

DISK AVAILABLE!
(See page 66)

INSTANT INFO! Make Your Amiga a 24-Hour Newswire!

AMIGA

SPECIAL
\$2.95 USA
\$3.50 Can.

AMIGA[®]

RESOURCE

FEBRUARY 1990

CE 02714

A **COMPUTE!** Publication

ENTER THE THIRD DIMENSION!

- ▶ How to Create Your Own 3-D Art
- ▶ Why Pros Prefer Amiga
- ▶ Expert Tips on Using Sculpt 3-D & 4-D

INSIDE THE 500
Find Out What Makes Your Amiga Tick

GLOBEWATCH



Can the Amiga Survive Overseas?

**READY-TO-RUN
PROGRAMS ON DISK!**
Fast-Action Boomerang
NameBase Address Filer
And More!



USA \$2.95 Canada \$3.50



0 71486 02714 0

02

HERE'S GRIPPING NEWS FOR MOUSE USERS

Introducing The Gravis MouseStick!™

A BETTER HANDLE ON DESIGN

THE PLAN: Create *the* input device that is the ultimate in controller precision and versatility.

THE STRATEGY: Combine design ergonomics with state-of-the-art controller technology.

THE RESULT: *The Gravis Mouse - Stick™*. The breakthrough joystick controller technology ergonomically based on the hand's ability to perform precise movements with speed and accuracy.

A BETTER HANDLE ON TECHNOLOGY

Design makes the MouseStick™ responsive.

Technology makes the MouseStick™ today's most versatile input device. For desktop use. For large-screen monitor CAD and DTP applications. And, of course, for computer games.

Plug it in and get ready! Everything opens up with an amazing 1200 point resolution that can be set to any screen size.

And the big picture resolves into fractional sensitivity modes for precise pixel by pixel control.

The secret? The MouseStick's™ true *optomechanical* digital output signal. Here's a comparison: available analog joysticks perform like an old hi-fi. The MouseStick's™ digital optomechanics perform like a compact disk player.

And there's more – the Gravis MouseStick™ Processing Unit (GMPU).

This little brain really frees you to select from hundreds of modes such as direct tracking with or without

autocentering and switch/digital joystick emulation. There are three programmable microswitch buttons with adjustable Turbo-fire, and the GMPU's 16-character display and menu system updates you on mode and function.

Thanks to the GMPU's 16K of ROM, programming options are virtually limitless and it can be user upgraded to include new features. The MouseStick™ is compatible with most popular mouse-based computers, has all the unique features of the Gravis Joystick and comes with a one year no-nonsense warranty!

SO TEST-DRIVE THE MOUSESTICK™ TODAY!

Get a grip on the new MouseStick™ and you'll quickly discover it's light years ahead of the mouse, trackball or traditional joystick.

The MouseStick™ doesn't clutter your desk or require constant cleaning. And unlike a trackball, you don't need the dexterity of a cardshark to drag an item.

The Gravis MouseStick™ is one of the most technologically advanced and durable digital input devices available.

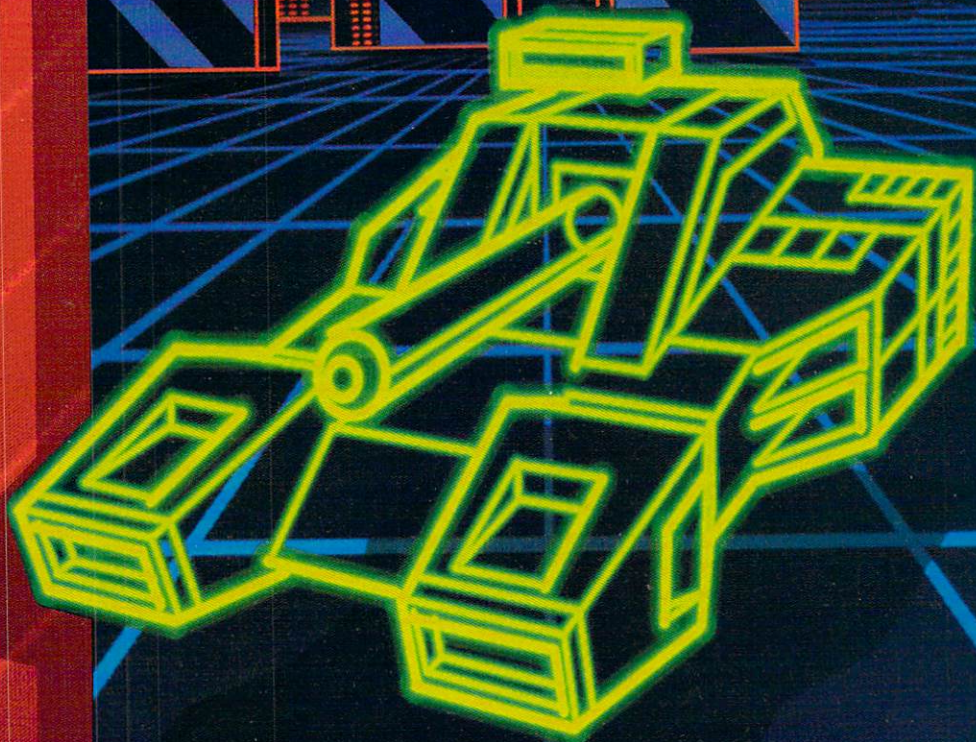
But don't worry. You can handle it.

Advanced
GRAVIS

Advanced Gravis Computer
Technology Ltd., 7033 Antrim Ave.
Burnaby, B.C. Canada V5J 4M5
US OFFICE: 1602 Carolina St. #D12,
Bellingham WA 98226
Telephone: 604-434-7274



OMEGA™



Neural Cybertank Design and Simulation

Cybertank engineers control the destiny of the Organization for Strategic Intelligence. They're the heart of the OMEGA Project, a classified military contract that's shaping combat's future. Employing tomorrow's technology, OSI cybertank engineers design the chassis and artificial intelligence (AI) for the next generation of neural armored warriors — and they gauge their success on a simulated field of battle. Join these elite ranks, and pit your designs against the world's best.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

ORIGIN™
We create worlds.™

Circle Reader Service Number 198

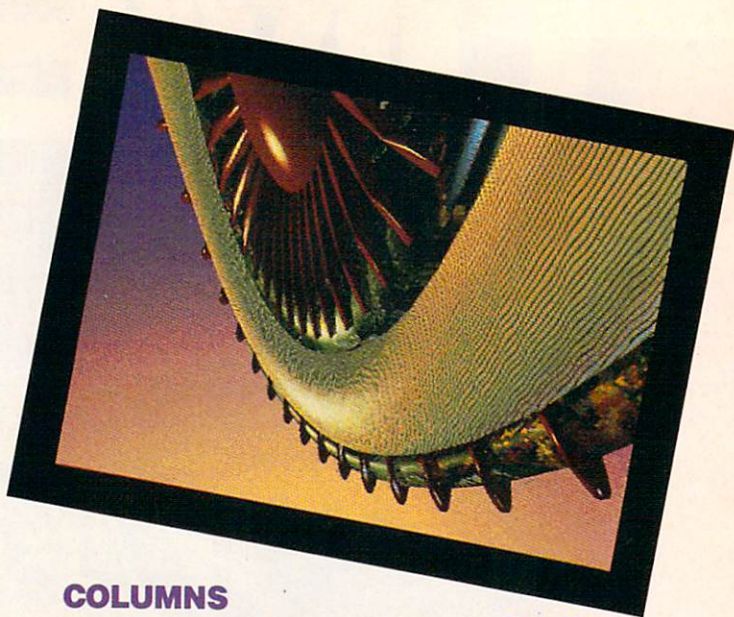
Available for: IBM/Tandy compatibles, C-64/128, Apple II series, Atari ST and Amiga, coming soon for: Macintosh and Apple IIGs; actual screens may vary.

Can't find OMEGA at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders, or mail check or money order (U.S.\$) to ORIGIN. All versions \$49.95, shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.



FEATURES

- 26 Amiga Builds a World**
Joseph Conti—using the Amiga to mold reality
Ben and Jean Means
- 30 Amiga 3-D**
The history and future of 3-D graphics
John Foust
- 40 Inside Your 500**
Find out what makes your Amiga tick
Dan Schein
- 45 Globewatch**
Investigating the international Amiga market
Keith Ferrell
- 50 X*PRESS for the Amiga**
Get information quick—from your television cable
John Foust
- 9 Readership Survey**
What do you think about *Amiga Resource*?



DEPARTMENTS

- 3 The Window**
Hurricanes and earthquakes
Editors
- 4 Trends**
News, new products, and rumors
Mickey McLean and Sheldon "The Ear" Leemon
- 10 Readers' Feedback**
European games, opinions, and commercials
Readers and Editors
- 15 Spotlight on the Sculpt Series**
Hot tips for 3-D artists
John Foust
- 21 CLI Clips**
Livening things up with escape codes
Jim Butterfield
- 23 Ask Rob Peck**
What is AREXX?
Rob Peck
- 76 Programmer's Page**
Finding a file's full pathname
Dale McBane
- 91 Best of the Boards**
Scriptit—phantom fingers on your mouse
Sheldon Leemon
- 94 Amiga Art Gallery**
Computer art on display

COLUMNS

- 17 Just for Fun**
Life of the party
Shay Addams
- 19 Abstractions**
And now, a word from our sponsor
Arlan Levitan
- 96 Taking Sides**
Mail-order Amigas
Rhett Anderson vs. Randy Thompson

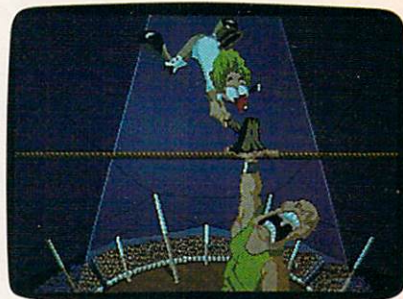
30

REVIEWS

Amiga Logo
Sheldon Leemon
52

Lords of the Rising Sun
Keith Ferrell
53

Mini-Reviews
Amiga Resource looks at dinosaurs, fiendish clowns, hard disk backup utilities, perplexing word puzzles, a programming language, and more
55



55

ON DISK

67

Boomerang, NameBase, Req, Amiga BBS List, Scriptit, SysCheck, and more

How to Use the Disk **75**

COMPUTE! PUBLICATIONS

Group Vice President,

Publisher/Editorial Director

Associate Publisher/Editorial

Associate Publisher/

Advertising

Managing Editor

Editorial Operations Director

Features Editor

Editorial Marketing Manager

Advertising Marketing Manager

Manager, Disk Products

William Tynan

Lance Elko

Bernard J. Theobald, Jr.

Kathleen Martinek

Tony Roberts

Keith Ferrell

Caroline D. Hanlon

Kathleen Ingram

David Hensley, Jr.

AMIGA RESOURCE

EDITORIAL DEPARTMENT

Associate Editors

Senior Art Director

Senior Program Designer

Assistant Technical Editors

Programming Assistant

Editorial Assistants

Copy Editors

Contributing Editors

Rhett Anderson

Randy Thompson

Janice R. Fary

Tim Midkiff

Jim Fuchs

Dale McBane

Troy Tucker

Elizabeth Casey

Mickey McLean

Karen Siepak

Karen Uhlenhof

Shay Addams

Jim Butterfield

John Foust

Sheldon Leemon

Arlan Levitan

Rob Peck

ART DEPARTMENT

Assistant Art Director

Mechanical Art Supervisor

Junior Designers

Robin L. Strelow

Robin Case

Scotty Billings

Meg McArn

PRODUCTION

DEPARTMENT

Production Director

Assistant Production Manager

Advertising/Production

Assistant

Production Assistant

Typesetting

Mark E. Hillier

De Potter

Tammie Taylor

Barbara A. Williams

Terry Cash

Carole Dunton

ADMINISTRATIVE STAFF

Executive Assistant

Senior Administrative

Assistant

Administrative Assistant

Customer Service

Coordinator

Sybil Agee

Julia Fleming

Linda Benson

Elfreda Chavis

ABC CONSUMER

MAGAZINES, INC.

President

Senior Vice President

Director, Financial Analysis

Director of Circulation

Gary R. Ingersoll

Richard D. Bay

Andrew D. Landis

Harold Buckley

CIRCULATION DEPARTMENT

Subscriptions

Newsstand

Customer Service

Jeanne Andrews

Maureen Buckley


Jenny Lam

Raymond Ward

Peter J. Birmingham

Jana Friedman

(800) 727-6937

ABC Consumer Magazines, Inc. 

CHILTON Company, One of the ABC Publishing Companies,

a part of Capital Cities/ABC, Inc.

Robert G. Burton, President

825 Seventh Avenue

New York, NY 10019

ADVERTISING OFFICES

New York: ABC Consumer Magazines, Inc., 825 Seventh Ave., New

York, NY 10019; (201) 989-7553. Bernard J. Theobald, Jr., Associate

Publisher/Advertising

Greensboro: COMPUTE! Publications, 324 West Wendover Ave.,

Suite 200, Greensboro, NC 27408; (919) 275-9809. Kathleen Ingram,

Marketing Manager.

New England & Mid-Atlantic: Bernard J. Theobald, Jr. (201)

989-7553. Kathleen Ingram (919) 275-9809.

Midwest & Southwest: Jerry Thompson. Lucille Dennis

(312) 726-6047 [Chicago]; (713) 731-2605 [Texas]; (303) 595-9299

[Colorado]; (415) 348-8222 [California].

West, Northwest, & British Columbia: Jerry Thompson (415)

348-8222; Lucille Dennis (415) 878-4905.

Southeast & International: Bernard J. Theobald, Jr. (201) 989-7553;

Kathleen Ingram (919) 275-9809.

National Accounts Offices:

Midwest: Starr Lane, National Accounts Manager (312) 462-2872, 191

S. Gary Ave., Carol Stream, IL 60188-2089.

West Coast: Susan Annexstein, (213) 284-8118, 2029 Century Park

East, Suite 800, Los Angeles, CA 90067.

Address all advertising materials to Tammie Taylor, COMPUTE!

Publications, Inc., 324 West Wendover Ave., Suite 200, Greensboro,

NC 27408.

Editorial inquiries should be addressed to The Editor, Amiga Resource,

Suite 200, 324 West Wendover Ave., Greensboro, NC 27408.

PRINTED IN THE U.S.A.

Perspectives from the Editors

Welcome to the first *Amiga Resource* of the new decade. Our hope is that the Amiga, a child of the second half of the 1980s, will become the home and professional computer of the early 1990s. Our goal is to grow with the Amiga.

This issue came together in the usual fashion, except for the distraction of two national disasters. Hurricane Hugo romped up the East Coast while we were planning our features. We made it OK through that one (although the wind and rain were pretty scary here in Greensboro). Oddly enough, we were more affected by the disaster which beset the West Coast. Columnist Rob Peck had the bad luck to live a few dozen yards from the fault line. His house and computer were both rendered inoperable. And columnist Arlan Levitan (along with the entire computer industry) lost a dear friend to the earthquake—John Anderson, features editor of *MacUser*.

It's been about a year since we started working on the first *Amiga Resource*. In that time, we've moved from a quarterly to a bimonthly. Many of our readers have called or written to us, encouraging us to move the magazine up to a monthly. We appreciate your enthusiasm. We're constantly discussing how to better serve you, by going monthly, by offering special products and disks, and so on. We'll be sure to keep you posted.

The North American

Amiga magazine market is a crowded one when you consider the number of Amigas that have been sold here. That's good for you, the consumer. First, because you have a choice. You can read *Amiga Transactor* if you're interested in programming or *Info* if you like to read reviews and features. Second, because competition makes all the magazines better. And third, because if you're a real Amiga nut, you can read more than half a dozen magazines from dawn to dusk.

We, along with everyone else, are working hard for our fair share of that market. That's why we appreciate your input. Please fill out the Readership Survey you'll find on page 9. The Readership Survey comes directly to our offices. We're also establishing a Reader Research Panel. You can apply to participate by filling out the form you find on page 74. If we select you, you'll receive several survey forms over the next year. These two surveys are entirely separate. Respond to both, if you like.

If you've been working on a program for our \$10,000 Amiga Programming Contest, keep an eye on the calendar. We must receive all entries in our offices by February 28, 1990. If your program just plain isn't working right at the deadline, submit it to us when it has been fixed. As far as we know, we pay more for top-quality software than any other Amiga magazine does.

Hardly a day passes when we don't get a submission to "Amiga Art Gallery." Remember, you don't have to be a professional artist to have your art appear in the gallery. Our panel of four art reviewers is quirky enough to give everyone a chance.

Finally, we've noted a surge in back-issue sales. Our guess is that new readers are rushing to complete their collection of *Amiga Resource* and the *Resource Disk*. Be forewarned: Our stock on some of those issues is running low. If you're one of those readers who prefers a complete collection, we suggest you order soon. It looks as if our Summer 1989 issue will be the first to sell out

—Rhett Anderson

Looking ahead . . .

The scanners are coming! Next issue, Sheldon Leemon takes a look at the swarm of scanners that is invading the market. Find out what they mean for desktop publishing, desktop video, and art.

Commodore continues to push the Amiga into the desktop video market, but what exactly is it? Fred Hurteau, a professional video producer, defines the terms and tells you how to get up to speed in this exciting field.

Think you know everything about Amiga graphics? Think again. Associate editor and Sliced Ham author Rhett Anderson explains HAM, Extra Half-Brite, hi res, interlace, sprites, dual playfields, and copper lists. He'll even explain the theory behind Sliced Ham and NewTek's new Dynamic Res modes used in Digi-View 4.0.

You'll also find a report on the Canadian Amiga market—which traditionally has been very strong—as our editorial staff makes a visit to the Great White North.

We didn't have room for our feature on Amiga telecommunications in this issue, but you'll see it in April. Four sysops will tell why they think their own telecommunications service is best.

Rough Road to Respectability



Commodore has actually gone ahead with its \$15 million Amiga advertising campaign, as reported in the last issue, but things aren't going quite as smoothly as planned. It may be stretching things to suggest that the San Francisco earthquake occurred just because an Amiga commercial was scheduled to air during the third game of the World Series, though psychic spiritualist Clare Voyent had predicted that "the ground would open up" before Commodore started to promote the Amiga.

But great shakes weren't the only fly in Commodore's ointment. The company had hoped to make a big splash with a glitzy seven-page, full-color insert in the October 30 issue of *Time* magazine. As it turns out, however, that same issue featured a story in the business section about stagnation in the once-dynamic computer industry. And who did the article single out for abuse? IBM maybe? Compaq? Nah—*Time's* new patron of the publishing arts, CBM.

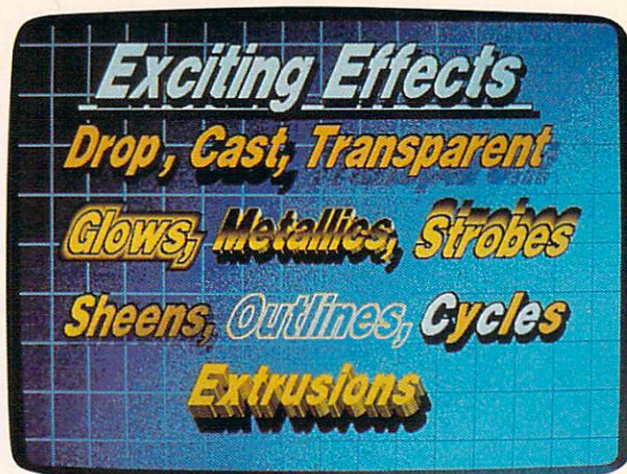
The article called Commodore's Amiga ad campaign a perfect example of how companies are repackaging old technology instead of pressing for innovation. The article implied that, at age 4, the Amiga is a has-been "whose sagging sales and fading image the company is trying to repair," and it compared Commodore's press gala to a benefit for an aging star. One can only imagine what might have been written if the company hadn't just finished plying the editorial staff with champagne and caviar—and dropping a small fortune on ad space.

On the television front, the ads that LucasFilm produced look pretty slick, but Commodore may have been a bit optimistic in estimating that 90 percent of adult Americans will have seen the spots 20 times before Christmas. In my area of the country (Detroit, if you must know), Commodore paid for over 200 TV ad insertions in the fourth quarter of 1989. Of these, however, about half were scheduled on small, independent UHF stations, appearing at the end of shows like "American Gladiators," "America's Most Wanted," and "Nightmare on Elm Street." Network shows on which the new spots are airing include "Rescue 911," Saturday-morning wrestling, "Freddy's Nightmare," and "Doogie Howser, MD." Looks like they have the influential insomniac serial-killer segment of the market covered, but there may be some gaps in other market segments—like young professionals and marrieds with children.

—S.L.

Hot News and Insider Gossip
by Sheldon "The Ear" Leemon

New Products edited by Mickey McLean



Professional Text

With TV*Text Professional from the Zuma Group, you can produce lettering and graphics for video titling and desktop presentations. The program applies special effects to text, shapes, and IFF objects.

With the click of a mouse, you can add stylistic effects such as outlines, shadows, strobes, edges, and three-dimensional extrusions. Color animated effects include sheens, glints, glows, and cycles. The program also generates backgrounds with color gradients and grid patterns. You can create your own

styles with the program's built-in editor.

Because it's IFF-compatible, you can use TV*Text Professional with a variety of graphics and animation programs including TV*Show, Zuma Group's special-effects slide-show program.

The TV*Text Professional package includes Zuma Fonts, Volumes 1, 2, and 3. A minimum of 1MB of memory is recommended to operate the program, which has a suggested retail price of \$169.95.

Zuma Group, 6733 N. Black Canyon Hwy., Phoenix, AZ 85015

The Revision 6 Scare



It seems as if every time Commodore makes a slight change in the design of its computers, rumors begin circulating about serious new problems. The latest scare concerns the Revision 6 motherboards on the 2000. People started worrying when they heard that some machines were having problems coping with multiple expansion boards.

As it turns out, the problem sounded much worse than it actually was. It appears that Motorola sent Commodore a batch of 68000 processor chips that had slight timing flaws (the flawed chips are all marked with the code 0B26). The problem can be fixed either by replacing the 68000 chip yourself (a \$10 plug-in part) or by taking the computer to an authorized service center for some board modifications. As for new buyers, not to worry. Current versions of the 2000 are being shipped with Revision 6.2 boards, which incorporate design changes that allow the expansion slots to work properly even if the processor timings vary a bit from batch to batch.

—S.L.

New Niche for COMPUTE! Books

Among the most successful of the new titles being introduced by COMPUTE! Books are the companion handbooks designed around computer simulations. Typical of the new genre is *40 Great Submarine Simulator War Adventures*, by Richard Sheffield, a book written to be used with the submarine simulators *Silent Service* and *Up Periscope!*. The adventures are true stories based on submarine combat in the Pacific Theater during World War II. Maps and detailed maneuvers let you duplicate the battles. Historical backgrounds add even more enjoyment to these excellent games.

Other simulation books include *The Official F-19 Stealth Fighter*, also by Richard Sheffield, and *Realistic Commercial Flying with Flight Simulator*, by John Rafferty. More books, including one for *Falcon*, will follow.

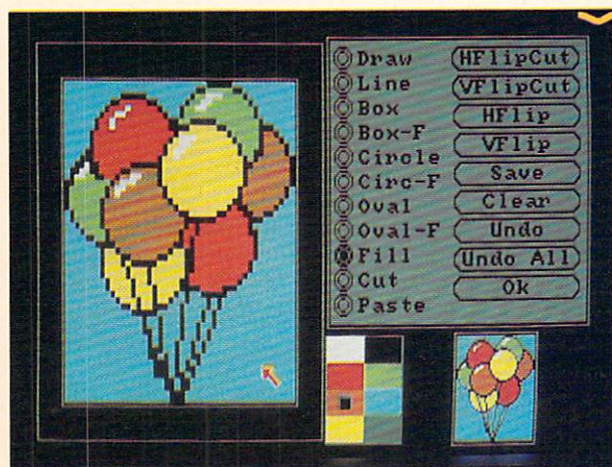
The books are available for \$14.95 each. Ask for them at your local bookstore or call (800) 345-1214 to order.

Lattice C Upgraded

Lattice announced that it shipped free upgrades of its *Lattice AmigaDOS Compiler* to all registered users. The new version 5.04 includes more than 50 enhancements to the compiler, libraries, *CodeProbe* debugger, and utilities.

All registered users of the compiler received the upgrade automatically. Anyone who did not receive the upgrade because of address changes or failure to register should contact Lattice.

Lattice, 2500 S. Highland Ave., Lombard, IL 60148



Print Mania

DeluxePrint II version 1.1 has been released by Electronic Arts. The upgraded personal creativity program designed for home, office, or school use now supports Workbench 1.3.

Included with the program are seven predesigned formats—signs, greeting cards, banners, letterhead, calendars, four-panel signs, and labels. One hundred fifty multicolored graphics and borders as well as a variety of fonts are also included.

You can control designs by replicating, moving, resiz-

ing, flipping, and rotating text and graphics. A full-featured graphics editor allows for the creation of your own clip art or customized graphics.

DeluxePrint II can also import *DeluxePaint II* or other compatible programs to be used as background images.

Version 1.0 owners can receive a free upgrade by sending in their art and program disks to Electronic Arts, P.O. Box 7578, San Mateo, California 94403-7578. *DeluxePrint II* version 1.1 has a suggested retail price of \$79.95.

As Luck Would Have It



Friends of Dale Luck, original Amiga design team member and sometime-consultant with Commodore, figured that his association with the company wouldn't last very long after the publication of an interview last spring in which he slammed the company and its management. In particular, he took Commodore to task for failing to develop a network strategy and for taking little interest in the **XWindows software** that he had developed for the Amiga (XWindows is a UNIX standard for operating a graphics interface over a network). As luck would have it, however, a **whole new management team was hired** by Commodore soon after the interview was published. When the new director of Educational Sales heard that a third party had ported XWindows to the Amiga, his first question was **Why isn't this guy working for us?** The result is that **Dale is moving to West Chester**, where he will be developing that networking strategy he wanted.

—S.L.

Amiga Outline Fonts



The Font Wars have begun to heat up in earnest.

Adobe's near monopoly on outline-font technology, used to create smoothly curving text characters at any size or angle of rotation, appears to be at an end. And it's about time, say many observers, since Adobe's downfall appears to be a direct result of the company's greed.

When Adobe developed the PostScript page-description language and the outline-font technology to go with it, it was the only game in town. Taking advantage of its position, the company charged exorbitant licensing fees that pushed the price of PostScript laser printers to over double that of non-PostScript models. While those hefty fees generated a lot of revenue for the company in the short term, they also provided a strong long-term incentive for the development of competing products.

How does this impact the Amiga? Well, the company has stated that it

plans to incorporate outline-font technology into the Amiga operating system sometime after the release of Workbench 1.4. Although no decision has been announced, it's no secret that there are close ties between Commodore and Gold Disk, maker of the *Professional Page* publishing software and supplier of the new "Appetizer Software" package that Commodore has been bundling with the Amiga for Christmas sales. Since Gold Disk has licensed the **Compugraphics Intellifonts technology for Professional Page**, insiders believe that Commodore will also adopt this technology for use by the Amiga operating system. There is speculation that **Commodore will supply about eight fonts** with the system, but since Gold Disk holds an exclusive license to market additional Intellifonts on the Amiga, that company may have its own monopoly on additional system fonts. Let's just hope that it doesn't follow Adobe's example.

—S.L.

Three Products in One

AmiTech Computers' AmiSound peripheral box provides three functions in one handy unit.

As a power controller, it can control the computer and up to four additional peripherals with front-mounted lighted rocker switches. It's completely surge-suppressed for protection from dangerous AC-line voltage spikes.

With six watts per channel, it also operates as a stereo amplifier with regulated power supply and separate left and right front-mounted volume controls. It also acts as a monitor stand, bringing your monitor up to eye level.

AmiSound is designed to work with all Amiga computers and has a suggested retail price of \$99.95.

AmiTech Computers, P.O. Box 65, Boystown, NE 68010

Commodore Appoints Education Marketing Manager

Howard Diamond, director of education for Commodore, announced the appointment of Ingrid Wallace to the new position of manager of the K-12 education market. Wallace will develop and coordinate education marketing programs and initiatives for K-12, including programs for youths at risk.

In addition, Wallace will work with third-party educational software publishers to increase and enhance existing Amiga-compatible education programs.

"Ingrid will play an integral role in Commodore's re-emergence into the education market, specifically K-12, where Commodore first established its reputation as the vanguard in computer education," Diamond said. "Ingrid's blend of experience in educational technology and her comprehensive knowledge of educational software development makes her an ideal addition to our team."

Previously, Wallace served as Educational Channel Marketing Manager at Broderbund Software, where she was responsible for planning and development specific to the K-12, higher education, special education, at-risk, and adult-literacy markets. She also held the position of public relations/school marketing manager for Davidson and Associates, an educational software publisher.

Supra Expands Hard Disk Line

Supra has announced two new additions to its Amiga hard disk line: the WordSync SCSI Hard Disk Interface and the WordSync-based SupraDrive Hard Card, both for the Amiga 2000.

The interface is as fast as Direct Memory Access and eliminates DMA's conflicts with sound, video, and serial I/O operations. Every SupraDrive Hard Card for the Amiga 2000 comes with the interface, and it can be purchased separately in WordSync Interface Kits.

The interface gets its speed by transferring two bytes of data on each transfer cycle and by using custom hardware circuitry to synchronize the data transfers. It features a one-slot, half-card design; a SCSI expansion port that allows you to attach additional SCSI devices to the system; and a jumper that allows you to turn autobooting on and off as desired.

Compatible with the Amiga Bridgeboard, RAM boards, digitizers, and other boards, the interface supports

Relive History

Joan of Arc: Siege & The Sword from Brøderbund combines strategy and action with historical fact. The game includes Joan of Arc's battles against the English and Burgundians in her campaign to have Charles VII crowned King of France.

You can't change history, though, as Joan is eventually captured by the British and burned at the stake in 1432. However, the game continues until 1456, as Charles VII carries on his fight to drive out the English and unite his country.

As Charles, you can choose from 20 options in any given turn, including raising armies, collecting taxes, nego-

tiating for towns, ransoming prisoners, dispatching spies, and dispensing royal justice such as making arrests and calling for executions.

You'll visit 73 authentic locales and encounter 31 characters who have different weaknesses and strengths. The game features five action sequences including large-scale battles in open countryside, hand-to-hand struggles with individual English soldiers, and assaults on fortress walls with boulders and scalding oil raining down.

Joan of Arc has a suggested retail price of \$44.95.

Brøderbund Software, 17 Paul Dr., San Rafael, CA 94903-2101

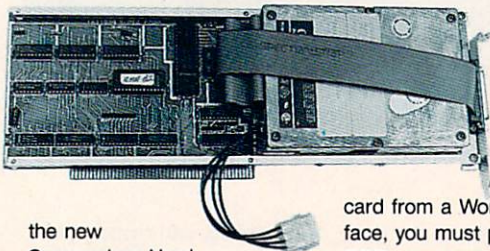
No Bugs—Guaranteed!

New Horizons Software has guaranteed its word processor, *ProWrite* version 2.5, to be bug-free. The company agrees to correct any verifiable discrepancy between the *ProWrite* manual and the program's behavior within 30 days of purchase. If New Horizons cannot correct the problem within 30 days, it will refund the purchase price.

Brian Sarrazin of New Horizons stated that the reason for the guarantee was because bug-free software needs to be developed in order for Commodore to successfully capture the business and education markets. "We're confident that *ProWrite* will do all we say it will, with no surprises," he said.

ProWrite features color graphics, multiple fonts, a 105,000-word spelling checker, print merge, headers and footers, search and replace, text-wrap around graphics, and the capability to print near-letter-quality text. Version 2.5 requires Kickstart 1.2 and has a suggested retail price of \$124.95.

New Horizons Software, P.O. Box 43167, Austin, TX 78745



the new Commodore Hard Block Specification, Workbench 1.3, Autobooting, and the Fast File System.

Both the SupraDrives and WordSync Interface Kits include Supra's SupraBoot and SupraTools disks with hard disk-formatting, file-management, and utility software.

SupraDrive Hard Cards are shipped formatted and can be installed by plugging the card into any Amiga expansion slot and connecting two cables. To build a hard

card from a WordSync Interface, you must put a 3 1/2-inch SCSI drive in the WordSync frame, connect two cables, and plug in the card. All screws and cables are included.

A 30MB SupraDrive with the WordSync Interface has a suggested retail price of \$649.00. The 45MB version sells for \$749 while the 80MB drive and interface retails for \$1,299.00. The separate WordSync Interface Kit is available for \$199.95.

Supra, 1133 Commercial Way, Albany, OR 97321

WordPerfect Maintenance Update

WordPerfect is now shipping a maintenance update to WordPerfect for the Amiga, providing several new enhancements for current users of the program.

You can now access files through a standard Amiga file-requester system that provides improved file-management capabilities each time a file is saved or retrieved. The update also allows you to import WordPerfect 4.2 PC files directly into WordPerfect for the Amiga. Improvements

have been made to the List Files and Timed BackUp features in the program as well as the spelling checker. The update also supports automatic edit-buffer sizing.

Reed Hainsworth, WordPerfect's manager of Amiga Product Marketing, said that the new update was developed in response to customers who wanted WordPerfect to be more Amiga-like.

The word processor features macros, merge, footnotes and endnotes, a 115,000-

word spelling checker, and a thesaurus for more than 10,000 words.

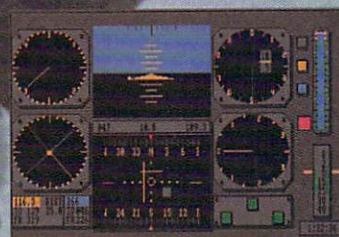
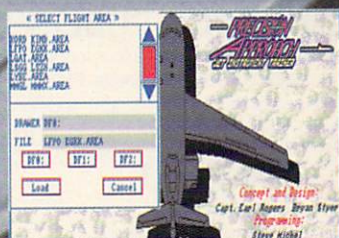
The update comes on three disks and is available for \$12.50 by writing to WordPerfect Amiga Update, 1555 North Technology Way, Orem, Utah 84057, or by calling (800) 222-9409. Users with problems in an earlier version and who report it to WordPerfect's Amiga Customer Support Department are entitled to receive the maintenance update at no charge. ▲

PRECISION APPROACH .INC JET INSTRUMENT TRAINER

FOR COMPUTER PILOTS WHO ARE SERIOUS ABOUT
DEVELOPING PROFESSIONAL FLYING SKILLS

- Speeds over 460 knots in Jet mode.
- Speeds over 190 knots in Prop mode.
- Use the Joystick for realistic and stable flight characteristics.
- Full radio package includes: Dual VOR, Localizer, Glide Slope, Dual DME, Marker Beacons, ADF.
- Novice instrument pilots may check aircraft position using the on-screen miniature plotter.
- Advanced pilots will be able to take over and land visually at minimums after completing a successful ILS approach.
- Turbulence mode available for greater challenge.
- Altitude and Position SET, Position HOLD.
- Wind up to 150 knots from any direction.
- Set ceiling from 0 to 550 ft above.
- Position aircraft instantaneously over any navigation aid.
- Fly all over the world!

Includes special programming module to build your own library of areas and approaches using real navigation charts.



"Fun, but not a game!" - Non-pilot computer enthusiast

"You almost forget you're flying a computer!" - Airline pilot B-727

"Very well designed! Accurate navigation! Easy to fly!" - Airline L1011 Captain

US \$89.95 Includes Shipping,
PRECISION APPROACH, INC.

Circle 107 on reader service card.

CHECK OR C.O.D. CALL (815) 537-2211
207 E. 3rd ST. PROPHETSTOWN, IL 61277



DR. OXIDE SLICES PRICES!

Comp-U-Save's cost-cutting clinician is at it again! This month Dr. Oxide, a bargain-basement surgeon if ever there was one, offers the industry's lowest prices on hardware and software, plus special deals on products available only through Comp-U-Save!

BUILD YOUR OWN HARD DRIVE KITS!

5 1/4" powered hard drive chassis with fan **only \$120.00 each**
3 1/2" powered hard drive chassis with fan

500 SCSI interfaces w/passthru and software

\$189.99 w/room for 2 megs

All you need is a SCSI hard drive and you're ready to Rock and Roll!

A1000 SCSI—\$215.00

Call for SCSI hard drive prices

AMIGA PUBLIC DOMAIN

OVER 900 DISKS!

Largest Amiga PD Library in the World!

also C-64 & C-128 — Amiga PD — \$4.00 each

Write for Free Catalogue

VIDEO/DESKTOP PUBLISHING

Video and desktop publishing packages are our specialty. Please call for advice on what package will suit your needs. From beginner to professional our staff can help you make the right decision on the hardware and software you need, at the right price to fit your budget.

M.A.S.T.

UNIDRIVE		\$125
TWINDRIVE		\$239
AMIG-A-TOSH		\$175
AMIG-A-TOSH+		\$209
MICROMECS 512K		\$125
MINIMECS	A500	A1000
1 MEG	\$340	\$375
2 MEG	\$499	\$535
TINY TIGER II HD		CALL
INFINITY MACHINE		CALL

Amiga Hard Drives 500 - 1000 (add \$75)

20 Meg—\$475.00 32 Meg—\$645.00 45 Meg—\$720.00

Amiga External Drive \$139.99

Only Uses Half the Power of 1010—with Pass thru

Amiga 2000 Internal Drive \$95.00

Panasonic WV 1410 Video Camera

For Digitizers—\$189.99 16 MM Lens—\$25.99

Special 2400 Baud Modem w/cable—\$129.99

Comp-U-Save

410 Maple Avenue, Westbury, NY 11590



**DR. OXIDE
VOTED
BEST-LOOKING
DEALER
2 YEARS
IN A ROW!**

A2000 HARD CARDS!

30 megabyte	25 ms	\$565.00
40 megabyte	11 ms	\$640.00
45 megabyte	25 ms	\$659.00
80 megabyte	11 ms	\$975.00

MEMORY BOARDS!

A2000	8 meg board w/2 megs	\$395
A500	2 meg board w/2 megs	\$440
A1000	1.5 meg board w/1.5 megs	\$375

SONY DISKS DS/DD 3.5" \$8.99

***NEW! ADVANCED GRAVIS JOYSTICK \$36.99**

NEW GRAVIS MOUSESTICK \$74.99

CHIPS — CHIPS — CHIPS . . . call!

★ We carry tons of hardware and software for the Amiga. Call for prices.

We welcome dealer inquiries on all our products.

MONTHLY HARDWARE SPECIALS

SYQUEST 44 MEG REMOVABLE - 5.25" W/CARTRIDGE - 25 MS **\$799**

PRORAM 1.8 MEG A500 OK **\$125**
HURRICANE BOARDS **CALL**

In NY State (516) 997-6707 (Tech Support)

Outside NY State (800) 356-9997 (Orders Only)

FAX (516) 334-3091

AMIGA RESOURCE

READERSHIP SURVEY

What do you like most about Amiga Resource? And what don't you like? We want this magazine to be as useful and interesting as possible and to provide you with the coverage you want most.

Please take a moment to fill out and mail us this questionnaire (photocopies are fine). Mail questionnaires to Amiga Resource Readership Survey, P.O. Box 5406, Greensboro, North Carolina 27403.

1. What computer(s) do you own or use?

- ☐ Amiga 500
- ☐ Amiga 1000
- ☐ Amiga 2000
- ☐ Amiga 2500
- ☐ Other (specify) _____
- ☐ None yet

2. Which peripherals do you own or use with your computer?

- ☐ Second floppy drive
- ☐ Hard drive
- ☐ Dot-matrix printer
- ☐ Color printer
- ☐ Laser printer
- ☐ Modem
- ☐ MIDI device
- ☐ Audio digitizer
- ☐ Video digitizer or scanner

3. Which language do you prefer for programming?

- ☐ BASIC
- ☐ Machine language
- ☐ C
- ☐ Modula-2
- ☐ COMAL
- ☐ Other (specify) _____
- ☐ I don't program my Amiga

4. Which version of AmigaDOS do you use most often?

- ☐ 1.1
- ☐ 1.2
- ☐ 1.3
- ☐ 1.4
- ☐ Don't know

5. Which environment do you use?

- ☐ Workbench
- ☐ CLI
- ☐ Both
- ☐ Don't know

6. Which parts of the magazine do you like best? (Check no more than two.)

- ☐ Features
- ☐ Departments
- ☐ Columns
- ☐ On Disk
- ☐ Reviews
- ☐ Advertisements

7. Which columns do you read regularly?

- ☐ The Window
- ☐ Readers Feedback
- ☐ Spotlight
- ☐ CLI Clips
- ☐ Ask Rob Peck
- ☐ Trends
- ☐ Programmer's Page
- ☐ Best of the Boards
- ☐ Amiga Art Gallery
- ☐ Just for Fun
- ☐ Abstractions
- ☐ Taking Sides

8. Please rate Amiga Resource on a scale of 1 to 10 (10 for highest grade) in the following areas:

- General news and product information _____
- Technical information _____
- Graphic presentation _____
- Quality of disk _____
- Quality of writing and editing _____
- Overall grade _____

9. Do you use programs published on the Amiga Resource Disk?

- ☐ Yes
- ☐ No

10. What types of programs would you like to see in upcoming issues?

11. What other Amiga publications do you read regularly?

12. How did you get this magazine?

- ☐ Subscription (magazine only)
- ☐ Subscription (magazine and disk)
- ☐ Newsstand (magazine only)
- ☐ Newsstand (magazine and disk)
- ☐ From a friend
- ☐ From a library

13. Additional comments:

READERS FEEDBACK

Send questions or comments to Amiga Feedback, Amiga Resource, P.O. Box 5406, Greensboro, North Carolina 27403. We regret that, due to the volume of mail received, we cannot respond individually to questions. We reserve the right to edit letters for clarity and length.

More Is Better

I visited England over the summer and noticed some very good games that are not yet in the U.S. The games are *Kick Off*, by Anco (the best soccer game I ever played); *Honda RVF750*, by Microstyle (a *Super Hang On*-type of game but much better); and *Weird Dreams*, by Rainbird. Do you know if these will be sold in the U.S.?

I think you should give the magazine about 30 more pages like the new *COMPUTE!* or make the magazine monthly. If possible, you could do both.

Wade Holmes
Orlando, FL

Thanks for the tips on the hot games. *Mindscape* will be selling *Weird Dreams*, and we'll be on the lookout for the others. It's encouraging when readers tell us they want the magazine to get fatter or to increase in frequency—it means we must be doing something right. Unfortunately, a magazine's page count depends upon many factors, including the amount and type of advertising, the cost of production and mailing, and the size of the staff. The rules are pretty much universal, so you'll notice that other Amiga magazines are approximately the same size—there are no BYTE-size magazines in this market. But don't worry, when the Amiga catches on the way that we hope it does, you'll get your wish.

Too Much Memory

I recently purchased the A510 memory expander for my 500. I was expecting enhanced performance from my software, especially things like *Sculpt 3-D* and *Deluxe Video*.

These programs, and others, like *ProWrite*, did work better. I was very annoyed, however, when I found out that *Instant Music* and *DeluxePaint* I are impaired by it. *Instant Music* doesn't even work at all.

I am on a budget, and I cannot afford to purchase updated versions. I have tried running *NoFastMem* before them and from the startup-sequence, the CLI, and the Workbench. Is there anything I can do besides removing the expansion board and resetting the clock every time I use these programs?

I am not too surefooted with the CLI, and I may have made a mistake writing my startup-sequence.

Geoff Simms
Clayton, CA

Frankly, we've always been astonished that the early Electronic Arts programs don't work properly with more than 512K of memory. Part of the problem is that EA often develops its Amiga programs on another computer, then downloads the object code to an Amiga for testing. If the program had been developed on the Amiga, the developer probably would have had more than 512K and you wouldn't be having trouble. On the other hand, EA was one of the first software houses to back the Amiga wholeheartedly, so it's no wonder that its programs, which were developed quite early in the Amiga's history, had trouble as the Amiga evolved.

Before trying anything else, contact the companies that sold the software with which you're having trouble. They may have very reasonable upgrade policies. Remember that the upgrades usually have more features and work more dependably than the older versions.

If you're stuck with the old version, *NoFastMem* may be of some help. It can be found in the System directory of your Workbench disk. To operate *NoFastMem* from the Workbench, simply double-click on it. Double-click on it again to restore fast memory (the memory above 512K).

The obvious solution to your problem is to double-click on *NoFastMem*

before you run your application. This solution works in almost all cases, so we're not sure what exactly you're doing wrong. You may be rebooting after running *NoFastMem*. *NoFastMem* is disabled when you reboot or turn off your machine.

If your application runs automatically when you boot it, you'll have to modify its startup-sequence. Unfortunately, you run the risk of destroying the disk if it's copy-protected. Add a line at the beginning of the startup-sequence that reads *Workbench:system/NoFastMem*, where Workbench is the name of the Workbench disk you received with your system. When you boot with the program disk, you'll be asked to insert your Workbench disk. After *NoFastMem* has been run, you'll be asked to insert the disk you booted with.

Another alternative is to get a copy of the public domain program *Fixhunk*, which modifies the program so that its variables are kept in chip RAM. You'll have to do some sleuthing to find out the filename of your program.

If possible, always work with a copy of the program disk, not the original.

Issues That Aren't

I was surprised that two of your "Amiga Maniacs" (to quote from "Perspectives" in the October issue) should show so much ignorance. I mean, of course, "Taking Sides" on the subject of AmigaDOS 1.4.

I've always thought that downward compatibility is one of the key aspects in all Amiga upgrades—either those already issued or those to come.

Rhett Anderson talks about "1.4-specific code" when he should be saying "Amiga-specific code." Any code which is specific to a given version of the OS is almost certainly not code which conforms to the programming conventions—and which should never have been let loose on the users in the first place. The only people bothered by the changes are the game developers whose nonstandard use of the sys-

tem has caused problems with each upgrade so far.

If the programmers stick to the rules, it should be irrelevant which OS is in use. So why waste good magazine space raising issues that aren't?

David Twigg-Flesner
Gronau, W. Germany

With the exception of 1.3, none of the operating system upgrades have been downward-compatible. The powerful 1.4 will add new data structures and new functions. If programmers choose to use these new capabilities (which are perfectly legal and, in fact, encouraged), their programs will not work on an Amiga that is not equipped with 1.4. We'll be seeing word processors, desktop publishing programs, and paint programs, all of which will work only with 1.4. The new operating system will score well in upward compatibility but poorly in downward compatibility.

As an aside, most game programs (which often bypass the operating system entirely) will probably not break under the new software. This is because so many of the authors and game companies (including biggies like Electronic Arts) learned to avoid jumping directly into system routines when their 1.1 games broke under 1.2.

The point made by Rhett Anderson was that the changeover may not be painless. Instead, it has the potential for being very painful, especially for Amiga novices, who will spread word of their displeasure with the situation to those who may be considering the purchase of an Amiga.

A Letter to Our Readers from Commodore's Advertising Firm

Dear Amiga Resource Readers:

Many of you may have seen the new advertising campaign which Commodore Business Machines recently launched to introduce the Amiga computer to people unfamiliar with its capabilities. Perhaps you have seen the television commercials, in which an avid young user of the computer, "Stevie Palmer," solves some pressing

problems with his Amiga for some well-known people. Or maybe you've seen the print advertising which features a number of professional people who use the Amiga in their businesses, offset against people who use the

Amiga at home. Which leads me to my point.

I represent the advertising agency which created these commercials. We are interested in learning other creative ways people use the Amiga on a

The Power of AMIGA with the Stroke of a Pen

Inkwell Systems introduces the NEW 184-A Light Pen with Amiga Light Pen Driver which provides an easy-to-use, natural alternative to the mouse for data entry on the most popular Amiga software programs.

184-A
LIGHT PEN

YES IT CAN!

The Light Pen and Amiga Light Pen Driver work alternately with the mouse and keyboard to e-x-p-a-n-d your data entry capabilities.

Got an EASYL?

Great!

Install it in the expansion port and combine it with The Light Pen and the mouse for the ultimate in graphics.

- Lightweight
- Triangular shape
fits great in either hand
- Two touch switches-
no need to touch the pen tip
to the screen.

YES IT DOES!

- Supports the Amiga 500, 1000, 2000, and A2000.
- Operates in both interlace, non-interlace and overscan mode.
- Compatible with the most popular Amiga programs for Graphics, Business, and Animation.

YES IT IS!

The Light Pen and Amiga Light Pen Driver is AVAILABLE NOW! ONLY \$129.95. Call Inkwell Systems or see your nearest Amiga Software Dealer for a demonstration.



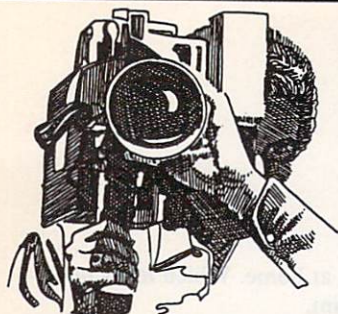
Inkwell Systems
CREATORS OF PENWARE™

1050-R Pioneer Way
El Cajon, CA 92020

619/440-7666

FAX: 619/440-8048

Circle Reader Service Number 182



Desktop Video! videos

from the publishers of
Desktop Video! Newsletter

"Videos designed to show you how to set up your own low-cost desktop video system... produced by real people using desktop video in the real world."
- Video Marketing Letter

DTV #4 - Desktop Video & the Amiga. A hands-on guide to setting up your own desktop video system using the Amiga computer. Covers equipment selection & hookup, reviews and demonstrations of the best software, studio design, and lots of practical advice on getting the most for your money while avoiding costly mistakes. 120 minutes. VHS. \$30.00.

DTV #5 - Desktop Video for Profit. A 'guerilla' video that shows you how to earn thousands from your DTV productions. Includes what type of videos to produce, how to find clients, how to research a project, where to sell your videos, how much to charge, setting up a duplicating system, much more. 120 minutes. VHS. \$30.00.

Order both these videos and save \$10.00 plus receive 6 months of the Video Marketing Letter **FREE!!!**

Do You Have questions about Desktop Video? Call our FREE DTV technical Hotline for answers.
1-501-321-1429 weekdays 9-4 CST.

Call for more information and your free sample of the **Video Marketing Letter**. We offer a **money back guarantee**, and accept Visa, MC, personal checks, UPS COD. Next day Air available.

Group M Productions

100 Bridge St., #27
Hot Springs, AR, 71901
1-501-321-1845

FEEDBACK

day-to-day basis. Send us disks or printouts of your artwork, music, graphics, screen shots—anything which would help you animate your applications of the Amiga for us. Your work need not be professional; everyone's story is of interest to us. (Please be aware that we can not return any of the material you send us.)

Submit your materials to me.

Jeff Berg
Messner Vetere Berger
Carey Schmetterer
375 Hudson St.
New York, NY 10014

A Faster Bridgeboard

In Neil Randall's Fall 1989 feature, "Bridging the Gap," he mentioned that a technician had suggested that he replace the 8088 with the faster 8088-2. I have tried this, but it produced a software error message on boot-up. Has anyone had more luck with this chip?

Michael Shievitz
Northbrook, IL

How about it, readers? Do you know how to get the 8088-2 to work with Commodore's original Bridgeboard?

When Artists Disagree

Let me tell you what I think about Lee Noel Jr.'s article "Lively Arts: Graphics" in your October issue. At first, I was glad to see that the focus of the article leaned toward HAM because this is an area of Amiga graphics information that demands all the illumination possible. I want, and need, to learn a lot more about HAM. I appreciate the couple of very basic HAM tips I gleaned from the whole of Mr. Noel's article, but frankly, and regretfully, I found the article flawed in a number of ways.

First, has Mr. Noel ever heard of flicker fixers and/or multisync monitors? For my system, I chose the MicroWay card and a NEC Multisync II monitor, a combination that totally eliminates interlace flicker.

When I read of how "sick at heart" Mr. Noel became after looking at a few "florid and lumpy" examples of lo-res art, I began to suspect that he was, in thin disguise, one of those unfortunate people who are actually intimidated by a machine as powerful as the Amiga.

As I read further, my suspicions about his motives became concrete as he "explained" the Extra Half-Brite mode thus: "Unfortunately, 32 of these colors are just half-intensity versions of the colors established in the 32 regular-color registers." Unfortunately? I welcome the addition of 32 colors to a non-HAM screen. The number of actual onscreen colors is doubled! What is unfortunate about that? To label this powerful mode as merely "an unsatisfactory approximation of HAM" is patently absurd.

By far the most incredible thing about this article was Mr. Noel's denunciation of *DeluxePaint*, in all its forms! The statement about the interface in *DP III* being "downright gruesome" simply astounds me.

Obviously, Mr. Noel is a relative newcomer to the world of computer-generated graphic art. Everyone who has ever worked with the medium of Amiga art knows that it is *substantially different* from traditional artwork, both in execution and result. With the exception of HAM, he basically trashes *all* of the Amiga's color modes. Yet, the fact is that anyone who has ever taken the time to work extensively with all the color modes knows that *each one of them* has certain strengths which the others do not.

John W. Covington III
Savannah, GA

As Mr. Noel stated in his feature, everyone is entitled to his or her opinion. Our goal in printing the feature was to present one artist's opinion of the Amiga. Is he a newcomer to computer-generated art? No. Mr. Noel has worked with just about every popular computer, from the VIC-20 to VGA IBM PCs and 24-bit color Mac IIs. He has worked professionally as a graphic artist for many years, and his Amiga-generated art has appeared on several

magazine covers, in article illustrations, and on the pages of our "Art Gallery" section (see *Roots & Rats*, Spring 1989).

We agree with you that *Extra Half-Brite (EHB)* is an important addition to the Amiga video modes, but it is indeed unfortunate that the colors are only half-intensity versions of the first 32 colors. The problem is that all of the *Half-Brite* colors tend to look the same. Much better palettes could be designed if the Amiga had *Extra Double-Brite* (with wraparound) instead. For instance, the *Double-Brite* version of the color 15,8,0 (an orange) would be 14,0,0 (a bright red). The *Double-Brite* version of the color 8,8,7 (a gray) would be 0,0,14 (a bright blue). ▲

Where to Write

Question, comment, problem, or submission? If you want to get in touch with us, here's how.

Subscription inquiries, problems, and change-of-address information:

Amiga Resource
P.O. Box 3253
Harlan, IA 51537

Single-copy or disk orders:

Amiga Resource
Single-Copy Sales
P.O. Box 5188
Greensboro, NC 27403

Editorial inquiries:

The Editor
Amiga Resource
324 W. Wendover Ave.
Suite 200
Greensboro, NC 27408

All other correspondence:

Amiga Resource
P.O. Box 5406
Greensboro, NC 27403

Be sure to include the correct department in the address:

Amiga Feedback

For questions or comments about the Amiga or this magazine

Ask Rob Peck

For programming questions

Programmer's Page

For programming tips

Submissions Reviewer

For "On Disk" program submissions

Amiga Art Gallery

For art and animation submissions

User Group Update

For your group to be included in our regular listing

Amiga Technical Staff

For bug reports and technical questions about the *Resource Disk*

Advertising Complaints Department

For reporting complaints about any of our advertisers

BRIDGEBOARD USERS!

Don't waste money, slots, or desk space buying extra IBM-compatible or Amiga floppy drives! The **Bridge Drive Commander +** gives you direct access to all your internal and external Amiga drives from the Bridgeboard, and direct access to IBM type 360K and 720K drives from AmigaDOS. **Bridge Drive Commander +** is totally transparent and automatic. Put an IBM type disk in any drive and use it just like on any IBM compatible! Put in an Amiga disk and return to Amiga use! Just that simple, just that fast! One drive can use Amiga disks at the same time another is using IBM-compatible disks. Disks are completely usable by other Amiga and IBM-compatible computers. All hardware, no software drivers to load, no precious memory or expansion slots used up. Plugs onto motherboard at internal drive connector. (No soldering or wiring changes.) Compatible with all Bridgeboards (8088, 80286), SideCar, all accelerator boards (any 680x0), hard disks and other hardware and software.

Bridge Drive Commander + \$ 97.50

MJ SYSTEMS

Dept 10A, 1222 Brookwood Road, Madison, WI 53711

1-800-448-4564

(24 hours MasterCard/VISA)

Product names are trademarks of their respective companies.

NEW-F-BASIC™ V2.0-NEW

F-BASIC™ is an Enhanced, Compiled Basic Language System.

- ★ Easy For Beginners
- ★ SO Fast—Beats C And Other Basics!
- ★ Recursive Subprograms
- ★ Over 350 Powerful Commands
- ★ Easy Access To Amiga Libraries
- ★ Comprehensive Users Manual
- ★ Easy Access To Amiga Windows, Menus, Sound, Events & Animation
- ★ Complete For Serious Programmers
- ★ Direct IFF File Support
- ★ Record Structures And Pointers
- ★ Ultra Fast Floating Point
- ★ Sample Program Disk with Over 100 Examples
- ★ Snobol-Like Pattern Matching

The **F-BASIC™** System Also Has A Source Level Debugger

- ★ Debug **F-BASIC™** Programs At The Source Level—So Easy.
- ★ Intuition Interface—Windows For Source, Registers, Memory, Variables.
- ★ Comprehensive Users Manual—Full Documentation.

The **F-BASIC™** Language System 2.0—Only \$89.95
F-BASIC™ System and Complete SLDB—Only \$149.95

Available Only From The Manufacturer
SEND CHECK OR MONEY ORDER TO:

DELPHI NOETIC SYSTEMS, INC.

Post Office Box 7743

Rapid City, South Dakota 57709-7743

Credit Card or C.O.D. Call (605) 348-0791

F-BASIC and FastCom are registered trademarks of DNS, Inc.
AMIGA is a registered trademark of Commodore/AMIGA Inc.

AMIGA DIGITAL OSCILLOSCOPE AND DATA ACQUISITION SYSTEM

8 BIT RESOLUTION, 50MS/s SAMPLING RATE

UP TO 64K MEMORY LENGTH PER CHANNEL

SAM 5X SAM 10X SAM 20X SAM 50X

The SAM series sampling systems are peripheral cards which plug into your A2000 or A2500 expansion slots or into the side of your A500 or A1000. BNC connectors allow you to connect various probes to your AMIGA for data sampling at rates from 0.3 samples/sec to 5, 10, 20, or even 50 MSamples/sec (model dependent) in DIGITAL OSCILLOSCOPE MODE, or as long as days in DATA ACQUISITION MODE. AC/DC coupling, 1.5Mohm 1.6pF input impedance, voltage ranges from 1v to 20v are characteristic of all models. Up to 8 channels can be used for multi-channel simultaneous acquisition. Software is included providing a mouse driven environment of pull down menus and push buttons. A fullscreen high resolution 640x256 window is capable of displaying all quantization levels. Waveforms can be panned, samples can be drawn connected rendering a smooth display, or drawn individually showing each sample. Time and voltage measurements can be made with point and click simplicity. FFT generation capacity provides 2 dimension plots (Frequency vs. Amplitude) or 3 dimension mesh plots (Frequency vs. Amplitude vs. Time) with user selected viewing positions. Digital filtering can be performed on a signal providing Low Pass, High Pass, Band Pass, or Band Stop functions. When you are done you can print out any of the displays and save all your samples to disk. Only SAM makes it possible.

Coming this summer: LOGIC ANALYZER AND COMPLETELY PROGRAMMABLE FUNCTION GENERATOR CARDS, ALL DESIGNED TO PLUG DIRECTLY INTO YOUR SAM SERIES UNIT!

A.M.S. 13552 PORTSMOUTH CIRCLE, WESTMINSTER, CA 92683

(714) 893-0762

Circle Reader Service Number 160

ef'fi-cà-cy, n. power to produce effects or intended results.

Not everyone needs the ability to typeset complex mathematical equations or complicated tables. Many can do without the accents and special characters required for foreign languages. People even exist who don't want a powerful macro facility in their document production system. Ligatures and kerns are overkill for some documents. But your documents are more than simple letters to Mom.

Some folks shun included IFF/ILBM images or AReXX compatibility. A few are willing to hyphenate by hand, or accept poorly spaced lines. And some folks will accept the jaggies—output at less than the full resolution of their printer.

But the quality of your documents is important to you, and your typesetting needs are more than the average fellow's. You need

AmigaTeX

If you are serious about putting words on paper, write for your free demo disk. Move up to the power of AmigaTeX.

Radical Eye
Software

Box 2081 • Stanford, CA 94309 • BIX: radical.ey

Circle Reader Service Number 163

Templicity™

100 Ready-made Templates for Your Amiga Spreadsheet!

Available for Analyze!, MaxiPlan,
Superplan, and VIP Professional

Personal Financial Planning
Home Office and Small Business
New! 1989 Federal Income Taxes
Real Estate and Loan Analysis
Home and Business Budgets
Accounting and Bookkeeping

Save
Time
and
Money

Many other unique worksheets included!

Full User Support

30 day, no risk, money-back guarantee!

Complete pkg. --100 templates-- \$34.95

To order, send check or money order to:

The Sterling Connection

Box 4850

Berkeley, CA 94704

Specify which spreadsheet you have.

To order by phone, call (415) 655-2355

Mastercard and Visa accepted. CA res. add 6% (\$2.10) sales tax.
(Free shipping)

Circle Reader Service Number 164

HIGHER PERFORMANCE... AND CHEAPER TO BOOT!

