Kinetics offer packages that give you eyes in the wires, whether LocalTalk, PhoneNET, or Ethernet. The products are designed to help you with a single daisy-chained LocalTalk network, an internet comprising two or more zones, or networks connected by a bridge.

The main packages are Farallon's TrafficWatch and CheckNET, Apple's Inter•Poll, and Kinetics' LAN Ranger. Farallon also has a few other handy utilities to make your network life easier. Each of these programs is worthwhile in its own niche.

Shaping the Network

Knowing where the traffic is heaviest can help you determine how to configure zones and where to locate printers, servers, and bridges. Farallon's TrafficWatch helps you optimize the network topology by showing which users, groups, and peripherals are causing the heaviest traffic. TrafficWatch can run in the background, monitoring the network while you attend to other business.

When you put the RegisterName INIT (provided with TrafficWatch) in the System folder of each Mac on the net-

work, TrafficWatch identifies each node by its Chooser name and number. Printers, servers, and bridges are identified by their network name. You can see who is using a server or printer while it's in use. TrafficWatch provides a real-time display of the number of packets of data sent and received from every node (see Figure 1). Unfortunately, it tells you only the number of packets being transmitted and not their size (although nothing else on the market tells you that either).

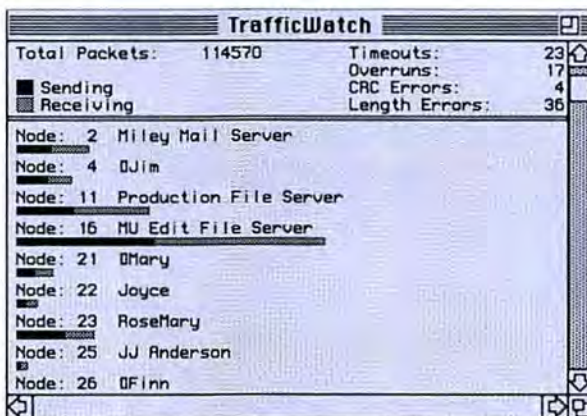


Figure 1: Traffic-Watch's real-time window on the network lets you see where the traffic is coming from. It also keeps track of errors (in the upper right). Excel macros are included to analyze and plot recorded data.

TrafficWatch monitors only the nodes that are not separated by a bridge. It treats the bridge as another node; you can measure the traffic to and from one side of the bridge, but you can't see traffic on the other side. This information at least helps you decide whether it might be time to move a node to the other side of the bridge if you detect too much traffic between it and the bridge.

A powerful feature of TrafficWatch is its ability to record data in a spreadsheet format. Two Excel macros are included

for analyzing and graphing the results. You can automatically create statistics such as the average number of packets created on the network each second and the average number of packets from each node each second. TrafficWatch also monitors and displays packet errors, including time-outs, CRC (cyclical redundancy check) errors, length errors, and overruns.

Two handy utilities, LWStatus and NodeHint, come with TrafficWatch and Farallon's CheckNET. LWStatus is an RDEV put into the System folder that shows up in the Chooser. When you're choosing the printer or spooler, the status of any printer on the network can be displayed. A box will appear and tell you whether the printer is in use and who is using it.

NodeHint lets you change the AppleTalk node number of the Macs in your network. This is very handy for monitoring and troubleshooting. Macs can be numbered from 1 to 127; node numbers 128 through 245 are reserved for printers and bridges.

Spotting the Trouble

Farallon's PhoneNET CheckNET is a DA that helps you solve problems such as line breaks or lack of peripheral access. Apple's Inter•Poll is similar, although it lacks the convenience of a DA (it has a few tricks of its own, however).

Both programs list all the devices and names on the network as Traffic-Watch does, but they also identify the types of devices (various types of Macs, servers, printers, bridges, and so on). CheckNET and Inter•Poll also list the network sock-

By John Rizzo

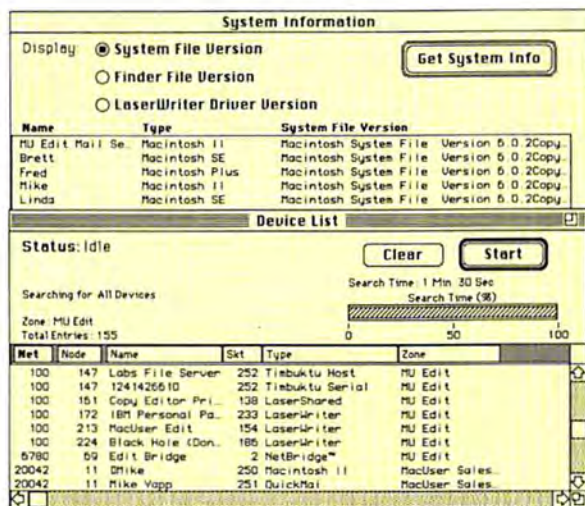


Figure 2: Inter•Poll lists the type of device and socket functions but lacks CheckNET's sorting features. It can, however, tell you the version of System and Finder, as shown on the upper window. A node-testing window appears when node names are double-clicked.

ets, the addresses within workstations that are associated with specific network tasks, such as Timbuktu, TOPS, and some electronic-mail systems. (Either Farallon's RegisterName or Apple's Responder must be in the System folders of

each workstation; Responder will suffice if you're running both CheckNET and Inter•Poll.)

Inter•Poll's Device List screen and the CheckNET window contain similar information. Inter•Poll can list which ver-

sion of System files is in use — something CheckNET cannot (see Figure 2). This feature alone is worth the price of Inter•Poll, since users with different versions of printer drivers can cause endless resets of LaserWriters. In addition to the System and LaserWriter drivers, Inter•Poll tracks which versions of Finder, Responder, AppleTalk Driver, and AppleShare are used at each workstation. There is also a built-in printer-status function similar to Farallon's LWStatus that indicates a print job in progress. For those with an artistic bent, Inter•Poll comes with MacDraw files filled with generic floor plans and various node icons to help you create network maps.

CheckNET's advantages include automatic updating at designated periods (you have to update Inter•Poll manually); the ability to sort by node name, address, or type; and the ability to save a screen listing as an Excel file (Inter•Poll saves only in text format). Since each program costs under \$150, however, network

Take your office on the road for only \$295.

Stay in-touch wherever you go, with Liaison

Now, you can leave your office without leaving your office behind. Because Liaison is the software "bridge" that lets you take all your network resources—AppleShare, MacServe, or TOPS servers, E-mail, and LaserWriters—with you. Wherever you go. And, without requiring any special hardware.

Don't call us, we'll call you!

Sleep well knowing that Liaison will isolate your company's data from prying eyes and vanguard viruses. Liaison's seven layers of security—including dial-back from preauthorized phone numbers—allow only those you authorize onto your network.

Liaison extends the reach and security of AppleTalk:

- Access file and E-mail services from home or on the road with per-user authorization
- Connect company branch offices, across town or across the world
- Integrate LocalTalk, EtherTalk, TokenTalk, etc. into cohesive nets
- Make LaserWriters available to EtherTalk users
- Operates in the background.

If you use AppleTalk you need Liaison. For information on how to order Liaison, call (800) 445-7085 today.



Liaison—recipient of the 1989 Eddy for Best New Networking Product and the only five mouse network product review. "Robust security... Works every time... A brilliant piece of programming... Look to Liaison first." *MacUser*, April 1989

Infosphere, Inc. • 4730 SW Macadam Ave • Portland OR 97201
Please circle 110 on reader service card.

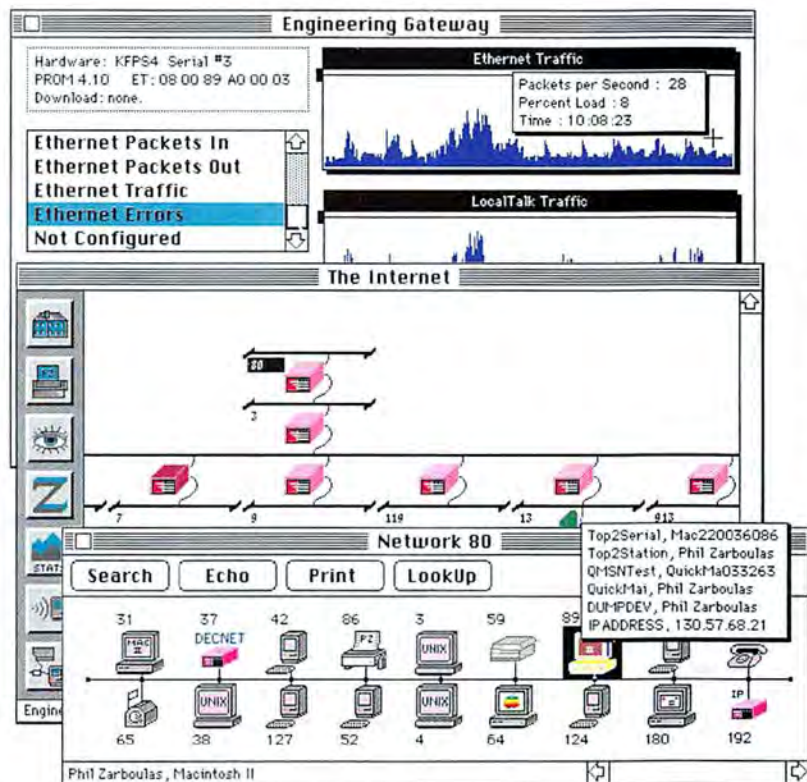


Figure 3: LAN Ranger, which works only with internets using Kinetics' bridges, can report on network traffic (top) and display the internet and network layouts (middle and bottom). The small screen at bottom is listing the socket names on the highlighted node, number 89.

managers will probably want to buy and use both rather than choose between them.

Beyond the Bridge

If you work on big internets with Kinetics' FastPath bridges, you should not be without LAN Ranger. This product has many of the same features as the other programs, but it sees past bridges, which the others can't. LAN Ranger is a new program that Kinetics now bundles with FastPath 4. (It's free from Kinetics if you bought FastPath before it was included, and it also works with upgraded versions of FastPath 2 and 3.)

A FastPath bridge connects LocalTalk networks to Ethernet networks. Such an internet may contain UNIX and VAX equipment as well as Macs and PCs, all of which will show up and be identified as such on LAN Ranger.

When you start up LAN Ranger, you see a graphic display of the entire internet, showing the bridges that connect the component networks. When you click

on a network, all the devices on that network will be displayed; if you double-click on a node, all the sockets in that node will be listed (see Figure 3). Network topology is represented only logically — star configurations, for example, are represented as backbone setups.

LAN Ranger also measures and displays network traffic, and performs echo testing and zone-verification testing. For a program so graphically oriented, it was surprising that the beta version I saw was missing some basic Mac-like features, such as close boxes and window sizing. Still, LAN Ranger's interface makes network debugging almost fun (*almost*).

Unfortunately, LAN Ranger relies on intelligence within FastPath to collect statistical data, so it works *only* on internets that use Kinetics bridges. Although the internet display can show bridges from other vendors, you can't monitor statistics or display devices on the other side of a non-Kinetics bridge. Kinetics says that LAN Ranger may eventually

work with Hayes InterBridges, which would be a blessing. When they do, the company will probably begin selling the program as a stand-alone product.

Another program worth mentioning is Farallon's Star Command, which comes bundled with the company's Star Controller. Star Command turns the Controller's 12 ports on and off, tests wiring and ports, and monitors network load. The Mac running Star Command is connected directly to the Controller via a serial line attached to the Mac's modem port. This way, if the entire net goes, you can still investigate. A Star Controller may shut down a port if a peripheral is causing jamming, an error condition sometimes occurring with peripherals but rarely with CPUs. I highly recommend Star Controllers for networks of more than 20 nodes. (For an explanation of the pitfalls of passive stars, see Trouble Shots.)

It's not a question of which program is better; each has unique capabilities. You can purchase CheckNET, TrafficWatch, and Inter-Poll for around \$400. If your network is large enough to need a Star Controller or at least one bridge, I recommend having all of the products. It's similar to the toolbox a building superintendent keeps: The bigger the building, the more tools you're likely to need. ☞

For More Information . . .

Apple Computer, Inc.
20525 Mariani Ave.
Cupertino, CA 95014
(408) 896-1010
Inter-Poll, \$129

Kinetics
2500 Camino Diablo, Suite 110
Walnut Creek, CA 94596
(415) 947-0998
LAN Ranger 1.0, free to FastPath owners

Farallon Computing, Inc.
2150 Kittredge St.
Berkeley, CA 94704
(415) 849-2331
CheckNET 1.1, \$95
StarCommand, free with Star Controller
TrafficWatch 1.08, \$195

When You Wish Upon a Star

Passive star networks have their place — but they have their limitations too.

By Kurt VanderSluis

Something is wrong. Your CheckNET display is not as it should be. Network performance has been compared to a '68 VW, and it's getting worse as you add more users. The network users are out for your blood. What's the problem?

Previously I talked about the wires, contacts, and terminating resistors in daisy-chain and backbone configurations. This month I'll explore the ins and outs of passive-star topologies.

In a star topology, the network wires are distributed radially from a common area — usually a telephone closet or, if you have separate data and voice lines, a data closet. A star topology is a convenient way to wire a network for two reasons. First, buildings are typically already wired this way; the phone company has been wiring this way for 100 years. The second reason is that when someone moves to a new desk, it's easy to make the necessary wiring changes because all the distribution wires in the building have one end in the closet.

In a *passive* star, the ends of the network wires are joined together. When a signal from a workstation on one branch reaches this central point, the signal's power is split among the other branches. Since the signal is weakened by being divided, it can't travel as far, and it may not reach every node. An *active* star improves upon this design by using a device in the center — such as Farallon Computing's PhoneNET StarController

— to reamplify the signal before it goes out to the other branches.

AppleTalk was not originally designed with passive stars in mind. I think of passive stars as "voodoo networking"; it's hard to specify what will and what won't work. Passive stars are also the most difficult topology to troubleshoot.

I recommend passive stars only for networks with very few devices, all of which are in private offices. Passive stars don't work when people push them beyond these limits. For anything larger, use a StarController, which adds \$1,695 to the network design cost.

Unfortunately, buying something that costs more than \$1,000 often requires a five-page justification and signatures from half the corporate officers. And the labor to fix network problems is "free" because that money gets charged to another budget. The result is encouragement to build bad networks.

But if you can't get a StarController and are having trouble with a passive star, you can either conduct a lot of time-consuming experimentation with wire lengths or do the proper calculations to see if you are exceeding the specifications. In the long run, taking the time to understand passive-star wiring specs is less time-consuming. The wiring rules from Farallon for passive stars are probably the best guide, so let's review them.

Balancing Your Budget

From the center of a star, the distribution wires going out to the work locations

are called *branches* (see figure below). A branch consists of the distribution wire as well as the lengths of extension cable or line cord between the wall boxes and the network devices.

To be safe, a passive star should have no more than four branches. Also, a passive star should have only one center and should not have any remote stars on any of the branches.

To calculate your wire budget — the maximum length of cable allowed in your network — you first have to know what gauge of wire you're using; ask your telephone installer if you don't know. The gauge of a wire is a measure of its thickness. Thicker wire has a lower gauge number and a lower impedance to the network signal.

The three common wire gauges are 22 AWG (American Wire Gauge), 24 AWG, and 26 AWG. If your phone distribution

Wiring Budget

(Maximum network wiring length)

22 AWG — 4500 feet

24 AWG — 3000 feet

26 AWG — 2000 feet

Equation for determining maximum length of a branch:

$$\begin{aligned} & \text{Wiring budget} \\ & \div \text{Number of branches} \\ & = \text{Branch budget} \\ & - \text{Four times total stub length on a branch} \\ & = \text{Maximum length of branch} \end{aligned}$$

In a passive star network, the maximum permissible length of a branch depends on both the number of branches in the network and the total length of the stubs attached to the branch. For example, in the

wires were installed within the past ten years, there's a good chance that they are 24 AWG.

The gauge of your wire determines the starting point of your wire budget. With 22 AWG, you start out with a total of 4,500 feet for your network; with 24 AWG, you start with 3,000 feet; and with 26 AWG, 2,000 feet. Because branches weaken the network signal, you have to divide the beginning budget by the number of branches. So three branches and 24-gauge wiring leave you with a maximum length of 1,000 feet for the entire network.

These figures apply only to standard LocalTalk signals, however. If you have a speed enhancer such as DaynaTalk or TOPS' FlashBox, you must cut these figures further. Since these signals are sent at a frequency about three times higher than LocalTalk's, you'll need to

divide your budget by three. Now, in our representative 24-gauge, three-branch

I recommend passive stars only for networks with very few devices, all of which are in private offices.

passive-star network, the budget is down to 333 feet. For Ethernet running on twisted-pair wiring, Farallon recommends

dividing your wire budget by ten, leaving only 100 feet for the entire network. Coaxial Ethernet cable is not usually used in passive stars but would allow much longer networks.


Each branch should end in the telephone wall box, with a terminating resistor hard-wired into it. You can have a daisy chain of Macintoshes coming off the distribution wire. These *drops* should be less than 50 feet long when measured from the telephone wall box to the last connector.

Drops are made of flat line cord, sometimes called "silver satin" by telephone people. Because the flat cable doesn't carry signals as well as wall cable, you have to add up the lengths of all the stubs on a branch and subtract four times this number from the branch budget. So if you have 50 feet in drops, subtract 200 feet from your wire budget.

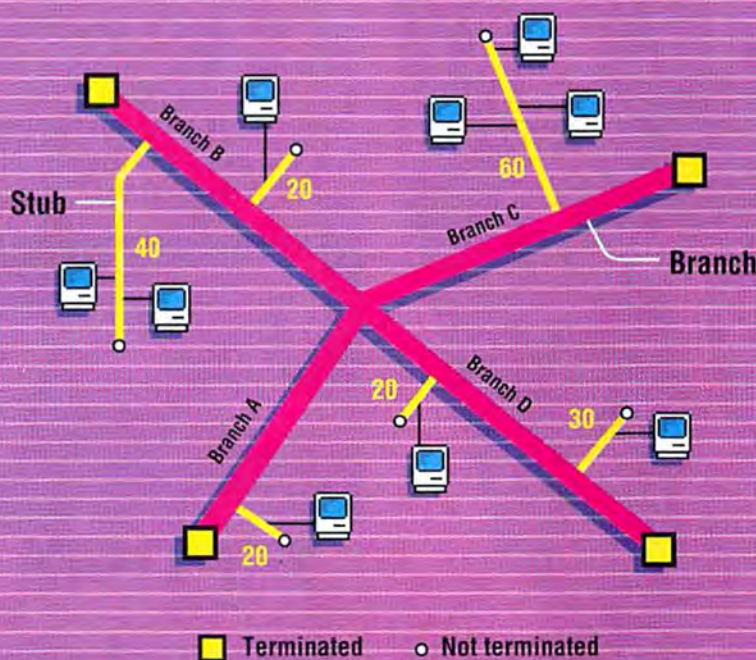
In a "legal" passive star, you can check the termination by removing all the Phone-NET connectors and checking the resistance between the network wires. Measure the resistance by placing the probes of the meter across the terminal screws in one of the wall boxes. You should get a reading of 120 ohms divided by the number of branches (40 ohms in a three-branch passive star, for example). But there could also be irregularities in the backbone and daisy chain (see Trouble Shots, May '89) that could affect this reading.

Knowing When to Stop

Having more than four branches is a bad idea. If you need to exceed this limit, don't use more than four resistors; resistors weaken the signal, and more than four will load it down too much. With more than four branches, it's trickier to determine where terminating resistors should go. There's no magic formula; you have to guess. Sometimes it helps to put a terminating resistor between the wires at the center of the star, and sometimes it doesn't.

Passive stars are more trouble than they are worth, and they're dead ends for growing networks. When you've had enough of voodoo networking, it's time to take a serious look at active star topologies. 

Passive-Star-Network Wiring Rules



four-branch network shown above, let's assume we are using 24 AWG wire, which gives us a total wiring budget of 3,000 feet. The branch budget, then, is 750 feet ($3,000/4$). From this, we subtract 60 feet for the

two stubs attached to branch B ($40 + 20$), which leaves 690 feet as the maximum allowable length for branch B.

See you later, IBM mainframe emulator.

You don't have to discard your IBM® mainframe emulator, but you might once you've seen the Netway® family of LAN-based gateways. The first stand-alone gateways that connect Macintosh® and PCs directly to your IBM mainframe—without costly emulator boards, control units, and re-cabling.

For small LocalTalk or EtherTalk workgroups, plug into the Netway 1000. It works with every Mac, from 512K to Ilex, and every PC compatible. Right out of the box. Saving you about \$16,000 worth of emulators on a 16-node network.

For your departmental connections, choose the Netway 2000. Using the high-power 10 MIPS SPARC chip, the Netway 2000 connects all the Macs and PCs on your LocalTalk, Ethernet, and Token Ring networks to up to two IBM mainframes.

© Copyright 1989 Tri-Data Systems, Inc.

Try one now, pay us later.

Take advantage of our 30/30 Purchase Program and get your first Netway for a 30-day trial, followed by a 30-day net term. It's one opportunity you can't afford to throw away. So, call 800-TRI-DATA, ext. 10 (in California, 408-746-2900) now for details. Or write to Tri-Data Systems, Inc., 1450 Kifer Road, Sunnyvale, CA 94086-5306.



TRI-DATA
Systems, Inc.

Please circle 48 on reader service card.



HELP

F O L D E R

Got a Mac problem? Something you'd like explained? Something you can't find the answer for anywhere else?

Apple's Chris Espinosa will answer your questions every month in this space. When the questions are too tough or too esoteric for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

WRITE TO

**Help Folder, c/o MacUser
950 Tower Lane
18th Floor
Foster City, CA 94404**

BY CHRIS ESPINOSA

Looking for Translating Dictionaries

Where can I find English-to-Spanish or English-to-Arabic dictionaries and thesauruses and other software appropriate for language translation on the Mac?

**Greg Groebner
Clements, MN**

I found only a Spanish dictionary for the Microsoft Word 3.0x family of word processors. It's called *Correctamente*, costs \$32.95, and is from Medina Software, P.O. Box 521917, Longwood, FL 32752-1917; (407) 260-1676. It contains 100,000 commonly misspelled words in Spanish and includes the correct accent marks. Its documentation comes in both English and Spanish (for more information on other foreign-language software options, see "Multilingual Mac," February '89 and "Word Processing with Character," May '89).

Bold Greek Letters

I need to print bold Greek letters for use in equations. Unfortunately, I am unaware of a LaserWriter font that can do it. Bold symbols show up fine on the screen, but that doesn't do me any good if I can't print them. Is there some way to do it short of creating my own font? (By the way, I use Expressionist to write equations.)

**H. R. Riggs
Honolulu**

For better betas, try LaserGreek from Linguist's Software. It doesn't have the range of mathematical symbols that Apple's Symbol font has, but it does have all the Greek letters, uppercase and lowercase, in italic, bold, superscript, subscript, outline, shadow, and underline. It includes screen fonts in 10-, 12-, 20-, 24-, 40-, and 48-point sizes, so you can read characters on the screen easily. It costs \$99.95 from Linguist's Software, P.O. Box 580, Edmonds, WA 98020-0580; (206) 775-1130.

Printer Auditing

We are looking for a program to record the elapsed time and the number of pages of documents printed from our 16 Mac IIs and SEs connected to a LaserWriter II, and also to record

which user did the printing. Do you know where to find one?

**Dr. Esterman Leon
Rehovot, Israel**

The AppleShare Print Server can perform all these functions, but it ties up a Mac (unless you have an AppleShare File Server, with which it can run concurrently). The Print Server costs \$299 from Apple dealers and is part number M0576.

Check out LaserCount, a time- and page-count tracking system for LaserWriter and Linotronic typesetters from LaserCount Systems, Inc., 103-A Blue Ridge Trail, Austin, TX 78746; (512) 327-2778. It's \$285 per printer. You run its System Administrator program to set up accounts and passwords, which are stored in the printer's memory (up to 200 accounts on a LaserWriter IINT), and then you install a startup program on each Macintosh on the network. When a Mac starts up, it asks for an account name and password and won't let the Mac run until a valid password is entered. It then logs the elapsed time of each Mac and the number of pages it prints. The system-administration program can retrieve this information, tabulated by account name. You can assign accounts either to individual users, who can then move from Mac to Mac, or to workstations.

Extracting CD Audio Data

I have an extensive library of audio compact discs, and I'd like to catalog them, probably in a HyperCard stack. However, typing in all of the album titles, song titles, and other information would take time that could be better spent elsewhere.

I know that a CD contains more than music information, such as track and time information. Is there any text information that a CD-ROM player can read? It would make things so much simpler if all I had to do was to put in the disc, click on a button (with proper scripting), and end up with a new card with lots of information about the disc.

**David A. Higgins
Garden City, MI**

There's only a little more than music on the average audio CD. Each CD has a unique ID, an index of the number of

This Year Call The Experts.

"We'll never make the
deadline Brother Gary,
we should have called
Ziff-Davis Reprints!"



Professionally designed reprints* of your review are available from Ziff-Davis Publishing Company. To discover the blessings of Ziff-Davis reprints, call us today at 212-503-5447.

*minimum quantity 500; 3-4 weeks delivery.



tracks, and the duration (in minutes and seconds) of each track. There isn't any of the alphanumeric information you want, such as the album or song titles.

(New formats such as CD+G or CDV are adding graphics and video, but those discs are pretty rare.)

Last March Apple announced its CD Audio ToolKit for HyperCard that can extract what information there is. So with the proper scripting, you can collect the number of tracks and the running time and automatically identify a CD whenever it's inserted. The HyperCard CD Audio ToolKit should be available through the Apple Programmer's and Developer's Association (APDA) this fall. APDA can be reached at (800) 282-2732.

Sound and Fury on the SE/30

Will screensavers such as Pyro! work with version 6.0.3 of the Macintosh system software, which is included with the new Macintosh SE/30? Will both Mac- and Mac II-specific software (such as Studio/8) run on the SE/30, or will it be one or the other?

MacUser's article on the SE/30 in the March '89 issue states that "Apple knows what it's doing in promoting the SE/30 as a music workstation." The SE/30 has a four-voice stereo Apple Sound Chip. I assume this means it has four voices. But the Apple IIgs has 15 voices! I don't understand how the sound could be so much better on the SE/30.

Jonathan Lockie
San Diego

As to the system-software issues, 6.0.3 has no changes that will affect most software. There are some minor bug fixes and some extensions to help the SE/30 and IIcx identify themselves on networks, but no new software features.

What the SE/30 does have over the original SE is most of the Mac II extensions (such as Color QuickDraw) and the 68030 microprocessor. This means that the SE/30 can run the software that requires these features. For example, Caere's OmniPage software needs the

special instructions in the 68020 and 68030 in order to do really fast optical character recognition. Although it's labeled "Macintosh II only," it'll run on the SE/30.

But the SE/30 is not a complete Macintosh II. It doesn't have NuBus, and its built-in display has only one bit per pixel (black and white). So software that requires NuBus cards or gray-scale or color displays (Studio/8 and ImageStudio among them) won't run on the SE/30.

You're right that the SE/30 has four-voice stereo sound circuitry just like the Mac II's while the Apple IIgs has 15 voices. But comparing the two is like comparing the Beatles to the Count Basie Orchestra: They do different things and require different kinds of effort to get them going.

The Macintosh has a lot of versatile software (called the Sound Manager) to run the Apple Sound Chip. It lets an application create sounds with software "synthesizers" that are then played through the chip. The sounds can be simple or complex waveforms or even digitized sound samples.

But the Sound Manager doesn't have to use the sound chip. It can be connected to outside circuitry, such as a MIDI interface, and send sound-generation commands to an external musical instrument, such as a synthesizer or sampler. So in the Macintosh, the application has great flexibility, even though the main-board hardware is limited to four voices.

In the Apple IIgs, the Sound Manager does much less — it's just a simple software interface between the application and the 15-voice Ensoniq Synthesizer chip. The application has to do more work, and it's less versatile; if the application wants to talk to MIDI, it has to do that itself. But if you choose, it can use all 15 voices simultaneously and create some great sounds.

So they're different. The SE/30 is a more versatile musician's workstation because of the architecture of the Sound Manager as well as the higher-level applications (such as Coda's powerful but intimidating Finale — see "Measure for Measure" in this issue) written for it. But there's always room for the Apple II family to be better at something.

An External Drive with the II

I would like to use my Apple 800K External Drive with my Macintosh II. Cutting Edge claims that its 800K External Disk Drive can be used with all new ROM Macintosh computers (512KE and later). Cutting Edge explains that using a ribbon cable and connecting the DB-19 connector to the motherboard and the other end to the inside of its disk drive is an easy procedure. Is this so? How easy is it? How about my Apple 800K external drive?

Shelly C. Bernstein, M.D.
Newton Centre, MA


The wiring of an external drive to the internal connector is relatively simple and doesn't require opening the drive itself. The following technique should work with both Apple and third-party drives because it essentially emulates the wiring of the external-drive port on the compact Macintoshes.

You'll need a DB-19 socket, a few feet of 20-conductor ribbon cable, a 20-pin ribbon header, a crimping tool, a soldering iron, wire strippers, and fine rosin-core solder. It might be a good idea to have somebody else do this for you, especially somebody who can wield a solder-

ing iron and who has wired ribbon cables before. You can get most of these supplies at an electronics store, although DB-19 connectors are hard to find. One good source for both parts and custom cables is Redmond Cable, 17371-A1 N.E. 67th Court, Redmond, WA 98052; (206) 882-2009.

Crimp one end of the ribbon cable to the header, with the red indexed conductor connecting to pin 1 and the cable exiting to the keyed side (with the rectangular lump in it). Then separate (down to about an inch) and strip (to an eighth of an inch) the 20 conductors on the other end and solder them to the tabs on the back of the DB-19 socket in the order shown in Figure 1.

Open the Mac and plug the ribbon header into the main board, where the built-in drive plugs in. Remove the right-most NuBus shield and expansion slot cover and thread the cable through it. Now plug the external disk drive into the socket, and you're ready to go.

When hacking hardware, make sure you know what you're doing, and don't blame us if you fry your Mac. For more on making cables, see "Getting Wired," February '89. 

SEE WHAT YOU'RE MISSING!



Limited quantities of MacUser back issues are available to complete your Macintosh documentation library. Just send \$7.00 (check or money order) for each back issue ordered (\$8.00 in Canada and all other foreign countries, U.S. currency) to:

MacUser

Ziff-Davis Publishing Company
P.O. Box 5999, Cherry Hill, NJ 08034
Attn: F. Hunter

Be sure to include month and year of each issue ordered.

For availability of issues call:

1-609-354-4975

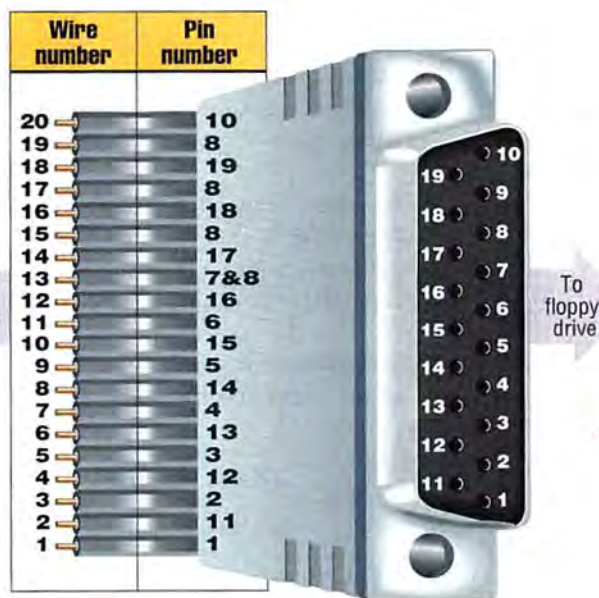


ILLUSTRATION: MARK W. SAKENY

Figure 1: To connect an external 800K floppy-disk drive to a Mac II, you need a cable with the right connections. Here's how to connect the pins on a DB-19 connector.

PLUG IN "POWERFUL" SAVINGS FOR YOUR MAC

Save up to
63% on your
subscription
to MacUser
and plug into
increased power
for your
Macintosh.



Every month you'll receive in-depth side-by-side product comparisons and benchmark test results of Mac hardware, software and peripherals from MacUser Labs, the publishing industry's only independent testing lab. Plus, you get proven power user tips and techniques, comprehensive coverage on business, professional and educational applications, AND hundreds of product reviews in every issue!

This is the monthly "Power-user resource for all Mac users," and it can be yours at *powerful savings*:

One year (12 issues) only \$19.97—Save 58%! The equivalent of 6 FREE issues!

Two years (24 issues) only \$34.97—Save 63%! The equivalent of 15 FREE issues!

MacUser

P.O. Box 52461
Boulder, Colorado 80322-2461

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%!

Mr./Mrs./Ms. _____
Please print

Company _____

Address _____

City _____ State _____ Zip _____

☐ Bill me later ☐ Payment enclosed

Savings based on single-copy price of \$47.40. Please allow up to 60 days for delivery of first issue. Add \$18 per year for postage in Canada and all other foreign countries, U.S. currency only. Basic annual subscription price is \$27.

SEYBOLD

Computer Publishing

Conference + Exposition

September 20 - 23, 1989
Moscone Center San Francisco

The worldwide "Event of the Year" for publishers.

Seybold is the largest and most important conference and trade show for desktop publishing, professional publishing and electronic prepress publishing technologies.

The Conference — September 20, 21 & 22.

The premier forum for discussing the future course of the publishing application.

The Exposition — September 21, 22, & 23.

The largest exhibition of electronic publishing systems ever held in the U. S. The show will feature 250 exhibitors, 200,000 square feet of floor space and dozens of new product introductions.

Whether you attend the Conference or just the Exposition, the 1989 Seybold event is a *must* for anyone with a serious interest in the use of computer technologies for publishing.

Call or write for your copy of the event brochure.



Seybold Seminars

6922 Wildlife Road
P. O. Box 578
Malibu, CA 90265 USA
(213) 457-5850 FAX: 457-4704

DR MAC



Call now for
orders and
free catalog

1-800-825-MACS

FAX: 1-818-501-3760

1-800-825-6227

Examine Us!

Dr. Mac provides new low pricing.



Check this symbol for
Dr. Mac's special
prescriptions.

FREE OFFER!

Polaroid Data Recovery
Disk Pack with all orders
over \$200. Don't wait until
your data is lost!

CALL NOW!

Your Prescription For Success

SOFTWARE

ADOBE SYSTEMS
Adobe Illustrator '88 299
Fonts Please Call

AEC MANAGEMENT SYSTEM
AEC Info Manager 432
FastTrack Schedule 117

ALDUS
Pagemaker 369
Freehand 2.0 339
Persuasion 359

ALTSYS
Fontastic Plus 2.0 54
Fontographer 225

ALSOFT
DiskExpress 45
Master Juggler 56

ASD SOFTWARE
Fileguard 145

BEDFORD SOFTWARE
Simply Accounting 199

BREAKTHROUGH PROD.
Market Master - Helps you sell 199

CARE
OmniPage 549

CENTRAL POINT
Copy II Mac 25
PC Tools Deluxe Mac 48

CENTRON SOFTWARE
Casino Master 45
Casino Master Color 52

CE SOFTWARE
QuickKeys 64
Disktop 27
Quickmail 2.0 129
Quickmail 2.0 Ten User 229

CLARIS
MacDraw II 319
FileMaker II 235

CRICKET SOFTWARE
Cricket Draw 179
Cricket Graph 123
Cricket Presents 295

DATA VIZ
Mac Link Plus 129
Translators 111
MacLink Wang VS 291

DENEBA
Canvas 2.0 172
Coach Professional 114
Coach Professional Network 253

DISCOVERY SOFTWARE
Chroma 32 235
Arkanoid 24

DMA
MacTerm 75

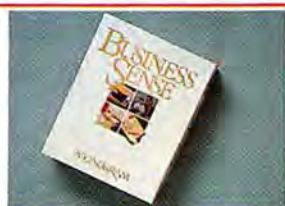
DESIGN SOFTWARE
MacTree+ Includes DS Backup 36

ELECTRONIC ARTS
Studio 8 299
Thunder II 49



DOUBLETIME-16

The AOX DoubleTime-16 offers a simple & cost effective way to increase the power and speed of your Mac SE. DoubleTime-16 doubles the overall speed of your Mac SE. It installs into the option card slot. There are no chips or cables to hassle with. The original motherboard remains intact, so it is a no risk, low cost investment. Call the Dr.



BUSINESS SENSE

At last. An accounting package that's both easy to use and hard to outgrow. Business Sense is serious business software for the small & medium sized business. General Ledger, Accounts Receivable, Accounts Payable, Payroll, Invoicing & Budgeting functions are fully integrated in one powerful package.

FIFTH GENERATION

Suitcase 44

FOX SOFTWARE

FoxBASE +/- Mac 199
FoxBASE +/- Mac Multiuser 311
FoxBASE +/- Runtime / Mac 155
FoxBASE Runtime Multiuser 259

HAYES

Smartcom II 85
Smartmodem 9600 V series 975

ICOM SIMULATIONS

Trimon 85
On Cue 35
Mackern 116

INFORMIX

WingZ 270

INNOVATIVE DATA DESIGN

Dreams 265
Symbol Library 139

INSIGHT DEVELOPMENT

MacPrint 85

INSIGNIA

Soft PC 245

INTUIT

Quicken 29

JAM SOFTWARE

Smart Alarms 53
Multi-User (2 to 4) 106

KENT MARSH

MacSafe 85
Nightwatch 85

LANGUAGE SYSTEMS

Fortran with MPW 298

MECA

Managing Your Money 125

MICROSOFT

Word 4.0 250
Excel 247
File 2.0 137
Works 195
Power Point 247



MONOGRAM

Business Sense 266
Dollars & Sense 88

ODESTA CORPORATION

Double Helix II 310
Double Helix II Multi User 275
GeoQuery 189
Data Desk Professional 275

OLUVAI

Read It 249
Multi Clip 49
Font Share 145

PRO PLUS

Wall Street Investor 2.3 319
Wall Street Investor 3.1 445

QUARK

XPress 2.1 469
Style 169

SILICON BEACH SOFTWARE

Digital Darkroom 125
SuperCard 191

SOFTWARE VENTURES

Microphone II 215

SYMANTEC

Mac SOZ 49
LightSpeed C 148
LightSpeed P 89
Symantec Utilities 62
More II 246

TRAVELING SOFTWARE

Lap Link Mac 79

T-MAKER

Write Now 2.0 109



TOPS

TOPS for Mac 142
TOPS for DOS 114
TOPS Flashcard 156
TOPS Flashbox 115
TOPS Repeater 124
Teleconnectors 26
Inbox Starter Kit 189
Netprint 114

WOLFRAM

Mathematica for SE 418

Mathematica for Mac II 696

WORDPERFECT CORP.

