

AMIGA

WORLD

August 1989
U.S.A. \$3.95
Canada \$4.50
UK £2.50
An IDGC/I
Publication

Programming Aids

- ▶ Hands-On Guide
To System Software
- ▶ Beyond Multitasking
- ▶ New BASICs
For the Amiga

PLUS!

- ▶ Top 15 Amiga
Education Programs
- ▶ Graphics Tips
- ▶ DOS Utilities
- ▶ Reviews, Games & More



DENARIS



Available Now
for the Amiga and C64.

HARD
Wired

A GOLD DISK COMPANY

2171 Dunwin Drive, Unit 13
Mississauga, Ontario
CANADA L5L 1X2
(416) 569-1212 or
1-800-387-8192

Call to order, or watch the
HardWired video at your
nearest Amiga Dealer.

**STOP PLAYING GAMES
...LIVE THEM**

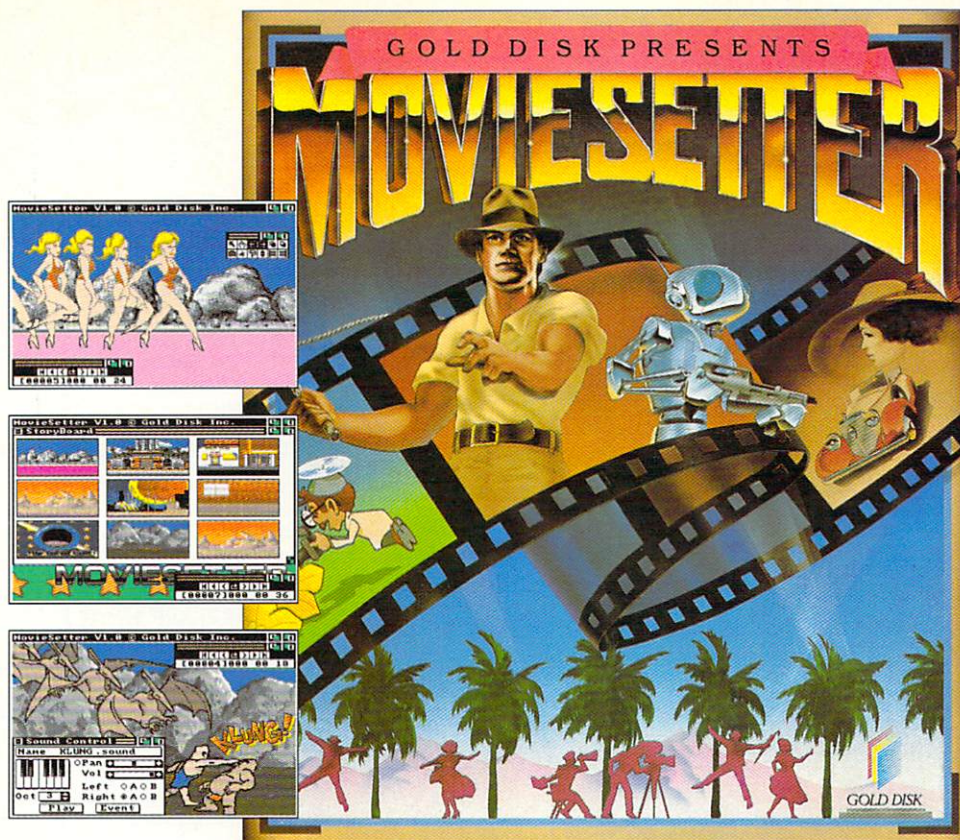


"...an apocalyptic orgy of gut wrenching, mind blowing, nose shattering, bladder bursting violence, devastation and destruction. Strap yourself to that chair, oil your joystick, grit your teeth and get ready to fly, kill and die. It's a total sensory overload, it's a totally wicked experience, it's Denaris!" - *Computer Gamesweek.*

"...no zap addict should be without (Denaris)." - *Commodore Computing.*

"Denaris...the best shoot 'em up to appear on the Amiga." - *AmigaUser International.*

Circle 150 on Reader Service card.



AMIGAWORLD REVIEW, APRIL 1989.

"MovieSetter...the animation program to have... Gold Disk has set a standard for Amiga animation."

MOVIESETTER

A mover and shaker.

By Gary Ludwick

BILLED AS THE first WYSIWYG (what-you-see-is-what-you-get) animation package, MovieSetter combines tradition with innovation. This program integrates classic animation elements into a format that differentiates it from its predecessors.

Your building blocks are faces (commonly called cells), backgrounds, sets, and tracks. A face is a single image of an animated object; a set is a series of faces that portrays animated action by following a logical sequence.

The set editor... contains most of the drawing tools found in paint programs, plus some animation specific ones, such as rotation, flipping, and resizing tools.

MovieSetter allows complete flexibility of face placement and order.

Once you have assembled a set, you can define an object's horizontal and lateral movement on the screen with a track. You load your background and set, and the first face appears on the screen attached to the cursor arrow. Simply position the cursor where you want the action to begin. Clicking the left mouse button places the first face, advances one frame and brings up the second face. Repeat this process to lay the entire track.

A group of track-editing tools allows you to move tracks after you have laid them down, place them in front or in back of others, insert new elements, and copy, cut, and paste tracks via keyboard or mouse. Best of all, you can see the results of your editing at once.

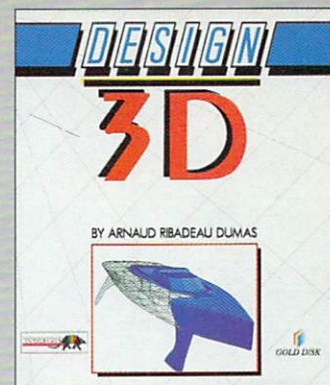
MovieSetter offers full palette control for up to 32 colors, color cycling, an interlace/full-scan option for video transfer, speeds up to 60 frames per second, plus clipboard and storyboard functions. Syncing digitized stereo sound with the video is again as easy as clicking a mouse button. MovieSetter provides not only stereo output for your soundtrack, but also channel-to-channel panning and the ability to change pitch as well.

This is the animation program to have. Gold Disk has successfully combined important elements - IFF compatible files, real-time previews, stereo sound, and a superb manual - into a powerful, flexible, easy-to-use package.

As they did with desktop publishing, Gold Disk Inc. has set a standard for Amiga animation.

The above article is excerpts from AmigaWorld's April, 1989, MovieSetter review. This ad was created with Professional Page.

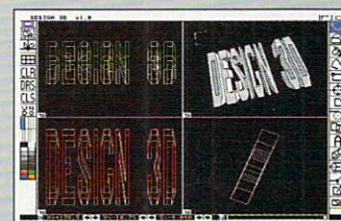
Circle 177 on Reader Service card.



AMIGOTIMES 1.4 REVIEW

"Design 3D is a feature-laden program."

"Design 3D is a feature-laden program...The interface is well thought out...You need not ever leave your mouse...Best of all is the inclusion of automatic 3D text generation...a fully featured 3D font editor that allows you to alter the 3D font included or to create your own."



- Color wire-frames & objects.
- Auto 3D text & font editor.
- Read/write VideoScape.
- Built-in animation facilities.
- Output to HPGL plotters.
- Output to Professional Page.
- 6 measures & 4 light sources.

HOME STUDIO SERIES

MovieSetter, Design 3D and ComicSetter are \$99.95 each. Additional MovieClips and ComicArt available for US\$34.95.

Call to order: 800-387-8192
or 416-828-0913.



GOLD DISK INC.

P.O. Box 789, Streetsville
Mississauga, Ontario,
CANADA L5M 2C2

HOME STUDIO SERIES
Video Now Playing At
Amiga Dealers.

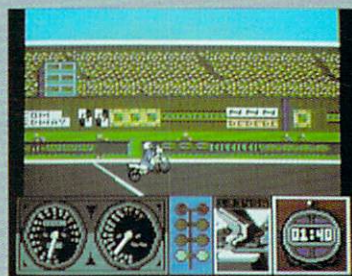
SANTA CLAUS IS COMING TO TOWN

Better watch out!

After a test ride on Pocket Rockets, the high-speed motorcycle simulation game, Santa picked up a new sleigh that will make this year's rounds faster than ever. And whether you've been naughty or nice, you could win this Suzuki 600 Katana during "Santa's Sleigh Giveaway" in January.

Meanwhile, experience all the thrills and spills of high-speed racing with machines that take you from zero to 60 in under four seconds. Already gaining critical acclaim, Pocket Rockets lets you choose from four of the quickest, most exotic bikes on the planet. The action's as real as the adrenaline you'll feel.

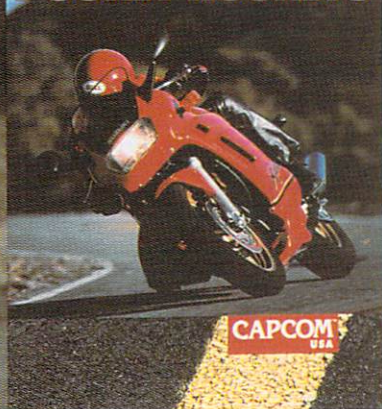
Then, enter "Santa's Sleigh Giveaway" from Capcom U.S.A. Besides the chance to win a new Suzuki motorcycle, you could get a Bell full coverage helmet, or Capcom computer game software. Look to enter in all Capcom computer game packages or visit your favorite computer game retailer for more information. Capcom's belated Christmas giveaway is just around the bend so don't miss out on your chance to win!



LEFT: Try your skill against the clock with a couple of laps around the test track. RIGHT: Drag racing demands a quick wrist and fast shifting. Just don't blow the engine!

Circle 86 on Reader Service card.

POCKET ROCKETS



SWEEPSTAKES RULES How to Enter:

1. NO PURCHASE NECESSARY. Fill out and mail official entry found in package or you can enter by hand printing your name, address and zip code on a 3" x 5" piece of paper and mailing it to CAPCOM Santa's Sleigh Giveaway, 3303 Scott Blvd., Santa Clara, CA 95054. Enter as often as you wish. Each entry must be mailed separately by JANUARY 15, 1990. No mechanical reproductions of entry will be accepted and all mail-in entries must be received at the above address by JANUARY 31, 1990. No responsibility is assumed for lost, late, misdirected, or damaged entries.
2. Prize winners will be determined by means of a random drawing to be conducted by an independent judging organization whose decision shall be final. All prizes listed will be awarded, but there can be only one prize winner per household, group or organization. Odds of winning depend on the number of entries received. Approximate grand prize retail value is as follows: Suzuki Katana \$4,495.00. Winners will be notified by mail by FEBRUARY 15, 1990 and may be required to execute affidavits and advertising release. Taxes on prize winnings are solely the responsibility of the winners.
3. Sweepstakes is open to U.S. residents except employees of CAPCOM U.S.A. and their immediate families, its subsidiaries and affiliates, its advertising and promotional agencies, and the judging firm. Prizes won by minors may be awarded to parent or legal guardian. Void where prohibited or restricted by law. All Federal, State and Local regulations apply. For a list of major prize winners send a stamped, self-addressed envelope to CAPCOM Santa's Sleigh Giveaway Winners List, 3303 Scott Blvd., Santa Clara, CA 95054 by MARCH 31, 1990.

CAPCOM®
USA

• C • O • N • T • E • N • T • S •

FEATURES

- TAKE IT FROM THE TOP:
A GUIDE TO THE SYSTEM SOFTWARE**
By Sheldon Leemon 18
This clear, concise guide to the Amiga's layered, pyramid-structured operating system will prove an invaluable aid to novice and expert programmers alike.

- AREXX: THE MISSING LINK**
By Gene Brown 30
Find out how this revolutionary new command language can integrate and simplify everyday computing chores while also providing the basis for a true Amiga hypermedia system—and why leading developers are beginning to include AREXX interfaces in their software.

ARTICLES

- INFORMED CHOICES:
A GUIDE TO EVALUATING AND
SELECTING AMIGA EDUCATIONAL
SOFTWARE** *By Margaret Morabito* 38
To know which educational programs are best for your kids you need to know what qualities and features make for good educational software. A computer-learning expert gives you her criteria and her selections for the top 15 Amiga programs.

COLUMNS

- ZEITGEIST** 6
The editor discovers that a little creative agility in programming startup-sequences can counteract a lot of chaos and confusion.
- ACCENT ON GRAPHICS**
By Joel Hagen 50
Our popular series on graphics tips and techniques becomes a regular monthly column with this issue. This month: "Tricks with Text."
- INFO.PHILE** *By Mark L. Van Name and Bill Catchings* 58
Team info.phile begins a two-part survey of AmigaDOS utilities to evaluate how and why they can make your operating system and its CLI easier to use.

DEPARTMENTS

- REPARTEE** 8
Keep those letters coming.
- NOTEPAD** 10
Amiga developments at LA's World of Commodore show and a touch of Amiga Weird in Texas top the Amiga newswire this month.
- WHAT'S NEW?** 86
No summer slowdown in the Amiga new products market.
- HORS D'OEUVRES** 90
Choice tips and techniques from your fellow readers.
- HELP KEY** 92
Donning his artist smock and beret this month, Wallace plays Tou-Lou Lautrec to readers with graphics/animation troubles.

REVIEWS

- HISOFT BASIC PROFESSIONAL
(MichTron) and GFA BASIC
3.0 (Antic)** 12
The latest compiler from MichTron and a brand-new interpreter from Antic in a head-to-head comparison that also features benchmark tests against other popular BASICs for the Amiga.
- SUPERPLAN (Precision)** 16
Another powerful productivity tool from Precision that combines a spreadsheet with database, statistical-charting, and project-management capabilities.
- DISK MAGIC (DMH)** 75
A comprehensive DOS utility for confirmed rodent-philers looking to bypass the CLI.
- 3-D DESIGN DISKS (Antic)** 76
Four separate 3-D clip-art libraries available in versions for use with VideoScape 3-D, Sculpt-Animate 4D, or Turbo Silver.
- TOOL BOX EEC-2520 / EEC-2120
(Expansion Tech) and PHOENIX PEC
2500 (Phoenix)** 78
Nifty solutions to the dilemma A500 and A1000 owners face when A2000-style peripheral cards just don't seem to function in the smaller systems.

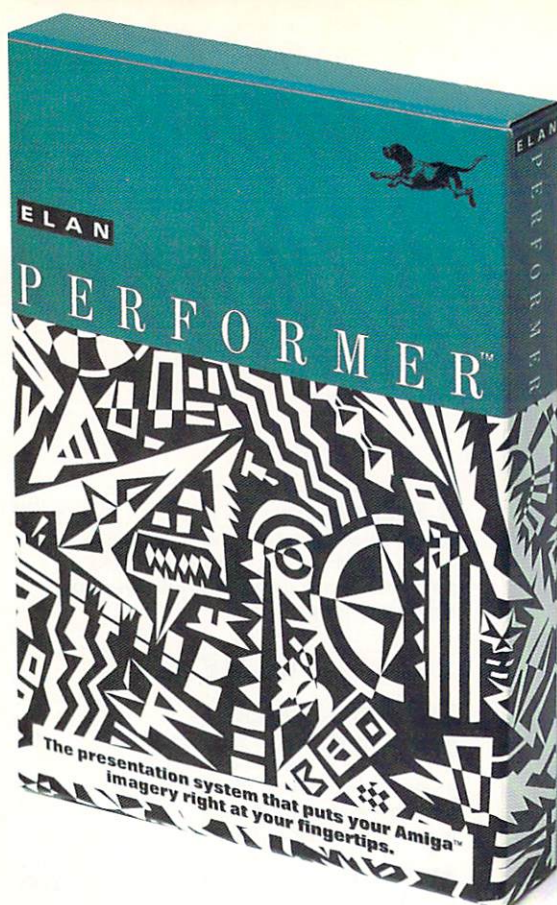
- X-SHELL (GrafX)** 80
A convenient mouse-driven interface to help users of X-CAD (Taurus / Haitex) get a better grip on a powerful, but difficult-to-use program.

GAMES

- THE GAME PRESERVE**
By B.G. Hunter 64
B.G. set out in the Land Rover this month to bring back the best free games roaming wild in the Amiga public domain. Game reviews follow his column:
- ALIEN SYNDROME (Mindscape)** 67
A sci-fi shoot-'em-up on a hostile space station.
- STAR WARS (Broderbund)** 67
A fast-paced 3-D flight simulation as much fun as the arcade original.
- BALLISTIX (Psychapse)** 68
Apocalyptic arcade athletics with top-notch graphics and sound.
- COMBAT COURSE (Mindscape)** 69
All the grueling, masochistic fun of Special Forces training without having to go to Paris Island.
- HEROES OF THE LANCE (Strategic Simulations)** 70
An action/arcade variation of Advanced Dungeons-and-Dragons adventuring.
- FIRE-BRIGADE (Panther)** 71
Replay the seesaw WW II battle for Kiev between the Soviets and Germans.

\$25,000 MYSTERY SWEEPSTAKES!

Get ready for the second-and-final part of **The 1989 AmigaWorld Mystery Sweepstakes**, which begins on **page 54**. If you can solve our horse-racing whodunit, you can win from **over \$25,000** worth of prizes being offered. We've got a fabulous **Grand Prize** (an Amiga 2000HD and a Getaway Weekend!), two exciting **Runner-Up Prizes**, nine special **Finalist Prizes**, and over 150 valuable **Consolation Prizes**. Don't look a gift horse in the mouth—get sleuthing!



PUT ALL OF YOUR AMIGA VISUALS RIGHT AT YOUR FINGERTIPS WITH ELAN PERFORMER

ELAN PERFORMER™ is the only presentation system to put all of your Amiga graphics in one place, where you can display them as quickly as you can hit a key. Whatever the format. No complex script or menu systems. No more loading all those different programs. There is no faster or easier way to produce a presentation.

- Precise automatic sequencing or direct manual display from keyboard or mouse.
- Bring together imagery from your paint and animation programs into a single presentation.
- Handles all Amiga resolutions including severe overscan. Available in PAL or NTSC video formats.
- Supports IFF, HAM, RIFF, ANIM, and RGB formats. Works with Amiga graphics and animation programs such as Deluxe Paint™, DigiPaint™, Photon Paint™, Videoscape 3D™, Zoetrope™, TurboSilver™, Sculpt™ and INVISION™

Whether for business, education, creative projects, animation, or real-time editing onto videotape, ELAN PERFORMER is absolutely indispensable.

See your dealer or contact:

ELAN P.O. Box 31725
DESIGN San Francisco, CA 94131

List price: ONLY

\$59.

Elan Performer is a trademark of Elan Design, Inc. Amiga, Deluxe Paint, DigiPaint Photon Paint, Videoscape 3D, Zoetrope, Turbo Silver, Sculpt and INVISION are the trademarks of Commodore Business Machines, Electronic Arts, NewTek Inc., MicroIllusions, Aegis Software, Antic Software, Impulse, Byte by Byte and Elan Design Inc., respectively.

Circle 210 on Reader Service card.

STEPHEN ROBBINS, *Publisher*

GUY WRIGHT, *Editor-In-Chief*

DAN SULLIVAN, *Executive Editor*

SHAWN LAFLAMME, *Managing Editor*

LINDA J. BARRETT, *Acquisitions Editor*

BARBARA GEVERT TYSON, *Review Editor*

JAN JACKSON, *New Products Editor*

TIM WALSH, *Technical Editor*

GENE BRAWN, BILL CATCHINGS, DAVID T. MCCLELLAN,

MARK L. VAN NAME, LOU WALLACE, *Contributing Editors*

HOWARD G. HAPP, *Art Director*

ROGER GOODE, *Assistant Art Director*

ANNE DILLON, *Designer*

LAURA JOHNSON, *Designer*

ALANA KORDA, *Production Supervisor*

KENNETH BLAKEMAN, *National Advertising Sales Manager*

MICHAEL MCGOLDRICK, *Sales Representative*

BARBARA HOY, *Sales Representative*

HEATHER PAQUETTE, *Associate Sales Representative,*

InfoMarket Sales, 1-800-441-4403

LINDA M. BUSSIERE, *Advertising Coordinator*

GIORGIO SALUTI, *Associate Publisher, West Coast Sales 1-415-328-3470*

3350 W. Bayshore Road, Suite 201 Palo Alto, CA 94303

SHELLEY HARMON, *Associate Sales Representative, West Coast*

WENDIE HAINES-MARRO, *Marketing Manager*

LAURA LIVINGSTON, *Marketing Coordinator*

MARGOT L. SWANSON, *Secretary*

SUSAN MAIZEL, *Customer Service Representative*



ROGER J. MURPHY, *President*

STEPHEN D. TWOMBLY, *Executive Vice President/Publishing Director*

DENNIS S. CHRISTENSEN, *Vice President of Manufacturing/Operations*

LINDA PALMISANO, *Typesetting Manager*

DEBRA A. DAVIES, *Typographer*

SUSAN GROSS, *Corporate Production Manager*

LYNN LAGASSE, *Manufacturing Manager*

LINDA RUTH, *Single Copy Sales Director*

MICHAEL P. CARROLL, *Marketing Manager/Single Copy Sales, 800-343-0728*

DEBBIE WALSH, *Newsstand Promotion Manager*

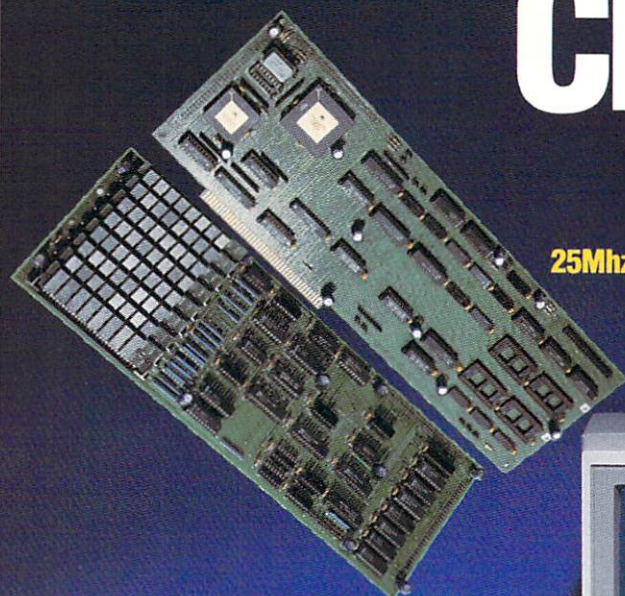
PAUL RUESS, *Circulation Director 800-365-1364*

PAM WILDER, *Assistant Circulation Manager*

WILLIAM M. BOYER, *Director of Credit Sales & Collections*

AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. AmigaWorld is published monthly by IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is \$29.97, one year; \$46.00, two years; \$64.00, three years. Canada \$38.97 (U.S. funds), one year only. Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (prepayment is required on Foreign Surface and Airmail subscriptions in U.S. funds drawn on U.S. bank). All rates are one-year only. Second class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-9471. Entire contents copyright 1988 by IDG Communications/Peterborough, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. **Postmaster:** Send address changes to AmigaWorld, Subscription Services, PO Box 58804, Boulder, CO 80322-8804. Nationally distributed by International Circulation Distributors. AmigaWorld makes every effort to assure the accuracy of articles, listings and circuits published in the magazine. AmigaWorld assumes no responsibility for damages due to errors or omissions.