FData-10 Single 3.5" External Drive \$149.95

- Fully 1010 Compatible
- Ultra Compact Design
- Acoustically Quiet
- Amiga® Color Coordinated
- Ultra Low Power Consumption
- Daisy Chainable
- Extra Long Drive Cable
- High Performance
- No Annoying "Clicking" Noise
- Disk "Dust Protection" Door
- Super Low Price



**FEDERAL
EXPRESS**

**FREE Shipping Via
Federal Express!***

POLICY: Shipping and handling extra. Personal checks must clear before shipment. For faster service use credit card, cashier's check or bank money order. Credit cards are not charged until we ship. All prices are U.S.A. prices and are subject to change. These prices reflect a 5% cash discount. For all credit card purchases there will be an additional 5% charge. COD orders add \$5.00. Texas residents add sales tax. All sales are final and returned shipments are subject to a restocking fee.

***SHIPPING:** FREE shipping by Federal Express Standard Air or UPS (if within 1-day service zone) on orders paid by credit card, cashier's check or bank money order. In Hawaii, Alaska, and outside Continental US, call for information.

TOLL FREE ORDER LINE 1-800-562-3539

**FLEXIBLE DATA
SYSTEMS, INC.**

Info & Technical Support: 214-669-3999

FAX: 214-669-0021

Amiga® is a registered trademark of Commodore-Amiga, Inc.

10503 FOREST LANE • SUITE 148 • DALLAS, TX 75243



Circle Reader Service Number 161

SPOTLIGHT

John Foust

The Sculpt Series



Some of the more complex Amiga programs have so many features and options that it's easy to fall into the habit of relying on a small set of operations to get things done. There's one foolproof way to recognize when you've fallen into a rut: Watch other people use the same program. By looking over their shoulder, you'll learn new ways of doing things because they've settled into a different set of habits.

This month in "Spotlight," I'll reenact a few tricks for building scenes in the *Sculpt 3-D* modeling program. *Sculpt* is one of those complex programs. Every time I watch a pro use it, I learn a few more tips. Most of these tips work with all the programs in the *Sculpt* series, including *Sculpt 3-D*, *Sculpt Animate*, and *Sculpt 4-D*.

Like most 3-D programs, every object in *Sculpt 3-D* is made up of points, edges, and polygonal faces. In *Sculpt*, polygons are limited to three sides. Triangles are the only entities that show up in *Sculpt*-rendered images. Points and edges are invisible. They're only seen in the triview object editor and in wire-frame renderings.

You can take advantage of this in many ways. Points and edges can be used as guides to the alignment and positioning of the camera, objects, and lamps. Pointing the camera in *Sculpt* requires positioning two objects, not just one. Both the camera and a target must be placed in *Sculpt*'s world. The camera looks toward the target. This camera-pointing scheme isn't perfect for all situations. In the real world, pointing a camera is more complex than picking a center point.

It's easy to place the target in the middle of the subject. Framing the subject is crucial, too, especially across the sequence of frames that make up an animation. It's more realistic to have the camera pointing at a spot on the horizon, not at the object, but this is more difficult to do in *Sculpt*. A small displacement of the distant target can lead to a larger error in framing the subject. What if we could draw a nearly infinite line that passes from the camera, through the object, and off into the distance?

Place the *Sculpt* cursor in the middle of the object, away from any points in the object. Make a single point there by holding the left mouse button and clicking the right button. Now position the camera so the object is framed correctly. Make a test rendering in wire-frame mode to verify this. Then make another lone point at the

camera position. Be sure that only the two lone points are selected, and click the Triangle gadget to make an edge between the two points.

Next, expand the edge using the Edit Do Expand menu item. Expand it by clicking on the "2" gadget eight or ten times. Zoom out the triview until you can see the far end of the edge. Now you have an accurate way to position the target in the distance. Move the cursor near the far end. You may need to zoom and center several times to position it accurately. (At any given zoom level, an edge is always drawn with a one-pixel line. To see how inaccurate the positioning can be without zooming, place the cursor directly on the edge at one zoom level, then zoom in several times to see how much error was made in your first attempt.) Render the scene in wire-frame to verify that the framing is still correct.

You can leave this edge in place or delete it. It won't show up in ray-tracing or painting modes. There are other tricks you can do with invisible edges. You can make an edge between a lamp and an outer edge of an object to see where shadows will fall in ray-traced images, without waiting for the full results of a ray tracing. By examining the edge in the triview, you can see where the shadow will fall.

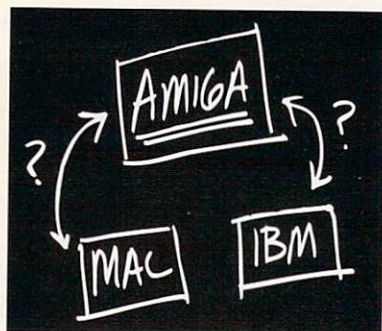
Or, use edges as invisible alignment marks for positioning objects, such as buildings along a street or alphabetic characters in space. You can cut up the edges of an Edit Add

Circle to make perfect yet invisible arcs and curves. Or use edges as stand-ins for other objects. Without moving the camera, and without time-consuming manipulations of complex objects, you can place edges in a scene to "rough out" the scene's composition, to mark the frame of the visible image as seen by the camera.

The least-expensive item in the Byte by Byte product line might be the most useful for many users. It's a videotape titled *3D Cookbook* and costs just \$24.95. It's well produced and contains a number of useful tips.

Just to prove what you can learn by peeking over someone's shoulder, here's an update to a previous "Spotlight" suggestion. In my tips for *Pro Page* two issues ago, I described a procedure to retrieve formatted text from document files. There's an easier method: Click on the text-entry icon, click in a text box, press F4 to select all of the text, then choose Save Block from the Edit menu. This brings up a file requester, and the selected text is saved to a file. My method was more complicated but had the minimal advantage of saving all the document text at once. ▲

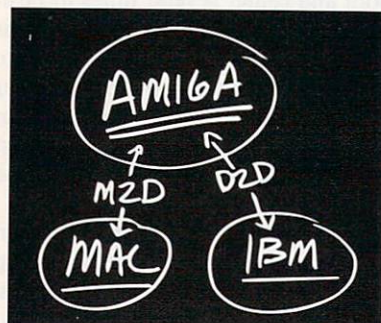
Watch over someone
else's shoulder to
learn new ways to
solve problems.



PROBLEM

Your boss wants you to produce an animated video presentation to help sell that new project to top management. You know that a full-color, animated presentation, developed on the Amiga, using its powerful desktop video software, will make a convincing impact.

The Amiga is the right machine for the job, but how can you easily import the images and data you need for your presentation from other divisions of the company, data and images which come from Macintoshes and IBM PCs?



SOLUTION

File transfer programs MAC-2-DOS and DOS-2-DOS from Central Coast Software! Using these simple and easy-to-use Amiga programs, you can now quickly and easily transfer the Mac/IBM/Atari data and images you need to and from the Amiga.

MAC-2-DOS connects a Mac floppy drive directly to the Amiga • Reads and writes 400K/800K Mac disks • Converts MacPaint images to/from IFF • Imports Mac clip art for use on the Amiga • Converts ASCII text files both ways • Converts PostScript files both ways • Supports MacBinary format • Includes

conversion utilities for PICT files and Mac fonts • Creates icons, as necessary • Formats 400K/800K Mac disks.

DOS-2-DOS uses your Amiga's floppy drives to read/write IBM/Atari 3.5-inch disks • Reads/writes 5.25-inch IBM disks (using an external 5.25-inch Amiga drive) • Converts ASCII text files both ways • Supports international character sets • Formats IBM/Atari disks • Use with IBM program HIJAAK (from Inset Systems, not included) to capture/convert IBM graphic images to/from IFF.

MAC-2-DOS — when it absolutely, positively has to get to or from a Mac disk, immediately.

DOS-2-DOS — when it absolutely, positively has to get to or from an IBM PC (or Atari) disk, immediately.

And to preserve your entire presentation, all supporting data and graphic files, as well as the programs:

QUARTERBACK — the fastest and most reliable Amiga hard-disk backup program!



Central Coast Software

424 Vista Avenue Golden, Colorado 80401
(303) 526-1030 • (303) 526-0520 (fax)

Dealer Inquiries Welcome



JUST FOR FUN

Shay Addams

Life of the Party



Almost as an afterthought, I moved my Amiga downstairs and set it up in a living room corner moments before my latest party. Then I stacked a variety of games on the table and returned to mixing the Jello pudding in the Jacuzzi. After the pudding-wrestling event later that evening, several dozen partygoers were soon square-dancing to Weird Al's latest album, entering and judging a Jim and Tammy Faye Bakker look-alike contest, and watching "Godzilla and King Kong Meet the Three Stooges" on a 50-inch TV, so I was amazed when my Amiga emerged as the life of the party.

Despite my Amiga's festive party hat and the "Kiss Me I'm Irish!" button affixed to its screen, few people paid any attention to it at first. But in less than an hour, the crowd growing in front of the table turned enthusiastic enough to push all the kids entirely out the door and into the yard (two of them have never been seen since). It started with *Tetris*, the Russian game that looks like brightly colored pieces of a Rubik's Cube tumbling through the air.

I'd just returned from the roof, trying in vain to talk down a jumper, when I saw a score of people cheering, screaming, and jumping up and down as a guy jabbed madly at the keyboard and the little yellow thing on the screen wheeled around in midair on its way to the bottom of the screen. "Eeeeeaa-haw!" he yodeled when his final results qualified him to enter his name on the game's vanity board, which records the top ten scores and displays them at the end of each player's turn. The crowd cheered almost as loudly while he typed in his name as they had during the action.

I recognized the victorious contestant as a computer-game veteran, but the next player was a woman who I knew had never sat down at a computer in her life, let alone played a computer game. (Yes, there are people like that; you just have to accept it and get on with your life.) She didn't score as high as previous players, but she had just as much fun and the crowd cheered her on just as exuberantly.

Never before had I seen a computer game turn into

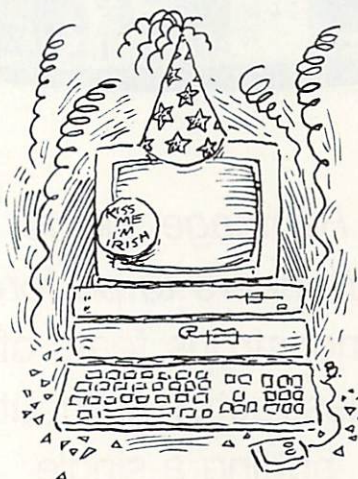
such a spectator sport, for the people gathered in front of the table acted as boisterous as a bar full of basketball fans during the playoffs. Yikes! I nearly dropped the bucket of live eels as I suddenly envisioned a way to recoup every dime I had spent on this shindig: I'd write my next column on how to make your next party more fun by inviting your Amiga (they actually pay me to write this stuff, you know).

What kind of party, what kind of games? Whether you're planning a birthday party for a ten-year-old or a bachelor party for the local Leisure Suit Larry, the best party games share certain characteristics. They feature easy- and quick-to-learn interfaces, a lot of action underscored by good music and sound effects, and a high-score board to promote competition. It's a plus if the game autoboots, in case no one at the table knows how to start a new game and you're busy resuscitating the guests inadvertently fried in the Jacuzzi by a short circuit in the extension cord.

With games that play fast and quick, everyone gets to play as well as watch. The easiest way to spot such a game is to look at the program's documentation: If it's only a page or two and doesn't include a 48-page reference manual like *Ye Olde Booke of Magic-type Stuff*, it's a good candidate for party entertainment. (This rules out almost everything with the word *quest* or *odyssey* in it.) Though plenty of shoot-'em-ups qualify for this category, these aren't going to go over as well with the women at your party as they do with the men, so look for games with interesting or unconventional scenarios as well as

a few "blast the aliens back to Xenon 4" games.

Tetris is an exemplary party game. The goal—to rotate a falling shape and make it land neatly atop a row of others that have fallen previously and piled up in odd configurations—is simple to grasp (though perhaps a bit easier when you see it than when you read my description). Even people who had never typed a word in their lives found those same untrained fingers nimble enough to master the few keys that rotate the falling shape left, slide it horizontally across the screen, and so on. And no one—not even the best Lego-manipulators of the lot—managed to retain possession of the keyboard for long, so there was frequent



Despite my Amiga's festive party hat, few people paid any attention to it at first.

turnover at the controls. Best of all, the sense of competition that emerged as people vied for higher scores turned the game into a genuine sports event, complete with impromptu cheerleaders.

Accolade's *Grand Prix Circuit* racing game went over well but drew a different, smaller crowd. It turned out that two people had played it, and those who were interested picked up the basics in no time. The problem was that each person's turn took too long. You had to clear the time trials before the actual race, and "most of us crashed on the first lap anyway," said one would-be Parnelli Jones.

Rampage, an arcade game converted for the Amiga by Activision, demonstrates yet another, more successful kind of party game—one that lets several people play simultaneously. Controlling monsters like George the Giant Ape and Lizzie the Lizard, gamers knocked down buildings, swatted helicopters from the sky, and engaged in other monster-movie activities, competing to see who could do the most damage to the skyline. This, coupled with the vanity board, made *Rampage* an exciting, if less than socially responsible, diversion.

Bubble Ghost arrived too late for my party, but I saw right away that this new Accolade title would have been perfect. Not only is it easy to learn, but this is also one of the few action games where it's easier to use the mouse than a joystick. You guide your ghost by moving the mouse in the desired direction. By clicking the left button, you can tilt him a bit to the left; you can hit the right button for the opposite effect. This changes the ghost's angle, which determines the direction he blows a bubble through an obstacle-lined maze and through an exit into the next level. *Bubble Ghost* combines the easy-to-learn advantages of *Tetris* with the one- or two-player option of *Rampage* and lets up to five players record their scores.

A Sega conversion from Mindscape, *Paperboy* is just out and looks like another good party game with an unusual theme—to deliver papers on a bicycle while avoiding cars and other hazards.

Amiga Party Themes. Specialty parties can also be a lot of fun. These are usually smaller affairs in which all the guests are already familiar with the game and in fact love to play it more than they like to watch television. Some adventurers I know in New York occasionally host *Bard's Tale* parties. Instead of watching one person play all four roles in the game, however, each participant makes the decisions for his or her bard, sorcerer, or other member of the questing party, and one person handles the keyboard, typing in their orders.

It's a lot more like being a member of a real questing party than when you play alone, and with several people trying to unravel an adventure game's toughest riddles, you may finally complete a quest that has been driving you mad for months. Electronic Arts' new *Swords of Twilight* is the best bet for such a party, as it allows three players to control individual characters simultaneously via two joysticks and the keyboard. With such a theme, you could even delve into decorating the place to look like a dungeon (fortunately, mine already does).

Sports games like Epyx's *California Games*, though not the best choice for a large group, lend themselves well to a specialty party, as do sports simulators like *Grand Prix Circuit*. Flight simulators are too slow for fast-paced, thrill-a-second entertainment, but a sports-car rally attended by *Out Run* aficionados would work. Converted from a Sega arcade game and recently released by Mindscape, the cars in *Out Run* are more easily mastered than those in a full-fledged racing simulator.

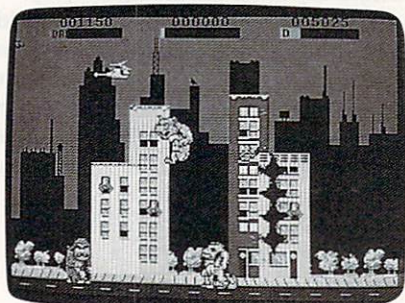
The Amiga as Party Animal.

The Amiga likes to have a good time as much as anybody, but it's still no Spuds McKenzie. So, to make sure no one spills a Bud Light down the disk drive, set up a table specifically for the computer and ask people not to put drinks on it. Someone at the table will soon start telling newcomers, freeing you to wander back to the keg, where a conscientious host belongs. (Even so, be prepared to drop everything and dash for the Amiga the minute someone yells, "Hey! What does *Guru meditation* mean?") If you

have a couple of smaller tables, put them alongside to hold drinks, ashtrays, and so on.

Make a special set of boot disks solely for the party, just in case one of your rambunctious friends spills a Bud Light down the disk drive anyway. Do the same for the game disks if possible. In fact, duplicate the house and everything you own; then have the party there, thus eliminating the need to clean up afterward.

Put on a game with a catchy theme or an animated title screen before guests arrive, but don't expect most of them to head straight for the computer. Do be ready to get things off the ground, though, especially when someone grabs the mouse and asks how to play the game. If you've picked out the right games, your explanation will take less than a minute and enable the person to explain it to someone else. In fact, inviting your Amiga to the party can be a good way to introduce your friends to the world of computing, or it can just give you a good excuse for a party. Now if you'll excuse me, I've gotta find the wire cutters and get this lampshade off my head. ▲



Rampage allows partygoers to perform monstrous feats of destruction without putting a single scratch on your coffee table.

ABSTRACTIONS

Arlan Levitan

And Now, a Word from Our Sponsor



Last issue, I predicted that Commodore's new megabuck ad campaign would finally lodge the Amiga into America's computing consciousness. I also bet heavily on the Giants in the World Series.

I had a lot of hope for the new ads. According to Commodore, they would saturate the market; the average American would see at least 20 Amiga commercials before the end of 1989. At four days into the campaign, I had only seen one 30-second spot, a pointless piece in which the magical computing aura of an Amiga 500 lifts a two-story home a couple of feet off its foundation. To paraphrase the hundreds of local Count Scarys that host stupid TV horror flicks across the country, "Oooooohhhhhh... that's powerful!"

I consoled myself with the fact that it could have been worse and patiently waited for the other ads in the series to pop up. Two weeks of moderate television viewing passed without nary a mention of the Amiga. By word of mouth I heard that my local Amiga dealer had all of the ads on tape. Since I had a feeling that they might be good fodder for the next installment of "Abstractions," I hightailed it over to my dealer for a look-see.

After 20 minutes of fast talking, I left the premises with videotape in hand. I went home, watched a couple of hours of "Doctor Who" to soften up my brain cells, and then viewed the Amiga ads a dozen or so times. For those of you who have been spared exposure to the ads, here's a brief synopsis of one for grins.

It's a quiet evening in an average upper-middle-class 'burb and in true nuclear-family style, Mom and Dad Palmer are eating dinner while teenage Stevie is secluded in his room with an Amiga. (Subliminal message: Buy your kids an Amiga and you won't have to worry about interacting with them yourself.)

Dinner is interrupted by an endless stream of personalities clamoring for help from Stevie. Since NASA was having a fire sale on retreads, we get not one, not two, but three full-fledged astronauts (Aldrin, Carpenter, and Cooper). A frantic phone call for baseball advice from Tommy Lasorda is followed by in-person appearances by the Pointer Sisters, Burt Bacharach, Little Richard, and Tip O'Neill. The tag line we are left with is this: "The Commodore Amiga. The Computer for the Creative Mind."

The commercial is slick, mildly entertaining, and as forgettable as a stump speech. I showed the ads to friends

and family alike. They were more confused than informed: *Why would I want an Amiga? Is the Amiga just for teenagers? Do all of those famous people use Amigas?*

Night of the Living Celebrities. Using celebrities in commercials may be fine for selling light beer, but it just doesn't cut the mustard with computers. Or does it? Maybe a more careful selection of big names would have been more effective. . . .

"Madge, it's the doorbell. Will you get it please?"

"Sure honey." [Opens door.] "You're a financier!"

"Yes ma'am, I'm Ivan Boesky. Is Stevie at home? I need to see him about some inside information he may have picked up." [Cut to Stevie hacking the mainframe of a Fortune 500 corporation.]

"Upstairs and to the left, Mr. Boesky." [Telephone rings.] "Irving it's the phone."

"Got it dear. . . . Evening. Palmer residence."

"Hi, this is Charley Hustle. I gotta talk to Stevie." [Cut to Stevie analyzing baseball stats.] "Stevie, I need a new line on the Reds/Phillies series. I'm thinking of cutting the spread to two runs to increase the action."

"That'll work out just fine. Just cover the risk by side bets on Franco's ERA staying under 2.34. Anytime, Pete."

"Honey, it's the door again."

"Ciao baby, I'm Rob Lowe. Stevie's expecting me." [Cut to Stevie with genlocked Amiga and camcorder.] "I've got some tapes he's supposed to work on."

"Excuse us, I'm Zamfir, master of the pan flute, and this is world-famous unknown pianist Richard Clayderman. Stevie is helping us with some special recordings."

"Will you all just go upstairs. My husband and I are trying to eat our dinner. Irving, I can't stand it anymore! Since we bought Stevie that computer, there's been a constant stream of second-rate, publicity-seeking know-nothings in and out of this home."

"Did someone call me? I'm Dan Quayle, vice president of the United States. Young Steven and I were supposed to be working on bringing me up to speed on foreign policy tonight."

[Cut to Stevie's room where occupants are comparing the size of the checks they received for their endorsements while Dan and Stevie are immersed in an intense round of *Rambo III*. Picture fades to an Amiga printing out reams of full-color fifty-dollar bills with voice-over.]

"Amiga advertising. Maybe it should be creative, but Commodore doesn't mind." ▲

Celebrities may be fine for selling light beer, but they just don't cut the mustard with computers.

Lycos Computer Marketing & Consultants



NX-1000 Series II



Take a look at STAR'S NEW NX-1000 II, with 180 cps draft or 45 cps near letter quality printing. With four resident fonts, innovative paper handling, graphics at 216 x 240 dpi resolution and print pitches ranging from 3 to 20 cpi the Star NX-1000 II will support you now and into the future.

\$169⁹⁵

Star Micronics	
NX-1000 Series II	\$169.95
NX-1000 Color	\$209.95
NX-15	\$CALL
NX-2400	\$274.95
Laser 8	\$1699.95
XR-1000	\$329.95
XR-1500	\$419.95
XB-2410	\$419.95
XB-2415	\$549.95

Brother	
HR20	\$319.95
M1724L	\$519.95
HR40	\$539.95
1809	\$349.95
1824L	\$469.95
HL8e	\$1799.95
HL8ps (post script)	\$NEW

Panasonic	
1180	\$169.95
1191	\$215.95*
1124	\$285.95
1595	\$CALL
1524	\$CALL
1600 Series	\$CALL
1624	\$439.95
KXP 4450 Laser	\$1339.95*

* quantities limited

Okidata	
Okimate 20	\$129.95
Okimate 20w/cart	\$194.95
172	\$195.95
182 Turbo	\$229.95
183	\$219.95
320	\$229.95
321	\$459.95
390	\$459.95
391	\$629.95
393	\$979.95
393C (color)	\$1079.95
Laser 6	\$1319.95

Epson	
LX-810	\$184.95
FX-850	\$339.95
FX-1050	\$439.95
LQ-510	\$319.95
LQ-550	\$509.95
LQ-850	\$529.95
LQ-1050	\$709.95
LQ-2550	\$909.95

Citizen	
120 D	\$138.95
180 D	\$159.95
GSX-140	\$319.95
HSP 500	\$315.95
HSP 550	\$445.95
Premiere 35	\$499.95

EPSON LQ-510



If you are looking for a 24 pin dot matrix printer that is fast, quiet and delivers high performance, then your needs require the NEW Epson LQ-510. Paper Parking is included for ease of document handling and print speeds are selectable from 180 cps draft to 60 cps for letter quality printing. Let your work leave a lasting impression with Epson's LQ-510.

\$319⁹⁵



KX-P1124

For excellent print quality in a high speed printer, choose the KX-P 1124. Its 24 pin print head produces draft text at a quick 192 cps (draft) or letter quality text at 63 cps. In addition, the KX-P 1124 provides such standard features as selectable push/pull tractor, 5 resident print fonts, parallel centronics interface and a standard 6K buffer. Panasonic's KX-P 1124 ensures that your printing will be fast and professional.

\$285⁹⁵

Xetec Fasttrak Hard Drives

Amiga 500 Fasttrak Hard Drives

Fasttrak Jr. 20 meg	\$599.95
Fasttrak Q-40 40 meg	\$889.95

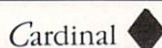
Accessories:

25 pin Sub D SCSI cable x 5'	\$8.95
50 pin Flat SCSI cable x 12"	\$8.95
Adapter Board	\$15.95

Amiga 2000 Fastcard Hard Drives

FC 2020 Jr. 20 meg	\$489.95
FC 2040Q 40 meg	\$759.95
FC 2080R 80 meg	\$1029.95

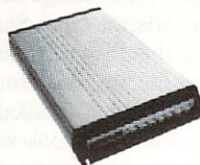
The Fasttrak Drive Systems are FCC Certified and covered by a one year limited warranty. The hard disk drive is limited to nine month warranty.



MB2400EX External Modem

- Low error data transmission and reception over standard dial-up telephone lines
- Hayes compatible with the universally-accepted AT command set
- Automatic Data Standard and Speed Adjust features

\$109⁹⁵



MODEMS

Cardinal:	
MB2400EX EXT	\$109.95
MB2450 INT	\$89.95
MB1200EX EXT	\$69.95
MB1250 INT	\$55.95
Flashlink MNP (software)	\$39.95
Everex:	
Evercom 24 (INT)	\$119.95
Evercom 24+ MNP	\$149.95
Evercom 24E+ MNP	\$199.95

Avatec:	
1200e	\$64.95
1200i PC Card	\$65.95
1200hc	\$89.95
2400	\$129.95
2400ii PC Card	\$124.95

ACCESSORIES

Joysticks:	
Epyx 500 KJ	\$13.95
Boss	\$12.95
Bathandle	\$17.95
I Controller	\$12.95
3-Way	\$19.95
Wico Ergostick	\$15.95
Powerplay Joystick	\$16.95

Diskettes:	
Epyx 500 Notcher	\$5.95
Xidex 5 1/4 DSD	\$4.95
Xidex 3 1/2 DSD	\$12.95
Printer interfaces:	
Xetec Jr.	\$35.95
Xetec Supergraphics	\$55.95
Xetec Gold	\$74.95
MW 350	\$49.95

Printer Paper:	
1000 sheet laser	\$16.95
200 sheet OKI 20	\$8.95
Banner Paper	
45" Roll	\$10.95
Drive Maintenance:	
5 1/4 Drive Cleaner	\$7.95
3 1/2 Drive Cleaner	\$10.95

Amiga Software

Microprose:

Silent Service	\$25.95
----------------	---------

Electronic Arts:

Deluxe Print II	\$50.95
FA/18 Interceptor	\$32.95

Ferrari Formula I

Ferrari Formula I	\$32.95
-------------------	---------

Zany Golf

Zany Golf	\$25.95
-----------	---------

Sublogic:

Flight Simulator II	\$30.95
---------------------	---------

Call for complete listing on Amiga Software.

Attention

Educational

Institutions:

If you are not currently using our educational service program, please call our representatives for details.

Sales: 1-800-233-8760 or

717-494-1030

Hours: Mon.-Fri. 9a.m.-9p.m.

Sat. 10a.m.-6p.m.

Customer Service:

717-494-1670

Hours: Mon.-Fri. 9a.m.-5p.m.

Fax: 717-494-1441



Why shop at Lycos Computer? Lycos Computer offers quality name brand computer products at prices 30% to 50% below retail. If you do not see the product you want advertised, call Lycos Computer toll free. How do I know I will get the product I need? Our marketing staff receives continuous formal training by our manufacturers. As thousands of people every week capitalize on our savings and services, we hope you too, will make Lycos Computer your first choice. What about warranty or service? Our Customer Service Department is available at (717) 494-1670 to assist you. We back all of our manufacturer's stated warranty terms. Before returning any item that appears to be defective, we ask that you call our Customer Service Department. Will you rush an item to me? We offer next day air, two day air, standard UPS, and postal international shipping services. Temporary shortages are normally filled within 10 days. How do I order? We have always offered C.O.D. orders through UPS. Prepaid cash orders over \$50 are shipped freight-free. Simply send your order to Lycos Computer, P.O. Box 5088, Jersey Shore, PA, 17740. For orders under \$50, please add \$3 for freight. Personal and company checks require a 4 week waiting period. Visa and MasterCard orders are accepted. Please add 4% for credit cards. Purchase orders are accepted from Educational Institutions. We charge sales tax on deliveries in Pennsylvania. For APO, FPO, and international orders, add \$5 plus 3% for priority mail. Prices in this ad reflect cash prices. Advertised prices and availability are subject to change. Not responsible for typographical errors.

Our friendly sales staff can help with any questions you have.

Circle Reader Service Number 152

1-800-233-8760

Price Guarantee

Since 1981, we have led the industry by continuing to offer the lowest national prices while providing quality service. Many consumers have come and gone trying to imitate our quality and service. If by some oversight, we do not have the lowest prices advertised on the products you desire, then we would appreciate the opportunity to rectify this oversight.

Escape Codes



This issue's quick tip: Try the command PROMPT `"*e[33m %S *e[0m *n> "`.

This command will make some interesting changes in your CLI or Shell prompt. The current directory will be displayed in orange, and the prompting character (a greater-than sign, but you can change it if you wish) will appear on the following line. You might find this "next line" feature to be useful if you have long directory paths that use up quite a bit of the CLI line.

How it works. PROMPT is of course the command to change the prompt message you see on the command line; the rest of the line is enclosed in quotation marks. These quotes do more than allow you to type space characters within the string. They also make available special features which are triggered by the asterisk character.

Within quotation marks, the asterisk turns into an escape code that signals that something unusual will follow. The most important combinations are `*n`, which represents the new-line character; `*e`, which stands for the Escape character; and the combinations `***` and `**`, which generate character quotation marks or an asterisk.

The first piece of data in our prompt string, above, is `*e[33m`. This changes the printing color to orange. The first three characters, `*e[`, form what is known as a **CSI**, or control sequence introducer. The CSI signals that a control sequence (numeric data followed by an alphabetic character) will follow. The character here is the letter *m*—be sure it's in lowercase. The letter *m* is the command Set Graphic Rendition, and code 33 will select the color orange.

Continuing with our sample prompt line, we now see `%S`. As documented in the 1.3 manual, this causes the prompt command to display the current directory. Following this, we see `*e[0m`. By now, you may recognize `*e[` as the CSI, and *m* as the Set Graphic Rendition command. A value of 0 means put everything back to normal; it's a generic way to return conditions to their defaults. In this case, the printing color returns to white.

Moving along the line, we arrive at `*n`, the signal for a new line. Finally, we have the prompt character, `>`, and a trailing space.

The whole sequence can thus be described as "switch to orange, print the directory path, switch to normal colors, go to the next line, and print the prompt characters." Quite

a job for the seemingly simple PROMPT command.

Printer setup. From time to time, you may want to output a document to the printer. There are many ways to do this. A file may be printed with a simple command such as `COPY FILE PRT:` or `TYPE >PRT: FILE`. If the material you want printed is output from a program, you can often use redirection: The command `PROGRAM >PRT:` will redirect the output of PROGRAM to the printer instead of to the screen. Here's another method: Within many text-editor programs, or even in Amiga Basic, you may ask for your document to be saved as a text file. If you supply `PRT:` as a filename, your document goes out to the printer rather than to a disk file. For example, if you are working in Amiga Basic and have a program you want listed, `SAVE "PRT:,"A` or `LIST "PRT:,"` will produce a hardcopy of the program just as easily as `LLIST`.

I like to add a title to documents, giving a name and perhaps a date; it helps keep the various pieces of paper in order. Sometimes I direct the output material to a ramdisk file, edit it there, and then send the "prettied up" document along to the printer. But it's often just as handy to zip a quick title directly to the printer just before sending the main text there. Do this by typing `ECHO >PRT: "Title information, date, whatever"`. The line is printed; the file or other information can now follow it.

Now that we know about the CSI, we can do more. The boxes on these two pages show some of the commands. I particularly like to use the following features when appropriate: italics, underline, boldface, and condensed or expanded printing. And occasionally I find a need to switch into national fonts: French, Danish, Spanish, or U.K., perhaps.

Try delivering italics to the screen by typing `ECHO "This is *e[3m very *e[0m interesting!"`. Then follow up by sending italics to the printer with `ECHO >PRT: "This is *e[3m very *e[0m interesting!"`.

The same codes cause the same effects on quite different output devices. You can do the same thing with boldface or underline mode. Here's the marvelous thing about the way the Amiga handles printer codes: Although each make of printer might need to receive a different code sequence to trigger, say, italics mode, you type the same thing no matter which printer you are using! Data sent to device `PRT:` is translated to the correct custom code by the printer driver that is selected in Preferences. Once the correct printer driver has been set, all programs that send

Control Codes

`*n` Newline
`*ec` Reset printer/clear screen

CSI m Commands

`*e[1m` Boldface on
`*e[3m` Italics on
`*e[4m` Underline on
`*e[32m` Foreground color black
`*e[33m` Foreground color orange
`*e[42m` Background color black
`*e[0m` Restore above defaults
`*e[32;41m` Foreground black, background white

to PRT: will have their data customized to suit your printer. Note that this effect is only true for the PRT: device; if you send directly to PAR: (or, for a serial printer, to SER:), the information will be passed along unchanged.

Check the features of your printer by trying some of the following commands:

```
ECHO >PRT: "*e[2w Elite pitch! *e[0w"
ECHO >PRT: "*e[4w Condensed! *e[0w"
ECHO >PRT: "*e[6w Enlarged! *e[0w"
ECHO >PRT: "*e[4**z Testing double-strike! *e[3**z"
ECHO >PRT: "*e[2**z Testing NLQ printing! *e[1**z"
ECHO >PRT: "*e(Z #[!]? *e(B"
```

In the above examples, I've been careful to cancel the selected effects. Each feature is switched on, tested, and then switched off again. You don't have to do it that way.

Workbench 1.3 upgrade. Commodore has recently released a new edition of Workbench 1.3, this one numbered 1.3.2. Changes from the original 1.3 system are mostly directed to hard disk users.

Revision 1.3.2 first became visible when Commodore made it available as a downloadable module on certain computer networks. It came with a license agreement allowing individual users to download the package but prohibiting further distribution in any form.

There was some curiosity among the Amiga user community as to why Commodore was so generous with widespread electronic distribution and yet so apparently stingy in restricting further distribution. The reason: In these days of computer virus problems, the company wants to have a clear path from the supplier (Commodore) to the user (you). Extra handling between these two points might open the door to abuse.

It is expected that authorized Commodore dealers will have the current version of Workbench 1.3.2 for those users (mostly hard disk owners) who need it. Earlier versions of Workbench 1.3 are still usable, although version 1.3.1's DISKCOPY command is said to contain bugs.

You may recall that I wrote a program, *SysCheck*, to confirm that key items of the Workbench disk were known versions. A new release means, of course, that a new version of *SysCheck* has been produced. It's included on this issue's *Resource Disk*. See "How to Use the Disk" for more information.

Hard disk vs. floppy. All Amiga systems, regardless of age and configuration, have a great deal in common. But there may be differences in the way hard disk and floppy disk users organize and safeguard their storage systems.

Users whose systems are based on 3½-inch floppy disks tend to create a set of "customized" disks, each one especially tailored to start up the system in a certain way. There might be a disk for word processing, one for graphics drawing, and another for programming in Amiga Basic, for

example. To conserve storage, the user will often carefully tailor each disk's contents.

The Preferences drawer will generally be removed from all such work disks, once the colors have been set up and the appropriate printer has been selected. Most of the contents of the Utilities drawer will go, along with some of the less-used items in the System drawer. The disk used for BASIC programming is likely to lose the extra fonts. The graphics disk will probably drop the "speech" elements LIBS:TRANSLATOR.LIBRARY and DEVS:SPEAK-HANDLER.

Each disk is likely to contain its own customized startup-sequence file. An important part of the setup will be assign statements that identify special areas used by each application. A word processor might assign the path where its spelling checker may be found; an assembler or compiler might assign the location of its include files. In this way, the floppy disk user customizes the system at startup with each boot disk.

The hard disk user, on the other hand, can load up everything at one time. A jumbo collection of fonts will often be on hand, plus all the extra libraries that might be needed by various programs. All the assign commands that might ever be needed are piled into the startup-sequence.

This sounds convenient—no more hunting for that certain floppy disk before you start a job—but it has a few pitfalls. The biggest problems facing the hard disk user are clutter and file safety.

Clutter is a problem that sneaks up on the hard disk owner.

There's so much space on a typical hard disk that there seems to be no need to get rid of old stuff. The old, unwanted files stay on the disk, but they fade from the user's memory. When the disk finally starts to get crowded (yes, even a 40-megabyte unit fills up eventually), the user often can't remember what most of those old programs and files were for.

File safety is similar in nature. Hard disks are very reliable and often work for years without trouble. But when trouble does strike, your disk may lose a large number of programs and data files. It can be hard to rebuild a couple hundred lost programs; it's virtually impossible to reconstruct that many lost data files.

You need a schedule of backup procedures, and you need to follow it conscientiously. This will help both the safety problem, since your files can be brought back if lost, and the clutter problem, since you can confidently discard unused files, knowing they can be recalled.

The user without a hard disk may see the computer in a different way, but the same problems exist. The user's library can quickly grow to hundreds of floppy disks. The prospect of a bad disk causing a loss of data or programs is still important to keep in mind. For the floppy disk user, an archiving system is still important. Make backups, or keep those old disks in a special storage area. ▲

CSI w Commands

```
*e[2w Elite font on
*e[4w Condensed font on
*e[6w Enlarged font on
*e[0w Restore normal font
```

CSI "z Commands

```
*e[4**z Double-strike on
*e[3**z Double-strike off
*e[2**z NLQ font on
*e[1**z NLP font off
```

CSI National Character Set Commands

```
*e(B U.S.
*e(R French
*e(A U.K.
*e(E Danish I
*e(Z Spanish
```


ASK ROB PECK

Rob Peck

What Is ARexx?



Recently I've received several questions about *ARexx*, so I thought it would be a good idea to group them together and answer them here. It's important to understand *ARexx* because it will be part of the Amiga's upcoming 1.4 operating system, and many programs already use it. It's also a very useful tool—for programmers and for users.

Q. Just what is *ARexx*?

A. *ARexx* is what many people call the missing link in the Amiga's operating system. The Amiga has always been able to run several different programs at the same time using a technique called *multitasking*. And, thanks to the work of various companies early in the development of the machine, several standards have evolved that allow different programs to exchange data. These standards, such as the IFF file format, allow you to create a picture using one paint program, touch it up using another, and then load it into your graphics word processor and combine it with some text. But until *ARexx* came along, there hadn't been a standardized way for different programs to communicate with each other directly. *ARexx* is that missing link.

ARexx is a language, similar in many ways to BASIC, but more versatile. In addition to its ability to interpret commands and read and write files, *ARexx* can also send messages to programs that understand its commands.

You communicate with *ARexx* using ordinary character strings. Internally, *ARexx* handles your commands using a powerful set of string-processing routines. For example, when it comes time to perform math functions on two strings, *ARexx* converts the characters into actual numbers, does the math operation, and then produces a string of characters as the output. That makes math operations somewhat slower than they'd be if ordinary numbers had been used in the first place, but it also makes things much easier for the *ARexx* programmer and for the programs that use *ARexx*. When *ARexx* is passing information to and from other programs, there is only one format to worry about: that of an *ARexx* string.

Q. I write AmigaDOS scripts that use parameter substitution. I can create a script that calls another script, that calls another script, and so on, passing the values from

one script to another until I have the result I need. These scripts communicate with each other, so what's the advantage to using *ARexx*?

A. AmigaDOS script files rely on slow and restrictive external commands (program files found in the *c* directory of your system disk). For example, if you want to perform arithmetic from within a script, you have to use the *EVAL* command, which must be loaded from disk every time you call it (unless, of course, you copy it to the ramdisk or make it resident using *Workbench* 1.3). *ARexx*, however, has several features, including arithmetic, built right in.

For example, say you're creating a script file to control your C compiler. You want to be able to type *CC MY-FILE.C* to compile and link your program. You also want the script file to be able to extract the *MYFILE* portion of

the filename so you can create intermediate files, such as *MY-FILE.Q* and *MYFILE.O*. With the *EXECUTE* command, you can't do this. It can take the filename *MYFILE* and add the *.C*, *.Q*, and *.O* extensions, but scripts cannot extract portions of strings. With *ARexx*, you get substring capabilities and much more.

Consider yet another case. Assume that you have a program called *FOO* and it runs from the CLI with the command

FOO A B C D E

where the letters *A-E* represent the names of the files to be processed. Now say that you want to create a script that uses this program to process all the files found in the directory *MYSTUFF* in alphabetical order. I had to do this once, and I used the *LIST* command with its *LFORMAT* option to generate a list of filenames with preceding spaces, the *SORT* command to sort them, the *JOIN* command to join the *FOO* command with the list of filenames, and finally the *ED* command to remove the line breaks, placing the whole command on a single line. It would have been considerably easier if *ARexx* had been available.

The nice thing about *ARexx* is that you can intermix *ARexx* and AmigaDOS commands, using *ARexx* to substitute parameters for an AmigaDOS command if you wish. And by using *ARexx*'s *ADDRESS* function, you decide what (*ARexx*, AmigaDOS, or some other application) will receive the command for which parameter substitution has been made.

Someone who switches back and forth between an MS-DOS environment and AmigaDOS could create

The missing link in the Amiga's operating system, *ARexx* allows programs to interact and communicate.

ARexx commands that would not only respond in a way similar to that of MS-DOS, but would even reformat the output of the AmigaDOS command so that it would look similar to the form found on other systems.

Q. What does it mean to be *ARexx* compatible?

A. Amiga software can be compatible at several different levels. The simplest level is when a program implements a one-way communication path between itself and *ARexx*. With this setup, *ARexx* (or any other application that sends *ARexx* messages) can send messages to the program, and the program would reply with a status code that indicates whether or not the requested action was performed or even understood.

At another level, an application would include the ability to generate *ARexx* messages that are sent to other applications, such as *ARexx* itself.

Q. Is there a way to extend *ARexx*?

A. Yes, by telling *ARexx* to add function libraries. REXXARPLIB is one such library; it adds functions from the AmigaDOS Replacement Project and Intuition (for menus, windows, and file requesters) to *ARexx*. Normally, when you write a program in C, the Amiga generates a menu event when an item is selected from a pull-down menu. Your program must evaluate that event and then decide what to do. When you program with the REXXARPLIB functions, you simply create menu items using

ARexx commands and then specify what *ARexx* command string is performed when the menu item is selected. The nicest part about extending *ARexx* with libraries is that they actually add commands to the *ARexx* interpreter, thus increasing your programming vocabulary.

Q. The people I write programs for don't like to type. If I tell them that they'll have to use the CLI, I don't think they'll use an *ARexx* script. What can I do?

A. With Workbench 1.3's IconX program, you can execute scripts by double-clicking on their icon. So once you have a script working, just add an icon to it and make C:IconX its default tool. The *AmigaDOS 1.3 Enhancer* manual gives a complete description of IconX.

Q. How do I get *ARexx* now, before the release of Kickstart/Workbench 1.4?

A. *ARexx* was developed by William S. Hawes and is currently available through him for \$49.95 plus \$2.00 shipping (\$8.00 for overseas airmail). You may contact him at P.O. Box 308, Maynard, Massachusetts 01754; (508) 568-8695.

If you have a programming question or problem that you'd like answered, write to Ask Rob Peck, Amiga Resource, P.O. Box 5406, Greensboro, North Carolina 27403. We regret that, due to the volume of mail received, we cannot respond to every question. ▲

Blank Disk Battle!

The Lords of Shareware now pass on massive savings — prices yet unheard of in the USA! Our considerable buying power allows us to sell:

5.25" (With Sleeves)

DS/DD 100's @ 21c 1000's @ 20c
Colored DS/DD @ 29c in 100's (Call!) • DS/HD 50's @ 43c 1000's @ 40c

3.25" (Suitable Amiga, IBM, ST, MAC)

DS/DD 50's @ 48c, 1000's @ 46c
DS/HD (IBM 1.4 Mb) 50's @ \$1.45, 1000's @ \$1.40
Black and Colors Available

Pre-formatted Disks! Save Endless Hours of Formatting:

IBM 5.25" DS-DD 38c in 100's
IBM 5.25" DS-HD 69c in 50's
IBM 3.5" DS-DD 68c in 50's
IBM 3.5" DS-HD \$1.95 in 50's
MAC 3.5" DS-DD 79c in 50's
ST 3.5" DS-DD 79c in 50's
AMIGA 3.5" DS-DD 79c in 50's

ALL DISKS 100% GUARANTEED & CERTIFIED!

DUPLICATION

Prompt & efficient duplication service on all formats! Please call for further details

SHIPPING & HANDLING

Add \$4 for first 100 or less, and \$1.00 per 100 thereafter. Goods are subject to availability and prices are subject to change without notice.

Owners of the Following Computers — Call Now Toll-Free for THE LATEST, GREATEST SHAREWARE AND PD CATALOGS IN THE BUSINESS!

**MAC — AMIGA — APPLE II
ATARI ST — C64 — ATARI 8BIT**

Call this number only for blank disks and non-IBM shareware catalogs — Use 1-800-346-0139 when ordering IBM shareware.



1-800-782-6861



Gemini™
Marketing, Incorporated

12404 SE 38th St.
Bellevue, WA 98006 USA
Foreign: (206) 746-7671
FAX 206-788-0717

FRED FISH DISKS ALWAYS IN STOCK!



InterComputing, Inc.

2100 N. Hwy 360, Suite 2101
Grand Prairie, TX 75050-1015

*In business since 1984
Amiga support since 1985*

We are a service oriented business offering discount prices

FAX: 1-214-660-3695

Customer Service & Order Status: 1-214-988-3500

COMPLETE PRODUCT LISTING AVAILABLE

Order line: **1-800-622-9177**

In Germany call; In Deutschland erreichen Sie uns unter **0202/755239**

Create your own Amiga 2000 Custom Package

Purchase an Amiga 2000 with

- Kickstart 1.3
- 1MB RAM
- Fat Agnus Chip
- 6 Month Warranty

1399.00

Add the peripherals of your choice at these *special low prices*
and we will include

Free Installation

2nd Disk Drive	99.00
2MB Memory	349.00
4MB Memory	529.00
6MB Memory	699.00
8MB Memory	899.00
Multisync Monitor	540.00
RGB Analog Monitor	280.00
40MB Hardcard	690.00
80MB Hardcard	949.00
Internal Modem	110.00
Flicker Fixer	459.00



*Peripheral prices pertain to purchase of Amiga 2000 computer and peripheral both.
Amiga is a registered trademark of Commodore-Amiga, Inc.*

MEMORY

• M501 A500	99.95
• Starboard 1MB	379.95
• Starboard 2MB	499.95
• 2MB A2000	379.95
• 4MB A2000	579.95
• 6MB A2000	749.95
• 8MB A2000	949.95

DISK DRIVES

• Master 3A	139.95
• Air Drive	149.95
• Cal. Access	139.95
• FDATA-10	119.95
• FDATA-20	249.95
• Unidrive	124.95
• Twindrive	249.95

HARD DRIVES

EXTERNAL

	A500	A1000
20 MB	479.95	549.95
30 MB	599.95	649.95
45 MB	699.95	769.95
60 MB	849.95	899.95
80 MB	979.95	999.95

INTERNAL

Hard Card 20 MB	549.95
Hard Card 32 MB	599.95
Hard Card 40MB	699.95
Hard Card 80MB	999.95
Hard Card 105MB	1099.95

2 MB MEMORY CARD

(For use with A500 & Hard Drive)

299.95

GVP 3001 Package

- 25 MHz 68030
- 25 MHz 68882
- 4 MB of 32-bit memory

2599.95

with 40 MB hard drive

2995.95

with 80 MB hard drive

3499.95

AMAX Package

AMAX, 128 ROM Set & 3.5"
Mac-compatible drive

439.95

Flicker Fixer

499.95

Flicker Fixer *plus*
Mitsubishi
Multisync Monitor
999.95

SuperGen 699.95

SuperGen 2000 1499.95

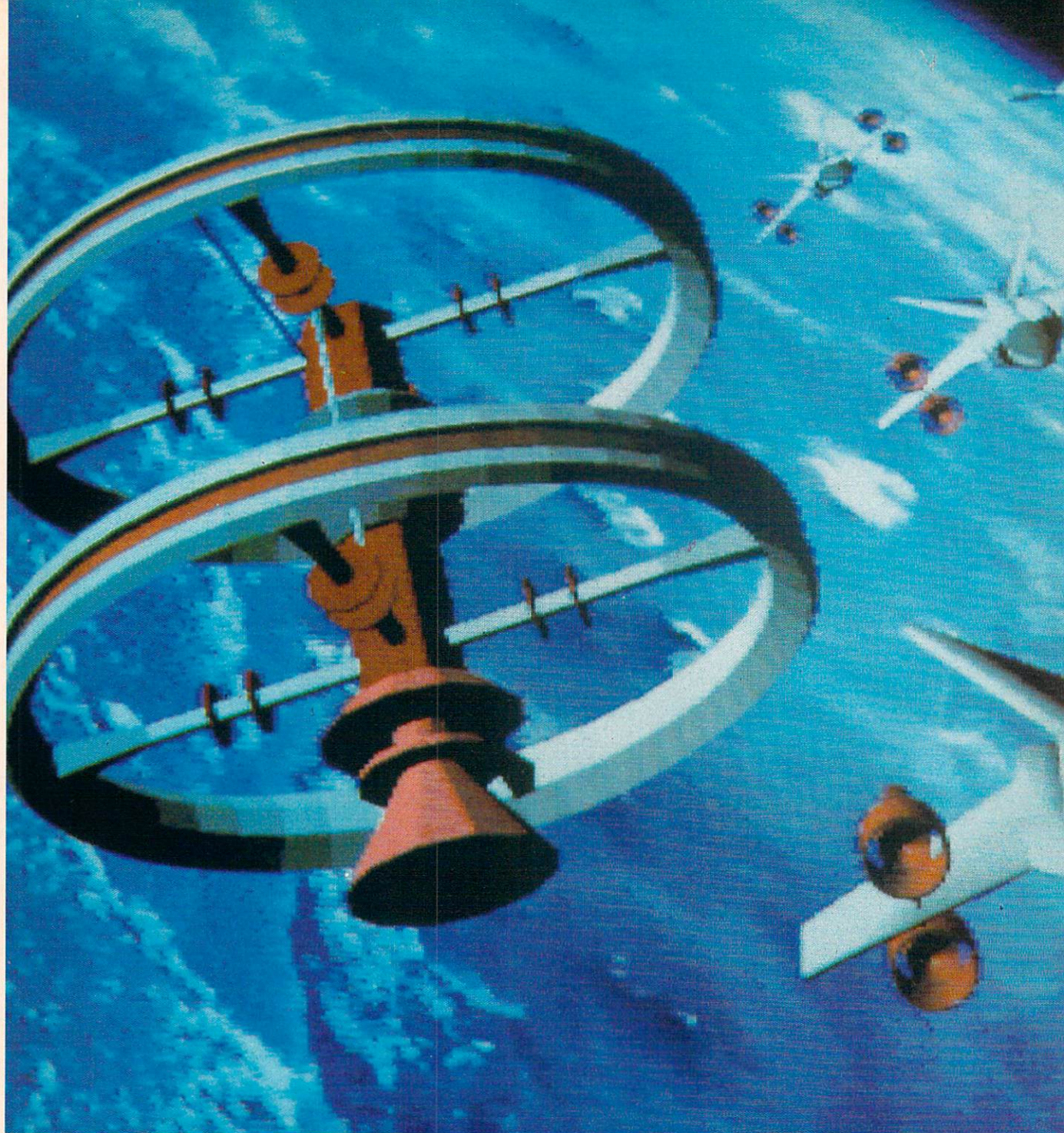
AMTRAK Trackball 79.95

SOFTWARE?

Call for our new catalog

*As always we have the most 'customer friendly' terms: SIH \$3.95 in cont. USA; \$30.00 min. order ;
MASTERCARD & VISA with NO credit card fee; in Texas add 7% Sales Tax. \$12.00 shipping to APO
addresses. RMA# required on all returns. 18% restocking charge. All prices subject to change.*

Circle Reader Service Number 106



AMIGA BUILDS A WORLD

Ben and Jean Means

**Meet Joseph Conti.
He uses 3-D software—
and he models the future.**

Soaring in from the north, we bank west and look down as beautiful Gothic spires flash by. We complete the turn and dive directly toward the Mediterranean-style opera house. . . . The Amiga gives us wings to fly over this imaginary

landscape of a Japanese theme park that is years into the future and thousands of miles away.

Before one spade of earth is turned, wary investors have an intimate look at what they are building—an island of fantasy in a busy world.

For Joseph Conti and his two Amiga 2500s, creating an alternate reality is just another day at the office, and his office is an Amiga home studio just

outside L.A., with 50 miles of national park wilderness right outside his back door.

Amigaland

Today, he's building a theme park designed by John DeCuir Jr., designer of Disney World's Epcot Center. "I'm modeling this several-hundred-million-dollar project in the computer," says Conti, looking out the window at rose bushes and the stretch of distant hills. "The project is very similar to the Epcot Center but, taken a step further, like a whole new generation of theme park. There are several different themes: futuristic, a combination of French, Italian, Mediterranean, and different pieces from all over the world, so it's world-class. This is the first time that the Amiga has been used on a project of this scale."

Planning a world-class theme park is a massive undertaking with a cost to match. Three-dimensional

modeling and animation on the Amiga lowers this cost while providing vivid images of the future. Conti sends the park's blueprints out to a scanning house, which digitizes and saves them as IBM *AutoCAD* files. Then he calls up the *AutoCAD* files on his 286 IBM clone and changes them into Amiga *Sculpt 4-D* files with *AutoCAD* translation software. He extrudes the two-dimensional plans to the heights indicated on the blueprints and adds windows, cornices, spires, and parapets. With the finished Amiga model, he can output 3-D stills from any angle or elevation or do thrilling animated flybys.

Conti explains: "A conventional architectural model would cost about \$250,000 and would probably take about nine months to make. The Japanese *love* computer graphics, more than anything else, and these graphics will probably have the most impact in selling the whole project. That's how important it is. These computer graphics may be only 2 percent of the actual design budget, but they may have a 50-percent impact on whether the project makes it or not.

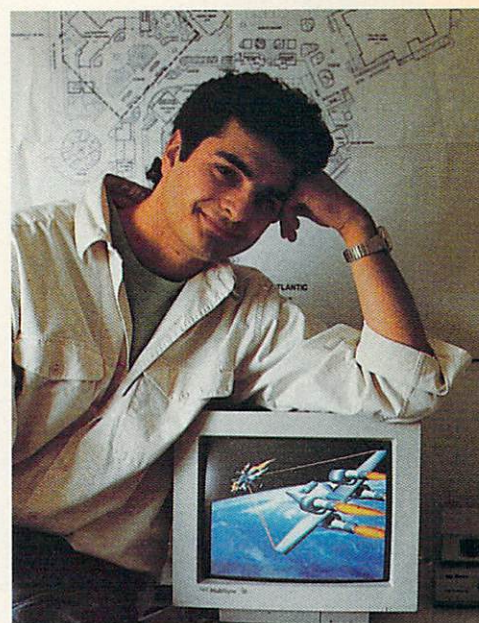
"The best part of the business with the Amiga is, and this happens constantly, that I won't even have a section modeled yet, and I'll get a phone call that they need pictures in Japan in two days. It's like, there's no way, but that's no excuse. You have to get it done! I'll model what I can, take pictures, develop them at 1 Hour Photo and Fed Ex them to Japan the next day. That happens all the time, and you would never find that on any other computer system."

Making It in Hollywood

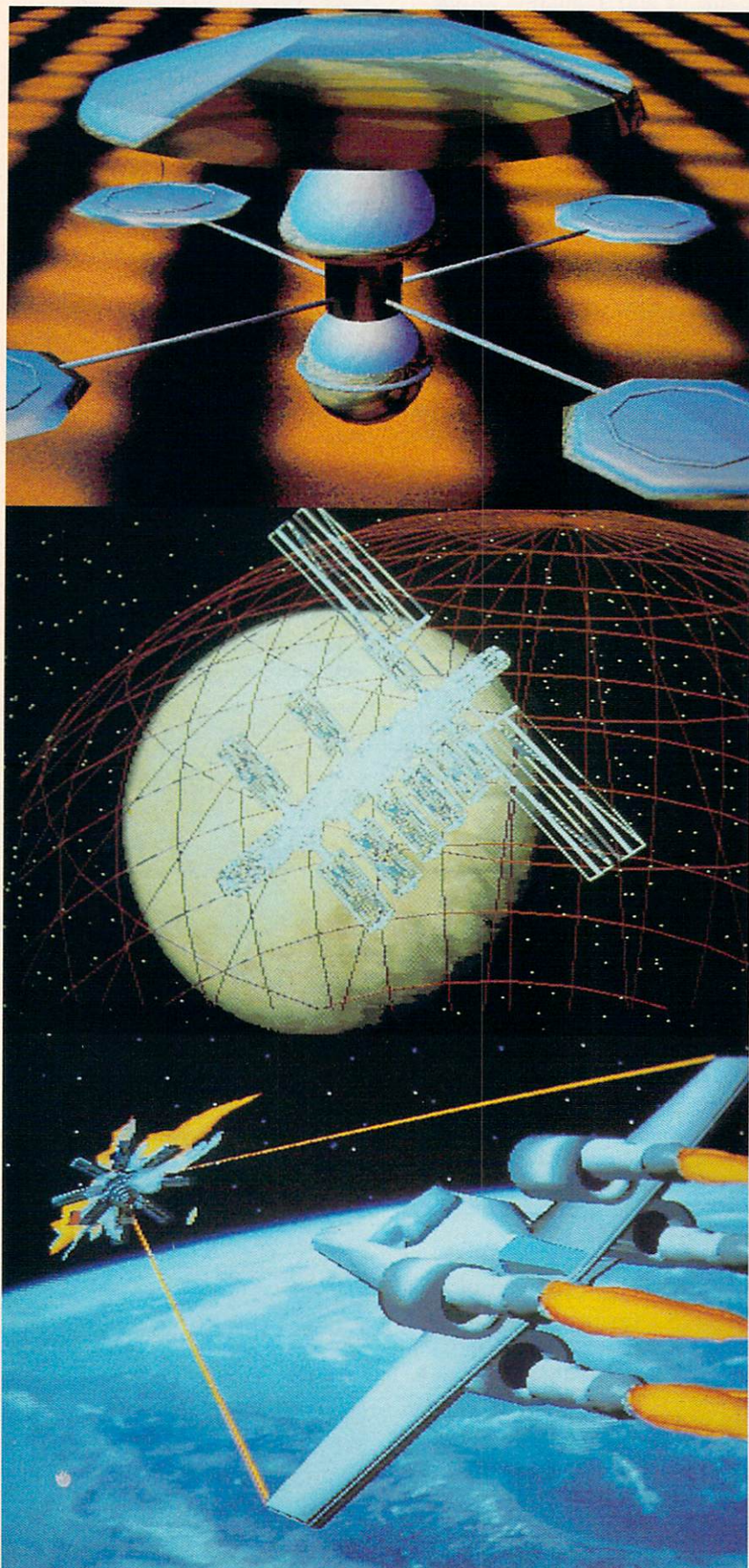
With the Amiga's low cost and ease of use, Conti can show a tailor-made presentation to each prospective new customer. Disney wanted graphics for a new pilot similar to what Video Image, an industry leader, had done for the space epic *2010*. So Conti picked out the best computer animation in *2010*, which was a wire frame

where you fall away from the spaceship *Discovery* through a series of red triangles. He says, "Video Image produced the original effect for about \$6,000, and I reproduced it in ten minutes exactly. I brought it back to Disney and said, '2010, here it is; I did it in ten minutes. If I was going to charge you, it would be \$600, and this is what you would get.' It got their interest!"

With his reputation buoyed by the innovative Amiga, Joseph Conti has risen far and fast in Hollywood. Just two years ago, he arrived with a 2.5-meg Amiga 1000 tucked under his arm and his cinematography degree from the University of Bridgeport, in Connecticut, under the other. Two weeks and a thousand phone calls later, Mark Stetson of Boss Film Studios called him in for special-effects work on *Die Hard*. It was Conti's lifetime dream come true, and soon he began to see ways



AMIGA BUILDS A WORLD



that the Amiga could improve the time-honored special-effects techniques. Unfortunately, the Boss crew wasn't ready for his ideas.

In May 1988, Conti left Boss to strike out on his own as an independent effects producer and found a ready partner in John DeCuir, a production designer whose credits include the films *2001*, *Earth Star Voyager*, and *Top Gun*. "I introduced him to the Amiga, and it was love at first sight because the Amiga could handle everything he needed to do and could not solve. He needed slides for presentations but couldn't add color titles. They had to rub titles down on cards, photograph them, and still only got black-and-white titles. I whipped out *DeluxePaint*, did some fancy logos, and—BAM!—I had computer graphics. When I dumped it to slide, it was the greatest thing he ever saw. It blows his clients away and is extremely inexpensive. Places in L.A. wanted to charge him \$600 a slide, and I was doing it for \$15 a slide." Conti went from slide presentations to two-dimensional animation and then to 3-D graphics and animation. Soon the Amiga was doing everything for DeCuir, and Conti found a secure job as his key graphic artist on the Amiga.