Wordperfect 189

HARDWARE

ABATON

Interfax Fax-modem 314



AOX

DoubleTime-16 239

BASE

PS-2 Floppy disks (10 pack) 14

CAMBRIDGE

MacLite 288 Portable Comp. 759

CUTTING EDGE

CE 800K Disk Drive 157
30 Meg Hard Drive 495

DATADESK

Mac - 101 Extended Keyboard 139

DAYSTAR DIGITAL

33/030 Accelerator II / IIx 4595
16030 Accelerator SE 899
33/030 Accelerator SE 2295

Math Coprocessors available Call
MC LocalTalk Interface Board 315

DAYNA COMMUNICATIONS

3.5" Drive 1.44 M 619

DOVE COMPUTER CORP.

030 Marathon 32 Mhz 999

E MACHINES

Monochrome for SE 1229
Monochrome for Mac II 1299
Color 19 inch 4565

EMAC

Emac 20 D - 38ms 499
Emac 40 Impact Plus - 19ms 769
Modem 2400 Baud with cable 205
Tape Back up 150T 1292

FARALLON COMPUTING

MacRecorder 132
PhoneNET PLUS 29
PhoneNET Star Controller 1175
PhoneNET Punch Down Kit 66
Timbuktu 66

IMAGES

Mac Plus/SE Carry Case 56
Mac SE Ext. Keyboard Case 66
ImageWriter II Carry Case 46

THUNDERWARE

ThunderScan 5.0 183
Lightning Scan 399

SIMMS

1 Meg. 100 ns 185

POLAROID

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Polardisk 288 Portable Comp. 759

Timbuktu Remote 206

GENERAL COMPUTER

Write Move 514
PLP Laser Printer Plus 1675
Business Laser Printer 3149

IRWIN

Accelerator 25 Mhz 1199
Powerview 19 monitor & accel. 1565

LA CIE

Cirrus 40 Meg 617
Cirrus 100 Meg 995

MICROSPEED

MacTrack Trackball 79

MICROTECH

45 Meg Removable Hard Drive 1059

MICROTEK

Flatbed 128 Grey Scale 1388
Flatbed 256 Grey Scale 1745

ORCHID TECHNOLOGY

MacScan/Modem 9600 Baud 239
MacFax/Modem 9600 Baud 489

PERIPHERAL LAND

30 Turbo Effective access 14ms 632
50 Turbo - 14ms 799
70 Turbo - 14ms 933
Infinity 40 - 10ms 1189
Twin 40 - 10ms 2069
1601 Internal - 8ms 1389
TurboFloppy 1.4 449
Large Capacity Drives Call

POLAROID

Data Rescue Disks (10 pack) 18

PRACTICAL PERIPHERALS

1200 Baud External Modem 105
2400 Baud External Modem 177
Mac Comm. Pac 2400 219

RASTEROPS

ColorBoards Call

SHIVA

NetBridge 343
Net Modem 323
NetModem V2400 432
NetSerial X232 285
TeleBridge 343

SIGMA DESIGNS

Pageview 799
Silverview 1499
ColorMax 3943

SUPRA

2400 Baud External Modem 138

TARGUS

Mac Plus/SE Carry Case 56
Mac SE Ext. Keyboard Case 66
ImageWriter II Carry Case 46

THUNDERWARE

ThunderScan 5.0 183
Lightning Scan 399

SIMMS

1 Meg. 100 ns 185

POLICIES

• Visa, Mastercard, and AMEX accepted.
• Credit card is not charged until order is shipped

• California residents add 6.5% sales tax
• To order call Mon - Fri, 9 - 10 EST. Sat Noon - 5 EST.

• Enquiries call (818) 501-6581. FAX# (818) 501-3760

• All prices & policies subject to change without notice.

Shipping

• \$3. UPS Standard Air/Blue. Hardware over 10 lbs will be shipped ground.

• Same day shipping on orders placed by 8:45pm EST, if items are on hand

Returns

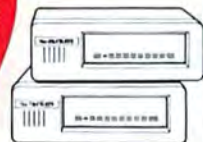
• Defective software only will be replaced immediately by the same item. Call (818) 501-0861 for R.A. number before return. A restocking fee may apply.

Dr. Mac Inc.

14542 Ventura Blvd., Suite 200
Sherman Oaks, CA 91403

FAX YOUR CORPORATE, EDUCATIONAL & INTERNATIONAL ORDERS NOW
30 Day approved credit

Guaranteed If you don't like it



HARDWARE 30-day money back GUARANTEE

No if's, and's or but's,
we want you to be happy
with your purchase.



SOFTWARE GUARANTEE

If it doesn't fit your
needs, we will refund
the purchase price
minus the applicable
trial fee. No hassles!



**OVERNIGHT
DELIVERY AVAILABLE**

Plus

**INSTALLATION
& TRAINING ...
available anywhere in
the U.S.!**

How To Order

• Use our toll free num-
ber for ordering, tech
support and free advice.
*The number applies in
all 50 states as well as
Puerto Rico and the Vir-
gin Islands. If you prefer,
we will also accept your
order via FAX.*

• We accept MasterCard
and Visa with no sur-
charge.

• We charge your pur-
chase when we ship
your merchandise — *not
before!*

LEASING is now availa-
ble to qualified business-
es. Call for details.

**Let us configure
your system solution!**

SYSTEMS

Mac IIcx B&W Full-Page System,
2 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$5500

Mac IIcx B&W Two-Page System,
2 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$6100

Mac IIcx 19" Gray Scale System,
2 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$7150

Mac IIcx 14" Sony Color System,
2 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$6075

Mac IIcx 16" Sony Color System,
2 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$7600

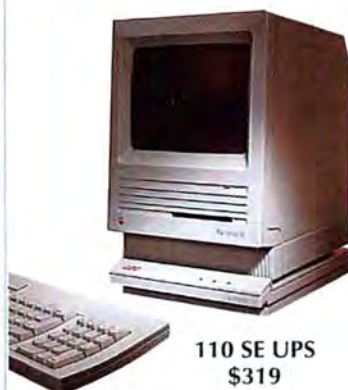
Mac IIcx 19" Sony Color System,
5 Mb RAM, 90 Mb Hard Drive,
Mac 101 Keyboard \$9650

Mac SE 030 w/1 SuperDrive,
2 Mb RAM, 40 Mb Hard Drive,
Mac 101 Keyboard \$4300

Mac SE 030 19" Sony Color System
w/1 SuperDrive, 5 Mb RAM,
90 Mb Hard Drive,
Mac 101 Keyboard \$9700

Mac SE w/2-800k Drives, FPD,
2.5 Mb RAM, 90 Mb Int Hard
Drive, Mac 101 Keyboard \$4475

Mac SE w/2-800k Drives,
2.5 Mb RAM, 40 Mb Int Hard
Drive, Mac 101 Keyboard \$3575



**110 SE UPS
\$319**

UNINTERRUPTABLE POWER SUPPLIES

330 XT \$339
450 AT \$439
MinuteMan 300 \$429
MinuteMan 600 \$695



"We're not happy UNLESS YOU ARE!"

We want you to become a repeat
customer. So we give you:

- discount mail-order prices
- superior service & selection
- an unbeatable hassle-free warranty
- toll-free tech support
- an unsurpassed return policy

And we do it all with a smile ...
because that's what you deserve.

SCANNERS

Lightning Scan \$459
MacScan Flat Bed \$1495
MacScan Flat Bed (GS) \$1995
Microtek MS 300QS \$1349
Microtek MS 300GS \$1679
Microtek MS 400GS \$2995
ScanMan \$399
Sharp JX 300 Color \$4295
Sharp JX 450 Color \$5895

ACC & OTHER PERIPHERALS

Bit Pad Plus 12x12 Tablet \$349
MacFlip (80 diskettes) \$18
Mac 101 Keyboard \$149

COMMUNICATIONS SOLUTIONS

• **Software**
Acknowledge \$337
LapLink Mac \$84
Liaison \$174
MacLink Plus \$139
MacNet Starter Kit \$51
Microphone II \$225
Quick Mail (10 Users) \$215
Red Ryder \$56
Timbuktu \$67
TOPS (Mac) \$149
VersaTerm Pro \$179

• **Hardware**
Abaton InterFAX \$329
Anchor 2400 \$169
Practical Peripherals
2400 Bundle \$235
Prometheus 2400 Bundle \$199
Shiva NetModem 2400 \$459
SmartModem 2400M
(Internal Mac II) \$459



**ZOOM
modem 2400
\$119**

ACCELERATORS

Dove Marathon 030 \$959
Dove SE Marathon 020 \$419
Dove 5485 (with SCSI) \$479
Dove MacSnap Plus 2 \$299
Maccelerate SCSI Acc \$469
Orchid MacSprint \$245
Radius Accelerators Call
SICLONE \$2850
(w/ 68882) \$3950

TARGUS PREMIUM CASES

IW II Case \$49
Mac Plus Case \$59



**Deluxe Mac SE
Ext. Keyboard Case
\$75**

When you need to return something ...

We are true pioneers when it comes to our return policy. In fact, we
were the first company to offer returns. We offer a refund of the purchase
price on all software except fonts, clip-art and special order items, minus
the applicable trial fee (10-day minimum, plus 6 free days for shipping).

Unlike the competition, this offer covers over 1000 products, including
those published by Microsoft, Aldus, Adobe, Ashton-Tate, Borland, Broder-
bund, Claris, Cricket, Letraset, WordPerfect, Mindscape and Caere.

WE'LL BUY IT BACK!

ORDER
TODAY!
1-800-972-3018

MONITORS w/Cards

E-Mach Z-21 IQ (GS)	2795
E-Mach Z-21 (Mac II)	1995
E-Machines Z-21 (SE)	1919
NEC Multisync (15")	1895
PCPC Shadowgraph	2349
Radius Solutions	Call
Sony 1302	1259
CALL! Other Monitors Available!	

We specialize in high-end graphics work stations.

33 MHz Mac IIx with 19"
RasterOps 32-bit Color System,
SCSI Accel, 8 Mb RAM, 320 Mb
Hard Drive, Mac 101 Keyboard,
Sharp JX 450 Color Scanner,
PostScript Color Laser Printer
.....33,000



RasterOps

ClearVue (Mac II)	1295
ClearVue SE w/ 16MHz 68000 Accelerator	1495
SE030 8-bit 19" Trin	4529
FrameGrabber Board	2085
16" Trinitron 8-bit	3095
19" Trinitron 8-bit	4295
19" Trinitron 32-bit	6795

Trade in your 108 or 104 Board
NOW!

BUSINESS

Aatrix Payroll Plus	159
Checkmark Multi-Ledger	284
Checkmark Payroll 3.0	209
Crick Presents	289
Double-Helix II	345
Foxbase	206
In Sight Accounting	Call
Managing Your Money	125
MicroPlanner + 6.0	359
Simply Accounting	209
Systat	470

WORD & PAGE LAYOUT



Quark
XPress
\$479

Adobe Postscript Fonts	Call
Coach Professional	117
Fluent Laser Fonts (ea.)	50
Fontographer	215
FullWrite Professional	269
LetraFonts	59
More 2.0	255
OmniPage	569
Pagemaker 3.0	389
Quark Style	189
Read It! (OCR)	260
ReadySetGo! 4.5	285
Write Now 2	109

GRAPHICS

Adobe
Streamline
\$239



ClickArt EPS Illustrations	75
Canvas 2.0	159
Cricket Draw	169
Curator	75
Digital Darkroom	197
Dreams	279
Freehand	349
Illustrator '88	309
Image Studio	285
Images With Impact	59
Laser Paint II	359
MacDraft	151
MacDraw II	329
Pixel Paint	204
Smartscrap & The Clipper	47
Studio 8	319
Super 3D Enhanced	331
SuperPaint 2.0	133
Wet Paint vols. 1 - 16	45

PRINTERS

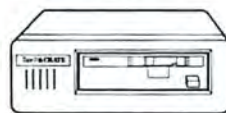
GCC Personal Laser PLUS	1799
GCC Business Laser	3395
Mitsubishi Color Laser	Call
Qume ScriptTEN	3395
Qume CrystalPrint	3295
Sharp JX 730 Color	2199

"You guys are super!...I really appreciate your caring attitude. ...you're always friendly and more than willing to talk me through whatever my problem is."

Sandy Thompson
S.A. Thompson
Trumbull, CT

STORAGE DIMENSIONS

MacinStor 45 (SE/II)	595
MacinStor 90 (SE/II)	769
MacinStor 320 (II)	2369
MacinStor 650 (II)	4450
MacinStor ZFP 90	1029
MacinStor ZFP 175	1795
MacinStor HCV 320	2550
MacinStor HCV 650	4595
MacinStor WORM	2895



Crate
60/Mb
Back-up
\$659

Mac CRATE

Crate 40 (SE/II)	509
Crate 100 (SE/II)	859
Crate 160 (II)	1299
Crate MC 20	499
Crate MC 40	629
Crate MC 100	949
Crate MC 160	1429
Expanda Crate (removable)	1049
Crate 155Mb Tape Back	929

PCPC

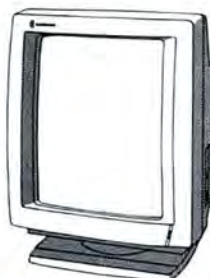
Erasable Optical 650 Mb	3795
Jetstream 8 mm Tape Back	4950

PERIPHERAL LAND

1.44 Mb Floppy	329
Infinity Turbo 40	1169
Double Turbo 40	2069

SAMSUNG

FPD with
video card
\$695



Trade-ins accepted...

we gladly take trade-ins on Mac CPUs and printers that are in good working order. For more information, call.

6-month warranty...

on Apple CPUs; 90-day warranty on other Apple products. Even though we aren't an authorized Apple dealer, we'll be glad to perform any covered repairs during the Apple warranty period.

To save you time, we'll also coordinate warranty work on products from other manufacturers through our office.

"We've been making Macintosh customers happy for four years! We were the first Macintosh mail order company to run its entire operation on Macs, so we understand just how important that technical answer can be to those of you who count on your Macs every day to help you earn a living. Our friendly staff of experienced Mac enthusiasts and computer consultants are always happy to answer your questions."

—Réal Provencher
President

Featured on the previous page are several members of our management team: (l to r) Barbara, Jim, Lew, Réal.

and Hardware
SOFTWARE THAT FITS™

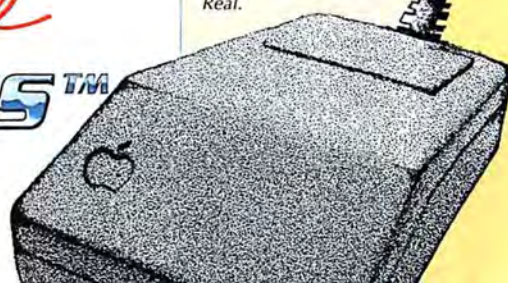
P.O. Box 4028 • Humble, Texas 77347

1-800-972-3018

Please circle 152 on reader service card.

FAX 713-446-8499

713-540-2300



Over 100 000 sold
since 1982

Never buy another ribbon!!!

Average cost per
re-inking is 5 cents

Each MacInker shipped complete with free ink bottle, reservoir cover and ink dispenser



MacInker \$42.00

Immediate shipment - 30 days money back guarantee - Major credit cards

Order Toll Free 800-547-3303
in Oregon (503)626-2291 - fax(503)643-5379

Special Offer. Order for >\$60.00 and say "I saw it in MacUser" and get a free mousepad or free photo-art disk. Order for >\$100.00 and get free key-beeper with flashlight combined (a \$15 value), or get a guaranteed, accurate LCD electronic pedometer, jogging & step meter & calculator for only \$15.00 (a \$40 value).

Computer Friends, Inc.

14250 NW Science Park Dr. Portland OR 97229

MacInker™, the original, automatic ribbon re-inker. MacInker mod 2341M re-inks Imagewriter I/II black & single color cartridges. The Universal MacInker re-inks hundreds of cartridge types (including the Imagewriter LQ, one color and multicolor) with suitable adapters. Proprietary, extra dark, dot matrix, lubricant ink yields better than new print quality and extends printhead life. New feltless reservoir for precise ink metering. Average number of re-inkings/cartridge is 60-100. With the optional Multicolor Adapter (mod M422, \$40.00) your MacInker re-inks 4-color Imagewriter II cartridges. Full range of accessories available, inks & cartridges: indelible ink, heat transfer etc. Colors: red, green, blue, yellow, purple, brown, orange, silver, gold. Free catalog.

Imagewriter I/II MacInker (mod 2341M)	42.00
Multicolor Adapter (mod M422)	40.00
Universal MacInker	68.50
Heat Transfer Adapter	35.00
Imagewr. cartr. 3.15/ea (min 6)	4-color 10.00/ea (min 2)
Imagewr. LQ cartr. 14.00/ea (min 2)	4-color 20.00/ea (min 2)
Extra ink bottle	3.00/ea pint 18.50
Shipping	4.50

LightFax 9624 FaxModem

\$749.00



One year warranty

LightFax 9624	749.00
LightScan 200 dpi	199.00
2400 b modem only	239.00

9600 baud fax and 2400 fully Hayes compatible modem in one. Full front panel control lights. Software features Background operation, NameCard data management, Scheduled Sending, Broadcasting, full input/output Journal and much more. Optional 200 dpi scanner for direct input into fax window or favorite paint program. Ask for bulletin "Facts on faxes".

1200 baud modem only	99.00
4 port 8 pin switch	50.00

Please circle 36 on reader service card.

STOP WASTING MONEY! WHY TAKE A CHANCE?

MacStore™

You pay a low trial fee now, the balance only after you decide it's right. For over four years we have been helping make intelligent buying decisions.

We have hundreds of other titles available for the Mac. If you don't see what you want... call us!

Balance of Power	9.30
Battery Pack	8.80
Beyond Dark Castle	8.80
Bulk Mailer+	44.72
Business Sense	61.25
Calendar Maker	8.80
Certificate Maker	8.80
Click Art (Effects, Letters, Etc.)	8.80
Coach Professional	22.95
Concertware	Call
Copy II Mac	8.80
Crickit Draw	39.26
Crickit Graph	27.80
Crystal Quest	8.80
Dark Castle	8.80
Deja Vu	8.80
Desk Paint	8.80
Dollars & Sense	20.10
Excel	52.75
Falcon F16, Gato, Orbitor	8.80
Ferrari Grand Prix	8.80
Flight Simulator	8.80
Fluent Fonts (all)	10.25
Fox Base +	41.80
Freehand	104.50
Kid's Time	8.80
Mac Calligraphy	23.60
Mac Draft	33.84
Mac Draw II	66.91
Mac Golf	9.10
Mac In Tax (Final Sale Only)	49.95
Mac Labeler	8.80
Mac Money	15.10

Trial Fee			Trial Fee
Mac Project II	83.85		Call
Mac the Knife	Call		17.95
Mac Write	17.95		27.22
Managing Your Money	27.22		9.30
Math Blaster	9.30		55.17
Microsoft Word	55.17		43.00
Microsoft Works	43.00		53.70
More II	53.70		57.12
Omnis III Plus	57.12		35.80
OverVue	35.80		9.35
Picture Base	9.35		8.80
Pinball Construction Set	8.80		8.80
Postermaker	8.80		12.77
Quick Keys	12.77		8.80
Quicken	8.80		18.75
Read It for ThunderScan	18.75		11.65
Ready Set Go	11.65		21.51
Red Ryder	21.51		13.30
Stepping Out	13.30		19.95
Suitcase II	19.95		13.30
Super Paint 2	13.30		19.95
Symantec Utilities	19.95		8.80
Tempo II	8.80		43.00
Will Maker	43.00		25.41
Works	25.41		
Write Now			

ACCESSORIES (over 250 hardware items)

Carrying Cases / Upgrades	Call
Box/10 Sony Disks SSD / DSD	13.80/15.95
KAO Disks 2DD Bulk ea.	1.19
Disk Drive Cleaning Kit	11.50
60% off list sale	Call

16 day trial period • Trial fee applies to purchase • Frequent Customer Bonus Dollars
Credit cards aren't charged until your order is shipped • Low Freight Charges

New National **800-827-0022**

MacStore
1671 Executive Dr.
New Braunfels, TX 78130

The store logo is a trademark of MacStore,
the apple logo a trademark of Apple Computer, Inc.

We accept Visa,
MC, AMX and Discover
Commercial Accounts
Welcome - Prices
Subject to Change

Please circle 165 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
\$ 2,001-\$ 5,000	\$ 69
\$ 5,001-\$ 8,000	\$ 89
\$ 8,001-\$11,000	\$109
\$11,001-\$14,000	\$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.

MacLand T.M.

The Lowest Prices with Technical Support, Too!

WARNING: Beware of money-back offers on hardware! MacLand sells only NEW, NEVER USED merchandise. We will not send you re-packaged, slightly-used hard disks.

Summer Sizzler!

Externals

	Reg. Price	Sale Price
20 Megabyte		
CMS Enhancements 20 32ms	\$549.	\$449.
MicroNet 20 65ms	\$499.	\$449.
MacBEST 20 65ms	\$499.	\$439.
30 Megabyte		
Caché Systems 30 40ms	\$559.	\$489.
CMS Enhancements 30 38ms	\$589.	\$519.
MacBEST 30 28ms	\$549.	\$499.
MicroNet 30 38ms	\$579.	\$559.
40 Megabyte		
Caché Systems 45 40ms	\$629.	\$549.
CMS Enhancements 45 40ms	\$649.	\$599.
MacBEST 45 28ms	\$599.	\$579.
Quantum 40* 19ms	\$699.	\$649.
60 Megabyte		
Caché Systems 60 40ms	\$729.	\$579.
CMS Enhancements 60 40ms	\$749.	\$719.
MacBEST 60 28ms	\$729.	\$649.
MicroNet 60 40ms	\$739.	\$699.
80 Megabyte		
Caché Systems 80 28ms	\$849.	\$679.
CMS Enhancements 80s 28ms	\$899.	\$779.
MacBEST 80 28ms	\$849.	\$749.
Quantum 80* 19ms	\$949.	\$899.
90-100 Megabyte		
Conner 100 25ms	\$999.	\$929.
MacBEST 90 18ms	\$939.	\$879.
Quantum 105* 19ms	\$1,099.	\$999.
140-173 Megabyte		
Caché Systems 150 16ms	\$1,499.	\$1,299.
CMS Enhancements 170 18ms	\$1,799.	\$1,599.
MacBEST 173 18ms	\$1,749.	\$1,659.
MicroNet (CDC) 173 18ms	\$1,649.	\$1,599.
300-600 Megabyte		
CMS Enhancements 300 16ms	\$2,349.	\$2,179.
CDC 300 Wren Runner 10.7ms	\$3,195.	\$2,895.
CMS Enhancements 600 16ms	\$2,999.	\$2,849.
MicroNet 620 16ms	\$3,899.	\$3,399.

SE Internals

	Reg. Price	Sale Price
20 Megabyte		
MacBEST 20 65ms	\$399.	\$339.
30 Megabyte		
Caché Systems 30 40ms	\$425.	\$375.
CMS Enhancements 30 38ms	\$479.	\$399.
MacBEST 30 28ms	\$449.	\$399.
40 Megabyte		
Caché Systems 45 40ms	\$499.	\$449.
CMS Enhancements 45 38ms	\$569.	\$499.
MacBEST 45 28ms	\$499.	\$479.
Quantum 40* 19ms	\$599.	\$569.
80 Megabyte		
Quantum 80* 19ms	\$889.	\$799.
100 Megabyte		
Conner 100 25ms	\$899.	\$829.
Quantum 105* 19ms	\$999.	\$899.

Mac II, IICX Internals

	Reg. Price	Sale Price
40 Megabyte		
MacBEST 45 28ms	\$499.	\$479.
Quantum 40* 19ms†	\$599.	\$569.
60 Megabyte		
Caché Systems 60 40ms	\$639.	\$499.
CMS Enhancements 60 40ms	\$649.	\$549.
MacBEST 60 28ms	\$629.	\$549.
80 Megabyte		
Caché Systems 80 28ms	\$729.	\$575.
CMS Enhancements 80 28ms	\$749.	\$679.
MacBEST 80 28ms	\$749.	\$679.
Quantum 80* 19ms†	\$889.	\$799.
90-100 Megabyte		
CMS Enhancements 90 18ms	\$999.	\$825.
Conner 100 25ms†	\$899.	\$829.
MacBEST 90 18ms	\$949.	\$825.
Quantum 105* 19ms †	\$999.	\$899.
150-173 Megabyte		
Caché Systems 150 16ms	\$1,429.	\$1,299.
CMS Enhancements 170 16ms	\$1,699.	\$1,499.
MacBEST 150 17ms	\$1,499.	\$1,279.
MicroNet 130 Swift IICX 15ms†	\$2,199.	\$1,399.
MicroNet (CDC) 173 18ms	\$1,549.	\$1,499.
300 Megabyte		
CMS Enhancements 300 16ms	\$2,199.	\$1,899.
CDC Wren Runner 330 10.7ms	\$2,795.	\$2,595.
MacBEST 300 17ms	\$1,999.	\$1,899.

Reg. Price Sale Price

600 Megabyte

CMS Enhancements 600 16ms	\$2,999.	\$2,779.
MacBEST 600 16ms	\$3,599.	\$2,775.
MicroNet 620i 16ms	\$3,699.	\$3,199.

Removables Tape Back-Ups

44 Megabyte Removables

CMS Enhancements 44 25ms	\$1,299.	\$999.
MicroNet 44 25ms	\$1,299.	\$999.

60 Megabyte Tape Back-Ups

CMS Enhancements 60	\$749.	\$699.
MicroNet 60	\$799.	\$699.

150 Megabyte Tape Back-Up

MicroNet 150	\$1,599.	\$1,199.
--------------	----------	-----------------

Accelerators, Printers, Memory, Monitors and More!

Removable Cartridges

(Will fit Any 44 Removable Drive)	\$119.	\$99.
-----------------------------------	--------	--------------

General Computer

Personal LaserWriter	\$1,699.	\$1,579.
----------------------	----------	-----------------

Qume

Crystal Print Publisher	\$3,299.	\$3,199.
-------------------------	----------	-----------------

Script(TEN) Postscript Printer	\$3,299.	\$3,199.
--------------------------------	----------	-----------------

Radius

Radius 16+ Accelerator	\$739.	\$599.
------------------------	--------	---------------

Radius 25 Accelerator	\$1,249.	\$999.
-----------------------	----------	---------------

Full Page Display + SE, II	\$1,299.	\$1,099.
----------------------------	----------	-----------------

Two Page Display SE, II	\$1,849.	\$1,599.
-------------------------	----------	-----------------

Two Page Gray Scale II	\$2,995.	\$2,599.
------------------------	----------	-----------------

SystemsGate

800K External Floppy Drive	\$199.	\$159.
----------------------------	--------	---------------

SIMMS In Stock, Call For The Lowest Price!

SAME DAY SHIPPING on all in stock items if orders are placed by 3 PM Mountain Standard Time.

ALL DRIVES are preformatted and tested by MacLand technicians.

All hard disk drives carry a manufacturers one year warranty except for the *Quantum drives, which have a manufacturers two year warranty.

†IICX Compatible

Prices are good thru August 1989

For Ordering and Technical Support Call 1-800-333-3353

Visa, MasterCard, and American Express accepted NO surcharge. Your Credit Card will not be charged until your order is shipped. We accept COD orders, additional \$5.00 charge. AZ residents add 6.5%. All shipments made by Federal Express

Standard Air which is 1 to 2 day service. COD's Shipped by UPS 2 day air. Call for shipping costs. Products purchased in error are subject to a 20% restocking fee. All prices subject to change without notice. All products subject to availability.



5006 South Ash Avenue, Suite 101 Tempe AZ 85282 (602) 820-5802



FAST and FLEXIBLE!

Storage Solutions

20MB Flexible Disk Drive

Our fast and secure 20MB SCSI Flexible Disk Drive runs five times the speed of a floppy disk, and can be used for either primary or archive storage.

\$795



- High capacity cartridges **\$49 each, or four at \$179!**
- Ability to store 20MB of data, the equivalent of 26 double sided diskettes.
- With removable media that can be locked away when required.
- Lifetime warranty on cartridges and a one year warranty on Flexible Disk Drive system.

Teac Tape Drives

60MB \$689

150MB \$899

Low profile chassis fits neatly under the McIntosh Plus and SE. The drive uses high density data cassettes to backup your drive fast.

Seagate Hard Disk Drives

- All drives are preformatted and tested.
- External drives have a 2.5" low profile chassis; built-in power supply, cooling fan, & rotary SCSI address switch.
- Internal kit includes mounting hardware.
- One-year warranty.



MODEL	SPEED	SIZE	INTERNAL	EXTERNAL
ST225N	65ms	20MB	\$329	\$429
ST138N	40ms	30MB	\$369	\$510
ST157N	40ms	47MB	\$449	\$585
ST277N	40ms	62MB	\$499*	\$625
ST296N	28ms	80MB	\$599*	\$695

*MacII only.

SHAMROCK

733-AA Lakefield Rd., Dept. U, Westlake Village, CA 91361

To order, or get our free catalog, call

TOLL FREE
800-722-2898

In Calif. (805) 373-7847
Fax (805) 379-9345

- No extra for Visa/Mastercard (AMEX add 3%).
- Prices include UPS surface shipping.
- Federal Express shipping just \$1.50 per pound.
- 30 Day Money Back Guarantee.
- Corporate & Institutional PO's accepted.

Please circle 9 on reader service card.



5 1/4" DD
6²⁵
PER BOX

5 1/4" HD
11³⁰
PER BOX

3 1/2" DS
11⁹⁵
PER BOX

3 1/2" HD
28⁹⁵
PER BOX

SONY

3 1/2" DS
11⁹⁵
PER BOX

3 1/2" HD
28⁹⁵
PER BOX

Bulk Diskettes

PER EA.
Min. 50

3.5"SS - .94
3.5"DS - .96
3.5"HD - 2.64

KAO

Media from the Surface Scientists



3.5" DS
10⁶⁵
PER BOX

"COLORED"

3.5" DS
12²⁰
PER BOX

3.5" HD
25⁶⁵
PER BOX

**BULK
"CALL"**

Diskette Connection

- Delaware 1-800-451-1849
P.O. BOX 10247, WILMINGTON, DE. 19850
- Oklahoma 1-800-654-4058
P.O. BOX 1674, BETHANY, OK. 73008
- Nevada 1-800-621-6221
P.O. BOX 12396, LAS VEGAS, NV. 89112

Minimum order \$2000. No Surcharge on Visa MasterCard. COD orders add \$300. Surface Shipping UPS add \$400 per 100 for 3 1/2" or 5 1/4", add \$400 per 100 for 8" U.S. Mail delivery add 9%. Prices subject to change without Notice.

FAX (405) 495-4598

Please circle 120 on reader service card.

The BEST MAC DISKS

Quality User
Supported
Software.
Works with all
MAC Systems

\$7 Each
Buy
1-4
Disks

\$6 Each
Buy
5-14
Disks

\$5 Each
Buy
15
or more
Disks

So easy to Use

- ▼ No Computer Experience Necessary
- ▼ Instructions for each Order
- ▼ FREE Phone Support

So Easy to Order

- ▼ FREE Membership ▼ FREE 800-# for Orders
- ▼ FREE Same-day Shipping
- ▼ UPS 2nd Day Air Service when you need it Now!
- ▼ FREE Catalog ▼ Your Satisfaction Guaranteed

NEW ADDITIONS

- ☐ **Songs 2 (2307)** - Contains 40 concertware songs and a player
- ☐ **MACArt 2 (2403)** - Over 30 animal art pictures with viewer.
- ☐ **Painting Tools (2408)** - Includes several programs to get you started painting.
- ☐ **MACFonts 2 (2411) (800K)** - Many of your favorite picture and art font styles.
- ☐ **Writing Tools (2508)** - Helps you write and correct that paper or essay you got to get done. (this one really comes in handy.)
- ☐ **Desk accessories 1 (2520)** - Over 40 Dest Acc. for business, utilities, and just plain fun.
- ☐ **Stratego (2703)** - Just like the "classic" strategy game board game.
- ☐ **Checkers (2725)** - Try to beat the MAC or a human. (Multiple levels to choose from)
- ☐ **Blackjack Tutor (2730)** - Teaches you to play, and to increase your odds of winning.
- ☐ **Risk (2731)** - Try to conquer the World. (up to six can play!)
- ☐ **Spacestation Pheta (2732)** - Climb, Jump, and run through the spacestation picking up keys before you run out of oxygen.
- ☐ **Crossword (2733)** - Play the crossword puzzles provided for you, or create your own.
- ☐ **Blackjack & Poker II (2734)** - Includes three different styles of Blackjack play.
- ☐ **Baseball (2735)** - Control the Pitcher, batter, and fielder.

HYPER-CARD

To run these Hypercard stacks you must have "Hypercard," an 800K drive and at least one Meg of memory.

- ☐ **Business 1 (2800)** - Includes Checkbook, Checkwriter, Hypercheck, Bill Tracker, Appointment Master, and much more!
- ☐ **Business 2 (2801)** - Comes with Stock Helper, Hyperstocks, Spreadly, Hyper Payroll, Shareware Payroll, Personal Financier, and other great stacks!
- ☐ **Education 1 (2820)** - Spelling Tutor, Finger Spell, Spelling 2, Vocabulary Stack, and speller.
- ☐ **Education 2 (2821)** - Includes Heather's Multiplication, Heather's Notes, Time for Heather, Children's Literature, and Hyper Zoo Big.
- ☐ **Music 1 (2840)** - Learn Guitar with; The Guitar Tutor, Guitar Tuner, Guitar Chording, Keyboards, and Common Sounds.
- ☐ **Music 4 (2843)** - Great Music Storage & More; Record Stack, Music Library, CD Collection, Music Collection, Six Stack.
- ☐ **Graphics 1 (2856)** - Slide Show, Animation Stack, Visual Effects, Pict. Stack, Clip Art, and much, much more!
- ☐ **Games 1 (2870)** - Adventure, Adventure Stack, Criminals, Hyper Craps, and Bowling scores. (Many hours of fun!)
- ☐ **Utilities 1 (2900)** - Over 15 Utilities for Menus, Disks, Printing, Archiving, Labeling, etc.
- ☐ **Misc. App's. 1 (2930)** - Time Keeper, Quick Memo, Month at a Glance, Hyper Wallet, and several more including; Las Vegas, LeLotto, Ohio Lotto, Hyper Alarms, etc.

TOP 40



BUSINESS

- ☐ **MACmail (2000)** - A super mail list manager for MAC. Stores names, addresses, and other vital information. (Also prints labels.)
- ☐ **Bi-Plane Spreadsheet (2010)** - An extremely powerful and complete program with a multitude of options and functions.
- ☐ **Home Inventory (2012)** - Keeps track of all your personal items, expenses, and budgets.
- ☐ **Accounting & More (2016)** - Has a cash accounting, and a loan evaluating program.

EDUCATION

- ☐ **Stars (2102)** - Star charting-Astronomy (Breathtaking graphics and really fun education.)
- ☐ **Math Tutor (2104)** - Several fun math quiz games. A really great educational tool for kids.
- ☐ **Typing Tutor (2108)** - It's easy to improve your typing skills with this excellent tutor.
- ☐ **Teacher (2112)** - Allows you to track grades and create quizzes.
- ☐ **Spelling Tutor (2114)** - Listen and learn how to spell. (Requires MACinTalk)

UTILITIES

- ☐ **Menu Utilities (2200)** - Use these to edit and install menus.
- ☐ **Disk Utilities (2202)** - Disk and file recovery tools that everyone should have - just in case.
- ☐ **Vaccine (2204)** - Programs that will check for, eliminate, and protect against many computer viruses.
- ☐ **Screen Dump (2206)** - Allows you to print anything on the screen to your printer or a disk.
- ☐ **Disk Librarian (2210)** - A complete disk cataloging database program.

CREATIVITY

- ☐ **MACinTalk (2302)** - Allows your MAC to utilize its speech ability.
- ☐ **Songs (2306)** - Over twenty musical selections with a player utility.
- ☐ **Calendar Maker (2400)** - Make your own monthly calendars and monthly planners.
- ☐ **MACFonts (2410)** - Several new font styles for use with your Word Processor or Desktop Publishing programs.
- ☐ **Banner Maker (2430)** - prints large or small banners using the imagewriter printer.

TOP 40



GAMES

- ☐ **Football (2700)** - Be a computer desk quarterback (choose to be any NFL team.)
- ☐ **Billiards (2701)** - Fantastic graphics and extreme realism. Plays several different styles.
- ☐ **Blackjack (2702)** - Includes great Blackjack and Poker games.
- ☐ **Space Invaders (2704)** - Defend against the aliens in three great space games.
- ☐ **Donkey Doo (2707)** - Like "Donkey Kong." Has unlimited levels.
- ☐ **Casino Fun (2708)** - Craps, roulette, and slot machines - The fun of Vegas without the risk!
- ☐ **MAC Landing (2710)** - Like the great "Defender" game. Great graphics and sound.
- ☐ **Missile Command (2711)** - Three versions of the popular arcade hit.
- ☐ **Monopoly (2712)** - Play against the computer or a human. (Great graphics & sounds.)
- ☐ **Wheel (2713)** - Like TV's "Wheel of Fortune" (Sorry Vanna not included with your order.)
- ☐ **Backgammon (2714)** - Try to outplay your MAC! (Before it's too late!)
- ☐ **Solitaire (2716)** - A whole slew of great styles and versions.
- ☐ **Centipede (2718)** - Two excellent versions of the arcade game everybody loves.
- ☐ **MACYahtzee (2719)** - Play Yahtzee on your MAC. (1 to 4 can play)
- ☐ **Destroyer (2720)** - Two versions of "Battleship" Has great sound and allows you to play against a human of the MAC!
- ☐ **Tank (2727)** - Tank battle against the MAC!
- ☐ **Concentration (2728)** - Like the TV game, but you match icons instead of prizes
- ☐ **Super Pinball (2750)** - Many great pinball games. Great sound and fast action!
- ☐ **Zodiac Pinball (2754)** - More great pinball games - Based on the signs of the Zodiac.
- ☐ **Adventure 1 (2775)** - "Radical Castle" is one of the best adventure games of all time. Amazing graphics and sounds!
- ☐ **Adventure 2 (2776)** - Be warned "Psychotic" is not for everyone. You become Jason and go on a killing spree. Fantastic sound and graphics. (Requires an 800K drive.)