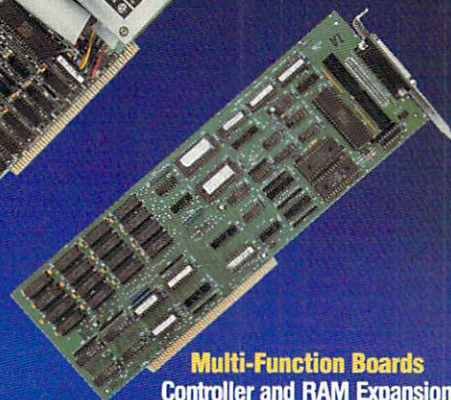
The Power of Choice



25Mhz 68030 Accelerator



**Mass Storage Solutions
H-Card Series**



**Multi-Function Boards
Controller and RAM Expansion**

8MB 32-bit Wide RAM Expansion



Hard Disk Drives
20, 30, 40, 43, 45, 80, 100MB



Floppy Drive



Removable Hard Disk
44MB Removable Storage

25Mhz 68030 Accelerator **IMPACT A2000-030/882/25**

- 25Mhz 32-bit Motorola 68030 offers A3000 power today!
- Up to 33Mhz 68882 floating point math co-processor.
- 8MB state-of-the-art nibble mode DRAM design takes full advantage of the 68030 burst mode, effectively providing a zero wait-state DRAM access at 25Mhz.
- Built-in autobooting hard disk controller. Autoboot Eprom optional.

Mass Storage Solutions **IMPACT H-Card Series**

- Combines SCSI controller and a 3.5" hard drive on a single A2000 expansion card.
- Available with 30, 40, 43, 80, or 100MB 3.5" hard drive, with 11ms average access time on 40, 80 and 100MB hard disks.
- Autoboot feature comes standard.

Multi-Function Boards **IMPACT SCSI/RAM Controller**

- Combines SCSI controller and 2MB fast RAM expansion on a single board.
- 16-bit DMA data transfers to on-board 16K disk buffer, providing high-performance not affected by any other Amiga DMA activities.
- Autoboot feature comes standard.

Removable Hard Drive **IMPACT SQ44**

- Removable cartridge media with 25ms average access time.
- 44MB storage capacity per cartridge offering unlimited off-line storage.
- Industry standard half-height 5¼" form factor.

One-year factory warranty on all products.



GREAT VALLEY PRODUCTS INC.

For more information, or for your nearest GVP dealer, call today (215) 889-9411 or FAX (215) 889-9416.

Amiga is a registered trademark of Commodore-Amiga, Inc. IMPACT and GVP are trademarks of Great Valley Products, Inc.

Dealers Circle 245 on Reader Service card.

Consumers Circle 127 on Reader Service card.

ZEITGEIST

A clean, well-oiled machine.

I TRY A lot of programs and occasionally review them for the magazine. I think it is only fair to the developers that the Amiga I use to test products be a "stock" machine. We have a number of "stock" Amigas in the office to test products on. My home system is a straight-out-of-the-box A1000 with one meg and an external 3.5-inch drive. No fancy accelerator boards, flicker fixers, non-standard hard-disk controllers, etc.

But the A2000 on my desk has gone through a lot. I am not a very neat and orderly person, as you would see if you were to boot up my office 2000 and watch my startup-sequence. I have played with the colors, pointers, icons, startup-sequences, assigns, directories, fonts, drivers, commands, RAM: disks, boot disks, FAST: disks, anti-virus disks, auto-boot scripts, filter batch routines, and on and on. I bounce around from Workbench to Shell to ED to excellence!, and I don't always clean up after myself or leave gracefully.

My hard disk is a lot like my desk. Covered with papers, old newsletters, software I don't use anymore, cryptic notes to myself, and generally a mess. I like to try the new products when they come in to the office, and some of them have their own Workbench or

hard-disk installation routines or PATH commands or AS-SIGNS that must be added. So I make the changes or run the install routines. Later, when I finish with the product, I usually just leave it on the hard disk or remind myself that I should go back and clean up the startup-sequence again. Sometime.

I had four or five word processors on my hard disk. Many, many games. Drawers full of PD software that I hadn't opened in months. A handful of what I call "black-hole" programs and demos—things that don't quite work the way I want them to, things that I have modified to the point where they are so hopelessly screwed up that merely clicking on the icon gives me guru numbers that no human being should see. (I had one black-hole demo that was so explosive that my Amiga wouldn't even bother with a guru; it would just go straight to nuclear meltdown. Amiga_Fireworks_Mode I believe is the official term for it.)

Anyway, there were so many changes made to my startup-sequence and so many unused things on my hard disk that I decided to clean up everything. Now, I don't know enough about how my Amiga works to change vital information and be comfortable; I only know enough to be truly dangerous. So the first step was to back up everything I might want to see again. I dug

out a hard-disk backup utility and an armful of floppies. It was going to take almost 20 3.5-inch disks. I thought that was a bit excessive, but I went ahead anyway. When I noticed that it was taking four disks just to back up the Trashcan drawer, I realized that I hadn't emptied the trash for a long, long time. There were also dozens of sound and screen files for my black-hole programs and PD stuff.

So I went back and spent a few hours cleaning up and tried the backup utility again. This time only 14 3.5-inch disks were needed. Another round of cleaning and I eventually got it down to nine disks. The backup finished and it was time to roll up my sleeves and get into my startup scripts.

After an hour of poking about, I gave up and called in a couple of hired guns, Lou Wallace and Tim Walsh. While I had been casually tinkering about with my system on one level, dark and mysterious changes had taken place on a deeper level. Changes that I didn't know enough to undo. It only took Lou another hour to clean things up for me, and while I watched, I learned a lot.

I learned that it is almost impossible for one person to keep up with all aspects of the

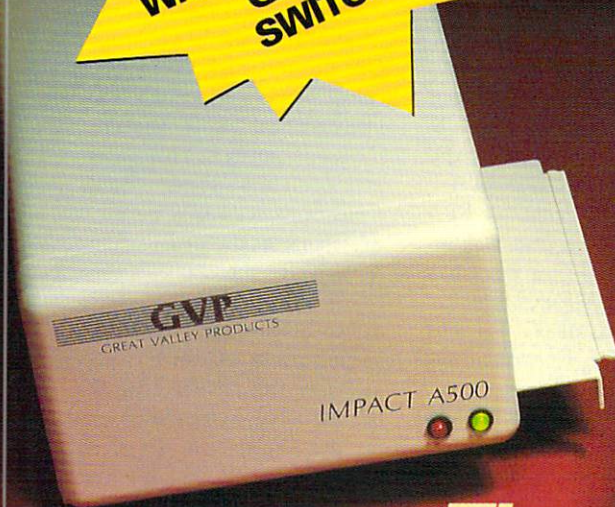
Amiga. I have worked with them every day for the past four years and there are entire areas that I have only brushed against. I learned that, like playing a musical instrument, there will always be people out there who can spend five minutes with a program and produce unbelievable results that would take me weeks to approximate. That there are people who don't just play with startup-sequences, they really *understand* them. That there are programmers out there who can code circles around me in their sleep, and that I could spend the rest of my life learning about this machine.

So my hard disk is a bit more tidy now. My startup-sequence is about eight times faster than it used to be, and I have a few new things I want to try now that I have a bit more dangerous information and a backup of my startup disk.



Amiga 500 Users

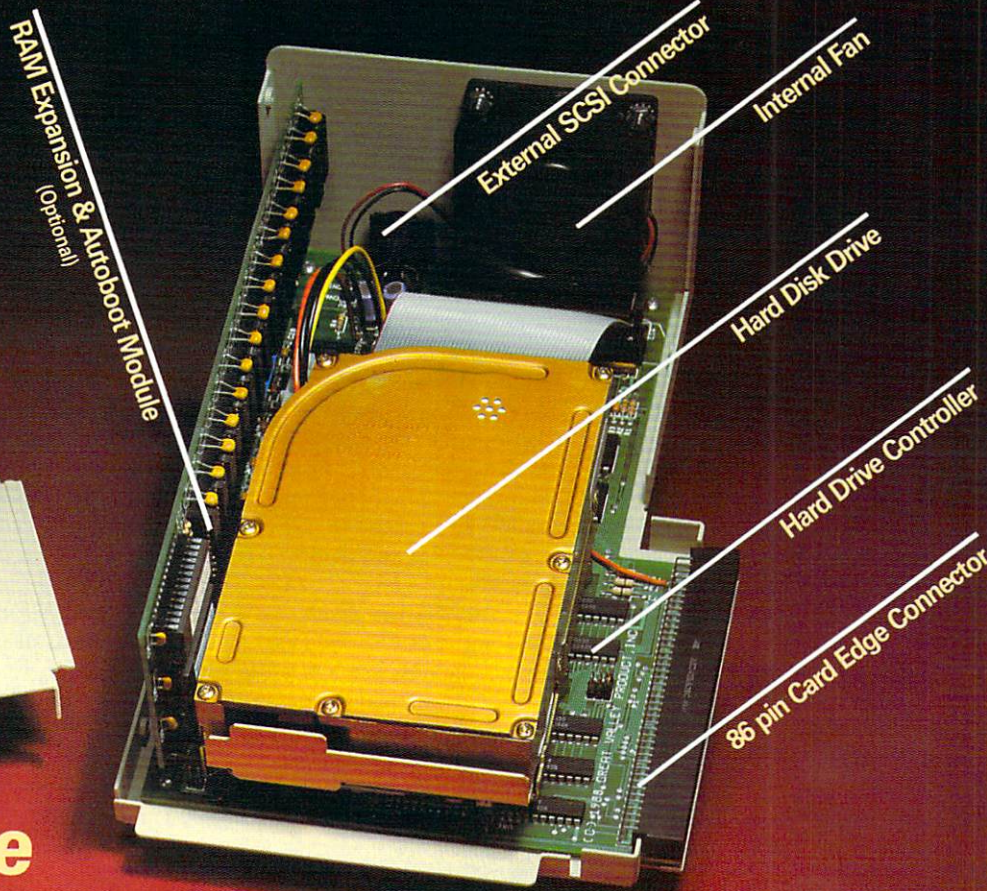
**NEW
FEATURE
NOW SHIPPING
With AUTOBOOT/
GAME
SWITCH**



The Ultimate Expansion Tool!

**Incredible Value at Incredible Prices
Starting As Low As \$599.00
with Introductory Offer**

ACT NOW and get up to \$150.00 Factory
Discount with purchase of the Impact A500
(And coupon below)



Hard Disk Drive SCSI 3 1/2" Hard Disk Drive, available from 20 to 102MB, capable of storing up to 118 diskettes

Hard Drive Controller DMA, Direct to onboard 16kb Buffer, provides Amiga 2000 Performance.

86 pin Card Edge Connector This compact snap-on unit connects directly to Amiga bus ensuring the highest possible performance and reliability.

RAM Expansion & Autoboot Module Internal Zero wait-state 2MB FAST RAM expansion plus boot directly from the Hard Drive. (Optional)

External SCSI Connector Connects up to 6 additional SCSI devices.

Internal Fan Keeps you cool.

ACT TODAY!
Call or Write

GREAT VALLEY PRODUCTS INC.
225 Plank Ave., Paoli, Pa. 19301
Tel: 215-889-9411
Fax: 215-889-9416



Includes: External
Dedicated Power
Supply (220/12V), detailed Manual and installation
software. One year Factory Warranty.

Introductory Offer! \$150.00 OFF with this completed coupon
IMPACT A500-HD • 20M • 30 • 43M • 40Q • 80Q • 100Q (circle one)



SHIP TO:

Name (Please Print) _____

Street Address _____

City, State, Zip Code _____

Telephone Number _____

☐ My check or money order is enclosed. ☐ Please charge my: ☐ VISA ☐ MasterCard

Account No. _____

Expiration Date _____

Signature _____

As printed on card

Consumers Circle 62 on Reader Service card.

Dealers Circle 145 on Reader Service card.

GVP

GREAT VALLEY PRODUCTS INC.

REPARTEE

Comments, complaints, and concerns

from AmigaWorld readers.

SCIENTIFIC GRAPHICS

AS A RESEARCH scientist, I see a major application missing from the Amiga's roster of programs—simple data display and scientific graphics. In the rush to produce sophisticated solids modeling and animation programs, simple point and line graphs in two and three dimensions have been left behind. I would like to offer a few suggestions for a program that would fill this need.

Graphs divide naturally into two and three dimensional types:

Two-dimensional graphs. Plot points or lines using linear, log or time axes. Use a variety of point symbols and line types, plain or "graph-paper" background, and optional curve fitting and splining.

Three-dimensional graphs. Plot points, lines or wire-frame objects. There are two different objectives here. One is to produce a finished graph with axes and perhaps in perspective view or with hidden line removal. The other objective is to interactively and smoothly spin the data or 3-D object to view it from different angles. For speed, this is best done as a simple rotation of the object without perspective and without hidden line removal.

The program should read data from ASCII files in either

column, mail merge or free format so it could be used with any database program. Links to drawing and CAD programs are also desirable. The program should not render surfaces but should optionally read and write Videoscape 3D and Sculpt 3D object files.

The users of this program would not only be scientists, but also business users plotting investments, animators looking for the best angle to view their object, CAD designers using data in their drawings, or anyone wanting to visualize numbers.

The philosophy of this program should be akin to that of DeluxePaint: provide general tools without imposing a simplified and inflexible procedure. Script file capability with some graphics primitives is a must.

I'd like to see a programmer and publisher produce this program, and I'd be glad to consult or test the result.

Fred Klein, Ph.D.
Menlo Park, CA

1000 LOYALIST

I BOUGHT ONE of the first 20 Amiga 1000s that were shipped to my home state, Michigan. Now, close to three years later, I look back and question that purchase. Since the release of the Amiga 500 and 2000, and soon the 2000HD and 2500, support for the Amiga 1000 has

dropped to almost zero.

Just a few months ago, I went shopping for a hard drive, and what I saw almost made me sick. There were absolutely *no* hard drives for the Amiga 1000. After searching long and hard, I managed to locate one. I took one look at the price tag and set it back down. A good-sized A1000 hard drive was priced close to \$1500! Why, then, can companies sell an Amiga 500 hard drive for close to \$900 less? I realize that there are quite a few differences between the 500 and the 1000, but nine-hundred-dollars worth?

I think that companies should put at least a little effort into putting out some hardware for us poor people who cannot afford to upgrade to a 2000, and for those, like me, who are loyal to the old 1000.

Eric S. Cruzen
Brighton, MI

KUDOS FOR MR. KENT

I KEEP READING reviews of Jim Kent's Zoetrope [Antic Software; see review in June '89 issue of *AmigaWorld*, p. 74] that refer to it the way a maiden aunt would refer to a cousin of loose morals: "Well, she's very nice, very pretty, but well. . .you know!"

The first thing an artist takes into account in planning

a work of art is the medium in which he or she is working: Oils do not work like watercolor, markers do not work like ink, and so on. Shouldn't the same apply to computer art? Zoetrope's lo-res stigma need not necessarily be a drawback to the artist willing to consider the confines of lo-res and use its characteristics to his advantage. Zoetrope's outrageously easy user interface does everything but tell me what to animate, leaving me free to consider the animation itself, which is the whole point, after all, isn't it? And its anti-aliasing feature ameliorates a world of sins. All the super-bitmaps in the world mean nothing to me if I have to spend eight hours of precious production time figuring out how to perform one simple function.

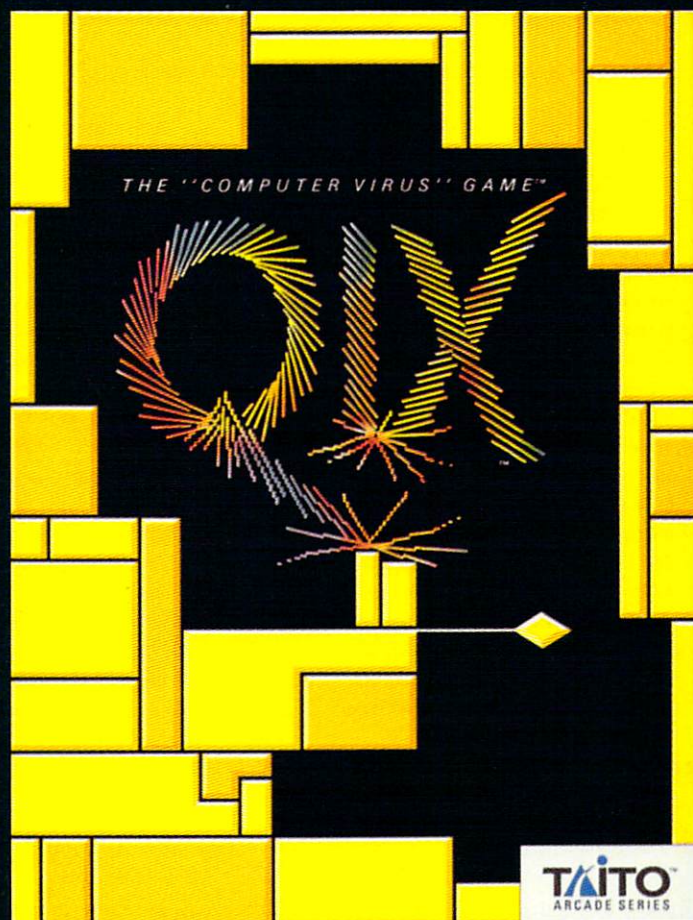
I have a shelf full of fancy animation programs gathering dust, but I haven't put Zoetrope down since I got it. And my clients have been delighted with the results. My kudos to Mr. Kent and his team!

Kathleen Sontag
Deja View Video Productions
Massapequa Park, NY

Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■

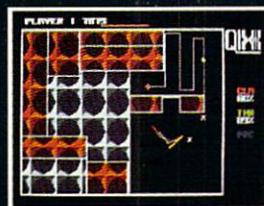
WIRIS!

CAN YOU KICK THE QIX® ADDICTION?

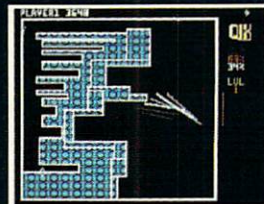


When QIX fever strikes, there is no cure! Like the mind-blowing arcade original, QIX is a computer virus that lives deep inside your computer, attacking without warning. Construct a trap in any one of the billions of configurations possible to immobilize QIX. But watch out for SPARX™ and SPRITZ™ and other deadly energy forms! In this electrical world of high-tech infections, mental dexterity and superior strategy are basic to survival. The practice mode turns beginners into addicts. No one is immune! Get your QIX before QIX gets you!

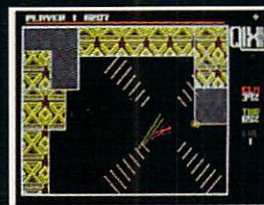
Taito™
ARCADE SERIES



Actual Atari screen.



Actual C/64 screen.



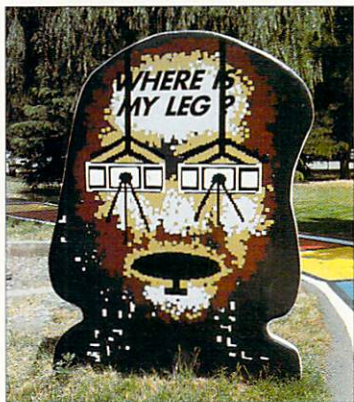
Actual Amiga screen.