Today's Tool for Tomorrow's Toys

Mattel Toy wanted a graphics computer system to do its toy prototyping, and everyone from WaveFront to Alias wanted the account. From this wide selection, Mattel chose Joseph Conti and his Amiga system, which immediately began to save the company time and money. Conti explains: "Traditionally, Mattel hired animators to hand-draw animation cels and then dump them to video. Animation took months of work and cost thousands of man-hour dollars. But *DPaint* animation advanced the company about 1000 years ahead of its time. Mattel uses the animations in product design to show children how a toy will work, or the company can digitize

a prototype with Digi-View and then animate it dancing around.

"Executives use tapes from the Amiga to start planning marketing strategies. So it's really filling a lot of cracks for them, and schedule compression is the most important. A toy takes two years from concept to completion; so they're planning toys for Christmas two years from now. They need to compress that as much as they can, and the Amiga is really doing that. They can do the animations now in a couple of minutes instead of a couple of months. And with 3-D modeling, they can really plan the product out before they even finish drawing it."

The 3-D Advantage

Conti paid \$300 for a used Amiga 1000 in early 1987, and it earned him \$30,000 the first year. Conti freely admits, "I'm one of those artists who can't draw anything freehand, but I can build it with the building blocks of a 3-D pro-

gram. I can visualize things in 3-D, add color and texture, and then let the computer worry about the shading, lighting, and perspective.

"You don't have to be an artist to do 3-D; you have to be a film person or a director to know the setups, the movement, and the motion. But in 2-D you have to be a cel animator and hand-draw each piece to some extent and then move it. But in 3-D, I build it, and the computer generates everything."

The Future

For now, Conti is happy with his Amiga but he has strong thoughts about where it needs to expand. "The Amiga needs a graphics board that supports 16 million colors and has 2K × 2K resolution. The only problem is that there has to be a standard. Apple has a standard with its QuickDraw environment for graphics. So everything works—if it's 4-bit, 8-bit, or whatever, it is all supported

in that standard. If *DPaint* had 2K × 2K resolution and 16 million colors, everyone would use it all over the world as the number 1 paint package."

Will Commodore respond to this strong advice from a graphics professional? Let's hope so, because if it does, we'll all continue to benefit from the computer that helped Joseph Conti turn his dreams into Hollywood gold.

Conti, whose overnight success is charted in the pages of *Forbes* and *PC Weekly*, shares his vision: "I can tell you for sure that within the next few years, 3-D will be the major design tool for everybody. 3-D will implement production design; it will implement the prototyping of everything from doorknobs to nails. Designers will use 3-D in building houses, in building cities, in building worlds. It will be the number 1 design tool, and the people who get in on it now will be the design leaders in the coming years." ▲

Build a \$20,000+ sound studio!

Synthia Professional

Synthia Professional turns your Amiga® into eight different 16 Bit synthesizers, (2 Drum Synths, Additive, Pseudo-Additive, FM/PM, Subtractive, Plucked String, and Interpolation) with the ability to add more than a dozen special effects (Echo, Reverb, Chorus, Graphic EQ, Phase Shifting, waveshaping, etc).

Included are visual editing and looping capabilities for the thousands of instruments your Amiga® can create with Synthia Professional.

Also, Synthia Professional will work with your favorite music programs as well as your favorite midi keyboard sampler. Synthia Professional supports most Amiga® and Macintosh® sound formats allowing you to transfer sound samples between samplers and sound formats.

by The Other Guys

1-800-942-9402 1-801-753-7620

Ask about our NEW educational products:
World Odyssey and Math Odyssey

Amiga is a registered trademark of Commodore-Amiga, Inc.
Macintosh is a registered trademark of Apple, Inc.

Circle Reader Service Number 108

AMIGA 3-D

PAST, PRESENT, AND FUTURE

John Foust

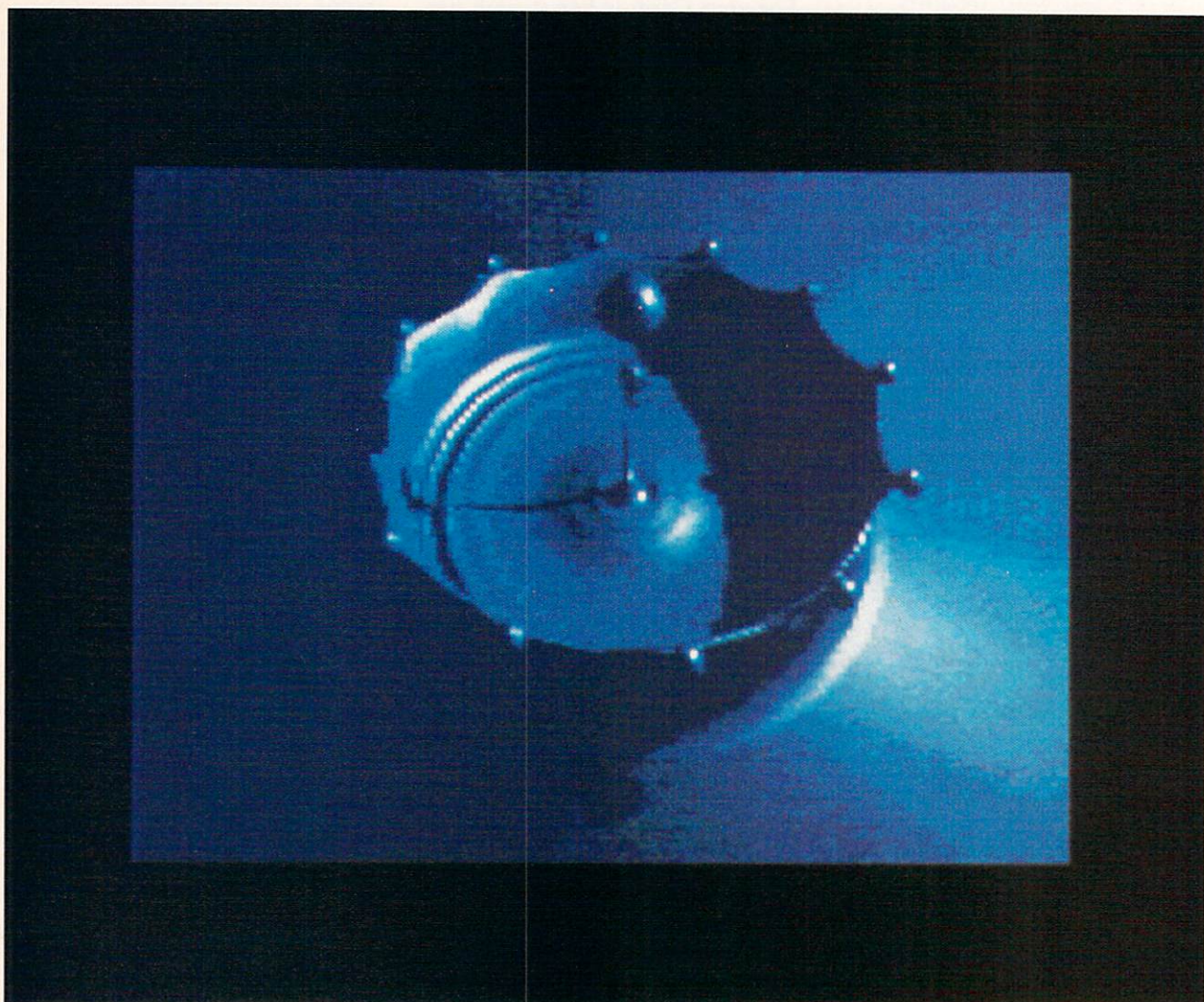


Illustration by James Shook. Rendered in Turbo Silver.

Modeling and animation programs have played a big part in the Amiga's success. In the past, flashy 3-D demos attracted both hobbyists and professionals to the Amiga. Now, they flex the Amiga's muscle like no other type of program. And in the future, they might propel the Amiga to greater commercial popularity.



More than four years ago, the first and most influential Amiga demo made its debut in the Amiga booth at the Consumer Electronics Show in Chicago. A 3-D red-and-white-checked beach ball danced across the screen, accompanied by perfect digitized stereo sound.

Known simply as *Boing*, this simple animation captured the hearts and minds of future Amiga owners everywhere. It certainly gave the impression that the Amiga had the horsepower to animate a 3-D model in real-time. In fact, the *Boing* demo was only a programmer's trick, not a true 3-D graphic—the spinning ball used color cycling, not high-speed math—but it sure looked good.

Just a few months after the Amiga's release in 1985, a second demo animation influenced almost every one of today's players in the Amiga 3-D market. In January 1986, *Juggler* showed a robot juggling three mirrored balls that "boinked" as they were thrown into the air. Created by Eric Graham, it was a fine example of ray-traced animation merged with digitized sound.

Graham released his animation as a demonstration of a modeling and animation system he had in development. Soon Graham was involved in negotiations with a number of Amiga companies, including Electronic Arts, Aegis Development, Impulse, and Byte by Byte. Each company hoped to turn Graham's public domain demo into a commercial product. Byte by Byte eventually published the program as *Sculpt 3-D*.

Part Science, Part Art

What does it take to design a 3-D program? The theory behind translating the mathematical description of an object into an image on the screen is well known. Academic computer-graphics journals describe many variations of current theory but rarely print actual examples of code.

At this point, programming becomes part science, part creativity. The programmer must translate theory into practical Amiga program code. For example, no academic journal tells how to make clean HAM images. User interface, speed, memory, and the limitations of the Amiga also affect the program design.

Constraints imposed by graphics theory can percolate to the very top level of user-interface design. In *Sculpt 3-D*, all objects are made of triangles. *Sculpt* gains speed by optimizing graphics calculations to operate only on triangles. Aegis Development's *VideoScape 3D* allows polygons of any number of sides but introduces other constraints on the shape of polygons in order to make the program execute quickly.

All modeling programs have

No academic journal tells how to make clean HAM images.

three basic parts: a way to create objects, a way to compose objects in scenes, and a way to control the final production of images. Usually a program has several levels of quality for final images, ranging from simple wire-frame outlines to full ray tracing. HAM and high-resolution images take more time, because there are more colors or pixels in these modes.

Unfortunately, there is no graphics algorithm that refines an image over time. To render an image, a 3-D program must pick a target level of image quality in advance and aim for it. A fixed amount of time must elapse before the image is ready for viewing.

All other things being equal, the most realistic images take the most time to produce. Ray tracing gets a lot of press. It certainly produces the most realistic images, which are great for slide shows or reproduction in a magazine. In real life, ray-traced

animation is difficult because it takes a lot of time and disk space.

Three-dimensional programs try get the edge on each other by decreasing the amount of time it takes to produce a given level of quality. When making animations, rendering time is even more significant. The math shows why: An animation might contain hundreds of frames. If ray tracing takes 30 minutes per frame, and simple shaded images take only 5 minutes, practical limitations of Amiga animation become clear. At 30 minutes a frame, 100 frames will take 50 hours, or more than two days of continuous rendering. Even at 5 minutes a frame, 100 frames take almost 9 hours to render. Add another part of an hour to compress the separate images into an ANIM-format animation file. All the files involved might consume several megabytes of hard disk space. This explains why 3-D animators make up a large segment of the 68020 and 68030 speed-up board market. Even a small increase in rendering speed quickly translates into greater throughput.

While some programs aim for perfect images, others use "tricks" to create apparently difficult effects using a small amount of time and computer power. For example, *VideoScape 3D* has a "darkening" polygon color that can give the effect of shadows cast from objects, without ray tracing. When these polygons are added to the screen image, instead of covering up polygons behind them, they only darken those areas. Another polygon setting makes shapes that lighten the background, giving the effect of a bright light shining through atmospheric dust or fog. Without the time and effort required for ray tracing, *VideoScape* pictures can have realistic details.

Words of Wisdom

To trace the history and predict the future of 3-D on the Amiga, what better place to go than to the companies themselves? Several common themes emerged in these conversations: the companies' dreams for what 3-D can do, stumbling blocks with Commodore and the Amiga market, changes in their marketing and product price, and hopes for future Amiga hardware that can meet all these concerns.

"User interface is going to be the issue of the 1990s," said Roman Ormandy of Octree Software, maker of *Caligari*. "Apple and Microsoft

are battling it out over a 2-D interface, and there is a limit on what a 2-D interface can do. That's why *Caligari*'s interface is dedicated to immersing the user in the 3-D environment. We think that this new form of interface will be used for everything, not just for 3-D design,

but for entertainment, for business, for presentations—for everything."

Caligari was one of the first 3-D applications to be demonstrated for the Amiga, but one of the last to appear. It took more than two and a half years for *Caligari* to come to market, after an initial appearance

on videotape at a SIGGRAPH graphics convention. Ormandy blames the delay on difficulties in creating the user interface. *Caligari* comes in two flavors, a \$249 consumer version that includes the object modeler and simple rendering, and a \$1,995 professional version

James Shook on Turbo Silver

"I've gone through my spheres-over-checkboards phase," began artist James Shook, of Amherst, Massachusetts. For him, 3-D programs are simply part of the collection of tools he uses as an Amiga artist. "I sometimes make an object in a 3-D program, render it, then cut it out and use it in a paint program."

He splits his time equally between both two-dimensional painting programs and three-dimensional modeling programs.

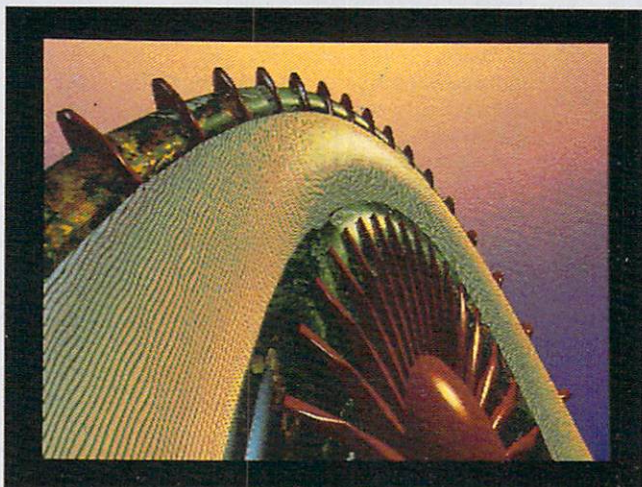
"They are very different ways of working. With 3-D, it's a lot more like photography. You need to think in terms of lighting and camera angles, as opposed to [when you're using] *Deluxe-Paint*," he said. "3-D is a struggle in that you have to make everything that you see. It's tough making objects that don't look like they were composed with basic primitives. They need to be complex enough to resemble real-world objects in such a way that they are satisfying to look at."

With 3-D programs, Shook adds an element of unpredictability. "I see ray tracing as being like digitizing. A digitized image brings with it some qualities that you can't draw by hand. I think of ray tracing as a mechanical, somewhat impersonal, way of creating an image. When I ray-trace an image, I don't feel fully responsible for it. It feels like a collaboration between the program and myself. There are assumptions built into the software about the way the world looks. A certain visual quality remains, no matter what you do with it." A 3-D image is somehow convincing; you can tell it wasn't drawn.

He draws other comparisons between paint programs and modeling programs. Three-dimensional programs take more time and give

less immediate feedback about the image. "The work that I do in paint programs tends to be more exploratory. Out of a lot of experimentation, the image develops. I'd like to do that in the 3-D programs, except there's this time delay in rendering things. I can spend an hour creating a scene in wire-frame, but then I have to wait for the final image."

For example, in one image, Shook used a *Turbo Silver* stencil



object for a window frame. (A stencil is a flat IFF brush that can be positioned like a 3-D object in *Silver*'s world.) It took many time-consuming adjustments and ray tracings to arrange a light source so that the shadows fell in a pleasing pattern on the other objects in the room.



For this reason, Shook doesn't do much animation. "Once I've got an image rendering correctly, I'm already thinking of two or three more I'd like to do."

Moving past shiny balls and

checkered surfaces, Shook is now developing his ability to create organic-looking objects. "My ultimate goal is to create something as rich as what I can do in a paint program. Since you can move around in the 3-D world or can map a new texture to an object, it would be better than a paint program."

He is now reading a book by naturalist Stephen Jay Gould, called *Wonderful Life*. In it, Gould de-

scribes the fossils of certain soft-bodied animals found in Devonian-period shales in Canada. Their bodies were flattened in rock, but because they had many examples of the animals, scientists were able to synthesize their three-dimensional form. Shook said, "I'm not a scientist, but I thought it would be fascinating to recreate those animals, to turn them around in different directions to see what they looked like." He is recreating some of the

animals with *Turbo Silver*. In the book, Gould discusses how some people have the space-relationship skills to do this recreation, while others find it very difficult.

Shook is also experimenting with the *PAGErender* program to create organic-looking objects. *ARexx* programs can communicate with *PAGErender* to create objects algorithmically. The program can change polygon colors and place polygons in very methodical ways. For example, the *ARexx* program can generate a curved surface, like the shape of a reptile's body, and then place spines at regular intervals and orientations along its surface. Such fine placement is difficult or impossible in other 3-D programs. As the *ARexx* program executes, Shook can watch the object being assembled. If something goes wrong, he erases the object, tweaks the program, and runs it again.

—J.F.

RIO DATEL COMPUTERS

800-782-9110

*ORDERS ONLY

MON-SAT 8AM-6PM (PACIFIC TIME)

QUALITY PRODUCTS AT REALISTIC PRICES

COMPLETE LINE OF HARDWARE & SOFTWARE IN STOCK

CUST SERVICE
TECH SUPPORT

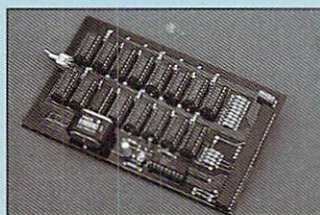
702-454-7700
TU-SA 10AM-6PM

FAX: 702-454-7700



GENISCAN GS4000AM HANDY SCANNER

*Easy to handle Scanner featuring 4 1/8" scanning width & 400dpi resolution enables you to reproduce graphics & text on your computer screen *Powerful partner to Desk Top Publishing *Unmatched range of edit/capture facilities not offered by other scanners at this unbeatable price *Adjustable switches for brightness & contrast *Cut & paste editing of images *Save images in suitable format for most leading software packages - **ONLY \$299.95**



*Available with or without the clock/cal option *Simply plugs internally into A500 slot *Installs in seconds - no soldering required *Switch memory in/out with onboard switch provided - no need to remove board *With clock/cal option date/time automatically booted

ONLY - \$99.95
WITH CLOCK/CAL - \$129.95

ROBOTARM

*Human like dexterity so versatile It can manipulate small objects with amazing ability *Controlled using 2 joysticks or connect to your Amiga with the interface & software supplied to give computer robotic control *Comes with 2 joysticks finger jaws, shovel scoop & magnetic attachment - **ONLY \$89.95**



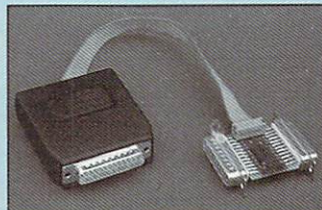
MIDIMASTER



*Standard MIDI interface *Fully opto isolated *MIDI In - MIDI Out X3 - MIDI Thru *Compatible with all leading MIDI software - **ONLY \$59.95**

MIDI MUSIC MANAGER
*8 realtime tracks *Adjustable track length *Full dubbing - Listen to one track while recording another
ONLY \$39.95

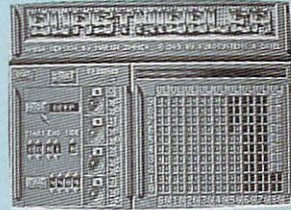
SPECIAL - BOTH ONLY \$89.95



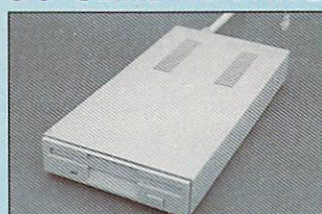
TACH 25 & DEEP SCAN BURST NIBBLER

MOST ADVANCED COPY SYSTEM AVAILABLE FOR THE AMIGA
*Superfast disk copier *Works with 1 to four drives *Copy 1 or 2 sides up to 81 tracks *Full verify option *Easy to use mouse & icon driven program *Adjustable parameters for non standard formats *Copies non Amiga formats such as Atari ST and MS DOS *USE OF TACH 25 HARDWARE REQUIRES ONE EXTERNAL DRIVE

ONLY \$89.95 Complete Package Hardware & Software Software Alone **ONLY \$34.95**



3.5" SLIMLINE DRIVE



*Slimline extra low profile unit *Top quality drive mechanism *Fully compatible - 1 meg unformatted capacity *Throughport allows daisy chaining to other drives *26" cable for convenient positioning on your desk *Superbly styled case finished in Amiga colors

ONLY \$139.95

GENIUS MOUSE



*High quality direct replacement for mouse on the Amiga *Teflon glides for smoother movement *Rubber coated ball for minimum slip *Softer more positive button clicking *Extra long 6 foot connecting cord *Highest quality mechanical parts for longer life and consistent positioning

ONLY \$49.95

REALTIME VIDEO DIGITIZER



*Realtime frame grab in 1/60 sec *16 grey levels *320 X 256 screen display *Screen update at 1 per second *Takes standard composite video from camera or recorder *Edit pictures with cut, copy, paste & undo *Special effects: reverse, negative, mirror, compress etc. *Load & save files in IFF format *Connects to parallel port

ONLY \$139.95

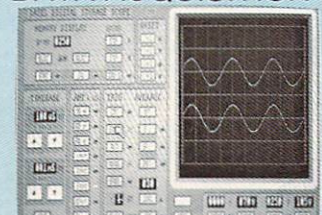
STEREO SOUND SAMPLER + JAMMER

*Realtime frequency display and level meters *HiRes sample editing *Files in IFF format *Adjustable MAN/AUTO trigger levels *Variable sample & playback speed *Mic & line inputs
JAMMER FEATURES: *5 octave keyboard *4 track sequencer up to 9999 events *Tempo & Beat controls *Mixer controls *Works on standard IFF files

ONLY \$99.95



DATA ACQUISITION UNIT



*Sample and display events from hours to microseconds with amplitudes from millivolts to 50 volts *2 input channels *Timebase: 500ms/div to 20 us/div *6 bit flash A/D converter samples at 5 million samples/sec *Adjustable trigger *5X zoom *Waveform averaging *Plotter display is 1 sec to 10 hrs per plot for long term events

ONLY \$179.95

ACCESSORIES



AB Switchbox	24.95
ABCD Switchbox	39.95
Printer Cables, 6 ft.	9.95
Modem Cables, 6 ft.	9.95
Serial Cables, 6 ft.	9.95
Parallel Cables, 6 ft.	9.95
Gender Changer, M/M, F/F	4.95
Null Modem Adaptor	4.95
RS232 Surge Protector	9.95
RS232 Wiring Box	14.95
Diskette Holder, 3.5", 50 disk capacity	6.95
6 Outlet Surge Protector, Wall Mount	9.95
Bulk 3.5" Disks, 50 Pack	39.50
Printer Ribbons, (Star, Panasonic)	4.95
3.5" Head Cleaning Kit	4.95

MANY OTHER ITEMS IN STOCK - IF YOU DON'T SEE WHAT YOU WANT CALL FOR LOW, LOW PRICES

RIO / DATEL

3430 E. TROPICANA AVE. #67
LAS VEGAS, NV 89121

*Add \$4.00 shipping/handling in the continental U.S.: \$7.00 - PR, AK, HI, FPO, APO: \$10.00-Canada/Mex: C.O.D. orders add \$3.00 to above charges: SPECIFY COMPUTER MODEL WITH ORDER: VISA/MC/Checks/Money Orders/C.O.D. Accepted: Please call for return authorization number - returns subject to a 20% restocking fee: We reserve the right to substitute products of different appearance but equal quality and function for items pictured above: Prices subject to change without notice.

800-782-9110

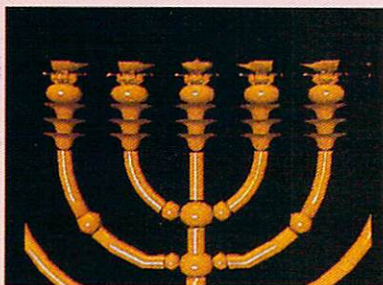
702-454-7700
IN NEVADA

Shalom Kelman on *Sculpt 4-D*

Shalom Kelman is an assistant professor of ophthalmology in the School of Medicine at the University of Maryland in Baltimore. Several years ago, he saw an animation of the interaction between nerve impulses and eye motion running on an instructional computer system called Plato, developed at the University of Illinois. Attracted to the teaching potential of this animation, Kelman hoped to recreate it on a conventional personal computer. He wasn't satisfied until he found the Amiga.

Also a neuroophthalmologist, Kelman uses the Amiga to model the complex eye movements found in neurological eye disorders. As a teacher, he found it difficult to describe the complex, multi-axis relationships between head movement and eye movement. It is very difficult to videotape the eye motions of a human subject, so Kelman recreates the motion using Amiga 3-D modeling programs, particularly *Sculpt 4-D*.

"Very simple animations can convey the information you want. Things don't need to be complex," he said. He attributes this theory to Walt Disney: If you imitate life too closely, it doesn't look natural. Instead, if you exaggerate some motions and simplify others, the result is much more pleasing. His schematic versions of eye motion are accepted on their own terms, even though his images are simplified. They convey the true nature of the



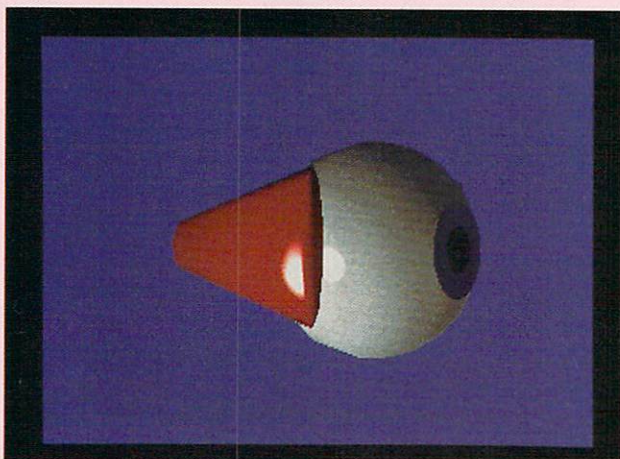
eye's motion, without any distraction from real-world detail.

Kelman's work saw wide exposure on WJTV-TV in Baltimore as part of a week-long series on ophthalmology. Each segment

opened with one of his animations. The television production crew was amazed with the power of the Amiga, Kelman said. "They loved the Amiga. They said, 'You did this, on that machine?'"

Kelman uses both *Sculpt 4-D* and *Turbo Silver* for animations, depending on the type of motion he wants to represent. To model contracting and expanding muscles, for example, he uses *Sculpt 4-D*'s key-frame animation feature. In one key frame, he shapes the muscle to look contracted, and in a later key frame, expanded. The program interpolates the shape of the muscle in all the frames between the two key frames, resulting in a smooth transition in the final animation.

By using *Sculpt 4-D*'s methods for naming a hierarchy of objects,

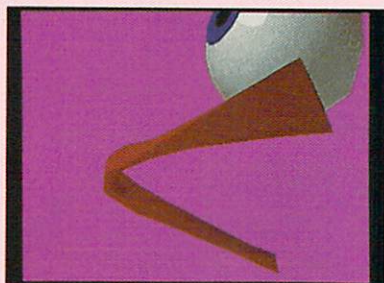


Kelman can quickly select and move groups of triangles that represent a single muscle. By making the object-creation process much easier, this feature alone has saved him hours of work.

In another animation, he used *Sculpt*'s Expand option to imitate the dilation and shrinking of the iris of the eye. A ring of triangles served as the iris. By expanding only the inner ring, and leaving the outer ring in place, the iris appeared to open and close. Kelman used the tape measure in *Sculpt 4-D* to give the opening a precise size.

To take advantage of the best features of both *Sculpt 4-D* and *Turbo Silver*, Kelman will often move an object back and forth between the two programs. For example, he might first create an object in *Sculpt 4-D*, then move it to *Turbo Silver* for an unusual editing

operation, and then move it back to *Sculpt* for final rendering. He converts between the different file formats using *InterChange*. He also uses *InterChange*'s Point Reduce



Tool to make an object look smoother when rendered in *Turbo Silver*, after he has designed it in *Sculpt 4-D*.

For particularly complex rotations, Kelman prefers to animate in *Turbo Silver*. This program allows two types of rotation. One type rotates an object relative to the rest of the world, and one rotates it with respect to a local frame of reference. These two rotation systems make it easy to represent complex motions where both the eye and the head are rotating at the same time.

Kelman's animations will culminate in the presentation of a computer teaching system at a meeting of the American Academy of Ophthalmology. Kelman is part of a team that developed a system that includes an IBM PC running an artificial-intelligence program and an Amiga 2000 with an Impulse VD-1 frame buffer. The Amiga displays 3-D models and animations in cooperation with the diagnostic program on the PC. Digitized images from medical journals and textbooks are also used.

Kelman's enthusiasm for the Amiga extends to his free time, too. He said, "3-D modeling is very addictive. This stuff was made for me." As an Orthodox Jew, Kelman is interested in creating models of ancient religious vessels such as the menorah. He hopes for a future hybrid between the Amiga and the Macintosh, so all computer users can have a common language for graphics and animation.

—J.F.

with animation abilities.

Octree is about to release a new broadcast-quality system centered on the *Caligari* software and an expanded Amiga 2000 system. Again, Octree's prices are some of the highest in the Amiga market. The new software sells for \$3,500. It features texture mapping, transparency, metal textures, shadows, antialiasing, and several types of smooth shading. According to Ormandy, the software can produce realistic images without the extra time involved in ray tracing.

The system requires a 68020 coprocessor, at least three megabytes of memory, and a Bridgeboard that communicates with a high-resolution PC-based Targa graphics card. This hardware alone might cost \$4,300. The hybrid system allows the Amiga to access the full broadcast-video quality and high-color resolution of the Targa graphics board.

The Sculpt Series

First released in July 1986, *Sculpt 3-D* was the first 3-D modeling program to ship for the Amiga. Ironically, the original *Sculpt 3-D* didn't include the ability to make the shiny spheres that were the sole object-building element in Graham's *Juggler*. Only a recent version of *Sculpt 4-D* added this type of sphere. *Sculpt 3-D* was followed by *Animate 3-D* in January 1987, which brought animation to *Sculpt*, and *Sculpt Animate 4-D* in November 1988.

Actually, the original *Sculpt 3-D* is no longer a product, but older copies of it can still be found on dealers' shelves. Byte by Byte's product line is composed of *Sculpt 3-D XL*, which has ray tracing but no animation abilities, priced at \$179.95; *Sculpt 4-D Jr.*, with animation but no ray tracing, at \$149.95; and full-featured *Sculpt 4-D*, priced at \$499.95. In October 1989, Byte by Byte released the Macintosh version of *Sculpt*, priced at \$1,495.00. Such a price isn't unusual for the Mac, where several low-end 3-D programs are \$395.00.

"It's a lofty ambition, but we view 3-D animation in terms of human language," said Scott Peterson, president of Byte by Byte. In terms of software, said Peterson, "a big missing piece is a visual word processor. If you're a videographer, and you want to talk about the Eiffel Tower, you now have a way to make footage of the Eiffel Tower."

Byte by Byte eagerly awaits

higher-resolution displays. Without more colors and higher resolution, the company has found it difficult to sell to video professionals. Peterson said, "We've been frustrated in some ways on the Amiga. We've always had the ability to render at any resolution, with any number of bitplanes. If you're going into the broadcast market, you must have it. I haven't seen a solution yet on the Amiga that addresses the problem."

Peterson also mentions difficulties with finding support for everything needed by the animator. "There is a lot of support involved, not just in regard to our product, but all the other pieces involved. All the pieces aren't there yet for the Amiga. The pieces are support, service, and reliability. We supplied our piece, but the other pieces aren't there. The software is only part of the solution. Our program is just a tool." This isn't an indictment of the Amiga or Commodore, however. Peterson claims Byte by Byte is encountering the same obstacles in Macintosh distribution channels. He said, "For example, the Mac version of *Sculpt* doesn't have animation yet, because the traditional Macintosh dealer doesn't understand video and animation. We need them to support the other pieces necessary for professional video, too."

The Boing demo was only a programmer's trick, but it sure looked good.

Paraphrasing a well-known business educator, Peterson explained another problem the company has had with the Amiga: reliability. "Quality is not goodness. We all know the Amiga is inherently good. Quality is conformance to specification. I can't sell a sophisticated workstation if I can't get it to work reliably." If these problems are solved, Peterson believes the Amiga can be a good workstation, but the bottom line is that an Amiga product must be profitable.

How do new features get added to the *Sculpt* line? According to Peterson, Byte by Byte and Graham get hundreds of letters requesting enhancements to the program. Graham tries to distance himself from the features in other 3-D products on the theory that if he's forced to come

up with an alternative idea, it might be better. Often, the most difficult problem with adding a new feature is finding a way to integrate it with the existing user interface.

Maintaining consistency is important but can be balanced by the benefits of a new feature. These concerns were paramount in creating the Mac version of *Sculpt*, because the Mac market is very sensitive about interfaces that don't resemble other Mac programs.

VideoScape 3D

Among 3-D programs, *VideoScape 3D* is the most animation-oriented. Programmer Allen Hastings wanted a program for making computer movies. Using quick and simple polygon shading methods, it can generate large numbers of frames very quickly and compress them using the ANIM-file method.

When it was first released by Aegis Development in March 1987, *VideoScape* had only rudimentary object editing. Objects had to be created by hand in a text editor or with simple object-creation tools called *Egg* and *Oct*. Later, a companion object editor called *Modeler 3D*, written by Stuart Ferguson, joined the Aegis product line. *Modeler* can build objects, camera and object-motion files for *VideoScape*.

The future for Aegis products by Hastings and Ferguson looks dim, due to an impasse in their negotiations with Aegis. However, Aegis's support for *VideoScape* hasn't stopped. The company plans to release a product called *ProMotion*, a set of tools for designing *VideoScape* motion files, giving effects such as gravity, wind direction, and magnetic force.

Hastings is now developing a 3-D program for NewTek. It uses the frame buffer of the Video Toaster to produce broadcast-video images. According to NewTek Vice President Paul Montgomery, the company hasn't officially announced this product, but Hastings has shown some of its images in the NewTek booth at shows.

Silver and Turbo Silver

Impulse was formerly known as a Macintosh software and hardware company, most notably for the MacNifty audio digitizer. In early 1986, company president Mike Halverson saw the *Juggler* animation on a computer network. He was so impressed by the demo that within

James Robinson on VideoScape 3D

Not content with short and flashy demo animations, James Robinson of Mount Prospect, Illinois, is intent on making a full-length movie with *VideoScape 3D*. For the past year and a half, he has been creating models for the film, tentatively called *Automated Light*. The film is set on the planet Mars and in outer space.

"Do something more than 15 or 20 minutes long, and you've got to make a lot of models," said Robinson. "They're basically props, like in a movie." Using *Modeler 3D*, the object editor designed for use with *VideoScape*, Robinson has created hundreds of models and sets for the movie. All the objects have the same basic decorative style and have specific color palettes to compose the mood and setting.

Although he has already rendered several thousand frames, Robinson considers these only test animations for the movie "in order to get the choreography right." Some of his test animations have been distributed as public domain demo-disk sets.

To perfect a scene, he moves the camera around in it and then refines the objects by adding more detail. *Modeler* serves a dual purpose here: It can also create camera and object-motion paths for *VideoScape*. His level of detail is astounding. For example, in the walls of one spaceship cockpit, there are indentations that contain miniature wire-frame objects that rotate. The end result makes it look as if there are holographic computer display screens in the walls.

Using *DeluxePaint*, he can adjust the color palette of a sample frame. This demonstrates one reason why Robinson prefers *VideoScape* to other 3-D packages. Once a color palette is chosen and a sample frame is rendered to his satisfaction, he knows that the rest of the animation will have perfect exposure. He wouldn't have this precise control if he used *Sculpt 4-D* or *Turbo Silver*.

While creating an object, he must consider the camera angles from which it will be viewed, avoid-

ing overlaps and intersections that will look incorrect when viewed at certain angles. The extra effort pays off in rendering time, according to Robinson. "It takes longer to build the models to work cleanly in this mode. But when it's done, they are rendered a lot faster. The extra time

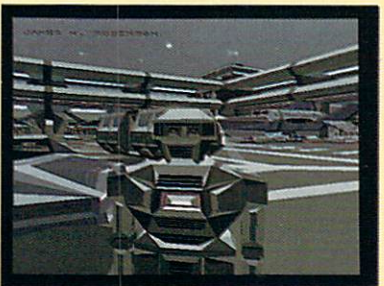


you spent is easily made up in the savings in rendering time." For example, the cockpit mentioned above contains more than 3500 polygons, but it is rendered in about 35



seconds.

"*VideoScape* lets you do a lot of neat little tricks like that," Robinson explained. One example is the way he takes advantage of *VideoScape*'s hierarchical object controls.



Inside a spaceship, a certain sequence has 30 levels of hierarchical control. A robot walks into the room, sits in a chair, and picks up

an object. By making the robot a part of the hierarchy below the chair, when the chair is rotated, all other parts of the robot are automatically rotated in the same direction. The robot, named Tellarc, is the star of the film. It has more than 20 separate levels, so it can rotate its arms, its legs, and its torso in realistic ways.

Obviously, managing this many levels of motion is very difficult. Robinson uses a very strict system for naming object parts and camera-motion files, and he stores them in subdirectories.

Another trick involves the use of negative scaling to make blinking lights on the sides of spaceships. First, he creates two polygons of the same shape, pointing in different directions. One is dark; the other is light. By scaling these polygons by -1 during the course of an animation, the polygons appear to change places, creating an effect like a blinking light.

For postproduction editing, Robinson uses Sparta Software's *ANIMagic* software. It allows him to edit ANIM files and introduce special effects, such as fades, shutters, and color cycling. Changing an animation's color palette can turn a daylight scene into night, allowing Robinson to reuse sequences in ways impossible with conventional film or video.

After a sequence is perfected, he copies it to movie film, frame by frame, with a Beaulieu movie camera. "This gives me the best of both worlds," according to Robinson. "It gives me the clean quality of RGB images, plus I get fantastic storage and frame-by-frame access to my films."

What will he do with the finished animation? The answer came quickly. "Show it. Show off the Amiga computer and what can be done on the system. I'm doing this right now for fun," he said. "*Modeler* and *VideoScape* have proved to be a very reliable and powerful combination. Together, they helped me turn a dream into reality—which was to build a universe and then take everyone along for a ride through it."

—J.F.

two weeks he decided to change the course of the company toward the Amiga. Impulse sold the digitizer to another Macintosh company. Halverson talked with Eric Graham, but it was apparent that Graham was deeply involved in negotiations with other companies.

Believing this kind of software could be written by someone other than Graham, Halverson went to the physics and computer-science departments at the University of Minnesota. "We asked them if they knew a wirehead who could write this stuff. It seemed like a logical place to go." Why didn't he hire an established Amiga programmer? "It's my opinion that the Amiga programmer community is kind of uncreative. Why aren't there 20 programs like *Turbo Silver*? The Amiga is a video machine, not a desktop publishing machine."

The first versions of *Silver* were written by Don Sidoroff, followed by Zach Knutson on *Turbo Silver* 3.0. *Silver* 1.0 was first released in October 1986, at the first AmiEXPO in New York City. In November 1987, *Silver* 2.0 shipped; it was more like today's *Turbo Silver* than *Silver* 1.0. Finally, *Turbo Silver* 3.0 arrived in January 1988.

What was the driving force behind the evolution of *Turbo Silver*? According to Halverson, it was all the people who bought it. "Everybody's helped it, even Byte by Byte has helped it. We're trying very hard to understand what the user wants. We can't deliver everything. People wanted IFF wrapping and 24-bit rendering, for example, so we gave it to them."

How has Byte by Byte helped *Turbo Silver*? Halverson explained. "The competition between *Sculpt* and *Turbo Silver* has been nothing but good for both products. Some people like the *Sculpt* editor better than ours, and I think that's wonderful." Using the *InterChange* program from Syndesis, 3-D users can create an object in one program and convert it to a second program's format for final rendering or further editing.

Voicing concerns similar to those of other 3-D developers, Halverson hopes Commodore's marketing will improve. "They haven't addressed the whole video market. Roughly 87 percent of homes in the U.S. have 1.6 VCRs. A lot of those people have camcorders, too. They aren't paying attention to the obvious. There is a market that

interfaces to all that hardware, like guys doing weddings and baby videos, and people at home who spend \$2,000 on a VCR. That's almost the price of the Amiga 2000, but they don't know about the Amiga. Here's an enormous market; why aren't they addressing it? We don't have *Microsoft Word* on the Amiga, so why try to compete in that market? They should be like Joe Isuzu, driving past the IBM store and yelling, 'Ask them if it has realtime animation.' This would make things better for everybody, not just Impulse."

In the future, Impulse hopes to break the *Turbo Silver* system into separate modules. Halverson hopes the first two modules will be available early in 1990. The first is an object editor that shows the objects in a natural perspective, similar to the way *Caligari* does. "People like the projection that it uses, so we're making our modeler like that," said Halverson. He expects the modules to sell for about \$300 each. The second module will compose object motions in new ways, using such procedures as tweening and morphing.

Caligari's interface is dedicated to immersing the user in the 3-D environment.

Along with the common desire for a faster, more powerful machine, Halverson would like to see the elimination of the HAM video mode. "Although it's interesting, it's what's holding back the machine. You can't get enough colors on the screen to make realistic images. It's funny, HAM pushed the machine to the forefront a few years ago, but now it's holding the machine back. Frankly, we're bored to death, just as everyone else who does graphics software must be. We've pushed the envelope to its limits. The software

Update

Since this feature was written, we have been informed of the following changes regarding the products and companies mentioned here.

The Amiga *Sculpt* series is now distributed by Centaur Software.

Aegis has been acquired by Oxi. As of this writing, the fate of *VideoScape* 3D is unknown.

might get more creative in the future, but we've done as much as we can do with the final output."

Instead, he hopes Commodore will add more colors at higher resolutions and restore the composite-video output jack on the back of the Amiga. "If the machine doesn't go in that direction, the Amiga will be relegated to being a game machine," he said.

Impulse is considering entering the Macintosh market. According to Halverson, if the company does, it would be with a \$300 rendering program based on the *Turbo Silver* technology. The program won't be an object editor. Instead, it will accept objects made by other Macintosh 3-D programs. "There are enough programs out there that generate objects, so there's no reason to make another object editor," Halverson said.

Who's Next?

A share of the future of Amiga 3-D belongs to the newcomers, the products released in recent months. It remains to be seen if these products become as popular as the stalwart *Sculpt*, *Turbo Silver*, and *VideoScape*.

MindWare's *PAGErender* holds great potential, being the first 3-D product with strong *ARexx* programming abilities. Along with a traditional object-creation interface, users can create objects from programs written with the *ARexx* language interpreter.

Progressive Peripherals has been working on a modeling and animation program tentatively known as *3-D Pro*, written by the same programmers as its *Animation Station* ANIM-editing software. Some programs make the leap from public domain to commercial software, as Incognito's *Opticks* ray tracer has done.

Other new programs may come from across the ocean. Gold Disk's *Design 3-D* is a translation of a French program known as *CAO 3-D*. West Germany's *MasterCAD* is an example of a program that hasn't seen North American distribution. "Programs like these may prove to be the future of Amiga animation." ▲

John Foust is an Amiga Resource columnist and a busy feature writer for COMPUTE! Publications and other magazines. His company, Syndesis, produces the popular Interchange program, which allows 3-D objects to be transferred between Turbo Silver, Sculpt 3-D, VideoScape 3D, and other formats.

U.S. ORDERS ONLY:
(INCLUDING CA)

800-872-8882

CUSTOMER SERVICE
OR ORDER STATUS:

213-214-0000

4453 Redondo Beach Blvd., Lawndale, CA 90260 ■ Mon-Sat 8am-6pm PST ■ FAX: 213-214-0932

ANNOUNCING:

THE CREATIVE COMPUTERS VIP CLUB

JOIN THE CREATIVE COMPUTERS VIP CLUB
AND YOU WILL BECOME ELIGIBLE FOR:

- 5% off on all software (discounted from our already SUPER-LOW prices).
- Incredible SAVINGS on many hardware items.
- A FREE newsletter subscription to "The Creative Edge."
- A FREE Creative Computers Amiga T-Shirt.
- PRIORITY handling of YOUR orders.
- PRIORITY notification on all SPECIAL DEALS, BLOW-OUT SPECIALS, and CLEARANCE ITEMS.
- FREE Federal Express or UPS second day shipping (at our option) on software orders over \$100 (within the continental United States).

A one-year membership costs you only \$50. You can save many times that amount with just one order!! To enroll, call our toll-free number today with your credit card number handy.

HOW TO GET A FREE MEMBERSHIP

If you order from Creative Computers before January 31st, 1990:

1. Any one order totaling \$200 or more in software only, or
2. Any one order totaling \$1000 or more of any product(s).

You will receive a free membership in Creative Computers' VIP Club -- a \$50 value!!! (For a \$200 order \$50 is a 25% savings!!!) Creative Computers' VIP Club could save you hundreds and hundreds of dollars on future orders.

TAKE ADVANTAGE OF THIS SPECIAL OFFER TODAY!

HARDWARE

AMAS MIDI SAMP./A1000	129.95
AMAS MIDI SAMPLER	129.95
AMERISTAR ETHERNET	799.00
AMI-X10	49.95
AMI-X10 W/HW/SOFT	114.95
AMI-X10 W/HW/A1000	114.95
AMIGA MUSIC PACK	179.95
AMISEN GENLOCK	149.00
AMPLIFIED SPEAKERS	84.95
APRODRAW 12x12	494.95
APRODRAW 12x12 W/CUR.	499.95
APRODRAW 6x6	379.95
APRODRAW CURSOR	49.95
APRODRAW GENDER CHIRN	99.95
AVANT EFAX-88	699.00
CANON SCANNER IX-12	1049.00
CHEETAH KEYBOARD	199.00
CMV MIDI 1 (EXT)	59.95
CMV MULTIPORT BOARD	195.95
COLOR SPLITTER	89.95
CSA DRASPRINT	649.00
CSA FASTTRACK ACCEL	799.95
DESKJET 128K RAM CRT	117.95
DESKJET PLUS PRINTER	699.00
EASY 500/1000/2000 TABLET	369.00
ECE MIDI 1000	49.95
ECE MIDI 500/2000	49.95
EXP-1000/1MB FOR A500	399.00
GENLOCK ADAP. FOR ABOVE	39.95
FRAMESHARPER	539.00
FRAMESHARPER/256 GRAY	599.00
FUTURE SOUND 500	93.95

FUTURE SOUND A1000	129.95
GEN-ONE GENLOCK	699.00
GVP 68030/68225 AMB.	249.95
GVP AUTODRAW EPROM	79.95
GVP IMPACT 2/ZMB SCSI	279.00
GVP IMPACT 2/ZMB SCSI	599.00
GVP IMPACT HC/0	249.00
GVP IMPACT HC/100	1199.00
GVP IMPACT HC/400	695.00
GVP IMPACT HC/800	1095.00
GVP IMPACT HC/800/500	1199.00
GVP RAM/ROM MOD W/ZMB	349.00
GVP RAM/ROM MODULE	69.95
INS SCAN 500/2000	199.95
IMPRINT LIQUID LIGHT	349.00
INTRUDER ALERT	124.00
LEASERJET 2 RAM 1MB	419.95
LENS 16MM NO IRIS	23.95
LENS 16MM W/IRIS	66.25
LIVE! 500	319.00
LIVE! 1000	279.00
LIVE! 2000	399.00
MAC EPROMS 128K	149.95
MAGNI 4004S GENLOCK	1595.00

**NEXT DAY
SERVICE—
AVAILABLE
UPON
REQUEST.**

**FEDERAL
EXPRESS**

GRAPHICS

XEROX 4020 PRINTER	1140.00
XEROX 4020 STARTER KIT	150.00
ZOOM 2400 B&W MODEM	139.95

MUSIC

3 DEMON	71.95
30 OPTIONS	32.45
ACAD TRANSLATOR	139.95

AGSIS DRAW 1.4	52.95
AGSIS DRAW 2000	181.95
ALPHA FONTS 1-3 (EA)	12.95
ANALYTIC ART	37.48
ANIMAGIC	51.95
ANIMATION ROTOSCOPE	51.95
ANIMATION STATION	64.95
ANIMATOR'S APPRENTICE	189.95
ANIMATOR'S EDITOR	38.95
ANIMATORS EFFECTS	32.46
ANIMATORS MULTIPLE	58.95
ANIMATORS STAND	32.46
ANIMOTION	62.95
ART COMPANION	19.95
ART GALLERY 1 & 2	25.95

**AMAX MAC
EMULATOR
FOR THE AMIGA!**
AMAX Emulator \$139
Mac 128K EPROMS \$149
AMIG-a-TOSH 880K floppy
disk drive \$179
COMPLETE PACKAGE!
All the above only \$429

ART GALLERY FANTASY	23.36
ASAS CALLIGRA FONTS	58.95
BROADCAST TITLER	194.95
BUTCHER 2.0	25.95
C LIGHT	38.95
CD PARTS 4 INTRODUC	16.95
CALIBRI CONSUMER	164.95
CALIBRIGRAPH	84.95
CHROMA PAINT	259.00
CITYEDGE COMPANION	19.95

**The LARGEST International Dealer
of AMIGA Products in the WORLD!
OVER 1600 ITEMS**
The best NEW products • The LOWEST PRICES
NEW PRODUCTS ARRIVE DAILY. CALL FOR UNLISTED ITEMS.

CLIP ART #1-8 (EA)	12.95
COMIC SETTER	64.95
COMICSETTER FUNNYFONT	25.95
COMICSETTER HERO DATA	25.95
COMICSETTER SF DATA	25.95
DELUXE MAPS	16.95
DELUXE PAINT III	19.95
DELUXE PHOTO LAB	99.95
DELUXE PRODUCTIONS	139.95
DELUXE DISK EA	22.74
DESIGN 3D	64.95
DESKTOP ARTIST	18.95
DISKWORKS 3D	84.95
DIRECTOR THE	45.95
DIRECTORS TOOLKIT	74.95
DOUG'S COLOR COMMANDER	19.95
DOUG'S MATH AQUARIUM	51.95
DOUG'S MATH AQUA. LIB	9.95
EXPRESS PAINT 3.0	90.95
FANCY 3D FONTS	46.95
FANCY 3D FONTS SILVER	51.95
FANTAVISION	42.95
FLOOR PLAN LIB. AEGIS	59.95
FLOOR PLAN LIB. IFF	39.95
FOCUS VIDEO	119.95
FOUNTAINS	64.95
FOUR WORDS	64.95
FOUNDATION/FRAME LIB.	59.95

GALLERY 3-D	51.95
GOLDEN PLOT SET #1	21.95
GRABIT	25.95
GRAPHICS STARTER KIT	64.95
HAM MANDEL	25.95
HAMANDER PRO V3.0	59.95
HOME BUILDERS CAD	129.95
HOME BUILDERS CHOICE	52.95
HOMETOWN USA	25.95
ICON MAGIC	49.95
INT. DESIGN LIB AEGIS	59.95
INT. DESIGN LIB. IFF	39.95
INTERCHANGE	32.46
INTERCHANGE TSLV MODL	18.95
INTERFONTS	77.95
INTROCAD	49.95
INVISION PLUS	139.95
JET SET FONT SET	32.50
KARA FONTS HEADLINES	51.95
KARA FONTS HEADLINES	47.95
KARA FONTS BUREAUX	47.95
LIGHT BOX	119.95
LION'S CALLIGRA FONTS	58.95
MASTERSOFTS 3D VOL. 1	24.95
MASTERSOFTS FONTS	169.95
MODELER 3D	65.00
MOVIE SETTER	64.95
MY PAINT DATA DISK #1	19.95
NEWSLETTER FONTS COLOR	29.95
OPTICS	69.95
PAGE TO DISK	31.23
PAGE FLIPPER PLUS V/FA	109.95
PAGE RENDER 3D	94.95
PAGE STREAM FONTS (EA)	25.95
PERFORMER (ELAN)	38.95
PHOTON CELL ANIMATOR	99.95
PHOTON PAINT EXP. DESK	19.95
PHOTON TRANSPORT	195.95
PHOTON TRANSPORTER	194.95
PIXIMATE	45.95
PRINT MASTER ART #1	18.73
PRINT MASTER ART #2	18.73

PRO FONTS 1	22.95
PRO FONTS 2	22.95
PRO FONTS VOL. 1 (EA)	22.95
PRO VIDEO GOLD	184.95
PRO VIDEO PLUS	184.95
PROFESSIONAL DRAW	129.95
PURE COLOR	18.95
RESEF	47.95
STARSHIPS 2050 SCULPT	32.46
STARSHIPS 2050 TSLV	32.46
STRUCTURED CLIP ART	38.95
STUDIO FONTS VI	29.95
TALISPIN	72.46
TALKING ANIMATOR	36.95
TATE FONTS	51.95
TERRAIN FOR TURBOSILV	19.95
TURBO SILVER 3.0	129.95
TV SHOW	64.95
TV TEXT	59.95
TV-TEXT PROFESSIONAL	139.95
VIDEO EFFECTS 3D	129.95
VIDEO PAGE	89.95
VIDEO VISIONS 1-2 (EA)	12.95
VIDEOSCANE 3D	124.95
VIDEOSCANE UTIL.	99.95
XCAD DESIGNER	24.95
XCAD PROFESSIONAL	299.00
ZETROPE	89.95
ZUMA FONTS 1-4 PACK	68.95
ZUMA FONTS VOL. 1-4 (EA)	22.95

PRO FONTS 1	22.95
PRO FONTS 2	22.95
PRO FONTS VOL. 1 (EA)	22.95
PRO VIDEO GOLD	184.95
PRO VIDEO PLUS	184.95
PROFESSIONAL DRAW	129.95
PURE COLOR	18.95
RESEF	47.95
STARSHIPS 2050 SCULPT	32.46
STARSHIPS 2050 TSLV	32.46
STRUCTURED CLIP ART	38.95
STUDIO FONTS VI	29.95
TALISPIN	72.46
TALKING ANIMATOR	36.95
TATE FONTS	51.95
TERRAIN FOR TURBOSILV	19.95
TURBO SILVER 3.0	129.95
TV SHOW	64.95
TV TEXT	59.95
TV-TEXT PROFESSIONAL	139.95
VIDEO EFFECTS 3D	129.95
VIDEO PAGE	89.95
VIDEO VISIONS 1-2 (EA)	12.95
VIDEOSCANE 3D	124.95
VIDEOSCANE UTIL.	99.95
XCAD DESIGNER	24.95
XCAD PROFESSIONAL	299.00
ZETROPE	89.95
ZUMA FONTS 1-4 PACK	68.95
ZUMA FONTS VOL. 1-4 (EA)	22.95

MUSIC

AUDIOMASTER	37.48
AUDIOMASTER II	64.95
DELUXE MUSIC 2.0	69.95
DR. TS (COMPLETE LISTING)	CALL
DYNAMIC DRUMS	51.95
DYNAMIC STUDIO	139.95
FRACAL MUSIC	12.95
INSTANT MUSIC 1.2	17.95
LIFE CYCLES AMIGA	19.49
MIDI MUSIC	139.95
MASTER TRACKS PRO	259.95
MIDI MAGIC	97.95
MIDIVU	29.95
MUSIC MOUSE	52.95
PRO MIDI STUDIO	139.95
SAMPLEWARE: DIGITAL/8888	64.95
ORCHESTRA/ROCK (EA)	16.95
SONIX	49.95
SOUND OASIS	64.95
SOUNDLAB	209.95
SOUNDCAPE UTIL. I	35.95
SOUNDCAPE UTIL. II	42.95
SOUNDCAPE PATTERN SPLT	35.95
SOUNDXTRAX VOL. 1-2 (EA)	14.95
STARSTUDIO SAMPLER	99.95
STUDIO MUSIC	84.95
SYNTHIA	249.95
SYNTHIA PROFESSIONAL	249.95
ULTIMATE SOUNDTRACKER	25.95
ZOUND SOUNDS VOL. 1	21.95

PROGRAMMING & UTILITIES

64 EMULATOR 2/4/1000	49.95
64 EMULATOR -EDUC	49.95
AC BROWSER	129.00
AC FORTAN	199.00

ACCESS 64/A1000	57.29
AM KIT	25.95
AMBI ALIGNMENT SYSTEM	32.46
AMIGA DOS TOOLBOX	38.95
AMIGA LISP	59.95
ANTI-VIRUS	25.95
AREXX	32.95
ASSEMBLY	71.95
ATLAK III	91.95
ATREDES (BBS)	97.95
AZTEC C PROFESSIONAL	129.95
BAUD BANNIT	29.95
INTERCHANGE	32.46
INTERCHANGE TSLV MODL	18.95
INTERFONTS	77.95
INTROCAD	49.95
INVISION PLUS	139.95
JET SET FONT SET	32.50
KARA FONTS HEADLINES	51.95
KARA FONTS HEADLINES	47.95
KARA FONTS BUREAUX	47.95
LIGHT BOX	119.95
LION'S CALLIGRA FONTS	58.95
MASTERSOFTS 3D VOL. 1	24.95
MASTERSOFTS FONTS	169.95
MODELER 3D	65.00
MOVIE SETTER	64.95
MY PAINT DATA DISK #1	19.95
NEWSLETTER FONTS COLOR	29.95
OPTICS	69.95
PAGE TO DISK	31.23
PAGE FLIPPER PLUS V/FA	109.95
PAGE RENDER 3D	94.95
PAGE STREAM FONTS (EA)	25.95
PERFORMER (ELAN)	38.95
PHOTON CELL ANIMATOR	99.95
PHOTON PAINT EXP. DESK	19.95
PHOTON TRANSPORT	195.95
PHOTON TRANSPORTER	194.95
PIXIMATE	45.95
PRINT MASTER ART #1	18.73
PRINT MASTER ART #2	18.73

PRO FONTS 1	22.95
PRO FONTS 2	22.95
PRO FONTS VOL. 1 (EA)	22.95
PRO VIDEO GOLD	184.95
PRO VIDEO PLUS	184.95
PROFESSIONAL DRAW	129.95
PURE COLOR	18.95
RESEF	47.95
STARSHIPS 2050 SCULPT	32.46
STARSHIPS 2050 TSLV	32.46
STRUCTURED CLIP ART	38.95
STUDIO FONTS VI	29.95
TALISPIN	72.46
TALKING ANIMATOR	36.95
TATE FONTS	51.95
TERRAIN FOR TURBOSILV	19.95
TURBO SILVER 3.0	129.95
TV SHOW	64.95
TV TEXT	59.95
TV-TEXT PROFESSIONAL	139.95
VIDEO EFFECTS 3D	129.95
VIDEO PAGE	89.95
VIDEO VISIONS 1-2 (EA)	12.95
VIDEOSCANE 3D	124.95
VIDEOSCANE UTIL.	99.95
XCAD DESIGNER	24.95
XCAD PROFESSIONAL	299.00
ZETROPE	89.95
ZUMA FONTS 1-4 PACK	68.95
ZUMA FONTS VOL. 1-4 (EA)	22.95

PRO FONTS 1	22.95
PRO FONTS 2	22.95
PRO FONTS VOL. 1 (EA)	22.95
PRO VIDEO GOLD	184.95
PRO VIDEO PLUS	184.95
PROFESSIONAL DRAW	129.95
PURE COLOR	18.95
RESEF	47.95
STARSHIPS 2050 SCULPT	32.46
STARSHIPS 2050 TSLV	32.46
STRUCTURED CLIP ART	38.95
STUDIO FONTS VI	29.95
TALISPIN	72.46
TALKING ANIMATOR	36.95
TATE FONTS	51.95
TERRAIN FOR TURBOSILV	19.95
TURBO SILVER 3.0	129.95
TV SHOW	64.95
TV TEXT	59.95
TV-TEXT PROFESSIONAL	139.95
VIDEO EFFECTS 3D	129.95
VIDEO PAGE	89.95
VIDEO VISIONS 1-2 (EA)	12.95
VIDEOSCANE 3D	124.95
VIDEOSCANE UTIL.	99.95
XCAD DESIGNER	24.95
XCAD PROFESSIONAL	299.00
ZETROPE	89.95
ZUMA FONTS 1-4 PACK	68.95
ZUMA FONTS VOL. 1-4 (EA)	22.95

MUSIC

AUDIOMASTER	37.48
AUDIOMASTER II	64.95
DELUXE MUSIC 2.0	69.95
DR. TS (COMPLETE LISTING)	CALL
DYNAMIC DRUMS	51.95
DYNAMIC STUDIO	139.95
FRACAL MUSIC	12.95
INSTANT MUSIC 1.2	17.95
LIFE CYCLES AMIGA	19.49
MIDI MUSIC	139.95
MASTER TRACKS PRO	259.95
MIDI MAGIC	97.95
MIDIVU	29.95
MUSIC MOUSE	52.95
PRO MIDI STUDIO	139.95
SAMPLEWARE: DIGITAL/8888	64.95
ORCHESTRA/ROCK (EA)	16.95
SONIX	49.95
SOUND OASIS	64.95
SOUNDLAB	209.95
SOUNDCAPE UTIL. I	35.95
SOUNDCAPE UTIL. II	42.95
SOUNDCAPE PATTERN SPLT	35.95
SOUNDXTRAX VOL. 1-2 (EA)	14.95
STARSTUDIO SAMPLER	99.95
STUDIO MUSIC	84.95
SYNTHIA	249.95
SYNTHIA PROFESSIONAL	249.95
ULTIMATE SOUNDTRACKER	25.95
ZOUND SOUNDS VOL. 1	21.95

PROGRAMMING & UTILITIES

64 EMULATOR 2/4/1000	49.95
64 EMULATOR -EDUC	49.95
AC BROWSER	129.00
AC FORTAN	199.00

72.9	BECKER TEXT	89.95
72.9	BEST BUSINESS BUDGET	52.95
74.48	BEST BUSINESS WMTY	52.95
75.95	BEST GENERAL LEDGER	52.95
75.95	BLACK ROCK	32.50
59.95	BUDGETEER	23.46
75.95	BUTTON & BADGE MAKER	38.95
75.95	CELEBRITY COOKBOOK	38.95
49.97	CITY DESK	39.95
75.95	CYGNUS ED PROF	64.95
75.95	DATA RETRIEVE	54.95
75.95	DATA RETRIEVE PROFESS	211.95
75.95	DELUXE PAPER	52.95
49.95	DESIGNER DRAPE BUSI	25.95
49.95	DESIGNER DRAPE HOME	25.95
49.95	DESKTOP BUDGET	45.95
49.95	EASY LEADERS	189.95
49.95	FAMILY TREE	32.46
49.95	FLEET CHECK	25.95
47.95	FLOW	62.37
49.95	FORMATION	45.95
49.95	GOLD SPELL II	29.95
49.95	HAIRCUT SPREAD SHEET	30.95
49.95	HOME FRONT	64.95
46.48	IMPACT	64.95
46.48	INVESTOR'S ADVANTAGE	64.95
50.50	KINDWORDS	28.85
49.95	LEXCHECK	28.85
49.95	LOTTO PAD GENERATOR	119.95
49.95	MACINTOSH FILER PLUS	16.48
49.95	MICROWELDER	37.95
49.95	MIDI-MICE	55.95
49.95	MOMENTUM CHECK	19.95
49.95	MOMENTUM MAIL	19.95
49.95	MAC PLUS 3.0	99.95
49.95	NUMBUS	99.95
49.95	NORSEN GENEALOGICAL	37.40
49.95	NUTRIFAX	32.46
49.95	ORGANIZE	129.95
49.95	PAGE STREAM	72.97
47.95	PAPERMASTER SPECIAL ED	24.95
49.95	PEN PAL	89.95
49.95	PHASAR	59.95

VISA, MasterCard, American Express, Discover, International Phone and Mail Orders, Educational, Corporate and Aerospace Purchase Orders Accepted. WE CAN BEAT ANY ADVERTISED PRICE! BUT WE SELDOM HAVE TO—OUR PRICES ARE THE LOWEST! (IF YOU SEE A LOWER PRICE ON AN ITEM, GIVE US A CALL.)