TOP 40



Name _____

Address _____

City _____ State _____ Zip _____

Phone (____) _____

Visa/MC _____

Sig. _____

Exp. Date _____ ☐ Send Catalog

Disks Ordered _____ x _____ \$ _____

☐ SHIPPING Free U.S. _____ \$ _____

Foreign Add \$4 _____

☐ COD _____ \$ _____

(add \$4 if you require COD)

☐ U.P.S. 2nd Day Air (Add \$3) _____ \$ _____

TOTAL \$ _____

☐ Check/MO ☐ Visa/MC ☐ COD

**Software
Excitement!**

P.O. Box 3097 • Central Point, OR 97502



ORDER TODAY

1-800-444-5457



REMOVABLE
DRIVE MODULES
30MB \$389*
70MB \$649*



44 REMOVABLE
\$995

OPTIONAL
5-YEAR WARRANTY

* Requires
Module Carrier...\$195.00

Security and Acceleration

The DPI Security Line

If information is more precious than money, and in many instances it is; why not let DPI's new security line put your's under lock and key.

Our newest removable provides security, speed, and interchangeable modules, giving you the newest advances in removable hard drives.

So why limit yourself to fixed boundaries when you can take advantage of the newest technology available, "Removable modules."

With DPI's new security line your Data is always under lock and key.

Introducing SuperCharger/SE

The 16MHz 68000 based accelerator board that doubles the speed of your Macintosh SE. It's fully compatible with all Macintosh SE software, and can be turned off via the Control Panel for speed sensitive applications.



To take advantage of the new technologies in data storage and high-speed performance, call DPI. We offer a free technical support hotline and a 30-day, unconditional money-back guarantee. Improve your productivity with DPI, today. To order, call (800) 825-1850 and don't wait.

DPI

40 Corning Avenue, Milpitas, CA 95035 • FAX (408) 945-8148

(800) 825-1850 (408) 945-1850



Please circle 126 on reader service card.

*For a limited time only. Prices quoted are for cash purchases. Ca. residents add 7% sales tax. Shipping not included. SuperCharger/SE and Macintosh are registered trademarks of their respective companies. Prices subject to change without notice DPI 1989

MINIFINDERS

Have you ever wished for a personal assistant to help you choose software? These MiniFinders may not breathe and move, but they do tell you which 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. Eddy (Editor's Choice) Award winners are noted with a ★ and the year in which they won recognition for an excellent product. Next time you have to find products you can count on, count on *MacUser*.

MiniFinder Index

Business Accounting	219
Communications	223
Databases	219
Desktop Publishing	222
Education	228
Entertainment	228
Graphics & Design	221
Hardware & Accessories	231
HyperCard	224
Languages	227
Music	230
Number Crunching	220
Organizational Tools	225
Personal Finance	219
Utilities	226
Word Processors	224

Business Accounting

- Back to Basics Accounting** ★★★★
is a powerful double-entry accounting software package for the small business user with general ledger, accounts receivable, and accounts payable modules. Exhaustive manual with numerous examples. Report capabilities are excellent. \$199. Peachtree, 4355 Shackleford Road, Norcross, GA 30093. NCP (May '87)
- BPI General Accounting** ★★★★
is an easy-to-use system. Six journals, Accounts Receivable, Accounts Payable, Payroll, and General Ledger on one disk. Offset amounts automatically post to ledgers. Up to 8,000 accounts. Detailed records, wide range of reports. Requires 512K or more. \$89. Computer Associates, 1240 McKay Drive, San Jose, CA 95131. NCP (Aug '86)
- Insight** ★★★★½
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. \$595. Layered, 529 Main St., Boston, MA 02129. NCP (Dec '86) ★'86 Eddy
- Rags to Riches Professional Billing** ★★★★
tracks and bills professional services. Batches activities for individual timekeepers. Use as a stand-alone, or integrate with R to R modules. Requires 512K or more and printer. \$399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb '87)
- Simply Accounting** ★★★★
has six ledgers and eight journals to handle the needs of most small-to-medium-sized businesses. Better Mac interface than most. Payroll tax labels can't be modified, which forces you to subscribe to Bedford's yearly update service. Version 1.03. Requires 1 megabyte. \$349. Bedford Software, 15311 N.E. 90th St., Redmond, WA 98052. NCP (Sept '88)
- 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 printspools. Requires 512K or more, printer, and external drive. \$395. Future Design, 13681 Williamette Drive, Westminster, CA 92683. NCP (Dec '85) ★'85 Eddy
- Timeslips III** ★★★★½
tracks billing and expense information for people who charge by the hour. DA turns the clock on and automatically bills a client when a session is over. Version 1.06. Requires 512K and two disk drives. Mac II and MultiFinder friendly. \$199.95. North Edge Software, 239 Western Ave., Essex, MA 01929. NCP (Sept '88) ★'88 Eddy

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, 531 Van Ness Ave., Torrance, CA 90501. 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) ★'86 Eddy
- MacMoney** ★★★★
is a financial manager that uses information gleaned from your checks and deposit slips. Produces a variety of reports and graphs. Version 3.01 reviewed. Requires 512KE and printer. \$119.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (July '88) ★'86 Eddy
- Managing Your Money** ★★★★
is a feature-laden personal-accounting system with added financial and time-management functions. Uses double-entry accounting. Too-cute documentation. Version 2.0. \$219.95. MECA Ventures, 355 Riverside Ave., Westport, CT 06880. Requires 1 megabyte, 128K or later ROMs. NCP. (Apr '89)
- Quicken** ★★★★
helps you write checks, then keeps a ledger showing you where your money goes. Tax information is generated automatically. Version 1.0. Requires 512K and printer. \$49.95. Intuit, 540 University Ave., Palo Alto, CA 94301. NCP (Nov '88) ★'88 Eddy
- Wall Street Investor** ★★★★
spots stock market trends. Downloads information from an electronic service. Good charting ability. Previously known as Market Pro. Version 3.0. Requires 1 megabyte, two 800K drives or hard disk, Hayes-compatible modem, and an I.P. Sharp account. \$695. Pro Plus Software, 2150 E. Brown Road, Mesa, AZ 85203. NCP (Oct '88)

Databases

- C.A.T.** ★★★★
is a dedicated relational database for managing contacts, activities, and time. Links between types of data make it easy to keep track of important people and events. \$399.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov '87)
- DAIbase** ★★★★½
is an excellent flat-file manager in a DA. Files can contain up to 2,500 records, with up to ten items per record. Graphics, text, and computed fields are

MINIFINDERS

supported. Can convert files from QuickDEX. Version 1.12. Requires 512K or later. \$129.95. Preferred Publishers, 5100 Poplar Ave., Suite 706, Memphis, TN 38137. NCP (July '89)

dBASE Mac ★★★★
is a relational DBMS that includes a structured programming language to develop stand-alone applications. Palette icons as alternatives to menu commands will help novice users. Requires 1 megabyte or more. \$495. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Feb '88)

Double Helix II ★★★★½
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)

EndNote ★★★★½
provides database management for bibliographies. Designed to work in conjunction with a word processor. Allows for formatted in-text citations to be pasted directly into a word-processing document and then creates a bibliography from the citations. Version 1.0. \$129. Niles & Associates, 2200 Powell St., Suite 765, Emeryville, CA 94608. NCP (Feb '89)

FileMaker II ★★★★½
is a multiuser version of the all-time best flat-file manager for the Macintosh. New features include more flexible layouts, hierarchical menus, and color on the Mac II. Version 1.0. Requires 1 megabyte with two 800K drives or a hard-disk drive. \$299. Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168. NCP (Dec '88)

4th Dimension ★★★★½
is a versatile tool that creates stand-alone relational databases. Design and layout environments allow easy linking of information. Robust, Pascal-like procedure language. \$695. ACIUS, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov '87) ★'87 Eddy

FoxBASE+Mac ★★★★½
is a relational database that can read unmodified dBASE III PLUS applications created in the MS-DOS world. Amazingly fast. Good implementation of dBASE on the Mac. Version 1.0. Requires 1 megabyte. Mac II and MultiFinder friendly. \$395. Fox Software, Inc., 118 W. South Boundary, Perrysburg, OH 43551. NCP (Sept '88) ★'88 Eddy

MBA Series ★★★★
is a set of 11 multiuser business applications that run under ACIUS' 4th Dimension. It's also an automated programming environment for developing additional 4th Dimension applications. Requires 1 megabyte and 4th Dimension. \$189 per application, unlimited users. Generation Four, 3232 San Mateo N.E. #199, Albuquerque, NM 87110. NCP (May '89)

Omnis 3 ★★★★
is a powerful 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 dialog boxes. \$495. Blythe, 2929 Campus Drive, San Mateo, CA 94403. NCP (Mar '86)

Oracle for Macintosh ★★★★
is more a development tool kit than an end-user product and makes possible the creation of Macintosh front-end applications that access Oracle databases on mainframes and minis. Includes HyperCard XCMDs. Version 1.0. Single-user. \$199; network version, \$999. Oracle Corp., 20 Davis Drive, Belmont, CA 94002. NCP (June '89)

Panorama ★★★★
is the direct descendant of OverVUE. It keeps your database in RAM for incredible speed and has a spreadsheetlike basic data-entry screen. Supports text, numbers, graphics, and dates as data types. Features Clairvoyance for easier data entry. Has a powerful charting function and macros. An excellent flat-file manager. Version 1.0. Requires 1 megabyte and two 800K drives. \$395. ProVUE Development, 15180 Transistor Lane, Huntington Beach, CA 92549. NCP (June '89) ★'88 Eddy

Pro-Cite ★★★★½
is a complete database-management system for bibliographies. Almost unlimited flexibility in the formatting of bibliographies. Full-featured search and sort capabilities. Version 1.3. Requires 512K. \$395. Personal Bibliographic Software, Inc., P.O. Box 4520, Ann Arbor, MI 48106. NCP (Feb '89)

Record Holder Plus ★★★★
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 Drive, South Windsor, CT 06074. NCP (Apr '86) ★'87 Eddy

Number Crunching

Analog Connection Workbench ★★★★½
is an icon-based application generator for general-purpose data acquisition, control, and analysis. Users create a flow diagram that makes live color plots. Powerful and very easy to use. Version 3.0. Requires Mac SE or II. \$395. Strawberry Tree Computers, 160 S. Wolfe Road, Sunnyvale, CA 94086. NCP (July '89)

Data Desk Professional ★★★★½
lets you see statistics with more ease than any comparable Macintosh program. Plots variables so you can analyze data to see what patterns develop. Version

2.0. Requires 1 megabyte and two 800K disk drives or hard disk. \$495. Odesta, 4084 Commercial Ave., Northbrook, IL 60062. NCP (Nov '88)

Excel ★★★★
was the first power spreadsheet on the Mac. Has 256-column-x-16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. Requires 512K or more and external drive. \$395. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP (Prem) ★'85 Eddy

LabTech Notebook ★★★★½
is a general-purpose data-acquisition and -analysis package. This port from the DOS world has menus, but the interface is so poorly designed that you might as well be using a PC. This version doesn't even have a Print function. Version 1.0. Requires Mac II and System 5.0 or later. \$995. Laboratory Technologies Corp., 400 Research Drive, Wilmington, MA 01887. NCP (July '89)

LabVIEW 2 ★★★★
is a graphical programming environment for creating applications for GPIB and other data-acquisition and -control operations. Data analysis includes complex math and signal processing. Users can create on-screen control panels to emulate test instruments. The most complete such package on either PC or Mac. Requires 1 megabyte and hard disk. \$1,995. National Instruments Corp., 12109 Technology Blvd., Austin, TX 78727-6204. NCP (July '89)

MacCalc ★★★★
is a fast, competent, full-featured spreadsheet with impressive built-in functions, font control, on-line help, ability to expand columns and rows, and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. A very flexible, pure spreadsheet. \$139. Bravo Technologies, P.O. Box 10078, Berkeley, CA 94709-0078. (Sept '86) ★'86 Eddy

MacInstruments ★★★★½
is an oscilloscope emulator with chart-recorder functions and some statistics. Records up to 833,000 samples per second and works with a wide selection of GW hardware. Version 1.04. Requires 1 megabyte. \$790. GW Instruments, 264 Msgr. O'Brien Highway, Cambridge, MA 02141. NCP (July '89)

MacLab ★★★★
turns your Mac into an oscilloscope with chart-recorder functions. This hardware/software package records 12 samples/hour to 80,000 sample/second. Nice interface and analysis features, such as slope of tangent and area under curve. Built-in amplifiers. Version 2.5. Requires 512K. \$2,925; optional differential amplifiers, \$1,125. World Precision Instruments, 375 Quinipiac Ave., New Haven, CT 06513. NCP (July '89)

MacPacq ★★★★
is a hardware/software oscilloscope and chart-recorder emulator that records 2 samples/hour to 10,000 samples/second. The portable hardware can be used remotely. Version 1.05e. Requires 512K. \$995; optional external amplifiers, \$295. BioPacq Systems, 5960 Mandarin Drive, Suite D5, Goleta, CA 93117. NCP (July '89)

MacSpin ★★★★
is a unique and powerful program for graphic-data analysis. Handles multivariate data in a highly visual manner. Nothing else like it for any micro. \$199.95. D2 Software, P.O. Box 9546, Austin, TX 78766-9546. CP (June '86) ★'87 Eddy

Mathematica ★★★★½
is a powerful tool for doing all kinds of math. Offers arbitrary-precision numeric calculations, symbolic computation, PostScript graphics, and programmability. Version 1.03. Requires 1 megabyte or more and a hard-disk drive. Requires 2 megabytes to run kernel. \$495; \$795 for the Mac II version. Wolfram Research, P.O. Box 6059, Champaign, IL 61821. NCP (Nov '88) ★'88 Eddy

MathView Professional ★★★★
is an equation solver that combines 2-D and 3-D plotting with routines for matrices, differential equations and integrals, complex numbers, and the like. Interface leaves a lot to be desired. Version 1.0. Requires 512K and two disk drives. Mac II and MultiFinder friendly. \$249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Sept '88)

Microsoft Works ★★★★½
has been the integrated program of choice for years, and version 2.0 shouldn't change that. Package includes word processing, spreadsheet, database, telecommunications, and object-oriented graphics. Supports color. Excellent value. May be all the software you'll ever need. Version 2.0. Requires Mac Plus or later and two 800K drives. \$295. Microsoft, 16011 N.E. 36th Way, Box 97017, Redmond, WA 98073. NCP (May '89)

101 Macros for Excel ★★★★
offers all the power of macros without having to learn how to write them. Some gems include a macro to transpose rows and columns, and a search-and-replace macro. Requires Excel. \$69.95. Macropac International, 19855 Stevens Creek Blvd., Cupertino, CA 95014. NCP (July '88)

Parameter Manager Plus ★★★★
analyzes data, using spreadsheetlike interface in real time. It can handle both hand-entered and imported data. Includes statistical quality control, equation fitting, predictive maintenance, histograms, drawing, and presentation. Version 3.0. Requires 1 megabyte. \$395; \$595 with communications module. GenRad, 510 Cottonwood, Milpitas, CA 95035. NCP (July '89)

Ragtime ★★★★
is an "Integrated Page Processor" with text, graphics, and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy-to-use program. Requires 512K or more. \$395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Aug '88)

MINIFINDERS

StatView 512+ ★★★★
is a very intuitive statistical-analysis program with tools to help you understand any set of data. Holds data in a spreadsheetlike form. Full-featured, fast, and accurate. Extremely wide range of analyses possible. Requires 512K or more and 800K of disk space to operate. \$349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec '86)

StatView II ★★★★
is a remarkably complete data-analysis package. Essential for any kind of descriptive, comparative, or multivariate statistics. Works in color on the Mac II. Version 1.01. Requires Mac II or SE equipped with 68020 and 68881 math coprocessor and two 800K disk drives or hard disk. \$495. Abacus Concepts, 1984 Bonita Ave., Berkeley, CA 94704. NCP (Oct '88)

Trapeze ★★★★½
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. Version 2.0. \$295. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Dec '87)

Wingz ★★★★
combines a powerful and roomy spreadsheet with an easy-to-use scripting language for developing customized applications. Lacks a few standard spreadsheet niceties such as borders and plane splitting but makes up for it with glitzy graphics, including color and 3-D. Version 1.0. Requires 1 megabyte. \$399; University Edition, \$89. Informix Software, 16011 College Blvd., Lenexa, KS 66219. NCP (June '89)

Graphics & Design

Aldus FreeHand 2.0 ★★★★½
is a major upgrade. Greatly increased power includes up to 100 levels of undo, auto-trace, a blend command for interpolating shapes and colors, and expanded text manipulation. Has a steep learning curve but is relatively easy to use once you've got the hang of it. Version 2.0. Requires 1 megabyte. \$495. Aldus, 411 First Ave. S., Seattle, WA 98104-2871. NCP (June '89)

ArtClips ★★★
is a peculiar collection of EPSF "art work." Requires 1 megabyte. \$99. Olduvai Corp., 7520 Red Road, Suite A, South Miami, FL 33143. NCP (Aug '89)

ArtWare: Borders ★★★★
enables you to customize your own clip-art disk. The border collection is the best package in terms of quality of art. Other packages available. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$129. Artware Systems, 3741 Benson Drive, Raleigh, NC 27609. NCP (Aug '88)

Canvas 2.0 ★★★★
is a rich drawing/painting program, featuring full Bezier curves, cutting and joining of polygons, skewing, perspective and distortion, auto-dimensioning, area and perimeter calculation, auto-tracing of bit maps, and full color support. Creates and edits high-resolution bit maps to 2,540 dpi. Slightly less powerful DA version available. Requires 1 megabyte, two 800K floppies, and System 6.0. \$299. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. NCP (Apr '89)

Click & Clip ★★★
offers seasonal graphics packages. Of the two quarterly editions released, the spring '88 package is the better collection. Requires a program that reads Encapsulated PostScript Format (EPSF) files. \$39.95 per edition. Studio Advertising Art, P.O. Box 18432-52, Las Vegas, NV 89114. NCP (Aug '88)

Clip3D ★★★★
is a line of 3-D, color-clip-art collections bundled with a powerful editing program. Images are in Pro3D format and provide exceptional output quality. On a Mac II, DAs don't work while Clip3D is active. Version 1.0. Requires 1 megabyte. \$99 per package, including Clip3D editor. Enabling Technologies, 600 S. Dearborn, Suite 1304, Chicago, IL 60605. NCP (Aug '89)

Clippures ★★★★
is a series of business-oriented EPSF clip art. Volume 2, Business Images, is the best collection and can be cataloged with Curator. Requires 1 megabyte. \$129.95. Dream Maker Software, 4020 Paige St., Los Angeles, CA 90031. NCP (Aug '89)

Collector's Edition I ★★★★
contains a useful assortment of dingbats, borders, and two editable alphabets, all saved in Illustrator format. Requires 1 megabyte. \$125. Adobe Systems, 1585 Charleston Road, Mountain View, CA 94039. NCP (Aug '89)

Cricket Draw ★★★★½
is an object-oriented drawing program that will produce stunning, high-quality output. Designed to print on PostScript-compatible devices such as the LaserWriter. \$295. Cricket Software, 40 Valley Stream Parkway, 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, 40 Valley Stream Parkway, Malvern, PA 19355. NCP (June '86) ★ 86 Eddy

Cricket Presents ★★★★
is a presentation tool with strong emphasis on graphics. Good master template. Lacks import capability for text. Version 1.0. Requires System 4.2 or later.

\$695. Cricket Software, 40 Valley Stream Parkway, Great Valley Corporate Center, Malvern, PA 19355. NCP (Dec '88)

Curator ★★★★½
catalogs your art and graphics so it's easy to see what's what and where it is. Supports PICT, TIFF, EPSF, PostScript, MacPaint, and more. Changes creator types. Requires 512K and an 800K drive. \$139.95. Solutions International, 30 Commerce St., Williston, VT 05495. NCP (Sept '88)

DeskPaint ★★★★½
is a full-blown paint program as a DA. 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. Speedway, Tucson, AZ 85712-5305. NCP (Mar '88)

DynaPerspective ★★★★
is a good 3-D architectural-modeling program ported from DOS. Can create perspective drawings and elevations automatically from a floor plan. Objects can be made translucent, so windows and water effects are possible. It can also produce animations that "fly" you around buildings and in and out of rooms. Version 1.0. Requires Mac II or later. \$1,495. DynaWare, 1163 Chess Drive, Suite J, Foster City, CA 94404. NCP (July '89)

EZ Draft ★★★
is a high-level CAD application. Does things usually found only 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. \$1,995. \$500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley 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 (U.S.). Shana Enterprises, Advanced Technology Center #105, 9650-20 Ave. Edmonton, Alberta T6N 1G1, Canada. NCP (Nov '87)

FONTastic Plus ★★★★½
lets you customize and create bit-mapped fonts. Characters are easily added or modified. Version 2.01 edits larger fonts and supports NFNTs. Requires 512K. \$99.95. Altsys Corp., 720 Avenue F, Suite 109D, Plano, TX 75074. NCP (May '89)

Fontographer ★★★★½
is a complex but excellent laser-font creator. The fonts created have 300 bit-per-inch resolution. The fonts are actually downloadable PostScript files. \$395. Altsys Corp., 720 Avenue F, Suite 109D, Plano, TX 75074. CP

FontSizer ★★★★½
creates high-quality screen fonts of any downloadable PostScript typeface in sizes up to 127 points. Excellent utility for producing large font sizes with true WYSIWYG. Requires 1 megabyte, PostScript printer, and fonts. Version 1.7. \$99.95. U.S. MicroLabs, 1611 Headway Circle, Building 3, Austin, TX 78754. NCP (Apr '89)

FreeHand ★★★★½
greatly simplifies the drawing of curves, the use of layers, and text handling when manipulating PostScript graphics. And it works in color on the Mac II. Requires 1 megabyte and two disk drives. \$495. Aldus, 411 First Avenue S., Seattle, WA 98104. NCP (Aug '88)

Illustrator 88 ★★★★½
is a professional-level graphics program from the people who defined the PostScript language. Uses templates for precise drawing and detailed artwork. Requires 1 megabyte. \$495. Adobe Systems, 1585 Charleston Road, Mountain View, CA 94039. NCP (Oct '88) ★ 88 Eddy

Images with Impact! ★★★★
is superb, imaginative EPSF clip art. Images are pregrouped for easy editing. Business 1 (\$129.95) has 175 editable images in 14 categories: Graphics & Symbols 1 (\$99.95) is equally impressive. Requires 1 megabyte. 3G Graphics, 11410 N.E. 124th St., Suite 6155, Kirkland, WA 98034. NCP (Aug '89)

ImageStudio ★★★★½
puts a photo-retouching lab on the desktop. Editable brushes let you modify digitized images in 65 gray levels. Version 1.0. Requires 1 megabyte or more and two 800K disk drives. Mac II and MultiFinder friendly. \$495. Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653. NCP (June '88)

Japanese Clip Art ★★★★½
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 matter. \$79.95 each volume; \$149.95 each set. Qualitas Trading, 6907 Norfolk Road, Berkeley, CA 94705. NCP (Apr '87)

LaserTalk ★★★★
is a PostScript programming tool that establishes interactive contact with laser printers. Preview window and on-line help make it a powerful tool. Requires 1 megabyte or more and a PostScript printer. \$249. Emerald City Software, P.O. Box 2103, Menlo Park, CA 94026. CP until registered (May '88)

LetraStudio ★★★★
is a type-customization program for creating headlines, logos, signs, and other display type. Predefined envelopes let you create unique distortion effects. Works only with LetraFonts, which in turn are accessible only through the program. Version 1.0. Requires 1 megabyte and hard disk. \$495, plus \$75 per font. Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653. Fonts are copy-protected. (May '89) ★ 88 Eddy

MINIFINDERS

MacCalligraphy ★★★★½
simulates brush painting. User-designed Seals and Touches enable you to design your own signature tool and the style of brush you use. Takes some getting used to. \$175. Qualitas Trading, 6907 Norfolk Road, 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 arcs, auto-dimensioning, and variable zoom/reduction. \$269. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (Feb '86)

MacDraw II ★★★★½
updates the venerable object-oriented draw program. Adds dithered and color patterns in its own documents but doesn't support color in the PICT II format. Version 1.0. Requires 1 megabyte and two 800K disk drives or hard disk. \$395. Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168. NCP (Nov '88)

MacGraphics ★★★★
is an overwhelming collection of bit-mapped clip art—13 thematic disks containing 10 megabytes of art. Unfortunately, most pictures are full-page, and reproduction quality suffers when they are reduced. Version 3.0. \$225. GoldMind Publishing, 12155 Magnolia Ave., Suite 3-B, Riverside, CA 92503. NCP (Jan '89)

MacPaint ★★★★½
hasn't lost its shine after all these years. Version 2.0 supports multiple windows, design templates, and a magic eraser for corrections. It lacks free rotation and distortion talents. Requires 512K and second disk drive. \$125. Claris, Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168. NCP (July '88) ★'85, '87 Eddy

Mac3D ★★★★½
is a feature-laden 3-D program with a MacDraw-like interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features. Clumsy interface to rotate objects and camera. Version 2.0. \$249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan '87)

MapMaker ★★★★½
is a digital cartographer that charts demographic and marketing information on a geographic basis. Wide variety of maps available — some at an additional cost. Version 3.0. Requires 512K. \$349. Select Micro Systems, 40 Triangle Center, Yorktown Heights, NY 10598. NCP (Dec '88)

Metro ImageBase ★★★★½
is a series of TIFF clip art from the grandfather of the clip-art industry. The traditional-looking images are huge, so have a large hard disk handy. Requires 512KE or later. \$145. Metro ImageBase, 18623 Ventura Blvd., Suite 210, Tarzana, CA 91356. NCP (Aug '89)

MGMS: Professional CAD for Macintosh ★★★★
offers more than 200 functions. Very complete, capable program. Groups, Dimension, and Libraries are standard. Sometimes confusing — designed for the experienced, professional CAD user, not the novice. Full plotter support. 512K or more. \$799. Micro CAD/CAM, 5900 Sepulveda Blvd., Suite 340, Van Nuys, CA 91411. NCP (Nov '87) ★'87 Eddy

Modern Artist 2.0 ★★★★½
is still an interesting color paint program and has added a few new features, but there's not enough here to justify the substantial price increase. Requires Macintosh II. \$495. Computer Friends, 14250 N.W. Science Park Drive, Portland, OR 97229. NCP (Feb '89)

Persuasion ★★★★
is an outstanding presentation tool with an excellent drawing environment. Extensive auto-templates and color schemes as well as multiple master slides make it easy to turn out presentations quickly. Requires Apple System 4.1 or higher, 1-megabyte Mac Plus or higher, and a hard disk. Version 1.0. \$495. Aldus, 411 First Ave. S., Seattle, WA 98104. NCP (May '89) ★'88 Eddy

Photon Paint ★★★★
is not the equal of Studio/8 or PixelPaint, but it does offer a workable painting environment, multiwindow capability, some interesting special effects, and a lower price. Version 1.1. Requires Mac II with color card. \$299.95. MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344. NCP (May '89)

PictureBase ★★★★½
is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. \$69.95. Symmetry, 761 E. University Drive, Mesa, AZ 85203. NCP (Sept '87) ★'86 Eddy

PixelPaint ★★★★½
is a color paint program with customizable palettes and a lot of special effects. Slow Open and Save. Requires Mac II, 2 megabytes, and 8-bit video card. \$495. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. NCP (May '88)

PowerPoint ★★★★
is an easy-to-use desktop presentation tool. Good color schemes. Can send presentations to Genigraphics to produce color 35mm slides. Version 2.0. Requires System 4.1 or later, 1 megabyte, and two 800K drives or hard disk. \$395. Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073-9717. NCP (Aug '87)

StandOut! ★★★★
is a presentation program built like a publishing program, with strong text and graphics support. Automatic text flow around graphic objects. Lacks good

graphic examples. Version 1.0. Requires 1 megabyte and two 800K drives or hard disk. \$395. Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07652. NCP (Nov '88)

Studio/8 ★★★★
is a professional-level color paint application for the Mac II. Superior tool set, elegant interface, excellent performance and speed. Version 1.0. Requires Mac II and hard disk; 2 megabytes of RAM recommended. \$495. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Jan '89) ★'88 Eddy

Super 3D ★★★★
is a high-power 3-D modeling program with an excellent integrated interface. Powerful time-saver. Features include animation, import/export of 3-D worlds as text files. Excellent for art, design, or technical work. Version 1.0. Requires 1 megabyte. \$295. Silicon Beach Software, 9580 Black Mountain Road, P.O. Box 261430, San Diego, CA 92126. NCP (Jan '88)

SuperPaint 2.0 ★★★★
is the first upgrade of the original paint/draw program. Some of the new features are plug-in tools, auto-trace, Bezier curves, support for resolutions exceeding 300 dpi, and eight-color support. A good program but not particularly fast. Version 2.0. Requires Mac Plus or later. \$199. Silicon Beach Software, 9770 Carroll Center Road, Suite J, San Diego, CA 92126. NCP (July '89)

Swivel 3D ★★★★
quickly forms shaded solids in full color. Casts true shadows onto other objects and can project color graphics onto solids. Objects can be linked as jointed and sliding mechanisms that can be operated without accidental dismantling. It can tween-animate objects or fly your view through a scene, saving frames for playback. Superb object-manipulation interface. Version 1.0. Requires 1 megabyte. Mac Plus, and two 800K floppy drives. \$395. Paracomp, 123 Townsend St., Suite 310, San Francisco, CA 94107. NCP (Mar '89)

TrueForm ★★★★½
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)

VersaCAD ★★★★
is a powerful CAD program that doesn't show any of its MS-DOS roots. Excellent element manipulation, full plotter support. Library user interface is crude. Requires 1 megabyte or more. \$1,995. VersaCad, 2124 Main St., Huntington Beach, CA 92648. NCP (July '88) ★'88 Eddy

VideoWorks II ★★★★½
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 1 megabyte or more and an 800K drive. MacroMind, 410 Townsend #408, San Francisco, CA 94107; (415) 442-0200. NCP (Mar '88) ★'85, '87 Eddy

VideoWorks II Accelerator ★★★★
compiles VideoWorks II movies to make them run more smoothly. Compensates for the QuickDraw screen display. Version 1.0. Requires 1 megabyte and VideoWorks II; hard-disk drive recommended. \$195. MacroMind, 410 Townsend #408, San Francisco, CA 94107; (415) 442-0200. NCP (Dec '88)

VideoWorks II Clip Animation ★★★★
Clip Charts, Black and White Movies, and Clip Sounds are separate aids to help you construct movies and business presentations. Requires VideoWorks II. \$49.95 to \$59.95. MacroMind, 410 Townsend #408, San Francisco, CA 94107; (415) 442-0200. NCP (Aug '88)

Vivid Impressions ★★★★½
is cartoonish EPSF clip art, some of it in color. Special Events contains 130 images, many of them duplicates with minor alterations. Requires 1 megabyte. \$130. Casady & Greene, Inc., P.O. Box 223779, Carmel, CA 93922. NCP (Aug '89)

WelPaint ★★★★
is a series of three-disk volumes of very-high-quality clip art. Also includes the Art Roundup DA, a good art browser/editor. \$79.95 per volume. Dubl-Click Software, 9316 Deering Ave., Chatsworth, CA 91311. NCP (Sept '87)

Works of Art Laser Art ★★★★
is a nice collection of business-oriented EPSF clip art. Requires 1 megabyte. \$99.95. Springboard Software, Inc., 7808 Creekridge Circle, Minneapolis, MN 55435. NCP (Aug '89)

World-Class Fonts! ★★★★½
comes in volumes of three disks each. Includes all the Mack the Knife fonts and a lot more, including three useful utilities. \$79.95 per volume. Dubl-Click Software, 9316 Deering Ave., Chatsworth, CA 91311. NCP (Dec '88)

Desktop Publishing

DTP Advisor ★★★★
combines a HyperCard-based tutorial on publishing with a project-management system. Beautifully designed but better off as a book. Requires 1 megabyte and HyperCard 1.2. Version 1.0. \$79.95. Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101. NCP (Apr '89)

FontLiner ★★★★
converts Fontographer-created typefaces into PostScript outline fonts that can

MINIFINDERS

be edited in Illustrator and FreeHand. Version 1.0. Requires 1 megabyte. \$129.95. Taylored Graphics, P.O. Box 1900, Freedom, CA 95019. NCP (July '89)

KeyCap Fonts ★★★★
contains three typefaces designed specifically for writing computer documentation. Version 1.0. \$149.95. Paperback Software International, 2830 Ninth Street, Berkeley, CA 94710. NCP (June '89)

KeyMaster ★★★★
creates PostScript fonts containing up to 16 graphic characters. Accepts logos, clip art, and other PICT and EPSF graphics. As fonts, graphics can be used in programs that don't normally accept them, and resizing is as easy as changing the point size. Version 1.0. Requires 1 megabyte. \$99.95. Altsys Corp., 720 Avenue F, Suite 109, Plano, TX 75074. NCP (July '89)

LetrTuck ★★★★½
lets you add, delete, or modify the kern pairs for any installed font. Version 1.04. Requires 512K or later. \$149. EDCO Services, 12410 N. Dale Mabry Highway, Tampa, FL 33618. NCP (June '89)

MacTeX ★★★★½
is the TeX environment of choice for hard-core TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Version 2.0. Requires 1 megabyte or more. \$750. FTL Systems, 234 Eglinton Ave. E., Toronto, Ontario M4P 1K5, Canada. NCP (Apr '88)

PageMaker ★★★★
retains its pasteup approach to page layout. New features include automatic text flow, style sheets, and spot color support. The standard keeps getting better. Version 3.01. Requires 1 megabyte or more and a hard disk. \$595. Aldus, 411 First Ave. S., Seattle, WA 98104. NCP (Aug '88) ★'85, '87, '88 Eddy

PhotoMac ★★★★
is a powerful color-retouching tool for photographs in PICT and TIFF. Displays and edits in 8-bit mode; saves in 8- or 24-bit modes. Makes color separations, but process requires substantial disk space. Version 1.0. Requires Mac II with 2 megabytes, color monitor, and 8-bit video card; hard disk with more than 2 megabytes free. \$695. Avalon Development Group, 1000 Massachusetts Ave., Cambridge, MA 02138. NCP (July '89)

Portfolio: Designs for Newsletters ★★★★
provides 21 templates for newsletters with preset columns, headlines, graphics, and captions. Documentation provides excellent tutorial in page design. Requires 512K or later and PageMaker. \$99. Aldus, 411 First Ave. S., Seattle, WA 98104. NCP (May '87)

Publishing Packs ★★★★½
bundle together three Adobe typefaces that work well for a particular publishing project. The packages offer substantial savings over purchasing the typefaces individually, and the documentation has useful information on typeface characteristics. Newsletters, \$395; Forms & Schedules, \$475; Presentations, \$475. Adobe Systems, Inc., 1585 Charleston Road, Box 7900, Mountain View, CA 94039. NCP (Feb '89)

QuarkStyle ★★★★
is a collection of 72 designer-created templates for "instant" desktop publishing. The templates, which cover the gamut from business cards to newsletters, let you concentrate on a page's contents rather than its appearance. Version 1.0. Requires 1 megabyte and hard disk. \$295. Quark, 300 S. Jackson, Suite 100, Denver, CO 80209. NCP (Feb '89)

QuarkXPress ★★★★½
is a powerful page-layout program with 24-bit color, style sheets, and search and replace of text attributes. Also does four-color separations. Layout is done with text and picture boxes, which improves control but is difficult to master. Version 2.0. Requires more than 1 megabyte as well as a hard disk. \$795. Quark, 300 S. Jackson, Suite 100, Denver, CO 80209. CP until registered. (Jan '89)

Ready, Set, Go! ★★★★½
combines an elegant interface with a powerful word processor, style sheets, fine-tuned typography, thumbnail views, gray-scale editing, and spot color. It's one of the first programs to store font information with documents, thus avoiding font ID conflicts. Version 4.5. Requires 1 megabyte; hard disk recommended. \$495. Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653. NCP (June '89) ★'86 Eddy

Springboard Publisher ★★★★
combines page layout, word processing, and graphics capabilities in one easy-to-learn program. Too limited for serious desktop publishing but cost-effective for simple documents. Version 1.06. Requires 1 megabyte. \$199.95. Springboard Software, 7808 Creekridge Circle, Minneapolis, MN 55435. NCP (May '89)

TeXtures ★★★★
is an implementation of TeX, the big daddy of typesetting programs. Good for people trained on mainframes in the early days. Otherwise very sticky with a high learning curve. Version 1.0. Requires 512K or more. \$495. Blue Sky Research, 534 S.W. Third Ave., Portland, OR 97204. NCP (Apr '88)

UltraSpec ★★★★
performs copy-fitting chores such as calculating copy length, creating dummy pages, and producing printer specs. Version 1.0. Requires HyperCard and 1 megabyte. \$129.95. SoftStream, 19 White Chapel Drive, Mount Laurel, NJ 08054. NCP (June '89)

Communications

Accu-Weather Forecaster ★★★★
is a combination communications and meteorological-data-analysis program. Gives access to hourly National Weather Service station reports. Simple maps and charts let you view weather data graphically. Telecommunication mode is optimized to reduce connect-time costs. Version 1.05. Requires 1 megabyte; one 800K drive; and a 300-, 1,200-, or 2,400-baud Hayes-compatible modem. \$89.95. Accu-Weather Connect Fee, \$39.95; educational and commercial connect rates higher. Metacom Software, P.O. Box 31337, Hartford, CT 06103. NCP (Aug '89)