If you cannot find this product at your local retailer, Visa/Mastercard holders can order direct anywhere in the United States by calling toll free 1-800-663-8067.

Taito®, QIX®, SPARX™ and SPRITZ™ are trademarks of Taito America Corporation. Copyright ©1989. All rights reserved. Atari, Commodore, and Amiga are registered trademarks respectively of Atari Corporation, Commodore Electronics, Inc., and Commodore-Amiga, Inc.

NOTE PAD

Compiled by Linda Barrett



Roadside conversations.

SLUGGISH MORNING COMMUTERS in Abilene, Texas were startled into full wakefulness last fall when confronted by five, eight-foot-tall, fiber-glass heads flanking the main thoroughfare. Those driving east saw children's faces in bright primary colors who asked the questions: Can you talk?, Can you move?, Can you breathe?, Can you feel?, Can you

Talk of the Town

think? Motorists driving west could contemplate the gray robot-like faces on the reverse side asking: Where is my mouth?, Where is my leg?, Where is my nose?, Where is my pulse?, Where is my brain?

Created by nationally-exhibited artist and Texan Emily Jennings, the sculptures were selected by the Abilene Cultural Affairs Council for exhibit. Emily created the pixelated robotic images for the pieces with her Amiga 500 using DeluxePaint II (Electronic Arts) and Butcher (Eagle Tree Software). To test the placement of the proposed sculptures, she captured photographs of the outdoor sites with Digi-View (NewTek) and overlaid them

with scaled drawings of the figures in DeluxePaint II.

The sculptures had been peacefully displayed the previous summer in California as part of a larger on-site installation called "Blind Mans Bluff." A busy member of the art faculty for Hardin-Simmons University in Abilene, Emily was taken by surprise when her artwork became the center of a civic debate.

For months, letters to the editor in the *Abilene Reporter-News* seesawed between support from citizens who thought the "Talking Heads" an exciting cultural kick, to the extreme disapproval of a fringe that hinted at satanic inspiration. Emily met the is-

sues in a guest editorial where she explained: "The content of my art is social commentary on human behavior, how we learn, and how we are conditioned as children by games and toys. I want my work to be amusing and thought provoking."

Besides attention, her work brought Emily a \$5000 grant from the 1989 Mid-American Alliance in cooperation with the National Endowment for the Arts. Her "conversational" heads are going for a stroll around Texas next year as part of the touring exhibit "One Hundred Years of Texas Sculpture" sponsored by the Huntington Art Museum, University of Texas, Austin.

—Sue Albert

Bow Wow?

WHILE THE DOG days are supposed to be a summertime phenomenon, they descended in May on the World of Commodore Show. Most of the more than 50 exhibitors who trekked to the Los Angeles show acted as if they were on valium, and many cited sluggish hardware sales as the prime cause. Add the dearth of any significant new products and you can easily understand the low excitement level.

As usual, NewTek had the biggest, flashiest booth and tantalized attendees with demos of the still-out-of-reach **Video Toaster** and the still-unavailable **Digi-Paint III**. NewTek's strategy is risky with the appearance of a new contender in the video effects sweepstakes.

Digital Creations and Progressive Image Technology, the folks who brought you SuperGen, introduced three new products: **Living Color**, **The VMachine**, and the **2000S**, an upgraded SuperGen that includes Super VHS inputs and outputs. Living Color is touted as a Quantel Paintbox for the Amiga. The VMachine, or "Toaster Killer," will provide time-base correction and real-time video effects.

Other video developments included MicroIllusions' **Edit Decision List Processor** software that, when combined with the company's **Time-Code Reader/Generator** hardware, creates a complete MS-DOS-compatible video-editing station.

Mindware International unveiled a new twist for animators. The package, still under development, makes it possible to run animations while simultaneously loading new segments from your hard drive. With this software, an animator can create continuously running animations whose length is limited only by the size of available hard-disk memory. *Gone With the Wind* here we come!

In the is-it-real-or-is-it-a-gimmick category, 3-D images (both X-Specs and red-blue examples), were scattered about the show. If this isn't a general trend with users, it certainly is popular with exhibitors as a crowd stopper. Besides, you can put your company logo on all those nifty cardboard goggles.

—Gene Brawn

RAMBO III

NOT MILITARY. NOT
MERCENARY. AND
YOU'RE DEFINITELY
NO TOURIST...

SOVIET COMMANDER:
"WHO ARE YOU?"

RAMBO: "I'M YOUR WORST
NIGHTMARE."

Remember that line?
Now YOU can deliver it
to the enemy—in per-
son. Thirty miles over
the Afghanistan border, Soviet forces are tortur-
ing your friend and mentor, Colonel Trautman.
You're the only man alive with enough guts,

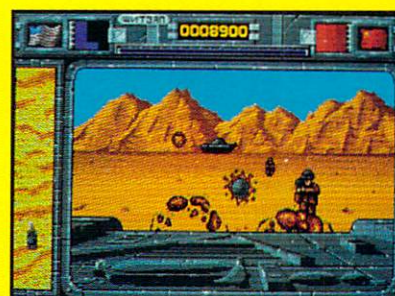
Amiga game screens.



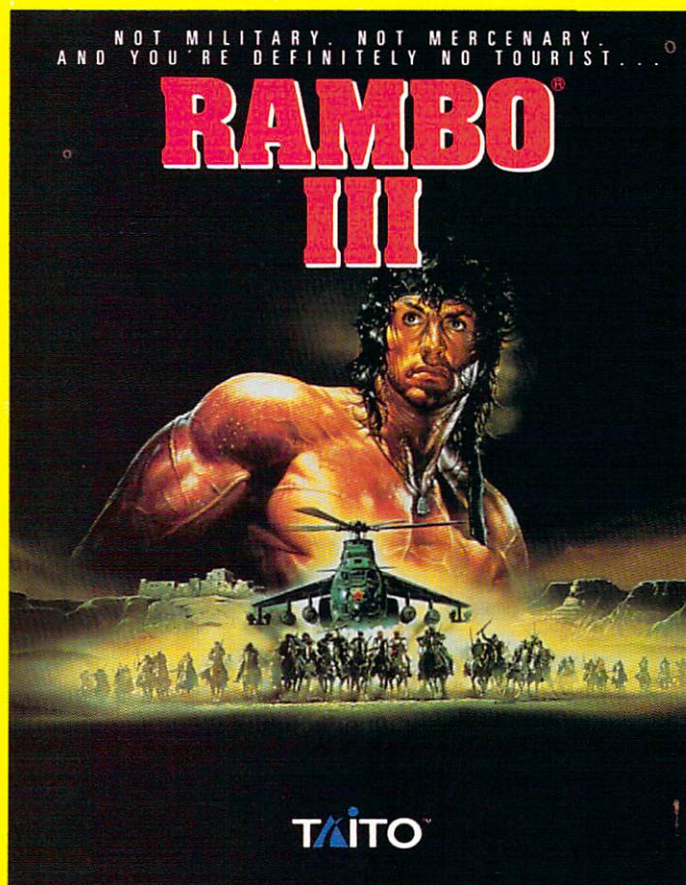
*It takes more than muscle to de-activate
electronic gates, cross treacherous
mine fields, and find the keys to Traut-
man's cell.*



*Ever fly one of these things? With the
enemy breathing down your back, that
Hind chopper's the best way out of this
hell hole.*



*It's just you and your hijacked tank
against anti-tank missiles and chop-
pers. Sight in and rearrange that
balance of power!*



brawn, and resource-
fulness to single-
handedly rescue the
man who taught

you how to fight. Every Soviet commando, tank,
and attack chopper in the sector is on your tail.
It's the ultimate contest for the ultimate fighter.

TAITO™

If you cannot find this product at your local retailer, Visa/Mastercard holders
can order direct anywhere in the United States by calling toll free 1-800-663-8067.

Game Design, ©1988 Ocean Software Ltd. RAMBO is a registered trademark of Carolco. ©1989 CAROLCO.
Ocean is a trademark of Ocean Software Limited. Taito is a registered trademark of Taito America Corporation. ©1989 Taito America Corporation.
All rights reserved. Amiga is a registered trademark of Commodore-Amiga, Inc.

REVIEWS

HiSOFT BASIC PROFESSIONAL GFA BASIC 3.0

A tale of two (more) BASICs.

By Louis R. Wallace

THE AMIGA'S EARLY days marked the best of times for Amiga Basic. Then, it was the fastest and most advanced interpreted BASIC available on microcomputers. Many programmers today, however, find Amiga Basic programs too slow. Worse yet, even with its extendability via libraries, many of the Amiga's abilities are difficult for Amiga Basic to access—or completely out of its reach. A number of Amiga Basic accessories and replacements have been developed to counter these limitations, the most successful of which was Absoft's A/C Basic compiler. Now we have before us two new entries: the full-featured HiSoft BASIC Professional compiler, and GFA-BASIC 3.0, a highly acclaimed interpreter first published on the Atari ST.

Besides looking at command options and the degree of Amiga Basic compatibility these packages offer, I used some benchmark programs to test their speeds (see the accompanying chart for results).

HiSOFT BASIC PROFESSIONAL

HiSoft BASIC is much like Microsoft's Quick BASIC compiler: Both are complete development systems consisting of compiler and text editor, a combination that offers flexibility, power, and an efficient means of creating and testing software.

With HiSoft, you can edit a program, compile it to memory, execute it, and then return to the editor when you exit your program. Should the compiler discover syntax errors, a memory feature in the editor lets you quickly jump to the flawed lines. The full-screen HiSoft editor allows you to change locations using the cursor keys or the mouse, and insert new lines by pressing the Return key. Other standard features, such as cut and paste, search and replace, and text printing are also supported, as are an auto-indentation option and the ability to insert disk files into program listings. Because HiSoft supports ASCII format, you can import ASCII programs written with another text editor into HiSoft for compilation.

THE GAME MADE

HiSoft's compiler offers a number of options. You can check your code for undeclared variables, stack overflows, and processing runtime events, and check arrays for proper dimensioning. More importantly, you can compile your results as either a stand-alone program or as one that uses the Shared Library. The difference is one of size and portability. Shared Library programs are very small, but require the presence of the HiSoft libraries to run. Using the REM \$OPTION statement within a program lets you override the compiler dialog-box options and thus gain more control.

With stand-alone programs the required compiler library is built in. You pay a price, however, in terms of program size. For instance, a 77-byte Amiga Basic sample program consumed over 14200 bytes when compiled in HiSoft stand-alone format. This overhead is not so great, though, in comparison with the 44700 bytes required for the same pro-

gram compiled as a stand-alone with A/C Basic. These size differentials held true in all my tests.

MORE TO THE TALE

In addition to several new options, HiSoft BASIC Professional supports virtually all Amiga Basic commands and syntax. New commands include REDIM [APPEND] (which allows you to redimension arrays), COMMAND\$ (which lets you run compiled programs from the CLI and pass parameters as it executes), BLOAD, and BSAVE.

Improved looping and decision structures (such as DO LOOPS, REPEAT UNTIL, and SELECT CASE) afford greater flexibility. Some commands access AmigaDOS: MKDIR and RMDIR create and remove directories, while FEXISTS verifies the existence of files. The PCOPY command dumps the current screen to the printer using Preferences parameters. Both the WINDOW and SCREEN commands are enhanced in HiSoft BASIC: Both allow larger displays to accommodate the PAL standard, and SCREEN allows you to define more TYPES (unfortunately, though the manual refers you to the Amiga ROM Kernel Manual instead of defining screen types).

In all, HiSoft offers 36 new commands and reserved words. It supports most interpreter statements (except COMMOM, RESUME NEXT, LOAD, and SAVE). Beyond these, one of HiSoft BASIC's most important features is its ability to create object code that you can link with object code generated by C compilers and 68000 assemblers to produce stand-alone executable programs.

THE GOLDEN THREAD

My experience indicates a high degree of compatibility between HiSoft and Amiga

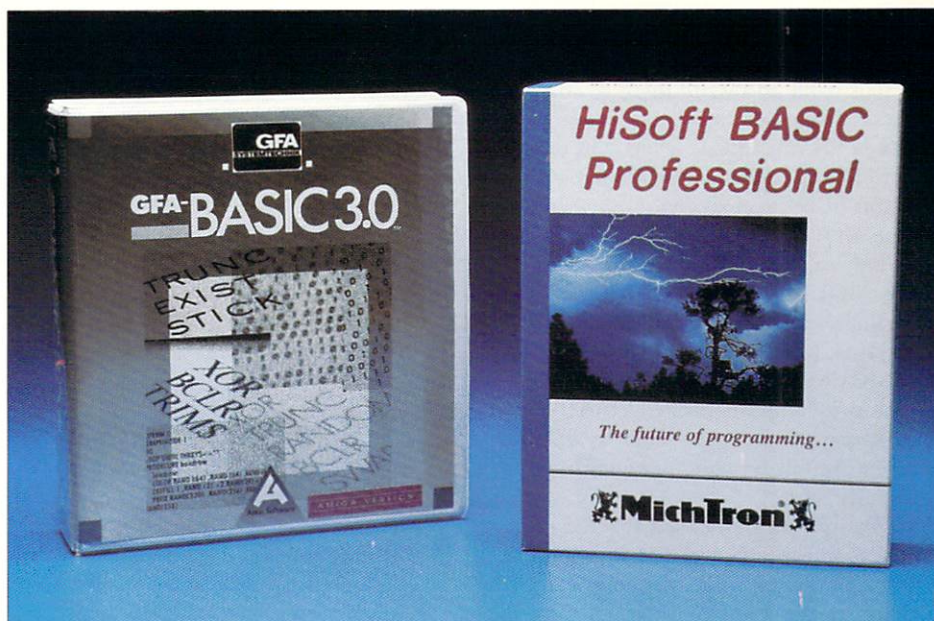
Basic, although given the almost infinite number of command combinations possible, it was not feasible to test them all. I put the HiSoft compiler through its paces with several Amiga Basic programs; while most required little or no modification, I found that a couple did not work properly after being compiled. (These programs ran without a hitch when compiled with A/C Basic.)

GFA BASIC 3.0

Although it contains a runtime library to enable you to distribute programs, GFA BASIC is not a compiler, and thus is not capable of creating stand-alone programs as is HiSoft BASIC. And although it is (like Amiga Basic) an interpreter, using Amiga Basic programs in GFA BASIC requires considerable rewriting; the two are not very compatible.

GFA BASIC is an entirely new BASIC language. It consists of over 300 commands with which you can create programs to access almost every aspect of the Amiga. GFA BASIC provides options traditionally available only through C, Modula 2, and assembly. Most importantly, though, GFA BASIC is *fast*. Not only does the language outpace Amiga Basic, but amazingly, GFA tied or beat both the HiSoft and A/C Basic compilers in almost every benchmark test.

The package includes a unique editor—one with extra options and requirements designed especially for GFA BASIC. Unlike Amiga Basic and its compilers, GFA BASIC allows only one statement per program line, and offers no option for separating statements. When you press the Return key after completing an entry, GFA checks that line for syntax errors; if a problem is found, the screen flashes and the cursor remains in place. While this method can be some-



They may not be worth losing your head over, but both packages are definitely worth using.

what irritating, it saves time in the long run.

You can add blank lines wherever you please, but the GFA text editor does not insert them automatically when you press Return. It does, however, indent program lines for you. Some mouse and menu support is provided, but for many operations, you must memorize Ctrl-key commands. One option works much like an outline processor; it lets you hide subroutines by condensing them to just a name.

GFA BASIC saves files as tokens in a manner similar to Amiga Basic. To run your program, select the Run menu option or press the shift and F10 keys. You can load a program or subroutine written by another editor and saved in ASCII using the editor's MERGE option.

KNITTING PATTERNS IN BASIC

Most Amiga Basic commands have equivalents in GFA BASIC, but commands with similar functions differ in syntax from their Amiga Basic counterparts.

GFA offers some of the best BASIC commands I have seen for variable and data manipulation. Among the 40 or so commands available for manipulating variables are INSERT and DELETE, which admit or erase array elements, automatically shifting the rest of the array's contents. ARRAYFILL enters a value

into any specified array. To simplify sorting array elements, QSORT and SSORT offer built-in Quicksort and Shellsort functions. DUMP lets you print values for single variables or specified ranges.

Assembly and C programmers will recognize GFA's bit-manipulation commands. BCLR allows you to clear a designated bit, BSET sets it, BCHG either sets or unsets the bit (depending on its start position), and BTST returns a true or false value to indicate whether a bit was on or off. SHL(x,y), SHR(x,y), ROL(x,y), and ROR(x,y) all shift bits in a variable.

Among input and output commands is FORM INPUT, which allows you to enter a specified number of characters for assembly into a string. Also, in addition to Amiga Basic's PRINT and LOCATE commands, GFA provides PRINT AT(x,y) plus options for horizontal and vertical tabs via HTAB and VTAB.

GFA offers all of Amiga Basic's disk I/O support for sequential and relative data files, but here again there are powerful extras. DIR\$(n) returns the current AmigaDOS pathname, and DFREE(n) returns the total bytes left free on the disk. EXIST(name\$) indicates whether a specified file exists in the current path. BLOAD and BSAVE allow you to load or ►

save whole chunks of the Amiga's memory, while STORE and RECALL read text files from and write them to string arrays. Perhaps the most significant command is FILESELECT; it lets you define a complete file selector for filename entry, and place it on screen.

The MOUSE command and its variations have simplified mouse programming. MOUSE returns the X and Y coordinates and the current mouse-button status, while MOUSEX, MOUSEY, and MOUSEK return single values. The screen-print function, called HARD-COPY, uses Preference values by default, but ten options let you create custom screen dumps.

GFA's subroutines, called PROCEDURES, must be preceded with either PROCEDURE or SUB. Variables can be local or global. Control statements are in abundance; they include IF... THEN, ELSE... ELSEIF... ENDIF, SELECT CASE, FOR... NEXT... DOWNT0, REPEAT... UNTIL, WHILE... WEND, DO... LOOP, DO... WHILE, DO... UNTIL, LOOP... UNTIL, and EXIT IF among others.

Event programming is supported via ON BREAK, ON ERROR, and ON MENU. You can program time-related events using AFTER TICKS GOSUB and EVERY TICKS GOSUB (ticks are measured in 1/200 of a second). Interestingly, the ON COLLISION command is supported while COLLISION ON is not.

STILL KNITTING

Among GFA's graphics commands are SETCOLOR, with which you can create palettes by defining red, green, and blue values. GRAPHMODE allows you to set the graphic output modes JAM1, JAM2, COMPLEMENT, and INVERSID. DEF-LINE enables you to define the drawing pattern for the rendering commands using either set patterns or custom definitions, while DEFFILL lets you create custom patterns for filling drawn objects.

The bitmap rendering commands—PLOT, LINE, BOX, CIRCLE, ELLIPSE, and POLYLINE—can be used to create outlined objects. Adding PBOX, PCIRCLE, PELLIPSE, and POLYFILL causes the defined area to fill with a solid or pattern. You can use the GET and PUT commands to stamp images onto the bitmap, just as in Amiga Basic.

DRAW and SETDRAW are curious commands. DRAW is followed with var-

ious string expressions that are similar to LOGO; in fact, it wouldn't take much to emulate LOGO with GFA BASIC.

Through VSYNC, GFA offers a means—common to assembly and C—of minimizing the flicker that results from placing bitmap data with PUT. VSYNC accomplishes this by waiting for a vertical blanking interrupt to occur (i.e., until the electron beam enters the bottom border of the screen.

GFA BASIC supports screens and win-

dows in a big way. The OPENS (Open Screen) command opens almost any type of screen the Amiga can display, including interlaced, HAM (Hold-and-Modify), and Extra-HalfBrite. The OPENW (open window) command lets you set options that heretofore were accessible only via higher level languages. These include SIZEVERIFY, MOUSEBUTTONS, MOUSEMOVE, GADGETUP and GADGETDOWN, RAWKEY, VANIL-LAKEY, NEWPREFS, DISKREMOVED ▶

Two BY Two: BASIC Benchmark Results

I tested each package for speed on both a standard A2000 (the result—in seconds—is the first value on each line) and on an A2000 equipped with Commodore's A2620 accelerator (the value—also in seconds—in parentheses). I performed these tests on the Amiga Basic interpreter and the A/C Basic compiler as well, for points of reference. To give you an idea of how HiSoft's stand-alone compilation fares, the size of each file is listed under the clocked times.

BENCHMARK	Amiga Basic	A/C BASIC	HiSoft BASIC	GFA BASIC 3.0
FileWrite*	174.6 (89.9) 330 bytes	210.6 (91.6) 45480 bytes	89.8 (47.7) 17604 bytes	89.6 (47.9) 432 bytes
FileRead*	188.5 (93.8) 254 bytes	105.3 (51.9) 45240 bytes	44.6 (27.4) 17316 bytes	42.8 (26.8) 376 bytes
Math*	16.5 (7.12) 302 bytes	5.8 (1.9) 45336 bytes	3.6 (1.5) 17380 bytes	5.6 (2.2) 454 bytes
Sieve*	64.3 (28.2) 506 bytes	14.3 (5.0) 45748 bytes	10.5 (4.6) 18920 bytes	10.2 (4.4) 381 bytes
Print String	132.5 (99.4) 214 bytes	85.6 (73.6) 45104 bytes	87.2 (75.5) 17120 bytes	28.9 (25.3) 420 bytes
String Fx's	73.2 (31.7) 365 bytes	23.7 (10.1) 45588 bytes	10.5 (4.2) 17728 bytes	11.2 (4.5) 582 bytes
DrawLine	38.1 (22.9) 173 bytes	26.4 (17.6) 45024 bytes	26.8 (17.1) 17200 bytes	13.9 (10.4) 251 bytes

ABOUT THE TESTS:

FileWrite writes a 1280000-byte file to a FFS-formatted hard disk. (All program times are based on the default buffersize in the OPEN statement.)