INTELLITYPE	35.95	BETTER DEAD THAN LIVE	21.95
KIDTALK	27.95	BEYOND ZORK	33.95
KINDERAMA	31.95	BIONIC COMMANDO	25.97
LEARNING CURVE	51.95	BLACK CAULDRON	28.00
LEARNING THE ALPHABET	25.95	BLACK LAMP	25.95
LINKWORD (COMPLETE LISTING)	11.95	BLACK MAGIC	22.95
LITTLE RED WEN	19.95	BLACK SHADOW	22.95
LOTTO PROGRAM	19.95	BLITZKRIEG (1 Meg VR)	38.95
MAGICAL MYSTNS	31.95	BLOCKBUSTER	32.48
MAGIANS DUNGEON	22.95	BLOCKOUT	25.95
MASTERING CLI	25.95	BLOOD MONEY	25.95
MATCH IT	25.95	BLOODWYCH	32.48
MATH MAGICIAN	27.49	BOBO	23.35
MATH TALK	27.95	BOMB BUSTER	21.95
MATH TALK FRACTIONS	27.95	BOOMBAZ	25.95
MATH WIZARD	32.48	BREACH SCENARIO DISK	16.95

WE RECOMMEND:



By MICRO-SYSTEMS Software
 ■ WYSIWYG wordprocessor
 ■ Spell-as-you-type
 ■ Thesaurus
 ■ Grammatical/style checker
 ■ Postscript support
 ■ Color graphics
 ■ Macro language

LIMITED TIME OFFER \$139.95

MATH ANIMATION	64.95
MAVES BEACON TYPING	34.95
MOTHER GOOSE	19.95
MUSIC STUDENT	37.95
PHOTOGRAPHY	97.95
PLANET PROBE	36.95
PRE CALCULUS	36.95
PROBABILTY THEORY	36.95
PUNCTUATION SERIES	19.48
PUZZLE STORYBOOK	27.95
QUİZAM	23.10
REACH FOR THE STARS	27.95
READ & RYME	31.95
READ A-RAMA	31.95
RYTHMING NOTEBOOK	27.95
THE ROCK CHALLENGE	25.95
RR ASSAULT FABLES	19.95
RR LITTLE RED WEN	19.95
RR THREE LITTLE BEARS	19.95
RR THREE LITTLE PIGS	19.95
RR DUCKLING	19.45
SMOOTH TALKER	33.95
SPELLBOOK	25.95
SPELL BOOK	27.95
SPELLING IMPROVEMENT	25.95
TALKING FROM ARABIAN NT	32.48
TALKING COLORING BOOK	18.95
TRANSCONT. RAILROAD	36.95
TRIGONOMETRY	36.95
TRUBESANT ANTHEM	45.95
TYPING TUTOR W/ INV.	22.95
UNCLE D CONSPERATION	25.95
UNCLE D'S DATA DISK I	19.95
VOCAB. IMPROV. TUTOR	19.95
WHERE IN THE WORLD	31.95
WORD MASTER	32.48

GAMES

4 IN ONE	18.68
4TH & 6THS CONSTRUCT	9.95
4TH AND 6THS	29.95
ACTION AMIGA	30.95
ACTION FIGHTER	25.95
ACTION SERVICE	25.95
AFRICAN RAIDERS	25.95
AFTERBURNER	32.48
AIRBALL	25.95
ALIEN LEGION	32.95
ALIEN SYNDROME	32.48
ALTERNATE REALITY	27.95
AMIGA KARATE	24.95
ANDROMEDA MISSION	25.95
ANKLE OF BONE	24.95
APB	25.95
ARABLAST	23.95
ARAZAK'S TOMBS	31.25
ARCADE ACTION PACK	34.95
ARCHIPLEGAS	25.95
BATTLE OF BONE	31.95
ARKANOID	19.95
ARTHUR	32.48
AUSTON	32.48
AUTO-ARTIC	25.95
AUTOBIOGRAPHY	25.95
BAD	22.95
BAD DUDES	29.95
BALANCE OF POWER:1990	34.95
BALLISTIX	22.95
BARBARIAN	25.95
BARBARIAN II	25.95
BARO'S TALE	17.95
BARO'S TALE HNT DISK	13.95
BARO'S TALE II	41.95
BATHN	32.48
BATTLE CHIEF	32.48
BATTLE HAWKS	38.95
BATTLE SHIP	34.95
BATTLE SQUADRON	23.95
BATTLETECH	32.48

BYTE BY BYTE

DISTRIBUTED BY CENTAUR SOFTWARE

SCULPT ANIMATE 4D JR. \$89.95
 Create, render and animate solid objects with the same easy-to-use interface as 4D (no ray-tracing).

SCULPT ANIMATE 4D \$350
 The most sophisticated and powerful 3D animation and ray-tracing software available on ANY PERSONAL COMPUTER!
 IT'S ALSO THE EASIEST TO USE!

SCULPT 3DXL \$99.95
 Create and render ray-trace objects with the speed and power of 4D.



FUED	12.95	LEGEND OF DUEL	32.48
GALACTIC CONQUEROR	29.95	LEISURE SUIT HINTDISK	12.95
GALAXY FIGHT	9.95	LEISURE SUIT LARRY	25.95
GALOREGONS DOMAIN	25.95	LEISURE SUIT LARRY II	32.48
GAMES WINTER EDITION	32.48	LEONARDO	29.95
GAUNTLET II	25.95	LICHENHILL	22.95
GEMINI WIND	25.95	LIGHT FORCE	25.95
GETTYSBURG TURN POINT	40.95	LOMBARD RAC RALLY	25.95
GOLD OF THE REALM	25.95	LORDS OF THE RING SUN	29.95
GOLD RUSH	25.95	LOST DUTCHMAN MINE	32.48
GOLDEN PATH	29.95	MAJON MOTION	25.95
GRAND MONSTER SLAM	25.95	MAN HUNTER—NEW YORK	32.48
GRAND PRIX CIRCUIT	29.95	MARION MANSION	34.95
GRAND SLAM TENNIS	31.25	MARBLE MADNESS	33.00
GRETZKY HOCKEY	32.48	MASTER NINJA	30.95
		MEAN 18 COURSE DISK 2	14.95
		MEAN 18 GOLF	24.95
		MELANGE	19.95
		MICKY MOUSE	25.95
		MIGHTY NERD	32.48
		MIND ROLL	19.95
		MISSION CON-BAT	31.16
		MOEBIUS	25.95
		MOTOR MASSACRE	24.95
		MOUSE QUEST	14.95
		NIGHT DAWN	19.95
		NIGHTWALK	25.95
		NINJA MISSION	30.95
		OBILITERATOR	25.95
		OFFSHORE WARRIOR	25.95
		OGRE	32.48
		OMEGA	32.48
		OMNI PLAY BASKETBALL	32.48
		ONE ON ONE	14.95
		OOZE-CREEPY NITES	32.48
		OPER. CLEAN STREETS	25.95
		OPERATION NEPTUNE	32.48
		OPERATION WOLF	22.95
		OUT RUN	32.48
		P.O.W.	25.95
		PACMAN	25.95
		PACMAN II	25.95
		PALADIN—QUEST DISK I	16.88
		PAPERBOY	32.48
		PANTASIE 3	27.95
		PANTASIE 4	22.95
		PIONEER FLAME	25.95
		PIPE DREAM	28.95
		PLANET OF LUST	25.95
		PLATOON	29.21
		PLUTOS	19.95
		POCKET ROCKETS	25.95
		POKER SOLITAIRE	32.48
		POPULUS	34.95
		POPULUS DATA DISK #1	19.95
		POWERDOME	25.95
		POWERSTX	22.95
		PRIME TIME	25.95
		PRISON	25.95
		PRO SOCCER	29.95
		PROSPECTOR	29.95
		PURPLE SATURN DAY	22.48
		QIR	32.48
		QUADRAH	19.95
		QUESTOR II	32.48
		QUINTETTES	29.95
		RAMBO II	25.95
		RAMPAGE	25.95
		REAL GHOSTBUSTERS: TH	32.48
		REALM OF THE MARLOCK	22.74
		REBEL CHARGE AT GUN	30.95
		RED LIGHTNING	41.95
		REEL FISHIN'	30.95
		RENEGADE	22.95
		RETURN TO ATLANTIS	34.95
		RETURN TO GENESIS	22.95
		REVENGE OF DEFENDER	22.95
		RINGSIDE BOXING	22.95
		ROAD RAIDERS	25.95
		ROADWARR 2000	27.47
		ROADWARR EUROPA	29.95
		ROBBERTY	19.95
		ROBOCOP	32.95
		ROCKET RANGER	32.48
		ROLL OUT	22.95
		ROMANTIC ENCOUNTER	25.95
		RUNNING MAN	32.48
		RUT ROMAN	22.95
		SARGON III	35.95
		SAVAGE	32.48
		SCENERY DISKS	CALL
		SCORPION	25.95

creative COMPUTERS

SCARBLE	27.48	SUPERMAN	32.48	WHITE DEATH	38.95
SOI—CHINAWARE GAME	34.95	SUPERSTAR ICE HOCKEY	32.48	WHO FRAMED ROGER RAB	29.97
SECRETS DUNGEON MASTR	9.95	SWORD OF SODAM	32.48	WILLOW	25.95
SEX VIXENS FROM SPACE	25.95	TANKS OF TWILIGHT	34.95	WINTER GAME	27.48
SHADOW GATE	31.95	TANK ATTACK	19.95	WORLD GAMES	27.48
SHADOW OF THE BEAST	34.95	TARGAN	25.95	WORLD SNOOKER & OTHER	19.95
SHANGHAI	27.48	TECHNOPOP	32.48	WORLD TOUR GOLF	27.45
SHERLOCK	27.00	TEENAGE QUEEN	25.95	XENON 2: MEGALAST	34.95
SHOGUN	38.95	TERRORPOOS	25.95	ZAK MCRACKEN	30.95
SHUFFLEPUCK CAFE	25.95	TESTORIVE II	29.95	ZANY GOLF	17.95
SIDE ARMS	25.95	TETRA QUEST	25.95	ZERO GRAVITY	19.48
SILENT SERVICE	25.95	TETRIS	22.95	ZOOM	21.95
SIMCITY	29.95	THE DEEP	32.48	ZORK THILBY	47.95
SINBAD & THE SWORD	29.95	THEXER	25.95	ZORK ZERO	38.95
SLIP BLASTER	19.95	THREE STODGES	32.48	ZYNAPS	23.95
SKY CHASE	28.95	THUNDER BLADE	32.48		
SKYFOX II	27.48	THUNDERBOY	22.95		
SLEEPING GODS LIE	32.48	TIGER ROAD	25.95		
SLIP STREAM	19.95	TIME & MAGIC	25.95		
SOLITAIRE ROYALTY	22.95	TIME BANDETS	25.95		
SPACE HARRIER	32.48	TIMES OF LORE	25.95		
SPACE QUEST	32.48	TITAN	29.95		
SPACE QUEST II	32.48	TOM & JERRY	22.95		
SPACE QUEST III	39.95	TOTAL ECLIPSE	25.95		
SPACE RACER	19.48	TOWER TOPPLER	32.48		
SPACE SCHOOL SIM	25.95	TRAD VOLUME 2	48.95		
SPEEDBALL	25.95	TRIANGO	29.95		
SPHERICAL	25.95	TRINITY	25.95		
SPITTING IMAGE	25.95	TRIPLEX	25.95		
STAR COMMAND	33.95	TRUMP CASTLE	25.95		
STAR WARS	25.95	TURBO	17.95		
STAR WARS TRILOGY	48.95	TV SPORTS FOOTBALL	34.95		
STARFLEET	39.95	TWILIGHT ZONE	25.95		
STARGLIDER II	25.95	TWILIGHT'S RANSOM	19.95		
STARGOOSE	25.95	ULTIMA II	28.95		
STEEL	25.95	ULTIMA IV	38.95		
STEINER	36.95	UNIS CIVIL WAR DATASDK	12.95		
STELLAR CONFLICT	28.95	UNIVERT	25.95		
STELLAR CRUSADE	27.95	UNIVERSAL MILITARY SM	32.48		
STOCK MARKET-THE GAME	16.95	UNIVERSE 3	32.95		
STREET CAT	16.95	VAMPIRE'S EMPIRE	29.95		
STREET FIGHTER	25.95	VEGAS GAMBLER	24.95		
STREETSPORTS BASKETBALL	13.95	VIDEO VEGAS	25.95		
STRIP POKER DATA #4	12.95	VIGILANTE	25.95		
STRIP POKER DATA #5	12.95	VINDICATORS	25.95		
STRIP POKER II	25.95	VIRUS (GAME)	19.95		
SUMMER CHALLENGE	19.95	WANDERER	25.95		
SUPER 8	29.95	WAR IN MIDDLE EARTH	38.99		
SUPER MANG-O	14.95	WARLOCK	22.71		
SUPERIOR GOLF KIT	9.95	WESTERN GAMES	22.95		
		WHERE IN THE U.S.A.	32.48		

ACCESSORIES

WE CARRY A TON OF ITEMS NOT LISTED HERE DUE TO SPACE RESTRICTIONS. PLEASE CALL FOR MORE INFORMATION. CABLES—MOST CABLES AVAIL CALL CLEANING KIT 14.95 COPY/CAMERA STAND 64.95 CURTIS DISK FILE 30/40/50 CALL DESKJET BLK CARTRIDGE 15.95 DISKETTES, 50 PACK 64.95 DUST COVER (COMPLETE LISTING) CALL FLICKER MASTER 13.95 KEYBOARD SKIN AS50/1000 13.95 MOUSE MATS 6.95 LASERJET HP 1MB EXP 379.00 LASERJET HP 2MB EXP 769.00 LASERJET HP TONER/BK 79.95 LIGHT GUN, PHASAR 48.95 MOUSE MASTER 29.95 TRACKBALL, AMTRAC 74.95 PAINTJET BLK CARTRIDGE 23.60 PAINTJET COLOR CRTDGE 29.10 PAINTJET CUP PAPER 19.10 SONY COLOR DISKETTES 22.95 TRACKBALL MOUSE STYLE 39.95 TRACKBALL, AMTRAC 74.95 WICO 3-WAY JOYSTICK 25.95 WINNER JOYSTICK 14.95 ZOOMER JOYSTICK 49.95

BOOKS/VIDEOS & MAGAZINES

WE CARRY A COMPLETE LINE OF AMIGA RELATED BOOKS, INSTRUCTIONS, VIDEOS, TAPES AND MAGAZINES. PLEASE CALL FOR MORE INFORMATION.

FREE SHIPPING!*

CREATIVE COMPUTERS is both a mail order company with a store's support and three store showrooms with mail order prices. Visit one of our showrooms today. You'll be amazed!

3 RETAIL SHOWROOM LOCATIONS TO SERVE YOU

SANTA MONICA & WESTSIDE: 318 Wilshire Blvd., Santa Monica, CA 90401. Tues.-Sat. 11-7 p.m./Sun. 11-5 p.m./Phone: 213-394-7779.
LAWDALE & SOUTH BAY: 4453 Redondo Beach Blvd., Lawndale, CA 90260. Mon.-Sat. 11-7 p.m./Phone: 213-542-2292.
VENTURA, OXNARD & SANTA BARBARA: 2112 E. Thompson Dr., Ventura, CA 93001. Tues.-Sat. 11-7 p.m./Phone: 805-652-0325.

7 REASONS WHY YOU SHOULD SHOP AT CREATIVE COMPUTERS:

1. We're the largest dealer of Amiga products in the World. Now with even larger facilities and twice the staff!
2. Three store locations means excellent support.
3. Our new mini-computer assures you:
 - Immediate customer service and order status.
 - Advanced inventory control/ordering minimizing back orders and delays.
4. Best service center, anywhere!
5. Uniform low pricing and largest selection, no hidden costs or catches.
6. U.S. and International TOLL-FREE ordering!
7. We don't charge you cart until the product ships.

CUSTOMER SERVICE: For tech support call 213-542-2292 from 11 a.m. to 7 p.m. PST.

*SHIPPING INFO: No surcharge for Visa/MasterCard; 4% surcharge for American Express; 1% surcharge for Discover. Shipping within the continental United States for software orders over \$100 (U.S.) is FREE. Call for all other shipping information. Educational, corporate and aerospace purchase orders accepted.



RETURN POLICY: Call Customer Service at (213) 214-0000 for return authorization. All returns without authorization number (RMA#) will be refused. Returned products must be in original condition and packaging and be sent back within 30 days of our invoice date. No refunds, please. Defective product exchanges only. We make no guarantees for product performance.

CONDITIONS: Prices and availability of products are subject to change without notice.

MAIL-IN ORDERS: Send money orders or cashiers check for fast service. (Personal checks — up to 10-days to clear.) Include: name, address and telephone number. If ordering by credit card, include expiration date and billing address. Call for exact shipping rates.

INTERNATIONAL TOLL-FREE PHONE NUMBERS: Orders only please. Minimum order for Canada \$100— all other international countries \$200. Canada 1-800-548-2512; Italy 1678-74086; United Kingdom 0800-89-1178; France 19-0590-1099; Japan 0031-11-1351; Australia 0014-800-125-712; Netherlands 06-022-8613; Norway 050-12029; Denmark 0434-0297; Switzerland 046-05-3420.

INSIDE THE 500

EVER WONDER
HOW YOUR 500
WORKS OR WHAT
IT LOOKS LIKE WITH
ITS CASE OFF? THIS
PHOTOGRAPHIC
JOURNEY INSIDE
THE AMIGA
REVEALS ALL.

Dan Shein

What makes your Amiga tick?

Hidden inside the 500's plastic case is a powerful ensemble of hardware. To find it, you have to remove the computer's six Bristol flute-screws, pry apart the plastic case's two side latches, unplug and lift out the keyboard, disconnect a grounding wire from the disk drive, take out more screws, bend several metal tabs, and remove the metal shielding

that encases the motherboard—and this is exactly what we did.

What follows is a complete description of what's inside the Amiga 500, where the major components are located and what their main functions are—in other words, what makes your Amiga tick. (Don't let Intuition creator R. J. Mical fool you: Your computer does not run on blue smoke.)

The Amiga's Brain

The brain of any home computer is its CPU (Central Processing Unit). It's here that most of the computer's data processing takes place. The Amiga 500 uses the 68000 CPU, a commercially available "off the shelf" chip designed by Motorola. It is the same microprocessor used by the Atari ST, Macintosh Plus, and Macintosh SE.

The 68000 chip is mounted on the left edge of the 500's circuit board near the expansion bus. Some people replace their 68000 with the newer 68010 for a 5-percent speed increase. It's also possible to upgrade to a 68020 (the same chip found in the Amiga 2500's accelerator board).

Memory: Chip vs. Fast

All computers rely on some form of RAM (Random Access Memory) to store data and execute instructions, and the Amiga is no exception. Found in the lower left corner of the motherboard are 16 RAM chips, each providing 32K of storage for a total of 512K. With Commodore's A501 RAM expander, you can add another 512K and increase your RAM to one megabyte. (Future Amiga 500s are being designed to hold one megabyte of RAM on the motherboard—no expansion module will be necessary.)

Amiga RAM can be classified as either *chip* or *fast*. Chip RAM is the memory that is accessible by both the 68000 CPU and the Amiga's custom chips. This is the only RAM that the custom chips can use, thus the name *chip* RAM. (The 512K of RAM found on the 500's motherboard is all chip RAM.) Fast RAM is usually defined as anything that is not chip RAM. Generally, fast RAM takes less time to access because the 68000 microprocessor does not have to share it with the custom chips.

Custom Chips

Almost all Amiga owners have heard of the computer's custom chip set. These specially designed components give the Amiga its creative edge, providing most of the spectacular sound and graphics capabilities that make the computer so popular with artists, musicians, and game aficionados.

The Amiga 500 contains four custom chips: Agnus, Denise, Paula, and Gary. You may be wondering just what it is that makes these chips *custom*. Most of today's computers

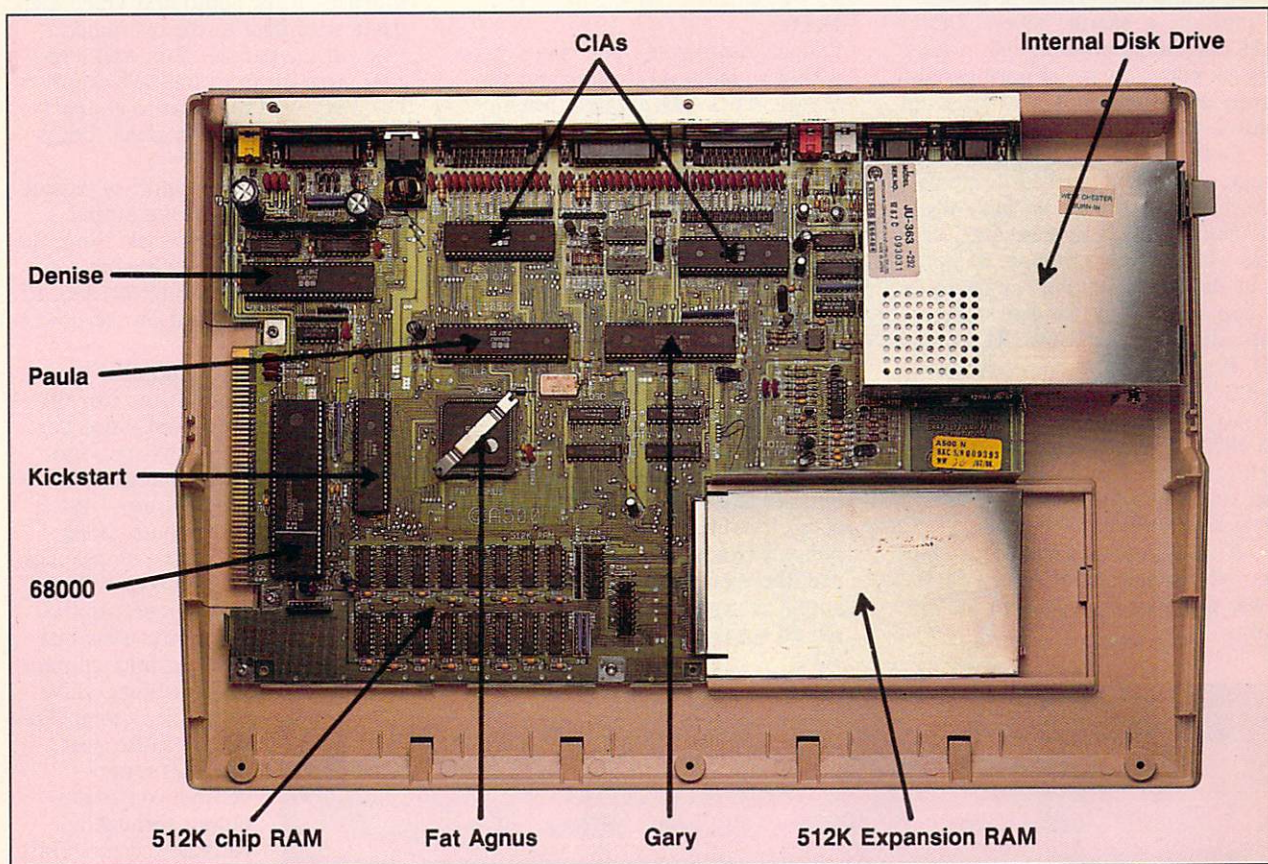
use a set of commercially available chips—components available to anyone who wants them. The Amiga uses chips made by Commodore's own chip division. These chips were designed by Amiga engineers exclusively for the Amiga; no other computer uses these chips.

Three of these chips are actually coprocessor chips. A coprocessor is a separate chip that assists the main CPU (in this case, the 68000) by handling one or more specific tasks.

the *blitter* and *copper*. The blitter (block image transfer) is the part of Agnus that manipulates bitmapped data, performing such feats as quick area fills, rapid line drawing, and the movement of objects. The portion of Agnus known as the copper (for coprocessor) takes care of the screen display by executing a specialized program known as a *copper list*. Copper lists are responsible for such things as telling the computer where in RAM the screen's bitmapped im-

shipped in the Amiga 1000. It was a rectangular chip, similar to the shape of Denise or Gary. Agnus version 2 was introduced with the Amiga 500 and 2000. This version is known as the *Fat Agnus* because it has a wider, square shape. Except for its shape, however, the Fat Agnus is functionally the same chip as the 1000's Agnus.

Commodore made this shape change to prepare for the introduction of Agnus version 3, the new



Coprocessor chips are used because they can perform certain functions, such as moving graphics and playing digitized sound, better and faster than the main CPU can. And in most cases, the coprocessors perform these functions independently, allowing the CPU to continue working on something else.

Let's take a look at each of the custom chips, starting with Agnus.

Agnus

Agnus, the Amiga's animation coprocessor chip, is located near the middle-left portion of the circuit board. It contains some very important functional units, including

age is, where sprite data is located, what the current screen resolution is, and when the monitor's video beam reaches certain positions.

Agnus also contains several memory-control functions. It allows the 68000 to communicate with the RAM chips and the custom chips by acting as a RAM address generator and register address encoder. It also controls DMA (Direct Memory Access), which is a means by which different chips can read or write directly to memory without the use of the CPU.

There are three different versions of the Agnus chip. Version 1 is the original Agnus, which was

1MB Agnus. The square shape allows for more pins than the rectangular Agnus, thus giving the chip access to more address lines. In turn, this new chip can now access up to 1MB of chip RAM, whereas Agnus versions 1 and 2 can each only access up to 512K of chip RAM. Commodore is currently shipping the new 1MB Agnus in all new Amiga 500 and Amiga 2000 machines. (For those of you who own a 500 or 2000 with the older 512K Agnus, you may purchase an upgrade through your local Commodore dealer or by contacting Commodore directly at 215-436-4200. Suggested retail price for the new Agnus chip is \$130.80.)

INSIDE THE 500

Denise, Paula, and Gary

The Denise chip, found in the upper left corner of the motherboard, can be described as a video coprocessor chip. It assists the 68000 in many screen-control functions. It handles screen display and supports sprites.

The Amiga's super audio abilities are the result of Paula, the audio coprocessor chip. Paula is located near the center of the motherboard. It controls many of the Amiga's audio functions, including digital-to-analog conversions (this is what makes sound digitization possible). In addition, it handles several I/O tasks, including handling the mouse/joystick ports, the serial port, certain floppy disk operations, and interrupt control.

Gary, which sits just right of Paula, was once described to me by a Commodore engineer as "basically a glue chip." This is because Gary contains whatever Commodore couldn't fit in elsewhere. It's the Amiga's traffic cop, responsible for generating chip selects for the RAM, ROM, and I/O. It generates the /DTACK signal for the 68000 in response to DMA activity, controls the buffers between the 68000 and chip data buses, and performs some floppy disk logic as well. So as you can see, Gary glues the system together.

A final note on Gary: This chip was not in the original Amiga 1000. It was introduced along with the Fat Agnus.

boot. Kickstart ROM is found on the left side of the 500's motherboard, just right of the 68000 CPU.

The last two important Amiga chips are the CIA (Complex Interface Adapter) chips, located near the top of the circuit board. These chips perform many different functions, but their main job is to handle the I/O ports—serial, parallel, mouse/joystick—and certain disk drive functions, such as moving the drive head and selecting which drives are currently active.

Ports

Like all Amigas, the 500 is equipped with a wide range of ports and connectors. Let's take a look at each one.

Starting at the left side while facing the rear of the computer, you'll find the game ports, also known as the Controller Port Interfaces. These ports, labeled *1 Joystick* and *2 Joystick*, are female 9-pin D-type (DB9) connectors. They are normally used for mouse or joystick input, although other controllers can be used, such as trackballs, proportional controllers (paddles), and light pens (only Port 2 supports light pens).

Moving to the right, you'll find two RCA connectors used for audio output. The Amiga is unique in that it has four-channel stereo audio output. It's common for people to connect these outputs to their stereo amplifier or to two separate amplified speakers.

male DB25 connector. This port is used to interface the Amiga with RS-232C devices. Normally a modem or another computer is connected to this port. However, other devices such as a serial printer can also be connected to this port.

Right of the serial port is the parallel port, another DB25 connector, only this one is female. It's normally used to hook up parallel printers via a standard PC-style printer cable. This port can also be used for input or bidirectional data transfers. Most audio and video digitizers send data to the computer through the parallel port, and a recent program from the Software Distillery uses this port to connect two Amigas to form a small Amiga network.

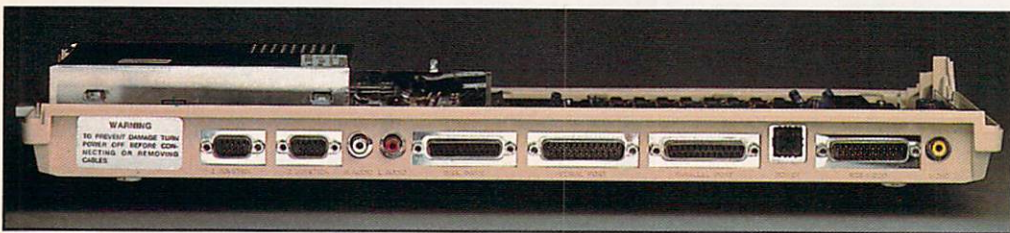
The power connector, of course, is where you connect the output from the 500's power brick. Since the 500 itself has no power switch, you must turn your computer on and off using the switch found on the power supply itself.

Video output is supplied by the last two ports found at the rear of the Amiga 500. The first video port is a DB23 connector that provides three color outputs—one for red, one for green, and one for blue—and a sync signal. These outputs, along with the Amiga's custom chips, allow the Amiga to display up to 4096 different colors on the screen simultaneously. This port is also used with genlocks and splitters (for supplying video to two monitors). The second video port provides monochrome composite output through an RCA connector. This port is great for connecting the Amiga to a VCR or an inexpensive composite monitor.

On the left side of the Amiga (facing the keyboard) is a plastic cover that hides an 86-pin expansion port. This port is a relatively straightforward extension of the 68000 bus. It's here that you connect memory expansion, hard disk controllers, and so on.

Closing the Case

Well, there you have it, a quick look inside the 500. It's not as mysterious as it might seem, even if it is hard to open. Now let's hope we can find all the screws we removed so we can put this thing back together! ▲



Kickstart and the CIAs

Another new chip that appeared with the Amiga 500 and 2000 computers was Kickstart ROM. Originally, Kickstart was available on disk only. Amiga 1000 owners still use Kickstart disks to boot their computer, inserting it into the computer prior to Workbench so that system code can be loaded into memory.

The code found in Kickstart is best described as the part of the Amiga's operating system that's needed to boot the Amiga and run any program. I say *any* program because Kickstart is required even for those commercial games that auto-

Extra floppy disk drives can be added to the 500 via the External Disk Interface Connector, located to the right of the audio jacks. It's a female DB23 connector. The Amiga can operate up to four floppy disk drives at one time (that's including the internal drive mounted above the upper right corner of the motherboard). Be warned: The 500's power supply is not strong enough to supply power to more than one external drive. A third and/or fourth drive must have its own power supply. The Amiga supports both 3½- and 5¼-inch disk drives.

Next comes the serial port, a

AMR 2-90

Order Toll Free
800-558-0003

Professional Page	167.95	Supabase Pro 3.0	189.95
Structured Clip Art	36.95	superman	67.95
Templates	36.95	superman	67.95
Profonia 1 & 2	21.95	Superstar Ice Hockey	30.95
Project D+ Backup	30.95	stunt car	25.95
Puzzle Storybook	25.95	Sword of Sodan	28.95
Quick Silver	41.95	Swords of Twilight	31.95
Ok	22.95	Targhan	24.95
Quarter Back	42.95	Teenage Ninja Turtles	28.95
Quasar Sound	34.95	Temple of Doom	31.95
Rambo III	22.95	Telris	20.95
Rampage	24.95	Text Ed Plus	48.95
Rastan	22.95	Test Drive 2 - The Duel	27.95
Raw Copy	34.95	California Chail	14.95
Red Lightning	37.95	European Chail	14.95
Renegade	22.95	Muscle Cars	14.95
Rhythming Notebook	25.95	Supercars	34.95
Rick Dangerous	21.95	Their Finest Hour	17.95
Rick Davis Soccer 1 Meg	30.95	Thinner	57.95
Ring Drive	24.95	Third Courier	28.95
Risk	24.95	Thunder Ridge	29.95
Road Challenge	24.95	Thunder Blade	29.95
Robocop	31.95	TKO	24.95
Rocket Ranger	28.95	Trailers Quest	21.95
Rogue Rabbit	28.95	Turbo Silver 3.0 1 Meg	112.95
Romance/Three Kingdoms	49.95	TV Show	64.95
RVF Honda	25.95	TV Text	64.95
Savage	21.95	TV Text Professional	99.95
Scufflepuck Cafe	24.95	Twilight's Rascal	19.95
Scriptable Platform	67.95	Typhoon of Storm	31.95
Sex Vixens-Outer Space	22.95	Ultima 4	38.95
Shadow of the Beast	30.95	Ultima III	21.95
Shark Attack	24.95	Universe 3	29.95
Shinobi	30.95	Video Effects 3-D	113.95
Scufflepuck Cafe	24.95	Video	28.95
Shogun	27.95	Videocassette SD 2.0	115.95
Sim City	28.95	Videoscapes	CAL
Sky Shark	22.95	Vid Professional	57.95
Skyline 1.2	86.95	Vista 3-D	69.95
Solitaire Royale	19.95	Vix Anime	122.95
Sorcerian	30.95	YTA Omega	51.95
Sorcerer Lord	22.95	Y Shell	23.95
Space Quest 1 or 2	30.95	War Game Construction	19.95

Star Command	31.95	Wild Streets	28.95
Star Trek: The Final Front.	34.95	Wind Walker	25.95
Stellar Crusade	36.95	Wings Of Fury	25.95
Strip Poker II	23.95	Wizard's Crown	25.95
Styx	21.95	Works Platinum, The	CAL
Super Back	48.95	X-Spex	84.95
Superbase Personal	48.95	Zak McKracken	28.95
Superbase Personal 2	87.95	Zork Zero	39.95

Circle Reader Service Number 132

LET'S FACE IT—MAIL ORDER HOUSES ARE NOT ALL THE SAME!

SOFTWARE SUPPORT INTERNATIONAL

CONVENIENCE—FAST SERVICE—RELIABILITY—SUPPORT

AMIGA AMIGA		AMIGA AMIGA	
ABACUS		BETHESDA SOFTWARE	
Amiga DOS Toolbox	36.00	Gridiron	18.00
AssemPro	60.00	Wayne Gretzky Hockey	30.00
BeckerText	30.00		
DataRetrieve	48.00	BRODERBUND	
TextPro	48.00	Carmen World	27.00
		Fantavision	36.00
ABACUS BOOKS		Sim City	27.00
Amiga Basic In & Out	19.00	Sky Chase	27.00
Amiga DOS In & Out	16.00	Space Racer	20.00
Amiga For Beginners	14.00	Stars Wars	24.00
Amiga Graphics In & Out	24.00		
Amiga Machine Language	16.00	BYTE BY BYTE	
Amiga Tricks & Tips	16.00	Sculpt 4D Jr.	90.00
Amiga Programmers Guide	25.00		
Amiga Drives In & Out	22.00	CENTAUR	
Comp Disks all books	ea 13.00	B.A.D.	30.00
ACADEMY SOFTWARE		CENTRAL COAST	
Typing Tutor	21.00	Disk 2 Disk	30.00
		Dos 2 Dos	33.00
ACCESS		Quarterback	42.00
World Class F.C. #1	15.00		
Leaderboard Dual Pak	21.00	CINEMAWARE	
W.C. Leaderboard	27.00	Darkside	24.00
		Deathbringer	24.00
ACCOLADE		Defender of The Crown	30.00
Bubble Ghost	21.00	King of Chicago	15.00
California Challenge	15.00	Lords of The Rising Sun	32.00
Fast Break	27.00	Rocket Ranger	32.00
Fourth & Inches	12.00	Sinbad	15.00
Fourth & Inches Team	12.00	Speedball	26.00
Grand Prix Circuit	27.00	The Kristal	32.00
Handball	27.00	Three Stooges	32.00
Mean 18	27.00	Total Eclipse	24.00
Mean 18 F.C. vol2	15.00	TV Sports Football	32.00
Super Cars Disk	15.00		
Test Drive	27.00	COMPUTE! BOOKS	
Test Drive-II	27.00	1st Book of the Amiga	14.00
		2nd Book of the Amiga	14.00
ACTIONWARE		Advanced Amiga Basic	14.00
Actionware Phasar Gun	39.00	Amiga Applications	14.00
Capone	24.00	Amiga Programmers Guide	16.00
P.O.W.	24.00	Beginners Guide/Amiga	14.00
Prison	24.00	Elementary Amiga Basic	13.00
		Inside Amiga Graphics	15.00
ACTIVISION		Kids & the Amiga	13.00
Rampage	24.00	ML Programming Guide	16.00
		Using Amiga DGS	14.00
AEGIS DEVELOPEMENT		CREATIVE LABELS	
Aegis Starter Kit	30.00	3 1/2" Disk Labels	1.00
Azarak's Tomb	10.00		
Audio Master 2	60.00	CREATIVE MICROSYSTEMS	
Impact	54.00	Mid1 Interface	61.00
Lights, Camera, Action	48.00	Processor Accelerator 500	125.00
Modeler 3D	60.00	Processor Accelerator 2000	168.00
Ports of Call	13.00	V-I 500 Interface	51.00
Sonix	48.00	V-I 500RF Interface	63.00
Video Titrer	90.00		
		DATA EAST	
AMERICAN COVERS		Bad Dudes	27.00
Amiga 500 Dust Cover	10.00	Batman	27.00
Amiga 1000 Dust Cover	15.00	Robocop	30.00
Amiga 2000/2500 Dust C.	15.00		
1010 Drive Dust Cover	8.00	DATASHARE	
1020 Drive Dust Cover	8.00	Modem Cable (1000)	13.00
		Modem Cable (500/2000)	14.00
ANCO		Printer Cable (1000)	13.00
Highway Hawks	21.00	Printer Cable (500/2000)	14.00
		DESIGN LAB	
ANTIC		Fine Print	30.00
GFA Basic 3.0	84.00	DESIGNWARE	
Phasar V3	54.00	Designsaurus	30.00
Pioneer Plague	24.00		
Zetroppe	84.00	DIGITEK	
		Hole in One Min. Golf	24.00
ARTWORX		Hole in One Data #3	15.00
Bridge 5.0	21.00	Hollywood Poker	21.00
Centerfold Squares	18.00		
Linkword Spanish, French, Italian, German	18.00	DISC COMPANY	
or Greek	ea 18.00	Kind Words v2	60.00
Strip Poker-II	24.00		
S.P. Data #4 & #5	ea 15.00	DISCOVERY	
		Ankanoid	18.00
ASDG		Grabbit	18.00
Cygnus Ed Pro	60.00	Hybris	24.00
FACC-II	21.00	Sword of Sodan	30.00
		V.I.P.	30.00
BAUDVILLE		Zoom!	18.00
Award Maker Plus	30.00		
Award Maker Sports	18.00	EAGLE THREE	
Dream Zone	30.00	Butcher	24.00
Video Vegas	21.00	Distant Armies	27.00
ELECTRA		EPYX	
Better Dead Than Alien	21.00	4x4 Off Road	15.00
		Axe of Rage	30.00
ELECTRONIC ARTS		BattleShip	18.00
Bards Tale-II	38.00	Cathedral Games	30.00
Bards Tale-II Hints	10.00	Death Sword	18.00
Chessmaster 2000	29.00	Destroyer	15.00
Deluxe Photolab	95.00	Final Assault	15.00
Deluxe Paint-III	95.00	Impossible Mission-II	15.00
Deluxe Music Construction	63.00	Space Station Oblivion	15.00
Earl Weaver Baseball	30.00	Street Sports Basketball	15.00
Earl Weaver Comm. Disk	15.00	Street Cat	18.00
Empire	32.00	Sub Battle Simulator	15.00
F.A-18 Interceptor	30.00	Techno Cop	30.00
Ferrari Formula I	32.00	The Games Winter Edition	30.00
Mavis Beacon	32.00	Tower Toppler	30.00
Populus	32.00		
Zany Golf	26.00	ETHOS	
		Casino Fever	24.00
LUCASFILM		Poker Solitaire	21.00
Battlehawks 1942	30.00		
Indy Jones Crusade (Arcade)	25.00	FIRST ROW	
Zak McKracken	27.00	Prime Time	24.00
		Twilight Zone	24.00
MAGNETIC IMAGES		FREE SPIRIT	
Gold of the Realm	24.00	Amikit Drive Align	30.00
MASTERTRONICS		FTL	
Double Dragon	26.00	Dungeon Master	24.00
War in Middle Earth	30.00	Dungeon Master Hints	12.00
MICRODEAL		GAMESTAR	
Devpac v2	60.00	GFL Championship F.B.	15.00
Fright Night	24.00		
Hisoft Basic Pro	96.00	GOLD DISK	
Major Motion	24.00	ComicSetter	60.00
Slip Stream	18.00	ComicSetter Art Superheroes	21.00
Time Bandit	24.00	ComicSetter Art Science Fic.	21.00
		ComicSetter Art Funny Figures	21.00
MICROILLUSIONS		Desktop Budget	42.00
Black Jack Academy	24.00	Denaris	24.00
Craps Academy	24.00	Font Set-I	21.00
Faerytale Adventure	30.00	Gold Spell-II	27.00
Faerytale Hints	9.00	LaserScript	27.00
FirePower	18.00	MovieSetter	60.00
Photon Paint v2	90.00	PageSetter	90.00
Romantic Encounters	24.00	Professional Draw	120.00
Turbo	15.00	Professional Page	180.00
		Transcript	42.00
MICROPROSE		IMPULSE	
Carrier Command	27.00	Evil Garden	24.00
Elite	30.00	Turbo Silver	120.00
Gunship	33.00		
Rick Dangerous	30.00	INCOGNITO SOFTWARE	
Silent Service	15.00	Footman	24.00
		Kingdoms of England	27.00
MINDSCAPE			
Action Fighter	24.00	INFOCOM	
Alien Syndrome	24.00	Arthur: Quest for Excalibur	30.00
Balance of Power 1990	30.00	Battletech	30.00
Captain Blood	30.00	Journey	30.00
Deja Vu	30.00	Shogun	30.00
Deja Vu II	30.00	Zork Zero	36.00
Gauntlet II	30.00		
Harrier Combat Simulator	30.00	INTERPLAY	
Hostage	27.00	Battle Chess	30.00
Indoor Sports	30.00		
Indy Jones Temple of Doom	24.00		
Out Run	30.00		
Road Raider	24.00		
Shadowgate	30.00		
Space Hammer	30.00		
Superstar Ice Hockey	30.00		
Thunder Blade	30.00		
Uninvited	30.00		
		PSYGNOSIS	
MINDWARE		Baal	18.00
Aunt Arctic Adventure	24.00	Ballistix	21.00
		Barbarian	24.00
NEW HORIZONS		Blood Money	24.00
Pro Write 2.5	75.00	Captain Fizz	18.00
		Menace	18.00
NEWTEK		Obliterator	24.00
DigiPaint 3	60.00	Shadow of the Beast	30.00
DigiView Gold	138.00	Terrorpods	24.00
OMNITREND		READYSOFT	
Breach	24.00	64 Emulator-II(500-2000)	48.00
Breach Scenario Disk1	18.00	64 Emulator-II(1000)	48.00
Paladin	24.00	Dragons Lair	36.00
Paladin Quest Disk1	18.00	Scary Mutant Space Aliens/Mar	24.00
Universe 3	30.00		
		SIERRA	
ORIGIN		Gold Rush	24.00
Autoduel	33.00	Manhunter	30.00
Meobius	33.00		
Times of Lore	24.00	SOFT LOGIK	
Ultima-II	27.00	Page Stream	120.00
Ultima-IV	39.00		
		SPECTRUM HOLOBYTE	
PRACTICAL SOLUTIONS		Falcon	30.00
Mouse Master	27.00	Falcon Missions	15.00
		Scenary Royale	21.00
PRECISION		Tetris	21.00
Superbase Personal-I	48.00		
Superbase Personal-II	90.00	STRATEGIC SIMULATIONS	
Superplan	90.00	Demons Winter	26.00
		Heroes of the Lance	26.00
PROGRESSIVE PERIPHERALS		Heroes of the Lance Hints	8.00
Baud Bandit	30.00	Phantasia-III	26.00
CLI-Mate	24.00	Queston-II	32.00
Diskmaster v1.3	30.00		
DR Term Pro	60.00	SUBLOGIC	
Dunlap Utilities	48.00	Flight Simulator-II	30.00
Intro CAD	48.00	Scenery Disk #7	20.00
PIX-Mate	42.00	Scenery Disk #9	20.00
		Scenery Disk #11	20.00
		Scenery Disk Western Europe	20.00
		Scenery Disk Japan	20.00
		Jet with Japan Scenery	30.00
		SUPRA	
		2400 Supra Modem	120.00
		SYBEX BOOKS	
		Amiga Handbook vol1	19.00
		Amiga Handbook vol2	19.00
		Amiga Programmer's G.	19.00
		TAITO	
		Bubble Bobble	21.00
		Operation Wolf	21.00
		Qix	21.00
		Rambo III	21.00
		Renegade	21.00
		THREE SIXTY	
		Dark Castle	27.00
		Warlock	21.00
		TITUS	
		Crazy Cars	16.00
		F40 Pursuit Simulator	27.00
		Fire & Forget	24.00
		Galactic Conqueror	27.00
		Off-Shore Warrior	24.00
		T.S.R. HUTCHINSON	
		Flicker Master	15.00
		UNISON WORLD	
		Printmaster Plus	30.00
		Art Gallery 1	18.00
		Art Gallery 2	18.00
		Art Gallery 3	18.00
		Fonts & Borders	21.00
		WILLIAM S. HAWES	
		AREXX	30.00
		WShell	30.00
		WORDPERFECT CORP.	
		Wordperfect	144.00
		Wordperfect Library	78.00
		ZUMA GROUP	
		TV Show	60.00
		TV Text	60.00
		Zuma Fonts Volumes 1-4	ea 21.00



PLEASE READ BEFORE ORDERING: We accept money orders, certified checks, VISA, M.C. and Discover. Previous Software Support customers may use C.O.D. and personal checks. Orders shipped to U.S.A. (48 states), F.P.O., A.P.O., or possessions, please add \$3.50 per order for S & H. U.S. shipping is by UPS ground in most cases. FAST 2nd DAY AIR available: add \$1.00 per pound additional (U.S. 48 states only). Alaska or Hawaii (all orders shipped 2nd day air), please add \$7.50 per order for S & H. C.O.D. available to U.S. customers only (50 states); add \$2.75 along with your S & H charges per order. Canadian customers may calculate the S & H charges by including \$4.00 (minimum charge) for the first two pieces of SOFTWARE and \$1.00 for each additional piece per shipment. All monies must be submitted in U.S. funds. Canadians must call or write for hardware shipping charges. Foreign customers must call or write for shipping charges. Defective items are replaced at no charge if sent postpaid. All in stock orders are processed within 24 hours. U.S. SOFTWARE orders over \$100 will be shipped 2nd Day Air at our regular \$3.50 S & H charge (48 states only). Washington residents please add 7.6% additional for Sales Tax. All prices subject to change. All sales are final unless authorized by management.

Mail your order to: Software Support, Int.
2700 NE Andresen Road / Vancouver, WA 98661

Or call our toll free order line at
1 800 356 1179 6am-5pm Monday Friday
Pacific time
Technical support available Call
(206) 695 9648 9am-5pm Pacific time
Monday Friday
Orders Outside USA call (206) 695 1393

Circle Reader Service Number 153



DEALERS — WE HAVE THE SUPPORT YOU'RE LOOKING FOR!

GLOBEWATCH

Keith Ferrell

Investigating the International Amiga Market

For a fast-and-furious three weeks, our features editor jetted around the world in search of Amiga news. Here's what he found.

English Enthusiasm

England, long a bastion of 8-bit, cassette-based computing, has embraced the 16-bit age and, at its heart, the Amiga. Nowhere was that more evident than in London, in the crowded aisles of October's Personal Computer Show. The first few days of the show are devoted to the business community; the final days are open to the public, attracting crowds measured in the tens of thousands.

The show, one of Europe's key computer exhibitions, offered Commodore a chance to strut its stuff. And Commodore took advantage of it. With a booth that seemed to stretch for acres, the company touted the Amiga's versatility. Separate wings showed off the computer's abilities at education, business, creativity, and entertainment. The multitasking, multi-purpose exhibit matched Commodore's current campaign to present the Amiga as a sort of computer for all seasons.

That approach earned a somewhat wintry response from the business community at the show, however. Many attendees I spoke with felt that Commodore is doing too much, too late. There's a sense that the Amiga is being marketed too broadly—not even the Amiga can be all computers to all people.

Additionally, there was a noticeable absence of software for some of the applications. Instead of educational software, for example, Amiga's potential as an employee training machine was hyped. That sort of application generally requires custom software, and one has to wonder how many professional installations are willing to acquire both Amigas and a staff to write software for the machines. On the business front, Commodore's solid line of PCs captured more attention than its sexier and more powerful line of Amigas.

On the entertainment side of the show, however, it

was quite a different story. That point was clearly made by the fact that the business wings of the Commodore booth could be freely traveled, but you had to pay admission to enter the game wings (proceeds went to an English charity). The entertainment wing was crowded; the business wing was not.

In England, as virtually everywhere else on earth, the Amiga is seen as the preeminent interactive vehicle, bar none. A solid Amiga product might sell as many as 50,000 copies in the United Kingdom (about the same as in the United States, which has almost four times the population). All the major software companies are developing for the Amiga and, judging by products on display at the show, all of them are giving it their very best efforts.

Some of the companies are familiar to North American readers. Psygnosis unveiled its latest, *Shadow of the Beast*. Not only does the game boast graphics and scrolling that are likely to set standards, the package comes complete with a T-

shirt! It's not every company that will give you the shirts off their backs.

Amidst a host of new releases, Grandslam Entertainment sees renewed life for one of its old games, *Hunt for Red October*, an expected benefit from renewed interest accompanying the release of the movie early this year. (Speaking of movies: Ocean Software's huge booth was mostly Batman. Look for a software version soon.)

The strength of the U.K. Amiga market was confirmed by the number of American firms making strong showings at the show. Activision's U.K. arm was there, as were those of MicroProse, Origin, Mindscape, and others. As far as entertainment goes, the Amiga is already a successful transatlantic machine. Right-oh!

How universal is the Amiga? It depends on what corner of the universe you're in.

High Marks (but Lower Sales) in Germany

With aggressive promotions, solid sales, and an exuberant market, West Germany has offered Commodore the brightest spot on its corporate map over the past few years. German sales of the Amiga, some analysts claimed, were all that kept Commodore from deeper

financial trouble than it experienced.

Even as the company comes out swinging with a new marketing campaign in the States, though, something has gone wrong with the German market. Reporting on Commodore's anticipated first-quarter losses, the

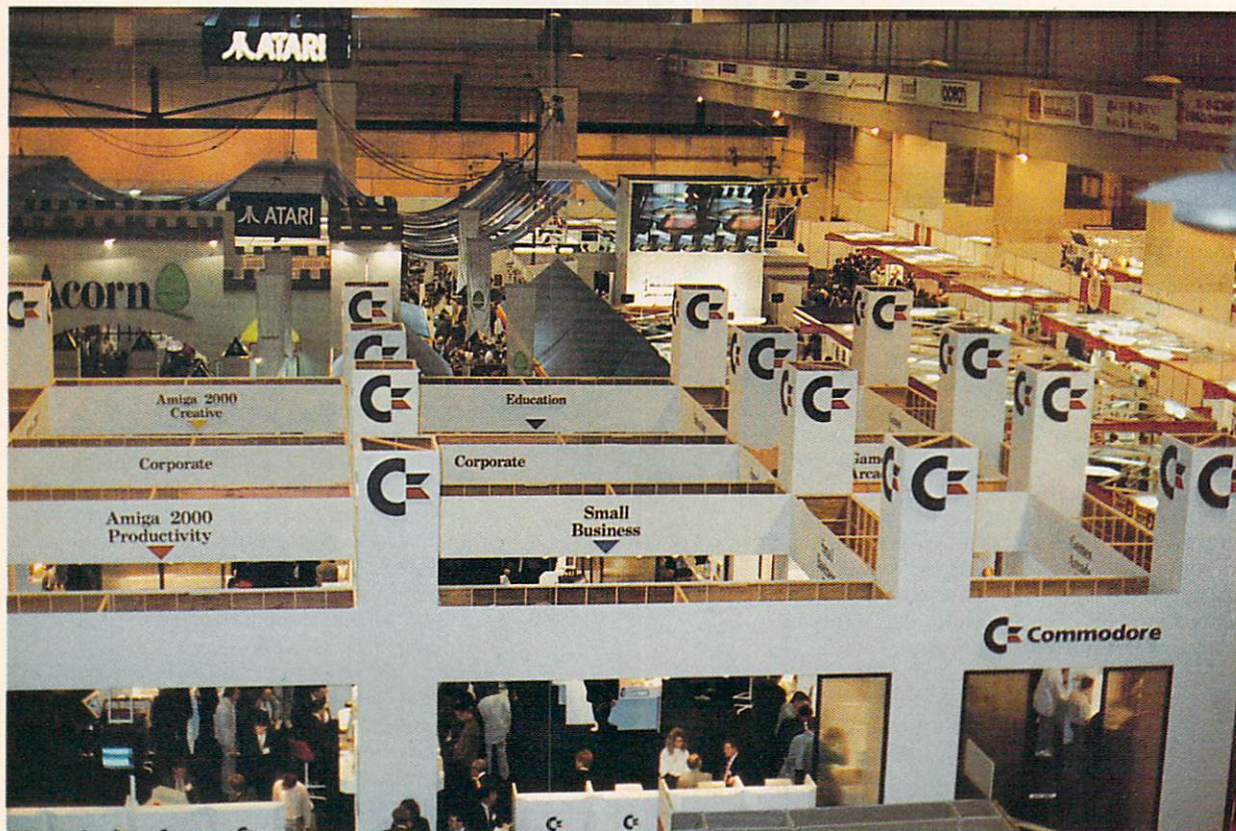
Wall Street Journal noted that, even in West Germany, Amiga sales are dropping.

The villain? Inexpensive PC clones is my guess, although there are rumors of problems in the distribution channel. Still, the PC is as ascendant in West Germany as everywhere else. Some analysts feel that, by this time next year, the PC will have eclipsed the Amiga as the top personal computer in West Germany.

The downturn hasn't stopped German game developers, although there are some unusual challenges involved in developing for the German market. The government's tight restrictions on violence (MicroProse's *Gunship* was labeled pornographic) place severe restric-

tions on content. Developers must seek innovative ways of providing excitement without crossing the government-drawn bounds of acceptable taste.

Rainbow Arts is a good example. The Düsseldorf-based developer was showing *Oil Imperium*, a game that takes the high-stakes international oil industry as its venue. The game is fast-paced and exciting but uses currency rather than bullets to deliver its bang. Also upcoming from Rainbow Arts is *East vs. West: Berlin 1948*, a political-intrigue game that uses an audiocassette to add clues and details. Then there's *X-Out*, an arcade game which, according to Rainbow's Marc Ullrich, "has the biggest moving enemy ever on an Amiga!"



Commodore's multipurpose booth was one of the largest at England's Personal Computer Show.

Flat in France

Ask a French software publisher about the French Amiga market, and you're likely to receive a Gallic shrug worthy of Chevalier. There is no French Amiga market, I was told by several distributors—at least no bigger a market today than there was a year ago. A successful Amiga product in France might sell as few as 2000 copies. (Still, that's better than the Commodore 64 market, where a hit is measured in the hundreds!) France is PC territory, dominated by Amstrad.

The slow market hasn't stopped French developers, although they count on foreign sales for the bulk of their business. Chief among the French software houses is UBI Soft, which debuted three ambitious and different products at the London PC Show.

Pro Tennis looked, at first glance, to be as good a

tennis game as I've seen on the Amiga, or on any other computer for that matter. Realistic graphics and animation, as well as a good feeling for the rhythm of tennis, make this one a standout. *Iron Lord* is an ambitious role-playing game.

Then there's *B.A.T.*, which stands for *Bureau Affaires Temporal*, a hugely ambitious time-travel game on three crowded disks; it lets you voyage up and down the time continuum, encountering different cultures and problems. The preliminary version I saw at the PC Show was polished and impressive.

UBI Soft's games will be appearing in the United States early this year, distributed by Electronic Arts.

As far as future growth in the French market for Amigas goes, one can, in the French manner, only shrug. ▶



Hand-held digital cameras—smaller cameras for smaller hands than the ten-foot model shown here—are big business in Japan. They could provide a big opportunity for the Amiga.

No Sunrise in Japan

In Japan, everyone seems to know the Amiga, but few seem to know where to find one.

According to the editor of one of Japan's leading computer magazines, the country is filled with "Amiga maniacs." His magazine—*Log-In*—devotes a few pages every issue to coverage of Amiga hardware and software, and those pages earn an enthusiastic if not maniacal reader response.

It's easy to understand why. Japanese personal computers are dull. The leading computer is NEC's 9801, a PC-like machine with a proprietary operating system; it's essentially an MS-DOS computer, and it performs like one. Then there's Fujitsu's FM-TOWNS, a new 16-bit computer with a built-in CD-ROM drive; unfortunately, there's little software available for the FM-TOWNS. Farther down the CPU food chain, you'll find the old MSX home computer and Nintendo's Fami-Com, about which the less said the better. There are about 50,000 Macintoshes in Japan and probably the same number of true PCs.

But where's Amiga?

Where's Commodore? might be a better question. A major Japanese software publisher literally choked on his coffee when I asked him about Commodore Japan. He did not know it was still in business. His impression was that Commodore came arrogantly into Japan several years ago and has maintained a profile that has

grown lower every year since. The company makes occasional noises that hint at emergence from hibernation; then the long snooze begins again.

It's not too late for Commodore to wake up in Japan. For one thing, there are not a lot of home computers of any flavor in Japan—no more than 2 or 3 percent of the population has a true computer at home. For another, the entertainment audience in Japan is becoming increasingly sophisticated, outgrowing Nintendo and looking for larger challenges. Amiga software might be just the ticket.