AppleShare ★★★★
is the file sharer marketed by Apple. Software-based, AppleShare requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised Finder. \$799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May '87)

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 S.W. Macadam Ave., Portland, OR 97201. CP (Feb '88)

Desktop Express ★★★★½
is a simple-to-use, semiautomated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded off for ease of use. Requires 512K or more. \$149. Dow Jones, P.O. Box 300, Princeton, NJ 08543. NCP (Jan '88)

inBox ★★★★½
is an easy-to-use mail system. It's called up from a DA. Has a very slick interface. Dedicated Mac not required. Starter set, \$350, which includes one Administrator disk and three Connection disks. Additional Connections cost \$125 each. TOPS, 950 Marina Village Parkway, Alameda, CA 94501. NCP (May '87) ★'86 Eddy

LapLink Mac ★★★★
quickly transfers data to and from the MS-DOS and Mac environments. Kit contains a cable and software. Control of transfer is on the IBM side. Version 1.2. Requires 512K. \$139.95. Traveling Software, 19310 North Creek Parkway, Bothell, WA 98011. NCP (Aug '88)

Liaison ★★★★
is a software-based AppleTalk bridge for connecting two LocalTalk networks or a LocalTalk and an EtherTalk network. Using Liaison with standard modems, a single user can connect remotely to an AppleTalk network, or two networks can be connected to form a wide-area network. Serialized. Version 1.0. \$295. Infosphere, 4730 S.W. Macadam Ave., Portland, OR 97201. NCP (April '89)

MacWorkStation ★★★★
is a development environment and communications program that accesses custom mainframe applications through the Macintosh interface. Modular design allows for expandability. Mac II and MultiFinder friendly. Version 3.0. \$2,500 for internal use license; \$5,000 for commercial use license. Apple Software Licensing, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Oct '88)

MicroPhone II ★★★★½
is a high-powered terminal program that's easy enough for novices. Very powerful command language allows full automation of communications if desired. \$295. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jan '89) ★'86 Eddy

Microsoft Mail ★★★★½
is an electronic mail system that runs under AppleTalk. Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. DA-based. Prices determined by number of users licensed: 1 to 4 users, \$299.95; 5 to 10 users, \$499.95; 11 to 20 users, \$749.95; 21 or more users, \$949.95. Microsoft, 16011 N.E. 36th Way, Redmond, WA 98073-9717. NCP (May '87) ★'87 Eddy

PC MacTerm/pcAnywhere III ★★★★
are two programs that work together to take control of an MS-DOS machine from the Mac keyboard. Versions: PC MacTerm 1.1; pcAnywhere III 3.0. Requires 512K; System 4.1 or later; 128K IBM PC compatible and MS-DOS 2.1 or later. PC MacTerm, \$99; pcAnywhere III, \$145. Dynamic Microprocessor Associates, Inc., 60 E. 42nd St., New York, NY 10165. NCP (Jan '89)

Rapport/Drive 2.4 ★★★★½
is a connector/drive combination. When the Rapport connector is attached to the external-disk-drive port of a Mac Plus or SE, it allows MS-DOS 3.5-inch disks to be inserted into the Mac's internal drive and read through Apple File Exchange. Drive 2.4 is an 800K external drive that can be used in conjunction with Rapport. Rapport, \$295; Drive 2.4, \$499. Kennect Technology, 271 E. Hacienda Ave., Campbell, CA 95008. NCP (July '89)

Red Ryder ★★★★
is a full-featured telecommunications program that supports MacBinary, Xmodem, and Kermit. Has big-screen support, auto-procedure creator, and up to 30 keyboard macros. Version 10.3 reviewed. \$80. Freesoft, 150 Hickory Drive, Beaver Falls, PA 15010. NCP (Jan '89) ★'87 Eddy

Smartcom II ★★★★
balances power and ease of use. Capable of unattended operation and has a powerful command language. The fastest screen updating available can keep up even at 9,600 baud. The large-screen buffer can easily be archived. Version

MINIFINDERS

3.0 reviewed. \$149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jan '89) ★'85 Eddy

SoftPC ★★★★
puts an IBM PC XT inside your Mac without cracking the case to add any special coprocessor boards. The emulation of an MS-DOS machine is done entirely in the software. Version 1.2. Requires Mac II or SE equipped with 68020 accelerator card and 2 megabytes of RAM. \$595. Insignia Solutions, 1255 Post St., Suite 625, San Francisco, CA 94109. NCP (Nov '88)

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. \$249 for Mac version. TOPS, 950 Marina Village Parkway, Alameda, CA 94501. Serial number protected. (May '87) ★'87 Eddy

VersaTerm-PRO ★★★★
is a very powerful terminal program with several special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K or more. \$295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mount Penn, PA 19606. NCP (Apr '87)

Word Processors

ArchiText ★★★★
is a text processor with many hypertext capabilities as well as the ability to include graphics. "Nodes" of text are accessed by means of different "maps." Very powerful. Version 1.0. Requires 1 megabyte. \$349.95. Brainpower, 24009 Ventura Blvd., Suite 250, Calabasas, CA 91302. NCP (Feb '89)

Expressionist ★★★★
is a powerful DA that allows you to create complex mathematical equations from within an application. Equation manipulation has never been easier. \$79.95. Allan Bonadio Associates, 1579 Dolores St., San Francisco, CA 94110. NCP (July '87)

Feima ★★★★
allows users to create their own Chinese characters. This Chinese word processor follows the Mac interface more closely than Brushwriter. Lets you create your own characters for those that aren't included in the dictionary. Version P reviewed. Requires 512K or later. \$585. Wu Corp., P.O. Box 699, Avon, CT 06001. CP (May '89)

FullWrite Professional ★★★★
combines outlining and word processing with page layout and drawing. Its many features translate into sluggish performance unless you have a lot of extra RAM. Impressive. Version 1.0. Requires 1 megabyte. Mac II and MultiFinder friendly. \$395. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502. NCP (Sept '88)

Kaihin Brushwriter ★★
is a Chinese word processor that fails to support the Mac interface. It has 8,000 characters. You must speak Chinese to use this program. Won't work with System 6.0. Version 2.0. Requires 1-megabyte SE or more and adapter (included) to save and print files. \$599 for professional package (reviewed). Pacific Rim Connections, 3030 Atwater Drive, Burlingame, CA 94010. NCP (May '89)

Laser Author ★★★★
is a high-powered, technically oriented word processor. Good math-setting capability. Has style sheets, word count, and page-layout capability. \$199.95. Firebird Licensees, P.O. Box 49, Ramsey, NJ 07446. NCP (Mar '87)

Lookup ★★★★
is an on-call, quick, single-word spelling checker. Designed for the way writers really work. Uses the 93,000-word Spellswell dictionary. \$49.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95061-1844. NCP (Dec '87)

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 stand-alone version; \$2,500 for networked version. Automated Language Processing Systems, 190 W. 800 North, Provo, UT 84604. NCP (Apr '87)

Macspell+ ★★★★
is a spelling checker that installs as a DA. Works easily with MacWrite 4.5 and 2.2 and Word but has some drawbacks. New version 1.10 just available. Requires 512K or more and two drives or hard disk. \$99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

MacWrite II ★★★★
is MacWrite's first major upgrade and a big increase in power. Excellent interface. Powerful Search/Replace function. Elegant multiple-column and mail-merge features. Terrible performance on 68000 machines. Version 1.0. Requires Mac Plus or later and two 800K drives or hard disk. \$249. Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168. NCP (Aug '89)

Microsoft Word 4.0 ★★★★
is the best power word processor you can buy. Excellent speed and a huge list of useful features. Tables command lets you create multicolumn tables of text and graphics easily. Has hot links to Excel and Microsoft Mail. Has enough DTP

capabilities to format almost any document, without compromising its performance as a dedicated word processor. Requires 512K or later, two 800K floppy drives or hard disk, System 3.2, and Finder 5.3 or later. \$395. Microsoft, 16011 N.E. 36th Way, Box 97017, Redmond, WA 98073-9717. NCP (July '89)

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. \$195. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Feb '88)

Mishu ★★★★
is a DA that turns MacWrite and Microsoft Word into a Chinese word processor. It will also work with Cricket Draw, HyperCard, or any program that reads PICT files. You must use MacWrite 3.5 or later and Word 3.0 or later. Version 2.1. Requires 512K or later. \$89. Xanatech, 20 Fresh Pond Place, Cambridge, MA 02138. NCP (May '89)

QUED/M ★★★★
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. Version 2.01. \$129. Paragon Concepts, 4954 Sun Valley Road, Del Mar, CA 92014. NCP (Mar '88)

QuickLetter ★★★★
is a well-designed and thoughtfully implemented DA for the creation of letters and envelopes. You can create stationery, complete with graphics, and maintain an address book including salutations. It's the best envelope creator/printer in any word processor. Version 1.0. Requires 512K or more. \$124.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95061-1844. NCP (Apr '89)

Scriptor ★★★★
is designed for producing standard-format scripts. Starts with a Word document. As you change your Word document, Scriptor will reformat, renumber, and reprint the script. Supports LaserWriter and daisywheel printers. \$295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May '87)

Sensible Grammar ★★
corrects some of the more glaring errors that writers make. Also analyzes the word count and structure of sentences to come up with a readability rating. Slow. Version 1.1d. Requires 512K. \$99.95. Sensible Software, 335 E. Big Beaver, Suite 207, Troy, MI 48063. NCP (Dec '88)

Spelling Coach Professional ★★★★
is a DA and stand-alone spelling checker as well as a thesaurus. Includes dictionary definitions. Off-the-wall phonetic guesses. Version 3.0. \$195. Deneba Software, 7855 N.W. 12th St., Suite 202, Miami, FL, 33126. NCP (Sept '88)

Spellswell ★★★★
is a stand-alone batch spelling checker. Also checks for punctuation and other errors. Good dictionary, thorough checking, simple interface. Weak guessing. Version 2.0. \$74.95. Working Software, P.O. Box 1844, Santa Cruz, CA 95061-1844. NCP (Sept '88) ★'86 Eddy

Word Finder ★★★★
is an electronic thesaurus that won't replace your trusty Roget's but is still useful for checking synonyms on the fly. Large, respectively. Version 2.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. Microlytics, 300 Main St., Rochester, NY 14445. NCP (Sept '88)

WordPerfect ★★★★
is a good choice for offices needing compatibility but not so hot otherwise. Good internal file-management system and macro-maker. Uses hidden formatting codes, hierarchical menu system. Requires Mac 512KE and System 4.1 or later. Two 800K disk drives or a hard disk recommended. Not fully compatible with System 6.0. \$395. WordPerfect, 1555 N. Technology Way, Orem, UT 84057. NCP (Feb '89)

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. Lundeen & Associates, P.O. Box 30038, Oakland, CA 94604. NCP (Oct '87) ★'87 Eddy

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 an expensive upgrade path to Word. \$175. Requires 512K or more. Microsoft, 16011 N.E. 36th Way, P.O. Box 97017, Redmond, WA 98073-9717. NCP (May '88)

WriteNow 2.0 ★★★★
is the fastest, best pure-writing program available. Excellent spelling checker, mail-merge, graphics inclusion, footnotes, and header/footer control. Still runs on any Mac. Wonderful interface, as intuitive as the original MacWrite interface. Supports RTF. Version 2.0. Requires any Mac including 128K. \$195. T/Maker, 1390 Villa St., Mountain View, CA 94041. NCP (May '89)

HyperCard

The BMUG PD ROM ★★★★
is a CD-ROM disc containing 300 megabytes of shareware, public-domain software, and demoware. Categories include business, education, games, fonts, Mac II-specific products, and the like. Requires Mac Plus or later.

MINIFINDERS

\$99.95. Discovery Systems, 7001 Discovery Blvd., Dublin, OH 43017. NCP (July '89)

Business Class 1111/2
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 1 megabyte or more and HyperCard. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Mar '88)

City to City 1111
imparts travel information on 31 U.S. cities including details on hotels, restaurants, and nightlife. Helps plan an itinerary. Requires HyperCard, two disk drives, and a printer. \$49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Sept '88)

ClubMac CD-ROM 1111/2
discs contain 430 to 550 megabytes of software, including DAs, sounds, editors, word-processing utilities, spreadsheet templates, and 80 megabytes of stacks. Has user-rating system, classified-ad section, and electronic-bulletin-board support. Released quarterly. Fall '88 and Winter '89 reviewed. Single issue, \$199; \$350 annually. Quantum Access, 1700 W. Loop S., Suite 1460, Houston, TX 77027. NCP (July '89)

Educorp 1111
CD-ROM contains approximately 300 megabytes of shareware, public-domain software, and demoware in 23 categories such as business education, music, and fonts; has an electronic-bulletin-board system. Version 1.1. Requires HyperCard 1.2. \$199. Educorp Computer Services, 531 Stevens Ave., Suite B, Solana Beach, CA 92075. NCP (July '89)

Focal Point II 1111/2
is a major upgrade to Focal Point, an organizational HyperCard stack. Offers an electronic-mail system and a Task Manager module in addition to greater print options. Retains the 16 original modules, including calendar, phone log, and client accounts. Requires 1 megabyte, hard disk, and HyperCard 1.2.1 or later. \$199.95. TenPointO, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Apr '89)

HyperAnimator 1111
enables you to create talking heads for your HyperCard stacks, using MacinTalk or digitized sound resources. Easy to implement, especially if you know HyperCard well. Version 1.5. Requires 1 megabyte. \$149.95. Bright Star Technology, 14450 N.E. 29th, Suite 220, Bellevue, WA 98007. NCP (Feb '89)

HyperCard 1111
is a unique program for the Mac. It uses an index-card metaphor, and it contains a programming language, HyperTalk. Requires 1 megabyte or more. Free with new Macs and bundled with many HyperCard stacks, otherwise \$49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec '87) ★ '87 Eddy

HyperDA 1111
lets you browse through HyperCard stacks through a DA. A true equalizer for 512K Mac owners who cannot normally access stackware. Doesn't support global variables. Requires 512K or more. \$69. Symmetry, 761 E. University Drive, Mesa, AZ 85203. NCP (May '88)

HyperTutor 1111/2
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. Channelmark, 2929 Campus Drive, San Mateo, CA 94403. NCP (Apr '88)

Macintosh Bible: STAX! 1111
is the HyperCard version of the first edition of The Macintosh Bible. Covers system software, applications, hardware, and consumer advice. Requires 1 megabyte, two 800K floppy-disk drives (hard disk recommended), and HyperCard. \$79.95. STAX!, 8008 Shoal Creek Blvd., Austin, TX 78758. NCP (Mar '89)

101 Scripts and Buttons for HyperCard 1111/2
is a collection of scripts, buttons, fields, graphics, utilities, XCMDs, XFCNs, icons, cursors, and more to be used in creating HyperCard stacks. Version 1.1. Requires 1 megabyte, hard disk, and HyperCard. \$69.95. Individual Software, 125 Shoreway Road, Suite 3000, San Carlos, CA 94070-2704. NCP (June '89)

ScriptExpert 1111
helps you generate HyperTalk scripts by leading you through the correct use of the language. Select a common command, and dialog boxes prompt you for necessary components. Version 1.0. Requires HyperCard. \$79.95. Hyperpress Publishing, P.O. Box 8243, Foster City, CA 94404. NCP (Oct '88)

STELLASack 1111
lets you change the boxes and circles of a STELLA simulation into familiar images and icons, with digitized sounds and animation. Contains the STELLA kernel for accessing STELLA models; lets you change models in real time. Version 1.0. Requires HyperCard 1.2.1. \$295. High Performance Systems, 13 Dartmouth College Highway, Lyme, NH 03768. NCP (July '89)

VideoWorks II HyperCard Driver 1111/2
lets you play movies directly from a stack. One way to add color animation to HyperCard. Version 1.0. Requires 1 megabyte, VideoWorks II, and HyperCard; hard-disk drive recommended. \$99.95. MacroMind, 410 Townsend #408, San Francisco, CA 94107; (415) 442-0200. NCP (Dec '88)

Xiphias Time Table of Science and Innovation 1111/2
presents events from the history of technology on a HyperCard-based CD-ROM. Text, graphics, and sound are nicely integrated, and related events are well linked. Includes HyperCard on CD-ROM. Version 1.0. Requires 1 mega-

byte. \$150. Xiphias, 13464 Washington Blvd., Marina Del Rey, CA 90292. NCP (May '89)

Organizational Tools

Acta Advantage 1111/2
is an outliner in a DA and the successor to Acta. Also available as an application. Smart Paste lets you paste material from other applications into Acta outline format. Includes drivers for translating Acta outlines into MORE and ThinkTank (both ways), and into MacWrite, WriteNow, Works, and RTF. Version 3.0 (DA) or 1.0 (application). Requires 512KE or later. \$129. Symmetry, 761 E. University, Mesa, AZ 85203. NCP (Aug '89)

Comment 1111
is an electronic version of Post-it Notes. A mini word processor lets you attach notes to a spreadsheet cell, to words in a text document, or to a window on the desktop. Version 2.0. Requires 512KE. \$99.95. Deneba Software, 3305 N.W. 74th Ave., Miami, FL 33122. NCP (Dec '88)

Design 1111/2
is a powerful organizational tool. It goes beyond mere flowcharting. Graphically depicts relationships between systems. Complex, detailed program aimed at software pros. \$250. Meta Software, 150 Cambridge Park Drive, Cambridge, MA 02140. NCP (Apr '88)

For the Record 1111
is a database specifically designed for legal, financial, and personal records. Allows password locking of screens containing sensitive personal data. Version 1.0. Requires 512KE. \$49.95. Nolo Press, 950 Parker St., Berkeley, CA 94710. NCP (Feb '89)

FormSet: Business Forms Edition 1111
brings a wealth of business forms, such as expense reports and profit/loss statements, into the electronic arena. Fields are automatically calculated. Can't be customized beyond adding logo. Version 1.0. Requires 512KE and two 800K floppy drives or hard disk. \$95. SoftView, 4820 Adhore Lane, Suite D, Camarillo, CA 93010. NCP (Jan '89)

GeoQuery 1111
puts your database on the map by accessing zip code information. Comes with maps of the U.S. Other atlases available. Version 1.0. Requires 1 megabyte or more and second disk drive. \$349. Odesta, 4084 Commercial Ave., Northbrook, IL 60062. NCP (July '88)

Guide 1111/2
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 N.E. 21st St., Bellevue, WA 98007. NCP (Apr '87)

Instant Expert 1111/2
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 1111
allows a user to plan and track a project from beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. \$195. Claris Corp., 5201 Patrick Henry Drive, P.O. Box 58168, Santa Clara, CA 95052-8168. NCP (Mar '86)

MacSchedule 1111
is a simple scheduling program with substantial intelligence built into it, making the creation and maintenance of schedules nearly painless. Produces Gantt charts only (no PERT or CPM). Version 1.0 reviewed. Requires 512K or later. \$195. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (May '89)

MacSMINT 1111
can create small, stand-alone expert systems. Features hypertext connections to MacPaint, PICT, SYLK, and text files. Still a little buggy. Version 1.03. Requires 512K or more. \$149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02138. NCP (Jan '88)

MORE II 1111/2
is an outlining and organizational tool that is a big improvement over its predecessors, MORE and ThinkTank. It has on-screen capabilities well beyond its competitors', especially in multimonitor setup. \$395. Requires Apple System 4.1 or later, 1-megabyte Mac Plus or later, and a hard disk. Version 1.0. Symantec, Living Videotext Division, 10201 Torre Ave., Cupertino, CA 95014. NCP (May '89)

QuickDEX 1111/2
keeps your phone numbers in an electronic Rolodex. The DA even plays the tone through the Mac's sound port. Version 1.4a. Requires 512KE; hard disk is recommended. \$60. Casady & Greene, P.O. Box 223779, Carmel, CA 93922. NCP (Jan '89)

STELLA for Business 1111/2
is a simulation tool used to model complex business systems. Requires that you master a discipline called "system dynamics." Requires 512K or more. Mac II version available. \$350. High Performance Systems, 13 Dartmouth College Highway, Lyme, NH 03768. NCP (June '88)

MINIFINDERS

SuperExpert

is an expert-system shell that induces rules from examples. Rules become unwieldy when many criteria and examples are used. Overpriced. Version 1.4. Requires 512KE. \$199.95. Softsync, 162 Madison Ave., New York, NY 10016. NCP (July '88)

WillMaker

is a simple yet valuable run-time BASIC program for creating simple wills. Not elegant, but it does the job well. Version 3.0. Requires 800K disk. \$59.95. Nolo Press, 950 Parker St., Berkeley, CA 94710. NCP (Mar '89)

Utilities

AutoMac III

is similar to Tempo II and Apple's MacroMaker but is generally easier to use and comes with excellent documentation and a powerful Macro Editor. Version 2.0. Requires 512KE. \$79.95. Also distributed with Microsoft products (Word 3.02 and 4.0, File 2.0). Genesis Micro Software, P.O. Box 6236, 17124 N.E. Eighth Place, Bellevue, WA 98008. NCP (Feb '89)

CalendarMaker

creates monthly calendars in a variety of formats. Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Dec '86)

Capture

saves any portion of a Macintosh screen to the Clipboard or as a PICT file. Works in color on the Mac II. Requires 512K or more. MultiFinder friendly. \$59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '88)

Copy II for the Macintosh

is a collection of powerful yet easy-to-use disk utilities. Disk copying and much more. Version 7.2. Requires 512K. \$39.95. Central Point Software, 15220 N.W. Greenbrier Parkway #200, Beaverton, OR 97006. NCP (Mar '89)

DiskExpress

optimizes hard-drive performance by reorganizing fragmented files. Best of its kind. Version 1.5. Requires 512K. \$49.95. ALSoft, P.O. Box 927, Spring, TX 77383. NCP (Jan '89)

DiskFinder

searches disks for files as well as cataloging disks. Requires 512KE. \$49.95. Williams & Macias, South 3707 Godfrey Blvd., Spokane, WA 99204. NCP (Feb '89)

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 512KE or later. \$99.95. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. NCP (June '87)

DiskTools Plus

is a set of eight 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 or more. \$49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Mar '88)

DiskTop

is a DA 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 or more. Upgrade from version 1.0. \$7: \$10 with new manual. \$49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Aug '87)

Eureka: 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. Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Mar '88)

Fastback for the Macintosh

is hard-disk backup 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 Mac owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS compatible. \$49.95. MacMaster Systems, 108 E. Fremont Ave. #37, Sunnyvale, CA 94087. NCP (Sept '86) ★ 86 Eddy

FileMagic

is a file-management utility that tries to increase the power of the Standard File Dialog box. Your most frequently used files or folders install in a pop-out list for immediate access. Lets you copy or move folders. A good idea, but it's buggy. Version 1.0. Requires 512KE or later. Magnus Corp., 800 Koll Center, 500 108th Ave. N.E., Bellevue, WA 98004-5560. NCP (July '89)

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, click on Find, and Findswell searches for any files that match. Click Open or double-click to open the correct file. Requires 512K or more. \$49.95. Working

Software, P.O. Box 1844, Santa Cruz, CA 95061-1844. NCP (Nov '87) ★ 87 Eddy

1stAid Kit HFS

recovers lost or damaged files from floppy or hard disks. An excellent manual-turned-textbook actually teaches the Hierarchical File System. Requires 1 megabyte or more. Version 2.2. \$99.95. 1stAid Software, 42 Radnor Road, Boston, MA 02135. NCP (June '88)

Font/DA Juggler Plus

gives you unlimited access to almost any number of fonts, desk accessories, and sounds. Uses hierarchical menus. \$59.95. ALSoft, P.O. 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, P.O. Box 989, Montpelier, VT 05602. NCP (Dec '86)

HFS Backup

ranks as one of the preferred hard-disk backup utilities. Back up by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. \$49.95. Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Building A, Tampa, FL 33634. NCP (Dec '86)

Icon-It!

lets you create icons to use as an alternative to menu commands. Use its 47 icon templates or create your own. Version 1.0. \$79.95. Olduvai Software, 7520 Red Road, South Miami, FL 33143. NCP (Feb '88)

LaserServe

is a printer spooler for AppleTalk networks. After installation all operations are done with a DA. Works with both MacServe and TOPS. Requires 512K or more and 800K drive or hard disk. \$95 per node. Infosphere, 4730 S.W. Macadam Ave., Portland, OR 97201. NCP (Feb '87)

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. Now supports custom symbols. \$125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr '87)

MacInUse

tracks time spent in applications and saves info as text files. Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client records, etc. \$79. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan '87) ★ 86 Eddy

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)

MasterJuggler

is Font/DA Juggler with so many features added that they can't be listed here. A world-class utility. Not as elegant as Suitcase II but has more features. Version 1.0. Requires 512K or more. \$79.95. ALSoft, P.O. Box 927, Spring, TX 77383-0927. NCP (Mar '89)

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, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Mar '87)

MultiDisk

is an excellent software disk partitioner that allows partitions to be dynamically resizable, password-protected, and even encrypted. Version 1.0. Requires 512K or later. \$39.95. ALSoft, Inc., P.O. Box 927, Spring, TX 77383. NCP (May '89)

Ncryptor

is a simple, safe program that lets users password-protect their files. The same program is used for encoding and decoding. This is one of the best products in its category. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

NightWatch

locks up your hard disk by using a floppy startup disk that acts as a key. Type in the correct password, and access to the hard disk is allowed. Version 1.02. Requires 512KE, a hard disk, and an 800K drive. Mac II and MultiFinder friendly. \$149.95. Kent Marsh Ltd., P.O. Box 460289, 1200 Post Oak Blvd., Suite 210, Houston, TX 77056. NCP (Sept '88)

On Cue

lets you switch applications without returning to the Finder. Under MultiFinder, active applications are listed on a pop-up menu. Can also launch directly to a specific document. Version 1.0. Requires 512K. Mac II and MultiFinder friendly. \$59.95. ICOM Simulations, 648 S. Wheeling Road, Wheeling, IL 60090. NCP (Sept '88)

OmniPage

is a very good OCR program that can create editable text files out of scanned images. It works only with certain scanners and requires a lot of memory, so be sure you can meet its requirements before you buy. Version 1.0. Requires

MINIFINDERS

68020 and 4 megabytes. \$695. Caere Corp., 100 Cooper Court, Los Gatos, CA 95030. NCP (Mar '89)

PC Tools Deluxe

is a collection of seven applications, two DAs, and two INITs that perform various functions, from disk and file recovery to backup to disk optimization to encryption. Would be better if its elements were better integrated. Doesn't have the smoothness Mac users expect. Requires 512KE or later and System 4.2 or later. \$79.95. Central Point Software, 15220 N.W. Greenbrier Parkway, #200, Beaverton, OR 97006. NCP (Aug '89)

PowerStation

is an extremely easy-to-use, versatile, and powerful Finder substitute. Loaded with powerful features. Comes with Pyro! \$59.95. Fifth Generation, 1322 Bell Ave., Tustin, CA 92680. NCP (Dec '87)

Printworks for the Mac

is a comprehensive software-based dot-matrix printer control system. Optimizes printing from different applications and is easy to use. Requires 512K or more. \$75. SoftStyle, 7192 Kalaniana'ole Highway, Honolulu, HI 96825. NCP (Aug '87)

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 or more. \$99.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Jan '88) ★'87 Eddy

RamSnap

is a RAM disk and disk cache in one easy-to-use package. Can store multiple configurations as files. Good product but a little pricey. \$30. Dove Computer Corp., 1200 N. 23rd St., Wilmington, NC 28405. NCP (June '87)

Read-It! 2.0

is an upgrade of Olduvai's OCR package. Still a good value and performer. Now includes printer drivers for most scanners, batch processing, background operation under MultiFinder, and 22 font tables. Recognizes multiple columns, italics, some foreign characters but not underlined text. Version 2.0. Requires 1 megabyte. \$495. Olduvai Corp., 7520 Red Road, Suite A, South Miami, FL 33143. NCP (June '89)

Redux

is an excellent incremental-backup program. Lets you back up files, folders, or entire volumes. For more control, you can write your own "scripts," using the Redux control language, BackTalk. Comes with Redux Restore, a restore utility that can be distributed freely. Version 1.5. Requires 1 megabyte. \$99. Microseeds Publishing, 7030-B W. Hillsborough Ave., Tampa, FL 33634. NCP (July '89)

RoundUp

searches your disk for a specified text string. Slow, awkward, poor performer. Does not work with Mac II or 68020 accelerators. Version 2.0E. Requires 512K. \$49.95. Virginia System Software Services, 5509 W. Bay Court, Midlothian, VA 23112. NCP (Apr '89)

ScreenRecorder

is a utility for recording your on-screen Mac activities. Ideal for presentations and training. Uses a tape-recorder model. "Tapes" can include sounds recorded with applications such as MacRecorder and can be a fixed length or loop. Recordings can also be installed into HyperCard stacks for easier distribution. Version 1.0. Requires 1 megabyte. \$195. Farallon Computing, 2201 Dwight Way, Berkeley, CA 94704. NCP (June '89)

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 512KE. \$295. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. NCP (Apr '88)

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. Single-user, \$49.95; multiuser, \$99. Appointment Diaries with Smart Alarms priced according to number of users. JAM Software, P.O. Box 1345, Pt. Reyes Station, CA 94956. NCP (Oct '86)

SmartScrap and The Clipper

are two useful DA 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, 30 Commerce St., Williston, VT 05495. NCP (July '87) ★'87 Eddy

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 II

is a software alternative to a large-screen monitor. Lets you create a virtual screen (as large as memory allows) inside the Mac's 9-inch screen. Automatically scrolls to new document position as you type or draw. Version 2.0. Requires 1 megabyte. \$95. Berkeley System Design, 1700 Shattuck Ave., Berkeley, CA 94709. NCP (Oct '88)

Stuffit

compresses files to reduce the amount of space they take up on disk. Great for transferring documents via modem. Also joins and encrypts files. Version 1.5. Requires 512KE. Shareware fee, \$18. Raymond Lau, 100-04 70 Ave., Forest Hills, NY 11375-5133; also available on most electronic services. NCP (Dec '88)

Suitcase II

is even better than its predecessor. Increased file-management capabilities enable you to open 99 font, DA, sound, or FKey files at a time. Can display any installed font in any style. Fonts can also appear in their proper typefaces on their font menus. Includes Font Harmony for resolving font number conflicts, and Font & Sound Valet for font and sound compression. Version 1.2.2. Requires 512KE or later. \$79. Fifth Generation Systems, 11200 Industriplex Blvd., Baton Rouge, LA 70809. NCP (June '89) ★'87 Eddy

SuperLaserSpool

is a LaserWriter spooler. Very fast because it does conversion to PostScript in the background but doesn't print a faithful rendition of PageMaker documents as a result. \$149.95 single user, \$395.95 for up to five users on one network. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. NCP (June '87)

Symantec Utilities for Macintosh

(or SUM) reduces worries about losing data. It prevents, diagnoses, and, if required, fixes many serious disk and file problems. Recovers lost files on crashed hard disks. Version 1.0. Requires 512KE. \$99.95. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Sept '88) ★'88 Eddy

Tempo II

is a powerful keyboard macro program that gives owners of extended keyboards their money's worth. Especially good for building sequential macros. Features include conditional branching and the ability to remember menu selections by name. Version 1.0. \$149.95. Affinity Microsystems, Ltd., 1050 Walnut St., Suite 425, Boulder, CO 80302. NCP (Dec '88)

Top Desk

is a set of seven self-installing (and self-removing) DAs. Menu Key adds Command-key sequences to programs; View allows looking at and moving data among up to eight MacWrite documents; also included are BackPrint, Touch 'n' Go, Blank, Encrypt, and Launch. \$59.95. Cortland Computer, P.O. Box 9916, Berkeley, CA 94709. NCP (May '86) ★'86 Eddy

TMON

is the debugger for the Mac. This isn't open to question. TMON is simply the best. Comes with the latest version of Darin Adler's Extended User Area. \$149. ICOM Simulations, 626 Wheeling Road, Wheeling, IL 60090. NCP

Turbo Download

is a DA designed specifically to increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50 percent to over 300 percent at 2,400 baud. \$39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

TypeNow

is a DA 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)

Vantage

is a text-editor DA and the commercial version of McSink. It can change case; count the number of lines, words, sentences, or paragraphs in a selection; and search and replace on character strings (including invisibles). Supports macros and external commands written in Pascal. Includes a spelling checker. Version 1.0. Requires 512KE or later. \$99.95. Preferred Publishers, 5100 Poplar Ave., Suite 617, Memphis, TN 38137. NCP (July '89)

Virex

is the first commercial antivirus program for the Mac. Seeks out and repairs damage done by the three best-known Macintosh viruses and points out anything suspicious that might be a new form of virus. Updates will be released if new viruses appear. Version 1.1a. Requires 1 megabyte. \$99.95, updates: \$15. Site licenses (100-CPU minimum), \$20-\$30/computer; updates, \$4-\$8. HJC Software, P.O. Box 51816, Durham, NC 27717. NCP (June '89)

WorksPlus Command

lets you build and define macros for all Works modules. Predefined macros provide for an even tighter integration of the program's word-processing, spreadsheet, and database modules. Requires 1 megabyte or more. \$99.95. Lundeen & Associates, P.O. Box 30038, Oakland, CA 94604. NCP (May '88)

Languages

AAIS Prolog

is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. \$150. Advanced AI Systems, P.O. Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar '87)

Acknowledge

lets advanced programmers create customized applications that will accomplish many telecommunications tasks — from automatically picking up E-mail to communicating with VAXs. Version 1.0. Requires 512KE. \$495. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. NCP (Jan '89) ★'88 Eddy

MINIFINDERS

Allegro Common Lisp

is a development environment with an EMACS-style editor that implements most Common LISP editing and debugging functions. Version 1.2. Requires 1 megabyte and a hard drive. \$600. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Nov '88) ★'88 Eddy

★★★★

ExperCommon Lisp

is a LISP development system. Not fully Common LISP-compatible but creates good compiled code and stand-alone applications. Requires 1 megabyte or more. \$995. ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108. NCP (Aug '87)

★★★

LPA MacProlog

is a much improved program that includes incremental and optimizing compilers, a graphics environment package, and C and Pascal submodules. Version 2.0. Requires 1 megabyte or more. \$495. Programming Logic Systems, 31 Crescent Drive, Milford, CT 06460. NCP (Feb '88)

★★★★

Mac C

is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. \$425. Consulair, 140 Campo Drive, Portola Valley, CA 94025. NCP ★'85 Eddy

★★★★

MacForth Plus

is an excellent implementation of the popular Forth programming language. New, reduced price; \$199. Creative Solutions, 4701 Randolph Road, Rockville, MD 20852. NCP

★★★★

Mach II

is a multitasking implementation of Forth that allows local variables and text files. Can create stand-alone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. \$99.95. Requires 512K or more. Palo Alto Shipping, P.O. Box 7430, Menlo Park, CA 94026. NCP (Apr '86)

★★★★

Macintosh 68000 Development System

is a fairly traditional assembly-language package. The two-disk set provides an editor (Edit), an assembler, a linker, an executive, and a resource compiler. \$195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

★★★★

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 1 megabyte or more. \$395. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Aug '87)

★★★★

Object Logo

is an object-oriented programming language with access to the Toolbox. Good product but can't produce stand-alone applications. Requires 512K or more. \$79.95. Coral Software, P.O. Box 307, Cambridge, MA 02142. NCP (Aug '87)

★★★★

Prolog/m

is a solid Prolog following the Edinburgh standard. Has extensive debugging facilities, but you'll need a separate Toolbox disk with 58 additional predicates. Drawback: No true editing or printing facilities. \$99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar '87)

★★★★

Prototyper

is an application-specification program. Lets you create a program interface and simulate how an application would work. Comes with source-code generators for THINK's LightspeedC 3.0, MPW C 2.0 and 3.0, Turbo Pascal, Lightspeed Pascal, MPW Pascal, and TML Pascal II. A useful tool for quick and easy application mock-ups. Version 2.0. Requires Mac Plus or later, two 800K drives, System 4.1 or later. \$295. SmethersBarnes, P.O. Box 639, Portland, OR 97207. NCP (Aug '89)

★★★★

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 Road, Del Mar, CA 92014. NCP (Mar '86)

★★★★

THINK's LightspeedC

features rapid turnaround time for development and testing of programs by the use of an integrated compiler, linker, and editor. Source-level debugger steps through your code line by line to examine the values of variables. Version 3.0. Requires 2 megabytes. \$175. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Jan '89) ★'88 Eddy

★★★★½

THINK's Lightspeed Pascal

is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment. Requires 512K or more. \$125. Symantec, 10201 Torre Ave., Cupertino, CA 95014. NCP (Feb '87)

★★★★

TML (MacLanguage Series) Pascal

is a good Pascal compiler, capable of producing stand-alone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K or more. \$99.95. TML Systems, 4241 Bay Meadows Road, Jacksonville, FL 32217. NCP (June '86) ★'86 Eddy

★★★★

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 disks. Requires TML Pascal. \$79.95. TML Systems, 4241 Bay Meadows Road, Jacksonville, FL 32217. NCP (Dec '86)

★★★★½

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. \$149.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (June '87)

Education

Alphabet Blocks

teaches pre-readers the letters and sounds of the alphabet. The digitized voice of an on-screen elf is clear and pleasant. Very intuitive. Requires 1 megabyte or more. \$59.95. Bright Star Technology, 14450 N.E. 29th Place, Bellevue, WA 98007. NCP (May '88)

★★★★

American Discovery

is an interactive United States geography game that teaches states, capitals, and, in a roundabout manner, postal codes. Version 2.0. Requires 512K or more. \$59.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. 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 1 megabyte or more, two disk drives (one must be 800K). May be run from a hard disk. \$69.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Dec '87)

★★★★

KidsTime

is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech, and one is a nice introduction to musical notes. \$49.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Oct '86) ★'86 Eddy

★★★★

LXR•Test

generates tests from a database of questions. Makes it easy to modify and scramble test questions. Flexible output. Requires Mac 512KE or later and two 800K drives or a hard-disk drive. \$199 or \$399, depending on features. Logic eXtension Resources, 9651 Business Center Drive, Rancho Cucamonga, CA 91730. NCP (May '88)