FileRead reads the file created by FileWrite.

Math measures 5000 iterations of the standard math operators.

Sieve calculates the time required to find all primes from 0 to 7000. The A/C Basic and HiSoft options that disable event checking (which generates faster results) were not used.

Print String prints a character string 1000 times.

String Fx's uses LEFT\$, MID\$, and RIGHT\$ to extract character data 10000 times.

DrawLine plots a line from 0,0 to 639,199 5000 times on a standard Workbench screen.

* These tests are based on Byte magazine benchmarks.

THEY'RE BACK!



ON A COMPUTER NEAR YOU

	IBM	APPLE II	MAC	C64	AMIGA	ATARI ST
SCRABBLE	\$39.99	\$39.99	\$39.99	\$29.99	\$39.99	\$39.99
MONOPOLY	\$39.99	DEC		\$29.99	\$39.99	\$39.99
RISK	\$39.99	\$39.99	\$39.99	\$29.99	\$39.99	\$39.99
CLUE MASTER DETECTIVE	\$39.99	\$39.99		\$29.99	\$39.99	\$39.99



"Monopoly® Produced under license from Parker Brothers, division of Tonka Corporation. Risk™ Used under license from Parker Brothers. Clue® Master Detective™ Produced under license from Parker Brothers, division of Tonka Corporation and Waddingtons Games Limited. Scrabble® Licensed by Selchow and Richter Company, a subsidiary of Coleco Industries, Inc. Scrabble board design® 1948 Selchow and Richter Company."

Distributed by:- VIRGIN MASTERTRONIC INTERNATIONAL Inc.
711 West 17th Street, Suite G9, Costa Mesa, California 92627 U.S.A.
Telephone (714) 631-1001 Telefax (714) 631-1004



Circle 92 on Reader Service card.

and DISKINSERTED, SUPERBITMAP, and BACKDROP. Experienced C programmers will recognize these as flags for the IDCMP (Intuition Direct Communications Message Port) facility.

Given the language's overall sophistication, I was disappointed to find that GFA's commands for manipulating objects (BOBs) are virtually the same as those in Amiga Basic and other compilers. On the other hand, a set of commands for using hardware sprites is

included. Sound options, too, are sparse; the SOUND and WAVE commands are again reminiscent of Amiga Basic.

You can start new CLI processes from within GFA BASIC using the EXEC COMMAND\$ option, read joysticks with the STICK and STRIG functions—even call EXEC, GRAPHICS, WORKBENCH, INTUITION, LAYERS and DOS library commands directly from GFA BASIC.

These examples demonstrate just how far GFA went in creating this language; I

have not even mentioned most of the commands, functions and statements available. Thankfully, GFA did not sacrifice speed for features; the interpreter holds its own against other BASIC compilers, and blows away Amiga Basic. My only reservation is the editor; while it is powerful, it is also very rigid.

I SEE...

HiSoft BASIC and GFA BASIC have very different abilities, but both represent a step forward in BASIC programming on the Amiga.

HiSoft BASIC Professional generates more compact and faster code than does A/C Basic. Its integrated environment is friendly, flexible, and efficient. These features, when combined with its extended command set, make HiSoft BASIC Professional worthy of serious consideration.

GFA BASIC is the most complete BASIC programming language available for the Amiga. While beginners might find the massive array of options staggering, intermediate and advanced BASIC programmers are in for a treat.

These are far, far better BASIC packages than Amiga Basic programmers have ever known.

HiSoft BASIC Professional MichTron

576 Telegraph
Pontiac, MI 48053
313/334-5700
\$159.95

No special requirements.

GFA BASIC 3.0 Antic Publishing

544 Second St.
San Francisco, CA 94107
\$139.95

No special requirements.

SUPERPLAN

*Three-part organizational
harmony.*

By Loren Lovhaug

MORE THAN AN electronic equivalent of the old green bar ledger and adding

Continued on p. 74

Presenting...

Abacus' Amiga® Virus Protection Toolbox

Protect your Amiga computer system with this collection of essential and valuable tools!

Includes
120 page
guide to
Computer
Viruses!



\$59.95

The Virus Protection Toolbox describes how computer viruses work; what problems viruses cause; how viruses invade the Libraries, Handler and Devices of the operating system; preventive maintenance; how to cure infected programs and disks. Works with Workbench 1.2 and 1.3!

Abacus

Dept. L7, 5370 52nd Street S.E.
Grand Rapids, MI 49512
Available at your local dealer or

Order Toll Free 1-800-451-4319

Amiga is a registered trademark of Commodore-Amiga Inc.

Some of our best tools included are:

- **Boot Check-**
to prevent startup viruses.
- **Recover-**
to restore the system information to disk.
- **Change Control Checker-**
to record modifications to important files.
- **Check New-**
to identify new program and data files.

Order now or call for your Free pamphlet "What you should know about Computer Viruses" (while supplies last)

Our AmigaDOS Toolbox still \$59.95!

Color Graphics.

Multiple Fonts.

Spelling Checker.

Mailmerge.

Multiple Windows.

Resizable Graphics.

Fast Printing.

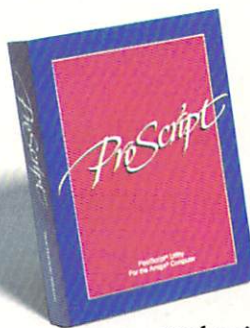
WYSIWYG.

**No Other Word Processor For Amiga®
Stacks Up To ProWrite™ 2.0.**

Word is out. ProWrite 2.0 allows you to expand your Amiga word processing to new horizons. Use it to generate proposals with impressive bar charts. Create letters and reports with snappy graphics. Generate television storyboards. Even dash out newsletters with spot illustrations.

And of course, ProWrite 2.0 has all the other features you expect: a spelling checker with 95,000 word dictionary. Mailmerge. And fast graphics printing. Best of all, it works with our font packages, ProFonts I and II, giving you a broad range of professional and decorative fonts.

All this, plus ProWrite's powerful editing capabilities and ease-of-use combine to make ProWrite the best word processor for the Amiga computer.



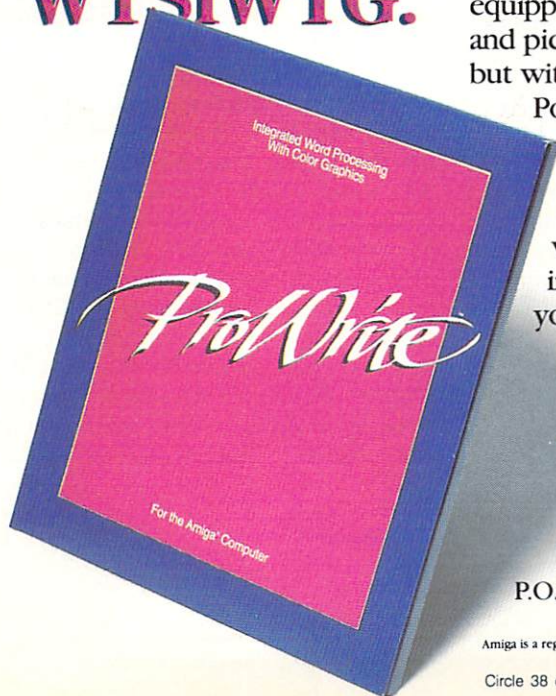
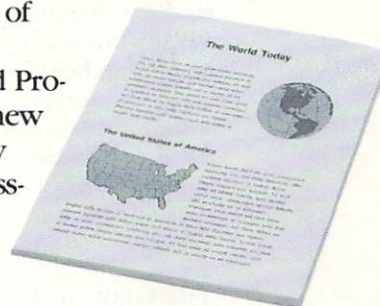
ProScript: Perfection In Print For The Amiga.

ProScript is the new PostScript utility from New Horizons Software that gives you the professional look of typeset copy.

ProScript reads ProWrite files

and prints them on any PostScript equipped printer, giving you the same multiple font and picture capabilities you expect from ProWrite, but with the typeset quality of PostScript printing.

ProWrite 2.0 and ProScript. A powerful new team that puts a new world of word processing and printing at your fingertips.



New Horizons
S O F T W A R E

First in Personal Productivity and Creativity
P.O. Box 43167/Austin, Texas 78745/(512) 328-6650

ProWrite, ProFonts and ProScript are trademarks of New Horizons Software, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc. PostScript is a registered trademark of Adobe Systems, Inc.

Circle 38 on Reader Service card.

TAKE IT FROM THE TOP

A Guide to the System Software

Learn how the Amiga's native software stacks up, and make your programming less frustrating and the results more powerful.

IN THE SUPERMARKET, if you pull the wrong can out of a pyramidal display of soup, the whole thing can come tumbling down around you. Programmers face the same type of crashing mess if they extract information from the wrong spot in the Amiga's layered and interdependent operating system. If you attempt to use a function without working your way to it through the layers of the system software's pyramid, your program may not always run.

If you understand how the system software is structured and the capabilities of its components (such as libraries of ROM Kernel routines, include files, and devices), you can avoid disaster and program more efficiently.

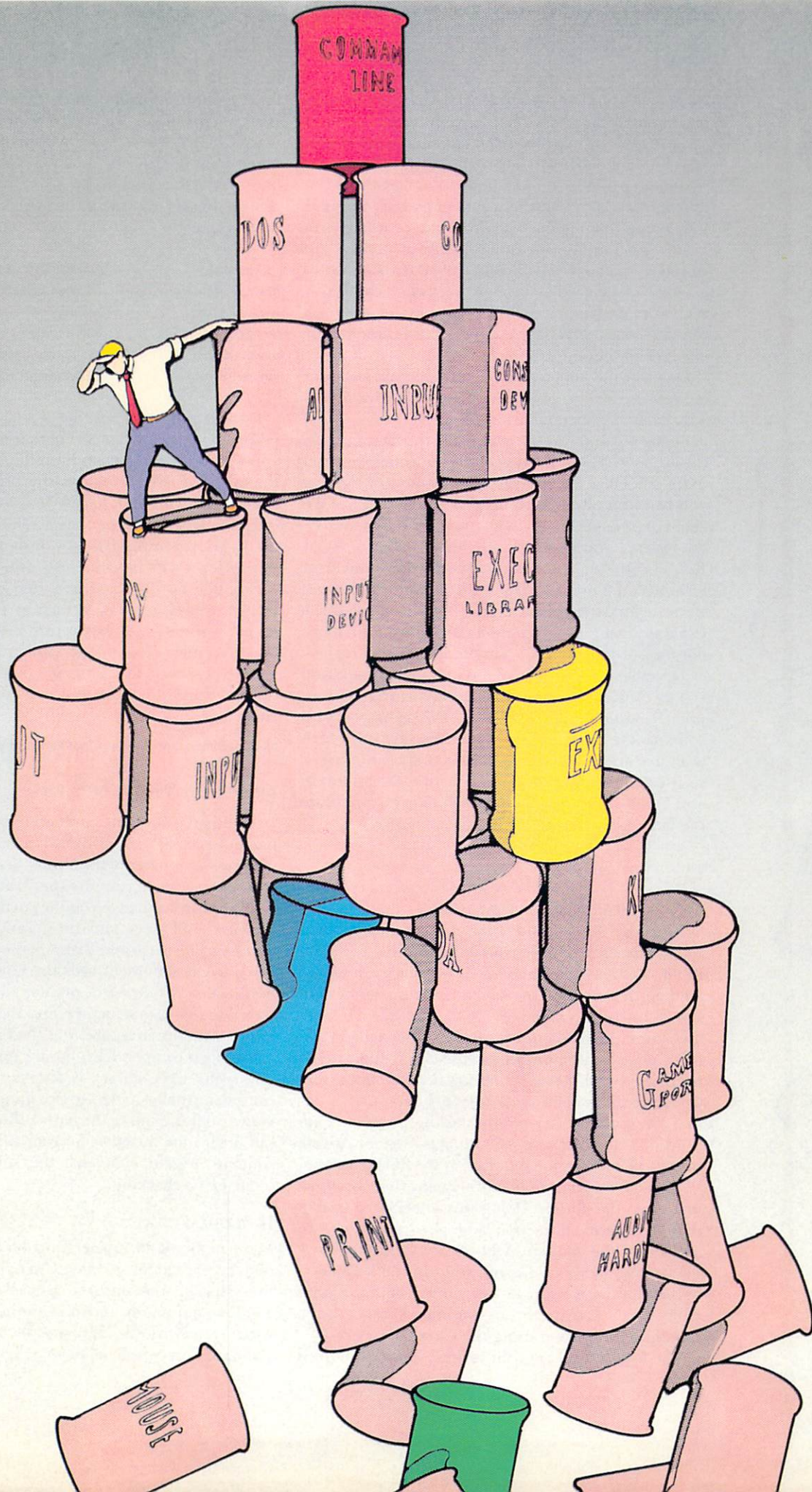
THE GROUND WORK

On relatively simple computers, such as the Commodore 64, everything is at a fixed location within a small address space. You soon learn that if you want

to print a character to the screen, you either call an Operating System routine at location 65490 or store the character value directly into screen memory, which starts at location 1024. The Amiga, however, does not even have a default text screen, let alone a system routine at a fixed location to print text to that screen. Most of the time, you must create your own writing surface by opening a window, then choose a text font to use—including its size, color, and style—before you can put text on the screen.

The reason for the Amiga's complexity is flexibility. Simple systems limit the ways that you can change or expand the system without changing your application software. For example, the C64 uses a fixed-sized jump table for entering ROM Kernel routines, so there is no compatible way to add more such routines. Because the majority of programs must load at a fixed memory location, you cannot load and run more than one program at a time. Even simple hard- ►

By Sheldon Leemon





ware changes, such as increasing the memory to 128K or switching the text screen from 40 to 80 columns, can prevent the machine from running existing software. Commodore designed the Amiga Operating System to avoid such limitations. It makes almost no assumptions about how much memory the computer has, where that memory is addressed, or where programs (including operating-system routines) are stored in memory. As a result, correctly written programs can take advantage of hardware changes—such as more memory, new storage devices, different input devices, and faster processors—without any changes to the software.

One way the Amiga avoids fixed sizes and locations is by using a type of data structure called a linked list. Each member of a linked list (called a node) contains a pointer to the address of the next node in the list, as well as its portion of the information stored in the list. Once you know where one node is located, you can find all of the others by simply tracing the chain of pointers. The Amiga uses linked lists to store the system libraries, which provide access to the ROM Kernel routines, and devices, which allow individual tasks to communicate with input and output devices. Because linked lists have no fixed size, you can easily expand them; programmers can easily add more libraries of functions to the system's existing set.

To anchor these lists of pointers, the operating system must resort to one fixed location as a reference point. Location 4, also known as AbsExecBase, always contains the base address of the Exec library, which is always open. The system knows that base address, so it can find the entry points to the OpenLibrary and OpenDevice functions, which in turn can locate the base addresses of any library or device.

Libraries

ALL OPERATING SYSTEM routines are grouped by purpose into libraries, the most important and frequently-used of which are located in the Kickstart ROM. Because the 256K of ROM space could not hold all the libraries, the less important routines are stored in the libs directory of the Workbench disk; the system loads them into RAM as needed. (For a descriptive list of libraries, see the chart "Libraries.") Each library consists of the library node (pointer) that ties it into the system, a collection of jump instructions that are used as entry points into the various system functions, and a data segment that is used for private storage of information required by the ROM routines.

To use a function in one of the libraries, you must first open the library. Doing this notifies the system that the library is in use, and gives you the base address of (the pointer to) the library. Once you know the base address of a library, you can call a function in that library by using its entry in the library's jump table. When you are through using a library, always remember to close it using the CloseLibrary call.

The lowest level you can make a library call on is

in assembly language, which requires you to keep track of the pointers yourself. You must find the Exec library base address, call the OpenLibrary function entry point (which sits at a known offset from library base) to get the other library's base address, and then call the library routine at its offset from the library base. The code might look like something like this:

```
move.l 4,a6           ;get address of Exec library base
movea.l #LibraryName,a1 ;address of library name text
movea.l #0,d0          ;set version num to 0 (don't care)
jsr -552(a6)           ;JSR through OpenLibrary offset
move.l d0,a6           ;get library base address
jsr OFFSET(a6)         ;JSR through function offset
```

The example assumes that the label LibraryName points to an ASCII text string that names the library you want to open (such as intuition.library), and that the label OFFSET contains the offset value of the routine that you want to call. It also assumes that the call to OpenLibrary returns a valid base address in d0. In your own programs, you should add an error trap to check for a value of 0, which indicates that Exec could not find and open the library.

Higher-level languages, such as C, take care of a lot of these details transparently, making the process much simpler. Calling an Amiga library function from C is similar to calling any other C function. To open a window in C, for example, you could use this code:

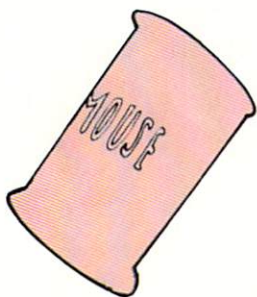
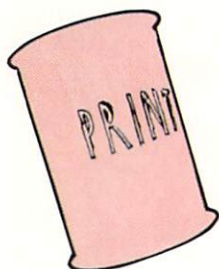
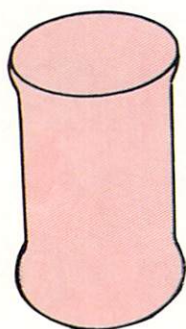
```
IntuitionBase = OpenLibrary("intuition.library", LIBRARY_
    VERSION);
Window = OpenWindow(&NewWindow);
```

In the first statement, intuition.library is the library name, LIBRARY_VERSION is a variable containing the version number of the library (a value of 0 returns any version, while running the VERSION command from the Shell will give you the current version number of any library), and IntuitionBase becomes the pointer value to (base address of) the Intuition library. The second statement calls the OpenWindow function; &NewWindow is a pointer to your program's NewWindow data structure, and Window is a pointer to the Window structure that the function returns.

You need to open each library only once per program (the Exec library is always open, and the C compiler usually opens the Dos library for you). Once your program knows the base address of a library, it can determine the offset for each function the library contains. (Again, note that this simplified example omits error-checking.)

INCLUDE FILES

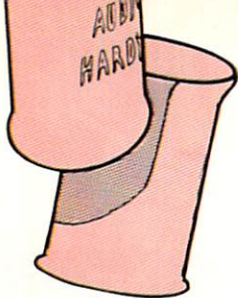
Many of the ROM Kernel function calls require a lot of data. For example, when you open a window, you must specify the starting size and position of the window, minimum and maximum sizes, the colors used to draw the window border and title bar, the standard and custom window gadgets to include, the



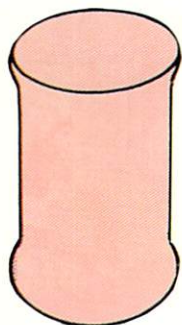
Libraries

Libraries listed in *italics* are found in the Libs directory on Workbench 1.3. All others are located in ROM.

Name	Description
<i>diskfont</i>	Contains routines used to load and manage disk-based text fonts.
<i>dos</i>	Contains routines to manage processes, the disk filing system, and AmigaDOS devices.
<i>exec</i>	Contains routines for managing tasks, messages, interrupts, and I/O, plus routines to access libraries, devices, and resources. The backbone of the operating system.
<i>expansion</i>	Houses routines to configure expansion devices and to integrate them into the system.
<i>graphics</i>	Contains low-level graphics functions (such as those used to draw points, lines, filled shapes, and graphics text), higher-level animation routines, and support for sprites and BOBs.
<i>icon</i>	Provides support functions for Workbench icons.
<i>intuition</i>	The most heavily-used library for programs that take advantage of the Amiga interface, it contains the routines used for creating and managing screens, windows, menus, gadgets, and requesters, as well as routines for managing Preferences.
<i>layers</i>	Builds on the functions in graphics library to provide the clipping needed to divide a physical screen into logical "windows." Although the beginning user isn't likely to call these functions directly, they are used heavily by Intuition in window management.
<i>mathffp</i>	Provides single-precision Fast Floating Point math routines. These functions operate quickly, but are not very precise. C programs don't normally call these routines directly, because compilers use their own floating point math interface.
<i>mathieeedoubbas</i>	Implements the double-precision IEEE floating point math routines. These functions operate more slowly, but are more precise than the FFP routines. With version 1.3, these functions make use of a math coprocessor if one is available, greatly increasing the speed at which they operate. As with the FFP routines, C programs don't normally call these routines directly, because compilers use their own floating point math interface.
<i>mathieeedoubtrans</i>	Provides double-precision IEEE transcendental math functions to go with the routines in mathieeedoubbas.
<i>mathtrans</i>	Provides single-precision transcendental math functions to go with the routines in mathffp.
<i>translator</i>	Contains a function to convert a plain English text string into the phonetic text required by the narrator device.



menu to attach, the type of check mark to use with menus, the window title, the screen on which to place the window, and so on. When the window is open, Intuition keeps track of even more data, including the actual screen memory used for its display, the text font used to write into that window, and more. The system stores this information in data structures, whose composition is defined in the include files that come with your compiler or assembler. You can create data structures (for example, the NewWindow structure used to create a window) and the operating system can create them (such as the Window structure that Intuition creates when you open a window). Whatever their origin, however, a familiarity with these data structures is crucial to understanding how to program the Amiga.