Perhaps the greatest potential for the Amiga in Japan lies in the increasing digitization of Japanese culture. Digital is *in*, with CD-ROM museums, computerized home theaters, and, most notably, dramatic growth in digital cameras. Sony has already introduced a Mavica that digitizes ten seconds of sound along with the image it captures. (For more on digital photography, see "Amiga Zapshots" in the Summer 1989 issue.) Toshiba attracted large crowds at the Japan Electronics Show with its line of digital cameras.

And digital cameras are only the tip of the phenomenon. The Japanese are exploring the interface between computers and imagery, computers and music, more thoroughly than anyone else at the moment. If ever a market existed for the Amiga, it's this one. Now, if Commodore will only wake up and go after it. ▲

BRIWALL

P.O. Box 129/58 Noble Street
Kutztown, PA 19530

24 Hour FAX Line 1-215-683-8567
Customer Service 1-215-683-5433
Technical Support 1-215-683-5699

SOLID PRODUCTS

CALL

1-800-638-5757

Outside the USA (1-215-683-5433)

ACCESSORIES

64 Emulator	\$52
Blaster Auto Fire Module	5
Cables	call
Camera Lens 16mm - No Iris	22
Copy Stand with Lights	64
Covers	call
DigiView Adapter	16
Drive Cable 3' Amiga Extnsion	19
Flicker Master	14
Ink	call
Joysticks	call
Joystick - Gravis	35
Maxx Yoke Flight Cntrl	79
Mouse Master	29
Printer Cables	call
Ribbons	call
Safeskin Keyboard Protectors	call
Switch Box A/B Db25f Connectors	29
Zoomer Console Controller	46

BOOKS

1001 Things to do with Amiga	\$11
Advanced Amiga BASIC	15
Advanced System Prog Guide+	27
Amiga Machine Lang Prog Gde	17
Amiga 3D Graphics Programming	17
Amiga BASIC Inside & Out+	20
Amiga C for Adv. Programmers+	25
Amiga C for Beginners+	15
AmigaDOS Inside & Out+	17
AmigaDOS Quick Reference Manual	8
AmigaDOS Reference Guide V1.2	15
Amiga Disk Drives Inside & Out	24
Amiga Graphics Inside and Out+	27
Amiga Hardware Reference Review	18
Amiga Machine Language	17
Amiga Programmer's Guide	15
Amiga Prog's Handbook Vol 1	20
Amiga Prog's Handbook Vol 2	20
Amiga System Programmer's Guide+	27
Amiga Tips & Tricks	17
Amiga for Beginners	15
AmigaDOS Manual (2nd Edition)	20
AmigaDOS Reference Guide V1.2	15
Inside Amiga Graphics	15
Inside the Amiga With C	21
Kids and the Amiga	13
More Amiga Tips & Tricks+	17
Prog Guide Amiga - C disk	12
Prog Guide Amiga - Modula 2 disk	12
Programmer's Guide to the Amiga	22
ROM Kernel Ref:Exec, Lib&Devs*	28
ROM Kernel Ref:Include&AutoDoc	27
+ means that a disk is available	12

GENERAL BUSINESS

Advantage (The)	129
Excellence 1 MEG or 512K Version	150
Haicale	39
Kindwords	69
Microfiche Filer	69
Microlawyer	39
Nag Plus 3.0	54
Nimbus Accounting V1.3	109
P.H.A.S.A.R. V3.0	69
Page Stream	129
Page Stream DM Fonts #1-13 each	27
Page Stream PS Fonts A,B,C	27
Pen Pal	99
Professional Draw Structures	42
Pro Font II (Decorative)	27
Pro Fonts I (Professional)	249
Professional Page V1.2	249
Professional Page V1.3*	249
Professional Page Template	42
Proscript for Prowrite	32
Prowrite V2.5	75
Security Analyst	48
Transcript	52
Word Perfect	149
Works - Platinum Edition	140

EDUCATION

Fraction Action	\$32
Great States II	29
Kid talk (5 - 15)	30
Linkword-German	20
Linkword-Spanish	20
Mavis Beacon Typing	36
Mixed Up Mother Goose	36
Mypaint	36
Rhyming Notebook*	29
Speller Bee (5 - 12)	29

ENTERTAINMENT

4x4 Off Road Racing	\$17
AD&D - Heroes of the Lance	29
AD&D - Hillsfar	35
AD&D - Pool of Radiance*	35
After Burner	33
Archipelagos	26
Arkanoid	20
Artic Fox	17
Artura*	27
Aunt Artic Adventure	29
Auto Duel	35
Awesome Arcade Pak	36
Baal	20
Bad Dudes	30
Ballistik	27
Bard's II:Destiny Knight	39
Batman	31
Battle Chess	34
Battlehawks 1942	36
Battletech	36
Battle Squadron	30
Beyond Dark Castle*	24
Blitzkrieg Ardennes IMB	42
Blood Money	29
Bride of the Robot	26

Adventures Through Time Vol I: The Scavenger Hunt

Take on the role of "Buck" Walker, and go on a scavenger hunt through time in this new, fully-animated, real-time, graphic/text adventure game from Aurum Software.

Features include: multi-tasking, smooth animation, overscan graphics, menus, gadgets, saves, on-line help, optional font sizes, and an innovative mouse-text driven parser.

Briwall Price -- \$33

Bubble Bobble	23
Captain Blood	36
Clue: Master Detective*	26
Cribbage & Gin King*	41
Denaris	26
Destroyer	19
Dragon's Lair	35
Dragon Force*	35
Dungeon Master	26
Earl Weaver Baseball	35
Earl Weaver Commn'sr's Disk	17
Earl Weaver Stats '88 Disk	17
Empire	36
Falcon	33
Falcon Scenery:Oper Cnt Strke	17
Fire Power	19
Flight Simulator 2	33
Gauntlet 2	36
Grand Prix Circuit	32
Gunship	36
Halls of Montezuma*	29
Hardball Baseball	29

Bride of the Robot

The further adventures of Captain Brad Stallion. Rescue women, maneuver your "big thruster", and explore new places in this all new graphic adventure game. (IMB required)

\$26

Hole In One-Course disk	13
Hole In One-Miniature Golf	26
Hollywood Strip Poker	23
Hostage	32
Ice Hockey-Super Star	35
Ice Hockey: Wayne Gretsky	35
Indy Jones:Last Crusade(Action)	27
It Came From The Desert	33
Jack Nicklaus Golf Course '89	15
Jet	33
Keef the Thief	34

Distant Suns

This is version 3 of the award-winning educational program -- Galileo. Now run three times faster than before, with a hide-buttons/full star screen option. **Distant Suns** is a planetarium that lets you view the stars and planets from anywhere on the earth, for any date from 8000BC through 12,000AD.

Features include: realistic color, authentic, astronomically correct sky, 2,200 stars, 450 deep space objects, and much more.

Briwall Price -- \$46

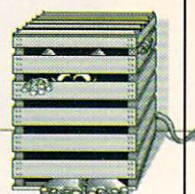
King of Chicago	18
Kings Quest I	36
Kristal	34
Last Inca (The)	26
Leaderboard Dual Pak	26
Leisure Suit Larry	23
Leisure Suit Larry 2	33
Licence to Kill	23
Light Force	27
Lost Duthman Mine	30
Magic Johnson's Basketball*	33
Manhunter - San Francisco*	33
Maniac Mansion	31
Marble Madness	19
Might & Magic 2*	41
Mobius	39
Neuromancer*	31
Nuclear War*	35
Omega	33
Operation Wolf	20
Out Run	34
Paperboy	33
Pipe Dream	27
Planet of Lust	24
Platoon	30
Police Quest 2*	39
Populus	34
Powerdrome*	27
Pro Soccer	25
Purple Saturn	20
Qix	23
R. Davis Soccer - 1 MB*	23
R. Davis Soccer 512K*	27
Rambo III	26
Rastan*	27
Reach for the Stars	29
Red Lightning*	39
Renegade	29
Romantic Encounters @ Dome	17
SDI	28
Sex Vixens from Space	25
Shadow of the Beast	33
Shanghai	16
Shinobi	33
Silent Service	29
Sim City	30
Space Quest 2	33
Space Quest 3	39
Space Station Oblivion	19
Speedball	27
Star Command	33
Stellar Crusade	38
Strip Poker II	29
Swords of Twilight	34
TV Sports Basketball*	33
TV Sports Football	33
Talespin	26
Targhan	30
Test Drive 2: The Duel	25
Tetris	29
Times Of Lore	18
Tom & Jerry	26
Ultima 3	33
War In Middle Earth	33
Where USA - Carmen Sandiego	27
Where World-Carmen Sandiego	27
Zack McCracken	30
Zany Golf	15

CREATIVITY/GRAPHICS

AniMagic	69
Calligrapher - Studio Fonts	35
Comic Set-Super Heroes Clip Art	25

WHY CHOOSE BRIWALL?

- ✓ No Surcharge on Charge Orders
- ✓ 24-Hour Toll-Free Ordering
- ✓ Our Fifth Year in Business
- ✓ Fast, Friendly, Reliable Service
- ✓ In-house Technical Support
- ✓ A Fair Return/Exchange Policy
- ✓ A "No-surprises" Shipping Policy



SATISFACTION GUARANTEED!

UTILITIES/LANGUAGES

Deluxe Paint 2	50	ATalk III	\$65
Deluxe Paint Version 3	109	AC BASIC v1.3	135
Deluxe Photo Lab	99	Amix - Macintosh Emulator	135
Deluxe Print 2	54	Ami...Alignment	39
Deluxe Productions	139	Amiga Workbench 1.3	24
Deluxe Video 3*	99	Amikit	34
Design Disk - Human	25	Arexx V1.0	35
Digidroid	69		
Digipaint 3	69		
Digipaint 3 PAL	79		
Digiview Gold A500/A2000	139		
Director	49		
Director - Toolkit	29		
Draw 2000	169		
Express Paint V3	89		
Focus A2000	119		
Intro CAD	52		
Invision Plus*	209		
Kara Fonts Color	55		
Kara Fonts Headlines 2	49		
Kara Fonts Subheads	49		
Options	69		
Palette Printer	27		
Perfect Vision	179		
Printmaster Art Galleries 1+2 Pack	37		
Printmaster Plus	33		
Sculpt 3D XL	116		
Sculpt/Animate 4DJr	97		
Turbo Silver	139		
Video Effects 3D	139		
Zootrope	89		

Ami...Alignment

This drive evaluation and alignment package from Free Spirit Software is being praised by everyone who reviews it. Get your copy today!

\$39

Assempro	64
Aztec C Dev/Debug/Source Pak	329
Aztec C Prof Compiler	129
Aztec C Source Level Debugger	79
B.A.D. Disk Optimizer	32
Butcher 2.0	25
CLI Mate	27
Cynes Ed Prof Text Editor	69
DOS-2-DOS	39
DSM	49
Disk-2-Disk v2.1	35
Diskmaster	39
FACC II	25
GOMF V3.0	27
Grabbitt	20
Hisoft Professional BASIC	119
Imagelink	299
Inova Tools V2.5	52
Lattice V5.02 C Dev Pack	205
Pixelscript v1.1	109
Power Windows 2.5	59
Project D v1.1	35
Quarterback v2.2	49
Raw Copy 1.3	42
Virus Infection Protection	33

SOUND & MUSIC

Deluxe Music Construction	\$65
Dr T Copyist Apprentice	65
Dr T MT32 Voices	39
Future Sound Sampler 500/2000	103
Instant Music	19
M Intelligent Music	139
Perfect Sound A500	65
Sonix	52
Sound Oasis	69
Synthia PRO	252
Take Note	59

Micro-Systems Software

Product	List	Briwall Price
Analyze 2.0	\$ 99.95	\$ 60
Excellence	\$299.95	\$150
Online - Platinum	\$ 99.95	\$ 60
Scribble - Platinum	\$149.95	\$ 72
The Works - Platinum	\$295.00	\$140

We maintain an enormous inventory of Amiga software.
If you don't see what you want, CALL!

Titles marked with * were not yet available when the ad was prepared. Please call for firm price and availability. Titles in **BOLD** are new items

Australian Customers can order locally from Briwall Australia at:
(062) 88 0131, or FAX (062) 88 0337

SOLID SUPPORT

CALL

1-800-638-5757

Outside the USA (1-215-683-5433)

BriWALL

P.O. Box 129/58 Noble Street
Kutztown, PA 19530

VISA

PLEASE COME VISIT US!
Monday - Friday 9AM-6PM EST
Saturday 9AM-12 Noon EST

SCSI CONTROLLERS

HARD DRIVES			C-LTD	Fastcard	Hardframe	Kronos	Trumpcard	Wordsync	FastTrak	Kronos*	Trumpcard	FastTrak	Kronos*
Drive Specs.	Manufacturer	Drive Price	A2000	A2000	A2000	A2000	A2000	A2000	A500	A500	A500	A1000	A1000
32MB-28ms	Seagate-3.5	\$351	\$487	\$496	\$594	\$574	\$505	\$516	\$720	\$717	\$568	\$680	\$753
40MB-19ms	Quantum-3.5	\$450	\$586	\$595	\$693	\$673	\$604	\$615	\$819	\$816	\$667	\$779	\$852
44MB-25ms	Syquest-5.25	\$684	\$820	\$829	\$927	\$907	\$838	\$849	\$1,053	\$1,050	\$901	\$1,013	\$1,086
	w/Cartridge	\$782	\$918	\$927	\$1,025	\$1,005	\$936	\$947	\$1,151	\$1,148	\$999	\$1,111	\$1,184
48MB-28ms	Seagate-3.5	\$385	\$521	\$530	\$628	\$608	\$539	\$550	\$754	\$751	\$602	\$714	\$787
64MB-24ms	Seagate-3.5	\$503	\$639	\$648	\$746	\$726	\$657	\$668	\$872	\$869	\$720	\$832	\$905
80MB-19ms	Quantum-3.5	\$750	\$886	\$895	\$993	\$973	\$904	\$915	\$1,119	\$1,116	\$967	\$1,079	\$1,152
84MB-28ms	Seagate-5.25	\$506	\$642	\$651	\$749	\$729	\$660	\$671	\$875	\$872	\$723	\$835	\$908
100MB-19ms	Quantum-3.5	\$794	\$930	\$939	\$1,037	\$1,017	\$948	\$959	\$1,163	\$1,160	\$1,011	\$1,123	\$1,196
135MB-15ms	Imprimis-3.5	\$1,231	\$1,367	\$1,376	\$1,474	\$1,454	\$1,385	\$1,396	\$1,600	\$1,597	\$1,448	\$1,560	\$1,633

DRIVE PACKAGES

We have the technical sales staff and trained technicians to help you with a hard drive package purchase.

These package prices are complete. A500/A1000 packages include case and cables. (On packages with a "*" you can deduct \$110 if you don't want the case and cable.) Amiga 2000 mounting brackets may be additional.

Drive installation is \$15.

MEMORY PACKAGES

BOARDS	0K	512K	1MB	1.5MB	2MB	4MB	6MB	8MB
A2 8-supl 1MBx1	\$185	n/a	n/a	n/a	\$391	\$600	\$808	\$1,017
2 Megabaud 256Kx1 150s	\$219	\$287	\$366	\$446	\$525	n/a	n/a	n/a
0 Supra 1MBx1	n/a	n/a	n/a	n/a	\$361	\$570	\$779	\$987
A Starboard 256Kx1 150s	\$269	\$337	\$416	\$496	\$621	n/a	n/a	n/a
5 Minirings 256Kx4/2P	n/a	\$276	\$379	\$463	\$546	n/a	n/a	n/a
0 E3P8000 1MBx1	\$364	n/a	n/a	n/a	\$583	\$792	\$1,000	\$1,209
0 Spirit Inboard 256Kx1 150s	\$229	\$293	\$372	\$452	n/a	n/a	n/a	n/a
A Spirit SN 256Kx4 120s	\$252	\$312	\$380	\$448	n/a	n/a	n/a	n/a
1 Starboard 256Kx1 150s	\$269	\$337	\$416	\$496	\$621	n/a	n/a	n/a
0 Minirings 256Kx4/2P	n/a	\$276	\$379	\$463	\$546	n/a	n/a	n/a
0 Spirit Inboard 256Kx1 150s	\$229	\$293	\$372	\$452	n/a	n/a	n/a	n/a

Many other package deals available! Please call -- M-F, 9-5 EST
Technical Support (215) 683-5699

AmiGen Special

Here's a special deal on AmiGen, Mimetic's popular genlock for the Amiga. Features include:

- 1) Compatible with the 500, 1000, and 2000.
- 2) Provides RGB-thru so that Amiga monitor can be used with AmiGen in place.
- 3) Provides composite video signal that is compatible with all VCRs.

We were able to make a special buy on these genlocks, and we're passing along the savings!

\$99

AmiGen List price -- \$199.95

2400-Baud Modem Special

Aprotek has just announced their new 2400-baud modem, the Mini Modem AM24, for the Amiga. This small, Amiga-powered modem requires no external power supply, and plugs directly into the Amiga serial port, so that no additional cables are required. The Mini Modem AM24 is fully Hayes compatible, including the extended & commands.

Mini Modem AM24
List price -- \$99

\$79

This product was not yet released at the time this ad was published. Please call for firm price and availability.

ACCELERATOR BOARDS

A3001-4MB/0	\$2799
A3001-4MB/40Q	\$3149
A3001-4MB/80Q	\$3599
Hurricane 2800 w/030-882/25 1MB	\$1795
Infinity Machine	call
Midget Racer w/68020	\$349
Midget Racer w/68020-68881/16	\$439

DRAM

1MB x 1 80ns	\$16
1MB x 1 100ns	\$15
256K x 1 150ns	\$6
256K x 4 120ns	\$18
256K x 4 100ns ZIP	\$22

DRAW TABLETS

Kurta	call
A Pro Draw 12x12 w/cursor	\$499
Easy 500	\$329

DRIVES (FLOPPY)

Amig-a-tosh	\$195
Amig-a-tosh Plus	\$245
Chinon internal 3.5	\$99
FlexiData FD-10	\$139
FlexiData FD-20	\$249

Twin Drive

UniDrive	\$259
UniDrive Enhanced	\$145
	\$159

EXPANSION CHASSIS

Exp Chassis 500/1000 w/pwr	\$239
Subsystem 500	\$249
Subsystem 1000	call
Toolbox A1000 w/power	\$239

GENLOCKS

Amigen	\$99
Magni 4004	\$1389
Magni 4004/4010	\$1629
MiniGen	call
ScanLock	\$895
SuperGen	\$669
SuperGen 2000	call

MIDI/SOUND

A.M.A.S.	\$135
Golden Hawk A2000 internal midi	\$75

MODEMS

Aprotek 2400	\$79
Supra 2400 Internal (A2000)	\$135
Supra 2400 External	\$125
USR Courier 9600 Modem	\$659

MONITORS

Magnavox 515	call
Mitsubishi DiamondScan 14	\$529
Monimert Viking 1	call
NEC 3D	\$649

PRINTERS

Qume CrystalPrint Publisher (PS comp 300dpi w/ Weitek RISC chip)	\$3349
Canon P11080A color ink jet	\$519
Canon Bubble Jet	\$799
Everex Laser (HP comp.)	call
Fujitsu LED Postscript	call
HP PaintJet	call
Laser Express	\$2199
Okimate 20	\$155
Panasonic 1124	\$359
Sharp JX-730 (wide color ink jet)	\$1859
Star NX-1000 Rainbow (color)	\$259

SCSI ERASABLE OPTICAL

Tahiti 1GB	call
Panasonic 570MB (no cartridge)	\$3999
570MB cartridge	\$299
Sony 640MB (w/1 cartridge)	\$4599
650MB cartridge	\$329

SCANNERS

Han-D-Scan (width 4.13")	\$310
Canon Scanner	\$949
Prof ScanLab w/Sharp JX-450	\$4995
Sharp JX-100	call

VIDEO

Color splitter	\$89
Flicker Fixer	\$479
FlickOff	\$389
Frame Buffer Frame Capture (0K)	\$619
Frame Buffer Frame Capture (1MB)	\$749
FrameGrabber	\$529
Live! 1000	\$226
Live! 500	\$299
Live! 2000	\$239
Panasonic WV1410 Camera	\$189
Rainbow 16mm Lens w/variable iris	\$49

CANON PAPER SALE

Transparency	\$35
Cut Sheet	\$9
(above are while supply lasts)	
Roll Paper (until 12-31-89)	\$7

AMIGA

1084 Monitor	call
Amiga 68020/68881 w/2MB	call
Amiga 500	call
520 RF Video Adapter	call
Amiga 2000, 2000HD, 2500	call
2088XT Bridgeboard	call
2288AT Bridgeboard	call
Kickstart 1.3 ROM chip	call

SUPRA CORPORATION

Supra RAM 500	\$105
20MB Supra Drive A500	\$495
30MB Supra Drive A500	\$629
45MB Supra Drive A500	\$739
60MB Supra Drive A500	\$859
80MB-Q Supra Drive A500	\$999
2MB RAM for above Drives	\$299
For A1000 Drives add \$90 to the A500 prices	

SHIPPING POLICY: ALL ORDERS received before 3PM EST will normally be shipped within 2 business days. All UPS shipments are sent Signature Required/No Driver Release. Add the following shipping charges to your Total software order.

UPS: Ground \$4.50 (cont. USA ONLY); Air/Rush \$8.00 (includes Puerto Rico/Hawaii); Overnight \$12.00 + \$2.50 PER ITEM (must be received by 12 Noon.) **Priority Mail:** USA \$4.50 (includes APO/FPO); Canada/Mexico \$7.00; Other Foreign \$4.00 Handling + Actual Shipping + Insurance.

HARDWARE: Shipping charges for all hardware are \$4.50 handling + actual shipping charges + insurance.

ORDERING INSTRUCTIONS: For your convenience, you can place a phone order 24 HOURS/7 DAYS A WEEK on our TOLL-FREE LINE 1-800-638-5757. Outside the USA, please use (215) 683-5433. Price, availability, and compatibility checks are also welcome on our order line, Monday thru Friday, 9:30AM - 4:30PM EST. AFTER HOURS Orders Only Please! When placing an order, please specify your computer model, home & daytime telephone number, shipping address, charge card number, expiration date and name of bank.

ACCEPTED PAYMENT METHODS: We gladly accept Personal Checks (no holding), Money Orders, VISA, MASTERCARD, School Purchase Orders, or COD (\$4.00 additional -- for established Briwall Customers ONLY). All checks must be in US Dollars and drawn on a US bank. There is no surcharge for credit cards and your card is not charged until we ship!

RETURN POLICY (for software and accessories ONLY): We have a liberal return policy to better service your needs. If within 15 days from the time you receive an item, you are not satisfied with it for any reason, you may return it to us for either a refund, exchange, or open credit. REFUNDS ARE SUBJECT TO A 10% RESTOCKING FEE PER ITEM RETURNED (\$5.00 MINIMUM PER ITEM). EXCHANGES/OPEN CREDITS will gladly be issued for the full purchase price of the item. DEFECTIVE items, Hardware items and Special Order items will be repaired or replaced with the same item only.

TECHNICAL SUPPORT Call (215) 683-5699, Monday - Friday, 9am - 5pm EST.

We do our very best to help you with your product selections before you order, and after you receive your product. General questions, such as price, compatibility, etc., will be handled by our order staff at the time you place your order. BUT, if you have specific, detailed questions about a product you will get the most help from our Technical Support Line.



X*PRESS

for the Amiga

John Foust

Quick! How do you get up-to-the-minute news, sports, and weather into your Amiga? From your cable TV, of course.

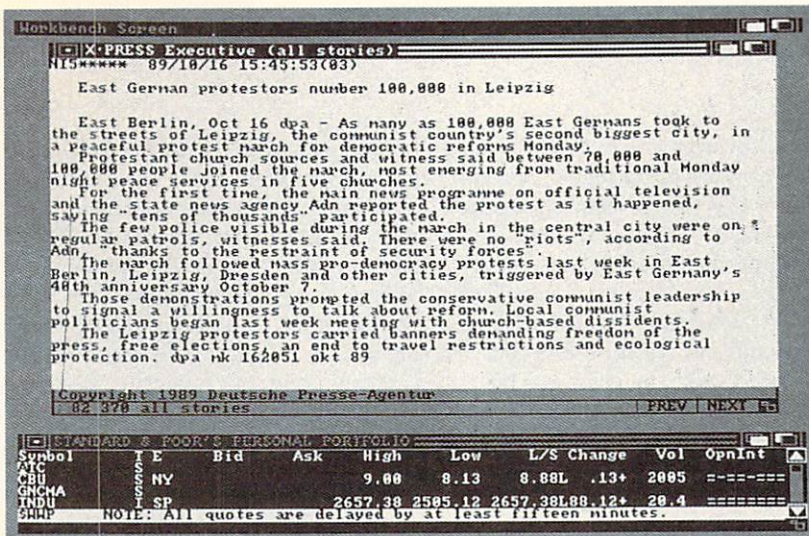
There's no doubt about it—the Amigas of this new decade will be data-hungry. Still images, video, sound, text, and numbers—your computer will demand and create more data than ever before.

While today's data hounds dream about faster modems to carry more data over the phone lines, they're overlooking the highest bandwidth transmission in the home—the television cable.

X*PRESS Information Services of Denver, Colorado, offers a service that broadcasts data using television signals. The price is affordable, the hardware and software are available now, and the potential is mind-boggling.

Cable and satellite television support many hundreds of channels. With broadcasting space to spare, it's easy for X*PRESS data to ride the ether disguised as television signals. Most cable stations broadcast the X*PRESS data along with the regular television signals. Unlike traditional telecommunications services, there's no additional charge for the data. You can grab as much as you want, 24 hours a day.

For \$125, you get a special InfoCipher cable-television modem along with software for the Amiga. (Software is also available for the Atari ST, IBM PC, Apple II, and Macintosh, if you'd like to use the InfoCipher with a spare computer.) The cable mo-



X*PRESS software finds the news you're most interested in.

dem connects to both your television cable and the Amiga's serial port. Using a simple splitter, it doesn't disturb your current television signal. (But if you do run into any problems, the X*PRESS staff will be glad to help you solve them.)

Suddenly, 960 characters per second of data arrive inside your Amiga—more than four times the speed of a 2400-baud modem. In one time trial, more than 600 stories arrived in less than an hour. Much of the data repeats during the course of the day. One particular story might be broadcast every hour. Running the software for an hour or two collects enough stories for many hours of reading.

Consider the potential of this device: If the data wasn't repeated, the cable modem could deposit more than 80 megabytes of pure, error-free data to your computer every day. (An Amiga floppy disk holds just nine-tenths of a megabyte.) If the data was compressed, the X*PRESS system could conceivably deliver more than 300 megabytes of data each day.

What sort of data appears? The bulk and variety is overwhelming. Imagine an electronic edition of the Sunday *New York Times* arriving in a steady stream. There are AP and UPI news feeds; television schedules; up-to-the-minute sports scores; hobby articles; entertainment and political news (lately, of course, these are the same thing); music and television articles such as movie reviews and the Billboard Top 100; social gossip; news in French and Spanish; National Weather Service forecasts and statistics; stock

news from Standard & Poor's, McGraw-Hill, and Invest/Net; technology and computer news from the Best of BIX (including the Amiga conference); and clippings from *USA Today*.

If you're addicted to C-SPAN and CNN on cable television, X*PRESS will give you a fix like you've never imagined. Suddenly you can read all the newswire stories ignored by most newspapers, like the latest developments in Sri Lanka, or the full text of stories only covered in brief by television stations.

The X*PRESS software runs in the background, gathering stories and storing them in memory. At any time, you can start *Viewer* to read the stories. If a story looks interesting, you can print it or copy it to the Amiga clipboard, ready for pasting into documents in your word processor.

To manage this flood of data, *Viewer* lets you specify categories and keywords to narrow the types of stories you want. You can view current stories in memory one by one, by category (such as weather, sports, or news), or by subcategories and keywords. How's the weather in Kansas City? Just search on *weather* and *Missouri*, and in a few seconds you'll know.

As memory fills up with stories (up to a preset limit you can change), the oldest will be discarded. A *clip folder* mechanism automatically saves messages for you on disk, selected by combinations of keywords. For example, while you sleep, the program could save all stories that contain words that start with *comp* and in-

clude the word *Japan*.

X*PRESS sends program and data files, too. The *Xfer* program lets you specify the category of files you'd like to receive, and, over the course of the day, the files are saved to your disk.

Essentially, the X*PRESS service is like a premium cable channel that most people can't receive. X*PRESS is split into two levels of service. The basic level is called X*CHANGE. It's included in almost all cable areas at no extra charge. You can even get it by satellite dish, if you subscribe to the Net/Link decoding service, and it's carried in Canada by the Rogers cable service. X*CHANGE includes all the news, weather, and sports mentioned above, plus entertainment and lifestyle news. You do get some stock information with X*CHANGE: tickers on 2000 of the most popular stocks, updated several times a day. Once you've bought the X*PRESS system, there are no more charges to receive this data.

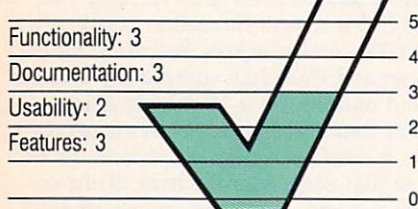
If you're an investor, the Executive service brings more financial news than X*CHANGE does. Executive service costs \$225 to start, and \$19.95 a month thereafter. It covers 13,000 market tickers, including American and Canadian commodity futures and options, on a 15-minute delay. The data for this service is encoded, so it requires a special decoding module that plugs into the back of the cable modem. Executive service receives everything found in X*CHANGE, of course, plus extra software that saves and manages information about the stocks in your portfolio.

On the downside, the communication is only one-way. You can't enter a message and send it back to X*PRESS over the television cable. Transmitting data from homes to the local cable station is theoretically possible, but it would require a more complex modem. Until two-way cable arrives, X*PRESS has a bulletin board computer you can call to upload messages for broadcast. After your message is approved, it will be sent out the next business day. At this time, you can reach the BBS for free, on a local call, through the Tymnet national data network.

To find out if X*PRESS data is already streaming into your house, call X*PRESS at (800) 7PC-NEWS, or (303) 721-1062. Tell them you heard the news in *Amiga Resource*. ▲

Amiga Logo

Commodore Business Machines
1200 Wilson Dr.
West Chester, PA 19380
(215) 436-4200
Requires 512K
Dutch, French, Italian, German, and
Spanish versions due out soon
\$99.95



When the Amiga was introduced in mid-1985, one of the first products promised for the new machine was *TLC-Logo*. The ads for this product promised that it wouldn't be "just another Logo, another weak introductory graphics language," but rather that it would have advanced features like object-oriented programming, multi-turtle operations, and the artificial-intelligence power of LISP. Unfortunately, TLC changed its mind and never produced an Amiga Logo. This may have hindered the Amiga's ability to compete in the primary-education market, since Logo, an interpretive programming language that was designed to introduce children to the power of computers, plays an important part in the computer curriculum of some elementary schools.

Now, over four years later, Commodore has seen fit to remedy the situation by introducing its own version of Logo for the Amiga. The very fact that Commodore decided to create this product is significant; *Amiga Logo* is the first new piece of software that the company has released since *Text-Craft Plus*. Unlike the product TLC proposed four years ago, however, *Amiga Logo* is "just another Logo." While its introduction does make available a standard version of Logo for the Amiga, it is a version that does little to distinguish itself from the crowd or to demonstrate the unique abilities of the machine on which it resides.

Amiga Logo's greatest strength is its adherence to the syntax and operating environment of earlier implementations of the Logo language. Like most Logo versions, *Amiga Logo* features a text (command) window and a graphics window. The text window is where you enter and edit program instructions and where Logo displays its messages and prompts, while the graphics window displays the output of the language's turtle graphics system.

Turtle graphics is a system in which you command an imaginary turtle with a pen tied to its tail to go forward, backward, or rotate through a given angle in order to produce a picture of the trail it leaves. By default, *Amiga Logo* uses a four-color 640 × 200 custom screen, but a menu selection allows you to use any of the Amiga's resolution modes and up to 32 colors (in 320 × 200 mode only). The language automatically scales the turtle's movements to the current screen resolution, so a picture drawn in one mode looks about the same as a picture drawn in another.

Amiga Logo is compatible with most versions of Logo, so it runs almost any Logo program. And, when compared with standard Logo, you'll find some nice improvements: *Amiga Logo* uses a sprite in the shape of a real turtle rather than the triangle that

usually represents it, and the Amiga's tortoise acts more like a hare. Because of the computer's custom graphics chip, the little critter zips around the screen at a pretty fair clip. Another difference is that you can use the Amiga mouse to position the turtle on the screen, and you can even do some freehand drawing by dragging the mouse around.

**It's everything Logo
should be, and a just a
little bit more.**

Although the text window has no scroll bars, you can use the cursor to scroll up or down through the window, so any previously displayed text may be recovered. You may also re-enter a command that you previously typed by moving the cursor up to the line and pressing the Return key. The text window works double-duty as a text editor in which you compose your programs. You use the EDIT or TO command to enter editor mode, and the Control-C or Control-G key combination to return to command mode. Once in edit mode, a number of Control-key combinations are available for cursor movement and the insertion and deletion of single characters and entire lines. These commands are identical to the ones found in popular Logo versions like *Apple Logo*. This means that *Amiga Logo* users may follow along in any of the popular books about Logo and have their program respond in the manner described in the book.

While *Amiga Logo's* compatibility with existing Logo implementations will no doubt endear it to the Logo community, it will not win it many friends in the Amiga community. In the name of compatibility, *Amiga Logo* has abandoned the modern user-friendly Amiga interface in favor of

the clunky *Apple Logo* command structure. Amiga owners will have a hard time accepting a programming language whose built-in text editor doesn't use scroll bars, doesn't use the mouse to mark blocks of text, doesn't provide pull-down menus, and doesn't allow search-and-replace or cut-and-paste operations. Nor are they likely to approve the other user-interface elements that the program has borrowed from the ten-year-old Apple II. For example, while you can obtain syntax information by typing the HELP command, the Help key on the keyboard does nothing at all. There are no provisions for embedding explanatory

you can't even edit a program while a command is executing.

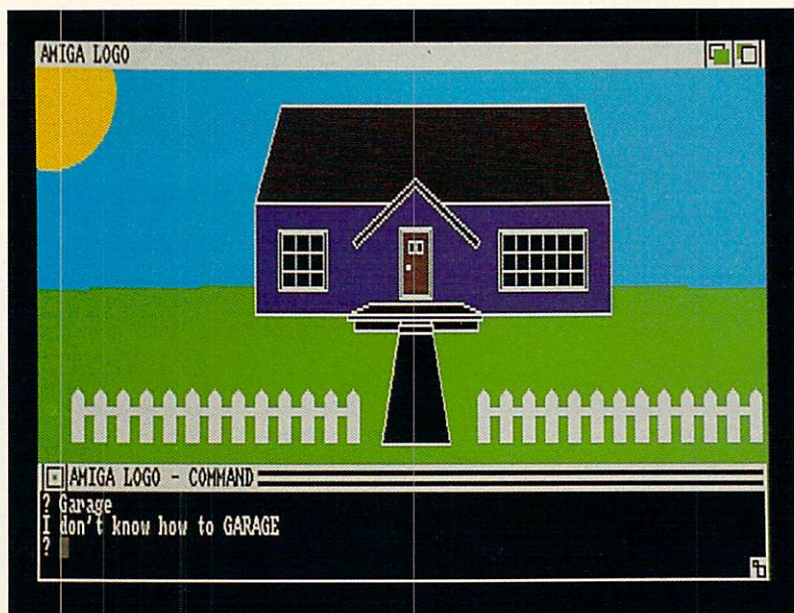
In its quest for compatibility, *Amiga Logo* has limited its list of commands to the bare minimum set of standard Logo commands. As a result, the language has fewer features than *PC Logo* or *Atari ST Logo*, fewer even than Logo versions on the less powerful, older-generation machines like the Atari 800 or the Commodore 64.

There are literally no bells or whistles in *Amiga Logo* outside of the SAY command, which allows text to be spoken using the computer's built-in speech synthesis. There is absolutely no support for sound or music.

user-defined menus. While a menu item allows you to change graphics modes, there is no provision for mode-switching under program control.

To be perfectly fair, however, if *Amiga Logo* is no better than the versions on competing systems, it really isn't any worse, either. Logo's popularity as an introductory programming language seems to have peaked a few years ago, and, as a result, nobody has been rushing to develop more advanced versions. That's too bad because it's an interesting language that combines the simplicity of turtle graphics with the power of list processing. Carl Sassenrath, author of *Amiga Logo* (and of the multitasking core of the Amiga's operating system), is considering developing a more advanced version of *Amiga Logo* that would take better advantage of the machine's multitasking and graphics capabilities. In the meantime, however, *Amiga Logo* provides a satisfactory, if not exciting, introduction to the language.

—Sheldon Leemon



comments within programs. The function keys aren't used at all. There are only a few token pull-down menus in *Amiga Logo*, and these don't have keyboard equivalents (though I was able to discover a few hidden keyboard equivalents that aren't mentioned in the documentation). The program doesn't even warn you about exiting without saving your work.

Amiga Logo's outdated user interface also makes no provision for multitasking. If the program provided multiple command windows, it might be possible to run several Logo programs at once, perhaps with different-colored turtles for the turtle graphics. As things stand, however, *Amiga Logo* can only execute one command stream at a time. And since the same window is used alternately for program editing and command execution,

Many modern additions to the language are missing. There are no WHEN-demons in *Amiga Logo*, even though the Amiga's operating system provides the perfect platform for supporting this form of multitasking. There is only one graphics turtle, although current versions often allow the use of multiple turtles. There is no manipulation of sprite shapes as in *Commodore 64 Logo*. *Amiga Logo* does not support saving or loading graphics screens to disk, thus ignoring the benefits of the IFF standard. Aside from graphics screen dumps and program printouts, there is no support for output to the printer or for reading or writing disk files. Unlike most Logo implementations, there is no access to native operating system features. There is no support for graphics operations like pattern fills, for example, or for

Lords of the Rising Sun

Cinemaware
4165 Thousand Oaks Blvd.
Westlake Village, CA 91362
(805) 495-6515
Requires 1MB
\$49.95

Playability: 5	5
Documentation: 3	4
Graphics: 5	3
Sound: 3	2
Ambition: 4	1
	0

With this product, Cinemaware deals from familiar strengths and, more impressively, from strengths we never suspected the company possessed.

To give just a hint of how different this game is from "typical" Cinemaware products, I played *Lords* for more than an hour without encountering a single "typical" Cinemaware arcade sequence. The sequences are

there, of course, sporting the company's customary high standards of graphics and playability, but they are not central to this game in the way that they have been to Cinemaware products in the past.

**Artistically, the game is
a complete triumph.
Attention has been paid
to every detail.**

Lords of the Rising Sun takes as its backdrop Japan's era of the Gempei War during the twelfth century. This was a time of great ambition and bloodshed, one of the epic ages of the samurai. *Lords* is the story of two brothers, Yoritomo and Yoshitsune, who must vie against the ambitious Taira family as well as each other in hopes of unifying Japan and restoring honor to their name. That name is Minamoto, and the brothers are White Minamoto (Yoshitsune) and Black Minamoto (Yoritomo.)

The game begins by prompting you to select which of the brothers you wish to play. There are particular advantages—and disadvantages—to each. Yoritomo is a born leader, able to inspire his troops and, more importantly, gather neutral clans into his camp with relative ease. Yoshitsune, less comfortable and adept at politics, is the master of the battlefield. His skills at combat leadership may outweigh his brother's political leadership abilities. Yoritomo, on the other hand, may build alliances huge enough to crush his brother despite Yoshitsune's combat craft. Thus, there is more of a role-playing element, more carefully and believably integrated, in this game than in earlier Cinemaware productions.

Once you've chosen the character you'll play, you're presented with a map of Japan. The map is gorgeous, rendered in vivid colors that nonetheless communicate a period feel. Scroll icons, for instance, are cranes, their beaks indicating the direction in which the map will scroll.

The scrolling itself is effortlessly smooth. It's nice to see a company take advantage of the capabilities Amiga hardware makes available and

use those capabilities to heighten gameplay and its illusions. (Some of Cinemaware's technical work just makes sense: The more memory you have, the more of the game that's loaded into memory, effectively creating a *Lords* ramdisk.)

Scattered across the map are castles, towns, monasteries, and ports. Japanese battle flags represent armies and allegiances and at first can be disconcerting. The army flags are oriented vertically and, according to the kibitzers watching over my shoulder, look like moving lighthouses. I say that's chauvinism—Cinemaware has done a good job of designing flags that communicate at a glance both a Japanese sensibility and the allegiances of the flag bearers. The sensibility extends the game's verisimilitude. Those allegiances can be vital to your success.

That success depends on capturing the castles of your enemies, defeating opposing armies on the battlefield, and finding and rescuing an abducted

an army besieging your castle, and use your sword to deflect shuriken (throwing stars) hurled by a ninja assassin. Both events are challenging and handsome, revealed from the protagonist's point-of-view, yet I tired of both fairly quickly.

The other arcade-esque sequence occurs when you lay siege to an opponent's castle. An overhead perspective is used to good effect as you hew down castle doors, do sword battle with enemy troops, search for the main guard—upon whose death the castle falls into your hands. While I might wish for a greater variety of castle layouts, this sequence is still among the most impressive in the game.

The *most* impressive sequence, to my taste, takes place outside castle walls, on the field of battle, where opposing armies meet. These battlefield sequences deliver something I've wanted for a long time: a living army. Or at least a convincing likeness of one.

Choose to go to battle and you're



princess. Achieving these goals requires a combination of strategic and tactical skills, as well as some arcade ability. (Even here, Cinemaware's flexibility is greater than previously displayed. Choose to play as Yoshitsune, and you can opt out of the arcade sequences, with the computer settling scores for you.)

There are two types of arcade sequences. Those closest to the "classic" Cinemaware experience are defensive: use a bow and arrow to ward off

transported to the battlefield, armies arrayed before you. Armies consist of archers and swordsmen. The cursor enables you to control both types of troops, maneuvering them into the best tactical positions, guiding them into fierce combat, steering them into retreat when necessary. This is a knockout sequence that brought back to me all of the childhood pleasure I derived from playing with toy soldiers. Cinemaware would be well advised to use the engine from this sequence to

power other war games; there's a dynamite Civil War game waiting to be created.

To be honest, control of the soldiers does take some getting used to. And when the enemy retreats, you're presented with the option of pursuing the general on horseback. This is another arcade sequence and the only really unfortunate one in the game. It inspired laughter from my audience, although the laughter may have been caused more by my poor horsemanship than anything else.

There are subtler ways of dealing with enemies. When visiting your home, you can dispatch ninja assassins to, in turn, dispatch a foe. This is a dishonorable act; if your treachery is discovered, you must commit seppuku, ritual suicide. It's best not to attempt assassination until your skills have climbed at least moderately high. And once your skills have climbed, you may not need assassination at all.

Artistically, the game is a complete triumph. Attention has been paid to every detail. The cursor, for example, assumes different forms depending upon the particular sequence. Each cursor—an arrow, a sword, a folded war fan, and so on—is both appropriate to the action at hand and also serves further to enhance the game's Japanese atmosphere.

Documentation is perhaps too brief for so ambitious a game. Historical details are barely sketched, although, commendably, there is a bibliography to guide further reading. I also would've appreciated a larger reproduction of the game's central map to make reference easier.

On the whole, though, I am mightily impressed with *Lords of the Rising Sun*. Cinemaware has long touted itself as a producer of interactive movies, some of which I've enjoyed immensely. But before, I always had the feeling of being part of the audience, invited into the picture for a few exciting frames, and then banished to my seat until the next interactive session.

With *Lords*, I was able to suspend my disbelief from the beginning, participating in the creation of history and historical fiction simultaneously.

Cinemaware, you've grown up.
Domo, arigato.

—Keith Ferrell

MINI-REVIEWS

Mini-review contributors this issue include Rhet Anderson, Denny Atkin, Kelly Baughman, Ervin Bobo, Russ Ceccola, Jim Fuchs, Steve Hudson, Scott May, Dale McBane, and Troy Tucker.

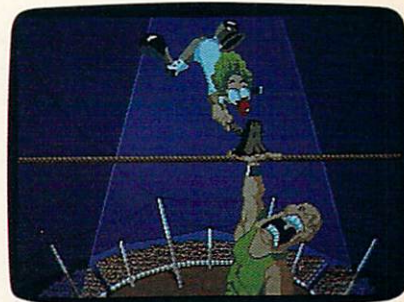
Fiendish Freddy's Big Top o' Fun

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667
Requires 512K
\$49.95

Playability: 2	5
Documentation: 3	4
Graphics: 3	3
Sound: 3	2
	1
	0

Fiendish Freddy's Big Top o' Fun breaks new ground. Unfortunately, it just doesn't dig up enough dirt to establish a foothold.

How's that for a nice set of clichés? You ain't seen nothin' yet. Boot up *Fiendish Freddy's Big Top o' Fun* and break the spine on its documentation. As you'll soon find out, *Fiendish Freddy* is all hype and cliché and no fun at all.



Fiendish Freddy's Big Top o' Fun is a cartoonlike game for the Amiga. Unfortunately, if *Fiendish Freddy* is taxing the Amiga's hardware (which I doubt), then the Amiga is just not capable of such a game.

In the game, you play the performers in a circus. You must perform their acts adequately to earn enough

LASER SQUAD

HERE AND NOW...
Action Strategy
As Never Before!

BY
micromations
Interactive Entertainment
NATURALLY!

17408 Chetworth St., Granada Hills, CA 91344
Inside CA (818) 340-3715 Outside CA (800) 522-7041

Available on COMMODORE 64/128, AMIGA, and ATARI ST

money to keep the circus from falling into the hands of Freddy. The graphics are pleasing, even if the animation is meager. And the masochist in me enjoys the graphic results of my failures in these endeavors.

But the big problem here is disk access. Even if you like the various segments of the game, you're sure not to enjoy the time it takes for those segments to load. You'll blow your top after you've waited three or four times for the judges to rate you. (I've found a nice little bug that makes the judging a bit more enjoyable. Try typing on the keyboard when the judges come up. Press Return a few dozen times for some real fun.)

While the elements of the game are charming enough, the effort is not worth any of the fun which you may eke out of it.

Worse (or better?), I've found a few Amigas here at the office that the game will not run on. My advice: Buy one of Mindscape's other games, maybe *Gauntlet II*.

—R.A.

Dinosaurs Are Forever

Polarware
13635 Gamma Rd.
Dallas, TX 75244
(214) 385-2353
Requires 512K
\$39.95

Playability: 3	5
Documentation: 2	4
Graphics: 4	3
Sound: 3	2
	1
	0



Children seem to have two built-in affinities: one for dinosaurs and one for coloring. If you combine the two, you have guaranteed kid appeal—and *Dinosaurs Are Forever*, an Electric Crayon Deluxe release from Polarware, is a program that does just that.

Dinosaurs Are Forever is built around coloring book-style drawings of 26 different dinosaurs, which serve as starting points for several different activities. It also features ear-catching digitized sound designed to add aural pizzazz to the onscreen pictures.

Most kids will start by coloring the dinosaur pictures onscreen, using a

crayon icon to specify colors and fill areas. There are 24 basic colors; children can also mix any color with the other 23. The result: an extensive palette sure to stimulate young imaginations.

Color selection is easy: Just click on the desired color. To fill an area with color, click the tip of the crayon on the area to be colored. This generally works well, although some areas are so small that children may become frustrated while trying to properly position the icon. Completed pictures can be printed on a color printer; uncolored coloring-book-style pictures can be printed, too.

Other options allow children to print the picture with a short description, with a calendar showing any desired month and year, or as part of a banner. The banner message (which can be printed in three sizes) is entered on a pop-up screen.

Children can also print their pictures accompanied by a text message, although, in that case, the message must be entered from NOTEPAD.

COLOR RIBBONS & PAPER

RIBBONS: Red, Blue, Grn., Brwn., Purple, Yel.

Ribbons	Price Each	Black	Color	Heat Transfer
Brother M1109		4.95	5.95	7.00
C. Itoh Prowriter Jr.		7.00	9.00	—
Citizen 120D/180D		5.00	6.00	7.95
Commodore MPS 801		4.50	5.25	5.75
- MPS 802/1526		6.25	7.25	—
- MPS 803		4.95	5.95	7.00
- MPS 1000		3.95	4.95	6.75
- MPS 1200/1250		5.00	6.00	7.95
- 1525		6.50	8.00	—
Epson MX80/LX800		3.75	4.25	6.75
Okidata 82/92		1.75	2.25	4.50
Okidata 182/192		6.50	7.50	6.00
Panasonic K-XP 1080		6.75	7.75	—
Seikosha SP 800/1000		5.25	6.50	7.95
Star SG10		1.75	2.25	4.50
Star NX10/NL10		5.00	6.00	7.95
Star NX1000		4.50	5.50	6.75
Star NX1000C - 4C		—	8.75	—

T-SHIRT RIBBONS (Heat Transfer) — Red, Blue, Grn., Brwn., Purple, Yel., Blk. Call For Price & Availability.

COLOR PAPER

BRIGHT PACK—200 Sheets/50 each color: Red, Blue, Green, Yellow. 9 1/2 x 11 — \$11.90/pk.
PASTEL PACK—200 Sheets/50 each color: Pink, Yellow, Blue, Ivory. 9 1/2 x 11 — \$11.90/pk.

COLOR BANNER BAND PAPER — 45 ft./roll — \$9.95/ea.

For ribbons & paper not listed above, call for price & avail. Price & spec. subject to change w/o notice. Min. order \$25.00. Min. S&H \$3.50 min. Visa, MC, COD.

RAMCO COMPUTER SUPPLIES

P.O. Box 475, Manteno, IL 60950 U.S.A.
(US) 800-522-6922 • (Canada) 800-621-5444
815-468-8081

Circle Reader Service Number 186

Circle Reader Service Number 187

NOTEPAD message entry is cumbersome at best, particularly in a program designed for kids. I found it intimidating some children to the point that they avoided the option or called Mom or Dad at message-entry time.

Calling a parent might encourage family interaction, but in the case of a program designed primarily for kids, it's a pothole in the road to user friendliness. I hope future versions will include a more straightforward text-entry provision, perhaps something like the banner message entry system. That would make it simpler for children to enter messages themselves.

According to the package, *Dino-saurs Are Forever* is designed for kids ages 3 and up. It should prove enjoyable to kids through at least fourth or fifth grade; however, 3- and 4-year-olds will probably require some parental help.

—S.H.

MouseStick

Advanced Gravis
1602 Carolina St.
Suite D12
Bellingham, WA 98226
(604) 434-7274
\$129

Functionality: 5	5
Documentation: 5	4
Usability: 4	3
Features: 5	2
Playability: 4	1
	0



The Advanced Gravis MouseStick has to be one of the most expensive joysticks available for any personal computer. But, then, how many joysticks come with 16K of memory, an LCD screen, an 80-page manual? How many joysticks are programmable?

An analog joystick can detect how far and how quickly you move the stick handle. While the Amiga hardware supports analog joysticks, almost all Amiga games only support simple switch-type sticks, which can only sense which direction you've moved the stick handle. The problem with bringing out an analog stick for the Amiga is that little of the software already on the market will support it.

The MouseStick gets around this problem by sending the same signals to the computer as a standard mouse.

It will perform like an analog joystick with any Amiga software that supports the mouse, even Workbench.

The MouseStick has four preprogrammed modes of operation, and you can save up to three custom programmed configurations. Reconfiguring the MouseStick is easy—just tap the fire button in a special sequence to enter the editor and then follow the instructions on the LCD screen. The preprogrammed modes are Auto-Centering, which centers the pointer on the screen; Vectoring mode, which continuously moves the mouse pointer in the direction you're holding the stick; Combination, which combines Auto-Centering and Vectoring modes; and Joystick, which emulates a switch joystick. You can also set any of the buttons to a rapid-fire mode, great for fast-action games.

Physically, the MouseStick looks like a standard pistol-grip joystick, with two buttons on the large base and one at the top of the grip. The joystick cable plugs into the Gravis MouseStick Power Unit (GMPU), a small box that contains the 16K ROM and LCD screen. The GMPU plugs into either joystick port on all Amiga models. The padded grip makes it comfortable to use, although people accustomed to ergonomic joysticks such as the Epyx 500XJ or Wico ErgoStick may find it bulky.

I tested the MouseStick with a number of programs. It really shines with flight simulators—*BattleHawks 1942*, which doesn't support a standard joystick, was much easier to fly, and I shot down my first bogey in GENIE's *AirWarrior* simulation while using the MouseStick. Although Spectrum HoloByte recommends the MouseStick for use with *Falcon*, I actually found that program easier to control with a switch joystick.

While I found playing *Hybris* and *Powerdrome* with a real mouse almost impossible, both programs were easy to control with the MouseStick. Some games just work better with a real mouse, though, such as *ShufflePuck Café* and *Populous*.

Oh yeah—it works with the Atari ST, too.

—D.A. ▸

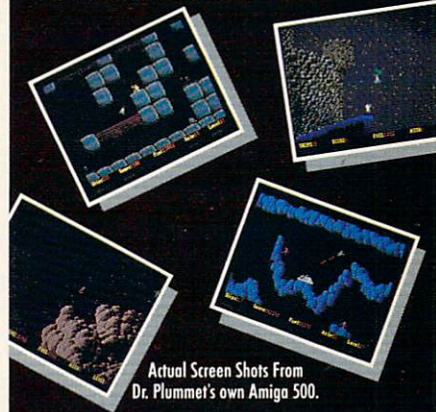
DR. PLUMMET'S HOUSE OF FLUX



DR. PLUMMET WANTS YOU...

To take the arcade journey of a lifetime! Pit your flying skills against the twisted, unpredictable forces of Dr. Plummet's House of Flux. Marvel at the incredible floating rocks in Zowie Land, or lay siege to the castle in Medieval Land. There's fun for invaders of all ages!

Dr. Plummet's House of Flux is 28 of the most bizarre, humorous, and frustrating screens in the universe, spread over 4 selectable missions, each one more difficult than the last! It's fighting aliens and the twisted, unpredictable forces of Dr. Plummet's fortress! But best of all, it's the most entertaining way to turn off those overworked brain cells for a while!



Actual Screen Shots From
Dr. Plummet's own Amiga 500.

FROM
microlusions™
—Interactive Entertainment—
NATURALLY!

17408 Chatsworth St., Granada Hills, CA 91344
Inside CA (818) 360-3715 Outside CA (800) 522-2041
Amiga is a trademark of Commodore/Amiga

Circle Reader Service Number 190

Red Lightning

Strategic Simulations
675 Almanor Ave.
Sunnyvale, CA 94086-2901
(408) 737-6800
Requires 512K
\$59.95

Playability: 2	5
Documentation: 3	4
Graphics: 3	3
Sound: 1	2
	1
	0

Dateline: the future. For years, the Russians have been negotiating to eliminate strategic and tactical nuclear weapons. With the fall of the Iron Curtain, all seems well. Unfortunately, we overlooked the Russian buildup of conventional weapons. Lulled into a false sense of security, NATO is unprepared for the devastating assault unleashed by the Warsaw Pact armies. Well, almost unprepared. It's your duty, as commander of the NATO forces, to stem the invasion.

This is the basic scenario for *Red Lightning*, a new war game from SSI. You can command either the Warsaw Pact or NATO troops against either a human or computer opponent.

There are three different scenarios included with *Red Lightning*. Each scenario has a number of different options including the use of chemical weapons, the strength of the Warsaw Pact troops, and control of the air force and navy.

Anyone who has previously played an SSI war game will be familiar with the basic layout of the game: a hexagonal grid superimposed on a map. Pieces have a certain number of movement points for each turn. Moving into another hex costs a certain number of movement points, depending on the terrain. The terrain also determines how well a piece can defend itself.

I dislike the method used to move pieces in *Red Lightning*. To move a piece, you first select it by clicking on it with the mouse. Depending on whether the piece is moving or attacking, you then either click on one of the adjacent squares or on a directional gadget on the upper right side of the screen. Why not click on a piece with the mouse and then, while holding down the mouse button, simply drag it to its destination? Even better, when a piece is selected, why not highlight

every position the piece can move to?

If you've played and enjoyed a previous SSI game, you'll find the computer opponent in *Red Lightning* a worthy adversary. If you're not used to SSI war games, you'll probably be disappointed in the game's lack of graphics and sound. *Red Lightning* is like a second baseman who hits 0.211 but commits few errors in the field—he may not be very exciting but he gets the job done.

—J.F.

Gauntlet II

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(312) 480-7667
Requires 512K
\$49.95

Playability: 5	5
Documentation: 3	4
Graphics: 5	3
Sound: 4	2
	1
	0

OK, *Gauntlet* fans, the game you've been waiting for is here. Mindscape has created a nearly perfect clone of this arcade megahit. No need to plunk any more of your hard-earned money into this arcade machine. Now, for a one-time fee of 50 bucks, you can take Thor, Thyra, Questor, and Merlin home with you. There are over 100 new levels to plunder, each deviously designed and guaranteed to challenge the most seasoned *Gauntlet* players.

When arcade games are ported over to the home computer, you generally lose a lot of the good stuff—color, sound, and so on. The final product merely carries the name of its arcade cousin. *Gauntlet II* breaks this barrier in a big way. After playing the game for a few minutes, you forget that you're even using a home computer. It's that good. Remember the ghosts, grunts, demons, and sorcerers from the original? They're all here, and they've been perfectly duplicated in both appearance and personality. The digitized sound effects are equally as good. You'll hear the old familiar alerts, "Warrior is about to die!" and "Elf needs food, badly." It's the same voice, too.

The gameplay is exceptional. The best feature of the game is its ability to

accommodate up to four players. Two players control their characters with joysticks, while the other two use the keyboard. But wait, there's more! If you elect to purchase the optional four-player joystick adapter, all four players can use joysticks.



I've never seen an arcade conversion done any better. The animation is fast, the sound effects are incredible, and the gameplay is second to none. If you've played *Gauntlet* in the arcade, you won't be disappointed with this sequel. If you haven't, don't bother—just buy *Gauntlet II*.

—T.T.

Battle Squadron

InnerPrise
128 Cockeysville Rd.
Hunt Valley, MD 21030
(301) 785-2266
Requires 512K
\$39.95

Playability: 4	5
Documentation: 4	4
Graphics: 5	3
Sound: 4	2
	1
	0

If you liked *Hybris*, last year's classic Amiga shoot-'em-up from Discovery Software, you'll love *Battle Squadron* from InnerPrise. While the same programming team produced both games, *Battle Squadron* is the more entertaining and challenging of the two.

What's not to like? The graphics are stunning, the sound is wonderful, and the gameplay is ideal for this kind of game.

The biggest breakthrough is in weapon control. Although the weapon you start with won't get you far, shrewd playing will earn you new weapons. For example, if you shoot every member of a horizontally flying squadron, you'll acquire explosive

missiles that can take out all nearby enemies.

There are four classes of weapon: red, green, blue, and yellow. If you destroy a certain heavily shielded enemy, a flashing square will appear. It will cycle through the four colors. Pick up the square when it's the color of the weapon class you desire. Every time you pick up a square, the power of your weapon increases; but every time you die, it decreases. Different weapons work best in different parts of the game.

Contributing to *Battle Squadron's* playability score is its two-player option. You and a friend can cooperate to shoot down the nasties. Any combination of joysticks and mice can be selected.

Add *Battle Squadron* to that short list of games—*Datastorm*, *Hybris*, *Shadow of the Beast*—that deserve to be arcade machines. It's a game that any shoot-'em-up lover will love.

—R.A.

Archipelagos

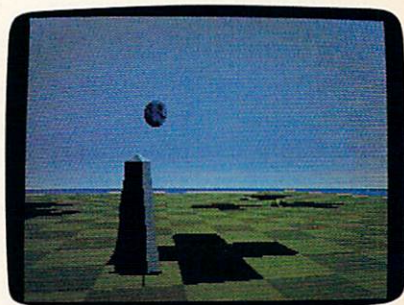
Britannica
345 Fourth St.
San Francisco, CA 94107
(415) 546-1866
Requires 512K
\$39.95

Playability: 4	5
Documentation: 3	4
Graphics: 5	3
Sound: 5	2
Originality: 5	1
	0

Imagine a future Earth where almost all life has been wiped out by pollution. The polar ice caps melted after the ozone layer was depleted, turning the planet's continents into thousands of barren archipelagos. The only remaining life forms are strange mutated plants that pollute the land with a bloodlike toxin.

Now imagine this scenario wrapped around one of the most original, engrossing computer games released in recent memory. *Archipelagos* is a programming masterpiece with strangely addicting qualities. Perhaps it's the colorful, 3-D graphics that cre-

ate an eerie otherworldly effect. Or maybe it's the dramatic soundtrack that changes to reflect what's happening onscreen. Whatever it is that creates the fascinating alien mood, it actually may keep you coming back to finish all 9999 levels.