★★★★

Mavis Beacon Teaches Typing!

has more features than a Selectric. Lots of diagnostics concerning typos. Incomplete documentation. Version 1.1. Requires 1 megabyte. \$49.95. The Software Toolworks, 19808 Nordhoff Place, Chatsworth, CA 91311. CP (Nov '88)

★★★★

On Becoming a Desktop Publisher

is a video training tape based largely on the syndicated television program, "The Computer Show." Good primer on the fundamentals of DTP products. Will eventually become dated. Requires Beta or VHS VCR. \$49.95. Ocean Communications, 1641 N. First St., Suite 160, San Jose, CA 95112. (Sept '88)

★★★★

Reader Rabbit

teaches 4-to-8-year-olds how to read in four elegant games that play and build off of each other. Requires 512KE or later and an 800K drive. Mac II and MultiFinder hostile. Version 2.0. \$59.95. The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555. CP (June '88)

★★★★

Sensei Physics

is a capable, intelligent, well-designed study aid. Covers Vectors to Thermodynamics to The Nature of Light. Animated experiments let you try out concepts. Requires 512K or more. \$99.95. Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101. CP (Jan '88)

★★★★½

Type!

is a typing tutorial that is both practical and flashy. It allows users to interrupt and move easily between functions; however, use of the Return key or space bar are assumed but never explained. Version 1.0. Requires 512K. \$29.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903-2101. NCP (Nov '88)

★★★★½

Typing Instructor Encore

recognizes that it's being used on a word processor. While it is easy to control, there are some strange bugs in the program. Requires 512K. \$49.95. INDIVIDUAL Software, 125 Shoreway Road, Suite 3000, San Carlos, CA 94070-2704. NCP (Nov '88)

★★★★

Typing Tutor IV

consistently tests your use of all keys, including seldom-used ones. It's hard to maintain user's attention span, as the testing material is unimaginative. Requires 512K. \$49.95. Simon & Schuster, One Gulf and Western Plaza, New York, NY 10023. NCP (Nov '88)

★★★

Entertainment

The Ancient Art of War

gives users a chance to refight some famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K or more. \$44.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903-2101. CP (Apr '86)

★★★★½

Apache Strike

would have been an excellent arcade game in the late '70s. Now, it's passé. Navigate a helicopter to destroy ever-increasing numbers of enemy aircraft and tanks. Mac II hostile. Requires 512K or more. \$49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (July '88)

★★

MINIFINDERS

- Arkanoid** ★★★★
is a fast-moving, arcade-style game — a souped-up Breakout. It also includes a special "Boss mode," which brings up a perfectly functional word processor to make your boss think you're actually working. Version 1.0. Requires 512K. \$49.95. Discovery Software, 163 Conduit St., Annapolis, MD 21401. NCP (May '89)
- Balance of Power** ★★★★
is the world's first computer peace game. This simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. \$49.95. Mindscape, P.O. Box 1167, Northbrook, IL 60065. CP (Prem)
- Battle Stations** ★★★★
is a deceptively simple game based on the pen-and-paper game of Battleship. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K or more. \$30. Timeline, P.O. Box 60, Ypsilanti, MI 48197. NCP (June '87)
- Beyond Dark Castle** ★★★★½
brings back Prince Duncan in an encore performance to run, jump, and beat his way to victory. But really, just more of the same. Requires 512KE. \$49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Aug '88)
- Beyond Zork** ★★★★½
is yet another installment in the famous Zork series of text adventures. Find the fabled Coconut of Quendor to restore failing magic in this expert-level game. On-screen mapping and the Mac's window environment are utilized. \$49.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (Apr '88)
- The Chessmaster 2000** ★★★★
is a masterful chess program that will appeal to both novice and master. You can view the board from a 2-D 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 (July '87)
- Chuck Yeager's Advanced Flight Trainer** ★★
doesn't quite have the right stuff to hold interest for long. Simplistic controls. Lacks features found in versions for other computers. Version 1.0. Requires 512KE and two 800K disk drives. \$49.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. NCP (Nov '88)
- 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 they get you. Excellent sound effects. In color on the Mac II. Requires 512K. \$49.95. Casady and Greene, P.O. Box 223779, Carmel, CA 93922. NCP (Apr '88) ★ 88 Eddy
- Dark Castle** ★★★★
is an outstanding achievement in action games, integrating RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K or more. \$39.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Apr '87) ★ 87 Eddy
- Déjà Vu: A Nightmare Comes True** ★★★★
is a graphic adventure that breaks new ground. Innovative use of the Mac interface in a truly playable and exciting game. A great introduction to graphic adventure games. \$49.95. Mindscape, P.O. Box 1167, Northbrook, IL 60065. CP (Jan '86) ★ 85 Eddy
- Dinner at Eight** ★★★★
is a useful recipe-filing system that includes a collection of recipes from a nationwide sampling of restaurants. Users enter number of diners, and program scales recipes. \$49.95. Rubicon, 2111 Dickson Drive, Austin, TX 78704. NCP (Jan '86)
- Down Hill 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 (very nice!). \$49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sept '87)
- Falcon** ★★★★½
simulates an F-16 fighter jet with gut-tightening, sweat-making realism. Go against MiGs and dodge SAMs scenarios. Requires 1 megabyte or more. \$49.95. Spectrum HoloByte, 2061 Challenger Drive, Alameda, CA 94501. NCP (May '88)
- Ferrari Grand Prix** ★★★★
is an exciting race-car simulation game. Mastering it takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K or more. \$59.95. Bullseye Software, P.O. Drawer 7900, Incline Village, NV 89450. CP (July '87)
- Fool's Errand** ★★★★
is an outstanding collection of 80 puzzles woven around a mythical theme of an evil priestess and the search for wisdom. Requires 512K or more. \$49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. NCP (July '88)
- Gato** ★★★★½
puts players in command of an American submarine in World War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." \$49.95. Spectrum HoloByte, 2061 Challenger Drive, Alameda, CA 94501. CP (Nov '85)
- GO** ★★★★½
is the Chinese equivalent of chess. Players plonk markers on a grid to gain territory and outwit an opponent or the computer. Requires 512K or more. Mac II hostile; MultiFinder friendly. Version 1.0. \$49.95. Infinity Software, 1144 65th St., Studio C, Emeryville, CA 94608. NCP (June '88)
- Handwriting Analyst** ★★★★½
produces a personality profile based on answers to questions about one's handwriting. It's simple, and the results will amaze and astound. \$49.95. Ciasa, 2017 Cedar St., Berkeley, CA 94709. NCP (Apr '88)
- Hollywood Hijinx** ★★★★
substitutes a modern Hollywood estate for the famous Underground Empire but otherwise represents a return to Zork game play and feel. There's even a maze to navigate. Simplistic but good. \$39.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (June '87)
- Klondike** ★★★★
is a version of solitaire that uses video-gamelike scoring to create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Version 3.3. Shareware: \$10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec '87)
- Leather Goddesses of Phobos** ★★★★
is another in the long line of witty and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3-D comic and a scratch 'n' sniff card. It has three levels of play: tame, suggestive, and lewd. \$19.95. Infocom, 125 Cambridge Park Drive, Cambridge, MA 02140. NCP (Feb '87)
- Lunar Rescue** ★★★★½
puts you in the role of a benevolent trader ready to save a moon colony from invasion. Blast the enemy while you travel from town to town trading goods for the supplies you need for your mission. Version 1.0. Requires 512KE. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (Jan '89)
- MacGolf** ★★★★½
is a dynamic simulation of real golf. Players have a choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K or more. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May '86)
- Mac Pro Football** ★★★★
is a terrific sports simulation that gives you the chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. \$49.95. Avalon Hill, 4517 Harford Road, Baltimore, MD 21214. CP (Mar '87)
- MacRacquetball** ★★★★½
uses digitized videos and sounds of professional players for a realistic simulation. Has lots of control settings and can be played with someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. \$59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (Oct '87)
- MSFL: Pro League Football** ★★★★½
is a professional football league simulation that encourages people to play people, not the machine. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No LaserWriter support. Requires 1 megabyte or more. \$49. MicroSports, P.O. Box 15799, Chattanooga, TN 37415. NCP (Apr '88)
- NewGammon** ★★★★
is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high-speed mode is included. \$39.95. Newsoft, P.O. Box 3046, Newport Beach, CA 92663. CP
- Ogre** ★★★★
is a strategy tank game played on a hexagon grid. The ogre is an intelligent cyber-tank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. \$30. Origin Systems, 340 Harvey Road, Manchester, NH 03103. CP (Nov '87)
- 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 Drive, San Mateo, CA 94404. CP (Apr '87)
- Puppy Love** ★★★★½
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** ★★★★
is a fantasy adventure game of the typical "good versus evil" variety. Ability to use characters in other adventures gives this game a lot of potential for development. Version 1.2. Requires 1 megabyte or more. \$49.95. Simulated Environment Systems, 800 S. Pacific Coast Highway, 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 few

MINIFINDERS

missions, and collect gold. Nice work if you can get it. \$39.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (June '87)

Shadowgate ★★★★½
is an icon-based graphic adventure. You, as the seed of prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound, and adventure. \$49.95. Mindscape, P.O. Box 1167, Northbrook, IL 60065. CP (Dec '87)

Shanghai ★★★★
challenges players to clear a board of all 144 tiles by matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. \$44.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Nov '86) ★'86 Eddy

SimCity ★★★★
is an animated game that's also a city planning simulator. You can work on any one of eight scenarios included in the package or build your own city from the ground up. Evaluation window gives you instant feedback on your efforts. Version 1.0. Requires 512K. \$49.95. Maxis Software, 953 Mountain View Drive, Suite 113, Lafayette, CA 94549. CP (June '89)

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 playing an X-rated game. Shareware: \$15. Georges Malmoud, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec '87)

Solitaire 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. Spectrum Holobyte, 2061 Challenger Drive, Alameda CA 94501. CP (May '88)

Space Quest ★★★★
is a 3-D 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 Earnon System. Runs on any Mac. \$49.95. Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614. CP (Sept '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 or more. \$55. Interstel, P.O. Box 57825, Webster, TX 77598. NCP (May '88)

Strategic Conquest Plus ★★★★½
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 or more. \$59.95. PBI Software, 1111 Triton Drive, Foster City, CA 94404. CP (Feb '88)

Trust & Betrayal: The Legacy of Sibool ★★★★½
requires negotiating with six 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 or more. Mindscape, P.O. Box 1167, Northbrook, IL 60065. CP (Mar '88)

Uninvited ★★★★
is an icon-based adventure game set in an extremely haunted mansion. Graphic interface makes it easy to play. Animation and sound add to the thrill. \$49.95. Mindscape, P.O. Box 1167, Northbrook, IL 60065. CP (Sept '86) ★'86 Eddy

Winter Games ★★★★
lets up to eight players compete against each other in Olympic events including figure skating, bobsledding, biathlon, and ski-jumping. Excellent animation, good graphics, good theme music. \$39.95. Epyx, P.O. Box 8020, Redwood City, CA 94063. CP (Mar '86)

Music

Alchemy ★★★★
loads and edits digitally sampled sounds from most commercial samplers. Works with 512K, but it eats up memory quickly. Requires MIDI or RS-422 interface, and sampler. \$495. Blank Software, 1477 Folsom St., San Francisco, CA 94103. CP (Oct '88) ★'88 Eddy

Apple MIDI Interface ★★★★
is a simple Musical Instrument Digital Interface with a 1-megahertz clock rate. Has only one MIDI input and one output. Works with all Macs; adapter required for 128K and 512K. \$99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (June '88)

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 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Dec '87) ★'85 Eddy

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 eight tracks of eight voices each. Requires 512K. Version 4.0. \$149.95. Great Wave Software, 5353 Scotts Valley Drive, Scotts Valley, CA 95066. NCP (Dec '87)

Cue: The Film Music System ★★★★½
is a powerful and versatile assistant for scoring films. Automates spotting and logging cue points and searching for matching tempos. Also performs many minor jobs, such as generating a performing rights cue sheet. Version 2.0.

Requires 512KE. \$595. Opcode Systems, 1024 Hamilton Court, Menlo Park, CA 94025. CP (Feb '89)

Deluxe Music Construction Set ★★★★
lets you enter up to 48 voices on eight staves and play the music through the Mac's internal speaker and/or via MIDI. Requires 512K or more. Mac II and MultiFinder hostile. Version 2.0. \$99.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. CP (June '88)

Finale ★★★★½
is a powerful music-notation program that brilliantly transcribes keyboard performances but suffers from an apoplexy-inducing user interface. Version 1.2.4. Requires Mac Plus or later and hard disk; Mac II or SE/30 with 2 megabytes highly recommended. \$1,000. Coda Music Software, 1401 E. 79th St., Bloomington, MN 55425-1126. NCP (Aug '89)

Graphic Notes ★★★★
is a very good page-layout program for music notation, with MIDI support. Comes with special musical notation keypad. Version 2.0. Requires 1 megabyte and second disk drive. \$595 (including Presto keypad). Music Software Plus, 7000 Sequel Drive, Suite 444, Aptos, CA 95003. NCP (Apr '89)

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 or more, MIDI interface, and MIDI synthesizer. \$200. Intelligent Music, 116 N. Lake Ave., Albany, NY 12206. CP (Oct '87)

Jam Session ★★★★
is a music program for those who think MIDI refers to the length of skirts. Without any skill, you can "jam" with rock, jazz, rap, or country tunes. A sort of "Sing Along with Mitch" for the computer set. Requires 512K or more. \$49.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903-2101. CP (July '88)

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 it offers a wide range of exercises. \$99. Resonate, P.O. Box 996, Menlo Park, CA 94026. (Jan '87)

M ★★★★
is a music composition and creation program that works with MIDI data in real time. Unique, entertaining, and powerful but requires lots of practice and patience. Requires 512K or more, MIDI interface, and MIDI synthesizer. \$250. Intelligent Music, 116 N. Lake Ave., Albany, NY 12206. CP (Oct '87)

Master Tracks Pro ★★★★½
is a full-featured second-generation MIDI sequencer that adheres to the Mac interface very well. It's the first program to have graphic controller editing. No longer needs patch chasing for professional use. Version 3.3. Requires 512KE or later. \$395. Passport Designs, 625 Miramontes St. #103, Half Moon Bay, CA 94019. CP (Dec '87)

MIDIBasic ★★★★
is a simple but highly useful routine for writing MIDI software. Good stuff. Sketchy documentation. Works with both Microsoft and ZBASIC. Requires 512K or more plus BASIC. \$49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug '87)

Music Mouse ★★★★½
is a music program in a genre all its own. Called an "intelligent instrument," Music Mouse gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. \$79.95. Aesthetic Engineering, 175 Duane St., New York, NY 10013. NCP (May '87)

Performer ★★★★
is the definitive MIDI sequencer and is priced accordingly. Includes looping, SMPTE synchronizing, 32 simultaneous ins and outs, unlimited overdubbing, and compatibility with Professional Composer for transcription. Version 2.2. Requires MIDI interface and 512K or more. \$395. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Practica Musica ★★★★
uses an interactive game and practice approach to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords, and melodies. Requires 512K or more. \$125. ARS Nova Software, P.O. Box 40629, Santa Barbara, CA 93140. NCP (Nov '87) ★'87 Eddy

Professional Composer ★★★★½
produces performance-quality sheet music using Adobe's Sonata font. Scores can be created from scratch or imported from Performer (and can be exported to Performer for MIDI playback). Requires 512K or more. \$495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan '88)

Softsynth ★★★★
creates sounds for additive synthesis samplers. Downloading from Mac to sampler is time-consuming. Requires 512K, sampler, and MIDI interface. \$295. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Sound Designer ★★★★
set the standard for editing samples on lower-cost samplers, but it still lacks real-time high-fidelity playback. Requires 512K, sampler and MIDI interface. Emax, E II, 2000/2002, DSS-1, \$900, \$495; all others, \$395. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

Studio Session ★★★★½
consists of two programs, an Editor and a Player, that produce music with six voices of digitized sound. Excellent program and manual make this a good buy.

MINIFINDERS

\$89.95. Bogas Productions, P.O. Box 6699, Terra Linda, CA 94903-0699. NCP (Aug '87) ★ 86 Eddy

Turbosynth ★★★★
creates sounds for a digital sampler using modular-synthesis techniques. Good harmonic spectral inverter. Lacks an easy method of multisampling. Requires 1 megabyte, sampler, and MIDI interface. \$349. Digidesign, 1360 Willow Road, Suite 101, Menlo Park, CA 94025. CP (Oct '88)

UpBeat ★★★★½
turns the Macintosh into a front panel for a highly complex and versatile drum machine. Input patterns with mouse, MIDI keyboard, or drum machine. Requires 512K. \$150. Intelligent Music, 116 N. Lake Ave., Albany, NY 12206. CP (May '88)

Hardware & Accessories

AppleCD SC ★★★★
reads CD-ROM optical discs that contain up to 656 megabytes of data. Also plays audio compact discs. Reads High Sierra format, an industry standard for CD-ROM. Requires SCSI port. \$1,295. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Dec '88)

Apple Scanner ★★★★½
is not the state of the art but is adequate for scanner neophytes. The 4-bit (16 gray levels) scanner comes with AppleScan software and HyperScan, written by Bill Atkinson. Requires System 6.0, hard disk for full-page work, and SCSI connection cables. \$1,799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Feb '89)

AST TurboScan ★★★★
is a 300-dpi scanner with sophisticated graphics software. Scans at resolutions from 72 to 300 dpi. Super-Scan software offers halftone, line art, and mixed modes. "Virtual memory processing" lets you scan images too large to fit in RAM. \$1,899. Requires 512K or more. SuperScan software included. AST Research, 2121 Alton Ave., Irvine, CA 92714. NCP (Nov '87)

Classic Professional Graphics Display ★★★★½
is a low-cost color monitor for the Mac II. Good value but has an IBM-look about it. Green tint is annoying. Requires Apple video card. \$549. Classic Components, 1490 Artesia Blvd., Gardena, CA 90247 (June '88)

CMS S-140 SCSI Hard Disk ★★★★
is a very fast, high-capacity SCSI hard disk with a unity interleave and average access time of 18 milliseconds. Holds 140 megabytes. Help, file transfer, and tape backup commands built-in. Hard Disk Partition is a useful DA. Comes with a 6-foot SCSI cable. \$2,995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (July '87)

ColorVue SE ★★★★
is a video processor board for the Mac SE that lets you display 16 colors on an external RGB monitor. Slows up performance. \$695. Orchid Technology, 45365 Northport Loop W., Fremont, CA 94538. (Oct '88)

DASCH ★★★★
is an external RAM disk available in 1/2-, 1-, and 2-megabyte sizes. Connects to a serial port. Speeds up operations by 200 to 300 percent. Can be used as a printer buffer. Works with all Macs. 512K, \$395; 1 megabyte, \$450; 2 megabytes, \$545. Western Automation Laboratories, P.O. Box 3438, Boulder, CO 80307. (Feb '87)

DATAPAK ★★★★
is a 45-megabyte removable Winchester hard disk. Great for backing up your main hard disk or transporting large amounts of data between office and home. Requires SCSI connector and System 4.1/5.0 or later. Drive, \$1,799.95; cartridges, \$149.95 each, or tri-pack for \$419.95. MASS MICRO Systems, Inc., 550 Del Rey Ave., Sunnyvale, CA 94086-3258. (Jan '89)

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 5.25-inch and 3.5-inch formats. \$595 for single floppy. Dayna Communications, 50 S. Main St., Fifth Floor, Salt Lake City, UT 84144. (Jan '88) ★ 87 Eddy

DEST PC Scan 2000 ★★★★½
is an 8-bit scanner that saves images in up to 256 levels of gray. Can be configured for IBM PCs. Requires 1 megabyte. Scanner, \$1,495; Publish Pac software, \$595; OCR text processor card, \$995. DEST Corp., 1201 Cadillac Court, Milpitas, CA 95035. NCP (Dec '88)

FAXstl ★★★★
is an early entrant in the fax modem race. Adequate, but slower than most fax machines, and using it as a normal modem requires changing plugs. Requires 1 megabyte of memory, and a hard disk is strongly recommended. \$695. STF Technologies, P.O. Box 247, Higginsville, MO 64037. NCP (Feb '89)

Felix ★★★★
is an optical-tracking graphics tablet that replaces a mouse. Precision mode gives pixel-by-pixel control. Doesn't collect dirt like a mouse does. The 6-inch-square device is designed primarily for right-handed people. Works with Mac Plus. \$149. Altra, 1200 Skyline Drive, Laramie, WY 82070. (Sept '88)

FX-20 ★★★★
is a good 20-megabyte external hard drive. Good utility software. Reliable and reasonably quiet. Sits next to the Mac, has a large, oddly shaped case. Requires

SCSI port, 512K or more, and new ROM. \$1,199. General Computer, 215 First St., Cambridge, MA 02142. (Feb '87)

Grappler LQ ★★★★
hooks Macs up to parallel laser and 24-pin letter-quality printers. A cable, driver software, and special fonts combine to make dozens of once-unfriendly printers now compatible with the Mac. Requires 1 megabyte and a parallel printer. \$149. Orange Micro, 1400 N. Lakeview Ave., Anaheim, CA 92807. (Nov '88)

Hard Disk 20SC ★★★★
is Apple's 20-megabyte SCSI hard disk. Reliable, fairly noisy unit. Good utility software but no backup yet. Requires cable and terminator (\$80). Requires SCSI port, 512K or more, and new ROM. \$1,299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb '87)

Hewlett-Packard ColorPro Graphics Plotter ★★★★
is an eight-pen desktop plotter that requires third-party software to drive it. Fonts are limited to an optional Graphics Enhancement Cartridge that requires some BASIC programming. \$1,295. Hewlett-Packard, 16399 W. Bernardo Drive, San Diego, CA 92127. (Feb '88)

HyperDialer ★★★★½
provides an interface between a phone and your Mac so you can dial a number using one of the Rolodex-type programs, like SideKick, Focal Point, or QuickDEX. Hooks up between the Mac's sound port and a telephone handset. Requires 128K. MultiFinder friendly. \$39.95. DataDesk International, 7651 Haskell Ave., Van Nuys, CA 91406. (Sept '88)

ImageMaker ★★★★
shoots 35mm color slides directly from the Mac. Supports most presentation software. Uses patterns to represent colors. Not fully compatible with the Mac II. Requires 512K or more. \$4,995. MacDriver software, \$149. Presentation Technologies, 743 N. Pastoria Ave., Sunnyvale, CA 94086. (Feb '88)

ImageWriter LQ ★★★★½
outputs letter-quality text and graphics at 216 dpi. To do so, it reduces 72-dpi screen fonts to a third of their actual size. Takes a lot of memory. Printer Driver version 2.0. Requires 1 megabyte and large font sizes. \$1,400. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Jan '89)

IS/ONE Tablet ★★★★½
with Penworks software lets you use a corded or cordless pen or mouse and a high-res tablet for precise graphics input. Minor bugs with some applications and DAs. Keystroke macros can be launched from the tablet. Minimal documentation. Requires 1 megabyte or more. \$595 to \$1,145. Kurta, 4610 S. 35th St., Phoenix, AZ 85040. (Jan '88)

LaserWriter IINT ★★★★
is Apple's mid-priced PostScript laser printer. It's faster than the LaserWriter Plus, with blacker blacks. Gray scale is less even than that of Plus. Requires 512K or more. \$4,599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

LaserWriter IINTX ★★★★½
is Apple's top-of-the-line PostScript laser printer. 68020 chip makes it very speedy; expandable to 12 megabytes; SCSI hard disk can be attached for fonts. Requires 512K or more. \$6,599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

LaserWriter IISC ★★★★
is Apple's low-end QuickDraw laser printer. Can be upgraded to IINT or IINTX; reasonably fast. Requires 1 megabyte or more. \$2,799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May '88)

Mac Crate 60-Mb Hard Disk ★★★★
puts a Seagate drive in a platinum casing. At \$14 per megabyte, it's a good consumer value. Also comes in 20-, 40-, and 80-megabyte models. Requires SCSI port. \$839. Crate Technology, 6850 Vineland Ave., Building M, North Hollywood, CA 91605. (Nov '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 DA lets you define macros. Also comes in an ADB version for the SE and II. Requires 512K or more. \$169.95. DataDesk International, 7650 Haskell Ave., Van Nuys, CA 91406. Software NCP (Apr '88)

Mac-105 Keyboard ★★★★½
is a good alternative to Apple's Extended Keyboard, with a larger Return key, later and more sculpted key tops, and a lower overall weight. Requires Mac SE or Mac II. \$179; with QuickKeys, \$199. Cutting Edge, P.O. Box 1259, Evanston, WY 82930. (Feb '89)

Mac II Workstation ★★★★
is the best, most versatile computer workstation around. This freestanding or wall-mountable heavy steel unit includes a high shelf for your Mac II and a movable, damped arm for your monitor. The unit comes in a variety of configurations. \$540. Ergotron, 3450 Yankee Drive, Suite 100, Eagan, MN 55121. (Mar '89)

MacADIOS II ★★★★
is a hardware and software interface for laboratory instruments. Standard configuration samples up to 142 kilohertz. Documentation is sketchy. \$1,290 for Macintosh II-ready data-acquisition card; \$600 for MacADIOS II software interface. GW Instruments, 264 Msgr. O'Brien Highway, Cambridge, MA 02141. (July '88)

MacBottom 45 SCSI and Internal Modem ★★★★½
has a modem that fits into the top half of the 45-megabyte SCSI hard-drive case.

MINIFINDERS

Comes with HFS Backup and Eureka. \$1,795. Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Building A, Tampa, FL 33634. (Oct '87)

MacBottom HD-21 ★★★★
is a very low (about 2 inches high), external 20-megabyte hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including HFS Backup. Requires SCSI port, 512K or more, and new ROM. \$1,195. Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Building A, Tampa, FL 33634. (Feb '87) ★86 Eddy

MacBottom HD-70 Hard Disk ★★★★½
is an excellent drive that comes with some very good software, including HFS Backup. Requires SCSI port. \$1,995; 1,200-baud Hayes-compatible modem, \$200 extra. Personal Computer Peripherals Corp. (PCPC), 4710 Eisenhower Blvd., Building A, Tampa, FL 33634. NCP (Apr '89)

MacDot ½
is a 24-pin dot-matrix printer that emulates the ImageWriter LQ. It uses the LQ driver for compatibility, but it's not networkable and costs nearly \$200 more. Bug-ridden emulation often loses touch with your Mac. Requires ImageWriter II or LQ drivers' jumbo fonts for 216-dpi printing. \$1,590. Advanced Matrix Technology, 765 Flynn Road, Camarillo, CA 93010. (Aug '89)

MacIntizer ★★★★
is a graphics tablet and absolute positioning device that replaces the mouse. Various scales are possible. \$599. GTCO Corp., 7125 Riverwood Drive, Columbia, MD 21046.

MacRecorder ★★★★½
is an easy-to-use sound digitizer. Includes software to turn sounds into HyperCard buttons, mix sounds, add special effects, and convert sound formats. Stereo recording possible on a Mac II. Requires 512K or more. \$199. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. NCP (June '88)

MacSnap Plus 2 ★★★★
is a 2-megabyte 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. \$729. Dove Computer, 1200 N. 23rd St., Wilmington, NC 28405. (June '87)

MacTable ★★★★½
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, \$289; cabinet, \$139. ScanCo-Furn, P.O. 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 mouse. \$495. 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 easy to use. \$99.95. Ergotron, P.O. Box 17013, Minneapolis, MN 55418.

Magic Digitizer ★★★★
is a hardware digitizer that works with video cameras. With LaserMagic software, you can generate 300-dpi images (in PostScript). Requires 512K or more. Digitizer with Magic software, \$399.95; LaserMagic software, \$49.95. New Image Technology, 10300 Greenbelt Road, Seabrook, MD 20706. NCP (May '87)

MicroNet III-620 ★★★★½
is a fast 600-megabyte internal hard disk for the Mac II. The drive is a repackaged Impremis Wren V (Control Data). Average access time is 16 milliseconds. Requires Mac II with low-profile SIMMs. \$4,995. MicroNet Technology, 13765-A Alton Parkway, Irvine, CA 92718. (Aug '89)

Microtek MSF-300C ★★★★½
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 several formats, including TIFF and MacPaint. \$1,895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec '87)

Migent Pocket Modem ★★★★½
is a 300/1,200-baud portable modem about the size of a 3-x-5-inch index card. Comes bundled with MacTerm 2.0. Borland's telecommunications DA. Manual is confusing, and technical support is minimal. \$259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov '87)

NetModem ★★★★
is a 1,200-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 or more. \$599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919. (Feb '88)

One Plus One ★★★★½
is a user-installable memory upgrade for a Mac Plus. Adds 1 megabyte of RAM to the 1 megabyte 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 1 megabyte or more. \$1,999. Fonts Plus, \$299. General Computer, 580 Winter St., Waltham, MA 02154. (Apr '88)

Personal Writer PW15 S ★★★★
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 1 megabyte or more. \$895. Personal Writer, 1801 Avenue of the Stars, Los Angeles, CA 90067. Software NCP (Mar '88)

PhoneNET ★★★★
is an AppleTalk-compatible network. Network can be up to 3,000 feet in length. In-place, unused phone cabling can be used for network and can be combined with AppleTalk on the same network. \$59.95 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec '86) ★87 Eddy

ProPoint ★★★★
replaces the mouse with an ADB trackball. Works better on the SE than it does on the Mac II. Lefties will find the button positions uncomfortable. Requires SE or Mac II. \$139.95. Abaton, 48431 Millmount Drive, Fremont, CA 94538. (Oct '88)

QMS Colorscript 100 ★★★★
is an AppleTalk-compatible printer that uses a four-color thermal wax transfer technology. Works on AppleTalk. Excellent typographic capability. Currently supports only a handful of applications. Requires 1 megabyte. \$21,995. QMS, 1 Magnum Pass, Mobile, AL 36618 (Oct '88)

QMS-PS 810 ★★★★½
is an eight-page-per-minute, 300-dpi PostScript laser printer that competes with the LaserWriter II NT. Two megabytes of RAM is standard; upgradable to 3 megabytes. Emulates HP LaserJet, 7475 (HPGL), and Diablo 630. \$5,495. Laser Connection, 7852 Schillinger Park W., Mobile, AL 36608 (July '88)

QuickShare ★★★
adds a SCSI port to an IBM PC for easy connectivity with a Mac. Can use an IBM's hard disk to run Mac applications. Requires SCSI port. Mac II and MultiFinder friendly. Version 1.24. \$465. Compatible Systems, P.O. Drawer 17220, Boulder, CO 80308. (June '88)

Radius Accelerator 25 ★★★★
can make your Mac SE run 50 percent faster than a Mac II. The add-in accelerator card has a Motorola 68020 CPU that runs at 25 megahertz, and an optional 25-megahertz 68881 math coprocessor. \$1,695; \$2,195 with optional 25-megahertz 68881. Radius, 1710 Fortune Drive, San Jose, CA 95131. (Oct '88)

SpeedCard ★★★★½
is an accelerator board for the Macintosh SE that more than doubles the speed of most applications. The board uses the 68000 chip found in the SE and an optional floating-point 68881 chip for number crunching. Requires Macintosh SE. \$399; \$699 with coprocessor. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. (Nov '88)

SuperRam 2 ★★★★½
and SuperRam 4 are 2- and 4-megabyte RAM upgrades. Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adapter module, 1-megabyte memory module, modified power cable, jumper, and fan. SuperRam 4 adds power-supply booster and two 1-megabyte memory modules. Not compatible with most big screens. \$499. SuperMac Technology, 485 Potrero Ave., Sunnyvale, CA 94086. (Oct '87)

Tektronix 4693D Color Printer ★★★★
is a 300-dpi bit-mapped color printer. Colors look smooth and rich. Uses bit-mapped screen fonts; most type has noticeable jaggies. Requires Mac II with color monitor. Recommended 8-megabyte configuration. \$11,490. Tektronix, P.O. Box 500, Beaverton, OR 97077. (Oct '88)

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. ★85 Eddy

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 documentation but good support. Requires 1 megabyte or more. TimeWand 2K version. \$198; TimeWand Manager, \$489. Videx, 1105 N.E. Circle Blvd., Corvallis, OR 97330-4285. (Dec '87)

Turbo Mouse ADB ★★★★
makes an excellent mouse replacement, even if you're not a trackball fan. If you're seeking absolute control, you can buy the optional cdev that enables you to specify custom tracking and double-click speeds. \$169.95; cdev \$15 direct order only. Kensington Microwave Ltd., 251 Park Ave. S., New York, NY 10010. NCP (Feb '89)

V-series Smartmodem 9600 ★★★★½
is the fastest modem you can get for the Mac. To achieve high speeds, you'll need a special cable and software that supports the format. Requires 512KE, Mac-to-modem cable, and communications software. \$1,299. Hayes Microcomputer Products, 705 Westech Drive, Norcross, GA 30092. (Jan '89)

WriteMove ★★★
is the smallest, lightest Mac printer around. It's an ink-jet unit that can produce resolutions of up to 192 dpi. It can run off rechargeable batteries or AC and weighs just 3 pounds. It comes with a good selection of Bitstream fonts. Printing quality varies widely depending on the paper and ink used. Printer Driver version 1.0. Requires 1 megabyte and hard disk. \$699. GCC Technologies, 580 Winter St., Cambridge, MA 02154. (Apr '89)

See us at
MacWorld Expo
Booth 5534
World Trade Center

Quality You Can Count On

SCSI Storage Systems For The Macintosh

20 MB to 1.2 GB - Internal and External - Fast as 10.7 ms

60, 150 and 320 MB Streaming Tape Backup Systems

45 MB Removable Cartridge Hard Disk Drives

AppleTalk and A/UX Compatible



Call for data sheets and the name of your
nearest dealer. Dealer inquiries invited.

Macintosh, AppleTalk and A/UX are registered
trademarks of Apple Computer, Inc.



Manufactured By:

MicroNet Technology, Inc.

13765-A Alton Parkway • Irvine, CA 92718
Tel: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: D1656 • Compuserve: 76004,161

Distributed By:

CAL-ABCO

6041 Variel Avenue • Woodland Hills, CA 91367
Sales: (800) 669-2226 or (818) 704-9100 ext. 311
FAX: (818) 704-7733 • Canada: (800) 387-4345

HARDWARE	235-239
BAR CODE	235
CABLES	235
COMPUTER SYSTEMS	235
DATA ACQUISITION	235
DISK DRIVES	235
DISKETTES	235
ENGINEERING	236
GENERAL	236
INSURANCE	236
MEMORY UPGRADES	236-238
NETWORKING	238
PERIPHERALS	238-239
PRINTERS	239
SECURITY	239

SOFTWARE	239-244
ACCOUNTING	239
BAR CODE	239
BUSINESS	239-240
DESKTOP PUBLISHING	240
EDUCATIONAL	240
EMULATION	240
ENGINEERING	240
ENTERTAINMENT/GAMES	240
FONTS	241
GENEALOGY	241
GRAPHICS	241
LANGUAGE TOOLS	242
MUSIC/MIDI	242
PUBLIC DOMAIN	242
RELIGION	243
SCIENTIFIC	243
STACKWARE	243-244
STATISTICS	244
UTILITIES	244

MISCELLANEOUS	244-246
ACCESSORIES	244
BUSINESS OPPORTUNITIES	244-245
CATALOGS/BOOKS	245
DATA CONVERSION SERVICES	245
DEALER OPPORTUNITIES	245
DESKTOP PUBLISHING SERVICES	245
FURNITURE	245
INSURANCE	245
MAILING LISTS	246
SERVICES	246
SUPPLIES	246

ADVERTISING RATES AND INFORMATION

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.

CLASSIFIED ADVERTISING STAFF

One Park Avenue, New York, NY 10016
(212) 503-5115 or (800) 825-4ADS

<i>Group Advertising Director</i>	<i>Sales Manager</i>
Kathryn J. Cumberlander	Ron Kost
<i>Group Sales Manager</i>	<i>Advertising Coordinator</i>
Daniel L. Rosensweig	Wanda D. Brown
<i>Production Director</i>	<i>Advertising Support</i>
Anne R. Brockinton	Manager
<i>Sr. Production Coordinator</i>	Monica Dixon
Bessi Dion	

ACCOUNT MANAGERS

DENNIS M. LEAVEY (212) 503-5111
 CA (ZIPS 93000 & UP), LA, MN, IL, CANADA, OH, KS,
 IA, KY, TN, CO, AK, AL, AR, MS, NB, NM, ND, IN, GA,
 OK, SD

MARY JO NASH (212) 503-5140
 CT, MA, ME, NH, NY, RI, ID, MT, MD, DC, DE, HI, OR,
 SC, VA, WV, PA, WY, CA (ZIPS 92999 & DOWN)

WES WALTON (212) 503-5136
 MI, VT, WA, NC, BC, NJ, FL, AZ, UT, TX, MO, NV, WI

MacUser MARKETPLACE

HARDWARE

BAR CODE

BAR CODE & MAGNETIC STRIPE READERS FOR MACINTOSH PLUS, SE & II

Connects on keyboard or ADB
Requires no additional program or port
Does not affect keyboard or mouse
Industrial quality, heavy-duty units
Also available

SmartCard encoder/reader
Magnetic encoder
Code 39 UPC & Printing Software
Portable Bar Code Reader

TPS Electronics
4047 Transport Street
Palo Alto, CA 94303
415-856-6833

Telex: (Graphnet) 371 9097
FAX: 415-856-3843

CIRCLE 200 ON READER SERVICE CARD

COMPUTER SYSTEMS

800 PC-RENTL

\$189
per mo.



MAC SE

Also Available:

- IBM PS/2 50Z, 70, 80
- Compaq Deskpro 386S, 386E, Portable III, SLT/286
- Macintosh SE, SE/30, Mac IIcx
- Apple Laser Writer NT, NTX
- H P LaserJet Series II

*Next day
anywhere
in the
U.S.A.*

800 PC-RENTL

Call Toll Free 800 727-3685

CIRCLE 203 ON READER SERVICE CARD

DATA ACQUISITION

MACPACQ

Use your Mac as a digital oscilloscope & chart recorder. A complete data acquisition & control system. 8 channel A/D, 8 digital I/O, 64K RAM. Optically isolated, line or nicad powered. Runs remote or connected to Mac. Great software interface provides for powerful and flexible system. \$1195 complete.