You can learn the contents of these structures by reading the include files that come with your compiler or assembler (the C versions have names such as intuition.h, while assembly language includes are called intuition.i and the like). These files contain descriptions of the data blocks that tell the compiler or assembler the amount of storage space to allocate for each one. With the rest of your definition statements, you must alert your program to the include files the library functions you use will need. In C, these statements take the form:

```
#include <intuition/intuition.h>
```

Include files also provide comments to explain how the system routines use these blocks of data and how they relate to each other. For example, the intuition.h file offers the following definition of the IntuiText data structure:

```
/* IntuiText is a series of strings that start with a screen location
 * (always relative to the upper-left corner of something) and
 * then the text of the string.
 * The text is null-terminated.
 */
struct IntuiText
{
    UBYTE FrontPen, BackPen; /* the pen numbers for the rendering */
    UBYTE DrawMode;          /* the mode for rendering the text */
    SHORT LeftEdge;          /* relative start location for the text */
    SHORT TopEdge;           /* relative start location for the text */
    struct TextAttr *ITextFont; /* if NULL, you accept the default font */
    UBYTE *IText;             /* pointer to null-terminated text */
    struct IntuiText *NextText; /* continuation to TxWrite another text */
};
```

Knowing what information is required for an IntuiText structure helps you to understand such

routines as PrintIText, which uses IntuiText structures as part of its input. Notice the IntuiText structure contains pointers to the addresses of other data structures, just as in linked lists. Such linking occurs quite frequently in the Amiga operating system. Study your include files; you will need a knowledge of how data structures relate to one another to thoroughly understand how pieces of the operating system fit together. For a complete list of include files and their contents, see the *Amiga ROM Kernel Reference Manual: Includes & Autodocs* (\$32.95, Addison-Wesley).

Devices

DEVICES ARE A variation of the library structure that let you communicate with input/output devices, such as a printer, a modem, or the clipboard. (For a descriptive list of devices, see the chart "Devices.") As with libraries, some are contained within the Kickstart ROM, while others are housed in the devs directory of the Workbench disk. Although you open and close devices just as you would a library, communicating with devices is much different. To use a device, you must first set up a data block called an IO Request, containing a pointer to a message port, which programs use to communicate with the device; a device ID, unit number, command and flag fields; and an error-return field. The standard Amiga function library included with most C compilers (amiga.lib or c.lib) provides the support functions CreatePort and CreateExtIO, which will create the required data structures for you. With the IO Request block set up, you can open the device with the Exec function OpenDevice. A simplified version of the C commands to open the serial device is:

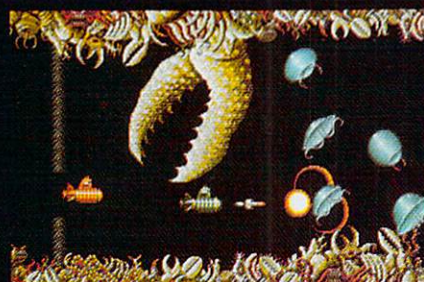
```
SerMPort = CreatePort("serial",0);
SerRequest = CreateExtIO(SerMPort, sizeof(struct IOExtSer));
error = OpenDevice("serial.device",0,SerRequest,0);
```

where SerMPort is the message port used for the IO Request, and SerRequest is the IO request block used for the OpenDevice call.

The command number you place into the command field of the IO Request determines the type of action the device takes. Every device is expected to respond to eight standard commands, if only to return an error number indicating that the command is not supported. Some, such as the audio device, support nonstandard commands that take advantage of their unique features. The standard commands, whose numbers are defined in the file exec/io.h, are:

CMD_RESET	aborts all pending I/O and resets the device
CMD_READ	reads x bytes into a data buffer
CMD_WRITE	writes x bytes from a data buffer
CMD_UPDATE	flushes internal device buffers, writing data
CMD_CLEAR	clears internal device buffers, losing data
CMD_STOP	stops the device, usually for user intervention
CMD_START	resumes I/O after a CMD_STOP
CMD_FLUSH	aborts all pending I/O requests ▶

Blood Money



BLOOD MONEY

The ultimate arcade game

Hold it right there. Are you REALLY ready for this one? Have you got the courage to load up the experience that makes all the other games you've played seem prehistoric?

Because **BLOOD MONEY** is simply the best arcade game you've ever seen. It has a staggering 1 megabyte of bit-mapped graphics, an amazing 400K of sound effects and music and the most gripping gameplay you've ever tackled in your life. **BLOOD MONEY** just leaves the competition for dead and takes you into new realms of arcade action.

But it's going to be tough. From the instant you hear that driving soundtrack you'll be plunged into a maelstrom of sheer destruction, as you plunder the four Outer Planets in a kamikaze quest for gold and glory. The aliens in **BLOOD MONEY** set some vicious traps, and it will take all your skills just to survive.

Use your awesome firepower wisely and you'll turn those aliens into blood money that can earn you extra weapons and equipment. And you're going to need them, because there are no easy screens in **BLOOD MONEY**. It's a life and death struggle that demands all your tactical genius and shoot-em-up know-how before you battle through to confront the four planetary Guardians.

With its vast bit-mapped graphics, superb animation, blistering sound, devilish obstacles, awesome firepower and 1 or 2 player options, **BLOOD MONEY** is the greatest challenge yet faced by any games player with a passport to outer space.

It's here. It's ready and waiting for you. But are you sure you're ready for **BLOOD MONEY**?

Two joysticks required for two-player game
Screen Shots are from the Amiga version

AMIGA \$39.95 ATARI ST COMING SHORTLY

Psygnosis Ltd.

PO Box 483

Addison Illinois 60101

800-669-4912



Devices

Devices listed in *italics* are found in the *devs* directory on Workbench 1.3. All others are located in ROM.

Name	Description
audio	Used to allocate and control the Amiga's four audio channels.
clipboard	Provides a standard (though not widely supported) means of transferring text or graphics data between applications.
console	Used to receive input from the keyboard and output formatted text to a window, in the manner of the traditional (mouseless) computer terminal. The device translates ANSI escape sequences into cursor movements and other text controls.
gameport	Controls the mouse/joystick ports, plus provides routines to set the controller type and the reporting frequency.
input	The primary provider of information about mouse and keyboard input, it merges reports from both the keyboard and gameport devices into a single input stream. Functions are provided for intercepting input (for "hot-key" applications), for creating an input event under software control, and for setting the key repeat rate.
keyboard	Handles raw information from the keyboard, and converts it into input events. Most of the time, you'll use the input device for keyboard input, rather than this device.
<i>narrator</i>	Produces synthesized speech from phonetic text input, using the audio channels.
<i>parallel</i>	Communicates with the parallel port. Its commands allow you to configure the port, and read or write to it.
<i>printer</i>	Communicates with a printer, connected to either the serial or parallel port. Handles translation of Amiga printer command codes to printer-specific codes, using the Preferences printer drivers. Commands to print text characters and a graphics screen are included.
<i>serial</i>	Controls communications with the serial port. Its commands allow you to set the serial communications parameters (speed, handshaking, parity, and so on), as well as reading or writing to the port.
timer	Permits you to use the CIA timer hardware or screen display vertical blank to initiate task signals or interrupts at specified intervals.
trackdisk	Provides a low-level interface to the floppy-disk drives. Includes functions to read, write, or format a sector. This device is more likely to be used indirectly by AmigaDOS than directly by the programmer.

Note that some commands require additional information to be placed into the IO Request structure, such as the address of a data buffer.

After you set up the IO Request and open the device, you initiate I/O with a call to the Exec function DoIO or SendIO. DoIO calls are synchronous, which means that they wait for the I/O task to complete before

returning control to the task that made the function call. Use DoIO if the program must have the requested information to continue the task at hand. SendIO calls are asynchronous, meaning they queue up the request and return control immediately. If your program does not need the device's information right away, use SendIO. Continuing with the serial-►

Professional Desktop Video

Amiga Makes it Possible...

...Digital Creations and Progressive Image Technology make it happen.

This Summer, Digital Creations and Progressive Image Technology will introduce the most complete and cost effective line of Professional Desktop Video, Professional Paint, Titling and Animation products available on any computer. After more than two years of development and through the use of state of the art video memory and gate array design technology, Progressive Image has created a new series of revolutionary desktop video products. Digital Creations has created the software to make it all work, and now we would like to take this opportunity to show you the future of Desktop Video....

VMACHINE™

The VMACHINE™ is the ultimate desktop video tool created specifically for the serious video professional. The VMACHINE™ is a Time Base Corrector with dissolve, overlay and keying systems, as well as a programmable real time digital video effects system. In one simple package, we have included the ability to perform:

- A/B roll editing with full cross dissolves.
- A complete PaintBox with Living Color™ software.
- Resolutions up to 1024x512x16 million colors.
- Real Time video effects are created and modified with the Video Artist Workstation™ software.

- Video on top of video effects including:
Titling, Chroma Key, Mattes, Overlays, Dissolves, Keys, Mosaics, Posterizations, Solarizations, Shrinks, Flies, Pushes, Wipes, Zooms, Spins, Flips, Tumbles, Warps, Page Turns, plus virtually unlimited special effects you can create and modify yourself.

Living Color™

The Living Color™ series includes add-on expansion products for SuperGen 2000S™ as well as professional Desktop Video Software products.

Living Color™ Frame Buffer (requires SuperGen 2000S™)

The Living Color Frame Buffer™ provides the Amiga full 16 million color Paint capability. There are also several color register indirect and double buffering display modes that allow both color cycling animation as well as ANIM type animation with up to 256 colors. Living Color™ Paint, IFF picture and ANIM conversion systems are included with the Frame Buffer.

Living Color™ TBC/Digitizer option

(requires SuperGen 2000S™ and Frame Buffer)

The TBC/Digitizer option gives the Frame Buffer the ability to digitize full speed video in 16 million colors as well as act as a video Time Base Corrector. The Time Base Corrector allows full A/B roll editing as well as the ability to shrink or zoom, move and then overlay the digitized video in real time over the video sent through the SuperGen 2000S™. Includes Video Artist Workstation™ software for creating visual effects with the TBC.

Living Color Paint™

Living Color Paint™ is the next generation paint system for the Amiga. A virtual color paint system included with all of our paintbox products including the Frame Buffer and the VMACHINE™. A version of Living Color Paint™ is also available for the Amiga supporting all of its resolutions and drawing modes including HAM.

Video Artist Workstation™

The Video Artist Workstation is a real time, interactive software system for the creation of visual special effects. Through the use of the Video Artist Workstation™, included with the VMACHINE™, the video professional can create and modify thousands of special effects.

SuperGen 2000S™

suggested list **\$1595**

The SuperGen 2000S™ is a true S-VHS compatible Genlock and overlay device for the Amiga® 2000 series computers. The new SuperGen 2000S™ installs into the video slot of any A2000 or A2500 Amiga. We have retained all the important features of our now industry standard SuperGen™ including dissolve sliders (through a remote console) and software controllability. SuperGen 2000S™ encodes and overlays in separate luminance and chrominance channels thus guaranteeing full S-VHS bandwidth and stunning picture quality. Composite RS-170A NTSC video is also supported, and with separate channel encoding, color crawl is virtually eliminated! An expansion port provides an upgrade path to the Living Color™ series of professional video products.

Features:

- S-VHS and NTSC compatible inputs.
- 2 NTSC outputs, 2 S-VHS outputs (can also transcode).
- Dissolve slider console, Software controllable.
- Built in Proc Amp, 360° SC phase adjust, $\pm 3\mu s$ H phase adjust.
- Internal Sync generator, Separate Y/C encoding and overlay.

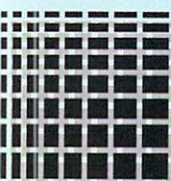
The Original SuperGen™

still only **\$749.95**

Our best selling genlock. Full NTSC Broadcast quality, dissolve sliders, software controllable, and works with all Amiga models.

Prices and specifications subject to change without notice.

Circle 28 on Reader Service card.



Digital Creations



2865 Sunrise Blvd., Suite 103 • Rancho Cordova, CA 95742 • (916) 344-4825

This ad was generated entirely on an Amiga using Living Color™ and Gold Disk's Professional Page™.



The System Software Blueprint

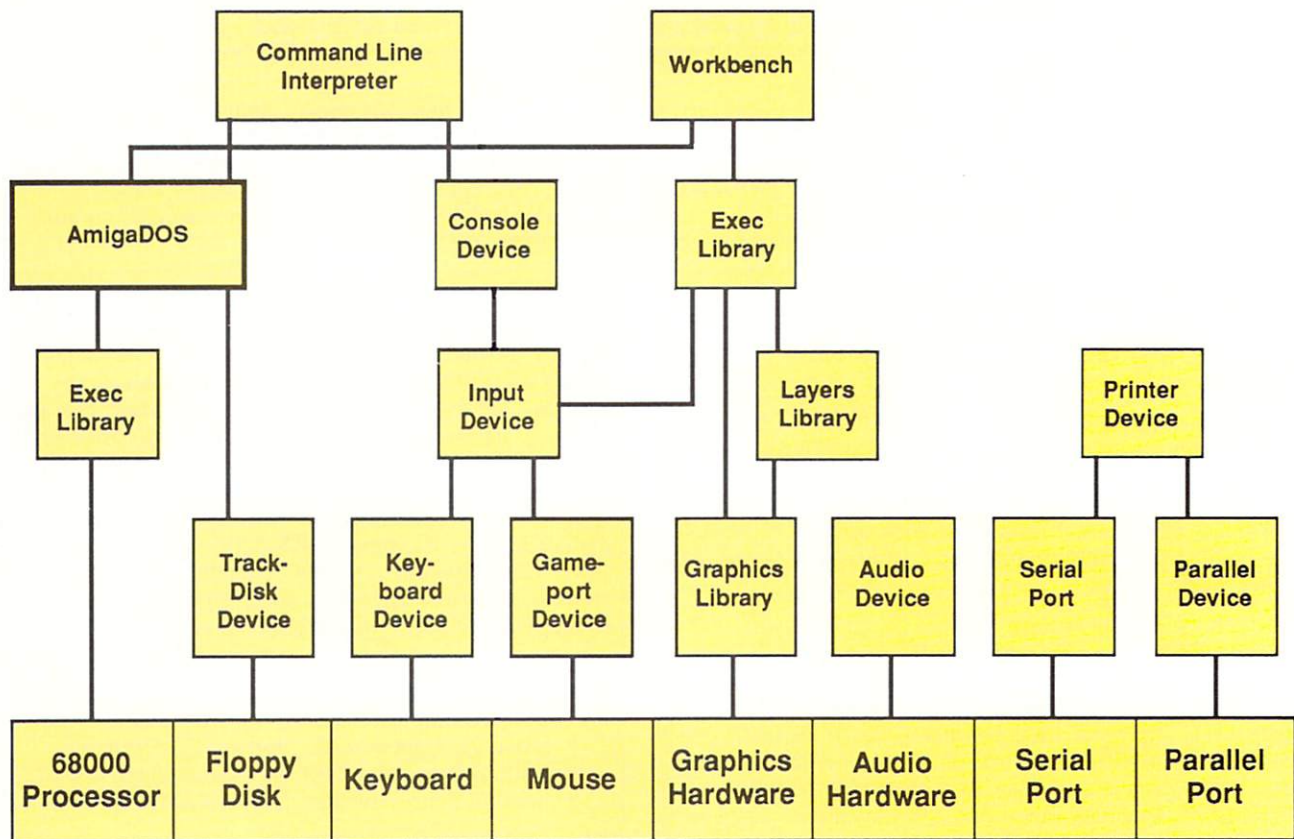
THE MOST ACCESSIBLE portion of the operating system pyramid is the top—the Workbench and the CLI interfaces. Workbench uses the Intuition library to create its displays, while the CLI requires the Console device for its and both use AmigaDOS to execute commands.

Holding up AmigaDOS is the Exec library (the manager of tasks, task switching, input and output,

and message passing) and the Track device, which communicates with the floppy drives.

The Intuition library relies on the Input device for input (as does the Console device), plus the Layers and Graphics libraries for output.

The next level down are the devices that control the most basic components of the system—the machine's hardware. □



port example used above, a command to read a single byte might look like this:

```

SerRequest->IOSEr.io_Data = &Buffer; /* set buffer address */
SerRequest->IOSEr.io_Length = 1; /* set read length */
SerRequest->IOSEr.io_Command = /* set command number */
    CMD_READ;
DoIO(SerRequest); /* perform synchronous IO */
  
```

Some additional functions are available to assist in asynchronous I/O. The CheckIO function will check if the request was completed, while the WaitIO function pauses your program until the specified I/O is finished. When all I/O is finished, you should close the device, and de-allocate all IO Request blocks and message ports, using the CloseDevice, DeletePort, and DeleteExtIO calls. For a discussion of devices,

see the *Amiga ROM Kernel Reference Manual: Libraries and Devices* (\$34.95, Addison-Wesley).

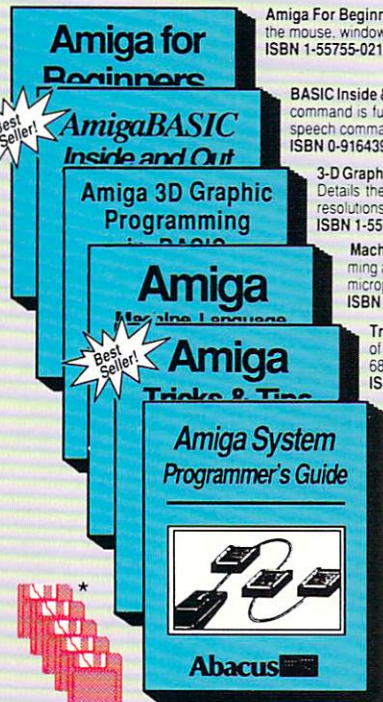
Resources

FOR POWERFUL CONTROL on a low level, the Exec maintains a linked list of functions called resources. (For a descriptive list of resources, see the chart "Resources.") Resources provide protocols for sharing hardware in a way that is consistent with multitasking. Though a beginning programmer probably will not need to resort to taking over the hardware, it may be necessary in certain high-performance applications (such as MIDI programs that need accurate control over musical devices).

To access resource functions, you first must open the resource with the Exec call OpenResource. You ►

Amiga Information

more than 4000+ pages.....