You've been sent back to Earth to disinfect the land and make it inhabitable again. To do this, you must deactivate the nuclear power systems on each of the planet's archipelagos. On each level, you start by finding and destroying a network of nodes scattered about the island. Exploring the island



"A godsend for ACLS education"

The American Journal
of Emergency Medicine

Cardiac Arrest! puts you in the role of emergency physician, interpreting EKG's, vital signs, and lab tests, and ordering treatments. Winner of the 1988 Antic "Outstanding Product" Award, Cardiac Arrest goes "beyond ACLS". \$69.95

Code Team! prepares you for ACLS testing with "Megacode" practice, EKG's, and drug and procedure knowledge. Code Team! consists of three programs: EKG Teaching, CardioQuiz, and ACLS Protocols. \$69.95

The ACLS Teaching Series is Cardiac Arrest! and Code Team! in a single binder at significant savings. \$109.95

Blood Gases teaches difficult yet important material. Do "acid-base balance" and "A-a gradients" leave you breathless? You need this program. \$49.95

For Apple IIc/e/gs, Macintosh, Amiga
Atari ST, Atari XE, IBM with graphics card

Visa/MC orders: 801-756-6027
Check/P.O.'s: Mad Scientist Software
13422 Bayberry Circle
Alpine, Ut 84004

MAD SCIENTIST
SOFTWARE



Dealers: This software sells! Many of your customers need ACLS certification. Contact Iliad Software at 801-226-3270 for dealer/distributor delivery.

Circle Reader Service Number 191

More than just a Hard Disk Backup Utility

Express Copy

Rapidly copies directories and files to floppy disk

FAST Copies directories and files from Hard Disk to Floppy Disk at up to 1 MegaByte per minute. Can format, verify, AND fill a new floppy disk with files in less time than it takes AmigaDOS to format a new disk!

SAFE Other Hard Disk Backup Programs this fast create NON standard disks that can only be used by their program. NOT ExpressCopy! ExpressCopy creates STD DOS disks that look just as if you had done a copy from your Hard Disk to floppy. If your Hard Disk failed, the backup disks can be used NORMALLY from both the CLI and Workbench! This gives you a SAFE and EASY way to access important files you backed up.

Select files by their DateStamp, pattern matching, Archive Bit, and by source directory. Exclude files from being copied by filename pattern matching. All file attributes (DateStamp, Protection Bits, and FileComment) are retained. Options for setting the Archive bit for incremental backups, verifying the data written to floppy disk, and estimating the number of disks needed for the backup. Up to 4 copies of the backup disks can be created at a time, or disks can be pre-loaded in up to 4 disk drives. New disks are automatically formatted and verified. Easy recovery if a bad diskette is found. Parameters to be used for backups can be saved in configuration files. Either Normal or Fast File compatible disks can be written. Specifically designed for effective multi-tasking. Backup restoration can be done using any file copy program, a Directory Utility, or ExpressCopy's Restore program. Can be used from both the CLI and Workbench and has no copy protection. Fully documented with a 65 page manual which includes a 25 page section with help and ideas on how you can better organize and manage your Hard Disk.

All these features and speed for ONLY: Express-Way Software, Inc.

\$44.95 US

PO Box 10290
Columbia, MO 65205-4005
(314) 474-2984

Requires an Amiga with at least 512k ram and Version 1.2 or higher of AmigaDOS

Amiga, AmigaDOS, and Workbench are trademarks of Commodore-Amiga, Inc.

Circle Reader Service Number 192

is easy—just click on the spot you want to move to and you float forward. Watch out for the viral trees and other pollutants, though. If you touch an infected area, you're out of the game.

Destroying the nodes is as easy as clicking on them with your mouse pointer. The nodes have to be connected by a strip of uninfected land to the central power obelisk, and on higher levels you'll need to build land bridges to connect them. When all of the nodes on the island have been deactivated, you must destroy the obelisk. Do it quickly, though—if time runs out, the archipelago will be destroyed in a nasty meltdown.

On higher levels you'll need to deal with nasties such as out-of-control whirlwinds and necromancers, disembodied souls that eat away parts of the island.

If you're looking for a change from the drudgery of shoot-'em-ups, buy this program. *Archipelagos* is more than a game, it's an experience.

—D.A.

AmigaCOMAL

COMAL Users Group
5501 Groveland Terr.
Madison, WI 53716
(608) 222-4432
Requires 512K
\$99.95

Functionality: 5	5
Documentation: 3	4
Usability: 4	3
Features: 4	2
	1
	0

What's wrong with Amiga Basic? Plenty. No structured variables. Slow execution time. Lack of structure and expandability. *AmigaCOMAL* solves these problems and more.

COMAL was a long time in coming for the Amiga, but now that it's here it should pick up a devoted following. It's an ideal learner's language, and it's powerful enough to keep the great majority of programmers satisfied.

AmigaCOMAL is an interpreter, so you can develop programs quickly. The integrated editor is a plus, but you'll be annoyed to discover that

your *AmigaCOMAL* program lines must have line numbers. Even Amiga Basic doesn't force this indignity upon its users. If you prefer your own editor, be prepared for the hassle of swapping the file back and forth between the two editors.

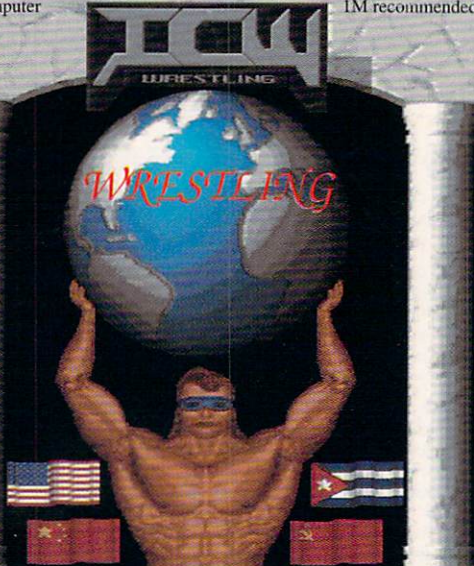
AmigaCOMAL is not going to steal many programmers from the compiled languages—C and Modula-2—that have prospered on the Amiga. For one thing, its executable code doesn't match the speed or small size of programs compiled in those languages. It's not a good language for small utilities, but it shines as an applications language. If you've tried C and given up, you're sure to love *AmigaCOMAL*.

If speed is a problem, consider the \$34.95 Developer's Package, which includes a compiler and additional documentation. This package also lets you write extensions (called *packages*) in machine language or C. The interface is quite nice.

For those who haven't yet found their ultimate Amiga programming en-

INTERNATIONAL

For the Amiga Computer



512k Required
1M recommended

CHAMPIONS

At Last! The excitement of championship wrestling comes to the Amiga. Punch, Kick, Suplex, and piledrive your way to the Title Match. Pose for the crowd as you crush opponents with your Patented Death Move, or finish them off with the dreaded Figure-4. Win \$50.00 in "Pin the Champ" contest call for details.

Over 300 frames of animation per wrestler, digitized sound, 1 and 2 player action plus demo mode, 4 skill levels including Contest, many moves including Atomic Drop, PowerSlam, Shoulder Tackle, both Running and Climbing the ropes, Airplane Spin and more.

Only \$29.95+\$2.50 Shipping/Handling (Ca. res add sales tax)
CAPPCCO 2943 Ridgeway Dr. National City, Ca. 92050
Phone Orders for fast shipping (619)470-4580
Circle Reader Service Number 136

MCP OFFERS TRAINING, INSTALLATION, SALES AND REPAIR SERVICES. PLEASE WRITE, CALL, OR FAX FOR DETAILED INFORMATION.

COMMODORE-AMIGA VIDEO SYSTEMS

SPECIAL

BASIC SYSTEM: 

NEW! AMIGA 2500/30
68030, 32 bit CPU, 3MB ram,
40MB (19ms) Hard Drive, 3.5" Drive,
A1084 RGB Color Monitor (640 x 400) *plus*

NEW! SUPERGEN S GENLOCK
Pro Video Gold or Broadcast Titler
Deluxe Paint III

Complete System from \$6499.95
other systems / configurations available

TOTAL SYSTEM SOLUTIONS AT AFFORDABLE PRICES.

MCP ASSOCIATES  **MCP Associates, Inc.**
28-21 ASTORIA BLVD. (MicroComputer Associates, Inc.)
ASTORIA NY 11102-1933
FAX: 1-718 956-9028

1-718 956-9000

Authorized Dealer ■ Retail Showroom ■ Parking Available

Circle Reader Service Number 154

environment, and for amateur computer-language collectors, I recommend *AmigaCOMAL*.

—R.A.

ExpressCopy

Express-Way Software
P.O. Box 10290
Columbia, MO 65205-4005
(314) 474-2984
Requires 512K
\$44.95

Functionality: 3	5
Documentation: 4	4
Usability: 4	3
Features: 3	2
	1
	0

It's the stuff of nightmares—a requester pops up onscreen as you're booting your Amiga. *Error Validating Volume HardDisk: Key 85272 Not Set* it says, and you're more terrified than you were when you saw *Friday the 13th, Part XXIV*. Half of your hard drive is unreadable, and you never backed it up. A backup program is like insur-

ance—it seems like a lot of trouble until something goes wrong, and then you're glad you have it.

What differentiates *ExpressCopy* from other Amiga backup programs is that it saves backups on standard AmigaDOS disks. If your hard drive does grind its way into becoming a \$600 paperweight, you can still directly access your files and programs while you await a replacement. You can save your backups on standard format disks or on FastFileSystem floppies. FastFileSystem (FFS) floppy disks won't be directly supported by the operating system until WorkBench 1.4, though, so you'll have to modify your mountlist to use FFS backup disks.

ExpressCopy is fairly speedy. With write-verification turned off, the program backed up my hard drive in about the same amount of time as *QuarterBack 2.3*, which uses a custom disk format.

ExpressCopy can utilize up to four floppy drives for a backup. This speeds the process considerably, because the program can be writing to

one drive while you swap the disk in the other. Alternatively, you can have the program make as many as four backup copies of your hard drive simultaneously. However, *ExpressCopy* will only save to floppies, so you can't back up to a streaming tape drive or second hard disk.

You can select which files you want backed up by date, by archive bits, or by pattern matching. Unlike most backup programs, however, you can't click on a group of files and back up just those files. If your hard drive is cluttered with a lot of files that you don't really need backed up, you may find this a serious limitation.

You won't find a program better at multitasking than *ExpressCopy*. Not only can you adjust the program's priority while it's running, you can also pause in the middle of a backup sequence if you need to use the floppy drives for another purpose.

If you like the security of backups on standard AmigaDOS disks, *ExpressCopy* is the way to go.

—D.A. >

WIN BIG MONEY!

The COMPLETE

Lottery TRACKER and WHEELER™

Now AMIGA Computer owners can enjoy the same popular software program for pick-6 Lotto Games that has made BIG MONEY WINNERS of people from all over the United States! Just look at some of the features included in the NEW VERSION 3.0 DELUXE UPGRADE of The COMPLETE Lottery TRACKER and WHEELER™:

- Record and track up to 1000 past winning numbers and dates
- Produce expert trend charts for HOT and DUE numbers
- Track as many State and International games as you like
- Produce statistics for all numbers played
- Check your bets for winning combinations
- Print charts, stats, recorded numbers, and wheeling systems!

Use Our Years of Experience with YOUR Computer Advantage!

Choose From The Worlds Most Popular Wheeling Systems!

SEARCHING HIGH and LOW MENU: • NEW! SKIP and HIT CHART • NEW! Number SEQUENCE Chart • NEW! Number OCCURRENCE Chart • NEW! REPEATING SETS Chart... PLACE YOUR BETS MENU: • NEW! "ROLL YOUR OWN" Tickets Feature • NEW! Data Base TICKET SEARCH... WINNING NUMBERS BANK: • NEW! Last Winning Entry and Date Display!

When We Say Complete... WE MEAN COMPLETE!

ORDER NOW! only \$39.95 plus \$2.00 S&H

ENTERTAINMENT-ON-LINE, Inc.
P.O. Box 553, Dept. AM
Westboro, MA 01581



MC/Visa



Call TOLL FREE 1-800-824-7888
In Canada 1-800-544-2600

© 1989 Entertainment-On-Line, Inc. All Rights Reserved.

Paperboy

Mindscape
3444 Dundee Rd.
Northbrook, IL 60062
(708) 480-7667
Requires 512K
\$49.95

Playability: 2	5
Documentation: 3	4
Graphics: 2	3
Sound: 4	2
	1
	0

It's the classic case of too little, too late. Five years after a moderately successful run in the arcades, Mindscape's *Paperboy* finally arrives for the Amiga. The only question is, *why?*

Assume the role of a trusty paperboy and pump your pedals through a vicious suburban jungle. Your goal: Deliver the daily news to local subscribers. Press the fire button to send the paper sailing; with luck it will fly into the correct receptacle. There's more to this job than simply flinging newsprint, however.

Obstacles abound along your route. Barking dogs nip at your heels.

Drunks and joggers stumble into your path. Speeding cars rule the streets, and skateboarders terrorize the sidewalks. Cut across lawns to avoid hitting kids at play, but watch out for that fence. It's a papercarrier's nightmare.



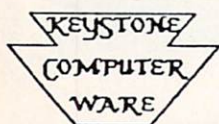
Simple avoidance is the key to survival. You must learn to anticipate danger and maneuver around it. Since time isn't a factor—apparently your paper attracts a very sedate readership—you can slip your bike into low gear and take your time. Given the

horrendous steering and braking capabilities of your bicycle, you don't have much choice. Slow joystick response makes every turn a potential disaster.

As your character edges up the diagonally scrolling screen, obstacles stand frozen, as if they're waiting for a cue to spring to life. Although this gives you additional time to react, it also creates a static, lifeless feel. This is strictly pattern play, with no random elements. In other words, there are no surprises.

Points are scored for landing papers in each subscriber's paperbox. Additional points are earned by tossing papers through nonsubscribers' windows and at trash cans, birdbaths, and gravestones. Let's just hope the circulation department has an unlisted number. Reach the end of your daily route in one piece and you get to take a quick ride on the practice track and hurl papers at targets for bonus points. No big deal.

Paperboy boasts crisp, colorful graphics and a bouncy jazz sound-



ORDER 24 HRS.

800-962-3026

CUSTOMER SERVICE: 215-374-7780
10-7 M-F 9-12 SAT. E.S.T.

SOFTWARE

ARCHIPELAGOS	25.00	PROFESSIONAL PAGE 1.3	231.00	KRONOS SCSI CONTROLLER	214.00
AREXX	29.00	PROWRITE 2.5	74.00	MIDGET RACER W/68020	345.00
B.A.D.	29.00	QUARTERBACK	42.50	MINIMEG A500 W/1 MEG	440.00
BATTLEHAWKS 1942	31.50	RAW COPY 1.3F	35.00	MINIMEG A500 W/2 MEG	695.00
BROADCAST TITLER	181.00	RED LIGHTENING	40.00	SEAGATE ST255N 20 MEG	340.00
DELUXE PAINT III	99.00	SCULPT ANIMATE 4D	375.00	SEAGATE ST157N 48 MEG	435.00
DELUXE PAINT II	54.25	SCULPT ANIMATE 4D JR.	91.25	SEAGATE ST277N 65 MEG	500.00
DIGI PAINT 3	62.00	SHADOW OF THE BEAST	31.00	SEAGATE ST296N 85 MEG	580.00
DIGI VIEW GOLD	130.00	SHUFFLEPUCK CAFE	24.75	SUPRA MODEM 2400	125.00
DRAGON'S LAIR	34.50	SIM CITY	30.00	SYQUEST 44 MEG REMOVABLE	900.00
DRAGON'S LAIR II	41.00	SPACE ACE	35.25		
DUNGEON MASTER	23.00	STAR COMMAND	34.75		
ELITE	27.00	SUPERBASE PERSONAL 2	90.00		
F-16 COMBAT PILOT	35.00	SUPERBASE PROFESSIONAL	202.00		
F-16 FALCON	29.00	SWORDS OF TWILIGHT	35.00		
F/A-18 INTERCEPTOR	34.00	TEST DRIVE II	28.50		
HILLSFAR	34.50	THE KRISTAL	31.50		
HOSTAGE	28.50	THE WORKS PLATINUM	177.00		
IND. JONES CRUSADE ADV.	34.00	TV SPORTS BASKETBALL	33.50		
IND. JONES CRUSADE ACT.	27.25	TV SPORTS FOOTBALL	31.50		
IT CAME FROM THE DESERT	34.75	WAR IN MIDDLE EARTH	31.00		
KEEP THE THIEF	34.50	WAYNE GRETZKY'S HOCKEY	30.00		
LATTICE C 5.0	195.00	WHERE IN U.S.A. IS... DIEGO	30.00		
LOST DUTCHMAN MINE	29.50	WHERE IN WORLD IS... DIEGO	27.00		
MAGIC JOHNSON	30.00				
MANIAC MANSION	31.00				
MICROFICHE FILER PLUS	107.00				
MUSIC X	174.00				
OPTICKS	117.00				
PAGESTREAM	127.00				
PEN PAL	90.00				
PHASAR 3.0	55.50				
PHOTON PAINT 2	89.00				
PIPE DREAM	27.50				
POPULOUS	33.00				

HARDWARE

8 UP W/OK	183.00
8 UP W/2 MEG	435.00
A500 2 MEG W/2 MEG	530.00
A1000 2 MEG W/2 MEG	530.00
AMTRAC TRACKBALL (NEW)	70.00
APRODRAW 12 x 12	475.00
CA-880 EXTERNAL DRIVE	140.00
HARDFRAME CONTROLLER	230.00

ORDERING INFO: FOR FAST DELIVERY, SEND CERTIFIED CHECK OR MONEY ORDER. C.O.D.

RETURN POLICY: ALL RETURNS MUST HAVE AN RMA #. DEFECTIVE MERCHANDISE UNDER WARRANTY WILL BE REPAIRED OR REPLACED. PRODUCTS MUST BE RETURNED WITH ALL ORIGINAL PACKAGING. NOT RESPONSIBLE FOR DAMAGE CAUSED BY SOFTWARE AND/OR HARDWARE. PRICES SUBJECT TO CHANGE WITHOUT NOTICE. CALL FOR FREE CATALOG.

KEYSTONE COMPUTER WARE
P.O. BOX 13771
READING, PA 19612-3771
C.O.D. / AMEX

COMPARED TO
THE BUDGETS
OF MOST ARMIES,
OURS IS A DROP
IN THE BUCKET.



SHARING
IS CARING

track. Unfortunately, gameplay is both repetitive and outdated. Five years ago this game might have caused a sensation. Today it merely takes up valuable retail shelf space while other, more original software designs struggle to survive.

—S.M.

Downhill Challenge

Broderbund
17 Paul Dr.
San Rafael, CA 94903-2101
(415) 492-3200
Requires 512K
\$34.95

Playability: 4	5
Documentation: 2	4
Graphics: 5	3
Sound: 3	2
	1
	0



Just because I don't know how to ski, it doesn't mean that I can't enjoy participating in a good skiing competition on my Amiga now and then. Fortu-

nately, I now have an outlet for my undeveloped abilities on the slopes.

Downhill Challenge is the first skiing game I can remember for the Amiga that doesn't have other sporting events on the same disk, and it's about time. Despite poor documentation, I had fun gliding down the courses available.

Downhill Challenge has four skiing events: Slalom, Giant Slalom, Downhill, and Jumping. The addition of cross-country skiing would have made this a complete skiing game. Broderbund probably just wanted to capture the skiing events in which you try to go as fast as you can and still maintain your balance, coordination, and finesse. To that end, it has succeeded.

In one aspect of the game, Broderbund has failed. The manual is

poorly written and doesn't describe what you have to do in each event. It only describes the joystick movements, not how to win an event. It took me a few minutes to figure out how to get scores in the jumping event, but, despite this shortcoming, *Downhill Challenge* is a very exciting game.

As on a real slope—according to a friend who skis—you can't see too far ahead and must be able to respond quickly to changes in direction. Your joystick will definitely get a workout with this game.

Graphics are what make a skiing game interesting. In *Downhill Challenge*, they are flawless. From the scrolling background to the little touches such as rolling into a snowball when you crash, the artwork is beautiful.

Fans line the course and, if you don't stop, you may crash into the finish line at the end. The attention to detail is well appreciated. Although sounds are minimal, the *whooshes* of

Even Up The Score!



Let your Amiga give you the Advantage in making better investment decisions!

Color graphics of Individual Stocks and General Market Trends help you make more profit in this volatile market. High Low Close, Moving Averages, Centered Moving Averages, Volume, Relative Strength, Stochastics, Wilder's RSI, Cycles, Trend lines and Momentum. Powerful reports such as the Relative Strength Report help you pick the best performers. Use the Market Barometers to help you time your market entries. Update Stocks, Mutual Funds and Commodities manually or automatically. Easy to use communications included. *Call Today!* for complete information: (313) 463-4995.

Version 2.0



See your local Dealer or Call:
Software Advantage Consulting Corporation
38442 Gail, Mt. Clemens, MI 48043

Only \$99.95 Demo Disk \$7.95

Amiga and the Investor's Advantage are trademarks of their respective companies.

Circle Reader Service Number 189

IF YOU:

- are having trouble using the Workbench
- are discouraged because the CLI does not obey you
- are running programs only from the Workbench
- have not tried multitasking
- have not used ED or modified your startup-sequence
- have not downloaded public domain software
- are unfamiliar with the "Know Your Path" rule

Then the AmiKit is for you. It provides hands-on, step-by-step, instructions for all of the above and much more.



An Introduction to the Workbench™ and CLI

The AmiKit includes an informative book to help you start using the Workbench and the CLI. You will also learn how to use a modem to access bulletin boards to download free public domain software.

The book is written with the beginner in mind, assuming no previous knowledge of the Amiga.

With the AmiKit you get two disks containing some very powerful public domain programs such as a wordprocessor, a communications program, a spreadsheet, a database, disk utilities, and much, much more. A third disk contains the latest, official, version of the Workbench.

Suggested Retail \$39.95 (160+ pages book and three disks)

Available now from your local Amiga dealer or

Vega Technologies
3171 Iris Street, San Ysidro, Ca. 92073
Tel. (619) 477-2024 or (619) 575-4322 Fax (619) 575-4861
Circle Reader Service Number 115

the skis come off well. Overall, *Downhill Challenge* is a fine effort. Put a decent manual in the game, and the package would be complete.

—R.C.

Powerdrome

Electronic Arts
1844 Gateway Dr.
San Mateo, CA 94404
(800) 245-8525
(800) 562-1112 (in California)
Requires 512K
\$39.95

Playability: 3	5
Documentation: 4	4
Graphics: 4	3
Sound: 4	2
	1
	0



After reading the package blurbs, as much as I wanted to like *Powerdrome*, I was unable to arouse any enthusiasm for it. Since this is a normal state when I find a game I'm unable to play (let alone win), you should take my opinion with a grain of salt.

A racing game of the future, *Powerdrome* allows you to select from several tracks on several planets. Since the tracks exist in three dimensions rather than the usual two, and since the planets have different gravitational forces, you'll find that techniques developed for one track do not necessarily apply to others.



Your race vehicle is more aircraft than auto. It skims over the track and banks sharply in turns. As it does with aircraft, a sharp bank tends to drop the nose of the vehicle, plowing you into the track unless you also pull

back on the joystick or mouse.

The track itself is best described as an open tunnel: You can see the sky but are penned in at the sides by walls that seem just far enough apart for the passage of your craft. It's illegal to fly above the walls and more than easy to fly into them, although your craft will take about 20 crashes before it becomes disabled.

You can make practice runs on an empty track or pit your skills in a race against four other opponents. It seems unfair that they can whiz around the track, lapping me unmercifully while I bump into walls and floor. As a remedy, you can activate a repeller field that keeps you from crashing into the walls; this makes the plane 50 times easier to fly.

Alternatively, you can link with another Amiga-using friend through use of a connecting null cable. While this means the Amigas must be rather close together, the advantage is that you compete with someone on your own level.

In spite of good graphics, good sound, and adequate documentation, I find *Powerdrome* requires more skills than I am willing to spend time developing. Also, I found the joystick made control more difficult than the mouse.

—E.B.

Case No. 05734

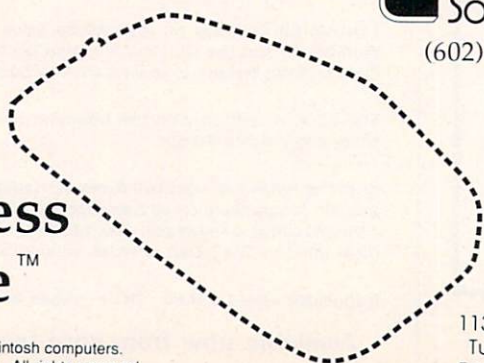
AMERICA'S MOST WANTED MOUSE

Wanted for over 200 counts per inch and operating without a cord. Also wanted for being the smoothest mouse available for all Amiga computers. Armed with features and dangerous to all other mice, it has eluded capture for even a mug shot. In the event that you come in contact with this mouse, be sure to purchase it immediately.

For further information, our agents are standing by.
Suggested retail \$129.95

Practical Solutions®
(602) 322-6100

The Cordless Mouse™



1135 N. Jones Blvd
Tucson, AZ 85716
Fax (602) 322-9271

Also available for ST and Macintosh computers.
©1989 Practical Solutions, Inc. All rights reserved.

SuperBack

The Disc Company
11022 Santa Monica Blvd.
Suite 440
Los Angeles, CA 90025
(213) 478-6767
\$79.95

Functionality: 4	5
Documentation: 4	4
Usability: 5	3
Features: 3	2
	1
	0



SuperBack is an exceptionally fast backup program for Amiga hard drives. It doesn't have all the features available on some of the other Amiga backup programs, but what it lacks in complexity it makes up for in usability.

Unlike most other hard drive backup utilities, *SuperBack* never requires you to remove your hand from the mouse (except maybe to swap disks, but you have another hand for that). The user interface is well thought

out and understandable—so much so that you never need the manual. Both the gadgets and the file selectors are well designed and very functional.

Two of *SuperBack*'s features may seem small and unimportant, but they really help make the program easier to use. First, *SuperBack*, like any good backup program, estimates how many disks will be required to back up the selected drive. Simple as this feature is, several Amiga hard drive backup programs don't have it. Second, *SuperBack* uses all free RAM to buffer the files it reads from your hard drive. This buffering allows it to continue to read from the hard drive while you swap backup disks. This feature can cut the backup time by several minutes.

SuperBack isn't perfect. If you ask it to verify data while writing files to the floppy and you insert a bad disk, *SuperBack* aborts the backup instead of requesting another disk. It also backs up files only to device DF0:, so you can't back up your hard disk onto streaming tape or a videotape.

One rumored flaw with *SuperBack* is that you can't use it to back up your hard drive if the drive has an error that prevents you from writing to it. This rumor is simply not true. You can't do a full backup in this case because *SuperBack* must be able to set the archive bit of each file it backs up. But you can use the incremental backup to save the files that have been changed since your last full backup.

Several hard drive backup utilities are more complex and offer more features than *SuperBack*, but none are faster or easier to use. I highly recommend this program.

—D.M.

The Enigma Device

King Publishing
5300 Greenvillage Rd.
Chambersburg, PA 17201
(717) 261-0512
Requires 512K
\$39.95

Playability: 5	5
Documentation: 3	4
Graphics: 2	3
Sound: 1	2
Challenge: 4	1
	0



The original Enigma Device was a German machine built for encrypting and decrypting secret messages during World War II. It used mechanical wheels that had to be placed in exactly the right position to encode and decode messages. Today, King Publishing has turned the concept of the Enigma Device into a captivating strategy game for the Amiga.

The Enigma Device is a game in which you must decipher encrypted messages. The word puzzles are solved in much the same way as you solve a cryptoquote that's found in the comics section of a newspaper—through letter substitution. You can use the program's built-in messages, or you can add your own for friends to try.

During play, a scrambled message appears with the proper punctuation marks already in place. Using the mouse or keyboard, you select a letter that you feel should replace a letter in the scrambled message. Letters are replaced on a one-to-one basis. In other words, D can only

Quality Clips for Your Quality Art!



Acft Pics™

Suggested Retail \$49.95



Map Pics - World™

Suggested Retail \$59.95



Heraldic Pics™

Suggested Retail \$34.95



China Pics™

Suggested Retail \$34.95



Christmas Pics™

Suggested Retail \$34.95



Bird Pics™

Suggested Retail \$29.95

These image-packed screens are in 16- and 32-color IFF format for use with paint packages such as Deluxe Paint II on an Amiga 500, 1000 or 2000.

All packages require AmigaDos V1.2 or V1.3, a minimum of 512K of memory and a paint package.

To order, see your dealer or contact :

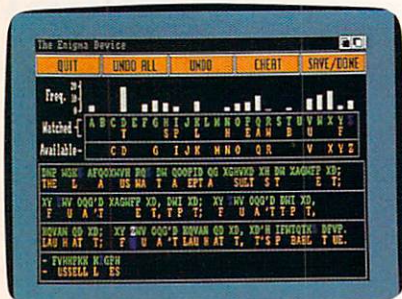
Tangent 270
PO Box 38587-A
Denver, CO 80238
(303) 322-1262

TANGENT
270

Deluxe Paint II is a trademark of Electronic Arts; Amiga and AmigaDos are trademarks of Commodore Amiga.

Circle Reader Service Number 185

replace an *E* and not both an *E* and a *Q*. When a letter is used, it disappears from the list of letters that you choose from.



There are 11 categories with different puzzles that you can select. The categories are Beginner's Luck, Definitions 1 & 2, Easy Does It, Easy Humor 1 & 2, English Proverbs, Great Thoughts, Humorous Quotes 1-4, Miscellaneous Proverbs, Murphy's Laws, Who Said That, and Wisdom 1-4. Both my wife and I tried puzzles from different categories and enjoyed them all.

Up to 20 people can play, and the program will save to disk the results of their performances. The program multi-tasks nicely and can be run from the Workbench or the CLI. I recommend this game to people who are more interested in stretching their minds than in blowing away aliens.

—K.B.

Joe Blade

DigiTek Software
8910 N. Dale Mabry
Tampa, FL 33614
(813) 933-8023
Requires 512K
\$29.95

Playability: 4	5
Documentation: 3	4
Graphics: 4	3
Sound: 3	2
	1
	0

Joe Blade proves the adage that there is nothing new under the sun—or in computer gaming. Yet, it also proves that even clichés can be enhanced to seem fresh and new—especially when wrapped around a time bomb.

The scenario is simple and is briefly stated on the half-page documentation: Six world leaders have been kidnapped and are being held for ransom. Enter Joe Blade, who must

infiltrate enemy headquarters and effect a rescue. We've all seen several variations of this plot, most recently in *Rambo III*, the game and the movie.

Wearing combat fatigues and carrying a light rifle, Joe Blade bops into the fortress, which, as is soon apparent, is a maze. This one, however, is seen from eye level, so only one room is visible at any time.

Stupid sentries (how else can you explain that they are oblivious to your presence?) patrol various corridors and aren't really a problem until you run out of ammunition. You are always quicker on the draw than they are.



Various tools, large scale so they can be found easily, lie about; you pick them up by moving past them. These include cell keys, enemy uniforms, hostages, and presumably extra ammunition—though I've never found the latter.

One "tool" you'll wish to avoid is a large hand grenade. Pass over it, and the screen instantly changes to show an alphabetical access code. Similar to the multiple-dial combination locks found on luggage and briefcases, the five dials display letters of the alphabet. Your task is to arrange them in alphabetical order.

It's almost a no-win situation: If you don't solve the code, the bomb explodes and the game is over; solve it and the clock starts running, giving you 20 minutes to effect the rescue. Since I've never encountered a hostage prior to the bomb, I must assume this step is a necessary evil.

In the final analysis, it is this complication, combined with the graphics and animation, that provides the reasons for playing and enjoying *Joe Blade*. There is enough action, enough puzzlement, and enough frustration to make it a game you won't soon stop trying to win.

—E.B.

YOU'RE MISSING OUT

If You Don't Get the Disk

You'll miss one of the best parts of *Amiga Resource*.

- ▶ IFF pictures from "Amiga Art Gallery"
- ▶ digitized sounds
- ▶ "Best of the Boards"
- ▶ 8-color Workbench icons
- ▶ optimized disk layout
- ▶ programming examples
- ▶ and much more

And you'll find all the documentation for the disk in the following "On Disk" section.

Amiga Resource Disk expands beyond the limits of a paper magazine.

-----ORDER NOW!-----

YES! Send me _____ copies of this issue's AMIGA RESOURCE DISK (Feb. 1990). I've enclosed \$7.95 plus \$2.00 postage and handling (\$9.95) for each disk.

Name _____

Address _____

State/Province _____

ZIP/Postal Code _____

Mail to: Amiga Resource Disk
P.O. Box 5188
Greensboro, NC 27403

Amount (\$7.95 per disk) \$ _____

Postage (\$2.00 per disk) _____

Sales Tax* _____

Total \$ _____

For credit card orders: (\$20.00 minimum)

MC ☐ VISA ☐ Exp. Date _____

No. _____

Signature _____

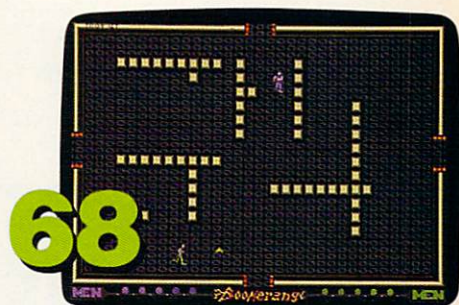
(Required)

*Residents of NY, PA, and NC add appropriate sales tax for your area. Payment must be made in U.S. dollars by check or credit card drawn on U.S. bank.

ON DISK

Your Guide to This
Issue's Programs

Amiga Resource
Volume 2, Number 1
February 1990



CONTENTS

68 Boomerang

You and a friend become mortal enemies in a deadly maze of walls.

68 NameBase

It keeps track of names and addresses, prints reports, and even dials the phone.

70 Req

Give almost any program a standard file requester, and make it Workbench-friendly.

72 Amiga BBS List

Complete U.S. and Canada bulletin board list. Double-click to find the numbers in your area.

72 Disk Update

75 How to Use the Disk

See page 66 for ordering information.



ST	Name	Number	Baud	Description
NY	A.M.U.G.	516-234-6046	24	BBS-PC! 135 100% Amiga PD/MIDI
NY	Weekend Warrior	516-328-8856	24	BBS-PC! 65
NY	Hots! BBS	*516-331-6079	24	Express
NY	Lion's Den	516-399-1928	24	BBS-PC!
NY	East Coast MIDI	516-474-2450	96	Midi / 2 lines
NY	L.I. Anigans	516-489-2745	24	BBS-PC! 65
NY	LICA limbo	*516-561-6590	96	PCBoard Users Group
NY	KOIRI	*516-624-9597	12	Image 28
NY	Traffic BBS	516-696-4365	24	BBS Pro 220 Amiga Section
NY	The Palace Gates	516-698-6182	24	MajorBBS 48
NY	Software Resource	516-736-6662	12	FoReM 28
NY	Mozart	516-751-1634	24	UseNet
NY	All American BBS	516-798-4891	24	Amiga Section
NY	East Coast MIDI	516-928-4986	96	Midi / 2 lines
NY	Ancient Pond	*516-935-2827	96	Wildcat! 40
NY	The BBS	518-381-9757	12	QUIX 85
NY	RockCollege	518-442-5738	24	RBBS 2 lines
NY	RockCollege	518-442-5739	24	RBBS 2 lines
NY	Calvin's Saloon	*518-452-8404	24	RBBS 92
NY	Calvin's Saloon	*518-479-7948	24	WWIV 150
NY	Calvin's Saloon	*518-489-5654	96	WWIV
NY	Calvin's Saloon	*518-489-7885	24	BBS-PC! 65
NY	Brand X Fido	518-489-8968	24	Formerly in CT.
NY	Land Lost	*518-584-0103	24	RBBS 2 lines

ALSO ON DISK

21 CLI Clips: SysCheck

76 Programmer's Page: FullPath

91 Best of the Boards: Script

94 Amiga Art Gallery

All "On Disk" software is original work and not in the public domain. These programs are copyright 1989 COMPUTE! Publications, Inc., all rights reserved.

Boomerang

Kevin Dixon

Amiga Version by Troy Tucker

You may already know that the boomerang is a lethal weapon. But the odds are that you don't realize just how lethal it can be. Once you play *Boomerang*, a great two-player arcade game for your Amiga, you'll know—and you'll never forget the lesson.

the game on an Amiga will need two joysticks.

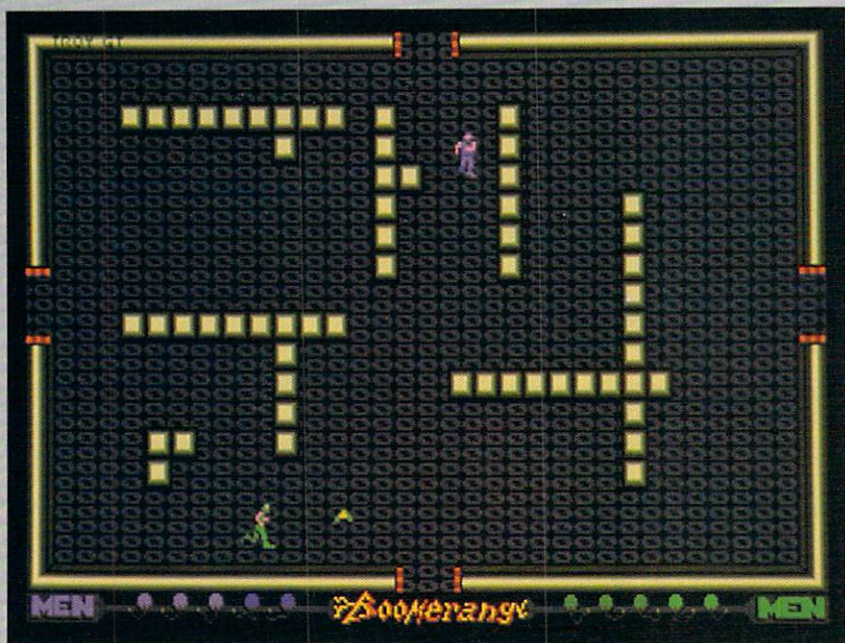
To play, double-click the *Boomerang* folder to open it, then double-click on the game's icon to get started. When the game screen appears, plug in two joysticks. If you wish to copy the game to another disk, be sure to drag the entire folder to the other disk.

Choose Your Arena

Boomerang is typically played in a maze of randomly placed walls, but when you first

ang, just move the joystick in the direction you wish it to go. With practice, you'll be able to send your boomerang out for a visit and bring it back.

Time to get nasty. Hit your opponent with your boomerang. Your opponent will lose one of five lives and you'll both return to your respective corners. Lives are indicated at the bottom of the screen. Each lit balloon indicates a life held in reserve. A dim balloon indicates a life lost. After you've done in your opponent five times, the game is over—you've won.



Boomerang takes place in a cold and deadly arena. Besides the walls, there's just you, your opponent, your boomerang, and his or her boomerang. Although the requirements for the real-life version of *Boomerang* are only two boomerangs, mortals playing

load the game you have the option of playing in an empty pit. If you'd like to play in this pit, press Return. Otherwise, press the space bar. Each press of the bar will place you into a new room with randomly generated walls. When you're satisfied with the playing field, press Return. Press Esc to exit the game.

Before your opponent gets his or her bearings, take a moment to soak in the environment. The green player begins the game in the bottom left corner of the screen. The purple player begins in the top right. You move by pressing the joystick in one of the four cardinal directions. The pit is surrounded by four walls, but each wall has a hole in it. You can run through this hole and end up on the other side of the screen. Try it.

Now brandish your weapon. To throw the boomerang, press the joystick's fire button. The boomerang will fly through the air until it hits a wall. Go pick it up. Throw the boomerang again, but this time steer it as it flies through the air. To steer the boomer-

NameBase

Denny Atkin

You have an important phone call to make, but you can't find the phone number. Let's see. . . Did you write it on the back of the phone book, or is it scribbled in lipstick on that napkin?

Now you can end the "Where did I write that?" confusion with *NameBase*, the address-book program that lets you dig your monitor out from under a sea of Post-it notes.

Features

NameBase is an electronic address book that keeps track of people's names, addresses, phone numbers, and up to two lines of additional information for each person. The number of entries is limited only by available memory and disk space.

If you have a modem, you can use *NameBase* as a phone dialer. It's as easy as finding the name of the person you want to call, clicking on Dial, and picking up the phone.

And if you have trouble remembering how to spell the name you're looking for, *NameBase* comes to the rescue with its SoundEx search routine, which can find names that *sound* like the name you enter. For example, typing *Forrester* will find *Forster* and *Forester*. Or you can type *Ret* to find *Rhett*.

Of course, because the Amiga isn't quite a portable computer, *NameBase* isn't always as convenient as your little black book. No problem—just use *NameBase* to print a complete address or phone list to take with you.

SPECS

Boomerang

PROGRAM SIZE: 10,976 bytes

SUPPORT FILES

boomer1.pic	14,254
boomer2.pic	12,108
samples/	
boom.snd	9,262
footsteps.snd	1,339
spin.snd	1,364

MINIMUM CONFIGURATION

512K RAM

AmigaDOS 1.2

ENVIRONMENT

Workbench

Double-click icon

CLI

RUN BOOMERANG

Getting Started

NameBase works from the CLI or the Workbench. The program opens on its own screen, so you can keep it in the background for quick reference without cluttering up your Workbench screen. To start the program, open the NameBase drawer and double-click on the NameBase icon, or type CD RESOURCE5:NAMEBASE and then RUN NAMEBASE from the CLI.

When you start *NameBase*, it looks for a default file called NameBase.addr, first in your current directory, and then in the S: directory of your boot disk. If the file is found, the names and addresses that it contains are automatically loaded into the program.

On the *NameBase* screen, you'll find an address window and a number of gadgets. Below the address window are two arrow gadgets that move you forward and backward through the list of names. The list is always kept in alphabetical order, based on last names. The program's other gadgets, top to bottom, are listed below.

Add. Click on this to enter a new address. A cursor appears in the first line of the address window. Enter the first name of the person whose address you are adding and press Return. You can continue to enter the rest of the fields this way—Last Name, Street, City, State, Zip Code, Phone, and Comments—until you reach the bottom of the window. If you make a mistake, just click on the line you want to change, make your corrections, and hit Return.

Delete. Selecting Delete brings up a requester which lets you delete the current record or all the records currently in memory (so you can start a new file). Clicking on Cancel aborts without deleting anything.

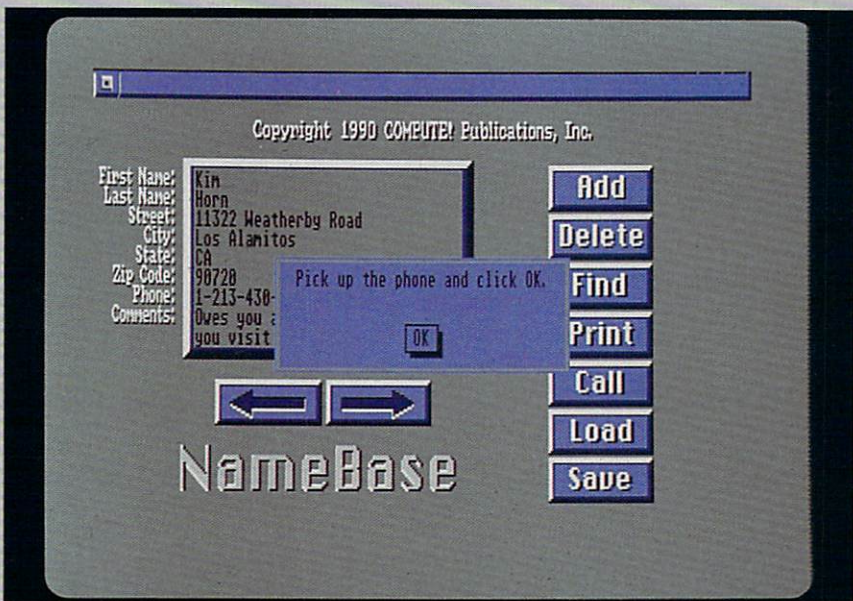
Find. This gadget lets you search for a specific name. Just type the first or last name of the person you're looking for in the requester that pops up onscreen. Find checks the Last Name field first, and if it doesn't find a match there, it checks the First Name field. When *NameBase* finds a

match, that record appears in the address window. If this is not the person you are looking for, click on Find again and reenter the name of the person you're searching for. *NameBase* will display the next matching record.

Print. This pulls up a requester that lets you print reports or mailing labels. Selecting the This Label option prints a single mailing label for the address that's currently shown

on Cancel to exit this option. If you click on Yes, you can still abort the Load option by clicking on the file requester's Cancel gadget.

Save. Click on this to save your address list to disk. If you name your file NameBase.addr and store it in the current directory or the S: directory, *NameBase* will automatically load your file every time you run the program.



on the screen. Selecting All Labels prints labels for everyone on your mailing list. *NameBase* is designed to use 3-1/2 x 15/16 inch one-across labels, such as Avery #4410 labels. Clicking on Phone List prints names and phone numbers only, and Full List prints all the information for each entry in your file. Click on Cancel Print to abort without printing anything.

Call. Clicking on this option dials the number shown in the Phone field of the current record if you have a Hayes-compatible modem attached to your Amiga. After clicking on Dial, pick up your phone receiver and click on the OK gadget in the requester that pops up. Make sure there's a valid phone number in the Phone field. Valid characters include numerals, parentheses, hyphens, and commas, which cause a half-second pause before dialing the next numeral. For example, to get an outside line on an office phone, you might enter 9,555-1234.

Load. This brings up a file requester, allowing you to load a new address list. If you've made changes to the current list and haven't saved them, *NameBase* asks you if you really want to load a file before saving the current one. Click on Yes to continue or

Close. To exit *NameBase*, click on the Close gadget in the top left corner of the screen. If you've made changes and haven't saved the file, *NameBase* will let you abort so you can save your file before leaving.

Moving NameBase

To install *NameBase* on another disk, copy the entire NameBase directory to that disk. This directory contains both the *NameBase* program and a picture file called NB.PIC. The program will not run if NB.PIC is not found in the same directory as *NameBase*.

NameBase also requires arp.library in order to run. It must be located in the libs directory of the disk that you boot with. You can find the latest version of arp.library in the libs directory of our *Resource Disk*. To copy it to your system disk, boot with that system disk, open a CLI, and enter the following command:

```
COPY RESOURCE5:LIBS/ARP.LIBRARY
TO LIBS:
```

You may also double-click on the InstallArp icon (found on this issue's disk) to copy arp.library to your system disk. >

SPECS

NameBase

PROGRAM SIZE: 18,904 bytes

SUPPORT FILES

arp.library	17,100
NB.PIC	12,740

MINIMUM CONFIGURATION

512K RAM
AmigaDOS 1.2
ARP 1.3

ENVIRONMENT

Workbench
Double-click icon
CLI
CD NAMEBASE
RUN NAMEBASE

Req

Michael Paul

The Amiga operating system has one glaring omission—the lack of a file requester. While most major programs now provide file requesters, many older programs do not. Amiga Basic is a prime example. Small programs designed for CLI use (like ED and MORE) also lack file requesters.

Req to the rescue. *Req* brings up the popular ARP file requester, waits for you to select a file, and then feeds the file to the program you wish to run.

Req is designed as a CLI user's utility, but by using IconX, you can make it work with the Workbench. For instance, you could make an icon for a script that contains the single command `REQ "C:ED %%"`. You now can run ED from the Workbench. This trick works great with the many public domain utilities that require a filename to run.

If you have last issue's *Resource Disk*, you can use *Req* in conjunction with *HotKey!*. For example, you can enter `REQ "TYPE >PRT: %%"` for the F5 function key. From then on, just hit Left Amiga-F5 to bring up a file requester and print out any file.

CLI Usage

For ease of use, copy *Req* to the C directory of your boot disk. You can find the file *REQ* in the C directory of the *Resource Disk*. Now make sure that the file *ARP.LIBRARY* is in your boot disk's *libs* directory. You can find *ARP.LIBRARY* in the *libs* directory of the *Resource Disk*.

Here's the syntax of *Req*:

```
REQ [Ddir] [P] [X] "string"
```

The optional parameter D lets you specify the directory that the ARP file requester will display when it opens. For example,

```
REQ DSYS:S "ED %%"
```

SPECS

REQ

PROGRAM SIZE: 2372 bytes
SUPPORT FILES: arp.library
MINIMUM CONFIGURATION
256K RAM
AmigaDOS 1.2
ARP 1.3
ENVIRONMENT
CLI

```
RUN REQ [Ddir] [P] [X] "string"
```

lets you select a file from the S directory on your system disk for editing.

The optional parameter P is a switch that lets you specify that you're only interested in a pathname, not a filename. This is useful if you'd like to pass the name of a directory or disk to a program, for example:

```
REQ P "DIR %%" OPT A"
```

The optional parameter X is a switch that removes any file extension (such as .txt, .c, .mod). Some programs generate files with extensions but "hide" the extensions from you. These programs don't ex-

lab show

```
REQ DPICS: "superview3.0 %%"
```

if not warn

```
skip back show
```

```
endif
```

Workbench Usage

If you have a copy of Workbench 1.3, you can create Workbench script files with IconX. Just use a text editor or word processor that saves icons with files. Be sure to save the script file as ASCII text.

Here's how to make a Workbench version of ED, the text editor located in your Workbench C directory. First, type in the



pect to receive a filename with the extension on it. Use the X switch if you encounter such a program.

The parameter "string" (which must be in quotation marks) is the CLI command just as you would type it from the CLI. Just place two percentage signs (%%) where the filename would go. *Req* will replace the %% with the filename you select with the ARP file requester. If you need to use quotation marks in the string, use a pair of apostrophes instead. For example:

```
REQ P "COPY 'RAM:MY FILE' ' %%"
```

This example copies the file RAM:MY FILE to any directory you choose.

You can also use *Req* in script files. The following example is based on the fact that if the ARP file requester is canceled, *Req* returns a WARN to the calling CLI. The example calls the program *SuperView 3.0* until the user hits CANCEL.

following text using your editor or word processor:

```
REQ "ED %%"
```

Save this file as EDITOR. Exit the text editor or word processor. Click on the EDITOR icon and select Info from the Workbench menu. Change the default tool to C:ICONX and click on SAVE.

From now on, double-clicking on EDITOR will bring up a file requester and then call up ED. You'll find this example on the *Resource Disk* in the *Req* folder.

See the Enhancer 1.3 manual that comes with Workbench 1.3 for more information about IconX.

HotKey! Usage

Last issue's *HotKey!* is an ideal vehicle for *Req*. Simply call up *SetKey!*, enter a command (like `C:REQ "C:ED %%"`) into one of the function-key definitions, and you're set. Left Amiga-function key will call up the command instantly. >

ESTABLISHED
1968

MONTGOMERY GRANT

COMPUTER
AMIGA
2/90

**OUTSIDE USA & CANADA CALL
(718) 692-0790**

FOR CUSTOMER SERVICE
Call: Mon-Wed 9:30-5/Thurs, 9:30-7/
Fri 9:30-3 (718) 692-1148

Retail Outlet, Penn Station, Main Concourse
(Beneath Madison Square Garden) NYC, N.Y., 10001
Store Hours Mon-Thurs 8:30-8/Fri 8:30-2:45/Sat CLOSED
Sun 9:30AM-7PM

FOR ORDERS & INFORMATION IN USA & CANADA CALL TOLL FREE

1-800-759-6565

OR WRITE TO:
Montgomery Grant Mail Order
Department P.O. Box 58,
Brooklyn N.Y., 11230

**FAX NO. #7186923372
TELEX 422132 MGRANT**

ORDER HOURS: Mon-Thurs, 9:00am-7:00pm / Fri, 9:00am-4:00pm / Sat CLOSED/Sun 9:30am-6:00pm(ET)
NO SURCHARGE FOR CREDIT CARD ORDERS / WE INVITE CORPORATE AND EDUCATIONAL CUSTOMERS
RUSH SERVICE AVAILABLE / TOLL-FREE TECHNICAL SUPPORT

COMMODORE AMIGA 500 Amiga 500 w/512K RAM Built-in 3.5" Disk Drive Mouse FREE Software Amiga Basic \$549 AMIGA 500 w/1084 & 1010 DISK DRIVE.....\$999	COMMODORE AMIGA 500 Amiga 500 w/512K RAM 3.5" Disk Drive Mouse Software Amiga Basic COMPLETE WITH: 1084 RGB COLOR MONITOR \$829	COMMODORE AMIGA 2000 Keyboard 1MB Expandable to 9MB Built-in 3.5" Disk Drive Mouse FREE Software Amiga Basic \$1459 AMIGA 2000 w/SEAGATE 40MB HARD DRIVE \$1949	COMMODORE AMIGA 2000 Keyboard 1MB Expandable to 9MB Built-in 3.5" Disk Drive Mouse FREE Software Amiga Basic COMPLETE WITH: 1084 RGB COLOR MONITOR \$1739
AMIGA 500 RGB COLOR PACKAGE Amiga 500 w/512K RAM Built-in 3.5" Disk Drive Mouse RGB Color Monitor FREE Software Amiga Basic \$749	AMIGA 2500 3MB RAM Built-in 3.5" Disk Drive 40MB Hard Drive Keyboard Mouse Amiga Basic System Software \$3199	AMIGA 2000 RGB COLOR PACKAGE A-2000 Computer w/Keyboard 3.5" Disk Drive RGB Color Monitor FREE Muse & Software \$1659	AMIGA 2000 HD 1MB RAM Built-in 3.5" Disk Drive 40MB Hard Drive Keyboard Mouse Amiga Basic System Software \$2099

Seagate TRUMP CARD XETEC
3.5" & 5.25" HARD DRIVES FOR AMIGA 2000
 THESE SEAGATE HARD DRIVE PACKAGES INCLUDE
 YOUR CHOICE OF XETEC OR TRUMPCARD HARD
 DRIVE CONTROLLER CARDS

ST-125N (20MB).....\$419	ST-225N (20MB).....\$439
ST-138N (30MB).....\$449	ST-251N (40MB).....\$499
ST-157N (49MB).....\$479	ST-277N (60MB).....\$559
	ST-296N (80MB).....\$599

GREAT VALLEY PRODUCTS

IMPACT A-2000-2/0.....\$269	IMPACT 25MHz 68030 Accelerator for A-2000.....IN STOCK!
A-2000 HARD CARDS	
IMPACT A-2000 HC/30.....\$629	IMPACT A-2000 HC/40Q.....\$739
IMPACT A-2000 HC-43M.....\$629	IMPACT A-2000 HC/80Q.....\$1049
A-500 HARD DRIVES	
IMPACT A-500 HD/20M.....\$629	IMPACT A-500 HD/43M 40MB For A-500.....\$349
IMPACT A-500 HD/40Q.....\$689	ALL OTHER GVP PRODUCTS IN STOCK!

AMIGA HARD DRIVES FOR AMIGA 500
XETEC FASTTRAK
 FASTTRAK JR. w/20MB.....\$579
 FASTTRAK Q40 w/42MB.....\$869

TRUMP CARD 500
 EXTERNAL CHASSIS - ENABLES ANY SCSI HARD
 DRIVE TO OPERATE WITH AMIGA 500

TRUMP CARD 500 & SEAGATE
Hard Drives Pkgs. For AMIGA 500
 ST-138N (30MB).....\$519
 ST-157N (49MB).....\$549

SAME PKG. AS ABOVE W/XETEC FASTTRAK EXTERNAL
 CHASSIS - CAN BE EXPANDED TO 8MB RAM...ADD \$149

QUANTUM HARD DRIVES
 40S SCSI.....\$569
 80S SCSI.....\$819
 100S SCSI.....\$869

**Hard Drive Controller Cards are
 Available for A-500 and A-2000**

AMIGA PERIPHERALS

A-1010 DISK DRIVE.....\$179	A-501 EXPANSION MODULE.....\$149
A-2286 AT BRIDGE BOARD.....\$1149	A-1084 RGB.....\$289
ALL OTHER AMIGA PERIPHERALS & ACCESSORIES IN STOCK	MASTER 3-A-3.5" DISK DRIVE.....\$109
SUPRA RAM 2000 (Equivalent to 2058 RAM Expander).....\$399	SUPRA 2400 ZI International Modem.....\$129
ALL GENLOCKS IN STOCK / DIGIVIEW GOLD IN STOCK / PANASONIC VIDEO CAMERAS IN STOCK	FLICKER FIXER.....\$439

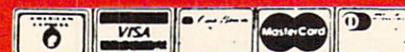
PANASONIC	OKIDATA	STAR
KXP-1180.....\$168.95	OKIMATE 20.....\$139.95	NX-1000.....\$154.95
KXP-1191.....\$224.95	OKIDATA 320.....\$279.95	NX-1000 RAINBOW.....\$209.95
KXP-1092L.....\$269.95	OKIDATA 390.....\$439.95	NX-1000C.....\$159.95
KXP-3131.....\$269.95	OKIDATA 321.....\$439.95	NX-1000C RAINBOW.....\$209.95
KXP-1124.....\$299.95	OKIDATA 391.....\$599.95	NX-1000I.....\$164.95
KXP-1595.....\$419.95		NX-2400.....\$277.95
KXP-1524.....\$519.95	CITIZEN	XR-1000.....\$319.95
KXP-4450.....\$1319.95	GSX-140.....\$319.95	XR-1500.....\$409.95
	COLOR	
	OPTION KIT.....CALL	

PRINTERS
HP HEWLETT PACKARD
LASERJET SERIES II \$1589

1MB EXPANDER.....\$279.95	HP LASERJET IIP.....\$989.95
2MB EXPANDER.....\$399.95	HP PAINTJET.....\$959.95
4MB EXPANDER.....\$699.95	HP DESKJET.....\$569.95
	HP LASERJET IID.....\$2699
	DESKJET+.....\$669.95

EPSON

FX-850.....\$329.95	P2200XE.....\$319.95
LQ-510.....\$329.95	P5200.....\$479.95
FX-1050.....\$419.95	P5300.....\$649.95
LQ-850.....\$499.95	
LQ-950.....\$559.95	
LQ-1050.....\$709.95	
LQ-2550.....\$899.95	
LX-810.....\$179.95	



Certified Check, Bank Check, Money Orders, Approved P.O.s, Visa, Mastercard, Am-Ex, Diner's Club, Carte Blanche, & C.O.D.s accepted. Please call before submitting P.O.s. No additional surcharge for Credit Card orders. Non-certified checks must wait 4-6 weeks for clearance. N.Y. residents add applicable sales tax. Prices and availability subject to change without notice. Not responsible for typographical errors. Return of defective merchandise must have prior return authorization number or returns will not be accepted. IBM XT AT are registered trademarks of International Business Machines Corp. Please add 5% shipping & handling. Volume orders over \$2000 are discounted to 3% shipping and handling (Canadian orders please add additional 10%). APO FPO orders please add 10% shipping and handling. All APO FPO orders are shipped first class priority air. All orders can be shipped Air Express. Call for details. DCA #800273

Amiga Bulletin Board List

Compiled by Joe Rothman

Do you have a modem? Are you thinking of getting one?

If you answered Yes to either of these two questions, here's a list of phone numbers that should keep you busy for quite some time. This is

A.M.U.G.'s "BBSlist," compiled especially for *Amiga Resource*. It lists all known Amiga-supporting BBS phone numbers located in the United States and Canada.

Credits

"BBSlist" was compiled with the help of the Amiga BBS sysops listed below.

All of these people like to spread the word about Amiga telecommunications. Going online can open up a whole new world of useful utilities, games, and information.

The latest version of A.M.U.G.'s "BBSlist" is available for downloading or capturing on the BBSs listed above as well as on other boards across the continent. Need Amiga information and help? Give us a call. If you'd like to help me update the list, contact me on A.M.U.G.

A.M.U.G.'s "BBSlist" is 100-percent confirmed. That means I made a modem connection at least once on every number listed and that I read each board's log-on

Board	Sysop	Loc	BBS Number
A.M.U.G.	Joe Rothman	NY	516-234-6046
PSA-BBS	Dorothy Dean	WI	414-278-5390
Tunnel-Vision	Greg Bastow	BC	604-538-3839
The Cockpit	Larry Edwards	TX	512-496-5433
The Beach	Randy Bradakis	MI	616-349-5887

Disk Update

Here's where to turn for bug fixes, operating notes, and news updates for the programs on the Amiga Resource Disk. Readers experiencing difficulty with a disk should first read "How to Use the Disk," found in every issue of Amiga Resource. If you're still having trouble, write us (see the section "Where to Write" in "Reader's Feedback").

December 1989

The enhanced version of V found on our December 1989 disk was released a bit too soon, we're afraid. Version 2.0 occasionally refuses to remove pictures from the screen. You can still use the Workbench and run other programs; you just can't close the errant screen. This usually happens when you're viewing a series of pictures using V's new wildcard features, because if V encounters a file that has a length of 0 (such as the Workbench 1.3 Shell file) while searching the disk for pictures, the program gets confused and locks up. Certain IFF files that contain color stencils or masks can also cause problems.

To remedy the situation, author Tim Midkiff has fixed the program and is providing his latest version (version 2.1) on this issue's disk. Using the Workbench, you can simply drag this new copy on top of your old one.