Biopac Systems
5960 Mandarin Dr. — Suite D5
Goleta, CA 93117
(805)967-6615

DISK DRIVES

Hard Drives:

External for Mac+, SE & II:-
AppleCrate/Seagate 20 Meg\$499
AppleCrate/Seagate 62 Meg\$749

Internal for MacSE & II:-
46 Meg with Universal Kit\$599
31 Meg with Universal Kit\$499
100 Meg with Universal Kit\$999

Other Products:

System Saver for: ..Mac+ \$79, SE \$59
Anchor 1200 Modem w/ cable\$99

School Purchase Orders Welcome

Circle Reader Service Card for a Catalog.
Notes: 1. Prices subject to change without notice.
2. Shipping & Handling \$4 per \$100 order by UPS in continental USA. Extra for other places.

3. For Defective merchandise, write within 15 days with the problem for Return Authorization. Refund or replacement at our option.

COMPUTERS PLUS COMPANY

2303 N. 44th Street, #2 Phoenix AZ 85008
Phone: 602-955-1404

FAX: 602-840-3767

CIRCLE 207 ON READER SERVICE CARD

CABLES

CABLES
AppleTalk™ & PhoneNet™
Compatible Kits
Cables for most Apple
and Compatible Products
Cables are Molded Tested
and 100% Guaranteed
Dealer Inquires Welcome
COMPUTEL INC.
26 North 26th St
Kenilworth NJ 07033
Tel (201) 241-5400
Fax (201) 241-5999
CIRCLE 201 ON READER SERVICE CARD

MAC EMPORIUM

Call for catalog!

**THE BIG
APPLE'S
BIG APPLE!**

Over 500 Items In Stock! We Ship Anywhere!

36 East 23rd Street, 2nd Fl.

(800) 635-5785

(212) 677-1800

Fax (212) 353-9781

CIRCLE 204 ON READER SERVICE CARD

LOW PRICED MACINTOSHES

--- SELL - BUY - TRADE ---

OUR INVENTORY OF SLIGHTLY USED
MINT CONDITION MACS WILL SAVE
YOU HUNDREDS OF \$ OVER THE
PRICE OF A NEW MAC. WE ALSO
CARRY A COMPLETE LINE OF NEW &
USED MAC SYSTEMS, PERIPHERALS
& HARDWARE. SELLING YOUR MAC
EQUIPMENT? CALL US FOR A TOP \$
OFFER. CURRENT SPECIALS!!!!!!

MAC SE 2 DRIVES W/KB \$1999

MAC SE 2B HD W/KB \$235B

MAC II, 2 MEG, COLOR, 4B HD \$4499

MAC PLUS \$1100

MAC 11B HD EXTERNAL \$975

ALL OTHER EQUIPMENT CALL

OPEN EVENINGS & WEEKENDS

CALL NOW! (415) 968-9826

MP-COMPUTER MICRO SYSTEMS

P.O. Box 1141, Mt. View, Ca.

94042-1141

DISCOUNT MACINTOSH

Mac Plus.....	\$1295
Mac SE 2drive.....	\$2245
Mac SE 40mb.....	\$2745
Mac SE/30 40mb.....	\$3595
Mac SE/30 80/4mb.....	\$4595
Mac IIcx CPU.....	\$3495
Mac IIcx 40mb.....	\$3995
Mac IIcx 80/4mb.....	\$4995
Mac IIx 80/4mb.....	\$5695
Apple color monitor.....	\$750
Apple 8 bit video card.....	\$495
Apple keyboard.....	\$100
Apple ext keyboard.....	\$175
Imagewriter II.....	\$450
Imagewriter LQ.....	\$995
Laserwriter NT.....	\$3595
GCC P.L.P. Plus.....	\$1645

KIWI COMPUTERS

P.O. Box 67381

Los Angeles CA 90067

(213)553-4507

Fax (213)286-9667

Mon-Fri 8am-4:30pm

Apple and Macintosh TM Apple Computer

CIRCLE 206 ON READER SERVICE CARD

COMPUTER SYSTEMS

**AMERICA'S
LOWEST
PRICED**
Macintosh
COMPUTER PACKAGES™
SEs - Mac IIs - Laser Printers
Hard Drives - Monitors - Scanners
CALL FOR FULL
SYSTEM PACKAGE PRICING TODAY!
800 622-8804
CIRCLE 202 ON READER SERVICE CARD

MacUser Marketplace
is a special economical section
for product and service listings.

DISKETTES

Reclaims Desk from Disks

The VDS 240

Vertical Disk Storage

• Holds 240 Disks

• Mounts on Wall

• Easy Disk Space

MacUser MARKETPLACE

ENGINEERING

IEEE 488 Interfaces

MacII488 • NuBus IEEE board for MacII
MacSCSI488 • SCSI/IEEE controller
Mac488B • Serial/IEEE controller
MacSerial488 • IEEE plotter interface
MacDA488 • IEEE desk accessory
MacDriver488 • IEEE language driver

Call or send for your
FREE Technical Guide

(216) 439-4091

iOtech Inc.
25971 Cannon Road
Cleveland, Ohio 44146
Telex 6502820864
Fax (216) 439-4093

London (0714) 8612-87 • Paris (1) 5480128 • Zurich (071) 821 944
Milan (02) 412040 • Linköping (033) 11 01 40 • Garmisch (0180) 55333
Sidney (21) 452 7831 • Seoul 744-9942 • Munich and other European
North African and Middle East countries not listed (009) 710003

CIRCLE 209 ON READER SERVICE CARD

INSURANCE

INSURE YOUR COMPUTER

Safeware provides full replacement of hardware, media and purchased software. As little as \$39 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat. 9 to 5).
SAFWARE, THE INSURANCE AGENCY INC.
2929 N. High Street, P.O. Box 02211
Columbus, OH 43202
(800) 848-3469 (NAT) or
(614) 262-0559 (OH)

MacUser Marketplace

To place your ad
Call **(212) 503-5115** or
(800) 825-4ADS

MEMORY UPGRADES

Upgrade Your Macintosh!!!



We've
Moved!

**Need Memory?
DON'T BE A DIP!**

Some may try to sell you junk, but our SIMMs are completely manufactured by the same reliable companies that Apple buys their SIMMs from!

•Guaranteed same day shipping. •Corporate and university PO's accepted.
•Excellent free technical support. •Lifetime Warranty. •30 Day Money Back Guarantee

Our New Address

Turbo Technologies, Inc.
112 Denton Avenue • New Hyde Park • NY 11040
(800) 542-7466 • (516) 877-7777 • FAX (516) 877-7784

FREE! Get a free professional Macintosh opening kit (Includes tools above and a wrist strap) with the purchase of 4 simms at our regular prices. Opening kits are sold separately for \$19.95

Call Turbo Technologies at (800) 542-7466!

CIRCLE 213 ON READER SERVICE CARD

GENERAL

Mac Service Part Exchanges

Power supplies • 800K drives • Logic boards
Genuine Apple parts • 90 day warranty
Special program for dealers & service companies

Call toll-free: 800-274-5343

Pre-Owned Electronics, Inc.

Voice: (617) 891-6851/Fax: (617) 891-3556

CIRCLE 210 ON READER SERVICE CARD

We BUY Mac's & Mac Stuff!!

We Buy, Sell, & Horsetrade Popular Computers!!

Mac Parts
Call

Shreve
Systems

Everex 20 meg. \$495.

Used Mac's-----CALL

2421 Malcolm Street Shreveport, La. 71108

Fax 318-865-2006 visa/m.c. O.K. 318-635-1121

CIRCLE 211 ON READER SERVICE CARD

MEMORY UPGRADES

ONE MEG SIMMs

Direct from manufacturer. Available immediately in both surface mount and DIP SIMM format. Call for current pricing information.

MasterCard/Visa

NET MICRO ELECTRONIC TECHNOLOGIES INC.
35 South Street Hopkinton, MA 01748 (508) 435-9057

CIRCLE 212 ON READER SERVICE CARD

RAM

Haven't you waited long enough?

Upgrade your Mac Plus, SE or II with 1 megabyte SIMMs modules. Low-profile and DIP mounted SIMMs available in 120ns and faster. Call for current price. We are the lowest.

RAM HOUSE 1-800-RAM-4MAC

3440 Market St., Philadelphia, PA 19104 (215) 387-5806, Fax: (215) 386-4624

CIRCLE 214 ON READER SERVICE CARD

1 MEG SIMMs \$139

100ns. DIP, 1 Yr. Guarantee,
Immediate Delivery

SIMM ADAPTOR FOR 512E

With SCSI & 1 MEG \$299
(0 MEG \$199, 2 MEG \$499, 4 MEG \$799)

DEALERS WANTED

WANTED: 150ns. 256K SIMMs

Digi-Graphics

764 E. Village Way
Kaysville, UT 84037
(801) 544-2009

CIRCLE 215 ON READER SERVICE CARD

SIMM MEMORY MODULES:

Memory Module Technology

FOR MACINTOSH™ PLUS, SE & II'S
UPGRADE KITS FOR: 1, 2, 4, 8, MEG

MEMORY CHIPS-ALL SPEEDS

**1 MEG & 256K MODULES
IN STOCK FOR IMMEDIATE
DELIVERY**

10291 EAST GRAND RIVER BRIGHTON, MI 48116

1(313)229 9303

FAX 1(313)229 5893

CIRCLE 216 ON READER SERVICE CARD

MEMORY UPGRADES

- 256k, 1 Meg, 4 Meg
- All low profile
- Japanese manufacturer
- Lifetime warranty
- Same day shipping

SIMMs
 (800) 622-1722
 (408) 559-8544

- Visa, MC, COD and University POs accepted.

PSI
 2005 Hamilton Ave. #220
 San Jose, CA 95125

CIRCLE 217 ON READER SERVICE CARD

**How big
do you want
your Apple?**

4MB
High Profile
16 - 32MB For Mac IIx

1MB
High Profile
Low Profile
2 - 8MB For Mac
Plus, SE, SE 30, II,
IIx and IIcx

256K
Low Profile
1 - 2MB
For Mac Plus,
SE, SE 30, II,
IIx and IIcx

We Stock:
120ns SIMMs
100ns SIMMs
80ns SIMMs

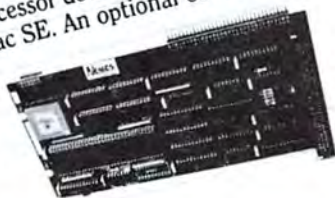
**Memory Expansion SIMMs
From Newer™ Technology**

- Guaranteed Same Day Shipment
- University and Corporate Purchase Orders Accepted
- Ask about our Exclusive Extended Warranty

Call Our Memory Hotline
For Prices and Discounts
1-800-678-DRAM (678-3726)

MacSElevator
Accelerator Board for Macintosh SE

68000 microprocessor doubles the speed and power of your Mac SE. An optional 68881 math co-processor is available for technical applications.



In Canada Contact: Tallgrass Technologies, Canada, Inc. • 1775 Meyerside Drive #1
 • Mississauga, Ontario L5T 1E2 • (416) 673-3244 • (416) 673-3926

DartCard™
Solid State Hard Disk

ADDITION™
Compaq™ Memory

attention!™
Extended Memory

Attraction™
Extended Memory

Concentration™
Expanded Memory

CIRCLE 218 ON READER SERVICE CARD

MAC MEMORY

One megabyte SIMM
modules **in stock** for your
Mac Plus, SE, or Mac II.
Immediate delivery.
Fully guaranteed.



408-973-8559
TRONIX
 Cupertino, CA 95014

CIRCLE 219 ON READER SERVICE CARD

UPGRADES!

512Ke - Plus \$295
 128/512K - Plus \$625

We buy and sell good
used equipment also!

Peripheral Outlet

314 S. Bdwy • Ada, OK 74820

(405) 332-6581

CIRCLE 220 ON READER SERVICE CARD

MEMORY
UPGRADES

*category
continued
on next
page.*

MacUser Marketplace

For additional information call Account Representatives;

Mary Jo Nash

Dennis M. Leavey

Wes Walton

Call (212) 503-5115 or (800) 825-4ADS

MacUser MARKETPLACE

MEMORY UPGRADES



One Plus One™ = 4

4 Megabytes of memory for your Mac® Plus

No leftover memory modules to deal with.

Levco's One Plus One™ and two 1 megabyte SIMMs gives your Mac® Plus 4 megabytes of memory for just **\$600.00**

Levco Sales 6181 Cornerstone Court East
Phone (619) 457-2011 San Diego, Ca. 92121

Mac is a registered trademark of Apple Computer, Inc.

CIRCLE 221 ON READER SERVICE CARD

NETWORKING

PhoneNET® System

The PhoneNET System is a network solution that includes a complete line of hardware and software products to help you build your networks, manage them, and use them to their full potential. Components include PhoneNET Connectors, the PhoneNET Repeater, the PhoneNET StarController™ with StarCommand™ software, TrafficWatch™, PhoneNET Check-NET™, Timbuktu™ and Timbuktu/Remote™ and ScreenRecorder™
FARALLON COMPUTING
2201 Dwight Way
Berkeley, CA 94704
(415)849-2331

PERIPHERALS

HARD DRIVES

LIFETIME WARRANTY

20 MEG INTERNAL	\$299	CALL
31 + MEG INTERNAL	\$369	ON
40 + MEG INTERNAL	\$505	CURRENT
46 MEG INTERNAL	\$419	LOW
60 MEG INTERNAL	\$600	PRICE
80 + MEG INTERNAL	\$840	WILL
20 MEG EXTERNAL	\$426	MATCH ANY
31 MEG EXTERNAL	\$479	OTHER
41 MEG EXTERNAL	\$547	ADVERTISED
40 + MEG EXTERNAL	\$590	PRICE
45 MEG EXTERNAL	\$526	
61 MEG EXTERNAL	\$585	
80 MEG EXTERNAL	\$705	
80 + MEG EXTERNAL	\$919	
100 MEG EXTERNAL	\$1020	

Fits in SE + Mac II with 2 drives
Include PD + Backup Software
External fits under Mac
Seagate—Miniscribe—Quantum
WESTCOM COMPUTER
P.O. Box 154-Ayden, NC 28513
800-422-8591-919-746-4961
CIRCLE 223 ON READER SERVICE CARD

PERIPHERALS

*category
continued
on next
page.*

A SIMM IS A TERRIBLE THING TO WASTE!

Computer Care Inc. has introduced a new line of cost effective memory upgrades for Macintosh computers. **SOFTSTEP** allows you to upgrade by using standard 256K SIMMs.

SOFTSTEP I & II are socketed SIMMs with onboard memory that accept the factory installed 256K SIMMs to increase the machine's memory.

SOFTSTEP III, IV & V are SIMM modules that allow you to build 512K & 1 Meg SIMMs for the Macintosh using 256K SIMMs.

No machine modifications are required when using any of our products. 1 year warranty on all parts. Made in USA.
Call for free information. VISA / MC accepted.

SIMMS

- 1 MEG SOJ
- 1 MEG DIPS
- 256K SIMMS

ORDERS & INFO

1-800-950-CARE

In MN (612) 920-CARE (2273)

Dealer inquiries welcome

CIRCLE 222 ON READER SERVICE CARD

**Computer
Care,
Inc.**

5124 Russell Ave S
Minneapolis, MN 55410
FAX: (612) 925-2720

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** or **(800) 825-4ADS**

MacUser MARKETPLACE

PERIPHERALS

The Lowest Prices On External SCSI Hard Drives

MiniScribe Mechanism, 1 Year Warranty

20Meg/68ms \$389

Seagate Mechanism, 1 Year Warranty

30Meg/28ms \$469

Quantum Mechanism, 2 Year Warranty

Software Selectable SCSI ID

40Meg/12ms* \$599

80Meg/12ms* \$899

*With Built-In 64K Cache

DRIVE
KITS
AVAILABLE

30-DAY
MONEY BACK
GUARANTEE

•COMPLETE WITH
CABLES, MANUAL

•LED BUSY LIGHT

•FULLY TESTED,
24-HOUR BURN-IN



•ZERO FOOTPRINT
METAL CASE

•TWIN SCSI PORTS

•FORMATTER WITH
TRUE PARTITIONING



800-622-3384

10606 BALTIMORE AVENUE, BELTSVILLE, MD 20705
SAME PRICE: CASH, MASTERCARD/VISA. SHIPPING EXTRA.

CIRCLE 224 ON READER SERVICE CARD

PRINTERS

APPLE DAISYWHEEL PRINTER

Crisp office typewriter print quality on all MAC's & Apple II's. Fast 40 char/sec speed on 6-part forms. Fixed & proportional spaced fonts incl. legal & foreign language signs on one wheel. Boldface, 198 columns. NEW \$449. RECOND. \$349 includes easy MAC point-&-click printer resource & cable. Auto sheetfeeder \$49. Commercial grade with 90-day guarantee. Quality Discount Computers, Inc. 135 Artist View Drive Wellington, NV 89444 (702)465-2473 (415)487-8148

SOFTWARE

ACCOUNTING

TIME SAVER PAYROLL 5.0

UPDATED FOR 1989 • FULL FEATURED SYSTEM • salaried, hourly comm. & tips • 11 deductions incl. Fed/Sl/Loc taxes • 401k ded. • Tax tables edited by user. Reports incl. 941, FUTA, SUTA & W2's Prints checks. Requires EXCEL \$99.50 + \$3 s/h. Demo \$15 (applied to purchase).

WESTERN SOFTWARE ASSOCIATES
110 El Dorado Rd.
Walnut Creek, CA 94595
(415) 932-3999

SECURITY

Mac Lock/Mac Cables

Mac Lock, finest security kit for Mac/+, Se, Mac II, secures Mac, keyboard, mouse, 2nd drive, modem, & printer. Attractive red vinyl-covered steel 3/16" cables. Lock included. No tools req. \$-back guarantee. Also, all IBM, Apple II, \$49.95. Mac Cables provide any length custom cables for any computer need. MAC PRODUCTS 20231 San Gabriel Valley Dr. Walnut, CA 91789 (714) 595-4838

MacUser Marketplace

To place your ad call
(212) 503-5115
or (800) 825-4ADS

BAR CODE



PrintBar

BAR CODE FONTS FOR THE MAC

- Code 39, UPC, and EAN.
- PostScript fonts for LaserWriter and Linotronic printers.
- Bit-mapped fonts for screen and ImageWriter.
- Use PrintBar with any software.

(916) 622-4640 / FAX 916 622 4775

Bear Rock
SOFTWARE COMPANY, INC.

6069 Enterprise Dr., Placerville, CA 95667

CIRCLE 225 ON READER SERVICE CARD

BUSINESS

MacResume™

Professional Resumé Templates

50 professionally designed, formatted resumé templates for perfect resumé production every time!



In Microsoft Word or Works please specify

\$59

MacResume™

PO Box 713

Cambridge, MA 02140

MA residents add 5% Outside US add \$3

1-800-422-9010 ext. 4091

CIRCLE 228 ON READER SERVICE CARD

Mail Order Manager

SuperMOM is a turnkey database solution for catalog, direct marketing businesses. Order entry, accounts receivable, inventory, report generator, list management, UPS, multiple ship-to, group pricing, multi-user. Thorough tracking of marketing, inquiries, promotional response and sales. Demo avail.

National Tele-Press

P.O. Box 79

Mendocino, CA 95460

(707) 937-2848

Do-it-Yourself Business Plan

Tim Berry's Business Plan Toolkit for PC or Mac, praised by *Inc.*, *Home Office*, *Bankers Monthly*, *Corporate Cash Flow*: "...well thought-out, clearly written ... includes all the spreadsheets you need, designed to provide all the standard analyses such as multiyear profit and loss, ratio analysis, sales forecasts and the like ... some impressive graphs ... a great buy." With fully-linked financials, sample plan, text files, and manual. \$99.95

Palo Alto Software

(800) 336-5544 (415) 325-3190

CIRCLE 230 ON READER SERVICE CARD

ORGANIZER+

NEW Version 1.5

Organizer + manages your Contacts, Phone logs, Appointments, To Do lists, Projects, Notes and Files. And it is fully customizable.

\$79.95 plus s/h

VISA & MasterCard accepted

Dazzl 2 Chandler Court Columbia, MO 65201

314-874-8657

CIRCLE 231 ON READER SERVICE CARD

RMS Plus™ Restaurant Management System



Inventory Control
Menu Management
Purchase Order
Accounts Payable
Accounts Receivable
Restaurant Payroll
General Ledger

30-Day Money-Back Guarantee
Sextant Corporation
3516 27th Parkway
Sarasota, FL 34235
(800) 262-6665

CIRCLE 227 ON READER SERVICE CARD

Business Power Tools

BizPlanBuilder™

A proven business & marketing plan template on diskette—over 90 pages of outlines, headlines, structured texts, lists, financial projections... already typed into 33 wordprocessing & spreadsheet files (MacWrite, MSWord & Excel/Works).

Sales & Marketing Oriented

What bankers & investors want to see—how you will reach your market. Follow the built-in tutorials and edit into a finished plan. Developed by experienced business managers. Includes friendly manual. Successful with bankers, investors & corporate executives. Excellent for all business managers. \$99.00

"It's excellent—just the thing we need. It's saving us about 90% of the work." — A. Armstrong

"My CPA highly recommends it." — J.S., Fort Worth, TX

Manufacturing↔Equalizer™

A large spreadsheet model to structure, modify, evaluate & balance the financial impact of sales forecasts with a variety of mfg. conditions. In Lotus or Excel. \$149

Call for companion software templates:

Private Placement Memorandum \$99
Limited Partnership Agreement \$99
Personnel Policies Handbook \$99
9 Manufacturing Worksheets \$99

Build your business faster. Order today.

JIAN/Tools For Sales™

Strategic Software Templates for Business Success

127 Second Street, Top Floor • Los Altos, CA 94022

800/ 442-7373 • 415/ 941-9191

30-day acceptance/return Visa-MC-Amex

"We applied for a loan in early November and by Christmas we had \$4,200,000."

— D.S., Lakewood, NY

CIRCLE 226 ON READER SERVICE CARD

BUSINESS

HOW TO MAKE YOUR CREATIVE BUSINESS CLICK!

COLLEAGUE 1.2 introduces integrated multifunctional business management software for creative professionals.

- interactive client files • automated pricing, time billing, and invoicing • general ledger
- income and expense reports • multiple checkbooks • appointment calendar • job traffic • mail merge • 4D Runtime included

Now only \$395. Call for free demo.

COLLEAGUE™
YOUR PARTNER IN CREATIVE BUSINESS

10000 Research Blvd #210 • Austin, TX 78759

512/345-9964

CIRCLE 229 ON READER SERVICE CARD

EQUIPMENT MAINTENANCE

Software system works for any vehicle or equipment. Supplies instant up-to-date info on full status of your vehicles. System provides the following reports: Unit expense, vehicle tracking & inventory, complete fuel consumption & mileage, maintenance service, generates cost/mile. Visa/MC Only \$295

Tri-State Medic Accounting
Old Suncook Road
Concord, NH 03301
(603) 224-7363

DESKTOP PUBLISHING

Need help with PageMaker?

Tips, procedures, ideas, & examples for the beginning, intermediate, and advanced page designer. Covers PageMaker, word processing, graphics, type, charts, laser printers, scanning, and more. Written and designed by working professionals who know how to get the most from the Macintosh. \$55/year/USA (12 issues). Send \$1 for sample issue. **ThePage**, Box 14493, Dept. MU, Chicago, IL 60614

CIRCLE 232 ON READER SERVICE CARD

EDUCATIONAL

THE COURSE BUILDER SERIES

Now in 3rd release and in color! Visual authoring languages that allow you to create stand-alone courseware for teaching, training and testing. Powerful built-in features include drawing, painting, animation, voice, music, grading, intelligent branching and video interface. \$10 demo disks available.
TELEBOTIC INTERNATIONAL, INC.
8410 Oak Ridge Highway
Knoxville, TN 37931
(615)690-5600

EDUCATIONAL

ScreenShare

ScreenShare is software which enables an instructor to do demonstrations in a classroom of networked Macintoshes. ScreenShare broadcasts the contents of an instructor's screen to the screens of the students' Macs while suspending the students' work. ScreenShare for a classroom is \$249 (\$295 Canada)

White Knight Software Corp.
P.O. Box 564-810 West Broadway
Vancouver, B.C. Canada V5Z 4C9
(604) 290-4855

TEACHER'S ROLLBOOK

A complete classroom management tool • Grade averaging and reporting • New quick grade entry • Full attendance records and totals • Records disciplinary actions • Class size reports • Up to 315 students/file • Checked out items • Letters to parents • Requires Mac 512E, 2 Drives • \$99 • Demo \$10
Current Class Productions
22824 Berendo Avenue
Torrance, CA 90502
(213) 326-4246

EMULATION

II in a Mac

An Apple IIe computer
...all in software!

Run Apple II software on your Macintosh.
Convert Apple II files to Macintosh files.

\$149.95 Add \$3 for P&H

COMPUTER:applications, Inc.
12813 Lindley Drive Raleigh, NC 27614
(919) 846-1411

CIRCLE 233 ON READER SERVICE CARD

ENGINEERING

STRUCTURAL-SURVEYING



NEW VERSION!! LANDesign...
for surveying & land & road layout.
• Import/Export data: radial stakeout, log, side shots
• All information is displayed graphically at all times
• Points, lines, curves, boundaries and traverses can be added, changed, copied, pasted and duplicated
• FRAME mac: BEAM mac: 2D BEAM mac for structural analysis of 2-D frames, trusses, and beams
• MacShapes for calculating structural properties
All programs have full Macintosh interfaces. Money-back guarantee. Free support. From \$145-\$595. Visa or MC.

Compuneering Inc. - (416) 738-4601
113 McCabe Crescent
Thornhill, Ontario L4J 2S6 CANADA

CIRCLE 234 ON READER SERVICE CARD

ENGINEERING

DesignWorks™

Professional, fully integrated schematic and simulation on the Macintosh, featuring:
• fully interactive digital simulation with logic-analyzer style timing display
• customizable net and component lists for interface with PCB layout and other systems
• 7400, 4000, 10K, LSI and analog libraries
• advanced editing features including bussing, symbol rotations, device and line dragging, Cut/Copy/Paste, multi-page drawings
• dot-matrix, laser printer, pen plotter output
• user-definable devices, RAMs, PROMs and PLAs with full simulation

LPLC™

Now you can use the Macintosh to develop and test circuit designs using Programmable Logic Devices. Full support for devices from MMI, AMD, Signetics, Lattice and others. High-level language constructs support Boolean equations, state machine entry, integer fields, etc. Full simulation support when used with DesignWorks.

DesignWorks: \$685 LPLC: \$535

Low-cost educational versions also available

Capilano Computing
545-108th St., Suite 6
Bellevue, WA 98004
(604) 669-6343

CIRCLE 235 ON READER SERVICE CARD

Professional CAD Symbol Library

Over 2,700 Symbols in One All-Inclusive Package
For All of Your CAD Needs:
Mechanical Electronics
Architectural Hardware
General Drawing Aids
And Much More, All for \$119.95!

Compatible with ClarisCAD™ and MacDraw II™
(303) 674-2222 to Order

(Specify ClarisCAD or MacDraw II Version)
Advanced System Design, Inc.
1010 Stagecoach Blvd., P.O. Box 3131
Evergreen, Colorado 80439

CIRCLE 236 ON READER SERVICE CARD

Cross Assemblies
µASM™

- 400 COP400 family
- 1802 1802 family
- 6802 6802/C00/C02
- 6801 6801/6801/6801 families
- 6804 6804/H104
- 6805 6805/H105/6305
- 6809 6809/H109
- 1C11 68HC11/6800/6801 families
- 8048 8048 family
- 8051 8051 family
- 8085 8085/8080 family
- 8096 8096/8096 family
- Z8 Z8 family
- Z80 Z80/8085/8080 family

NEW-8085 & 8096

US \$129.95 ea
plus s/h*

Fast, Full Macintosh interface. Output/downloads to most EPROM programmers. Features macros, conditional assembly, local and automatic labels, symbol table cross-ref, module sectioning. Editor included. MC/V.

Micro Dialects, Inc. Dept U
PO Box 30014
Cincinnati, OH 45230
(513) 271-9100
NEC Mac MICRODIALECTS

CIRCLE 237 ON READER SERVICE CARD

MINICAD +

MiniCad + by Graphsoft boasts dynamically linked spreadsheets, unlimited layers, internal symbol library, auto-dimensioning, double line tool, clip/add/intersect polygons tools, object snap, fillet & trim lines tools, object sizer and locator, 9 decimals accuracy, full 2D and 3D modes and more. MiniCad + reads MacDraw and MacDraft files, \$695 Demo available.

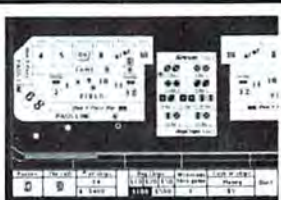
COMPERSVC

1921 Corporate Square Blvd

Slidell, LA 70458

(800) 272-5533 or (504) 649-0484

ENTERTAINMENT/ GAMES



GAMBLIN' TIMES

The best gambling simulation available.
Includes Craps, Roulette, \$25,000 Keno, 4x4, Blackjack, 7 Card Stud, Speed, tic tac toe, Slots and Liars Poker. Lots of XFEN's for fast graphics, voice, sounds and animation. Supporting Las Vegas Rules, odds, unlimited betting, rapid repeat bets, card counting, double odds, adjustable speeds and a lot more. All ten games combined into one interactive game which keeps track of all winnings and assets by game. Requires Mac with Hypercard 1.2

Only \$47.95
(That's only \$5 per game)

Send check or MO to Wilson Advertising,
1239 E. Palm Street, Altadena, CA 91001
For phone orders call

(818) 791-3656 MC/VISA

CIRCLE 238 ON READER SERVICE CARD

SPORTS HANDICAPPING SW

SSWIN with horse racing & greyhound handicapping software-\$32.95, \$52.95, \$67.95, \$77.95 each. Up to 17 entries analyzed: class, speed, times, odds, track, post, stretch, & finish. Pro Football, Baseball, Basketball Software-\$52.95. Handicap races & games in minutes. MC/VISA accepted. Free info.
SOFTWARE EXCHANGE
P.O. Box 5382-MU
W. Bloomfield, MI 48033
(313) 626-7208 Orders: 1-800-527-9467

MacUser Marketplace

To place your add call
(212) 503-5115 or (800) 825-4ADS

MacUser MARKETPLACE

LANGUAGE TOOLS

FORTTRAN Power on Your Desktop

No need to wait for time on the "big" computer any longer! Language Systems FORTTRAN lets you develop and run the same high performance FORTTRAN programs at your desk.

VAX-compatible extensions, high precision IEEE floating point data types, complete access to the Toolbox, direct code generation for the Macintosh II, and the MPW programming environment make this compiler the most powerful FORTTRAN for the Macintosh.

Language Systems FORTTRAN —
the power to do it at your desk.

**LANGUAGE
SYSTEMS**
CORPORATION



441 Carlisle Drive, Herndon, VA 22070

(703)478-0181

Requires a hard disk and a Macintosh IIx, II, SE or Plus
CIRCLE 246 ON READER SERVICE CARD

MUSIC/MIDI

version 2.1
includes text

**PRACTICA
MUSICA**
Ear Training & Music Theory
for Everyone

"Best New Education Program, 1987"
-MacUser Magazine

- Teaches intervals, chords, melody, rhythm
- Interactive staff notation • Saves scores
- High quality sound • MIDI compatible
- Historical & computer-generated melodies
- Custom ear training melodies

\$125 • Call Toll Free 800-445-4866,
In CA: 800-445-8749

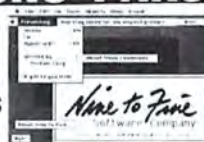
ARS NOVA
BOX 40629, SANTA BARBARA, CA 93140

CIRCLE 249 ON READER SERVICE CARD

PUBLIC DOMAIN

ECONO PAKS

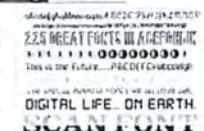
**125
Stacks**



**125
Kids**



**150
Fonts**



**250
DAs**



**260
Sounds**



**250
Pictures**



\$19.95 per set!
Any five sets: only \$89.95
On double-sided disks. Add \$5 set for single-sided. Add \$1 post & handle per order.

**FREE 288-page
Software Encyclopedia**
Call 1-800-843-9497
EDUCORP
531 Stevens Ave, #B
Solana Beach, CA 92075

CIRCLE 250 ON READER SERVICE CARD

PUBLIC DOMAIN

**PUBLIC DOMAIN
SHAREWARE**

**1000's
OF SELECTIONS**

**Highest
Quality**

SOFTWAREHOUSE

**CALL FOR A
FREE CATALOG**

1-800-548-7360

CIRCLE 248 ON READER SERVICE CARD

PUBLIC DOMAIN/SHAREWARE

SPECIAL INTRODUCTORY PACK!

- 100 Games • 100 Desk Accessories
- 100 Fonts • 18 Business Applications
- 318 Programs on 7-800k disks.

All 318 programs for \$27.95 + \$3.00 s/h COD.
AMEX & Check Accepted. Catalogue \$2.00. Any
of our 800k full disks—3 for \$13.00.

DoMain Chain
P.O. Box 366
Bronte, TX 76933
(915) 473-3291

FREE PUBLIC DOMAIN & SHAREWARE CATALOG

Lowest Price
Best Quality
Fast Service

Over 1000 Macintosh
Software

Write to:
SOFTSHOPPE
POB 709, Ann Arbor, MI 48105
(313) 763-8721

CIRCLE 247 ON READER SERVICE CARD

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
or (800) 825-4ADS

RELIGION

ThePerfectWORD™ Bible Study Software for the Apple® Macintosh®

Super Concordance Capability
Search for words and phrases

Texts currently available:

- King James Version
- New International Version
- Revised Standard Version
- Greek New Testament
- Hebrew Bible

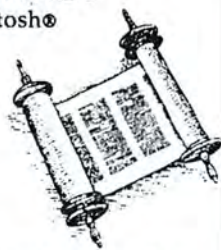
- Outstanding speed
- AND, OR, NOT logic and proximity searches
- Word count statistics
- Simultaneous viewing of different versions

In the beginning
בְּרֵאשִׁית
• Greek and Hebrew pointed and accented
• True right-to-left Hebrew
• Easy to export text to other programs

30 day money back guarantee on ThePerfectWORD
Send for our fully featured demo (Genesis-KJV) \$5
Visit our booth #913 at Boston MacWorld Expo (Aug. 10-12)

Star Software, Inc. (407) 831-8050
229 Live Oaks Blvd. #UA • Casselberry, FL 32707 • USA

CIRCLE 251 ON READER SERVICE CARD



SCIENTIFIC

typeset quality Equations Made Easy

See 5 Mice Review in this issue's MiniFinders under Word Processing

Expressionist™ 2.0

2-Way TeX Interface

$$B = \frac{\mu_0}{4\pi} \int \frac{J \times r}{r^2} dt$$

A powerful application and desk accessory that generates equations for word processing and Desktop Publishing.

allan bonadio associates 814 Castro #51, SF. CA 94114, (415) 282-5864 \$129.95
CIRCLE 253 ON READER SERVICE CARD

STACKWARE

2 Great Business Stacks...

'88 SuperStacks Award Winner!
Copyrights, Trademarks & Pat.

Business Letters HyperFast!
Business LetterBASE

- What Can be Registered and How,
- Do You Need an Attorney?
- Fees, Payment Methods, etc.,
- Legal Definitions, Hotline #'s
- Fill-out-on-screen Application Forms
- Examination Procedures, and more!

- Includes 200 Pre-written letters!
- Add Letters, Automatic Indexing,
- Import/Export Letters/Documents,
- Print w/ Margins from HyperCard!
- State Abbrevs., Forms of Address,
- Punctuation Tips, 3 800K Disks!

Only \$49.95

713-872-8085

Only \$99.95

Aardvark Development Labs: 14400 Ella Blvd. Ste. 150 • Houston, TX 77014 • 1989
CIRCLE 254 ON READER SERVICE CARD

HyperTools™ #1 includes: Icon Editor, Scan Cards, Alignment & Array Creation Tools, Script Cross Reference & Font Tools, XCMD tools, Button Tools and more. 16 Tools in all for stack design! \$99.95

HyperTools™ #2 includes: Multiple Choice Lists for Fields, Field Sorting, Formatting & Data Validation, Sound Tools, Group Tools, Font Tools and more. 16 tools for visual presentation of data! \$99.95

Stack Cleaner™, a utility set. Complete menu creation & editing facility for stacks including standard menu resources & hierarchical menus. A script cleaner to reduce the size of scripts by using standard abbreviations. Plus utilities to merge, split, and clone stacks. \$49.95

Trendware Corporation Box 2285 Huntington, CT 06484 (203) 926-1116

CIRCLE 255 ON READER SERVICE CARD

Bible study tools that grow with you.



THE WORD processor
The most comprehensive Family of Products for Bible Study.

Start with **VERSE SEARCH** including the Bible translation of your choice with Instant Access to any verse. Search for any words or phrases. Separate windows for comparing verses. And much more! Only \$99.95

AS YOU GROW, add NIV, RSV, KJV or NKJV text, Greek or Hebrew transliterators or topical cross references, personal commentary, a chronological Bible and chain references. Our memory resident **VERSE TYPIST** transfers verses to your word processor.

Bible Research Systems
1-800-423-1228

2013 Wells Branch Parkway #304 • Austin, Texas 78728
Tech Support (512) 251-7541 Postage extra. For IBM, MSDOS, Macintosh.

CIRCLE 252 ON READER SERVICE CARD

XCMDs & Utilities for HyperCard!

HyperNotes
Numeric Formatting
Stack Documenter
Script Compactor
Icon Master Program
Data Validation
File Utilities
Cursor Utilities
Icon Utilities
ICN+ Thief
Icon Libraries
Custom Alerts
...And More!

Get your money's worth!
Only \$49.95!