Amiga For Beginners* - the first volume in our Amiga series, introduces you to Intuition (Amiga's graphic interface), the mouse, windows, the CLI, and AmigaBASIC. Explains every practical aspect of the Amiga in plain English.
ISBN 1-55755-021-2 184pp Covers Workbench 1.3 Info \$16.95

BASIC Inside & Out - THE definitive step-by-step guide to programming the Amiga in BASIC. Every AmigaBASIC command is fully described and detailed. Topics include charts, windows, pulldown menus, files, mouse and speech commands.
ISBN 0-916439-87-9 554pp Covers Workbench 1.3 Info \$24.95

3-D Graphic Programming in BASIC - shows you how to use the powerful graphic capabilities of the Amiga. Details the techniques and algorithms for writing three-dimensional graphic programs: ray tracing in all resolutions, light sources and shading, saving graphics in IFF format and more.
ISBN 1-55755-044-1 300pp \$19.95

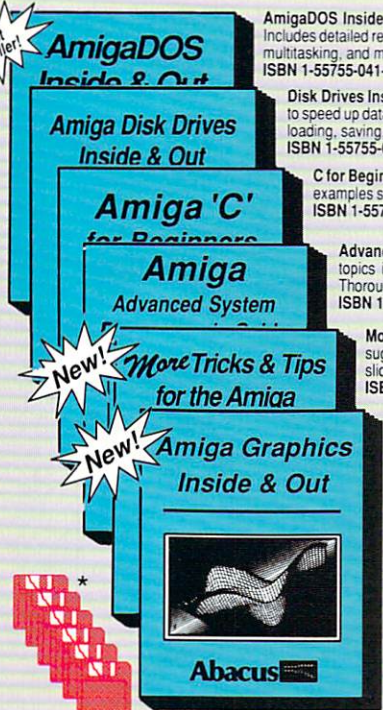
Machine Language - is a comprehensive introduction to 68000 assembler machine language programming and is THE practical guide for learning to program the Amiga in ultra-fast ML. Also covers 68000 microprocessor address modes and architecture, speech and sound from ML and much more.
ISBN 1-55755-025-5 264pp \$19.95

Tricks & Tips - follows our tradition of other Tricks and Tips books for CBM users. Presents dozens of tips on accessing libraries from BASIC, custom character sets, AmigaDOS, sound, important 68000 memory locations, and much more!
ISBN 0-916439-88-7 348pp \$19.95

System Programmer's Guide - comprehensive guide to what goes on inside the Amiga in a single volume. Only a few of the many subjects covered include the EXEC structure, I/O requests, interrupts and resource management, multitasking functions and much, much more.
ISBN 1-55755-034-4 442pp \$34.95

Save Time and Money!*

-Optional program disks are available for many of our Amiga reference books. All programs listed in the books are on each respective disk and will save you countless hours of typing!
(*Diskette Not Available for these Titles) **\$14.95**



AmigaDOS Inside & Out - covers the insides of AmigaDOS from the internal design up to practical applications. Includes detailed reference section, tasks and handling, DOS editors ED and EDIT, how to create and use script files, multitasking, and much more.
ISBN 1-55755-041-7 280pp Covers Workbench 1.3 Info \$19.95

Disk Drives Inside & Out - is the most in-depth reference available covering the Amiga's disk drives. Learn how to speed up data transfer, how copy protection works, computer viruses, Workbench and the CLI DOS functions, loading, saving, sequential and random file organization, more.
ISBN 1-55755-042-5 360pp \$29.95

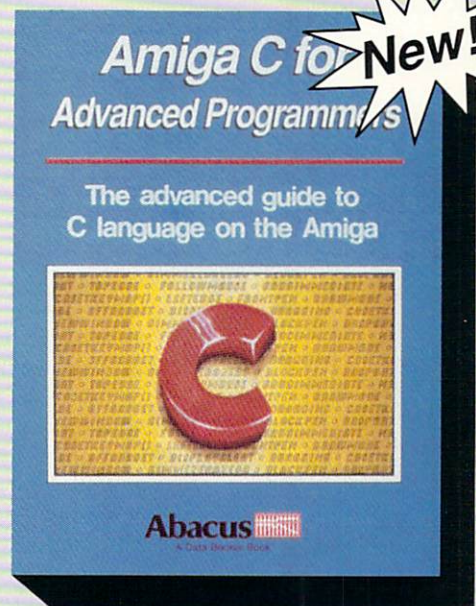
C for Beginners - an introduction to learning the popular C language. Explains the language elements using examples specifically geared to the Amiga. Describes C library routines, how the compiler works and more.
ISBN 1-55755-045-X 280pp \$19.95

Advanced System Programmer's Guide - a follow-up volume to the internals of Amiga covering more topics including Kickstart and Workbench 1.3. Presents the conventions for system programming. Thorough explanations of accessing the facilities provided by the libraries, input and output.
ISBN 1-55755-047-6 400pp \$34.95

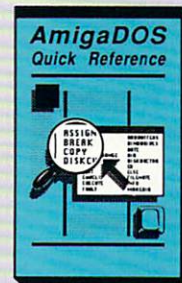
More Tricks & Tips - a collection of programming "quick-hitters" - easy to use techniques, hints, and suggestions for Amiga owners, learn to make programs more user-friendly using pulldown menus, sliders and tables, disable fast RAM, NewCon and Pipe devices.
ISBN 1-55755-051-4 128pp Covers Workbench 1.3 Info \$19.95

Graphics - Inside & Out - an in depth treatment of the Amiga's super graphic features and functions. Learn how to access these graphic features from AmigaBASIC or C. Learn graphic programming in C with examples of points, lines, rectangles, polygons, colors and more. Contains a complete description of the Amiga graphic system - View, ViewPort, RasPort, bitmaps, screens and windows and more.
ISBN 1-55755-052-2 450pp \$34.95

Add \$4.00 Shipping and Handling per Order
Foreign add \$12.00 per item
Michigan Residents add 4% sales tax



Amiga C for Advanced Programmers - contains a wealth of information from the pros: how compilers, assemblers and linkers work, designing and programming user friendly interfaces using Intuition, combining assembly language and C codes, and more. Includes complete source code for text editor.
ISBN 1-55755-046-8 670pp \$34.95



AmigaDOS Quick Reference* - an easy-to-use reference tool for beginners and advanced programmers alike. You can quickly find commands for your Amiga by using the three handy indexes designed with the user in mind. All commands are in alphabetical order for easy reference.
ISBN 1-55755-049-2
Covers Workbench 1.3 Info \$14.95

Abacus
Dept. L7, 5370 52nd Street SE
Grand Rapids, MI 49512
(616) 698-0330

More Books Coming Soon!

See your local dealer or Order Toll Free 1-800-451-4319

System Resources

Name	Description
cia	Provides access to bits and interrupts from the two 8520 CIA (Complex Interface Adapter) chips.
disk	Contains routines that can be used to gain exclusive control over floppy disks.
misc	Used to gain exclusive access to the serial or parallel ports.
potgo	Allocates the POTGO registers that control the mouse/joystick/lightpen/paddle ports.

may then use the resource functions to allocate or de-allocate specific hardware resources. For more information, see the *Amiga Hardware Reference Manual* (\$24.95, Addison-Wesley).

Programming the Amiga may seem confusing at first, but it's a lot easier once you understand the design philosophy behind the machine. The Amiga's multitasking operating system is built in layers, starting with modules with direct control over the hardware, and working up to the sophisticated routines that build the graphics interface. The best place for the beginner to start is at the top of this pyramid, with the functions provided by Intuition and

AmigaDOS. As you gain more experience, you can begin to investigate the more mysterious areas. But always try to obey the rules—do not jump directly into operating-system routines, don't modify the system's private data structures, and do not depend on any specific hardware configuration. That way, your programs will work not only on this generation of Amiga computers, but on the next as well. ■

Sheldon Leemon is the author of Inside Amiga Graphics and other books, and he is a frequent contributor to many computer publications. Write to him c/o AmigaWorld, Editorial Dept., 80 Elm St., Peterborough, NH 03458.

Do Your Homework

If you want to program with the Amiga's system functions and devices, an hour with a good book can

often prevent an all-night debugging session. Here are some we find helpful:

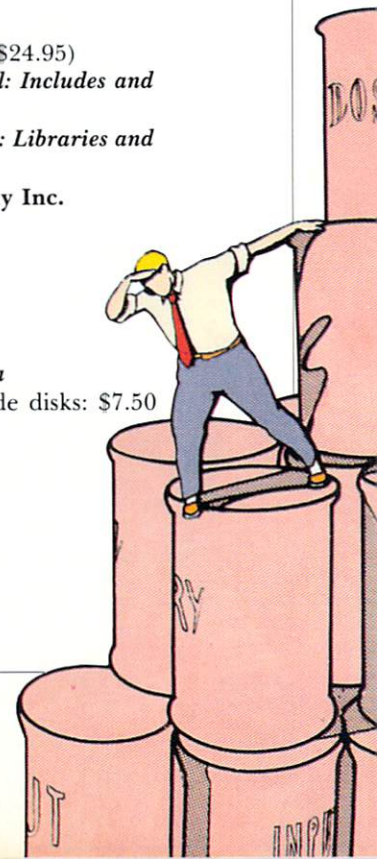
Amiga Programmer's Guide (\$16.95)
Compute! Publications
324 West Wendover Ave.
Suite 200
Greensboro, NC 27408
919/275-9809

The Amiga Programmer's Handbook Volumes I and II
(\$24.95 each)
Sybex Books
2021 Challenger Dr.
Suite 100
Alameda, CA 94501
415/523-8233
800/227-2346

Amiga System Programmer's Guide (\$34.95)
Abacus
5370 52nd St. SE
Grand Rapids, MI 49508
616/698-0330
800/451-4319

Amiga Technical Reference Set:
Amiga Hardware Reference Manual (\$24.95)
Amiga ROM Kernel Reference Manual: Includes and Autodocs (\$32.95)
Amiga ROM Kernel Reference Manual: Libraries and Devices (\$34.95)
Addison-Wesley Publishing Company Inc.
Jacob Way
Reading, MA 01867
617/944-3700
800/447-2226

The Programmer's Guide to the Amiga
(\$24.95, C and Modula-2 source code disks: \$7.50 each)
Datapath Inc.
PO Box 1828
Los Gatos, CA 95031-1828



Can't Is A 4-Letter Word.

Can't isn't in our CanDo® vocabulary.

With CanDo you can do just about anything. It's one of those "Gee-I-wish-I-could" programs that comes along once in a blue moon... maybe not even that often. CanDo is going to change the way you work with your computer. For the first time one program will harness the tremendous power already built into the Amiga™.

It's hard to put a label on all the things CanDo can do.

CanDo will maximize the effectiveness of any graphics, video or audio program, including DELUXE PAINT III™, DIGI-VIEW™ 3.0 and AUDIO MASTER II®.

CanDo has muscle.

With it you can easily create your own applications, from presentations to education to personal productivity, complete with gadgets, menus, windows and much, much more... without any programming experience.

CanDo is helpful.

Its graphic interface guides you step-by-step through the creation of your projects.

CanDo is a synchronizer.

It can sync digitized sounds... music... graphic or video images in real-time by interaction or time.

CanDo is an animator.

It lets you use any number of brush animations and display them on-screen simultaneously.

CanDo has expandable power.

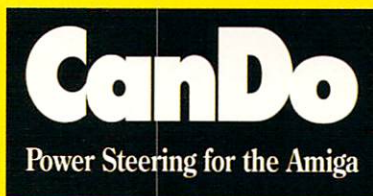
When you need even more control, it's there at your fingertips. CanDo's full-featured vocabulary is designed to efficiently utilize the power of your Amiga.

CanDo is compatible.

It fully supports all Amiga screen resolutions, digitized sounds, brush animations, ARexx® and multi-tasking.

At this point you may be getting the feeling there's nothing CanDo can't do. That's the whole idea. For us the word can't is a no-no.

CanDo will be available at your Amiga dealer in August.



Dealers and Distributors should contact: Southern Technologies, 800-647-7741, in Texas 214-247-7373
CanDo is a product of Inovatronics, Inc. 8499 Greenville Avenue, Suite 209B Dallas, Texas 75231 214-340-4991

CanDo and Power Steering for the Amiga ©1989 Inovatronics Inc. Amiga is a registered trademark of Commodore-Amiga Inc.
DELUXE PAINT III is a trademark of Electronic Arts Inc.; DIGI-VIEW is a trademark of Newtek Inc.; AUDIO MASTER II is a trademark of Aegis Development Inc.; ARexx is copyrighted by William S. Hawes.



LESLIE COBER

ARexx:

The Missing Link

You don't need the vision of Darwin or the skills of a "power programmer" to make practical use of this new interprocess command language that takes Amiga multitasking to its next evolutionary stage of development.

By Gene Brawn

FOR SEVERAL YEARS, Apple has been touting its HyperCard system as a revolutionary breakthrough in technology that unites a graphical interface with animation, sound, text, data, video, telecommunications, and control of external devices. Amiga's answer to the HyperCard is found in ARexx, a programming and DOS command language, macro processor, and interprocess controller, all rolled into one easy-to-use command language.

As a command language, ARexx allows such niceties as automatic insertion of spreadsheet-generated figures into word-processing documents, the import of artwork into databases, and the performance of genlock operations from animation programs—all under total program control. Best of all, the initiation into the world of ARexx is painless, the fee small.

If you frequently write AmigaDOS batch commands, ARexx can streamline the process. If you define "macro," or single-key commands within applications, you can use ARexx to tie those commands to the outside world. If you want to write programs to perform low-level computer-control chores, ARexx puts the power you need at your fingertips.

ARexx was developed by William Hawes, the renowned author of ConMan. Interestingly, ARexx is considered simultaneously one of the most significant as well as the most unappreciated pieces of software ever developed for the Amiga. In this article I will explain the features and significance of the language and how it can help Amiga computerists with every-

day computing chores. In addition, I will show how ARexx compares with HyperCard and why it offers the potential of establishing Amiga presence on the multimedia map.

WHAT IS AREXX?

ARexx began life as REXX, an interprocess command language for IBM mainframe computers. ARexx represents the Amiga version of REXX. As an interprocess control language, REXX controls any number of applications programs in a multitasking environment. For example, a REXX script program can receive output from a database, send it to a spreadsheet for inclusion in the latest sales figures, then route the updated spreadsheet figures to the national sales force via the telecommunications software, all under program control without any human intervention. This type of power did not long go unnoticed and the language soon spread to other computer systems—and eventually to the Amiga. Undoubtedly, ARexx has been slow to enjoy widespread acceptance in the Amiga community only because it is fairly new to this environment.

As a command language, ARexx's power is fully realized when it is used to communicate with and control applications software. To permit this, the application must first recognize the existence of ARexx via some form of an ARexx interface, and then allow it program control. The interface within the applications software usually consists of a minor amount ►



of code that communicates with ARexx. This does not pose much of a problem with newly developed software, but existing applications are another story. Although software manufacturers may plan to include the ARexx recognition code in a future update of an existing application, there is typically a time lag involved between updates.

Nearly 20 major applications already offer an ARexx interface (see the list accompanying this article for individual titles), with more promised, but it could be a year or more before we see a substantial base of software packages supporting ARexx. Commodore could score points with end users and programmers by licensing the program and bundling it with every new Amiga sold.

WHAT DOES AREXX OFFER THE AMIGA?

To gain perspective on the significance of ARexx in an Amiga environment, let's examine some methods the Amiga can use to share data between applications without ARexx. When you put the Amiga's multitasking capabilities to use, there are often times you probably wish that data could be shared between two or more processes or applications. One way to do this is to create a RAM: file, which we will call "RAM:file stuff." Now program A can save data to "RAM:file stuff" and program B can load that file when the data is needed.

You sacrificed efficiency in the above process because read and write commands must be issued manually from within the respective procedures. The new PIPE: device provided with Workbench 1.3 appears to be the ideal solution to automating data transfers. Passing data to another program works like this: Program A saves its files with each file name prefaced with the word PIPE: instead of the usual DF1: or RAM:. In the above example, the file name would be PIPE:DATA STUFF. Similarly, the receiving program loads its data using the same file name, PIPE:DATA STUFF. As long as the target program continues to accept data, anything saved to PIPE:DATA STUFF will be sent or "piped" directly to the receiving application without any user intervention.

The PIPE: device is a great time-saver, but to make interprocess communications truly useful, you need a way to send not only data, but also commands to another program. The ability to include commands is what differentiates using a command language such as ARexx from using a single PIPE: command.

HOW DOES IT WORK?

ARexx bears resemblance to many other languages available for the Amiga. Like BASIC and FORTH, it is an interpreted language. This means that each time you run a program, ARexx reads your script and translates it into machine-language instructions "on the fly." This is the functional opposite of a compiled language, such as C, which must transform your program script into a machine-language file before it executes the program. The advantage to the

interpreted method is that program development is much faster. The disadvantage is that interpreted-language programs generally do not operate as fast as compiled programs.

Like Modula II, ARexx provides the tools necessary for structured programming, including procedures (referred to as functions in ARexx) and both local and global variables. Not surprisingly, ARexx does not use GOTO statements. Powerful string operators similar to those found in SNOBOL (a text-processing language) also exist in ARexx. More importantly, ARexx can perform anything the AmigaDOS EXECUTE command does, only better. The language gives you complete control of the Amiga's low-level I/O functions and a complete set of looping, decision and input tools.

You can easily create ARexx programs with your favorite text editor or word processor. Simply write the script, save it as an ASCII file and invoke the ARexx interpreter, "rx," to execute it. For debugging, a tracing feature within ARexx allows you to watch or interact with the program during execution.

SOME EXAMPLES

The well-known "Hello" program would be written as follows to be executed in ARexx:

```
/* Tell the folks hello, Rexx */  
say 'Hello, Rexx'
```

The first line is a comment, which is required in ARexx. The second line consists of an instruction symbol, "say," and a string. "Say" tells the program to display the string on the output device, usually the screen. Like most high-level languages, ARexx has a complete set of functions, tokens, symbols, operators, commands, and expressions.

Variables in ARexx follow a simple format. Unlike BASIC or Modula II, no typing of data is needed. All data is initially treated as a string and, if this fails, successively tested until a suitable type is found.

```
/* Variables are flexible... */  
A=1 ; B=2      /* More than one statement per line OK */  
C=A+B          /* these variables have numeric data */  
say A '+' B '=' C /* prints 1+2=3 */  
  
/* change data to text strings... */  
A='Amiga' ; B='World'  
say A || B      /* prints "AmigaWorld" */  
  
/* ...but, don't try to fool ARexx! */  
B=1             /* B is numeric, A is still alpha */  
C=A * B         /* ...and ARexx will return an error */
```

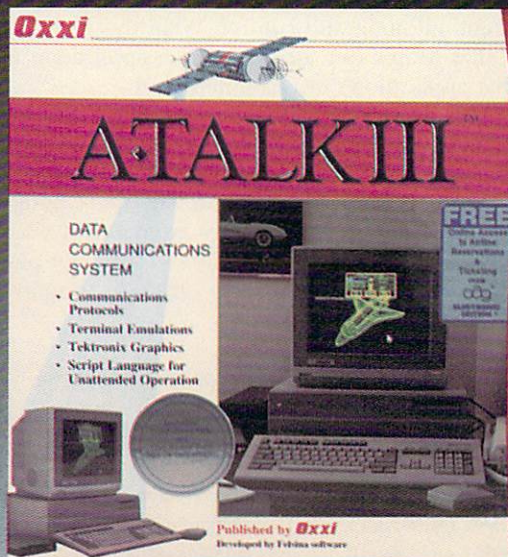
Thankfully, error checking within ARexx prevents illegal operations on incompatible data types. In the above example, for instance, you cannot multiply the non-numeric string AMIGA by the numeric variable B.

The following example is a little more advanced, ►



THIS SEASON'S M.V.P.s*

**(Most Valuable Programs)*



A-TALK III™

Ahead of the Pack

A-Talk III, the first communications program for the Amiga Computer™ to bring you an ARexx language interface now adds support of ASDG's new multi-serial port cards for the Amiga 2000™. With A-Talk III and ASDG's multi-serial cards you can now set up a multi-line BBS. A-Talk III is a professional program maintained by professionals.

Standard A-Talk III features include:

- Advanced Script Language with over 50 commands, interactive commands, and automatic generation of logon Scripts.
- ARexx Language Interface.
- Over 9 protocols including: XMODEM, YMODEM-g, Kermit and WMODEM and ZMODEM resume.
- Global setting screen for setting up parameters for host systems.
- Support for over 10 modems including Hayes™, HST and Telebit.
- Busy signal detection.
- System Clipboard support with Cut, Copy and Paste.
- International Fonts and Keyboard Support.
- Terminal emulations including: VT100, VT52, H19, ANSI, and Tektronix 4010/4010, IBM PC ANSI Color Graphics.
- Overscan in NTSC and PAL.

Requires 512K, 1 Meg of Memory Recommended

List Price: \$99 US

Critics' Praise:

"More file transfer, display and communications options than you can shake a stick at." — *INFO Magazine*

"One of the most powerful communications packages on the market" — *Amiga World*

"I would wholeheartedly recommend your using A-Talk (III)" — *Amiga Sentry*

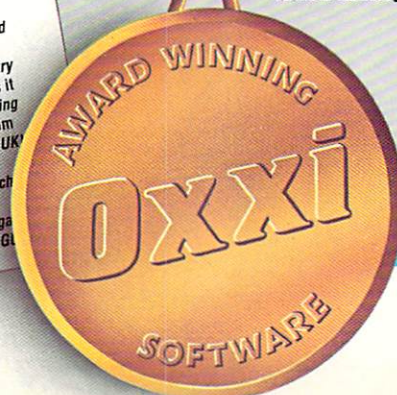
"If you need a communications package that does it all" — *Amazing Computing*

"A-Talk, the outstanding commercial program from America" — *Your Amiga (UK)*

"A-Talk III sets new standards" — *Amiga Markt & Tech*

"A sportscar disguised as a Volkswagen" — *Dator Maga*

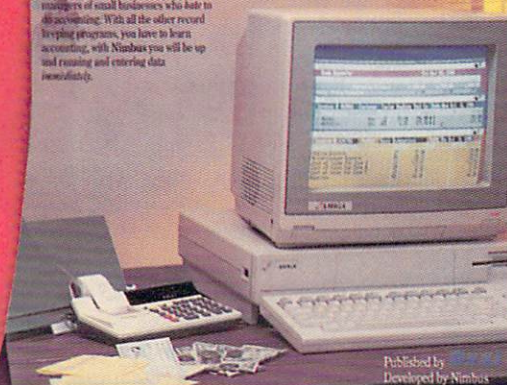
"A-Talk III is the program of choice" — *Amiga GL*



Do Business,
Not Accounting with

NIMBUS™

The easy new accounting program for managers of small businesses who hate to do accounting. With all the other record keeping programs, you have to learn accounting, with Nimbus you will be up and running and entering data immediately.



NIMBUS™

Tackle Business, Not Accounting

Nimbus simplifies the accounting process so you can get on with your business. Accounts are kept on a cash basis, automatically transforming your check book register into an Income Statement and Balance Sheet. Setting up Nimbus is as easy as entering your company name, address and an opening account balance. Forget debits and credits, Nimbus dispenses amounts to proper accounts as you write checks and create invoices. Customers and vendors are kept track of by name not an assigned number. The built-in Chart of Accounts can be used as is, or edited to suit your particular requirements.