Checking to see which version of V you own is simple. First, V 2.0 is found only on our December 1989 disk; previous versions of V do not have any of 2.0's problems (nor do they have any of version 2.0's new features). Also, the program's version number appears in the screen's title bar whenever you double-click on V's icon without selecting a picture file. The buggy version of V is version 2.0. The upgraded V touts the number 2.1. Really old versions don't show a version number at all.

If you have V 2.0 and bought this issue without the disk, you can still get the upgraded version of V. Send us your original copy of the December 1989 disk, a note that explains that you wish to have the upgraded V, and a self-addressed, stamped envelope. We'll copy V 2.1 onto your disk and send it back. Send your December 1989 disks to *Amiga Resource*—V 2.1, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408.

New Wildcard!

V 2.1 isn't just a debugged version of V. This issue's V 2.1 has a new wildcard: the exclamation point (!). Now, by entering the command

V !

from the CLI, V will search the *entire* disk for IFF pictures and display each one it finds. You can also enter the exclamation point in V's file requester.

—Randy Thompson

ST	Name	Number	Baud	Description
NY	A.M.U.G.	516-234-6046	24 BBS-PC!	135 100% Amiga PD/MIDI
NY	Weekend Warrior	516-328-8856	24 BBS-PC!	65
NY	Hots! BBS	*516-331-6879	24 Express	
NY	Lion's Den	516-399-1928	24 BBS-PC!	
NY	East Coast MIDI	516-474-2450	96	Midi / 2 lines
NY	L.I. Anigans	516-489-2745	24 BBS-PC!	65
NY	LICA links	*516-561-6590	96 PCBoard	Users Group
NY	KOTRI	*516-624-9597	12 Image	20
NY	Traffic BBS	516-696-4365	24 BBS Pro	220 Amiga Section
NY	The Palace Gates	516-698-6182	24 MajorBBS	40
NY	Software Resource	516-736-6662	12 FoReM	20
NY	Mozart	516-751-1634	24	UseNet
NY	All American BBS	516-798-4091	24	Amiga Section
NY	East Coast MIDI	516-928-4986	96	Midi / 2 lines
NY	Ancient Pond	*516-935-2027	96 Wildcat!	40
NY	The BBS	518-381-9757	12 QUIX	85
NY	RockCollege	518-442-5738	24 RBBS	2 lines
NY	RockCollege	518-442-5739	24 RBBS	2 lines
NY	Osteoclast	*518-452-8404	24 RBBS	92
NY	Callahan's Saloon	*518-479-7948	24 WWIV	150
NY	Exploren's	*518-489-5654	96 WWIV	
NY	Wizard's Domain	*518-489-7085	24 BBS-PC!	65
NY	Brand X Fido	518-489-8968	24	Formerly in CT.
NY	Land Lost	*518-584-0103	24 RBBS	2 lines

da. Revised June 15, 1989, it's one of the largest lists available, containing 1680 phone numbers.

Unlike the telecommunications services offered by CompuServe or GEnie, these bulletin boards are free—the goal of their operators is simply to serve the Amiga community. With the cost of a phone call, you can link up with Amiga owners from around the country and share in the wealth of public domain software.

As a special bonus, we've provided this listing on the *Resource Disk* for you to read and/or print out.

screen. Every number has been called at least once in a given 12-month period, but I don't spend much time on each system. All boards listed were reported to me as being Amiga boards. If you know otherwise, please let me know. The statistical information included in this list was collected from postings on each respective BBS.

A Note to Sysops

When sending me information about your BBS, please include baud rates supported, number of megs of storage on your system, hours of operation, and special features in the message that greets your callers. If that's not possible, make the information available on your system's main menu. If you run a public domain board, let the public know. Also, one way you can help people recognize your board as a legal BBS is to require that people use their real names. Handles should be left for the pirates. Honest people have nothing to be ashamed of.

To all BBS sysops who endeavor to provide a good source of information and support to the Amiga community, I dedicate this version of "BBSlist."

Important Notes

All numbers that have been added or changed since the last "BBSlist" are marked with an asterisk (*) to the left of the phone number. Each system listed operates 24 hours per day, minus down time for system maintenance, unless otherwise noted. Multiline systems that use sophisticated switching equipment to control incoming calls have only one phone number listed.

Please delete, discard, or ignore old copies of "BBSlist" as many of the numbers are no longer used for bulletin board systems. Keep in mind that any number can become inactive at any time. New BBSs pop up and disappear, and longtime systems go offline all the time. It is not unusual for the phone company to give out a former BBS number to a voice customer within a very short time after a BBS has gone down. Please contact me and let me know about any changes in the name, phone number, operational status, hours, baud rate, or features of these BBSs. Your cooperation will be greatly appreciated.

Send BBS information to

A.M.U.G.'s BBSlist
P.O. Box 148
Central Islip, NY 11722

If you prefer, call A.M.U.G. and fill out the online questionnaire.

Software Piracy

With so many numbers in "BBSlist," there is a possibility that some of them might be pirate boards. If you come across any pirate BBSs, please do not get involved with them. Sysops who use their boards for piracy are putting their systems at risk. Someday all their equipment will be confiscated by the police—it would not be to your ad-

vantage to be listed in their user log when that happens. Even if you use a handle, the sysop probably has printed or electronic records that show who you really are, as well as your address and phone number.

If you feel as I do about pirate bulletin boards, there are several things you can and should do if you happen to come across one.

- Call your local FBI office and file a formal complaint. Tell them why you think it's a pirate board. (Get the FBI number from the telephone company's directory assistance.)
- Call your local telephone company's security office and file a complaint with it, too. (Ask directory assistance for the security office's phone number.)
- Contact any software publishers whose programs are being illegally distributed and give them the pirate board's name, phone number, and baud rates. The publisher should file a complaint with the same FBI office that you spoke with.

Pirate boards hurt the Amiga; let's shut them down. Patronize only public domain and shareware boards.

Using the List

To access the BBS list, simply boot with the *Resource Disk* and double-click on the BBSlist icon. The BBS file is loaded into a special file reader that lets you both read and print the list. To scroll through the text, you can use either the cursor keys or the mouse. To scroll text with the mouse, hold down the left mouse button and move the mouse up or down (depending on the direction that you want the text to scroll). You can also use the file reader's scroll bar. This list is saved as a standard text file, so you can load it into your favorite text editor if you prefer.

The information in the list is arranged in the following manner: First, the two-letter postal code for the state or abbreviation for the Canadian province is listed. The bulletin board name follows. Next comes the telephone number, the maximum baud rate (in hundreds), and the software used by the board. The number of megabytes of storage on the board and special notes complete the list. ▶

KEYCRAFT™

Become a power user with KeyCraft, the keyboard and mouse macro-maker for the Amiga®. Customize applications to work the way you want them to... Double your productivity... Triple your typing speed... Create realtime animations with any paint program! Act now to receive KeyCraft at this low introductory price (don't forget to ask for your free Fish!) regularly \$49.95, now only \$29.95

StraightLine Software

The Shortest Distance Between Two Points
3818 N. Kimball Ave. • Chicago, IL 60618

1-800-458-2995 Visa/MC

Mail orders: Box 59800 • Chicago, IL • 60659
(IL & overseas 1-312-539-5506). Include \$2 s & h. IL residents, please add 7% tax.

Win \$2000!

We're giving away the entire Fred Fish Collection (estimated \$2000 value) to one lucky member of the Amiga community. To enter, send a self-addressed, stamped envelope to: SSI Free Fish Contest • PO Box 59800 • Chicago, IL 60659. One entry per person. No purchase necessary. Void where prohibited. Contest ends 4/15/90, and entries must be received by then. Rules will be sent to all contestants. Good Luck!

Free Fish!

Be one of the first 100 people to purchase KeyCraft™ from this ad and we'll include any Fish disk (1-228) FREE! Act NOW!

THINKER Hypertext

for AMIGA

"...stunning capabilities...simple to operate..." "...superbly crafted..." - Gary Gehman, Amiga Sentry, 6/89
Version 2.0 with ARexx

Hypertext extended to Picture files, ARexx ports, and applications. Version 2 adds more keyboard controls, database functions, display fonts, and ARexx.

Thinker acts as a database for ARexx programs, sends messages to ARexx ports, and more. Write, design, think, plan. HYPERTEXT!

Upgrade \$20 No Credit Cards
\$80 Add \$5 CA res. add tax
for COD 30 day guarantee

Poor Person Software
3721 Starr King Circle, Dept 4
Palo Alto, CA 94306
(415)-493-7234



Circle Reader Service Number 194

Circle Reader Service Number 159

Wake up to hot coffee & a warm house



Use Ami-X10 to program the X-10 computer interface with the times you want your coffee started and the heating turned up. You can even set it for later times on the weekends.

Ami-X10 can be used for most of your other appliances too. Control over 200 electrical devices with more than 100 time settings in a single program. Once programmed, you can even turn your Amiga off!

- Turn on porch lights automatically dark - even if your not home.
- Program sprinklers even if you don't have a degree in engineering.
- Program different times for each day of the week.
- One step change for Daylight Savings Time, automatic tracking of sunrise/sunset.
- Leave Ami-X10 in charge during your vacations to keep your house looking 'lived in' and deter theft.

X-10 compatible controllers and switch modules for lights, appliances etc. available from electronic hobby stores, department stores and hardware stores.

Ami-X10 - BSR based home control software \$59.50
With X-10 computer interface \$124.30

Available through your local dealer or direct (cheque with order or COD).

DIGITAL DYNAMICS

739 Navy Street, Santa Monica, CA 90405 Tel: (213) 396-9771

Circle Reader Service Number 149

The family entertainment package.

Something for
each family
member.

Over
10,000
variations.

Very
easy to
use.

Ages
4 to
adult

Zany
digitized
sounds

One, two, or several players.

15 exciting
games.

Special
learn mode
for children.

Promotes memory
enhancement and
computer skills.

Includes a music system
to calm the savage
computer beast.



BACKWOODS SOFTWARE

Tracker's

Find the elusive and dangerous
wild computer beast. Stay on the
trail and you will capture it, step
off and it gets raw tracker for
dinner.

Quest

Can you follow
the trail?

More options than
you can shake
a stick at.

Demo
disk
available.

Educational

and
fun.

Find Tracker's Quest at
1-800-826-1799 or at a better
software store near you.

Circle Reader Service Number 148

Join Our Reader Research Panel!

Open House . . . and you're invited to participate in a new and extremely important program for *COMPUTE!* readers. In order to fully understand your opinions, attitudes and reading preferences, we are establishing a Reader Research Panel.

Scientifically selected samples of our panel members will receive up to four survey mailings over the next 12 months. Survey results will help us to better design *COMPUTE!* with your interests in mind.

Please apply to participate in our Reader Research Panel today by completing the attached application form and mailing it back to Data Processing Firm, Media Research Associates, no later than January 31, 1990. All statistical information must be provided in order to select a panel representative of our entire readership. All information will remain confidential.

If selected, you will be contacted accordingly. Thank you for your cooperation.

RSVP

Media Research Associates
230 Park Avenue, Suite 1567
New York, NY 10169

William Tynan
William Tynan
Publisher

APPLICATION FORM
COMPUTE! Magazine Reader Research Panel
ALL INFORMATION WILL
REMAIN CONFIDENTIAL.

1. Are you Male ☐
Female ☐

2. What is your marital status?

Married ☐
Single ☐
Widowed ☐
Separated or Divorced ☐

3. What is your age?

Under 25 ☐
25-29 ☐
30-34 ☐
35-39 ☐
40-44 ☐

45-49 ☐
50-54 ☐
55-59 ☐
60-64 ☐
65+ ☐

4. What was your total household income
(from all sources) in 1989?

Under \$25,000 ☐
\$25,000-\$34,999 ☐
\$35,000-\$39,999 ☐
\$40,000-\$49,999 ☐
\$50,000-\$64,999 ☐
\$65,000-\$74,999 ☐
\$75,000-\$99,999 ☐
\$100,000+ ☐

5. What is the highest level of education
that you have attained to date?

Attended High School ☐

Graduated High School ☐
Attended College ☐
Graduated College ☐
Post-Graduate Study ☐

6. What group below best describes your
occupation?

Professional/Technical ☐
Manager/Administrator ☐
Clerical/Sales ☐
Craftsman/Foreman ☐
Other Employment ☐
Student ☐
Not Employed ☐

7. How did you acquire this copy of
COMPUTE!? (Please check only one
answer.)

I subscribe and received it through
the mail ☐

Another member of this household
subscribes and received it through
the mail ☐
I bought it at a grocery, newsstand,
drugstore, etc. ☐
Another member of this household
bought it at a grocery, newsstand,
drugstore, etc. ☐
Other (specify) ☐

Name

Address

Apt. # Phone

City

State ZIP

COMPUTE! Publications, Inc.
A Capital Cities/ABC, Inc. Company
Greenwood, North Carolina

HOW TO USE THE DISK

Every issue of *Amiga Resource* has a companion disk that features the exclusive programs we offer each issue, as well as the "Best of the Boards" program and the "Art Gallery" screens. You can get this disk in three ways. First, you may buy *Resource* with the disk in a poly-bag at your bookstore or computer dealer. Second, you may subscribe to the magazine with the disk. Third, you may order single copies of this disk (see the back-issues/disk-order ad elsewhere). If you experience a problem with the disk, even after you've read the programs' documentation, please contact us at (919) 275-9809 between 9:00 a.m. and 4:30 p.m. Eastern standard time, Monday through Friday.

To use the disk, insert it into your disk drive and then turn on your computer. (Amiga 1000 owners must boot with Kickstart first.) You may boot with your own Workbench disk, but the icons will not be as colorful as they are when you boot with the magazine disk.

You run programs by double-clicking their icons. Some programs may be found within drawers (icons that resemble file folders). Please look into each drawer on the disk. We recommend that you read the "On Disk" section of the magazine prior to running any of our programs. If you wish to move a program that is in a drawer to another disk, be sure to copy the entire drawer so that you can be sure that you copy all the support files that the program may need.

Most programs on the disk are accessible through the Workbench environment. Some programs, however, are designed to work only in the CLI and work with these programs.

Artwork from "Amiga Art Gallery" may be found in the ArtGallery drawer. To view a picture, double-click its icon. When the painting appears onscreen, simply click the mouse once to return to the Workbench.

Our disk is not copy-protected. We encourage you to make a backup of the disk as soon as possible. With the exception of the program in our "Best of the Boards" column, the contents of the disk are copyrighted and may not be used by anyone other than the owner of the magazine. Artists who appear in "Amiga Art Gallery" hold the copyrights to their own work. Amiga

Workbench version 1.3 is copyright 1985, 1986, 1987, and 1988, Commodore-Amiga, Inc., all rights reserved. All other disk contents are copyright 1990, COMPUTE! Publications, Inc., all rights reserved. We ask that you respect the copyrights of the works on the disk and of the disk in its entirety.

We suggest that you write-protect the disk by sliding the write-protect tab to the open position. This will cause programs that attempt to write to the disk to fail. You can slide the write-protect tab to the closed position to allow writing, but there may not be enough room on the disk for any more files. If this is true, copy the offending program to another disk to use it.

On Disk This Issue

There are three programs on the disk that run from the CLI only. These programs are *FullPath*, from the "Programmer's Page"; *SysCheck*, from Jim Butterfield's "CLI Clips"; and the "On Disk" program *Req*. All three of these programs may be found in the c directory of the magazine disk. To use any of these programs, you'll need to boot with a Workbench disk that has a CLI or Shell. (Because of space reasons, we did not have room to support a CLI or Shell on our disk.)

SysCheck checks any system disk to see if it contains the latest versions of key system files (the latest version is 1.3.2). To run *SysCheck*, boot with the Workbench disk that you wish to check, open a CLI window, make *Resource5:c* your current directory, and then enter the command *SYSCHECK*. A window opens and a list of all system files, along with each file's version number (if known), is printed to the screen. *SysCheck*'s complete documentation may be found in the c directory of the *Resource Disk*. Again, you'll have to use the CLI to access this file.

This issue's *NameBase* and *V* programs require *arp.library*, a small system file that goes in the *libs* directory of your Workbench disk. We've included *arp.library* on the *Resource Disk*, so the programs run fine as long as you boot from this disk. You must copy *arp.library* onto your own Workbench disk if you plan to boot with that disk and then run these programs. For your convenience, we've included an install file that automates this process.

Open up the *Resource Disk* icon

and you'll find the file *InstallARP*. *InstallARP* copies *arp.library* to your Workbench's *libs* directory. To use it, you must boot with the Workbench disk that you want the files copied to; then double-click the *InstallARP* icon.

With the exception of Khalid Aldoseri's *Script* program, Tim Midkiff's updated version of *V*, and Jim Butterfield's *SysCheck* programs, the source code for all of the programs on disk may be found in the disk's source directory. Within the source directory are separate directories for each of the programs. For example, the source code for *Boomerang* may be found in *source/Boomerang*. The source directory does not have an icon and cannot be accessed via the Workbench.

If you own a sound digitizer or a sound-manipulation program, you may be interested in the digitized sounds that accompany *Boomerang*—there are three sound samples in all. These digitized sounds may be found in the *Boomerang/samples* directory. These sound samples are stored in raw format, not in IFF format. ▲

On Disk Directory

c (dir)	Ask
AddBuffers	ColorBench
CD	Else
Echo	Endif
EndCLI	IconX
FullPath	LoadWB
If	Req
NewCLI	SysCheck
Run	tr
SysCheck.doc	
Wait	
system (dir)	
DiskCopy	
i (dir)	Port-Handler
Disk-Validator	
devs (dir)	
printers (dir)	
generic	printer.device
parallel.device	system.configuration
serial.device	
Boomerang (dir)	
samples (dir)	
boom.snd	footsteps.snd
spin.snd	
.info	Boomer1.pic
Boomer2.pic	Boomerang
Boomerang.info	
s (dir)	
InstallARP.script	startup-sequence
NameBase (dir)	
.info	NameBase
NameBase.addr	NameBase.info
nb.pic	
source (dir)	
Req (dir)	
req.c	tlclink
Boomerang (dir)	
Boomerang.c	BoomSound.c
NameBase (dir)	
NameBase.mod	
FullPath (dir)	FullPath.mod
FullPath.c	Path.mod
Path.def	
libs (dir)	icon.library
arp.library	
ArtGallery (dir)	
.info	NantucketNative
NantucketNative.info	Tooth
Tooth.info	Treasure
Treasure.info	
Script (dir)	
Demos (dir)	
CON.demo	DL
Plot.script	QB
WBFX.demo	WIN.demo
Docs (dir)	
Examples	Examples.info
ReadMe	ReadMe.info
Reference	script
Test.rexx	Update.DOC
Usage.info	Kit
.info	AutoScript
Docs.info	Lister
Read.this	Read.This.info
Recorder	script
Script.info	Update.DOC
Update.doc.info	Kit
KitLoadWB	
.info	ArtGallery.info
BBSList	BBSList.info
Boomerang.info	Disk.info
InstallARP	InstallARP.info
NameBase.info	Script.info
V	V.info

PROGRAMMER'S PAGE

Rhett Anderson and Dale McBane

Finding a File's Full Pathname

The Amiga's `dos.library` contains several useful functions for manipulating files and directories. One function, however, seems to be missing—a function that takes a filename or a lock and returns that file's complete pathname.

For example, say you have a character string that contains a filename or that you have a lock on a file or directory; it was passed to your program from the CLI or the Workbench. Now, using the `Execute()` function, you need to pass the complete pathname of that file or directory to another program, such as `ED` or `MORE`. But if all you have is a filename, you don't know what disk the file is located on or what directory it's in. And if all you have is a lock, you don't even know the filename.

The example program *FullPath*, listed here in both C and Modula-2, contains two functions that allow you to find the complete pathname of a file or directory. `Lock2Path()` is useful for programs that run under the Workbench, since the Workbench passes arguments as file locks. `Name2Path()` is useful for CLI programs, where arguments are taken directly from the command line.

Finding the Path

Finding a file's pathname with `Lock2Path()` is easy. In C, call this function using the following syntax:

```
error = Lock2Path(lock, path);
```

In Modula-2, the syntax is

```
success := Lock2Path(lock, path);
```

In both cases, *lock* must be a valid file lock obtained by using AmigaDOS's `Lock()` function, and *path* must be a pointer to an array of characters large enough to receive the file's full pathname. If successful, the function returns the length of the pathname (in Modula-2, it returns the Boolean value `TRUE`) and the array pointed to by

path receives the pathname. If the function call failed—because the file wasn't found or a read/write error occurred—the C version returns a `-1` and the Modula-2 version returns a `FALSE`.

With `Name2Path()`, all you have to supply is a pointer to a filename. Here's how you call this function in C:

```
error = Name2Path(filename);
```

The Modula-2 syntax is

```
success := Name2Path(filename);
```

The *filename* parameter is returned with the complete pathname added to it. `Name2Path()` returns the same error codes as the `Lock2Path()` function: in C, it returns the length of the pathname if successful or a `-1` if unsuccessful; in Modula-2, it returns a `TRUE` if successful or a `FALSE` if unsuccessful.

FullPath provides an example of how these functions can be used. The source code for *FullPath* may also be found in the *Source/FullPath* directory on the *Resource Disk*. The program's executable code is located in the disk's `c` directory. To use it, boot with your own Workbench disk, open a CLI, enter `CD RESOURCE5/C`, and then enter `FULLPATH filename`, where *filename* is the name of a file or directory found in the current path. *FullPath* will print that file or directory's full pathname. If you do not provide a *filename* parameter, *FullPath* displays the path to the current directory.

To use `Lock2Path()` and `Name2Path()` in your own programs, simply copy these functions along with the `FullPath()` function into your program.

How It Works

`Name2Path()` begins by getting a lock on the file specified by the filename parameter. `Lock2Path()` skips this step since a file lock is passed to it. Both functions allocate memory for a file info block, initialize it with the `Exam-`

`ine()` function, and then call another function, `FullPath()`. It's `FullPath()` that does most of the work.

`FullPath()` is a recursive function that traces the path of a file back to the root device on which it is stored. Upon reaching the root device, `FullPath()` follows its steps back to the file, building the pathname string as it goes. The C and Modula-2 implementations of `FullPath()` are slightly different because of the way each language handles strings.

To trace a file's path, `FullPath()` first checks to see if the current directory has a parent. If so, it calls itself with the lock of the parent and the process repeats (this is where the recursion takes place). If the current directory doesn't have a parent, then it must be the root directory. At this point, `FullPath()` checks to see if an error has occurred. If not, it releases the lock to the parent directory and clears the pathname. Next, it uses the `Examine()` function to put information about the directory into the file info block and then copies the filename from the file info block into the character array.

Every device has a name except for one: AmigaDOS 1.2 doesn't give its ramdisk a name. So if the pathname is empty, `FullPath()` assumes the device is a 1.2 ramdisk and fills in the name manually. Finally, the function adds a colon or a slash as a separator character and returns. The previous call to `FullPath()` releases the lock on its predecessor, adds the name of the current directory to the pathname, and then returns. This continues until the entire pathname has been stored into the character array.

FullPath.c

```
#include <libraries/dos.h>
#include <libraries/dosextens.h>
#include <exec/memory.h>
#include <exec/nodes.h>
#include <exec/lists.h>
#include <stdio.h>
```

```
/* prototypes */
long Name2Path();
long Lock2Path();
long FullPath();
```


UTILITIES UNLIMITED, Inc.

P.O. Box 532

If you wish to place your order by phone

North Plains, OR 97133

CALL (503) 647-5611 24 Hrs A Day!

SUPER CARD AMI

"...You have the right to make an archival backup of software you own...": Public Law 117 - December 3, 1980.

Why be frustrated with the headaches of backing up your valuable software? Now, with Super-Card AMI, you can easily backup every program created on a 3.5" format! That includes Amiga, Atari ST, Mac, etc.! A brilliantly designed hardware unit plugs in between your internal & external disk drives (two drives are required for use). A simple software driver turns on the unit and makes the magic happen. "Long & short tracks" are easily copied because Super-Card doesn't copy the data on the disk, it copies the changes in the magnetic flux. This process gives you an exact copy in about 45 seconds! Super-Card AMI will work in all Amiga computers; A500, A1000, A2000, A2500. Please specify if you have two internal drives when ordering. So why wait for updates and parameters when you can copy it today!?!?

\$99⁹⁵

SUPER-TRACKER AMI

Have you ever wanted to know where problem tracks are located? Now, with Super-Tracker AMI, you can tell! This beautiful digital track display simply plugs into the last drive in your Amiga System (all Amiga computers will work.) The head location (track), side (top or bottom head), and write protect position are all displayed.

\$79⁹⁵

Add \$4.00 shipping and handling • Add \$3.00 C.O.D. in USA only.
VISA and MasterCard accepted • Allow 3 to 4 weeks for delivery.
All sales are final unless authorized by management.
SOFTWARE AND HARDWARE SUBMISSIONS WANTED.

AMIGA 500 REPAIRABLE POWER SUPPLY

Providing the luxury of many add-ons and extras, runs a minimum of four disk drives. 3 AC outlets, surge and spike protection, passive crowbar protection, one year warranty.

\$109⁹⁵

Circle Reader Service Number 137

??? QUESTION ???
Does High Res Screen Flicker
Bother You !!!

Flicker Master™
Works With ALL AMIGA Models
A-500, A-1000, A-2000
Only \$17.95 sug list price

Greatly reduces interlace flicker.
Flicker Master is a specially designed filter that
attaches easily to the face of your monitor

Improves contrast in all resolutions,
Helps reduce eye-strain
10 1/2 in. X 13 1/2 in. (26.7 cm X 34.3 cm) size
is designed to fit the following monitors.

Amiga 1080, 2002, and 1084 / Sony KV 1311
Magnavox RGB 80 / NEC Multisync and others,
check size

Flicker Master is a great companion to your Graphics, Video, Cad,
and Desktop Publishing, Software,
such as

Digi-Paint, Deluxe Paint II, Express Paint, Photo Paint, Pixmate,
Butcher 2.0, Aegis Video Titrer, Zuma TV Text and TV Show,
Sculpt 3D, Animate 3D, Videoscape 3D, Pro Video CGI, X-Cad,
Intro Cad, PageSetter, and Professional Page
T.S.R. Hutchinson Co. 110 W. Arrowdale
Houston, Texas 77037-3801 (713) - 448 - 6143

The above named products are trademarks of
their respective companies

Circle Reader Service Number 138

MAIL TO:

COMPUTE!'s Amiga Resource SUBSCRIBER SERVICE

P.O. Box 3253, Harlan, IA 51593-2433

Change of Address: Please advise as early as
possible. Attach label with your old address and
write in new address below.

New Subscriber: Fill in your name and address
below. Use separate sheet for gift orders.

PLACE LABEL HERE

Renewal: Attach label.

_____ One year (6 issues) \$9.97
_____ With disk \$39.95

(Foreign subscribers please add \$6.00 per year for
postage)

NAME _____

STREET _____

CITY/STATE/ZIP _____

_____ Please bill me _____ Payment enclosed

For other subscription questions or problems,
please write a note and send entire form to the
above address. OR CALL TOLL-FREE:

1-(800) 727-6937

Nothing is faster!

ALF 2

Amiga Loads Faster

Increased speed, safety, &
efficiency on the Amiga.

Amiga 500, 1000 and 2000 autoboot
hard disk controller system with software.

- MFM, RLL or SCSI coding. Uses any IBM-compatible hard disk with ST 506 Bus.
- Needs very little RAM (30 K).
- Faster with FastFileSystem.
- Safer with CheckDrive, FrameBackup.
- Easy to install, even MS-DOS Partition.

- New: FileRunner (TM) the ALF2 based complete hard disk system is formatted and comes with the WB 1.3 installed. It also has a capacity up to 180 meg..

- Special: now autoboot with the A 2090 !!!

PRE'SPECT Technics Inc.

P.O. Box 670

Station H

Montreal, Quebec, H3G 2M6

Phone: (514) 954-1483 Fax: (514) 876-2869

Circle Reader Service Number 139

TRY BEFORE YOU BUY!

Best selling games,
utilities and classics,
plus new releases!

- 100's of titles
- Low prices
- Same day shipping
- FREE brochure

YES, WE ACCEPT:



RENT-A-DISC

Frederick Building #217
Huntington, WV 25701
(304) 529-3232

Circle Reader Service Number 140


```

struct DosBase *DosBase;

void main(argc, argv)
int argc;
char *argv[];
{
    BPTR lock;
    char path[256];
    char file[256];

    if (argc == 1)
    {
        path[0] = '\0';
        file[0] = '\0';
    }
    else
    {
        (void *)strcpy(path, argv[1]);
        (void *)strcpy(file, argv[1]);
    }

    if ((DosBase = (struct DosBase *)
        OpenLibrary("dos.library", LIBRARY_VERSION)) == NULL)
        exit(10);

    if (Name2Path(path) == -1)
        printf("Name2Path couldn't get path for %s\n", file);
    else
        printf("Name2Path: %s\n", path);

    /* Get a shared lock on the directory. */
    if ((lock = (BPTR)Lock(file, ACCESS_READ)) == NULL)
        printf("Couldn't get a lock on %s\n", file);
    else if (Lock2Path(lock, path) == -1)
        printf("Lock2Path couldn't get path for %s\n", file);
    else
        printf("Lock2Path: %s\n", path);

    CloseLibrary(DosBase);
} /* end of main */

```

```

long Lock2Path(lock, pathname)
BPTR lock;

```

```

char pathname[];
{
    struct FileInfoBlock *fib;
    long success;

    /* Allocate memory for the FileInfoBlock. */
    if ((fib = (struct FileInfoBlock *)AllocMem(sizeof(struct FileInfoBlock),
MEM_PUBLIC | MEMF_CLEAR)) == NULL)
        return(-1);

    /* Examine the directory requested. */
    (void)Examine(lock, fib);

    /* Get the pathname. */
    if ((success = FullPath(lock, fib, pathname)) != -1)
        /* Put terminator byte on end of string. */
        if (pathname[success] != '\0')
            pathname[success] = '\0';

    FreeMem(fib, sizeof(struct FileInfoBlock));
    return(success);
} /* end of Lock2Path */

```

```

long Name2Path(filename)
char filename[];
{
    BPTR lock;
    struct FileInfoBlock *fib;
    long success;

    /* Get a shared lock on the directory. */
    if ((lock = (BPTR)Lock(filename, ACCESS_READ)) == NULL) return(-1);

    /* Allocate memory for the FileInfoBlock. */
    if ((fib = (struct FileInfoBlock *)AllocMem(sizeof(struct FileInfoBlock),
MEM_PUBLIC | MEMF_CLEAR)) == NULL)
    {
        Unlock(lock);
        return(-1);
    }

    /* Examine the directory requested. */
    (void)Examine(lock, fib);

    /* Get the pathname. */
    if ((success = FullPath(lock, fib, filename)) != -1)
        /* Put terminator byte on end of string. */
        if (filename[success] != '\0')
            filename[success] = '\0';

    Unlock(lock);
    FreeMem(fib, sizeof(struct FileInfoBlock));
    return(success);
} /* end of Name2Path */

```

```

long FullPath(lock, fib, pathname)
BPTR lock;

```

```

struct FileInfoBlock *fib;
char pathname[];
{
    BPTR Parent; /* struct FileLock */
    long BufPtr;

    /* Check to see if we're at the root yet. */
    if ((Parent = (BPTR)ParentDir(lock)) != NULL)
    {
        /* If not, keep going back. */
        /* If FullPath returns -1, there was a problem somewhere. */
        if ((BufPtr = FullPath(Parent, fib, pathname)) < 0)
            return(-1);
        Unlock(Parent);
    }
    /* We're at the root. */
    else
        BufPtr = 0;

```

```

/* If we can't examine the directory, return -1. */
if (Examine(lock, fib) == 0)
    return(-1);

/* Copy the directory name into the path buffer and increment the */
/* buffer pointer. */
strcpy(pathname + BufPtr, fib->fib_FileName);
BufPtr += strlen(fib->fib_FileName);

/* AmigaDOS 1.2 doesn't give the ramdisk a name, so we will. */
if (BufPtr == 0)
{
    strcpy(pathname, "RAM");
    BufPtr = 3;
}

/* If we're at the root, then the directory is a device and we */
/* follow it with a colon. Otherwise, follow it with a slash. */
if (Parent == 0)
    pathname[BufPtr++] = ':';
else
    pathname[BufPtr++] = '/';

/* Return the current position in the path buffer. */
return(BufPtr);
} /* end of FullPath */

```

Path.def

```

DEFINITION MODULE Path;
FROM DOSIMPORT FileLock;

```

```

PROCEDURE Name2Path(VAR filename: ARRAY OF CHAR): BOOLEAN;
PROCEDURE Lock2Path(lock: FileLock; VAR pathname: ARRAY OF CHAR): BOOLEAN;
END Path.

```

Path.mod

```

IMPLEMENTATION MODULE Path;

```

```

FROM DOS IMPORT AccessRead, CurrentDir, Examine, FileInfoBlock,
FileInfoBlockPtr, FileLock, Lock, ParentDir,
SharedLock, Unlock;
FROM Memory IMPORT AllocMem, FreeMem, MemReq, MemReqSet;
FROM Strings IMPORT AppendSubStr, AssignStr, DeleteSubStr, LengthStr;
FROM SYSTEM IMPORT ADR, TSIZE;

```

```

PROCEDURE FullPath(lock: FileLock; VAR fib: FileInfoBlockPtr;
VAR pathname: ARRAY OF CHAR): BOOLEAN;
VAR
    Parent: FileLock;
BEGIN
    (* Check to see if we're at the root yet. *)
    Parent := ParentDir(lock);
    IF Parent # NIL THEN
        (* If not, keep going back. *)
        (* If FullPath returns FALSE, there was a problem somewhere. *)
        IF FullPath(Parent, fib, pathname) = FALSE THEN
            RETURN FALSE;
        END;
        Unlock(Parent);
    ELSE
        (* We're at the root, so start building the string. *)
        pathname := "";
    END;

    (* If we can't examine the directory, return FALSE. *)
    IF Examine(lock, fib) = FALSE THEN
        RETURN FALSE;
    END;

    (* Copy the directory name into the path buffer. *)
    AppendSubStr(pathname, fib^.fib_FileName);

    (* AmigaDOS 1.2 doesn't give the ramdisk a name, so we will. *)
    IF LengthStr(pathname) = 0 THEN
        AssignStr(pathname, "RAM");
    END;

    (* If we're at the root, then the directory is a device and we */
    (* follow it with a colon. Otherwise, follow it with a slash. *)
    IF Parent = 0 THEN
        AppendSubStr(pathname, ":");
    ELSE
        AppendSubStr(pathname, "/");
    END;

    (* Return the current position in the path buffer. *)
    RETURN TRUE;
END FullPath;

```

```

PROCEDURE Name2Path(VAR filename: ARRAY OF CHAR): BOOLEAN;
VAR
    fib: FileInfoBlockPtr;
    lock: FileLock;
    success: BOOLEAN;
    Length: CARDINAL;
BEGIN
    (* Get a shared lock on the directory. *)
    lock := Lock(ADR(filename), AccessRead);
    IF lock = NIL THEN
        RETURN FALSE;
    END;

    (* Allocate memory for the FileInfoBlock. *)
    fib := AllocMem(TSIZE(FileInfoBlock), MemReqSet(MemPublic, MemClear));
    IF fib = NIL THEN
        Unlock(lock);
        RETURN FALSE;
    END;

    (* Examine the directory requested. *)
    success := Examine(lock, fib);

```



```

(* Get the pathname. *)
success := FullPath(lock, fib, filename);
Length := LengthStr(filename) - 1;
IF filename[Length] # "." THEN
  DeleteSubStr(filename, Length, 1);
END;
Unlock(lock);
FreeMem(fib, TSIZE(FileInfoBlock));
RETURN success;
END Name2Path;

PROCEDURE Lock2Path(lock: FileLock; VAR pathname: ARRAY OF CHAR): BOOLEAN;
VAR
  fib: FileInfoBlockPtr;
  success: BOOLEAN;
  Length: CARDINAL;
BEGIN
  (* Allocate memory for the FileInfoBlock. *)
  fib := AllocMem(TSIZE(FileInfoBlock), MemReqSet(MemPublic, MemClear));
  IF fib = NIL THEN
    Unlock(lock);
    RETURN FALSE;
  END;
  (* Examine the directory requested. *)
  success := Examine(lock, fib);
  (* Get the pathname. *)
  success := FullPath(lock, fib, pathname);
  Length := LengthStr(pathname) - 1;
  IF pathname[Length] # "." THEN
    DeleteSubStr(pathname, Length, 1);
  END;
  FreeMem(fib, TSIZE(FileInfoBlock));
  RETURN success;
END Lock2Path;

END Path.

```

FullPath.mod

```

MODULE FullPath;

FROM CmdLineUtils IMPORT argc, argv;
FROM DOS IMPORT AccessRead, FileLock, Lock;
FROM Path IMPORT Lock2Path, Name2Path;
FROM Strings IMPORT AssignStr;
FROM SYSTEM IMPORT ADDR;
FROM TermInOut IMPORT WriteLn, WriteString;

VAR
  file: ARRAY [0..255] OF CHAR;

```

```

lock: FileLock;
path: ARRAY [0..255] OF CHAR;

BEGIN
  IF argc = 1 THEN
    path := "";
    file := "";
  ELSE
    AssignStr(path, argv[1]);
    AssignStr(file, argv[2]);
  END;

  IF Name2Path(path) = FALSE THEN
    WriteString("Name2Path couldn't get path for ");
    WriteString(file); WriteLn;
  ELSE
    WriteString("Name2Path: ");
    WriteString(path); WriteLn;
  END;

  lock := Lock(ADDR(file), AccessRead);
  IF lock = NIL THEN
    WriteString("Couldn't get a lock on ");
    WriteString(file); WriteLn;
  ELSEIF Lock2Path(lock, path) = FALSE THEN
    WriteString("Lock2Path couldn't get path for ");
    WriteString(file); WriteLn;
  ELSE
    WriteString("Lock2Path: ");
    WriteString(path); WriteLn;
  END;
END FullPath.

```

COMPUTE! Publications, Inc., is seeking a full-time **Programmer** to join its in-house staff in Greensboro, North Carolina.

The position requires 1-3 years' experience in software development, including program design, coding, debugging, and graphics design. Proficiency in C and assembly language (for 8088- and 68000-based machines) required; experience with Pascal and Modula-2 helpful. Coursework in programming languages a plus.

Excellent company benefits.

Send résumé and salary history in complete confidence to

Personnel Department
COMPUTE! Publications, Inc.
324 W. Wendover Ave., Suite 200
Greensboro, NC 27408

GOLFERS

NOW YOU CAN PLAY THE GREAT GOLF COURSES OF THE WORLD. CHOOSE FROM 6 DISKS - EACH WITH 8 EXCITING COURSES TO CHOOSE FROM.

- DISK # 1: "THE MAJORS" Includes Royal Troon, Kemper Lakes, Oak Tree, Augusta National, Royal Lytham and St. Annes, etc.
- DISK #2: "CALIFORNIA COURSES" Includes Spyglass Hill, La Costa, Riviera CC, The Olympic Club, Torrey Pines, etc..
- DISK #3: "TPC COURSES" Includes Sawgrass, Scottsdale, Eagle Trace, Starpass, Southwind, etc.
- DISK #4: "PGA TOUR # 1 Includes Firestone, Magnolia, Oak Hills, Tuckaway, Warwick Hills, etc.
- DISK # 5: "PGA TOUR # 2 Includes Atlanta CC, Butler National, Castle Pines, Fairway Oaks, Glen Abbey, etc.
- DISK #6: "PGA TOUR # 3 Includes Las Vegas CC, Medinah, Oak Hills, Oakland Hills, Westchester CC, Perdido Bay, etc.

Each disk is \$ 18.00 (US Currency per disk, plus \$ 3.00 Shipping and handling. PURCHASE ALL SIX FOR \$ 79.95 (PLUS \$ 3.00 S&H), AND RECEIVE A BONUS DISK FREE. Send check or money order to: California residents add 7 1/4% sales tax. Please allow 4-6 weeks for delivery. SPECIFY FOR WCLB (tm) OR "WORLD TOUR GOLF (tm).

SAXMAN SYSTEMS
400 WALNUT STREET #403B
REDWOOD CITY, CA 94063

Circle Reader Service Number 141



Spotlight on Software!

ARexx	31.10
Bars & Pipes	174.99
Battle Squadron	27.73
Breach II	27.73
Bride of the Robot	25.00
Can Do	88.99
Cross DOS	24.99
Deluxe Paint III	100.00
Digi-Paint 3	61.99
Digi-View Gold 4.0	140.00
Dr. Plummer's House of Flux	24.65
Extend (BASIC Commands)	26.00
Invision Plus	195.00
It Came From the Desert	35.99
Kara Fonts, ANIM 1 or 2	33.89
Leisure Suit Larry II	33.00
Lost Dutchman Mine	31.50
Magic Johnson Basketball	29.00
Maniac Mansion	33.50
Nevermind	27.73
Oswald of the Ice Flows	27.75
Pen Pal	90.00
Pic-Magic (Clip Art)	60.00
PixelScript	87.00
PIXound	48.99
Poco Man	27.50
Populous	36.99
Professional Page 1.3	195.00
Quarterback	43.00
Romance of Three Kingdoms	43.99
Shadow of the Beast	33.89
SideShow	30.99
Spherical	25.99
Starships 2050	33.89

Circle Reader Service Number 142

Great Prices! Shipping based on weight and zone.

For Information & Catalog Call:
Voice: 414-544-2066
Pursuable BBS: 414-544-6567

Stellar Crusade	40.50
Strider	32.50
Top Form (Forms Maker)	64.75
Tracker's Quest	24.50

Spotlight on Books & Diskettes!

Adv. Amiga Systems Program	26.50
Amiga DOS Inside/Out	16.30
Amiga Graphics Inside/Out	26.75
Guru Meditation Guide	13.50
Hardware Manual (Add-Wes)	20.00
Programmers' Guide to Ami	21.00
Sony Disks DS/DD Pack 100	85.00

Spotlight on Hardware!

501 Memory Clone, 512K	110.00
Camera, Panasonic WV1410	215.00
Color Splitter	116.00
Floppy Drive, Int. 2000	90.00
Floppy Drive, Unidrive	140.00
Han-D-Scan, C Ltd.	295.00
Joystick, Advanced Gravis	39.99
Joystick, Epyx 500XJ	15.00
Memory Module 500, 2 megs	269.00
Mouse, Cordless	90.00
MouseStick, Advanced Gravis	88.00
Perfect Sound 3.0	74.50
SCSI Controller, Kronos	220.00
SCSI Controller, Word/Sync	170.00
SCSI Controller, Byte/Sync	170.00
Spirit Boards OK 500/1000	234.99
SupraRAM 2000, OK	160.00
Trackball, AmTRAC	78.50

Orders Only Please:

Outside WI: 800-544-6599

Inside WI: 414-544-6599

Visa/MC/CODs

2414 Pendleton Place ■ Waukesha, WI 53188 ■ 9 AM to 5 PM M-F

COMPUTER GAMES +

MULTI GAME PACKS - MANY GAMES ONE LOW PRICE
EACH PACKAGE CONTAINS COMPLETE VERSIONS OF INDICATED GAMES

AMIGA GOLD 34.95	WINNERS 39.95	SUPER QUINTET 34.95	Precious Metal 37.95
BIONIC COMMANDO ROLLING THUNDER JINKS - LEADERBOARD	BLASTEROIDS - LED STORM IMPOSSIBLE MISSION 2 THUNDERBLADE	BUBBLE GHOST-WARLOCK'S QUEST-CHAMONIX CHALLENGE PASSENGERS ON WIND I & II	CAPTAIN BLOOD SUPER HANG ON CRAZY CARS - XENON
Computer Hits II 29.95	HIT DISK #1 29.95	HIT DISK #2 34.95	TRIAD 34.95
TETRIS JOE BLADE - TRACKER BLACK SHADOW	SLAYGON - KARATE KID II GOLDRUNNER JUPITER PROBE	LEATHERNECK - TANGLEWOOD TIME BANDIT MAJOR MOTION	DEFENDER OF THE CROWN BARBARIAN STAR GLIDER
TRIAD II 34.95	THRILL TIME 34.95	MEGA PACK 34.95	VIDI-AMIGA
BAAL MENACE TETRIS	Ikari Warriors-Thundercats-Bombjack Beyond The Ice Palace-Live And Let Die Buggy Boy-Battleships-Space Harrier	WINTER OLYMPIAD 88-PLUTOS MOUSE TRAP-SUICIDE MISSION SECONDS OUT-FROST BYTE	REAL TIME VIDEO DIGITIZER 169.95

ARCADE IMPORTS

Afterburner.....	29.95
Altered Beasts.....	34.95
A.P.B.....	29.95
Dragon Spirit.....	29.95
Dugger (Dig Dug).....	29.95
Dynamite Dux.....	34.95
Elite.....	26.95
Forgotten Worlds.....	29.95
Gauntlet II.....	29.95
Gemini Wing.....	29.95
Last Duel.....	21.95
New Zealand Story.....	34.95
Outrun.....	29.95
Power Drift.....	34.95
Road Blasters.....	29.95
Silkworm.....	29.95
Star Wars.....	19.95
Strider.....	34.95
Vigilante.....	24.95
Vindicators.....	24.95
Xybots.....	29.95

MORE IMPORTS

Advanced Ski Simultr.....	29.95
Archon Collectn I&II.....	19.95
Arctic Fox.....	19.95
Bangkok Knights.....	34.95
Blade Warrior.....	34.95
Battle Valley.....	29.95
Bloodwych.....	34.95
Bombuzal.....	34.95
Borodino.....	39.95
Captain Blood.....	29.95
Chambers of Shaolin.....	34.95
Colossus Chess X.....	34.95
Commando.....	29.95
Cosmic Pirate.....	34.95
Custodian.....	29.95
Dogs Of War.....	29.95
Dominator.....	29.95
E Edwards Super Ski.....	29.95
Emperor Of Mines.....	34.95
F-16 Combat Pilot.....	34.95
Fast Lane.....	29.95
Fed Of Free Traders.....	37.95
Fernandez Must Die.....	34.95

Fighting Soccer.....	34.95
Fusion.....	34.95
Galaxy Force.....	34.95
Garfield.....	34.95
G.Nius.....	29.95
Grand Monster Slam.....	24.95
Hostages.....	27.95
Ikari Warriors.....	19.95
Incredible Shrnk Spkr.....	34.95
Indy Jones - Action.....	24.95
Interphase.....	34.95
Iron Tracker.....	29.95
Kennedy Approach.....	29.95
KULT.....	34.95
Laser Squad.....	29.95
Legend Of Djel.....	34.95
Licence To Kill.....	29.95
Lombard Rally.....	34.95
Marble Madness.....	19.95
Mickey Mouse.....	24.95
Millennium 2.2.....	29.95
Mr. Heli.....	34.95
Munsters.....	29.95
Navy Moves.....	34.95
No Excuses.....	29.95
North & South.....	34.95
Oil Imperium.....	34.95
Onslaught.....	34.95
Operation Neptune.....	29.95
Phobia.....	34.95
Pictionary.....	34.95
Populous.....	31.95
Promised Lands.....	19.95
Powerdrome.....	34.95

Predator.....	34.95
Premier Collection 2.....	39.95
Pro Tennis Tour.....	29.95
Quantox.....	29.95
Quartz.....	34.95
Quest For Timebird.....	37.95
Rally Cross.....	29.95
Realm Of The Trolls.....	34.95
Rick Dangerous.....	29.95
Robo Cop.....	29.95
Roller Coaster Rmblr.....	29.95
Scapeghost.....	29.95
Skweek.....	29.95
Skyfox II.....	19.95
Slayer.....	29.95
Sleeping Gods Lie.....	34.95
Spherical.....	29.95
Sporting Triangles.....	29.95
Steel.....	29.95
Steigar.....	29.95
Stir Crazy.....	29.95
Storm Lord.....	29.95
Stunt Car Racer.....	34.95
Switch Blade.....	29.95
Tank Attack (deluxe).....	29.95
Terrys Big Adventure.....	29.95
Thunderbirds.....	34.95
Time.....	34.95
Tom & Jerry.....	34.95
Trivial Pursuit II.....	29.95
Turbo Cup.....	29.95
Voyager.....	34.95
Wicked.....	34.95
Xenon 2.....	34.95

Xenophobe.....	34.95
DOMESTIC	
Bal. Of Power 1990.....	32.95
Battle Squadron.....	27.95
Bard's Tale II.....	37.95
Battlechess.....	29.95
Battlehawks 1942.....	34.95
Beyond Dark Castle.....	24.95
Blood Money.....	24.95
Carrier Command.....	26.95
Distant Sun.....	47.95
Dungeon Master.....	24.95
Dungeon Maps.....	4.95
Dungeon Mastery.....	12.95
D. Master Editor.....	17.95
Falcon.....	32.95
Mission Disks.....	17.95
Fiendish Freddy.....	34.95
Hex.....	24.95
Hillsfar.....	34.95
It Came From Desert.....	31.95
Kristal.....	34.95
Lost Dutchman Mine.....	34.95
Maniac Mansion.....	34.95
Omega.....	34.95
Omniplay Basketball.....	34.95
Paperboy.....	34.95
Pipe Dream.....	27.95
Pocket Rockets.....	27.95
Shadow Of Beast.....	34.95
Shoot Em Up C. Kit.....	17.95
Side Arms.....	27.95
Sim City.....	29.95
Star Glider II.....	27.95

Swords Of Twilight.....	37.95
UMS.....	29.95
War In Middle Earth.....	31.95
W. Gretzky Hockey.....	34.95

SPECIALS

Action Service.....	19.95
Black Lamp.....	9.95
California Games.....	19.95
Corruption.....	14.95
Destroyer.....	9.95
Empire.....	19.95
Enlightenment.....	14.95
4x4 Off Rd Racing.....	9.95
Golden Path.....	19.95
Impossible Mission II.....	9.95
Kelly X.....	14.95
Motorbike Madness.....	14.95
Nord & Bert.....	14.95
Pandora.....	9.95
Return To Genesis.....	14.95
Roadways.....	14.95
Space Cutter.....	14.95
Space Sta. Oblivion.....	9.95
Speedboat Assassin.....	14.95
Spidertronic.....	19.95
Star Fleet One.....	24.95
Sub Battle.....	14.95
The Games.....	9.95
Wanted.....	19.95
Warlock's Quest.....	19.95
Whirligig.....	9.95

IMPORT MAGAZINES

AMIGA ACTION.....	6.95
AmigaComputing(disk).....	8.95
AMIGA FORMAT(disk).....	8.95
THE ONE.....	6.95
ACE.....	6.95
Comptr+VideoGames.....	6.95
GAMES MACHINE.....	6.95

DISK DRIVE..... 119.95

INDUS Disk Drive.....	149.95
MOUSE (Imported).....	49.95
VIDI-AMIGA.....	169.95
Supra 2400 Modem.....	119.95
COLOR Monitor.....	319.95

We are import software specialists. There are many more titles available. Please call for anything not listed here.

SPACE ACE
39.95

GUARANTEED LOWEST PRICES - CALL

SEGA GENESIS IN STOCK

come visit our walk-in store at
1839 E. Chapman
Orange CA, 92667
Store Hours Noon-6 Mon-Fri (714) 538-1234
Mail Order Hours 9-6 Mon-Sat (714) 639-8189

ORDER LINE

(800)-443-8189

INQUIRIES & CA. ORDERS

(714)-639-8189



NO EXTRA COST FOR CHARGE CARDS Hardware shipping - call for quote.
Software shipping-\$3.50. For 2 day air add \$1.75 per title. COD orders add \$3.75.



COMPUTER GAMES + • Box 6144 • ORANGE CA 92667 • (714) 639-8189

\$10,000.00

Amiga Programming Contest!

First Prize \$3,500.00

Second Prize \$2,500.00

Third Prize \$1,000.00

Five Honorable Mentions \$600.00 each

COMPUTE!'s Amiga Resource is looking for the very best original software for the Commodore Amiga series computers. And to prove we're serious, we're offering a total of \$10,000 in prize money to the top eight winners. That's \$3,500 for First Prize, \$2,500 for Second Prize, \$1,000 for Third Prize, and \$600 each for five Honorable Mentions. And even if your program doesn't win a prize, you can still earn a handsome purchase fee if we accept your entry for publication.

Interested? If so, read these rules.

1. Entries must be your original work, previously unpublished and not in the public domain. All those whose programs are accepted will be required to affirm this in writing.
2. You can submit as many entries as you want, but we cannot consider programs that have been entered in other contests or submitted for publication elsewhere at the same time.
3. The deadline is February 28, 1990. All entries must be received at our offices by this date. Programs submitted after this date will still be considered for publication but will not be entered in the contest.
4. Entries are allowed (and encouraged) in virtually all software categories: home and business applications, education, recreation, telecommunications, graphics, sound and music, and utilities.
5. Entries may be written in any programming language (BASIC, C, machine language, Modula-2, Pascal, Forth, and so on) as long as they meet two requirements. First, if you're using a compiled language, the compiled object or runtime code must be a self-standing program that can be run by someone who doesn't own a copy of the language. (The exception is Amiga Basic. Because this language comes with the Amiga, it can be assumed that everyone owns a copy.) Second, we must be able to legally distribute the program without incurring licensing fees or other obligations to the maker of the language. If you're not sure whether a certain language qualifies, contact its maker for clarification.
6. Entries must be submitted on 3½-inch Amiga disks with both the runtime and the source code included.
7. Entries must be accompanied by an article that explains how to use the program, what it does, and so on. If your program employs any new or unusual techniques that you think will be of interest to other Amiga programmers, you can also describe how the program works.
8. Submissions that do not win a prize and are not accepted for publication will be returned only if accompanied by a self-addressed, stamped mailer.
9. All judging will be handled by the staff of COMPUTE! Publications, Inc. All decisions regarding contest entries and acceptance will be made solely at the discretion of COMPUTE! Publications, Inc., and all decisions are final. This includes decisions regarding creativity, similarity among entries, and so forth.
10. Winners will be announced by COMPUTE! Publications, Inc., in mid-1990.
11. This contest is void where prohibited by law. Full-time, part-time, and previous employees of COMPUTE! Publications, Inc., and Capital Cities/American Broadcasting Companies are ineligible for the contest, but may still submit work for publication at standard rates.

Every contest entry must contain this signed form:

I warrant that the program presently titled _____ is my own original work and that the work has not been submitted for consideration elsewhere, nor has it been previously published in any form. If my work is accepted by you, I understand that your decision as to the winners and awarding of prizes is final and without recourse on my part. Should you select my submission, I understand that I will receive no payment until I sign your standard contract, which includes assignment of the copyright of the program to COMPUTE! Publications, Inc., and that you may use my name and image in promotional materials and other forms. (If you are under age 18, your parent or legal guardian must sign for you.)

Signature: _____

In order for your program to be considered in the contest, address your entries to

Amiga Programming Contest
COMPUTE! Publications, Inc.
P.O. Box 5406
Greensboro, NC 27403

AMIGA
COMPUTE! PUBLICATIONS

DevWare now offers you the **Best** selection of Public Domain programs for every Amiga application

Order our disk based catalog and get a coupon for a free volume with your next order. (PowerPacker included **FREE**)

Public Domain

Library

by
DevWare

Only
\$5.95
each

We have been the Official Public Domain library of Amiga World, we are the official library of Antic Amiga Plus, and now we are available through Compute! Amiga Resource. Find out why these magazines choose us! DevDisks by DevWare are the Public Domain library of choice for the serious Amigaphile. Each disk contains 7 - 10 of the best Public Domain programs available. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced user - often contains source code, WB# general interest - all programs can be run from the workbench, and FD# games and entertainment

DD17: Raytracing - Learn about raytracing the inexpensive way; DBWRender - Ray tracing, RayTracedPics, C source included.

DD33: Source Code Examples - Almost every program on this disk contains source; Lander - Workbench lunar lander game, PostScript, A window base emulator for the PostScript printer language, SnipItSnipIt - cut and paste between windows, also AmigaTags, Bison, DropCloth2.2, Gauge, Maze, MoniDCMP, RecoverTime, and others

DD37: Source Code Examples; Guru - A utility to interpret the number displayed during a Guru Meditation, MRBackUp2.1 - A very good hard disk backup program with spoken prompts, QMan - Quick Mandelbrot graphics generation program, SmartIcon, CopperDemos, FindIconImage, Overscan, Pr, and others

DD39: Text Editor #3 - MicroGnuEmacs with new support for binding macros, keyboard definition and ARexx, Also on this disk Conman1.1 2, Evolution, Life and Startup2.

DD44: ARP and DiskSalv - The official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI (See also dd45), and DiskSalv 1.3 - By far the best disk and file recovery program available. And others

DD45: AREXX PROGRAMS - This disk contains several useful arexx programs and examples including, AllZoo, EMake, McC (2.0), SpeechToy, StarTrek, TxEEd-SpeechToy, TxEEdref, Txref, Txref2, and the complete REXXArLib2.3. Also included, SoundUtil - C source code routines for using the audio device, by Robert Peck, IconMeister (1.4) - great icon generating program, PopCLI4 - The latest of a must have utility, and the ArpUserDocs3.1

DD47: Pascal Compiler - This disk contains a Pascal compiler, 68k assembler, and linker.

WB1: Graphics and Plotting - Several neat graphic and mathematical plotting routines are included; Plot - a three dimensional mathematical function plotter. Scenery - fractal landscape generator. Surf - BezSurf is a program for producing bezier surfaces of revolution. It produces awesome pictures of objects one could turn on a lathe. And others

WB2: General - Galaxy, your very own galaxy destruction kit, IconMeister (v1.4) THE paint program for creating icons, Larn - a dungeon type game program, and StarChart - lets you display and identify about 600 stars, galaxies and nebulae visible in the Northern hemisphere.

WB3: General - This disk is crammed full of programs, including: FastDisk - optimizes the chaotic disk structure, Introducer - create your own scrolling demos!, Plans - Plans is a high speed, versatile drafting program, Zerg(v1.00) Zerg is an Ultima type clone with a nominal plot.

WB4: Telecommunication - This disk contains several excellent PD communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols; Comm (v1.34) - The best PD communications programs ever made; Handshake (v2.12a) - Full featured

VT52/100/102/220 terminal; JRComm (v0.93) - Another great full featured comm program.

WB5: Fonts #1 - Several fonts (35) for the Amiga, also included are five PageStream fonts, and ShowFont - a font display program.

WB6: Fonts #2 - Several fonts (30+) up to 56pts.

WB7: ClipArt - Trees, animals, tools, states, etc..

WB8: File Management - Voted our best overall utility disk. UtilMaster - From your workbench move, copy, delete, read, show, edit, arc, run any command, and much much more!

Atree - similar to UtilMaster but has a hierarchical tree display. Also MachII - A must have mouse and keyboard enhancer, and Go - An ancient chinese game.

FD5: Tactical Games - BattleForce(3.0); A game that simulates combat between two or more giant, robots. Simple words can't begin to give you the feel of piloting a 30 foot tall, fire breathing, earth shaking colossus that obeys your every whim. BullRun - a Civil war battle game, Metro - you play the role of a city planner. Very good Amiga version of Kingdom, Golden Empire. Very very habit forming.

FD6: Games! - This disk is chalked full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: Pacman - Several pacman type games including: PacMan87, and others, also Tiles - A wonderfully entertaining solitaire game (difficult).

FD8: Games! - This disk is full of games, game hints and a few game editors (cheat programs) also includes Antepenult - The best PD Ultima type going (see the Dec. issue full description)

FD9: Moria - a very well done role playing adventure game. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A new version of a great dungeon adventure game. Considered a must have classic. Play time several weeks!

FD11: Vagas and Card Games - Craps, video poker, 31, and several good card games.

FD12A, FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features complete mouse control, good graphics, digitized sound effects and great gameplay. Two disk set.



Anti-Virus

Now Only \$19.95

Four Stars, Info Sep 89

Four Checks, Compute!AR Oct89

Anyone with an Amiga computer can have virus or trojan horse infections and not know about it. These nasty programs are designed to be infectious and invisible to you. They will infect your entire software library without your knowledge. At some future time these programs will wake up and destroy your data, your games and your valuable utility software. Anti-Virus from DevWare will stop ALL viruses past present or future. Includes vTrojan the only viable way to detect and eliminate ALL trojan horse infections. Satisfaction guaranteed or your money back.

Anti-Virus(c) is not Public Domain

Please send me the following:
Enter disk id (Ex. DD17, FD5, WB3 ...)

☐ Payment Enclosed
☐ Please charge my
☐ Visa
☐ Master charge

Account #

Expires

Signature

Name

Address

City

ST

Zip

Total disks x \$5.95 each \$

Disk based catalog (add \$2.50) \$

Anti-Virus (add \$19.95) \$

CA residents add 6.5% sales tax \$

Total Due \$

Next day shipping in most cases. Orders outside of North America add \$5.00 per disk for air mail delivery. Payment in US funds. A minimum of \$20.00 required on credit card orders.