Binary One, Inc.
4718 University Way N.E.
Seattle, WA 98105

800-669-7555

CIRCLE 256 ON READER SERVICE CARD



**CANADIAN
FACTS
STACKS**

Getting the facts on Canada just got easier. If you ever wanted quick access to information on the key facts, statistics, geography, history, artists, important people, sports, the provinces, the prime ministers, and the political system that make Canada a great nation then you owe it to yourself to pick up your copy of Canadian Facts Stacks Version 1.0 for Apple's HyperCard™. Canadian Facts Stacks is valuable tool for business, institutions, educators, students, libraries or individuals looking for quick "finger-tip" access to information on Canada.

Price: \$59.95 available by direct mail order only. VISA, MasterCard, cheques and money orders accepted.

For your copy contact:
Canadian Facts Stacks, Box 800,
Vegreville, Alberta, Canada T0B 4L0
CIRCLE 257 ON READER SERVICE CARD

STACKWARE

category
continued
on next
page.

MacUser MARKETPLACE

STACKWARE

Изучайте языки!

Russian, German, French, Spanish, and Japanese Stackware. Many with digitized sound \$29.95 - \$49.95. Pronunciation, verb, noun, and vocabulary tutors. Call or write for our catalog. MC, Visa, COD. School P.O.'s. Requires HyperCard 1.2.x.

The HyperGlot Software Co
505 Forest Hills, Knoxville,
TN 37919 (800)726-5087
CIRCLE 258 ON READER SERVICE CARD

MacRecorder® Sound System

When graphics and text are not enough, give your presentations a more dramatic dimension—narration and sound. The MacRecorder sound digitizer, SoundEdit™, HyperSound Tool Kit and HyperSound™ software allows you to record and play back live or pre-recorded sound on your Macintosh. Combine with Apple's HyperCard™ and Farallon's ScreenRecorder™ (available separately) to create new multi-media platforms to train, educate, and communicate in business.

Farallon Computing
2201 Dwight Way
Berkeley, CA 94704
(415)849-2331

STATISTICS

RATS Version 3.0

RATS is an integrated environment for data analysis, forecasting and graphics. Forecast with Box-Jenkins (ARIMA), exponential smoothing, vector autoregressions, large models and others. Choose from a wide variety of techniques to analyze your data, from stepwise regression to logit and probit, from two-stage least squares to spectral analysis. \$300.00
VAR Econometrics, Inc.
P.O. Box 1818
Evanston, IL 60204-1818
(312)864-8772; (800)822-8038

UTILITIES

Plotter Utility...with professional fonts for Apple, HP, Houston; A-E sizes. \$125

Terminal Utility...fast VT100, Tektronix, file transfer, color, and large screens. \$195

Mesa Graphics, Inc
P.O. Box 600
Los Alamos, NM 87544
(505) 672-1998

CIRCLE 259 ON READER SERVICE CARD

MISCELLANEOUS/ACCESSORIES

ZERO HALLIBURTON®

A 50 YEAR TRADITION



Mac IIcx



Case Closed.

from \$299.95

THE BEST CASE SCENARIO
Airline Check-in or Local Use

ZERO HALLIBURTON Aluminum Macintosh® Cases:
Plus SE, Mac IIx, Mac IIcx, ImageWriter® II
Strength, Durability, Lightweight, Distinctive Styling

1-800-327-1829

TLC 7345 Radford Street
N. Hollywood, CA 91605

CIRCLE 260 ON READER SERVICE CARD

DUST COVERS



100 % COTTON CANVAS
BEIGE WITH GREY TRIM
BREATHABLE! STATIC-FREE!

FOR
MAC, II, & PRINTERS
CALL TOLL-FREE
1-(800) 826-5761

Contemporary ComputerWear
1320 - 36th Ave. San Francisco 94122
CIRCLE 264 ON READER SERVICE CARD

HEAVY DUTY MAC HARD CASES



HEAVY DUTY FOAM LINED
CASES WITH COMPARTMENTS
FOR KEYBOARD & MOUSE

MC & VISA	ADD FREIGHT HARD CASE	HEAVY DUTY HARD CASE	SEMI- HARD CASE	SOFT SIDED FOAM LINED
MAC SE	\$240	\$195	\$156	\$79
MAC SE, EXT/KB	\$250	\$204	\$166	\$88
MAC PLUS	\$240	\$195	\$156	\$79
MAC PLUS EXT/KB	\$250	\$204	\$166	\$88

CASES ARE AVAILABLE FOR
ANY COMPUTER. ALSO
CUSTOM CASES.

1-800-882-7112 In MI 616-374-7105

WESTERN CONTAINER & CASE Box 125, Woodland, MI 48897

CIRCLE 261 ON READER SERVICE CARD

CHECK YOUR MAC SHIP YOUR MAC

P
E
R
I
P
H
E
R
A
L
S



S
E
M
A
C
I
I

with TransMac™
ORBIT SYSTEMS
225 Third Street
BOWLING GREEN, KY 42102
502-782-0600
1-800-541-5421

Dealer Inquiries Welcome

CIRCLE 262 ON READER SERVICE CARD



Pack your Mac in seconds!

Cordura case has internal padded pockets for mouse, keyboard and drive. Available in six colors. Extended Keyboard version also available.

For a dealer near you call toll free
1-800-548-0053

West Ridge Designs

1236 N.W. Flanders, Portland, OR 97209
CIRCLE 263 ON READER SERVICE CARD

BUSINESS OPPORTUNITIES

MacUnderground



THE MAC UNDERGROUND WANTS YOU !!!!
The demand for our on-line electronic magazine for the Mac is more than we can handle! Distribute our magazine, software, & hardware products in the U.S., Can., U.K., Australia, Far East or Europe. We offer:

- EXCLUSIVE TERRITORIES •
- PROVEN MARKET •
- SMALL INVESTMENT • BIG RETURNS •
- TECHNICAL and SALES SUPPORT •

Have fun and make \$\$ with your Mac! You can launch this business from your home or existing business, and expand from there. For further information...

CALL

MAC UNDERGROUND, 1180 South 1300 East,

Salt Lake City, Utah 84105 USA

(801)-582-1676

CIRCLE 266 ON READER SERVICE CARD

MacUser Marketplace

To place your add call

(212) 503-5115 or (800) 825-4ADS

MacUser MARKETPLACE

BUSINESS OPPORTUNITIES

If you have a small workbench or table, you can start your own toner cartridge recharging business — full or part-time.

The demand for recharged toner cartridges for laser printers and copiers is exploding. Cash in on this demand by starting your own toner cartridge recharging business now.

As a LaserCharge-trained entrepreneur, you will be able to offer companies in your area a *long-life* recharged toner cartridge — backed by a nationwide LaserCharge guarantee — for far less money than a new cartridge.

LaserCharge provides training, tools, supplies, trade secrets, marketing strategies and technical support. Choice of two plans: \$4,900 or \$6,900.

 **LaserCharge**

Call for a free cassette and brochure about this new field!
800-223-8134 512-335-8191

CIRCLE 267 ON READER SERVICE CARD

CATALOGS/BOOKS

The Macintosh Exchange

Your monthly connection for buying or selling used Macintosh hardware, software, accessories, etc. Classified and display advertisements are available each issue. One-year (12 issues) subscriptions available for only \$24 includes 1 free 15 word classified. Current single issues \$3.00. Please call or write for ad rates:
The Macintosh Exchange
P.O. Box 71591-DEPT. MU
Reno, Nevada 89570-1591
(702) 852-2292

DATA CONVERSION SERVICES

WE CAN CONVERT DATAFILES TO/FROM OVER 1,500+ SYSTEMS IN VIRTUALLY ANY FORMAT! — ON DISKS OR TAPES!

Systems like:

- Mainframes
- Minis
- Microcomputers

- Dedicated Word Processors
- Typesetters, etc.

Formats like:

- MacWrite*
- Microsoft Word* Works*
- WordPerfect*
- Omnis*
- 4th Dimension*
- FileMaker*
- Jazz*
- Excel*
- Tab-delimited ASCII, etc.

*Trademarks of their respective companies

CompuData Translators, Inc.

3325 Wilshire Blvd. Ste. 1202
Los Angeles, CA 90010


800/825-8251 • 213/387-4477

CIRCLE 268 ON READER SERVICE CARD

DATA CONVERSION SERVICES

DATA CONVERSION

Over 2500 formats Quick turnaround

all word processors, mini, micro, mainframe, databases/spreadsheets disk to disk, OCR Scanning tape to disk
 Xerox, NBI, DEC Macintosh, IBM Wang, CPT, Lanier,...

National Data Conversion Inst.
5 east 16th street, new york, n.y. 10003
(212) 463-7511
CIRCLE 269 ON READER SERVICE CARD

TAPE/DISK CONVERSIONS

Conversion services for your Macintosh to over 2000 computer systems. Capabilities include converting to or from:

- Magtapes • Mini & Micro Computers
- Word Processors • Typesetters

Data can be supplied in over 250 software packages. OCR scanning also available.

Pivar Computing Services, Inc. #MU
165 Arlington Heights Rd.
Buffalo Grove, IL 60089
(312) 459-6010

DEALER OPPORTUNITIES

Wanted

\$20,000.

Mac's

Each day We use \$20,000 of Mac's, we buy New Macs from Retail Dealers Nationwide. Cash for "Over Stock" @ 34% 36% off. Corporate Sales Service Inc. Calls Confidential (503) 254-1897 Fax Lists to: 255-0067 Cash finder's fees paid for New "Mac Sources"

CIRCLE 270 ON READER SERVICE CARD

DESKTOP PUBLISHING SERVICES

• MACINTOSH • SLIDE IMAGING

PROFESSIONAL 35mm SLIDES DIRECT FROM YOUR DISK OR VIA MODEM

FROM **\$650**
NO ADDITIONAL SOFTWARE TO BUY!
• Aldus • MacDraw
• ReadySetShow • Canvas
• Power Point • and Many Others!

24 Hour Service.
Also available — Color Prints
Slide Dups — Overheads.

CALL FOR DETAILS!

 Stidemasters
Dallas, Texas
(214) 437-0542

CIRCLE 271 ON READER SERVICE CARD

SLIDES!

ATTENTION USERS OF

- POWERPOINT 2.0
- PERSUASION
- STAND OUT!
- MORE !!

DIGITAL PHOTO

WILL IMAGE ANY
PICT OR 24 BIT TIFF FILES.
24 HOUR MODEM

2 FREE SLIDES
WITH FIRST ORDER

CALL FOR INFORMATION:
402-393-1744 \$7
CIRCLE 272 ON READER SERVICE CARD

DESKTOP PUBLISHING SERVICES

LASER SET™ TYPESETTING

THE LOWEST PRICES and high quality personalized service. L100 & VI4300P PostScript typesetting from disk or modem. 24 hr. service. Super volume discounts (150 pages—\$3.50/page paper, \$5.25/page film). Professional type, design and consulting services.

LASER SET™
217 Dover Parkway
Stewart Manor, NY 11530
(800) 333-2581, (516) 354-2581

FURNITURE

Furniture for the Macintosh

Nationally advertised fine oak furniture

Save up to 40%
factory direct!

- CAD-CAM WORKSTATIONS
- LASERWRITER CARTS
- PRINTER STANDS

AND MORE...
Call Now
For Free Catalog

1-800-333-8095
The Walker Company Petaluma, CA

CIRCLE 273 ON READER SERVICE CARD

INSURANCE

SAFWARE INSURES

*Business Computers *Home Computers
*Overseas Computers *Leased Computers
*Computers Leased to Others *Computers taken to Shows *Computers Held for Sale
*Others' Computers in Your Care Call for complete information!

SAFWARE, The Insurance Agency Inc.
2929 N. High St.
P.O. Box 02211
Columbus, OH 43202
(800) 848-3469 (NAT) or (614) 262-0559 (OH)

MacUser Marketplace
is a special economical section for product and service listings.

MacUser MARKETPLACE

MacUser Marketplace

Second Color
Option
Available

MAILING LISTS

MAILING LIST of Mac Users



On labels, tapes,
Mac diskettes...
or by modem.



Choose from
hundreds of
thousands of users!

Only 5c per name, with no charge for selecting, sorting, media, or delivery.
Semaphor Corporation, 207 Granada Dr., Aptos, CA 95003
(408) 688-9200 (voice)
(408) 662-2717 (modem)

CIRCLE 274 ON READER SERVICE CARD

SUPPLIES

reconditioned



TONER cartridges!

for laser printers
& Canon PC Copiers

BETTER THAN NEW!

- 20% MORE TONER
- DARKER PRINT
- 100% GUARANTEED

Willow Products Corp.
3857 Willow Ave., Pgh, PA 15234

From \$44.95

We buy empties
call for brochure

800-426-8196



CIRCLE 279 ON READER SERVICE CARD

**Boldest
+ Darkest
Black**
**Sharpest
Lightning** Inc.

It all
adds up to
Quality

Toner Cartridges

Do business with technological leaders and save money. Or you can buy them reconditioned from inventory. We also buy used cartridges. Prepayment, Master Card, Visa, and PO's.

1-800-BLACK99

Fully Tested & Guaranteed

CIRCLE 280 ON READER SERVICE CARD

SERVICES



PCD & HDA REPAIR ON MOST APPLE MACINTOSH AND PC HARD DRIVES • 6 MONTH WARRANTY

SCSI Hard Drive Repair & Data Recovery

FACTORY TRAINED TECHNICIANS • CLASS 100 CLEAN ROOM • FULL DIAGNOSTIC TEST RESULTS

COMPUTER PERIPHERAL REPAIR

7570 S. U.S. HWY. 1, SUITE 8/9 HYPOLOXO, FL 33462 • (407) 586-0011
CIRCLE 275 ON READER SERVICE CARD

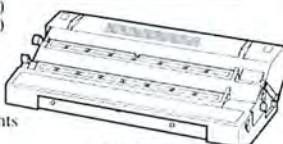
SUPPLIES

TONER 2 DAY AIR Prepaid Return

- Remanufacturing Services (your cartridge)
- Laser cartridges in Black \$44.50
- Laser cartridges in Colors \$64.50
- PC cartridges in Black \$39.50
- Microfiche/Fax cartridges \$44.50
- In stock rebuilt laser cartridges \$59.50

Get back your cartridge!
Every cartridge pretested!
Color test prints available!

- We support over 200 diff. printers! • Bulk
- New Cartridges from \$89.50 • Qty. discounts
- We buy empties in large quantities, call.



24 Hours

800-777-8444



9723 Mill Creek Drive
Eden Prairie MN 55344

• Franchises
• Wholesale

CIRCLE 276 ON READER SERVICE CARD

SELL US YOUR EMPTY TONER CARTRIDGES \$10

- \$6.50/cartridge • \$1/used fixer cleaner • \$1.50/box/empty
- PRINTERS: HP series 1&II, Apple, Canon QMS, NCR...
- COPIERS: Canon PC models 10, 14, 20 and 25
- You pay shipping for empties. Ship in orig. box & styro

BUY OUR REFILLED CARTRIDGES

- BLACK: \$40 (\$10 w/o) BLUE/BROWN: \$40 (\$10 w/o)
- We pay shipping • Over 20% more toner than new
- Quality Control sheet and test cleaner included
- First nationwide cartridge refiller... PERILEX 12/10/86 p16



MICHLIN COMPUTER CONSULTANTS INC.
LASER CARTRIDGE DIVISION
3770 Plaza Drive Suite 1
Ann Arbor, Michigan 48106-7254
VISA/MC/PO welcome
313-663-9800 TELEX 98-1520
800-63-TONER FAX: 313-663-9802
An in photo of recharged cartridge printed

CIRCLE 277 ON READER SERVICE CARD

P.C. Copier & Laser Printer Owners



TONER Service Company

UPS To:
2128 Dolman
St. Louis, MO
63104

We buy empties—\$10.00
Ricoh Compt. Toner Kits—\$44.95 up
314-776-1155/800-88 TONER

MC/VISA & Corporate Accounts Welcome

CIRCLE 278 ON READER SERVICE CARD

LASEREDGE® Paper/Film

Get high resolution from plain paper laser printers, and color plotters. LASEREDGE® high resolution Paper/Films are waxable for paste-up. The bright white background, denser image, and finer edge of line will allow enhanced capability for 300 dpi to reproduce on camera. Call or write for samples today.

VISA/MC accepted.
C.G. GRAPHICS ARTS SUPPLY, INC.
481 Washington Street
New York, N.Y. 10013
(212)925-5332, 1(800)342-5858

RIBBONS

Apple Imagewriter: \$2.60 colors: \$3.60
Apple 4-color \$8.95
Epson MX-FX 80: \$2.50 colors: \$3.50
Okidata 182-192: \$3.50 colors: \$4.50
Panasonic 1080: \$3.50 colors: \$4.50
Panasonic 1124: \$5.75
Star NX-1000: \$3.25 colors: \$5.50
DAYTON COMPUTER SUPPLY
1220 Wayne Ave
Dayton, Ohio 45410
(513) 252-1247 • 1 (800) 331-6841

For additional information call
Account Representatives;

Mary Jo Nash

Dennis M. Leavey

Wes Walton

Call (212) 503-5115
or (800) 825-4ADS

UPDATES

With all of life's changes, keeping up with software upgrades and new versions is not easy. This chart attempts to keep Mac users abreast of popular programs' upgrades and new versions (as of press time). To see if you have the latest version, check the About item at the top of the program's Apple menu.

If you have a 512K, 512KE, or XL, you should be running System 3.2 and Finder 5.3 software. Everyone else should be running System 6.0.3 software.

Silicon Beach Software's Super 3D 2.0 has added color, increased animation capabilities, PICT import, and math coprocessor support that utilizes the 68881 and 68882 chips.

Ashton-Tate has updated Full Impact and FullWrite Professional. Full Impact 1.1 includes XMacro capabilities that let users call external functions and commands. FullWrite Professional 1.1 lets users access foreign-language dictionaries in French, Italian, German, Swedish, Dutch, and Spanish.

Key

CP or NCP, copy-protected or not;

//, programs we have found to be Mac II-compatible (not yet a comprehensive list); S for shareware (try before you buy).

Boldface, changes and new listings.

All programs listed here are HFS-compatible. Programs that appear to be compatible with the Mac II may not actually perform 100 percent of the functions they do on other Macs, and they may not necessarily take full advantage of the Mac II.

Application	Version	Application	Version	Application	Version	Application	Version
A.A.I.S. Prolog M	1.15 NCP	FontShare	1.1 NCP //	MacNosh (The Debugger)	2.0 NCP	QuickKeys	1.1 NCP //
Aatrix TimeCard	2.0 NCP //	Forecast	2.0 NCP //	MacPaint	2.0 NCP //	QuickMail	2.0 NCP //
Accountant, Inc.	2.1 NCP //	4th Dimension	1.0.6 NCP //	MacPalette	1.0 CP	QuickWord	2.0 NCP //
Acta	2.0 NCP //	FoxBASE+/Mac	1.10 NCP //	MacPascal	2.1 CP	Rags to Riches	3.0 NCP //
AffinityFile	1.1 NCP //	Frame Mac	1.1 NCP //	MacProject II	2.0 NCP //	Ragtime	2.01 NCP //
AMS General Ledger	2.08 NCP	FreeHand	2.0 NCP //	MacProof	3.0 NCP //	Read-It!	2.0 NCP //
AntiToxin	1.1 NCP //	FreeTerm	2.0 NCP //	MacSchedule	1.1 NCP //	Ready, Set, Go!	4.5 NCP //
AppleShare Workstation	2.0.1 NCP //	Full Impact	1.1 NCP //	MacScheme+Toolsmith	1.51 NCP //	Record Holder	2.1 NCP //
ArtRoom	3.0 NCP //	FullPaint	1.0 NCP	MacServe	2.3 CP //	Red Ryder	10.3 NCP
Assistant Controller	5.4 NCP //	FullWrite Professional	1.1 NCP //	MacSpec	1.3 CP	REdit	1.2 NCP
Aztec C	3.4b NCP //	General	3.3 NCP	MacSpin	1.1 CP	Relief Plus	1.01 NCP //
Back to Basics	1.03 NCP	Generic CADD Level 1	1.1 NCP //	MacSpool	3.0 NCP //	Reports	1.2.2 NCP //
Backgrounder	1.2 NCP	GeoQuery	1.01 NCP //	MacTell	3.5 NCP //	ResEdit	1.1b7 NCP //
Bulk Mailer	3.23 NCP //	Glue	1.04 NCP	MacTerminal	2.3 NCP //	Sales Associate	1.10 NCP //
CalendarMaker	3.0 NCP //	GraphicWorks	1.13 NCP	MacTools (MFS/HFS)	7.1 NCP	Scrapbook	2.4 NCP //
Canvas	2.0 NCP //	Handwriting Analyst	1.2 NCP //	MacWrite II	1.0 NCP //	SCSI Tool	1.1 NCP //
Capture	1.1 NCP //	Hard Disk 20	1.1 NCP	MailManager	1.0 CP	Sensible Grammar	1.1d NCP //
CAT	2.0 NCP //	Hard Disk Utility	2.0 NCP	Managing Your Money	2.0 NCP //	SiceKick	2.0 NCP
Chooser	3.3 NCP //	HD Backup	1.1 NCP	Map	1.1 NCP	ShuBox Filing	7.0 NCP //
ClickArt Effects	1.01 NCP //	HD SC Setup Apple	2.0 NCP	Maple	4.2 NCP //	Silicon Press	1.1 NCP //
Clipper	1.01 NCP	HFS Backup	3.0 NCP //	MapMaker	3.0 NCP //	Slide Show Magician	1.3 CP
CloseView	1.0 NCP	HFS Locator Plus	2.0 NCP	Master Tracks Pro	3.3 CP //	Smartcom II	3.0a NCP //
Cognate	1.5 NCP //	HyperAnimator	1.5 NCP //	MathWriter	2.0 NCP //	SmartScrap & Clipper	2.01 NCP //
Colleague	1.2 NCP //	HyperCard	1.2.1 NCP //	Mavis Beacon	2.0 NCP //	SmoothTalker	3.0 NCP
ColorChart	1.3 NCP	HyperDA	1.1 NCP //	Teaches Typing!	1.2 NCP //	Sound	3.3 NCP //
Colorizer	1.1 NCP //	HyperEngine	1.1 //	MDA	2.0 NCP //	SoundCap	4.4 CP
ColorMate	2.1 NCP	Illustrator 88	1.8 CP //	MDS	2.0 NCP	Space Edit	2.0 CP //
ColorPrint	2.03 NCP	ImageWriter	2.7 NCP	Measure Test	12.7 CP, S. //	SpellNow	1.0 NCP
Comic Strip Factory	1.6 NCP //	ImageWriter, AppleTalk	2.7 NCP	Megamax C	3.0 NCP	Spellswell	2.0f NCP //
Comic Works	1.0 NCP //	ImageWriter LO	2 NCP //	Membership List	6.0 NCP //	Startup Device	3.3 NCP //
Comment	2.0 NCP //	ImageWriter LQ, AppleTalk	2 NCP //	MGMSation CAD	2.5 NCP //	StatView 512+	1.1 NCP
ConcertWare+	4.0 NCP //	InBox	3.0 NCP //	Micro Planner Plus	6.0 NCP //	StatWorks	1.2 NCP //
ConcertWare+ MIDI	4.0 NCP //	Insight Expert Accounting	2.01 NCP //	MicroPhone	1.5 NCP //	STELLA	2.10 NCP //
Control Panel	3.3 NCP //	Installer	2.04 CP //	MicroPhone II	2.0 NCP //	Stepping Out II	2.01 NCP //
Copy II HD	7.1 NCP	inTalk	3.0 NCP //	MindWrite	2.0 NCP //	Straight Talk	2.08 NCP //
Copy II Mac	7.1 NCP	Interleaf Publisher	3.5 CP //	MockPackage+	4.4 NCP //	Studio Session	1.4 CP
Course Builder	3.1 NCP //	Jam Session	1.1 CP //	Modern Artist	2.0 NCP //	Suitcase II	1.2 NCP //
Crickit Draw	1.1.1 NCP //	Jazz	1A CP	MORE II	2.0 NCP //	SUM (Symantec Utilities for Macintosh)	1.1 NCP //
Crickit Graph	1.2 NCP	JustText	1.1 NCP	Mouse	3.3 NCP	Super 3D	2.0 NCP //
Crickit Presents	2.0 NCP //	Key Layout	2.3 NCP //	MPW	3.0b1 NCP //	SuperGlue	1.05 NCP //
Curator	1.05 NCP //	Keyboard	3.3 NCP	MS BASIC	3.0 NCP	SuperPaint	2.0 NCP //
DA Handler	6.0 NCP	Language Systems	1.2 NCP //	MS BASIC Compiler	1.0 NCP	Switcher	5.1 NCP
Deluxe Music	2.5 CP	FORTRAN	1.2 NCP //	MS Fortran	2.2 NCP	Systat	3.2 NCP
Design/IDEF	1.1 NCP //	LapLink Mac	2.0 NCP //	MS Works	1.1 NCP //	System (HFS)	6.0.3 NCP //
DesignScope	1.14 NCP //	Laser Author	1.3 NCP //	MultiFinder	6.0 NCP //	System (MFS-128K)	2.0 NCP //
DeskLink	2.0 NCP //	Laser Prep	5.2 NCP //	Multipan	1.11 NCP //	Telescope	1.0 NCP //
Digital Darkroom	1.1 NCP //	LaserPaint	1.9 NCP //	Music Librarian	6.0 NCP //	Telescope Pro VT 100	1.1 NCP //
Disk Express	1.10 NCP //	LaserShare	1.0 NCP	Music Publisher	2.0 NCP //	Tempo II	1.1 NCP //
Disk First Aid	1.4 NCP	LaserSpeed	1.6 NCP //	Musical Word Game	1.5 NCP //	Terris	1.1 NCP //
Disk Ranger	3.1 NCP	LaserStatus	2.0 NCP	myDiskLabeler	2.11 NCP //	Textures	1.01 NCP //
Disk Tools Plus	1.01 NCP //	LaserWriter	5.2 NCP	MyCryptor	2.0 NCP //	Think 'n Time	2.0 NCP //
DiskFit	1.5 NCP //	LaserWriter IISC	1.1 NCP	Neon	2.0 NCP	Thunder!	1.0.1 NCP
DiskInfo	1.45 NCP, S	Layout	1.3 NCP, S	NightWatch	1.03 NCP //	ThunderScan	5.0 NCP //
DiskTop	3.0.4 NCP //	Legal Billing	1.86 NCP //	Omnis III Plus	3.3 NCP //	TimeMinder	2.0 NCP //
Dollars & Sense	4.0 NCP //	Legal Billing II	2.56 NCP //	On Cue	1.3 NCP //	Timeslips III	1.1 NCP //
Double Helix II	55 NCP //	Lightspeed Pascal	2.0 NCP //	Orbiter	1.2 NCP //	TML Pascal II	3.0 NCP //
Dungeon Revealed	1.2.3 NCP	LightspeedC	3.0 NCP //	P51 Mustang Flight	2.02 CP, //	TMON	2.8 NCP
Easy Access	1.0 NCP	Listen2.0	2.1 CP //	Simulator	3.01 NCP //	Top Desk	3.0 CP
Easy3D	1.01 NCP	LookUp	1.0c NCP //	PageMaker	3.01 NCP //	TopDown	1.1 NCP //
Edit	2.1 NCP	Mac C	5.0 NCP //	Panorama	1.1 NCP //	TCPS	2.0 NCP //
Empower	2.0.5 NCP //	Mac Daisy Link	1.04 NCP //	Parameter Manager Plus	3.0 NCP //	Trapeze	2.1 NCP //
Excel	1.5 NCP //	Mac Disk Catalog II	2.1c NCP	Performer	2.31 CP	Turbo Download	2.1 NCP //
ExperCommon Lisp	2.2 NCP //	Mac Zap	5.0 NCP //	PictureBase	1.2 NCP	Turbo Macaccountant	2.0 NCP //
ExperLisp	1.5 NCP //	Mac3D	2.1 NCP //	Plains and Simple	4.1 NCP //	Turbo Pascal	1.1 NCP //
ExperLogo	1.1 NCP	MacASM	1.2 NCP	PLP	2.0 NCP //	Type Now	1.0 NCP //
Expressionist	2.0.3 NCP //	MacBILLBOARD	4.01 NCP, S	PowerPoint	2.01 NCP //	VersaTerm	3.0 NCP
EZ Draft	2.0 NCP //	MacCalc	1.2 NCP	PowerStation	2.5 NCP //	VersaTerm-PRO	2.0 NCP
Falcon	2 NCP //	MacChuck	1.5 NCP //	Practica Musica	2.1 NCP //	VersaCAD	2 NCP //
Fast Forms	1.2 NCP //	MacDesigner	2.0 NCP //	Print Monitor	1.2 NCP //	VideoWorks II	2.0 NCP //
FastBack	1.02 NCP //	MacDraw II	1.1 NCP //	Professional Composer	2.1 CP	VIP	2.5 NCP //
Ferrari Grand Prix	1.5 CP //	MacDraft	1.2b NCP //	Profit Talker II	1.3 NCP	Virex	1.1 NCP //
File	2.0 NCP //	MacFlow	2.04 NCP //	Programmer's Online	2.0 NCP //	Virus Rx	1.4 NCP //
Filemaker II	1 NCP //	MacFortran (all)	2.4 NCP //	Companion	3.0 NCP //	Widgets	3.0 NCP //
Finder (HFS)	6.1 NCP	MacFortran/AUX	1.0 NCP //	Project Billing	3.0 NCP //	Word	4.0 NCP //
Finder (MFS-128K)	4.1 NCP	MacGolf Classic	3.0 CP //	Prototyper	2.0 NCP //	WordPerfect	1.0.2 NCP //
Findswell	2.0 NCP //	MacInTalk	1.1 NCP	Publish or Perish	4.0 NCP //	Works	2.0 NCP //
1st Aid Kit-HFS	2.5 NCP //	MacLabeler	2.2 CP	Pyrol	3 NCP //	WorksPlus Spell	2.0 NCP //
Fontastic Plus	2 NCP //	MacLinkPlus	3.0 NCP //	QuarkStyle	1.0 NCP //	Write	1.0 NCP //
Font/DA Mover	3.8 NCP	MacMainFrame 3270/CUT	2.1 NCP //	QuarkXPress	2.0A NCP //	WriteNow	2.0 NCP //
FontFolio	1.0 CP //	MacMoney	3.02 NCP	QUED.M	2.07 NCP //	ZEasic	4.0 NCP //
Fontographer	2.3 CP	MacMovies	1.02 NCP				

AD INDEX

RS#	ADVERTISER	PAGE	RS#	ADVERTISER	PAGE
66	Abaton	137	13	MacWarehouse	52-57
N/A	Acius	94-95	N/A	MacZone	124-127
N/A	Adobe	194	2	Mainstay	192
71	Alsoft	78	122	Mass Micro Systems	59
159	Altsys	109	115	Merritt Computer Products	194
4	American Power Conversion	161	81	Micron Technology	174
N/A	Apple	28-29	143	MicroNet	233
99	Ashton-Tate	102-103	N/A	Microsoft	C2-C4, 1
98	Ashton-Tate	99-101	134	Microtech International	84
42	Avery Consumer Products	46	160	NEC	24-25
21	Caere	254-255	46	Niles & Associates	187
189	Cambridge North America	118	129	No Rad	176
175	Casady & Greene, Inc.	22	102	Nuvotech	196
174	Casady & Greene, Inc.	166	78	Optimal Technology	40
176	Casady & Greene, Inc.	166	N/A	Oracle	21
116	CDA Computer Sales	88-89	155	Orange Micro	79
N/A	Clarix	155	17	Orange Micro	87
119	Compuserve	170	16	Orange Micro	32
36	Computer Friends	214	54	Peachtree Software	38
181	Computer Shoppe	26	47	Peripheral Land	36
138	Data Desk	76	60	Personal Training	44
5	Dayna	66-67	62	Programs Plus	70-75
80	Deneba Software	5	188	Prometheus Products	10
53	Design Science	187	183	QMS	112-113
84	Diehl Graphsoft	50	87	Quark	168
120	Diskette Connection	216	178	Qume	179
126	DPI	218	179	Qume	179
166	Dr. Mac	211	141	Radius	6-7
18	E-Machines	129	N/A	Raster Ops	27
131	Ehman Engineering	41	150	Safeware	214
128	Electronic Arts	144	N/A	Seybold	210
25	Emerald City Software	83	9	Shamrock	216
151	Everex	63	149	Sigma	11
164	Fifth Generation	80	32	Software Excitement	217
24	Fox Software	107	152	Software That Fits	212-213
154	GCC Technologies	8	N/A	Solutions Int'l	164
168	Hard Drives Int'l.	180	163	Solutions Int'l	165
197	Informix Software	121	39	Spectrum Holobyte	252
198	Informix Software	123	N/A	SuperMac	C5
110	Infosphere	202	N/A	SuperMac	60-61
69	Insight Development	130	N/A	SuperMac	184
88	Insignia	37	85	Supra	153
N/A	Intuit	69	92	Symantec	39
3	Iomega	162	N/A	Symantec	42
59	James River Corp.	167	44	Symantec	43
49	Jasmine	34	43	Symmetry	82
58	Jasmine	110	147	Synergy	26
161	Kennect Inc.	199	29	T/Maker	65
144	Kensington	C6	171	Tektronix	172
93	Kinetics	200	37	3M Data Storage	48-49
106	Layered	186	195	Thunderware	86
76	Liberty Systems	128	N/A	TOPS	23
N/A	MacConnection	12-19	48	TriData	206
191	MacEmporium	58	70	TrueVision	108
86	MacFriends	191	103	Versacad	182
N/A	MacLand	215	118	White Pine Software	189
28	MacProducts USA	251			
165	MacStore	214			

**COMING
SOON**

Printers' Choice

MacUser Labs compares the speed and output quality of 16 laser printers.

.....

The Business of Animation

Bring life to your desktop presentations with MacroMind Director and other animation products.

.....

IF-THEN . . . DO

Artificial intelligence on your Mac with Nexpert Object.

.....

Excel Strikes Back

. . . with improved speed, memory management, presentation graphics, and programmability.

PLUS

Paul Somerson on the state of the Mac. John Dvorak on the state of the market. Robert Wiggins' views from the corporate world. Jim Seymour's perspective from the MIS department. Louise Kohl's insights from the inside. Michael Swaine's secrets for tuning up your Mac. Freff's Rhythm 'n' Views. What's new in DTP, hypermedia, and connectivity. Answers, hints, and tips from the Mac Team. MiniFinders to help locate the best products for you. Quick Click reviews of the hottest new hardware and software.

MacUser

FINE-PRINT WEASEL

The editors absolutely reserve the right to publish none, some, all, or just the parts we've managed to complete of the above, owing to the inherent problems that occur when reviewing software, hardware, and the ever-elusive vaporware.

MacUser READER SERVICE CARD

FREE INFORMATION

ON MACINTOSH PRODUCTS & SERVICES

**IT'S AS
EASY AS
1, 2, 3**

1 Fill in your name and address and check off your answers to the six research questions. (One card per person, please.)

2 Circle the numbers on the card that correspond to the ads or articles you'd like more information about. (Numbers for advertised products are repeated in the Advertiser Index as well.)

3 The literature will be mailed to you from the advertiser free of charge.

Void after November 30, 1989

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500

1. Please indicate which of the following computers you currently use in your company or organization: (check all that apply)

- ☐ a) Mac Plus ☐ d) IBM PC
☐ b) Mac SE ☐ e) Other
☐ c) Mac II

2. For how many micro computers do you buy products?

- ☐ f) 1-4
☐ g) 5-49
☐ h) 50+

3. Your primary job function is: (check one)

- ☐ i) Administrative/General Management
☐ j) MIS/DP, Communications Systems, Programming
☐ k) Engineering/R&D
☐ l) Finance/Accounting
☐ m) Marketing/Sales
☐ n) Computer Dealer/VAR

4. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (Check all that apply)

- | SOFTWARE | HARDWARE |
|---|---|
| <input type="checkbox"/> a) Accounting | <input type="checkbox"/> w) Mainframe |
| <input type="checkbox"/> p) Spreadsheets/Financial Planners | <input type="checkbox"/> x) Mini |
| <input type="checkbox"/> q) Project Managers | <input type="checkbox"/> y) PC |
| <input type="checkbox"/> r) Word Processors | <input type="checkbox"/> z) Printers/Plotters |
| <input type="checkbox"/> s) Database Managers | <input type="checkbox"/> 1) Monitors |
| <input type="checkbox"/> t) Graphics | <input type="checkbox"/> 2) Disk/Tape Back-up |
| <input type="checkbox"/> u) CAD/CAM | <input type="checkbox"/> 3) Add-in Boards |
| <input type="checkbox"/> v) Communications | <input type="checkbox"/> 4) Communications |

5. Are you involved in the purchasing of microcomputer equipment at your company?

- ☐ 5) Yes ☐ 6) No

6. If so, what function do you serve in the buying process?

- ☐ 7) Evaluations/Specification
☐ 8) Recommendation ☐ 9) Buyer/Purchaser

PLEASE PRINT CLEARLY—use only one card per person.

MU 8892

Name _____

Phone (_____) _____

Company _____

Title _____

Address _____

City _____ State _____ Zip _____

☐ Please send me a one-year subscription to MacUser for \$19.97. I'll save 44% off the newsstand price of \$35.40. Annual basic subscription price is \$27.00.