Standard Nimbus features include:

- Fully integrated General Ledger, Sales/Accounts Receivable, Purchases/Accounts Payable
- Standard reports including aging report available at any time
- Logically progressive Mini-menus guide you through the data entry process
- Daily, weekly, or monthly sales and expense reports
- Separate Customer Statements
- Capsule statement available at bottom of each invoice if desired
- Utilizes Hard Disk and separate Data Disk for unlimited invoicing and payables.
- Plain paper or pre-printed Invoices and Statements

Requires 512K, 1 Meg of Memory Recommended

List Price: \$159 US

Both Now Available from your Amiga Software Dealer

Dealers call: American Software, Comp Rehend, Micro-Pace, Soft-Kat, Southern Technologies or Triangle Electronics.

Oxxi inc.

P.O. Box 90309, Long Beach, CA 90809
(213) 427-1227

A-Talk-III, Amiga, Tektronix, Hayes, IBM and Nimbus are the respective trademarks of Felsina Software, Commodore-Amiga, Tektronix, Inc, Hayes Microcomputer Products, Inc.; IBM and Nimbus. Copyright © 1989 Oxxi, Inc.

Circle 75 on Reader Service card.

because it illustrates ARexx's control and function (subroutine) structures.

```
/* Defining and calling a function */
trace results      /* prints results of calculations */
do i=1 to 5        /* perform loop 5 times */
  say i square(i)  /* call square subroutine */
end                /* marks the end of the loop routine */
exit              /* this exits an ARexx program */

/* below is the function, or subroutine */
square:            /* label */
arg x              /* get the argument */
return x**2       /* square it and return */
```

If you understand the fundamentals of programming, this routine is easy to follow. If you are a confirmed non-programmer, don't panic, because I have kept the code simple. The first instruction after the required comment line, the trace option, prints the results of any calculation performed by the program. If you want to display, say, the entire text of the line being executed, you can substitute ALL for the RESULTS statement. There are eight tracing options, which can appear in the same window as the output data or in a custom window for improved clarity.

The next line contains the control structure, or DO LOOP, which executes the lines between it and END five times. The following line is the heart of the program. As before, the SAY instruction prints any strings, contents of variables, or results of a calculation that follow it on the same line. This program prints two numbers, consisting of the current value of the loop counter and its square, for each pass through the loop.

A SQUARE function does not exist in ARexx, so the interpreter scans the rest of the program for the text string "square:". The colon after the string indicates that this is the beginning of a function. The "arg" command retrieves the value to be squared, which was passed here as the "i" in square(i), and assigns it to the variable "x." The final line instructs the program to "return" to the calling program segment with the result of x squared (x**2).

This admittedly simple example cannot begin to display the full scope of ARexx, but it does present some of the flavor of the language. You can see that ARexx syntax and program structure differs little from other, more mainstream programming languages. What most distinguishes ARexx from the others is its ability to perform interprocess communications.

TALK TO ME REXX

ARexx tasks are regular AmigaDOS "processes," with all their multitasking advantages. Therefore, you can run as many tasks as desired with each one fully controlled and coordinated from within the same ARexx program.

The standard Amiga operating system contains

Message Ports that are used for system communications. Any task running on the Amiga can open one or more of these ports and "speak" to the operating system, to an external device, or to other processes. ARexx uses the capabilities of these ports to implement its most powerful feature—interprocess communication and control. What this term means is that ARexx can control a given application using that application's own command set.

This process is handled rather elegantly. A program communicating with ARexx is called the host application. Both the host and ARexx communicate through a standard EXEC message port using just two data structures, the most common of which is illustrated in Figure 1. (The other is used for passing strings to and from ARexx.) All that is required of

Figure 1: The basic ARexx message packet structure.

STRUCTURE REXXMSG,	MN_SIZE
APTR rm_TaskBlock	; global pointer
APTR rm_LibBase	; library pointer
LONG rm_Action	; command code
LONG rm_Result1	; primary result
LONG rm_Result2	; secondary result
STRUCT rm_Args 16*4	; arguments (arg0 thru arg15)
	; the extension area
APTR rm_PassPort	; forwarding port
APTR rm_CommAddr	; host address
APTR rm_FileExt	; file extension
LONG rm_Stdin	; input stream
LONG rm_Stdout	; output stream
LONG rm_avail	; reserved
LABEL rm_SIZEOF	; 128 bytes

the host application is that it understand how to send and receive messages via this structure. ARexx even provides library routines that the host program uses to create and maintain this structure. A typical exchange might appear as follows:

1. Using the structure in Figure 1, the host program puts a name in the rm_Args slot. Normally, this is simply the name of a disk-based ARexx program, which generates a macro (a string representing one or more commands) recognized by the host. If the string is enclosed with quotes, however, ARexx assumes that this string is stand-alone program code requiring priority execution. This eliminates the need to load the program from a file.

2. The host then sends the message packet to the ARexx port using the EXEC function PutMsg().

3. ARexx locates the named file requested by the host, spawns a new DOS process, and runs the program.

4. ARexx fills in any other pertinent information in the structure, then passes the commands back to the host, using the same port and structure it received initially. It then waits for the host to respond that the

Call CMO Today For Amiga



SUPRA CORPORATION
SJ2400 zi Internal/2000
\$149

MODEMS

Anchor	
1200 Baud External	\$109
2400 Baud External	149
Hayes	
Smartmodem 300	149
Smartmodem 1200	289
Smartmodem 2400	429
Practical Peripherals	
1200 Baud External	84
2400 Baud External	189
Supra	
SJ2400 External	139

MONITORS

Magnavox	
515 14" Color RGB/Composite	249
8762 14" Comp/RGB	249
NEC	
Multisync IIA	529
Sony	
1302 13" Multiscan	699
1310 13" RGB	339

VIDEO

Anakin Research	
Easyl Drawing/2000	349
Easyl Drawing/500	319
Digital Creations	
SuperGen Genlock	699
Communication Specialties	
Gen/One Genlock	699
JDK Images	
Pro Video Plus	199
Mimetics	
Amigen Genlock	149
New-Tek	
Digi-View Gold	139
Progressive Peripherals	
Pro-Gen Genlock	399
Frame Grabber	579
Sunrise Industries	
Perfect Vision	199
Elec. Color Splitter	99

AUDIO

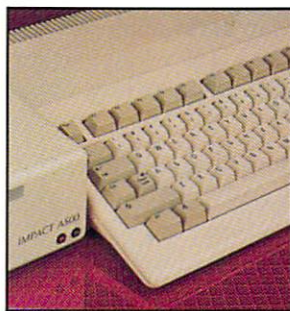
ECE Research	
ECE Midi (A1000)	51
ECE Midi (A500, A2000)	51
Mimetics	
Midi (A1000)	44
Midi (A500)	49
Pro-Studio	129
Sunrise	
Studio Magic	62

MEMORY EXPANSION

Microbotics	
Star Board II w/512K	\$459
Upperdeck	45
Spirit Technology	
1.5MB Board w/OK (A1000)	289
1.5MB Board w/OK (A500)	279
1.5MB Board Populated (A1000)	989
1.5MB Board Populated (A500)	1509

DISK DRIVES

Great Valley	
Impact A2000-2/0	289
Impact A2000-2/2	749
Impact A2000-HC/30	679
Impact A2000-HC/40Q	799
Impact A2000-HC/40M	719
Impact A500-2/2 RAM	519
Impact A500-HD/40M	899



GREAT VALLEY
Impact A500-30HD
\$799

Supra	
20MB (A500)	679
20MB (A2000)	629
30MB (A1000)	759
60MB (A500)	929
60MB (A2000)	859
Miniscribe	
20MB Int. 3 1/2" 40MB	289
20MB Int. 3 1/2" 65MS	269
C. LTD Hard Drives	
33MB (A500)	769
33MB (A2000) Internal	659
50MB (A500)	899
50MB (A2000) Internal	799
Megatronics	
Air Drive 3 1/2" Ext.	149
Air Drive 3 1/2" Int.	125

PRINTERS

Brother	
M1109 100cps DM	179
M1709 2400cps/50 Col.	389
Canon	
Canon Bubble Jet 130	799
C.LTD.	
Laser Xpress	2199
Epson	
LX-810 200cps, 80 Col.	129
FX850 264cps, 80 Col.	Call
LQ510 180cps, 24-Pin	329
LQ850 330cps, 24-Pin	Call
Okidata	
Okimate 20 Color	129
ML182 180cps, 80 Col.	239
ML320 + 300cps, 80 Col.	379
Panasonic	
KX-P1180 192cps, 80 Col.	199
KX-P1191 280cps, 80 Col.	239

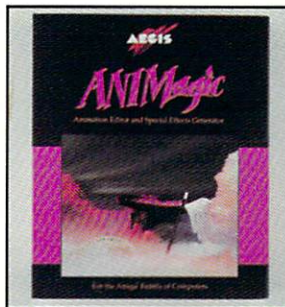
Star Micronics	
NX1000 144cps, 80 Col.	\$169
NR1000 Rainbow Color	229

ACCESSORIES

Kensington	
Power Tree 10	19
Power Tree 20	29
Power Tree 50	69
Allsop	
Diskfile 10 3 1/2"	5
Diskfile 30 3 1/2"	9

SOFTWARE

Aegis	
Draw 2000	159
Videoscope 3D	139
Lights, Camera, Action	49
A Squared	
Live 1000	269
Live 500	299
Live 2000	349
Action Ware	
P.O.W.	24
Creature	26
Prison	26
Byte By Byte	
Sculpt 3D	69
Sculpt 4D	429
Animate 3D	105
Animate 4D	419



AEGIS DEVELOPMENT
ANIMagic
\$69

Cinemaware	
Three Stooges	\$ 34
Rocket Ranger	34
TV Sports	34
Discovery	
Marauder II	26
Arkanoid	20
Joe Blade	19
Hole-in-One Golf	26
Powerstyx	23
Electronic Arts	
Deluxe Music	65
Deluxe Paint III	99
Ferrari Formula	32
Epyx	
4x4 Off Road Racing	34
California Games	29
Battleship	21
Technocop	32
Death Sword	21
Mindscape	
Q-Base	21
Hostage	29
Melbourne House	
War in Middle Earth	32
Magnetic Images	
Gold of the Realm	26
Dutchman Mine	32
MicroDeal	
International Soccer	26
Zero Gravity	19
Micro Systems	
Scribble Platinum	94
On-Line Platinum	62
The Works Platinum	179
Panther Games	
Fire Brigade	32
Psygnosis	
Chrono Quest	32
Baal	20
Captain Fizz	25
Ballistix	22
Readysoft	
Dragons Lair	38
Amaz	138
Sedona Software	
Money Mentor	55
Spectrum Holobyte	
Tetris	23
Falcon	30

ASK ABOUT OUR 5 PIECE
SOFTWARE BUNDLE FOR
ONLY \$99!



Your Source for Hardware, Software & Peripherals

In U.S.A.

800-233-8950

In Canada call: 800-233-8949

All Other Areas call: 717-327-9575 Fax call: 717-327-1217

Educational, Governmental and Corporate Organizations

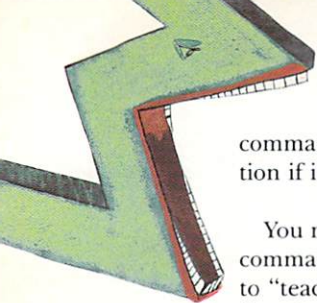
Call toll-free: 1-800-221-4283

CMO, 101 Reighard Ave., Dept. B9, Williamsport, PA 17701

Over 400,000 SATISFIED CUSTOMERS • MAJOR CREDIT CARDS ACCEPTED

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

MMC
MICROCOMPUTER
MARKETING COUNCIL
of the Direct Marketing Association, Inc.



command was successful, or to take appropriate action if it failed.

You might think that if you wanted ARexx to issue commands to another application, you would have to "teach" it lists of commands and their respective functions. Fortunately, this is not the case. If the ARexx interpreter encounters an unknown word in the program, it assumes that the word is a command for the host program and sends it to the message port of that application. That's all there is to it.

HYPER REXX

With a little thought and work, a true hypermedia system is entirely possible on your computer. The Amiga possesses the capabilities necessary to create a system that would easily outperform the pioneering Apple product—and with off-the-shelf software!

You can use a hypermedia system to browse and explore a text, picture, and audio database in a friendly, graphics-oriented environment. If you do not know the meaning of a word or reference, an ARexx-based system might let you click on the word to get a definition from the built-in dictionary. This reference might lead you to another reference, and so on. Think of the possibilities of a hypermedia system that takes advantage of the Amiga's 4096 colors, real-time animation, video, stereo sound, and multitasking.

The tools for such a system exist on the Amiga today, complete with ARexx interfaces. Some of the candidates include: Superbase, a traditional relational database; Microfiche Filer, a visually oriented database; TxEEd and other text processors; and the public-domain version of SpeechToy for providing voice output. In the area of graphics, there's the new DigiPaint II, Magellan to provide the intelligence, and, to round out the package, a forthcoming anim player/scripter from a major software publisher with an ARexx interface. The task of integrating all of these applications is not a trivial process, but if you are interested in trying, I compiled a simplified plan of attack:

1. First, review all of the commands available to ARexx from each of the programs you have chosen to use as the building blocks of your hypermedia system. Decide which of them you want to make available to the user.

2. Next, consider how you want these functions to interact. For example, a picture being displayed might need a caption file, so it directs the database to retrieve it. The database directs the system to open a small window over the picture, in which to display the text.

3. Because you are integrating several applications, you should create a "master" interface for the user. You can employ your favorite programming language to accomplish this task; just be certain to include the ARexx interface! The user interface is just

one fixture in a hypermedia system, similar to the HyperCard "home" screen. It is where the available applications and tools are displayed and selected. Keep it simple, make it a graphical user interface and as intuitive as possible. You should treat the interface as just another module in the system, to be controlled and coordinated by the main ARexx program.

4. Now you can write the ARexx program(s) that controls and coordinates the system. You might want to approach this task in steps or in modules. By writing small, self-contained modules, each can be dedicated to a specific aspect of the system. For example, one module might handle only text displays, another graphics, and a third could handle the presentation of animations.

5. If you take the modular approach, create another ARexx module that is responsible for the routing and scheduling of user requests from the interface module. The modular approach gives you a lot of flexibility in the construction of your hypermedia system. You will be able to add new functions and applications as they become available, or to update those that have changed.

THE BEGINNING

This article is only an introduction to ARexx, designed to explain what it is and how everyone who uses an Amiga can benefit by its existence. It's up to you to make this vision of what ARexx can do a reality. Use those software-registration cards, and tell the software manufacturers to include the ARexx interface in all of their programs.

Amiga Programs Supporting ARexx (as of May 1989)

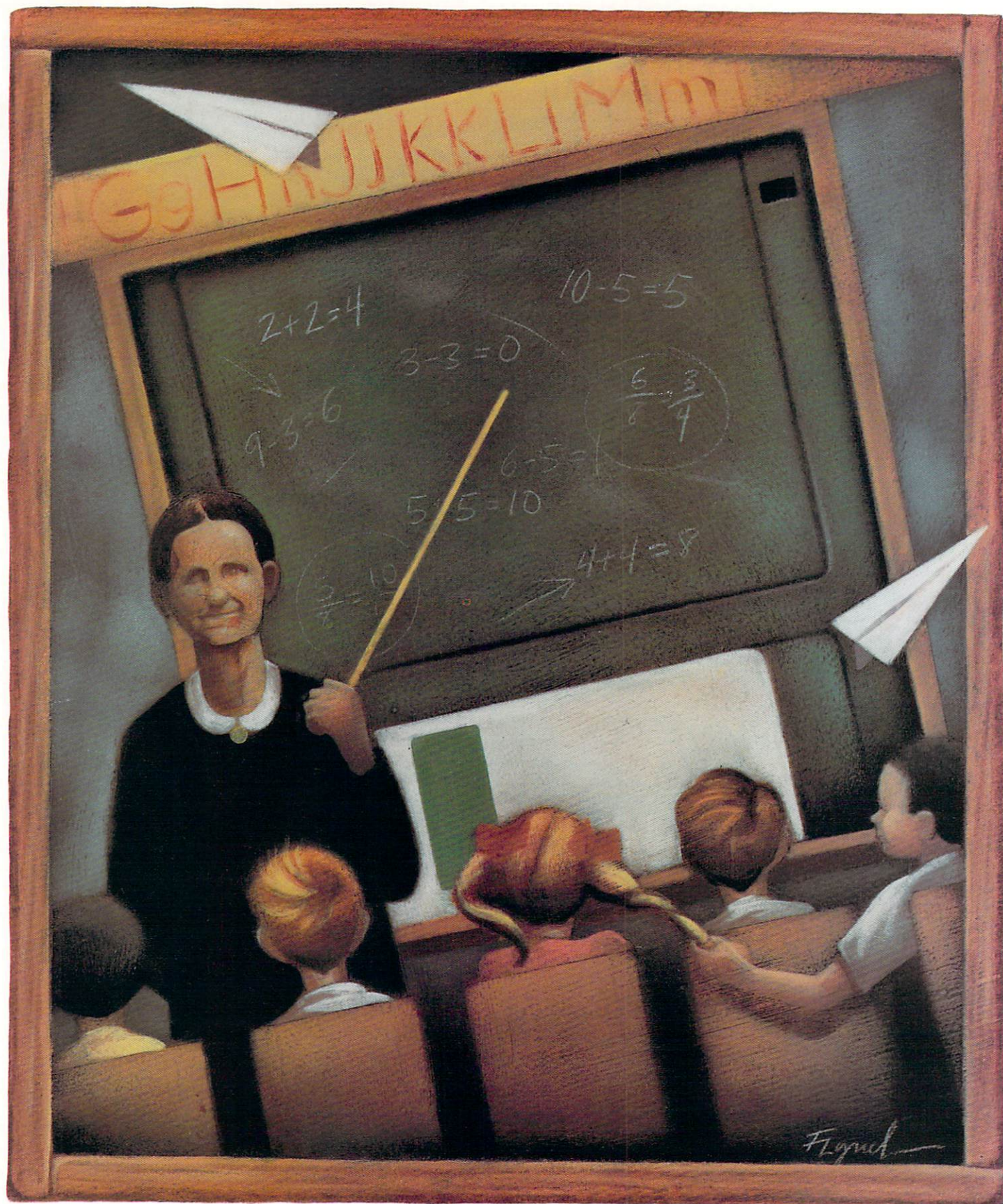
Superbase Professional	Nag 3.0
Superplan	A-Talk III
Microfiche Filer Plus	VLT (terminal emulator)
Atredes BBS	CAPE 68K
Magellan	CygnusEd Professional
TxEEd Plus	Mediaphile
AmigaTex	Digi-Paint II
MicroGnuemacs	DeluxeVideo III

ARexx is a powerful tool that has the potential to improve the way you compute on your Amiga. But getting this power in your hands is a two-way street; you, the user, must do your part by letting the software publishers know that you want it. They, in turn, have to provide you with an easy way to use that power. ■

Gene Brawn is a computer-game programmer, graphics designer, television director, and digital animator. Write to him c/o AmigaWorld, Editorial Dept., 80 Elm St., Peterborough, NH 03458.

Circle 134 on Reader Service card.

SHOWROOM: 22 Front Street, Worcester, MA 01614



INFORMED CHOICES:

A GUIDE TO EVALUATING AND SELECTING AMIGA EDUCATIONAL SOFTWARE

*A computer-learning expert shares her
opinions on what distinguishes
good educational software from mediocre,
and which Amiga packages best
deliver the goods.*

CHANCES ARE, YOUR child shares Winston Churchill's view on education. "I'm always ready to learn," Churchill said, "although I do not always like being taught."

All of us, from statesmen to small fries, learn most effectively when we are actively involved. Involvement makes the process more enjoyable—makes us *want* to be taught. Your Amiga can put your children on this active level, and the right software can keep them coming back for more. But how can a parent find out which packages encourage learning, and which are academically worthwhile?

WHAT MAKES A PROGRAM MAKE THE GRADE?

After looking at scores of educational software packages, I have determined a number of criteria to help you judge their various aspects. No matter what types of programs you choose, you can use these yardsticks to measure their quality. Keep in mind that what is good for one age group may not be appropriate for another.

At least three program characteristics—skill levels,

subjects, and approaches—work best in multiples. Programs that provide multiple skill levels can not only accommodate your children's progress and help them grow further, but can be ideal for parents who have more than one child. In either case, they provide extra mileage. Another way to get more out of a program is to choose one that covers two or more subjects. Finally, giving the student a chance to work with the material from different angles keeps interest high. There can be no doubt that people generally learn better when a subject is presented in a variety of ways.

Programs that are too difficult to use and control discourage learning. The best programs present instructions clearly, thoroughly, and appropriately for the age level, and incorporate a help feature to prompt students who forget how something works. Input devices are an important consideration, too. Most preschool programs are mouse-driven and some employ icons rather than words. While the mouse is easy to use, it does not allow a child practice in developing keyboard skills. Ideally, a program will ►

BY MARGARET MORABITO

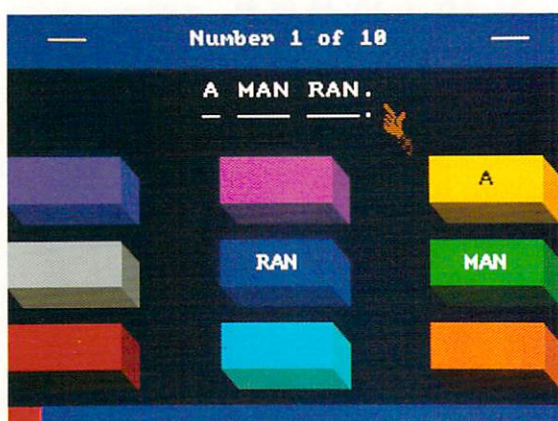
provide options for input via mouse or keyboard. A choice of control methods is helpful—especially for disabled students.