DevWare DevDisk, PO Box 5188, Greensboro, NC 27403 (619)673-0759

ATTENTION

ALL AMIGA OWNERS

A complete self-tutoring Amiga BASIC programming course is available that starts with turning your computer on, to programming just about anything you want! This course is currently used in both High School and Adult Evening Education classes and has also formed the basis of teacher literacy programs. Written by a teacher, who after having taught BASIC several times, has put together one of the finest programming courses available today. This complete course of over 220 pages is now available for the **AMIGA 500, AMIGA 1000 and the AMIGA 2000** computers. This course will take you step by step through a discovery approach to programming and you can do it all in your leisure time! The lessons are filled with examples and easy to understand explanations as well as many programs for you to make up. At the end of each lesson is a test of the information presented. Furthermore, ALL answers are supplied to all the questions and programs, including the answers to the tests. Follow this course step by step, lesson by lesson, and turn yourself into a real programmer! You won't be disappointed!

FOLLOW-UP COURSE - A 200 page self-learning course dealing exclusively with sequential and random access files using a unique approach for those with very limited file programming experience. Set up your own personal and business records! This course also teaches you to program with the **mouse**, designing your own custom drop down **menu title bars**, and setting up your own custom **windows**.

AmigaDOS COURSE for all Amiga Owners - Take control of your Amiga with our step by step, self-learning AmigaDOS course that addresses all AmigaDOS versions, including 1.3. **All** our courses involve active participation by the learner. You do the specially designed examples, read the complete explanations, follow the instructions, answer the many questions, do the tests, and check your answers.

Each course is only \$21.95 plus \$3.00 for shipping and handling. We have been developing and selling Commodore courses for over 6 years now and if you do not think that we have the best self-tutoring course you have yet come across, then just send the course back to us within 10 days of receipt for the **FULL \$24.95 refund.**

NAME: _____ AR _____

ADDRESS: _____

CITY: _____

STATE/PROV: _____ CODE: _____

I desire the Amiga BASIC programming course ☐

FOLLOW-UP course on file handling ☐ AmigaDOS ☐

The computer that the course is needed for:

AMIGA 500 ☐ AMIGA 1000 ☐ AMIGA 2000 ☐

For each desired course, send \$24.95 cheque or money order (in the currency of your country) to:

Brantford Educational Services

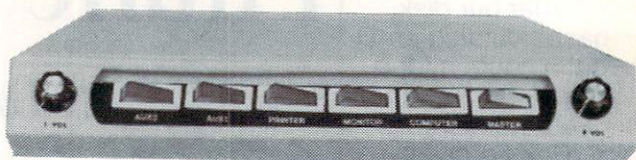
222 Portage Road
P.O. Box 1327
Lewiston, New York 14092

6 Pioneer Place
Brantford, Ontario
N3R 7G7

Fax: (519) 758-2743 Telex: 061-81260

You have a Killer graphics machine, now **ENHANCE** it with

AmiSound™



Your Amiga has the best graphics of any home computer on the market, now bring the built-in stereo sound up to the same level. Imagine- load your favorite flight simulator, crank up the volume and you'll feel like you're on the runway! Your favorite game takes on a new dimension when you listen to the sound the way it was meant to be heard! **AmiSound** --- for the serious gamer!

Specs:

- Twelve watt stereo amp (6 watts/chan into 4 ohms, 0.3% THD)
- Easy access left/right volume controls
- Power Controller box controls computer and 4 peripherals
- Completely surge suppressed
- Acts as a monitor stand
- Works with ALL Amigas!



P.O. Box 65 Boystown, NE. 68010
(402) 493-7852

\$ 99.95

Plus \$5.00 shipping/handling
Nebraska residents add 5.5%
Matched speaker set available



Circle Reader Service Number 197

DPaint III

(PLUS MOVIESETTER USERS)

ANIMATED FONTS

Bring your screens to life with
3D FONT--A full rotation 3D font

For effects that will knock their socks off!!

DISSOLVE FONT--Yes it does!

Dissolve on or off screen - Rotate, Shrink, etc.

POUR FONT--Pour in place **WOW**

Animated paint can pour the font on screen!

COMIC FONT--See to believe!

Animated characters that bring your title to life

OVER 270 ANIMATED BRUSHES

Thousands of screens that bring out your best

ONLY \$ 39.95 Delivered to your door!

Check or M.O. to: **ANIVISION**

**Two Disk
SET**

**P.O. Box 801
PROSSER, WA 99350
WA RES ADD \$3.12 TX**

COMING SOON--PREHISTORIC AND SCI - FI
products named are trademarks of their respective co.

Circle 150 on Reader Service card.

At last, a scanner with an artist's touch.



With the Migraph Hand Scanner and Touch-Up™ you can now produce professional-quality high-resolution scanned graphics from start to finish—without changing programs.

This unbeatable hardware-software team lets you scan, edit, and enhance images until they're exactly right for all your desktop publishing projects.

Start with quality hardware.

The Hand Scanner has all the features you need: A scanning window over 4" wide. Four scanning resolutions—100, 200, true 300, and true 400 dots per inch. Adjustable contrast. Three dither settings for scanning photographs. Plus a special setting for line art.

You can build your own library of images from logos, photographs, books, and illustrations. And that's just for starters.

Finish with software that won't quit.

With Touch-Up, Migraph's complete design tool for high-resolution monochrome images, you can put the finishing touches on every image you scan. Its powerful editing functions include standard commands plus extras like rotate by degree, slant, stretch, outline, and bolding. A complete paint program.

A full array of drawing tools.

Not to mention special effects and scalable outline fonts. When your images are pixel-perfect, you can import them into your

favorite Amiga publishing programs like Professional Page™ and Page Stream™. A variety of load/save formats also lets you use images on the PC, Mac, and ST.

Last but not least: The Migraph Hand Scanner and Touch-Up are easy to learn and easy to use.

See your dealer today for more details or call Migraph toll-free.

The Migraph Hand Scanner and Touch-Up. Powerful tools for professional publishing.

For Amiga 500, 1000 and 2000 systems with 1MB memory. A hard disk is recommended.



Migraph, Inc. 200 S. 333rd, Suite 220 Federal Way, WA 98003 (800) 223-3729 (10 to 5 PST) (206) 838-4677

© Copyright 1989 Migraph, Inc. The Migraph logo and Touch-Up are trademarks of Migraph, Inc. All other products named are trademarks of their respective companies.

• JUST RELEASED •

AMIGA UPGRADE #1 New 1 MEGABYTE "FATTER" Agnus (#8372) Hi-Res chip allows users more "chip" memory for use in **GRAPHICS, MUSIC OR VIDEO**. This "plug in" upgrade is an absolute must for present Amiga owners. Price is \$109.50 with simple, step-by-step 10-min. instructions.

AMIGA UPGRADE #2 A501/801 512K RAM board/clock for A500: \$114.50/instructions.

AMIGA UPGRADE #3 NEW 1.3 KICKSTART ROM upgrade \$27.95/instructions.

AMIGA UPGRADE #4 68020/33—\$139.50; 68881/16—\$76.95; 68881/20—\$104.95; 68882/16—\$105.00 and ALL MEMORIES.

— WE STOCK ALL AMIGA (AND COMMODORE) CHIPS @ SUPER LOW PRICES —

SEND FOR CATALOG OF EXCLUSIVE PRODUCTS

THE GRAPEVINE GROUP, INC.
35 CHARLOTTE DRIVE
WESLEY HILLS, NY 10977
(914) 354-4448

1-800-292-7445
Prices subject to change

FAX (914) 354-6696
Dealer pricing available

Circle Reader Service Number 114

AMIGA DUST COVERS

*Satisfaction Guaranteed *Custom Made *Heavy 32oz Vinyl
*Colors TAN & BROWN *Quantity Discounts Available

(A) 500/1000/2000 MONITORS	\$19.00	(F) EXT. 3.5 DRIVE	\$ 8.00
(B) 1000/2000 CPU w/DRIVE	13.00	(G) EXT. 5.25 DRIVE	8.00
(C) 1000 KEYBOARD	7.00	(H) MOUSE COVER	4.00
(D) 500 KEYBOARD w/DRIVE	14.00	(I) 10" PRINTER	13.00
(E) 2000 KEYBOARD	8.00	(J) 15" PRINTER	16.00

COMBINATIONS: (A) (B) \$28.00; (A) (D) (H) \$31.00; (A) (B) (E) (H) \$34.00 (A) (B) (C) (F) (H) \$39.00

Order By Stating Make, Model & Color (TAN or BROWN) with Check or M.O. Plus \$2.00 per Item (\$5.00 Max) SHP. & HDL; CA. Res. add 6% Tax. COD's \$3.00.

CROWN CUSTOM COVERS, 32962 Danapalm, DEPT AR-2
Dana Point, CA 92629 (714) 472-6362

Explore Artificial Intelligence Programming with LISP

Our LISP interpreter supports over 325 Common LISP functions, special forms, and macros. Features eleven Common LISP data types, debugging facilities, and save/restore of interpreter environment. Includes indexed manual and examples.

Requires AmigaDOS 1.2 and 512K.

McCauley Software Systems
P.O. Box 271031
Houston, Texas 77277-1031
(713) 630-0647

To order, send check or money order for \$99.95 + \$4 shipping. Texas residents add 8% for sales tax. Dealer inquiries welcome.

AMIGA SOFTWARE

Over 150 full disks of only the best of the Public Domain and Shareware. Tested and sorted into the following categories:

Animation, Applications, Games, Graphics, Information, Music, Programming, Sound, Telecommunications, and Utilities.

For a free list, send a business size SASE to:

Micro Computer Associates, Amiga Software,
P.O. Box 5533, Katy, TX 77491-5533.

All Disks Tested Virus-Free

Circle Reader Service Number 111

LaserUp!™ Software

PostScript™ Tools & Utilities **PrintScript™ Compatible**

Quality Amiga software for your PostScript printer.

LaserUp! Print1.2 - B/W halftones and 4-color process separations of any IFF image	\$89.95	LaserUp! Fonts Vol. 1 - 3 downloadable PS fonts. Now with screen versions, AFM, & ProPage metrics	\$49.95
LaserUp! Utilities Vol. 1.2 NEW! - Set type from any text editor - Now with Intuition interface	\$49.95	LaserUp! Plot - Aegis Draw/Draw Plus to PostScript plotter/file converter	\$49.95
NEW - LaserUp! Draw 1.0 - PostScript drawing/illustration, EPS files, vector screen fonts, auto-trace, MORE!		\$124.95	

889 DeHaro St. / San Francisco / CA / 94107 / (415) 826-6193

Circle Reader Service Number 110

Elkon Enterprises

The Ultimate Hint Kit Vol. II

The Ultimate Hint Kit Vol. II is a new 3 disk package with more walk-thrus and maps and game editors. The Infocom chronicles disk has over 20 of the most popular and new Infocom game walk-thrus. With help for Battletech, Arthur, Journey and the Zork series. The walk-thru disk brings you help for Shadow Of The Beast, Maniac Mansion, Space Quest III and Police Quest. This disk has over 20 Walk-thru plus Tricks And Tips Section. The Maps disk brings you maps for Bard's Tale II, Heroes Of The Lance, Ultima IV plus more. These maps will guide you through the unknown. All of these great features for \$19.95 Plus \$2.00 shipping.

\$19.95 Elkon Enterprises 4654 Mistletoe Wichita Falls Tx 76310 **\$19.95**

Circle Reader Service Number 109

Paradise Software

AMIGA® 5 Disk Sampler
Special Only \$22.95
Includes shipping and handling. USA Only

BUSINESS SAMPLER (9495) - Contains well written text editor/wps UEDIT, 105 business letters to edit & other fun.

UTILITY SAMPLER (9496) - Contains VirusX 3.2, ZOO & ARC, Showprint, Cli-Wiz, NAG and COMM 1.34.

MUSIC SAMPLER (9497) - Three popular songs - YTV, Thriller & YESSONIX with Sonix play utility.

ANIMATION SAMPLER (9498) - Ghostpool and Spigot by Dr. Gandall & Nemesis by Mark Riley. Great graphics & sounds.

GAME SAMPLER (9499) - A collection of Arcade, Board, Strategy, Adventure, and Analysis games. Great fun!

++Programs run on any Amiga w/ 512K run & Kickstart & Workbench 1.2 or greater. Shareware* requires separate payment to authors if found useful. Each disk is \$4.99 when less than 5 are ordered plus \$4.00 shipping/handling. Nevada residents add 6% sales tax. Send orders to: 4600 Paradise Rd. #26 • Las Vegas, NV 89101 (702) 731-6566 Expires 4-30-90

Circle Reader Service Number 120

ATTENTION—COMPUTER REPAIR CENTERS

You no longer have to be "COMMODORE REPAIR AUTHORIZED" to obtain the lowest prices on replacement chips or parts.

We at the Grapevine Group will supply you with chips, upgrades, diagnostics, power supplies, schematics and a library of "technical notes." Our prices, 90% of the time, are lower than buying from Commodore directly, and 100% of the time, lower than our competitors!

Write to us on your company or school letterhead for pricing information and our exclusive catalog of new products.

THE GRAPEVINE GROUP, INC.
35 CHARLOTTE DRIVE
WESLEY HILLS, NY 10977
(914) 354-4448
WE SHIP WORLDWIDE

TOLL FREE 800-292-7445

FAX (914) 354-6696

Circle Reader Service Number 116

For more information on our advertisers, use the convenient Reader Service Card provided with the advertisers index.

Complete
Your
Collection!
Back issues of
Amiga Resource
are available.
See page 95.

Oriental Desk Top Art

Vol. 1: Oriental art work
Vol. 2: Martial art figures
Vol. 3: Oriental folk art
Vol. 4: Chinese Font



中國字

High resolution images
IFF format
Use as clipart in desktop
publishing programs

Price: \$29.95 per Vol + sales tax 6%
(CA only) + shipping (\$3.0 in US). Send
check to order.

Software Integration Solutions
11027 Twin Pond Terrace
San Diego, CA 92128

Tel: 619-748-3350



Circle Reader Service Number 113

Pictures in 4096 Colors



For: DTP, DTV, Artists or just plain
FUN! IFF-HAM Pictures in full color -
or B&W Pics for the Graphic Arts in
all subjects from Ocean Sailing to Art
Nudes these disks work in any Amiga -
Each has an Easy-Viewer and they will
work in all HAM paint programs. Send
for our FREE Catalog today!

SPECIAL! Art Models \$35
(A Two Disk Set)
Disk Catalog \$10

The DigitalPub/257
Dept. R
1033 Peachtree St. NE - Atlanta, GA 30309

Circle Reader Service Number 118

THE #1 HOME COMPUTER MAGAZINE! COMPUTE! COVERS IT ALL!

When you're looking for the *complete* story on the state of home computing, turn to *COMPUTE!* magazine. Celebrating its tenth year of publication, *COMPUTE!* has always spoken for and to the home computer user. Not to the high-powered business user, but to everyone who wants a computer in the home or who wants to get more out of the machine already there.

It doesn't matter what personal computer you own—an IBM PC or compatible, an Apple II, a Commodore 64, a Macintosh, an Amiga, an Atari ST, or any other machine—you'll find *COMPUTE!* the one-stop resource to the latest in

- Home computer entertainment
- Home computer learning
- Home computer productivity

In-depth and focused features, news on the home computer industry, product reviews, persuasive columns, thoughtful analysis—it's all here in the one magazine that no home computer user can afford to ignore.

Subscribe Today to *COMPUTE!*

Only \$24.00 for 12 issues—one full year! Call 1-800-727-6937

Or write: *COMPUTE!*

P.O. Box 10955

Des Moines, IA 50347-0955



DOWNLOAD YOUR MAIN FRAME.



Total Control Diet taps the power of your computer to help you take off those unwanted pounds.

This personalized program enables you to lose weight quickly and sensibly, while maintaining balanced nutrition. Developed with the assistance of a professional dietician, Total Control Diet creates a calorie plan to help you reach your desired weight.

A data base of over 2,400 foods helps you make the best choices; additional foods can be added, including favorite recipes. Your caloric, fat, cholesterol, vitamin and mineral intakes are automatically computed to establish a day-to-day history. The program even adjusts to your metabolic rate.

Total Control Diet is ideal for individuals or groups. List price: \$99.

System requirements: Amiga computer with 512K available RAM. Pronu, the professional diet and nutritional program, is also available. See your Amiga dealer or contact Lee Software for more information.

Get on-line with Total Control Diet. And tip the scales in your favor.

TOTAL CONTROL DIET


SOFTWARE

Lee Software P.O. Box 742644 Dallas, Texas 75374-2644 1-800-22-S-WARE 214-530-LEES

Amiga is a registered trademark of Commodore-Amiga, Inc. Total Control Diet is a trademark of Lee Software

Circle Reader Service Number 144



MEAN 18 JUST GOT MEANER!

Announcing COMPUTE!'s *Mean 18* Course Disk

Six originally designed, challenging golf courses to add to your *Mean 18* collection. Each course has a unique theme. Play Apple Arbor, a genuine test of strategy; Pines Par 3, a fast-play course for which you'll need all your clubs; City Lakes, where water is your best friend and worst enemy; Island Green, which requires precise distance calculations and deadly accuracy; and much, much more.

ORDER NOW!

- ▶ Only \$12.95* plus \$2.00 postage and handling.
- ▶ Available in IBM 5¼- or 3½-inch formats or in Amiga format.
- ▶ Send your order to GOLF, P.O. Box 5188, Greensboro, North Carolina 27403. Be sure to specify format desired.

**COMMODORE (AMIGA)
SPECIALISTS
SINCE 1979**
*Authorized Service
and repair*

COMPUTERS etc!

Authorized
COMMODORE
AMIGA™
Dealers

Authorized Amiga Graphic Design & Desktop Publishing Specialists

HARDWARE

Master 3-A External Disk Drive	139.00
Digital Creations SuperGEN	650.00
Perfect Sound	66.95
Bridgeboard Speaker	19.95
ECE MIDI Interface	49.95
X-Specs - 3D Glasses	79.95
Panasonic 1124 - 24 pin printer	325.00
Twin Drive	235.00

Save on SUPRA Products!

Amiga 2000 Products

40 MB Quantum Hard Card	635.00
80 MB Quantum Hard Card	915.00
8 MB Ram Card with 2 MB	325.00

Amiga 500 Products

20 MB External Hard Drive	455.00
80 MB External Hard Drive	940.00
2 MB Ram Board for above	260.00
512K Ram Expansion w/clock	110.00
SupraModem 2400 Baud with Cable and Software only \$129.95!	

ACCESSORIES

3.5" Diskettes	79 cents!	Mousepad	6.95
Switch Box AB	29.95	MouseHouse	6.95
SwitchBox ABCD	44.95	MouseHolder	5.95
Disk Case (80)	15.00	MouseDoctor	10.95
Flicker Master	14.00	EPYX JoyStick	14.00

Custom Cable Specialists! Call for Pricing!

SOFTWARE

Electronic Arts

Deluxe Music	66.00
Deluxe Photo Lab	99.00
Deluxe Video	78.00
Populous	31.25
Power Drome	25.00

**Deluxe Paint III
Only
\$89.95!**

First Byte Educational Software

All Titles only \$26.50!

Dinosaur Discovery	First Shapes	First Words/Letters	Kid Talk
Math Talk	Speller Bee	Math Talk Fractions	
Smooth Talker	Rhyming Notebook	Puzzle Storybook	

Games/Entertainment

Dragon's Lair II	43.75	Joan of Arc	30.90
Battle Squadron	25.00	Eye of Horus	25.00
Hard Ball II	30.90	Shadow of Beast	31.25
Tarot Master	18.75	Sim City	28.95
Qix	25.00	Sonix	49.95

UTILITIES/APPLICATIONS

AmigaDOS 1.3	25.00	Mastering CLI	29.95
B.A.D.	31.22	Pha\$ar	56.22
UltraDOS Utilities	37.49	CLimate	29.95
Plan-It	115.00	B.E.S.T.	225.00

More Power for your Amiga 500!

The HD-150 and HD-150DL were developed by Computers, Etc! because of the increasing demand for replacement Amiga 500 power supplies. Our power supplies both feature a 150 watt Power Supply, Short circuit protection, Internal mounted fuse, on/off switch and a full one year warranty. In addition to these features, the HD-150DL features 3 switched A/C Accessory outlets with their own fuse, an internal cooling fan, and a 5 pin external connector. Save over \$20.00 with our special Introductory pricing: HD-150 Now Only \$99

HD-150DL Now Only \$129

Call Andrew at (813) 378-2394 for more information!

MUCH, MUCH, MORE...TOO MUCH TO MENTION! ...CALL FOR PRICES

Call (800) 634-5546 to place an order or to receive our FREE 48 page catalog!

Free Shipping on all Software orders over \$100. You pay only actual shipping costs on all other orders. We will not charge your credit card until the product actually ships. Most orders shipped within 24 hours. No surcharge for credit cards. We accept Visa, Master Card, American Express, Diner's Club and Carte Blanche, as well as cash, checks or money orders. FLORIDA RESIDENTS: Please add 6% Sales Tax. Our Mailing Address is: 4521-A Bee Ridge Road * Sarasota, Florida 34233

We've opted for readability, rather than quantity of items, so please call for prices on any item not listed. Custom Packages are our specialty. Service and Support are our strongest assets. Over 350 Public Domain disks in stock, only \$5.00 each. Call or write for FREE catalog! Pricing and availability subject to change.

Helpful Telephone Numbers

ORDERS ONLY

(800) 634-5546

TECHNICAL SUPPORT/HELP!

(813) 378-2394

CUSTOMER SERVICE

(813) 377-1121

COMPUTERS, ETC! BBS (300/1200)

MODEMS ONLY (813) 378-3477

David Bradley - Sysop Punternet Node 13



BEST OF THE BOARDS

Sheldon Leemon

Script—Phantom Fingers on Your Mouse



Little things can add up. It used to be, for example, that every time I started my computer, I opened the Telecommunications disk icon, opened my Terminal drawer, and ran a terminal program.

Then I closed the drawer window and the disk window. I didn't run the program from my startup-sequence because it wasn't necessarily the first thing I wanted to do every time, but eventually I did it just the same. "What's the big deal?" you might ask, but I repeated this series of mouse movements and button clicks every day, sometimes two and three times a day. The same sequence of events 400, 600, maybe 1,000 times a year. And this was the computer that was supposed to save me from the drudgery of mindless repetition?

All of this has changed recently, however, thanks to a program called *Script*. *Script* is one of the most useful and powerful freely-distributable programs for the Amiga.

But until you start to use this program, you may not appreciate how much it can do for you. For one thing, *Script* is unique—there really aren't any programs that you can compare it to. Simply put, it's a programming language that allows you to send a series of Intuition event messages to any other program, according to a written script.

Intuition event messages are the messages that the operating system sends your program to let it know when you've moved the mouse, clicked the mouse button, selected a menu, and so on. Anytime that a program performs one of its functions, it does so in response to one of these event messages. Therefore, *Script* allows you to operate any program under automatic control, just as if you were manipulating the mouse and the keyboard manually.

Script allows you to send the full range of Intuition messages to a program. Some of the Intuition-related commands are listed below.

- Menu commands. These allow you to select any menu item or subitem under script control.
- Gadget commands. These allow you to click on Boolean (on/off) gadgets, type text into string gadgets, and move proportional gadgets like slider bars.
- Mouse commands. A wide range of mouse commands let you tell the program that you've clicked or double-clicked the left or right mouse button or that you've moved the pointer. Additional commands allow you to

actually move the pointer (not just simulate movement), and combine movement with button presses for DRAG and DRAW operations.

- Keyboard commands. These allow the script to "type" keys from the keyboard.
- Window commands. Script commands allow you to move or size a window, send it to the front or back of the screen, activate or deactivate it, and ask the program to refresh the display or close the window.
- Screen commands. These allow you to send the screen to the front or back, to slide it up or down, and to flash the screen.
- Workbench commands. Special commands allow you to select, shift-select, and deselect Workbench icons, and open, shift-open, or close these icons. They also allow you to drag icons from one window to another or over one another.

Finally, they allow you to select Workbench menu items, such as Snapshot, Cleanup, and Info.

- Console commands. These allow you to manipulate any console window, such as the CLI or Shell window. You can print text, position the cursor, scroll the screen, insert or delete characters, and change type styles.

Script is not limited to sending Intuition messages, however. It shares many features with full-fledged programming languages. It allows you to use arrays and string and integer program variables. It

can manipulate those variables with a full range of math operators. It has IF/ELSE/ENDIF commands for conditional execution, WHILE/ENDWHILE for looping, and GOTO/GOSUB for flow control. PRINT, PRINTF, and FORMAT let you print formatted output.

Script includes commands that allow a script to run another program, as well as execute other *Script* scripts. It even has graphics commands that allow you to draw lines, circles, boxes, and text within any window. To top it all off, it has a set of commands that make it work cooperatively with *ARexx*.

Some people may confuse *Script* with *ARexx*, since both programs can be used to communicate with other programs and run other programs under remote control. *ARexx*, however, controls other programs by sending them special *ARexx* messages. Although this is the most direct form of control, the target program must be listening for these messages and must know how to interpret them when it receives them. This means that only programs that

Khalid Aldoseri's
Script is unique—
there really aren't any
programs that you
can compare it to.

have special *ARexx* support can interact with *ARexx*. *Script*, on the other hand, controls programs by sending them normal Intuition messages, the kind that they would get when the user clicks on a gadget or moves the mouse. Any program that can be controlled by the mouse or keyboard, therefore, can be controlled by *Script*, whether that program has an *ARexx* port or not.

Since *Script* itself has an *ARexx* port, it allows *ARexx* programs to exercise indirect control over programs that have no direct *ARexx* support. *Script*'s ability to control any program without special coding may seem to make it more powerful than *ARexx*, but it does have a couple of drawbacks that *ARexx* doesn't have. First, *Script* can only communicate in one direction. It can send messages to other programs but can't receive any information back from these programs, except in a very indirect manner. Second, *Script*'s control of other programs isn't very straightforward. You often have to issue a number of script commands to get the program to perform one of its functions, and the exact order and timing of the commands can be tricky. It's very easy to hang up the computer with an ill-chosen *Script* command.

In those situations where you need to recreate a repeatable sequence of Intuition events, however, *Script* is the only program that fits the bill. Take my initial complaint about having to open drawer after drawer to get to programs on my hard disk that I use every day. I now use *Script* to automatically open the drawers that I need, drag the program icons to the top of the Workbench screen in a neat row, and close all of the drawers. As a result, whenever I need one of these programs, the icon is ready and waiting on the Workbench screen. For example, the listing in the center of this page shows part of the script that I execute on startup to move the program *SuperBase* out from its drawer and onto the Workbench screen.

As you can see from this example, *Script* is one programming language that isn't very hard to learn. But to make your life even easier, it comes with *Recorder*, a program that records your actions as you manipulate programs and saves them to a script file. When you play this script back with *Script*, it will duplicate your actions exactly.

Although *Recorder* scripts may be unnecessarily long (they include your mistakes and pauses, for example), they provide an excellent model to work from, so you don't have to painstakingly figure out the coordinates of each mouse move, for example.

The longer you use *Script*, the more uses you'll find for it. After solving the problem of excessive Workbench window manipulation, I started to think of some other instances of unnecessary mouse-play.

For example, my Workbench screen is 672×460 pixels, so I usually size the application windows so that they are as wide as the screen, but only half as high. With *Script*, I can run these applications and automatically size and position the windows when the program comes up. There are some programs that I load a project file into every time I use them. I have *Script* run the program and then automatically bring up the file requester so that I can choose the project.

Script is by no means restricted to these kind of uses, however. It can be used as a teaching aid, for example, to give beginners a step-by-step demonstration of how to use a program. Or it can be used to perform repetitive tasks within a program, or very exacting tasks.

For example, when I try to draw an intricate repeating pattern in *DeluxePaint*, I will often pick up a single example of the pattern as a brush, and then stamp down copies where needed. No matter how careful I try to be, however, I usually stamp down at least one copy in a location that's one or two pixels away from where I wanted it. With *Script*, it's fairly easy to place each part of the picture precisely where I wanted it and to duplicate the picture or change it slightly without starting all over again. This ability is even more valuable when it comes to animating with *DeluxePaint III*, since you may need to repeat a drawing with slight changes over dozens of frames.

Script is a complex program. Before you try to use it, be sure to read the document files that accompany the program. Open the *Script* folder on the *Amiga Resource Disk* and double-click on the text files to read them. You'll find more text files in the Docs folder, which is located in the *Script* folder.

You'll have to boot your computer with the *Amiga Resource Disk* if you want to read these files by double clicking on their icons.

They are standard text files, however, so they can be read using most any file reader program or text editor.

If you use the file reader provided on the magazine disk, you can print the text by choosing the Print option from the file reader's pull-down menu. Be sure that your printer is connected and online before selecting this option.

After you've read the document files, try some of the demos. Double-click on the *Script* icon. A file selector appears. Click on *Script*, then on *Demos*, and then on one of the programs. *Script* will run the demo script.

The entire Amiga community owes a debt of gratitude to Khalid Aldoseri, author of *Script* (and the most accomplished Amiga programmer in all of Bahrain), for developing a program that adds to Amiga's already-considerable multitasking abilities. He doubly deserves our thanks for making it freely available for every Amiga owner to use.▲

Sample *Script* Script

```
BEGIN
;; Used to start every Script script
WB OPEN Apps
;; Open the Apps disk on the Workbench
WB OPEN Superbase
;; Open the Superbase Drawer
WB DESELECT
;; Deselect all icons
WAITFOR "FastBench" "SuperBase"
;; Wait for the Superbase window to open
WB DRAG SbPro 27 -61 1
;; Drag the program icon out of the
  window onto the Workbench screen
WB CLOSE Superbase
;; Close the Superbase window
WB CLOSE Apps
;; Close the Apps window
```


The BEST AMIGA DISKS

Quality User Supported Software works with all Amiga 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

THE TOP 10

- ❑ **#131 PacMan '87** - Great sound and graphics. Adds new elements to PacMan. Saves Top 10.
- ❑ **#127 Wheel of Fortune** - A great computer version for multiple players. It even talks.
- ❑ **#23 Monopoly** - Enjoy great graphics and sound while playing three tough computer opponents.
- ❑ **#37 Business Programs** - Included are an address book, an amortization program, a talking mail manager, and a label printer.
- ❑ **#27 Amoeba Invaders** - A better Space Invaders!
- ❑ **#140 Virus Killer** - Everyone needs this! Makes it easy to detect and eliminate known viruses.
- ❑ **#115 Word Processor** - Lots of features.
- ❑ **#134 Applications** - Label maker/printer, grocery list maker, and AMIGazer - a star viewing program.
- ❑ **#142 Q-Bert** - Like the popular arcade version.
- ❑ **#139 Bull Run** - Great Civil War strategy board game, with impressive graphics and sound.

1-800-444-5457 for Orders

THE BEST OF THE REST

503-664-5953 - Foreign Orders

BUSINESS/HOME

- ❑ **#116 Business II** - VC-Spreadsheet, HP-10c calculator, and several diversions for when the boss isn't looking!
- ❑ **#117 Business III** - DataBase, a bunch of great new fonts, RSLClock-great clock utility, AmigaSpell.

LANGUAGES

- ❑ **#9 FORTH** - Two versions of the FORTH programming language.
- ❑ **#50 XLISP** - A version of LISP, the artificial intelligence language. Includes documentation.

COMMUNICATIONS

- ❑ **#4 Communications** - Starterm and Aterm are both included. Both run from Workbench or CLI and are comparable to communications packages selling for \$50+. Full control of baud rates, phone directory, all protocols, auto chop of files, and many other extras. Works well with the AvateX 1200 modem and others. Source code included.
- ❑ **#90 Modem Madness!** - Terminals include StarTerm, ATerm, and Kermit. Telecommunication utilities such as Archive are also here. Other types of programs and utilities are also included in the price of admission.

UTILITIES/APPLICATIONS

- ❑ **#60 AmigaBasic** - Two programs that are truly of commercial quality. Cell-Animate and Graphit. Some Deluxe Paint picture files are also included.
- ❑ **#97 Tutorial Disk1** - A disk full of information and programs to instruct Amiga Programmers and users. Several C & ASM source files are included.
- ❑ **#98 Tutorial Disk2** - More of the best of Amiga Information.
- ❑ **#101 Utilities** - Many new utilities like Timeset - a time setting utility and DirCopy-a great copier (very quick), and about a dozen more. Some new fonts are also included on this disk.
- ❑ **#105 Potpourri I** - This disk contains several different kinds of programs, some of the highlights are: PopCLI2-evokes a new CLI window at the press of a button; PSound-sample sound recorder and editor; 3-D Breakout; DiskCat-catalogs and organizes disk files; IconMaker-makes icons for most programs so that they can run from Workbench; FKey-template maker.
- ❑ **#129 Amiga Utilities II** - A hard disk backup; Target-sounds a gunshot whenever the left mouse button is pressed; DPaint Tutor; WinSize-change window size from CLI easily, and lots more.
- ❑ **#132 Videomaker Utilities** - This disk is packed with utilities to make your desktop videos easier to produce and more professional looking.

- ❑ **#133 DOS Helper** - A program designed to help you with the AmigaDOS commands. Can be activated from icon of the CLI. Supports multitasking, so that you can refer to it when you need it. As usual, there are other good programs included on the disk.
- ❑ **#135 Applications II** - Long Movie-plays several IFF pictures in fast succession, creating animation. QuickBase-a mail manager DBase. Persmail-a DataBase for keeping records of friends, family, associates, customers or employees. MORE.
- ❑ **#146 Calendar** - A very good personal calendar for birthdays, holidays, meetings, bills and other events. Excellent graphics. Calendar program also has a diary. Other programs include some graphics and Checkbook.
- ❑ **#150 Textcraft+ Demo** - A demo of a very good word-processing program of high quality. Menu driven. Has a lot of help to show you how. Textcraft+ also has a Speller Check available.

SOUND/MUSIC

- ❑ **#18 Future Sound Demo** - Another great sound demo of digitized sound. Includes the wicked witch of OZ, breaking dishes, sea gulls, car crash, ducks, others.
- ❑ **#30 Super Sounds** - Great digitized sounds from movies like Star Trek, 2001, James Bond movies, Star Wars, and Starman. Is it real or is it the Amiga?!!
- ❑ **#77 Instruments** - Turn your keyboard into 25 different musical instruments.

SLIDE SHOWS

- ❑ **#1 Norman Rockwell** - 17 beautiful digitized Rockwell paintings in this self-running slideshow presentation. You've got to see these!
- ❑ **#55 EA Demo and Polyscope** - More great graphics for your enjoyment.
- ❑ **#67 DPSlide8** - Over 30 slides of all sorts on this self-running slideshow.
- ❑ **#94 Diga-View** - This one shows the digitizing process in stages. Several good pictures are included. Other programs also included.
- ❑ **#95 DigaSlide11** - Another in the great series of slideshows with great artwork. Self-running with over 25 pictures.
- ❑ **#108B Juggler** - Famous demo that shows the beautiful graphics of the Amiga and just how powerful this program is. It is easier to run than 108A, but only has the one demo on it.

GAMES

- ❑ **#38 Basic GrabBag2** - Around 25 programs of various types. Many of these are must-haves. At less than \$20 each, you can't go wrong!
- ❑ **#44 Games3** - More great games including Life, Vegas Slot Machine, Reversi, others.

- ❑ **#52 Basic Games** - Tons of ABasic games - discover some treasures!
- ❑ **#61 ABasic GrabBag1** - Only about 100 of all types!!!!
- ❑ **#102 Sinking Island** - Return to Sinking Island is an excellent adventure game. Well worth the price - hours of enjoyment!!!
- ❑ **#114 Potpourri X** - Othello. A key-shortcut program for AmigaDOS. Various new tools, automatic printer-driver generator, much more.
- ❑ **#118 Great Graphic Games** - Includes Missile Command, 2-D Triclops, Cosmo-asteroids clone, BrakeOut, Yatze, Hack and more.
- ❑ **#121 Backgammon** - A great game from David Addison.
- ❑ **#122 Solitaire** - Two versions by David Addison.
- ❑ **#123 Cribbage** - Take on the computer or a friend.
- ❑ **#124 Milestone** - A great computer version of Miles Bourmes by the author of Monopoly for the Amiga, David Addison.
- ❑ **#125 Othello** - A great 3-D version of this popular game.
- ❑ **#128 Space Games** - Cosmoids (like asteroids) and Gravity Wars highlight this disk just full of games.
- ❑ **#137 Blackjack** - A full-featured game which allows pair-splitting, double-down, etc. Bandit-play the slot machines without going to Vegas!!! More.
- ❑ **#141 Dominoes** - Dominoes game with great graphics. Also Tic Tac Toe, Drawing and Molecules programs.
- ❑ **#147 Jackland/Graphics** - Adventure clue game. Also some great pictures (graphics), a useful utility called Quickbase, and a fun program called Things which you will enjoy!!!
- ❑ **#148 Boulder Dash** - Very popular game with excellent graphics and has several challenging levels. This disk is full- It has Othello, Life3 and many useful utilities.
- ❑ **#151 4 in a Row** - A fun, but challenging game you play against the computer. There is an excellent Demo "MandFXP-D3", a utility or 2 and the fun TARGET - A weirdo thingy.

MISCELLANEOUS

- ❑ **#88 Amiga Basic Programs** - Over 50. Games, utilities, applications, entertainment, and finance. Also included is a program that allows you to use IFF files in your Amiga Basic programs.
- ❑ **#119 mCAD** - A full-featured computer-aided design program.
- ❑ **#136 Graphics2** - Border Set-useful for desktop publishing and video, making cards, coupons or menus, and your own artwork. Xicon-allows you to run AmigaDOS commands or programs from Icon.
- ❑ **#144 Christmas Animations** - 10 beautiful scenes and graphics with sound. Great scenes include: Lit Candle, Elves, The Christmas Tree, The Manger, Season's Greetings, Holly Wreath, Chimney Smoke, Church Bells, and Walking Home.
- ❑ **#145 Animations 3** - More Great Animations. 3 very good demos plus 3 workbench pictures and Blobs.

Name _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____

Visa/MC _____

Sig. _____

Exp. Date _____ ☐ Send Catalog

Disks Ordered _____ x _____ \$ _____

☐ SHIPPING Free U.S. \$ _____

Canada - 25¢ per disk Foreign - 50¢ per disk

☐ COD \$ _____

(add \$4 if you require COD)

☐ U.P.S. 2nd Day Air (Add \$3) \$ _____

TOTAL \$ _____

☐ Check/MO ☐ Visa/MC ☐ COD CAM 290

Software Excitement!

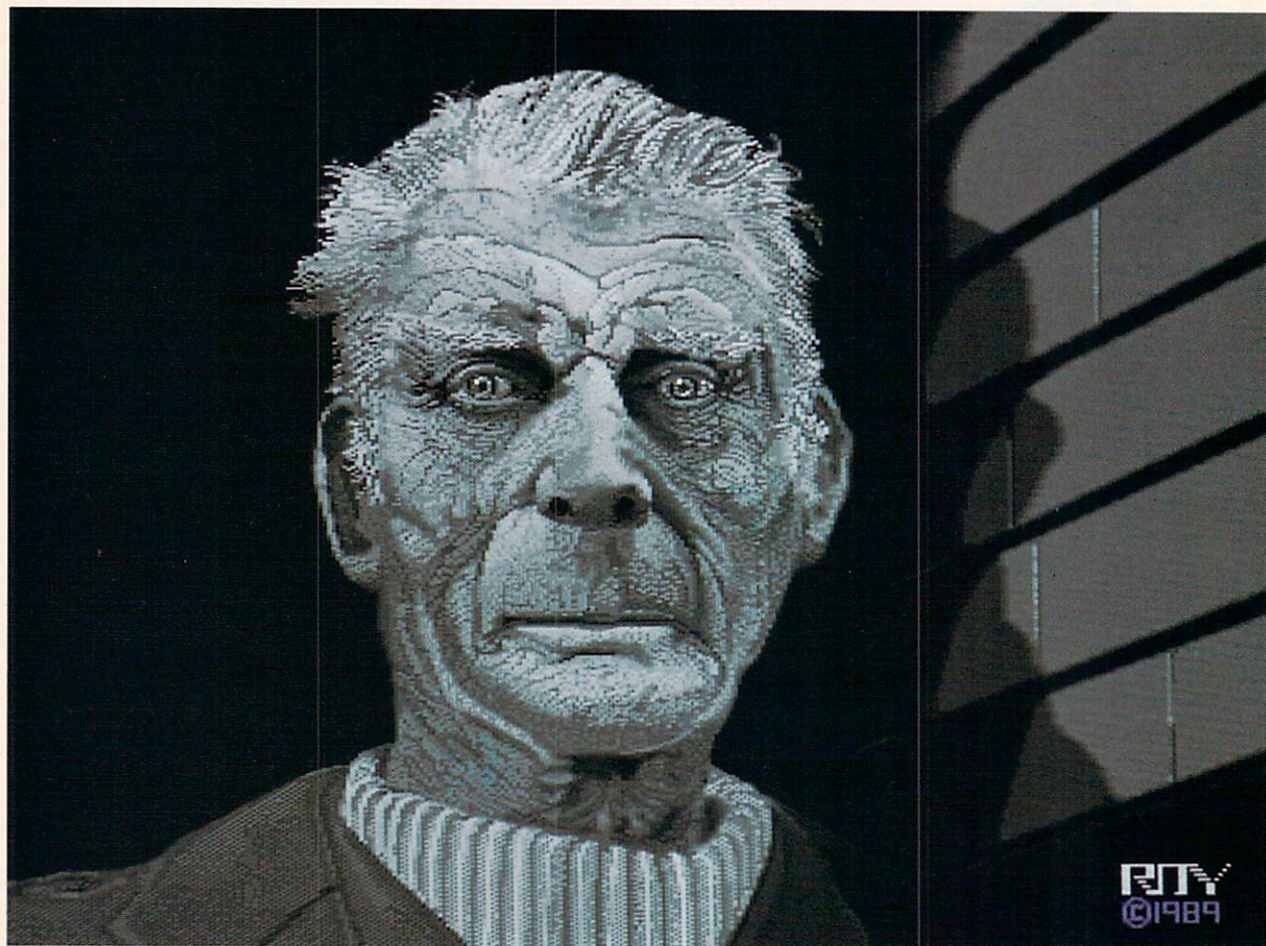
P.O. Box 3072 • Central Point, OR 97502

VISA

ORDER TODAY

MasterCard

1-800-444-5457



Nantucket Native

Christopher P. Roy

Norwich, CT

Welcome to "Amiga Art Gallery." On these pages, in each and every issue of *Amiga Resource*, you'll find the best Amiga artwork around. The pictures in this issue may also be found on the magazine's accompanying disk.

"*Nantucket Native* was originally a color photograph. My thoughts when I saw it were that the wrinkled texture of the old man's face would be a good test for the Amiga and my own skill." *Nantucket Native* was drawn using *DeluxePaint III* in interlace Extra Half-Brite mode.

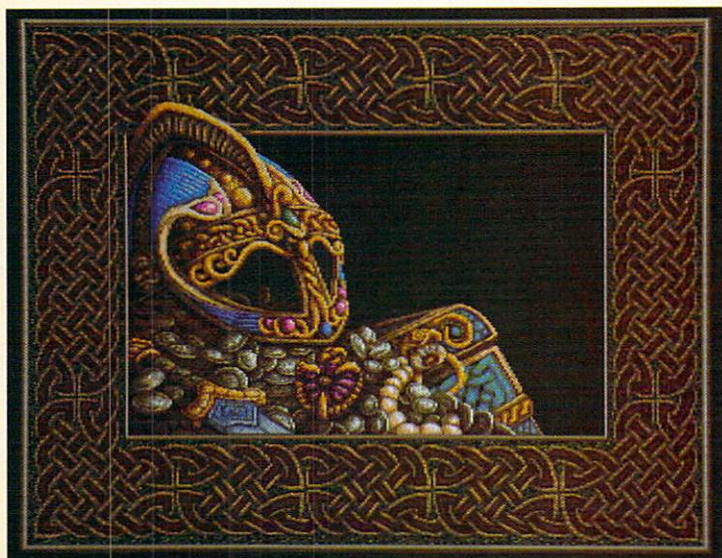
Tooth

Gregg Wilcox

Minneapolis, MN

The original version of *Digi-Paint* was used to create this dental patient's nightmare.

HAM mode provided the variety of color needed to produce the smooth shading effects.



Treasure

Brad Shenck

Thousand Oaks, CA

This picture was drawn in 32-color 320 × 400 pixel mode using *DeluxePaint II* on an Amiga 500. Brad Shenck, winner of both the 1988 and 1989 Badge Killer Demo contest, is also the artist behind the picture *Tower*, which appeared in our Fall 1989 "Art Gallery."

If you'd like to see your art in these pages, send it to us on disk at the address below. We pay \$100 for each piece of art we accept. Rejected submissions are returned only to artists who enclose a self-addressed, stamped envelope.

Amiga Art Gallery
P.O. Box 5406
Greensboro, NC 27403

TAKING SIDES

Rhett Anderson vs. Randy Thompson

Mail-Order Amigas

THINK BEFORE YOU ORDER! For years, Amigas have been available dirt-cheap from mail-order houses. We've been spoiled by low prices; prices too low to sustain a healthy system of Amiga dealers.

If you don't know what I'm talking about, try this exercise. First, find your closest authorized Amiga dealer. If you don't live in a big city like New York, Los Angeles, Philadelphia, or Chicago, pack a sleeping bag in your trunk—you've got a long drive ahead of you.

Odds are, this dealer is hanging onto his or her store by a thread. To make the dealer's day just a bit harder, pull a copy of your favorite magazine out of your pocket, turn to a mail-order ad for an Amiga, and say, "I can order an Amiga 500 for \$550. Can you beat that price?"

The dealer probably can't beat that price. For good reason. The dealer has to pay rent on the store. The dealer must advertise so that the few and far-between prospective Amiga owners can find the store. The dealer must pay the salaries of the people who work in the store.

If you really want to drive the dealer through the roof, buy your Amiga by mail-order and then ask the local dealer to solve your problems. In case you haven't been reading "Miss Manners," it's tacky to buy a machine from a mail-order house and then ask the local dealer to rewrite your startup-sequence.

For years, dealers have complained to Commodore about the problem. But Commodore held back, hoping against hope that the Amiga would catch on *before* the dealer system was in order.

Harold Copperman knows that Commodore must start thinking and acting like a successful and serious computer maker. Apple and IBM took steps long ago to ensure that their computers were available only through authorized dealers. If Commodore is going to compete with these giants, it must play the game by the same rules.

Now, Commodore is taking steps to help Amiga dealers grow and expand. Pay the few extra bucks to buy from your local dealer. You'll be the one who benefits.

Looking over at Mr. Thompson's side, we find a classic case of confusing cause and effect. Mr. Thompson complains about our local dealer (who's trying to expand, by the way). Our dealer would be in better shape if he weren't undercut by mail-order ads. Healthy dealerships make more sales. More sales lead to better software. Better software leads to more sales, and so on.

Don't be so cheap, Mr. Thompson. Invest a few bucks to enrich the Amiga community.

GET YOUR CREDIT CARD READY! It's the age of home shopping. People aren't rushing out to the stores; they're rushing to their telephones and ordering everything from lingerie to personal computers. These days you can buy almost anything—through catalogs, magazine ads, and even television shows—without ever leaving your home.

Commodore doesn't want UPS or Federal Express delivering its products, however. The company says that's bad business and that things are going to change—no more mail-order Amigas. I say Commodore is making a mistake.

Let's take an informal poll here. Question 1: How many of you purchased your Amiga through the mail? Chances are, over half of you raised your hand (figuratively speaking, of course). I know I did, and, yes, I know Mr. Anderson didn't.

Question 2: Of those 60 percent who gave an affirmative answer to Question 1, why did you choose mail order? *Price* is the most likely answer. What's the number 2 response? *There aren't any Amiga dealers in my area.* And that's the real problem.

If you live in a relatively small city, as I do, the closest thing to a dealer is an electronics repair shop that happens to sell 500s on the side. And, unfortunately, most mail-order companies have better customer support than these warehouse-district, Commodore-authorized dealers. Ridding the world of a few

bad-apple mail-order houses is fine. Eliminate mail order altogether, however, and Commodore is in for a serious distribution problem.

Besides, I think people want a choice. If they need dealer support, they can opt to pay the extra commission fees and order from a local computer store—a good dealer is certainly worth investing in. But if they already know what they want and how to use it, let them save time and money with mail order.

Looking over at Mr. Anderson's side, his misguided, bleeding-heart "Rhettoric" proves that he's lost a larger percentage of his brain than I ever suspected. Mail order is not an evil entity, it's part of free enterprise. It provides healthy competition in an industry riddled with overpriced products. Besides, many mail-order houses are dealers, too. They just cater to phone-in as well as walk-in customers.

As for IBM and Apple comparisons: Are "dirt-cheap" mail-order PCs hurting MS-DOS dealers? Hardly. And do we really want Commodore to take on Apple's iron-handed, overpriced tactics? No. My advice for you, Mr. Anderson, is *think before you type!* ▲



COMPUTE!'s AMIGA RESOURCE

FREE Reader Information Service

Use these cards to request FREE information about the products advertised in this issue. Clearly print or type your full name and address. Only one card should be used per person. Circle the numbers that correspond to the key number appearing in the advertisers index.

Send in the card and the advertisers will receive your inquiry. Although every effort is made to insure that only advertisers wishing to provide product information have reader service numbers, COMPUTE!'s AMIGA RESOURCE cannot be responsible if advertisers do not provide literature to readers.

Please use these cards *only* for subscribing or for requesting product information. Editorial and customer service inquiries should be addressed to: COMPUTE!'s AMIGA RESOURCE, P.O. Box 3253, HARLAN, IOWA 51593. Check the expiration date on the card to insure proper handling.

Use these cards and this address only for COMPUTE!'s AMIGA RESOURCE Reader Information Service. Do not send with payment in any form.

COMPUTE!'s AMIGA RESOURCE.

Name _____

Address _____

State/Province _____ Zip _____

Country _____ Phone _____

- Do you own an Amiga ☐ 500, ☐ 1000, ☐ 2000/2500
251 252 253
- Do you use it primarily for ☐ entertainment, ☐ art/animation, ☐ desktop video,
254 255 256
☐ music/midi, ☐ word processing, ☐ education, ☐ business applications,
257 258 259 260
☐ programming, ☐ other _____
261 262
- Do you use your Amiga at ☐ home, ☐ home business, ☐ business, ☐ school
263 264 265 266
- Do you also own ☐ hard disk, ☐ genlock, ☐ midi interface,
267 268 269
☐ memory expansion, ☐ other _____
270 271
- Do you subscribe to ☐ COMPUTE!, ☐ Compute!'s Gazette, ☐ Amiga World
272 273 274
- What is your total household income? ☐ >\$30,000, ☐ >\$40,000, ☐ >\$50,000, ☐ >\$75,000
275 276 277 278
- How long have you owned your Amiga? _____ yrs _____ mos
279 280
- How much will you spend for software this year? _____
281
- How much did you pay for your TOTAL Amiga System? _____
282

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

Expiration Date 4/30/90

Circle 101 for a one year new U.S. subscription to COMPUTE!'s AMIGA RESOURCE: you will be billed for \$9.97.

Start my charter subscription to

COMPUTE!'s AMIGA RESOURCE.

- ☐ \$9.97 One year (6 issues). Save 44% off the cover price.
- ☐ \$39.95 One Year (6 issues) complete with companion disk. Save 33% off the cover price.

Name _____

Address _____

City _____ State _____ Zip _____

☐ Payment enclosed. ☐ Bill me.

Subscription price subject to change at any time. Outside the U.S.A. please add \$6 for each subscription. Excluding Canada, all foreign orders must be in US currency.

Place
Stamp
Here

COMPUTE!'s AMIGA RESOURCE

Reader Service

P.O. Box 2141

Radnor, PA 19089



BUSINESS REPLY MAIL

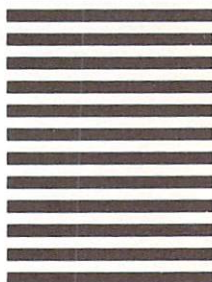
FIRST CLASS

PERMIT NO. 115

HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

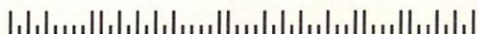
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



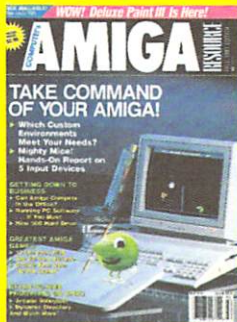
COMPUTE!'s AMIGA RESOURCE

P.O. Box 3253

Harlan, Iowa 51593-2433



44% OFF 100% AMIGA COMPATIBLE



**FOR FASTER SERVICE,
CALL TOLL-FREE
1-800-727-6937**

Cash in now with huge savings on a Charter Subscription to *the definitive guide to Amiga Computing*—COMPUTE!'s AMIGA RESOURCE.

- ☐ Send me 6 big issues of COMPUTE!'s AMIGA RESOURCE for just \$9.97. I save 44% off the cover price.
- ☐ Send me COMPUTE!'s AMIGA RESOURCE—*complete with the optional disk* containing at least 5 exciting new programs per disk. I'll pay just \$39.95 for 6 issues, each with disk—a savings of 33% off the cover price.
- ☐ Payment Enclosed ☐ Bill Me

Mr. / Mrs. / Ms. (circle one)

(please print)

Address

Apt. No.

City

State

Zip

Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

JA2N24



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS

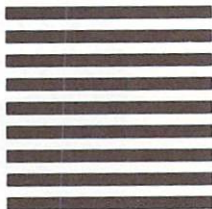
PERMIT NO. 115

HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE!'s AMIGA RESOURCE

P.O. Box 3253
Harlan, Iowa 51593-2433





Charter Subscription Savings Invitation

Save 44% by becoming a Charter Subscriber to COMPUTE!'s AMIGA RESOURCE today — and start getting the absolute most from your Amiga computer!

- ☐ Send me 6 big issues of COMPUTE!'s AMIGA RESOURCE for just \$9.97. I save 44% off the cover price.
- ☐ Send me COMPUTE!'s AMIGA RESOURCE — *complete with the optional disk* containing at least 5 exciting new programs per disk. I'll pay just \$39.95 for 6 issues, each with disk — a savings of nearly 50% off the cover price.
- ☐ Payment Enclosed ☐ Bill Me

Mr. / Mrs. / Ms. (circle one)

(please print)

Address

Apt. No.

City

State

Zip

Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

FOR FASTER SERVICE, CALL TOLL-FREE 1-800-727-6937

R.S.V.P. NOW AND SAVE 44%

JA2N16



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 115

HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTE!'s AMIGA RESOURCE

P.O. Box 3253
Harlan, Iowa 51593-2433



INTRODUCING THE DEFINITIVE GUIDE TO AMIGA COMPUTING

Become a Charter Subscriber today and start getting the absolute most from your Amiga computer!

- ☐ Send me 6 big issues of COMPUTE!'s AMIGA RESOURCE for just \$9.97. I save 44% off the cover price.
- ☐ Send me COMPUTE!'s AMIGA RESOURCE—complete with the optional disk containing at least 5 exciting new programs per disk. I'll pay just \$39.95 for 6 issues, each with disk—a savings of 33% off the cover price.
- ☐ Payment Enclosed ☐ Bill Me.

Mr./Mrs./Ms. (circle one)

(please print)

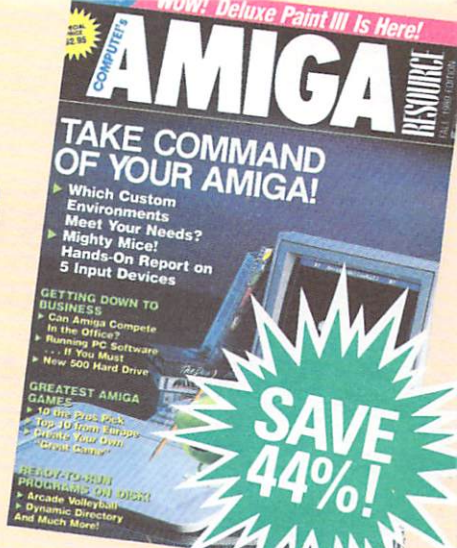
Address

Apt. No.

City

State

Zip



**FOR FASTER SERVICE,
CALL TOLL-FREE 1-800-727-6937**

Outside U.S. add \$6 per year for postage. Excluding Canada, all foreign orders must be in U.S. currency. Price subject to change.

JA2N32



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS

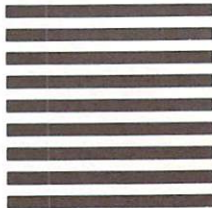
PERMIT NO. 115

HARLAN, IA

POSTAGE WILL BE PAID BY ADDRESSEE

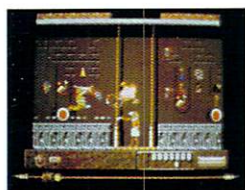
COMPUTE!'s AMIGA RESOURCE

P.O. Box 3253
Harlan, Iowa 51593-2433

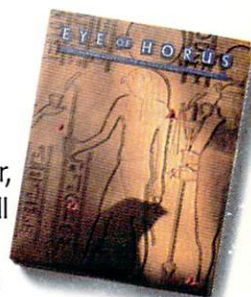




His mummy don't dance and his daddy don't rock and roll.



Horus isn't a happy guy. 🐍 You see, his father, Osiris, was murdered. His mother, Isis, just lays around the pyramid, grieving. And evil Uncle Set — who's caused all the problems — has challenged him to a fight to the death. 🐍 It's the original family feud — Egyptian style. 🐍 And it's all in *The Eye of Horus™*. A brand new game from Fanfare™ — based on Gods and legends as described in ancient Egyptian mythology.



🐍 Set has ripped Osiris's corpse into seven pieces and hid them in a dark forbidden tomb deep below the scorching Sahara sands. Your task is to help Horus find the remains, and avenge his father's death. 🐍 But first Horus must search the dark catacombs for weapons and sacred amulets to aid him in battle. And he'll need all the help he can get. Because in the final confrontation, Set will turn into a dragon to destroy him. 🐍 Self mapping arcade adventure. 🐍 State-of-the-art animation. 🐍 High resolution graphics. 🐍 The Eye of Horus. An exciting new game for the MS-DOS, Amiga, and Atari ST systems. Look for it at your local software store. Or, call us at 800/572-2272 (in CA: 415/546-1866).

LOGOTRON
RECREATION

🐍 *It's no cruise down the Nile. In fact, it's downright ungodly.*

Circle Reader Service Number 112

FANFARE™

An Encyclopædia
Britannica Company

DIGI-VIEW GOLD

4.0

Attention
All Digi-View
Owners: Upgrade
to Digi-View 4.0 by
phone today
See Below

This image was photographed directly from an Amiga 1080 Monitor and shows the new 4096 color Dynamic HiRes Mode available with Digi-View 4.0.

4096 Colors in High Resolution

Digi-View Gold, the best video digitizer for the Amiga, just got one hell of a lot better. With the all new Digi-View 4.0 software you can do the one thing most people thought was impossible—digitize and display all 4096 colors in high resolution! We call this revolutionary new graphics mode Dynamic HiRes and you will have to see it on your own screen to believe it. But that's just the start of what makes Digi-View 4.0 a breakthrough. Other new features include: Dynamic HAM (fringe free HAM), Noise Reduction (for the sharpest images ever), ARexx support, super bitmap digitizing (directly into Digi-Paint 3), 24 bit color support, 68020 compatibility and dozens of other new features making Digi-View Gold the hottest Amiga graphics product ever.

It's still just as easy to use as before. Simply focus your video camera on any object or picture, and in seconds Digi-View Gold turns it into Amiga graphics that glow with vibrant color and stunning clarity. Whether you are creating graphics for desktop publishing, presentations, video, or just for fun, Digi-View Gold gives you dazzling images with amazing simplicity.

Digi-View Gold is designed specifically for the Amiga 500, 2000, and 2500, and plugs directly into the parallel port. With complete software control of color saturation, brightness, sharpness, hue, resolution, and palette, advanced image processing is as easy as adjusting the

controls on your television.

If you want the best graphics possible for your Amiga, then you need the best selling video digitizer of all time: Digi-View Gold.

Only Digi-View Gold:

- Can digitize in all Amiga resolution modes from 320x200 up to 768x480 (full-HiRes overscan)
- Uses 2 to 4096 colors (including extra halfbrite)
- Uses exclusive Dynamic modes for 4096 colors in HiRes
- Is 100% IFF compatible and works with any graphics software
- Can digitize in 21 bits per pixel (2.1 million colors) for the highest quality images possible
- Has advanced dithering routines that give an apparent 100,000 colors on screen simultaneously
- Has powerful image processing controls for complete IFF picture manipulation

Digi-View and Digi-View Gold owners easy upgrade: Upgrade to the incredible new Digi-View 4.0 software just by sending your name, address and \$24.95 + \$6.00 for shipping and handling (\$30.95 total) to NewTek Digi-View 4.0 upgrade, 115 West Crane St., Topeka, KS 66603. If you have a Visa or Mastercard call our toll free order line at 1-800-843-8934 and we'll rush your upgrade to you immediately.

Only \$199.95

Digi-View Gold is available now at your local Amiga dealer.

Or call 1-800-843-8934.

NewTek
INCORPORATED

*Requires standard gender changer for use with Amiga 1000. Digi-View Gold, Digi-Paint 3 and Video Toaster are trademarks of NewTek, Inc. Give a man a VCR and he can watch reruns, give him a Video Toaster and he can make his own!