Void after November 30, 1989

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250
251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350
351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450
451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500

1. Please indicate which of the following computers you currently use in your company or organization: (check all that apply)

- ☐ a) Mac Plus ☐ d) IBM PC
☐ b) Mac SE ☐ e) Other
☐ c) Mac II

2. For how many micro computers do you buy products?

- ☐ f) 1-4
☐ g) 5-49
☐ h) 50+

3. Your primary job function is: (check one)

- ☐ i) Administrative/General Management
☐ j) MIS/DP, Communications Systems, Programming
☐ k) Engineering/R&D
☐ l) Finance/Accounting
☐ m) Marketing/Sales
☐ n) Computer Dealer/VAR

4. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (Check all that apply)

- | SOFTWARE | HARDWARE |
|---|---|
| <input type="checkbox"/> a) Accounting | <input type="checkbox"/> w) Mainframe |
| <input type="checkbox"/> p) Spreadsheets/Financial Planners | <input type="checkbox"/> x) Mini |
| <input type="checkbox"/> q) Project Managers | <input type="checkbox"/> y) PC |
| <input type="checkbox"/> r) Word Processors | <input type="checkbox"/> z) Printers/Plotters |
| <input type="checkbox"/> s) Database Managers | <input type="checkbox"/> 1) Monitors |
| <input type="checkbox"/> t) Graphics | <input type="checkbox"/> 2) Disk/Tape Back-up |
| <input type="checkbox"/> u) CAD/CAM | <input type="checkbox"/> 3) Add-in Boards |
| <input type="checkbox"/> v) Communications | <input type="checkbox"/> 4) Communications |

5. Are you involved in the purchasing of microcomputer equipment at your company?

- ☐ 5) Yes ☐ 6) No

6. If so, what function do you serve in the buying process?

- ☐ 7) Evaluations/Specification
☐ 8) Recommendation ☐ 9) Buyer/Purchaser

PLEASE PRINT CLEARLY—use only one card per person.

MU 8891

Name _____

Phone (_____) _____

Company _____

Title _____

Address _____

City _____ State _____ Zip _____

☐ Please send me a one-year subscription to MacUser for \$19.97. I'll save 44% off the newsstand price of \$35.40. Annual basic subscription price is \$27.00.

**USE THIS CARD TO OBTAIN ~~FREE~~
INFORMATION ABOUT MACINTOSH PRODUCTS
AND SERVICES IN THIS ISSUE**

(SEE OTHER SIDE)



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 33854 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
THE MACINTOSH RESOURCE

P.O. Box 40008
Philadelphia, PA 19106-9866



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 33854 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
THE MACINTOSH RESOURCE

P.O. Box 40008
Philadelphia, PA 19106-9866



America's source for MacProducts

1 MB SIMM's



1MB SIMM's\$149
Available now. Lifetime
Manufacturer's Warranty!
256K SIMM's\$59

PRINTERS

Qume ScriptEN.....\$3295
Qume CrystalPrint\$3195
ColorScript 100call
GCC Printers.....call

MAGIC NET



100% Flash Box, Phone Net,
Local Talk compatible
SALE.....19.95
STAR Controller.....1149.00

020/030 RAILGUN



16 mhz 68020.....\$499
25 mhz 68020.....\$895
Faster than Radius, Dove,
Irwin. Comes with Smart
Cache
25 mhz 68030.....\$1395

MAGIC DRIVES

Internal External

20 megabyte\$389\$579
30 megabyte.....\$399\$599
45 megabyte.....\$519\$649
60 megabyte.....\$599\$699
80 megabyte.....\$699\$799
91 megabyte\$850\$950
150 mb CDC ..\$1395 ..\$1495
300 mb CDC ..\$1995 ..\$2350
600 mb CDC ..\$3550 ..\$3650

SMART CACHE

- SCSI Disk Cache
- Cuts 30-50% off the access time of any SCSI hard drive
- Tracks your history and optimizes using 64 caching algorithms
- Write through cache for maximum data integrity

\$99

VIDEO PRODUCTS

13" & 14" 100% Apple Compatible
8 bit color card.....\$449
19" 8 bit color card\$949
RasterOps • Sigma Designs
Cornerstone • Taxan
PCPC • Viking
Call for prices.

REMOVABLE MEDIA

60 mb Tape Backup.....\$695
150 mb Tape Backup ..\$895
45 mb Removable.....\$995
600 mb Read/Write
Optical Drive\$3995
1.2 gig Tape Backup..\$3995

MAGICVIEW 19



19" B&W Monitors.
72 dpi, 78 hz. Includes 19" monitor and card for +, SE, SE/30, II, IIX, IICX.....\$999

MAGIC MODEM



100% Hayes Compatible
Auto Dial/Auto Answer
2400/1200/300 Baud
2-Year Warranty\$119
Red Ryder 10.4\$54

SOFTWARE

Adobe Fonts	Save 33%
Aldus Freehand	299.00
Big Thesaurus	54.00
Canvas 2.0	175.00
FileMaker II	225.00
Fluent Laser Fonts	53.00
Fox Base +	205.00
Illustrator '88	325.00
LightSPEED C	169.00
MS Word 4	249.00
Mac Link +	139.00
MacDraw II	375.00
MacWrite II	189.00
Managing Your Money	129.00
Master Juggler	call
Master Tracks Pro	269.00
Mathematica	call
MiniCAD +	519.00
MS Works 2.0	199.00
MultiClip	35.00
PageMaker 3.1	379.00
Persuasion	355.00
Quark XPress 2.1	489.00
QuickKeys	65.00
Red Ryder 10.4	54.00
Retrospect	169.00
Suitcase II	48.00
SmartForm	305.00
SUM/SAM	59.00
SuperCard	137.00
SuperPaint 2.0	129.00
Swivel 3D	289.00
TOPS Mac/IBM	165.00/call
Virex	68.00
WingZ	269.00
WriteNow 2.0	139.00

HARDWARE

45mb Removable Drive	999.00
45mb Cartridges, each	95.00
600meg Read/Write Optical Drive	3995.00
MacFax 9600	469.00
A+ Mouse	63.00
A+ Mouse (ADB)	85.00
Abaton Interfax	365.00
Cutting Edge 105 Keybd	115.00
Datadesk 101 Keyboard	142.00
800 K Drive/1.4 mb	175.00/Call
DaynaTalk	Call
Grappler Interfaces/Spoolers Call	
Kraft Quick SE, +	35.00
Lightning Scan	399.00
Thunder Scan 6.0	179.00
TOPS Flash Box	129.00
MIDI Interface	87.50
Seikosha Printer	234.00
Shiva NetModem v2400	459.00
Tape Backup 60mb	699.00
TurboBridge	375.00
Turbomouse 3.0	119.00

MEDIA CONVERSION

Thousands of formats supported
3.5", 5.25", 8" and Mag Tape

MACINTOSH™ SYSTEMS

MacProducts USA carries all Macintosh™ systems and peripherals. We will configure a system to meet your needs. Call us today for current prices.

ACCESSORIES

Disks:	DS
Sony Boxed (10)	1.45
Sony Bulk (50)	1.15
MacDisk Bulk (50)	.99
KAO Bulk (50)	1.35
High Density Disks	2.90
Black Ribbons	3.00
Colored Ribbons	3.50
Disk File/30/80	7.00/12.00
Fanny Mac QT	59.00
Hard Top Covers	Call
ImageWriter LQ Ribbons	15.00
ImageWriter LQ 4-Color	25.00
MacGuard - Surge -	25.00
Mac Plus, SE Bag	59.00/69.00
Mouse Cleaner 360	12.00
Teak Disk Box 50/100/150	16/25/33

BOARDS/UPGRADES

030 Railgun Cache	4995.00
Cyclone 68030	Call
Daystar 68030/68882	5250.00
Dove SCSI	134.00
Dove Upgrades	call
MacSprint	229.00
Magic SCSI	69.00
Orion 16 mhz	699.00
EtherNet	call
68881, 68882 Co-Processors	call
PMMU - 68851	299.00
512K-1024 Upgrade	149.00
128K-512K Upgrade	149.00
128K-1024K Upgrade	295.00
800K Drive & ROMS	299.00

ORDERING

Orders ONLY: 1-800-622-3475
Information: 1-512-343-9441
International: 1-512-264-0353
FAX: 1-512-343-6141
International FAX: 1-512-264-0354
Tech Support: 1-512-343-6133
Hours: 7am - 10pm, M-F
10am - 6pm Sat-Sun CST
Tech Support Hours: 9am - 5pm, M-F CST

Minimum Order: \$40.00

Payment:



Visa, MasterCard, American Express, Optima (No surcharge), Checks, C.O.D., and Company & Institution P.O.s. Net 15.

Tax: Texas residents only, add 7 1/4% sales tax.

Prices and items are subject to change and availability.

Terms: You are not charged until your order is shipped. Returns may be subject to a restocking fee.

Shipping: Minimum \$4.50 -- Airborne, UPS Next Day & 2nd Day Air, US Mail.

Leasing: Available on orders over \$2500. Call for more information.

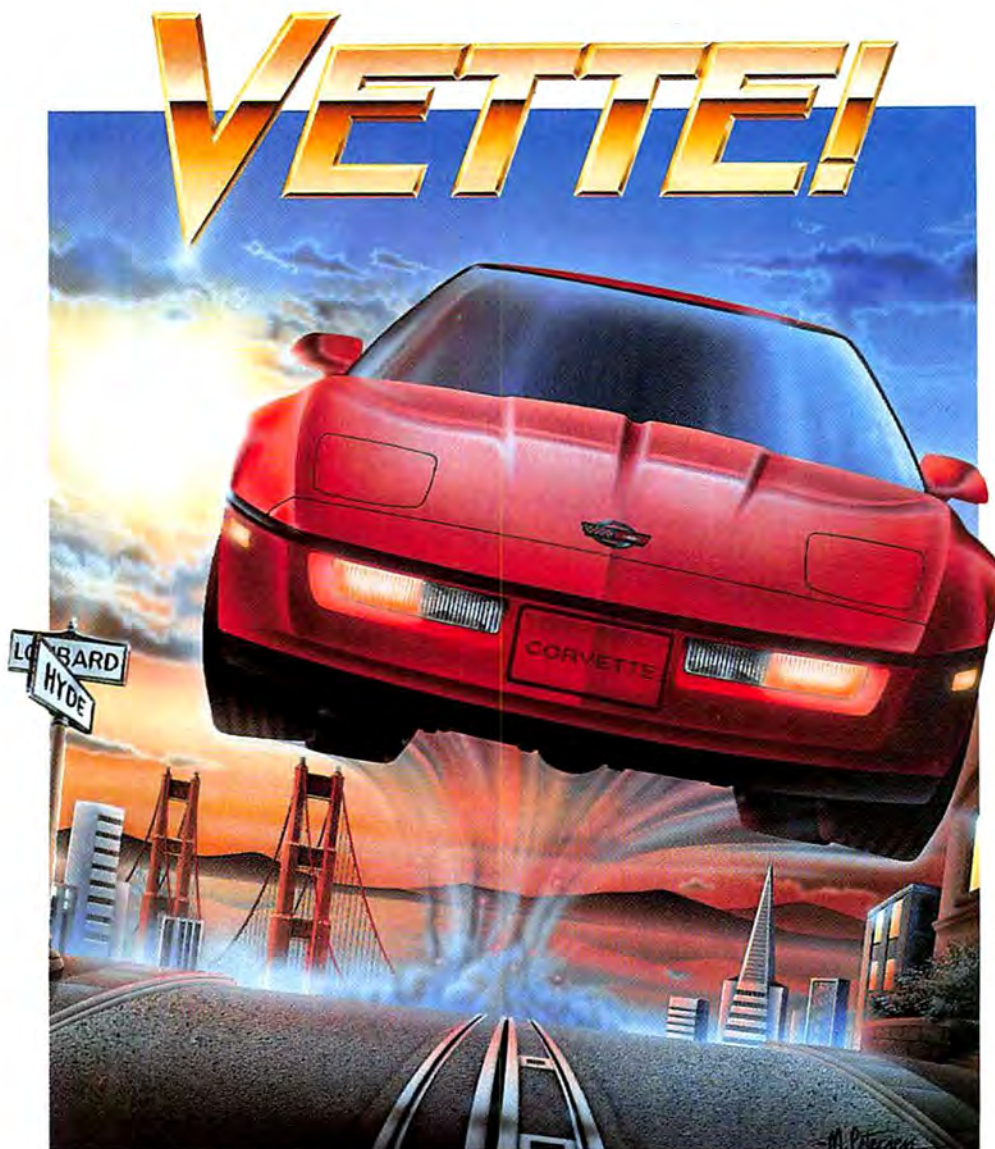
MacProducts USA carries over 3500 products for the Mac, so call for products not listed. Call for a free catalog.



MacProducts USA

8303 Mopac Expressway • Suite 218 • Austin, Texas 78759 • USA • 1-800-622-3475

1-800-MAC-DISK



IT'S RED HOT!

With **VETTE!**™ Spectrum HoloByte™ has just established the new standard for car racing simulations. We have taken our award-winning **FALCON**™ simulation technology from the sky and put it on the streets in **VETTE!** Nothing else compares. Dare to test your racing skills against sexy European sports cars through the streets of San Francisco past famous landmarks, dodging traffic and pedestrians, flying up and down those steep San Francisco hills. Why limit yourself to

boring race track or freeway driving simulations when you can thrill to the chase through one of the most alluring cities in the world. **VETTE! – THE NEW STREET RACE SIMULATION!**

FEATURES:

- Outstanding 3-D solid modeling graphics
- Accurate mapping of San Francisco streets and landmarks
- Option to choose from 3 Corvettes (1989 stock model, ZR1 King of the Hill, or the Calloway

Top Gun with corresponding unique features)

- Real maneuverability including U-turns
- Test performance factors of each Corvette on a dynamometer
- Amazing realism in terrain and buildings
- Varying difficulty levels
- Landmark to landmark courses (You select the best route.)
- Multiple view perspectives (helicopter, front and side)



Spectrum HoloByte™

A Division of SPHERE, INC.
2061 Challenger Drive Alameda, CA 94501 (415) 522-0107

Available now on IBM. Coming this summer for Macintosh and Amiga.

Screens shown are IBM. **VETTE!**™, **FALCON**™, and Spectrum HoloByte™ are trademarks of SPHERE, INC. All other products are trademarks of their respective holders.

Macintosh screens unavailable at press time.

VISIT US AT
MACWORLD EXPOSITION
WORLD TRADE CENTER, BOSTON
AUGUST 10-12, 1989

Please circle 39 on reader service card.

Et Tu, Microsoft?

While Ivy League geneticists busily try to patent single-cell organisms and mice (of the four-legged variety), the software industry has set its sights on protecting intellectual biological property that's a little higher on the evolutionary ladder. Specifically, Bright Star Technologies and Microsoft are engaged in a bitter legal battle over Employee Look and Feel.

In spite of an earlier agreement between the two companies stating that the president of Bright Star, Elon Gasper, could borrow elements of the president of Microsoft, Bill Gates, Microsoft is drawing the line now that Bright Star has hired Tom Hussey (see photos — that's Tom on the right... we think). Claiming that the original agreement ex-



■ Will the real Bill Gates please stand up? Or was that Tom Hussey? You've heard of Look and Feel (thanks to Apple Computer) and Musical Look and Feel (thanks to the Beatles). Now Bright Star has given underworked lawyers something new to generate billable hours: Employee Look and Feel.

tended to presidents only and not to programmers, Microsoft contends that Hussey is an "exact copy" of Gates.

Bright Star has interpreted the contract to extend to programmers, since Gasper is also a programmer. "The ex-

tension is obvious," according to Bright Star lawyer Dave Goldstein.

At press time, *Spy* magazine's Separated at Birth? department could not be reached for comment.

— Joni Coaler

Don't Worry, Be Synchronous

Suppose a product could help you relax, make better decisions, develop creativity, solve relationship and career problems, ease personal stress, and increase productivity. It's real; it's even legal — it's Synchronicity from Visionary Software. Synchronicity aims to do all these things for you through your Mac — without a book of incantations or a yoga video.

Based on the *I Ching (Book of Changes)*, Synchronicity has three related rituals: the relaxation ritual, candle ritual, and keyboard ritual. During the latter, Synchronicity tracks your psychic energy by timing keystrokes you make while performing the ritual.

Although you can get some preliminary readings from the program, to keep up with all the changes in your subconscious, you'll need to update the rituals for future readings, for which you must be registered with Visionary Software. Synchronicity is not copy-protected and lists for \$49.95. For more information, contact Visionary Software, P.O. Box 69191, Portland, OR 97201; (503) 246-6200.

— Michele Stokol



■ Synchronicity from Visionary Software attempts to relax you with soothing screens. Through its three rituals — relaxation, candle, and keyboard — the program claims to help develop your creativity and handle your everyday calamities.

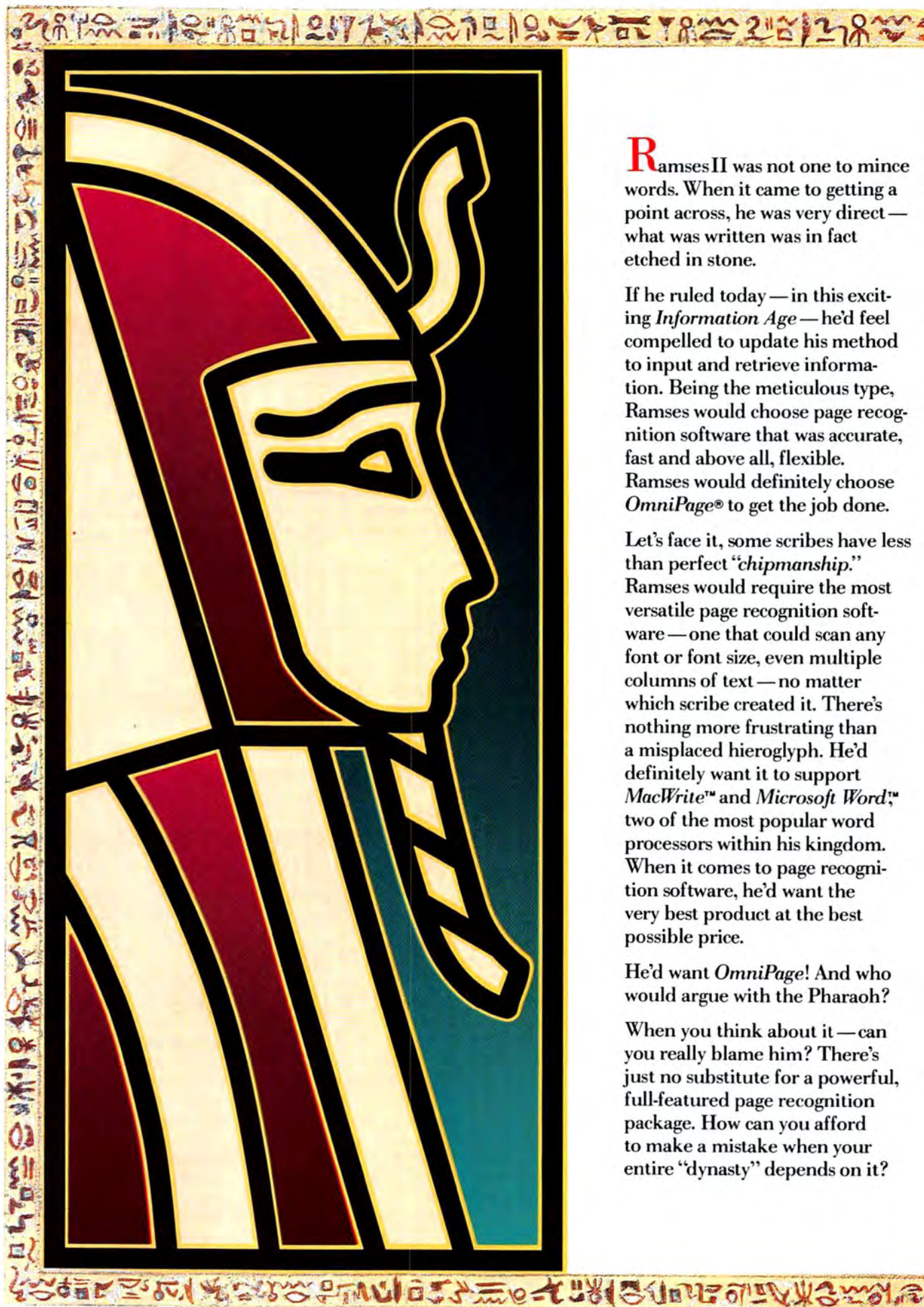
Ramses II was not one to mince words. When it came to getting a point across, he was very direct — what was written was in fact etched in stone.

If he ruled today — in this exciting *Information Age* — he'd feel compelled to update his method to input and retrieve information. Being the meticulous type, Ramses would choose page recognition software that was accurate, fast and above all, flexible. Ramses would definitely choose *OmniPage*® to get the job done.

Let's face it, some scribes have less than perfect "chipmanship." Ramses would require the most versatile page recognition software — one that could scan any font or font size, even multiple columns of text — no matter which scribe created it. There's nothing more frustrating than a misplaced hieroglyph. He'd definitely want it to support *MacWrite*™ and *Microsoft Word*™, two of the most popular word processors within his kingdom. When it comes to page recognition software, he'd want the very best product at the best possible price.

He'd want *OmniPage*! And who would argue with the Pharaoh?

When you think about it — can you really blame him? There's just no substitute for a powerful, full-featured page recognition package. How can you afford to make a mistake when your entire "dynasty" depends on it?



So It Is Written... So It Shall Be.

Means that *OmniPage* can read virtually any font, in sizes that range from 8 pt. to 72 pt.

This unique landscape feature means that spreadsheets and financial documents are only a scan away. A great addition to your royal granary if storing and accessing numerical data really counts!

Multiple column feature means that complex, compound pages of text and graphics can be handled—automatically.

Transitional Editor™ lets you review scanned text before exporting it to a file. Cut, copy, paste, insert and delete text — or take advantage of the powerful search and replace tools which allow you to modify a page.

Reads and outputs underlines, bold faces and italics.

Supports the most popular word processing programs for the Macintosh, including *Microsoft Word* and *MacWrite*.

Supports 11 of your favorite Indo-European languages, including French, German and Spanish.

WYSIScan™ interface takes full advantage of Macintosh's incredible ease-of-use.

OmniPage 2.0 has even more features than ever before — this translates into the most comprehensive page recognition software available — anywhere — for any dynasty — at any price.

The bottom line in page recognition software — eliminating excessive key strokes* for all time.



OmniPage 2.0 now available!



*Egyptian scribes had a real time of it when it came to excessive key strokes. Each letter, or hieroglyph, had to be individually etched into stone. And we complain today about writer's cramp?

OmniPage is a registered trademark of Caere Corporation. *Transitional Editor* and *WYSIScan* are trademarks of Caere Corporation. *Apple* and *Macintosh* are registered trademarks of Apple Computer, Inc. *Microsoft Word* is a trademark of Microsoft Corporation. *MacWrite* is a licensed trademark of Claris Corporation. Egyptian bust of Ramses II courtesy of the Rosicrucian Society of San Jose, California. ©Copyright 1989 Caere Corporation. All rights reserved.

CAERE

Caere Corporation
100 Cooper Court
Los Gatos, CA 95030
1-800-535-SCAN



Home on the Mac

You may think that designing houses and other buildings with your Mac has to be a serious business involving complicated CAD packages, precise measurements, and intricate building codes. Not so with **Hometown, U.S.A.** — a new house design is a matter of point, click, cut, and paste. Construct a model of a house, a bakery, or a garage in minutes, using templates (in MacPaint format) included in the package. Just open the correct template file to add doors, windows, steps, signs, and awnings. Using a paint program, you can add siding, bricks, and shingles. Now print — your building, complete with tabs for gluing, is ready to color and put together. Get your construction plans for \$39.95 from Publishing International, 333 W. El Camino Real, Suite 222, Sunnyvale, CA 94087; (408) 738-4311.

— Laura Johnson

Cool Peripherals

True, but strange: In the process of researching new and revolutionary networking applications, engineers at Apple recently connected a refrigerator to an in-house network.

A switch connected to the door of the refrigerator transmits data over an ADB connection to a foreground application running on an AppleShare server. If the fridge door is opened or shut, the server Mac broadcasts the door's status change over the network.

Selected engineers running special software on their Macs can determine remotely whether the fridge door is open or shut and how many times the

door has been opened and shut that day.

No information was available about whether this research will result in a new product.

— Stephan Somogyi



■ Someone's been eating my porridge — and drinking my Jolt cola! With Apple's (unreleased) ADB refrigerator monitor, you'll be able to catch the soda swiper red-handed. Is this a cool world or what?



Dialog Box of the Month

Just say no or, in this case, just click OK on dialog boxes, and they'll be out of your way — maybe. Walter K. Daniel of Annapolis, Maryland, thought just a double-click would get him into the advanced utilities on CMS SCSI Utility 5.0, which comes with CMS Enhancements' hard disks.

According to Daniel, the manual states that accessing these utilities requires a special click on the CMS logo. After trying different key and click combinations, he was rewarded with dialog box 1. Clicking on OK didn't do what he expected either — a few more clicks yielded another box. This continued until he finally got tired and gave up. (Actually, he had gone through 20 screens; we're giving you the abridged version here.)

— Kristi Coale



C.O., Phone Home



Cosmic Osmo is the legendary patriarch of a 4-megabyte adventure environment created by Cyan (and distributed by Activision) that will capture the hearts of kids of all ages who are ready for life after Inigo. Cosmic Osmo is a delightful interactive space venture, but first a word of warning: Don't start this trip unless you have plenty of time for exploration. You wouldn't want to miss your school bus — or your board meeting.

In Cosmic Osmo, you find four HyperCard worlds full of wondrous graphics and enchanting animations (created with VideoWorks II). You can visit about 250 places in your travels — and you're never sure you've hit every button or seen every photo opportunity.

Cosmic Osmo is no spectator sport. Its creators have used many ingenious ways to involve the participant. There's a compact-disc player with a choice of tunes for your enjoyment as you fly through space, an arcade-style game in one world, and an easel for your creative endeavors in another. (Paint carefully, though — your masterpiece might show up hanging on someone's wall; many Osmoid toys stay where and how you leave them after you've created, rearranged, or played with them.)

You don't win or lose in this cosmic odyssey, although there are points where you can stop with a feeling of comple-

tion and accomplishment. As in any good adventure game, you can follow straightforward paths from one land to another (on spaceships, a submarine ride from a kitchen sink to a desert island, staircases, and elevators), or you can take ad-



■ In your merry Osmobile, you'll cruise the friendly skies — and sail the high seas, sing the middle C's, and explore contingencies. Everything's interactive, from the fuzzy dice to the bumper sticker to the killer swabs.

vantage of the more direct wormholes, time warps, Dr. Who-style kiosks, and other shortcuts.

Cosmic Osmo's design is right on target. Though your exploration may seem like searching for a needle in a cosmic haystack, you're almost always rewarded for your clicks, thanks to stack design that demonstrates an almost infallible knowledge of applied psychology. It seems to know just where you'll click next; nearly every interesting-looking detail has a button under it, and almost every button has a visual clue to lead you to it. Yet the clues aren't obvious; you get the feeling that no one else would have followed the route less taken.

Osmoland is rich in unexpected details and

recurring motifs — such as the Cosmic Operator for the telephone network that services these lands (she provides music when you're on hold) or the subtle references to the Manhole, Cyan's previous adventure (see Hyper-

Space, July '89). At one point, there's even a Mac with a working version of HyperCard in the background.

Young cosmonauts might not fully appreciate all the cosmic comic relief of the details and offhand references scattered throughout — such as the fuzzy dice hanging over the dashboard of the spaceship, the portrait of Max ("Jethro") Baer, Jr., hanging over the hearth (between portraits of the programmer's real grandparents), a planet that's straight out of *The Little Prince*, or the picture on the wall that might or might not be George Bush. But they'll



certainly enjoy the California Olive and the opera-singing ketchup bottle.

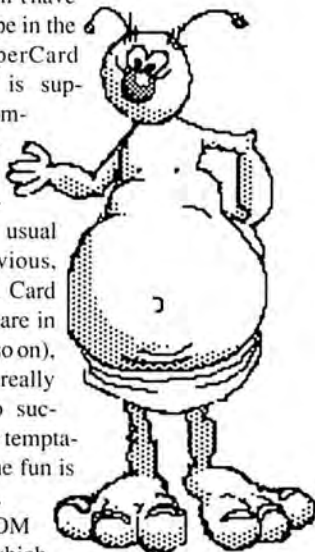
Scattered throughout the floor shows,

cameos, and special effects are several minigames: a jigsaw puzzle, a couple of musical instruments, a shooting gallery (with nonviolent cotton swabs), and a couple of Mr. Potato Heads for genetic experiments. And should younger kids get stuck, guardian angels step in. For instance, if you take too long to navigate a boat, the emergency autopilot kicks in.

For Coffee Achiever parents who don't have time to grope in the dark, HyperCard "cheating" is supported (Command-Option reveals button locations; the usual Next, Previous, and Recent Card commands are in effect; and so on), but there's really no need to succumb to the temptation; half the fun is serendipity.

A CD-ROM version (which will probably have additional worlds to visit and extended dance versions of the music and songs) is expected later this year. Pricing for Osmo and company had not been set at press time, but if the Manhole sets a precedent (at \$49.95 for the disk version, \$59.95 for the CD-ROM one), the price won't be out of this world, even if the adventures are. For your own close encounters of the Osmo kind, contact Activision Entertainment at 3885 Bohannon Drive, Menlo Park, CA 94025; (415) 329-0800.

— Laura Johnson and Jon Zilber



THE EVIL'S ADVOCATE



When is Apple going to wise up and open a chain of Apple Computer Stores? This is an idea whose time has long since come and waited and waited and waited.

Does Apple really expect to get a fair shake at a computer store where it is one among many other companies with products for sale? If a customer comes in with a penchant for an Apple Macintosh but with little money, we might expect the following to happen:

Dealer: "May I help you?"

Customer: "I think I want a Macintosh. I've heard they're great and perfect for what I'm doing."

Dealer: "Well, whatever that is, the Mac is the machine for you. We have a perfect system here for \$4,400."

Who's Minding the Store?

Customer: "\$4,400? Gee, that's a little high. A friend says she can get me one at the student union for much less than that."

Dealer: "Yeah, but do you really want a Mac? Look at this Taiwanese PC clone. It runs rings around the Mac and has color — and we'll throw in a bunch of free software. It's \$1,200 with a hard disk! Everyone is buying them. The Mac is dead."

Customer: "If you say so, I'll buy it."

Of course, some computer stores now specialize in the Mac, but they're rare, and if given a cheap Mac clone, they'll bail out of the Apple camp faster than you can imagine.

IBM had the right idea when it opened the IBM retail centers, but apparently the company decided that it didn't want to deal with the "public." It prefers direct sales to businesses. This is a fine decision for IBM, but Apple has never been able to deal directly with business with any competence, although it has done a great job of selling itself to the public. (After all, Sculley used to sell Pepsi to the unwashed masses.)

Apple does have a company store in Cupertino, where it does a small catalog business for all sorts of accessories and Apple-logo junk products such as Apple pens, Apple T-shirts, Apple carrying bags, Apple mugs, and whatever. Heck, even I have an Apple tie! This is the mentality of a company attuned to the public's desires. I can't imagine IBM selling IBM mugs in an IBM store. Let's face it: IBM is no fun. There are no ComputerLand mugs or key fobs either.

Here's a typical story: I'm in Chicago, driving a friend to Comdex who needs to print out a file from a Mac disk so it can be faxed someplace. I figure a quick run into a ComputerLand will do it. I run into the store and ask if it's possible to print out a one-page document. There are two salespeople in the store. Otherwise, it's dead empty. The woman is sitting down doing

nothing. The guy is standing around.

"We don't do that," she says, "but we do rent Macintoshes."

I indicate that I work for *MacUser* and other magazines and tell her who I am, hoping that might help. She hasn't heard of any of the magazines or me. So much for influence peddling.

"OK," I say. "I'll rent one. How much?" I pull out the disk.

"You can't just rent the machine and use it here," she says.

"You have to take it with you."

"You mean there is no way I can get this file printed? Even if I give you money right now?!"

"No."

So I leave. I look back and see her still sitting on her duff in the empty store doing nothing. Heaven forbid she'd do some work.

The only way for manufacturers to get lazy, unenthusiastic sales personnel to do any work, including sales, is to bribe them with a pathetic system similar to what you find in today's stereo chain stores. The technique is called spiffing. Bose, for example, is big on this technique. Bose, like other vendors, pays salespeople a factory-direct bonus (a spiff) for each speaker system they sell. If you sell a ton, you get a trip to Hawaii. The roots of corruption lurk within this method, but it's actually a system that manufacturers have to establish to force sales. The stores do not pay salespeople enough money to attract the great employees. An extra \$10 spiff per system paid by the manufacturer makes the job more attractive. Of course, customers are short-sheeted in such transactions, as salespeople may guide buyers to the company with the biggest spiffs, regardless of the products' quality.

The long-term drawback of the system is obvious too. Manufacturers can compete with what amounts to legal bribelike incentives only if they all do the same thing, to the point that manufacturers subsidize all products' sales commissions. You can be sure that exactly this will soon happen. So the sales system will be paid for by manufacturers, but all control of the channel is bound to be lost. Kind of a modern taxation without representation.

The only real solution is for the manufacturers to open their own stores or franchises, just as car manufacturers had to do long ago. In Taiwan, Acer has more than 80 profitable stores selling Acer computers. Hertz Computers in New York City is thinking about doing the same in the U.S. Apple shouldn't wait for shake-ups or fallouts or for lazy salespeople to get off their behinds to move some products. It should buy an existing network of stores or start a chain itself. I'm sure they'll be a lot more fun and profitable than the empty Chicago ComputerLand I visited.



BY JOHN C. DVORAK

Ultimate choice.

The Spectrum/24 card for the Macintosh II.
True color display on the most popular monitors. Including ours.

The first. And still champion.

Spectrum from SuperMac™. The first high-performance color graphics card for the Macintosh®. To bring 256 colors to a 19" display. And to smaller monitors, too. With the Spectrum's Virtual Desktop™. So any part of an image too large to fit can still be seen. With hardware pan. And hardware zoom, for 2x magnification. Instantly.

Now we're first again. With the new Spectrum/24™. Bringing the same high-performance features to *true color*. Fully supporting Apple's 32-Bit QuickDraw™.

Bring your work to life.

Work with up to 16.8 million colors. And display hundreds of thousands of colors at once. To create striking, photographic-quality images with lifelike tones and color gradations. For all your work in desktop publishing and graphic design. Presentations. Video and animation.

With the Spectrum/24, *you* choose the monitor. For the advanced graphics subsystem that's right for you.

No other card works with more popular color monitors. SuperMac's 19" and 16" high-performance and 19" standard displays. Apple's 13" color monitor. Plus NTSC RGB

monitors and output devices. For the right advanced graphics subsystem for your business. And your budget.

Trade up to true color. SuperMac makes it easy.

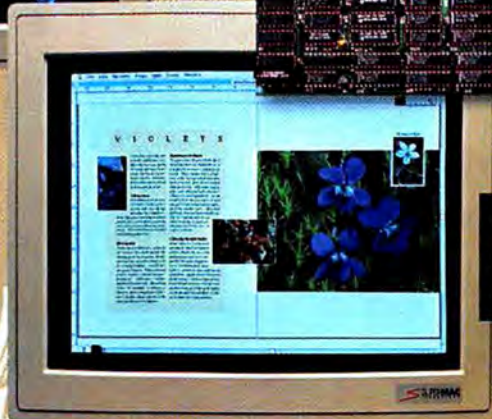
With our TrueColor TradeUp™ offer.* Just send us your NuBus™ compatible SuperMac, RasterOps™ or Apple color graphics card. And get a Spectrum/24 at substantial savings. Contact Customer Service for details.

So move up to the ultimate in color display.

See your authorized SuperMac dealer today. For the Spectrum/24 and the monitor that best meets your needs. For your best work—in true color.



Work with up to 16.8 million colors. And display hundreds of thousands at once. To create photographic-quality images. On the monitor you choose.



Use true color images to add dramatic impact to desktop publishing documents. And all your other work.

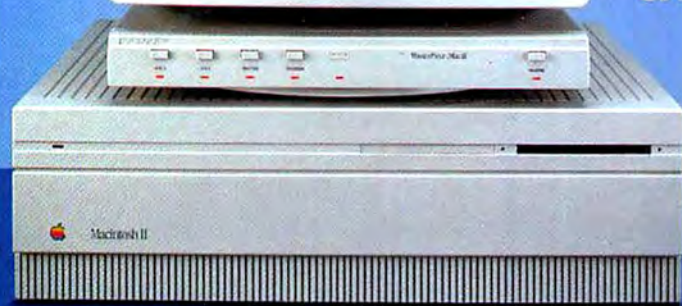
The first. And still champion.



485 Potrero Avenue • Sunnyvale, CA 94086
408 • 245 • 2202

See us at MacWorld Expo
Booth #607

*"This baby is
loaded with
extras..."*



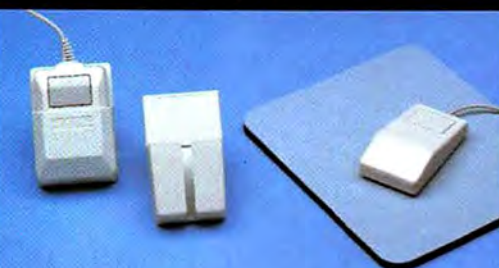
Master Piece® Mac II, \$159.95

Kristi Coale,
MacUser magazine

System Saver® SE, \$79.95



Apple® Security System, \$49.95



Mouseway, Mouse Pockets, \$9.95 ea.



Macaccessories SuperBase™, \$49.95



Mac® II Stand, \$29.95,
Cables \$39.95 and \$49.95,
Complete Kit \$99.95



Macaccessories® Anti-Glare Filter, \$49.95



Universal Printer Stand, \$24.95



Power Backer™ UPS's, \$399 to \$1,399

When Kristi Coale of MacUser magazine looked at our Master Piece® Mac II, she had expected it to have extra outlets, individual and master switches, surge suppression, and noise filtering. But she was impressed to find modem surge suppression and a swivel base, too. All for \$159.95.

And we were delighted with her comment, since that's exactly what we aim for when we design accessories for the Mac—to build in the most benefits at the best price possible.

That's how we came to feature a fan in our System Saver Mac. How we slipped an extra shelf under our SuperBase. And popped a paper catcher in behind our Printer Stand.

In fact, we've figured out so many ways to enhance and protect your Macintosh, we can't fit them all on one page.

So, give us a call, and we'll send you a free 20 page brochure. And we guarantee—this baby's loaded!

Please circle 144 on reader service card.

Call (800) 535-4242

KENSINGTON

251 Park Avenue South NY, NY 10010
(212) 475-5200, Fax (212) 475-5996