Another turn-off is inappropriate composition. I found several programs that require advanced reading abilities but are geared for preschoolers in terms of content and packaging. Conversely, some programs tagged for grades six and higher combine appropriate academic exercises with immature composition. Look for programs that strike a balance in content and design.

SIGHT AND SOUND

One of the Amiga's strongest suits is its graphics capability. Programs that take advantage of this by adding color, pictures, and animation have a better chance of capturing and keeping a child's attention—especially with the younger child. More advanced

Beginning Reading presents sentence construction.



students quickly tire of visuals that are childish, though, and in the upper grades, graphics are best incorporated into the program rather than serving only as peripherals.

Speech, music, and sound effects are highly effective in providing rewards for correct answers and reinforcement for incorrect answers. The Amiga is capable of producing quality sound, and most Amiga education programs have an option for vocalizing on-screen directions. Several companies (most notably AlohaFonts and Learners Image) have gone the extra step to fine-tune their programs' phonetic speech routines. Other companies (Hilton Android, for example) employ sometimes-incomprehensible monotonic speech—and their programs suffer. This robotic speech is especially problematic in early childhood and second-language programs. Still, even this is better than no sound at all. I am surprised to see companies such as Queue completely ignoring sound and graphics—two features that can add so much to a program.

SPECIAL ORDER

Some programs benefit from a modification option. Spellbound by Learners Image, for instance, lets par-

ents add words to the program and adjust the Amiga's pronunciation of all words. This is noteworthy because it not only lets you expand the program but also accommodates accents and dialects.

Programs that involve decision making in any form can be very valuable. Many programs require students to make simple decisions, such as choosing a level for the problems they will work with. In other programs, children can see the effects of their decisions carried out; role-playing programs in particular allow children to make choices that affect the flow of the story.

Creative involvement—whether through poetry or music composition, scene construction, or something else—gets high grades in my book. Creativity packages encourage students to think, experiment, and enjoy. When selecting such a program, look for save and print features so you can share your child's (or your own) creations with others.

Finally, in situations that require students to perform tasks and answer questions, participants usually like to know how they are doing. Programs that take this kind of approach should offer some kind of score-keeping capability.

THE HONOR ROLL

With these criteria in mind and the help of two children (aged 10 and 6), I set out to find "a few good educational programs." I reviewed, tested, and analyzed 65 packages aimed at students of all levels—preschool through adult. The following—listed alphabetically according to the ages they serve—are my top picks.



Learning the Alphabet

MicroEd Inc.

\$29.95

Preschool/Ages 3-4

Alphabet skills—from recognition of letters (both uppercase and lowercase), to their correct sequencing in the alphabet—are the subject of this package. Two activities require the child to unscramble four letters and place them into a given sequence. Computerized speech is an integral part of this mouse-driven program.



Match-it

The Other Guys

\$39.99

Preschool/Ages 3-4

Young children can learn shapes and colors in this mouse-driven program. Match-It employs multiple approaches: two tutorials, matching activities, and a ▶

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

- **#23 Monopoly** - Excellent color and graphics in this adaption of the famous board game. Play against computer opponents. This program is definitely of commercial quality - a must! Requires 512K.
- **#27 Amoeba Invaders** - This fantastic game plays just like the original arcade classic, Space Invaders, but with enhanced color and digitized sound. You'll find more great games on this disk.
- **#128 Space Games** - Cosmoids (like asteroids) and Gravity Wars highlight this disk just full of games.
- **#131 PacMan '87** - Better than the original. Great graphics, sound, and options. Keeps a top-10 list. May be our most popular disk.
- **#139 Bull Run** - Great Civil War strategy game. Disk also includes a small Data Base, Reminder, Grocery Construction Set, Will Kit, Label Maker programs.
- **#142 Q-Bert** - Fashioned from the popular Q-Bert game. Good graphics. Other Programs include MakeLabel, Nutty 9 game, Softball Status program, Hustle!
- **#77 Instruments** - Turn your keyboard into 25 different musical instruments.
- **#37 Business Programs 1** - The programs include an address book, an amortization program, talking mail manager, label printer, and much more.
- **#140 Virus Killer** - End the worry of having the virus on your disks. Excellent utility program.
- **#146 Calendar** - A very good personal calendar! For special events, bill-tracking, etc.

THE BEST OF THE REST

BUSINESS/HOME

- **#116 Business II** - VC-Spreadsheet, HP-10c calculator, and more
- **#117 Business III** - DataBase, a bunch of great new fonts, RSLClock-great clock utility, AmigaSpell.
- **#152 Mail Manager** - Store names and addresses of friends, clients, members, etc. Has sorting and printing functions.

LANGUAGES/COMMUNICATIONS

- **#9 FORTH** - Two versions of the FORTH programming language.
- **#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

- **#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.
- **#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** - Designed to help you with the AmigaDOS commands. Supports multitasking.

APPLICATIONS

- **#135 Applications II** - Long Movie-plays several lff pictures, creating animation. QuickBase-a mail manager DBase. Persmail-a DataBase for keeping records.

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.

SLIDE SHOWS

- **#1 Norman Rockwell** - 17 beautiful digitized Rockwell paintings in this self-running slideshow presentation.
- **#108B Juggler** - Famous demo that shows the beautiful graphics of the Amiga
- **#120 Pictures6** - Great lff and Ham pictures that can be displayed from Workbench with their own icons.

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 GrabBag** - 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!!! (By Terry Fike)
- **#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, 3-D Triclops, Cosmo-asteroids clone, BrakeOut, Yatzee, Hack and more.
- **#121 Backgammon** - A great game from David Addison.
- **#122 Solitaire** - Two versions by David Addison.
- **#123 Cribbage** - Take on the computer.
- **#124 Milestone** - A great computer version of Miles Bourne by the author of Monopoly for the Amiga, David Addison.
- **#125 Othello** - A great 3-D version of this popular game.
- **#127 Wheel of Fortune** - Everythingbut Vanna! Great graphics and sound (even speech).
- **#137 Blackjack** - A full-featured game which allows pair-splitting, double-down, etc.
- **#148 Boulder Dash** - Very popular game with excellent graphics and has several challenging levels.
- **#153 Tunnel Vision** - A fantastic 3-D game with excellent sound, speech, and graphics.
- **#154 MAXIT** - A fun strategy game that you can play against a human or computer opponent.
- **#155 Battleship** - Play against the computer. Has great sounds like missiles and explosions.

GRAPHICS

- **#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.

ANIMATIONS

- **#144 Christmas Animations** - 10 beautiful scenes and graphics with Fantastic sound.
- **#145 Animations 3** - More Great Animations. 3 very good demos plus 3 workbench pictures and Blobs.

**For SUPPORT
or INFORMATION
call (503) 826-7679**

NEW ADDITIONS

- **#158 Sinking Island II (TWO Disk Set!) By Terry Fike** - Great text graphic adventure. 4 map scenes, underground chambers and much more.
- **#160 Pilot** - Learn all you need to know about Alaska with this pilot demo.
- **#161 Sorry** - Like the board game. Also includes bully and amazing.
- **#162 Video Poker** - All the fun of Vegas without the risk!
- **#163 Money & Trix** - Grab the money, avoid the tax collector. Also Trix, an arcade like game.
- **#164 Bank'in** - By Hal Carter, Keep your account in perfect balance.
- **#165 Wheel with Vanna** - Play against two computer opponents. The game with everything, including Vanna.
- **#166 HEdit** - A text editor. Try this one, you'll never use Ed again.
- **#167 Public Domain Catalog** - By Hal Carter, Keep track of all your disks.
- **#168 Grocery List** - Complete itemized printout of all your grocery items.
- **#169 Ledger** - Track income and expenditures. Great for small businesses and clubs.
- **#171 Escape from Jovi** - Escape from underground cave system of Jupiter.
- **#173 Mastermind** - Break the hidden code. A game for people who like a challenge.
- **#174 1 or 5 Stay Alive** - A dice game for the daring. Don't get too greedy or you'll lose it all.
- **#175 ART** - Another great graphic disk. Volcano with burning lava. Ocean scene (sunrise to sunset)
- **#176 Galactic Worm** - Great arcade maze like game. Also super Brickout.
- **#177 Kamikazi Chess** - Lose all your pieces to win!

**Software
Excitement!**

P.O. Box 5069 • Central Point, OR 97502

VISA ORDER TODAY MasterCard
1-800-444-5457

Name _____	Disks Ordered _____ x _____ \$ _____
Address _____	□ SHIPPING Free U.S. \$ _____
City _____ State _____ Zip _____	Canada - 25¢ per disk Foreign - 50¢ per disk
Phone (_____) _____	□ COD (U.S. ONLY) \$ _____
Visa/MC _____	(add \$4 if you require COD)
Sig. _____	□ U.P.S. 2nd Day Air (Add \$3) \$ _____
Exp. Date _____	TOTAL \$ _____
□ Send Catalog	□ Check/MO □ Visa/MC □ COD

concentration game. Reading ability is not required, as the program "speaks" clearly to the child in easy-to-understand language.



The Talking Coloring Book

JMH Software

\$29.95

Preschool-K

The Talking Coloring Book uses multiple approaches to teach colors, as well as recognition and reading of color names. This program is fun to use, incorporates good graphics and speech, and gives your child a nice tool with which to draw, color, and print pictures. It requires little reading ability.



Kinderama

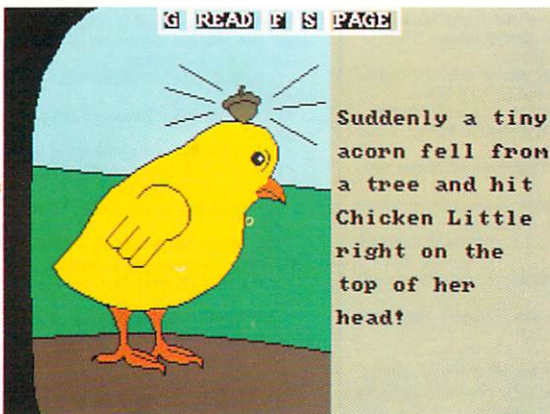
Unicorn Software

\$49.95

Preschool-K/Ages 5-6

Using speech, graphics, and animation, Kinderama instructs young children in basic math, keyboarding, and some reading. Single-digit counting, addition, subtraction, letter location, and reading are incorporated into five different activities all based on the robot theme. Unfortunately, because this is the only Unicorn product that appropriately matches its content and design with the cognitive level of the child, it is the only one I can recommend.

Robot Readers: Chicken Little teaches reading basics.



Robot Readers Series

Hilton Android Corp.

\$29.95 per package

K-Grade 2

The Robot Readers series is noteworthy in its traditional approach to reading instruction, but it suffers from poor-quality speech. Each program presents story classics complemented by fine graphics. The story text is displayed on screen, and as the computer "reads" to the child, the individual words are highlighted. The programs are easy to use, and more importantly, they offer several effective learning ac-

tivities. For example, the child can click on any object in the picture to find out what it is, or on any word to hear its pronunciation.



Beginning Reading series

MicroEd Inc.

\$89.95

K-Grade 2

The four-disk Beginning Reading series tutors children in word skills. The mouse-driven program incorporates quality speech. The computer reads a sentence aloud, then asks the child to order the component words, which are scattered on a grid, into the correct sequence. As children progress, they are presented with longer and more difficult sentences. Over 1000 words are included.



Designasaurus

Britannica Software

\$49.95

K-Grade 8

Britannica Software makes science a participative sport by teaching about dinosaurs through creative discovery. In its animated simulation mode, students take the role of one of three dinosaurs to learn about survival in five different ecosystems. In another mode, children can build replicas of six dinosaurs (while learning the animals' biological classifications) or design their own. Finally, kids can print their masterpieces to conventional paper or to transfer paper (included in the package) that you can use to iron the design onto a T-shirt. Graphics and sound contribute to this quality program.



Discovery series

MicroIllusions

\$39.95 per subject

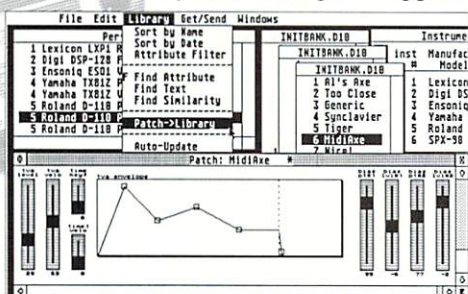
K-12

This is the best educational game I've seen so far. Excellent graphics, animation, music, sound effects, and speech are used throughout and are tied directly to the programs' content. Each disk in the series uses the same storyline and format: You (the student) are aboard a spaceship, and are lost somewhere in the universe. Earning your way back home involves overcoming various obstacles (by answering questions) to find energy crystals hidden on the ship. The student sets the difficulty of the questions at the beginning of the game. Discovery topics include: spelling ►

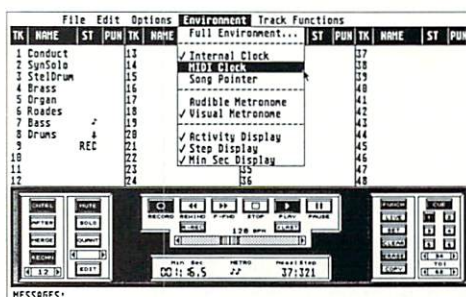
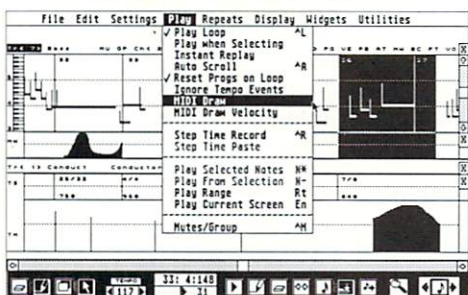
Time

"What's it worth?"

"Time is money" is the old saying. But musicians know that time is often more valuable than money. Wasted time can mean lost inspiration! You bought a computer to save you time, but now you're feeling all bogged



down. With today's modern computers it's not your hardware that's slowing you down, it's your software! All that loading and unloading programs, installing alternative operating systems, or just the time it takes the software to re-draw the screen. Those lost minutes can easily cost you lost hours!



We currently have over 20 programs that integrate together in our Multi Program Environment for the Atari ST, or fully Multitask on the Commodore Amiga. Powerful, fast, easy-to-use programs that do exactly what you expect and more.



So if you consider your time to be a valuable commodity, give us a call. It won't take much of your time and it might save you a whole lot more. And by the way, none of our products will set you back a thousand bucks.



Dr. T's
MUSIC SOFTWARE

Music Software of the Year
1988
Commodore Magazine

Nominated for 1989
Mix Tech Award
in Music Software

"The most powerful and dependable of MIDI sequencers for the Amiga is KCS. . ."
Amiga World

"While the KCS was powerful before, its newest additions, the PVG and Master Editor, are something to shout about. Prepare yourself for a new dimension in editing power."
Mark Vail, Keyboard Magazine

"(Copyist is) A composer's delight that provides score editing, file conversion capability, and custom printing all in one package."
Amiga World

PRODUCTS: SEQUENCERS

LEVEL II
KCS V1.7
MRS V1.1

EDITOR/LIBRARIANS

CASIO VZ-1 VZ-RIDER
CZ RIDER
DX HEAVEN
EMU Proteus
ESQ'apade ESQ-1 SQ-80
4-OP DELUXE (Yamaha)
KAWAI K-1
KAWAI K-5
KORG M-1
LEXICON PCM-70
OBERHEIM MATRIX 6 1000
ROLAND D-110
ROLAND D-50
ROLAND MT-32
X-OR (UNIVERSAL EDITOR)

COMPOSITION/SCORING TOOLS

COPYIST PROFESSIONAL
TIGER (GRAPHIC EDITOR)

MISCELLANEOUS

MODEL-A MIDI INTERFACE

Dr. T's
MUSIC SOFTWARE
220 Boylston Street
Suite 206
Chestnut Hill, MA 02167
U.S.A.

(617) 244-6954
FAX (617) 244-5243
Circle 35 on Reader Service card

(grades 1-10), math (grades 1-7), math concepts (grades 9-12), geography (grades 9-12), and science (grades 9-12). The Discovery series is challenging and fun and keeps children coming back for more.

Uncle D's
Con-
SOUNDtra-
tion builds
memory
skills.



The Talking Animator
JMH Software
\$49.95
Grades K-Adult

While The Talking Animator can be fun for all age groups, it is most appropriate for K-8 pupils. With it, students can create narrated animations. You begin by drawing a scene, then copy it to other screens where you can modify it. To add sound, the student simply types in words. Page flipping is accomplished by repeatedly pressing a key to advance, and while the speech is robotic, it is acceptable. Adults can use the program for presentations and video projects. The Talking Animator is easy enough for a kindergartener to use, and offers a save feature.



Uncle D's ConSOUNDtration
AlohaFonts
\$39.95
K-Adult

Even though ConSOUNDtration is recommended for children over the age of five, everyone from preschoolers to adults can sharpen his or her memory while learning and having fun with this concentration game. Superb speech and sound effects complement the program. The base package challenges students to identify letters of the alphabet, numbers, common objects, and more on four learning levels. An expansion disk (\$24.95) for upper-level students teaches geography, states and capitals, and so on.



Math-A-Magician
The Other Guys
\$39.99
Grades 1-8

A drill-and-practice program with four levels of difficulty, Math-A-Magician allows students to select

the types of math questions they will answer: addition, subtraction, multiplication, or division of fractions or whole numbers. Math tables are provided for quick reference. After the student has answered a group of questions, the program introduces a magician who rattles off comical expressions after your answers. Math-A-Magician is fun.



Spellbound
Learners Image
\$39.95
Grades 1-8

This educational game, built around a circus setting, uses a drill-and-practice approach and employs excellent speech. Three activities help the child to learn words: unscrambling, matching, and typing words that the computer speaks. The package provides a number of word lists, but also lets parents add words and modify the computer's pronunciation.



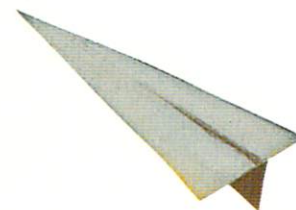
Image Spinning
MicroEd Inc.
\$59.95
Grades 4-8

Image Spinning provides structure and suggestions to help students get started writing and illustrating their own poems. Students can begin by enhancing and modifying starter sentences. Once a poem is complete, students can choose a background from among eight digitized pictures, and select a font, too. Unfortunately, this valuable program has no save or print options. Other MicroEd programs noteworthy for making effective use of digitized photos are Across the Plains, a study of westward migration, and Introducing Maps; both cater to the same age group.



Adventure series
Queue
\$39.93-59.95
Grade 2-Adult

Although Queue is prolific in Amiga educational software, many of its offerings are substandard. Its Adventure titles are good, however, in supplementing formal schooling. The Reading (I, II, and III address different age groups), World History, Amer- ▶



Tandberg



TWO THUMBS UP!



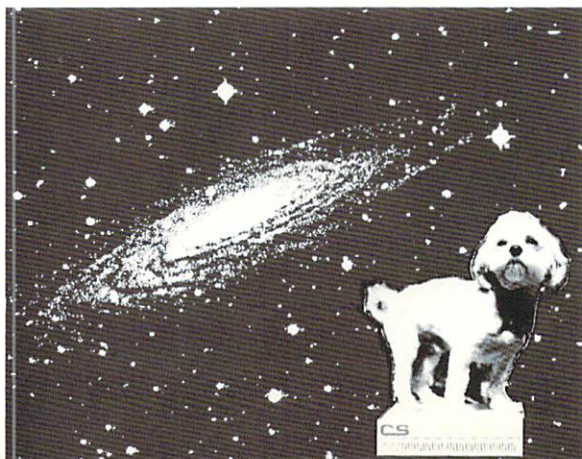
Tandberg Data, a subsidiary of Siemens Corporation, has maintained its technological leadership since introducing the first $\frac{1}{4}$ " cartridge tape in 1973. Now Caché Systems brings that technology to your Amiga Computer. Our tape subsystems include the following features:

- Fast 5.4MB per minute back-up
- Embedded SCSI controller
- Ability to read lower capacity tapes
- Mirror image or file by file back-up and restore
- Extensive internal diagnostics
- Full one year warranty
- Optional extended warranty

Of course, Caché Systems also carries a complete line of Hard Disc Subsystems with capacities from 20MB to 660MB. It's no wonder we've left the competition behind.



For more information, contact your local dealer or give us a call for a dealer in your area.



CACHÉ SYSTEMS LTD. L.P.

Your Storage Solution

917-A Disc Drive

Scotts Valley, California 95066

(800) 525-6465 (408) 438-7595

Circle 71 on Reader Service card.

Amiga is a registered trademark of Commodore Computer Corporation.

ican History, Vocabulary (I, II, and III address different age groups), and World Geography (I-IV cover distinct areas) Adventure series are all text adventures based on real events and locations. To move through a story, students must answer multiple-choice questions relating to subjects they have studied in school. None of these programs are enhanced by graphics or sound.

The Discovery series encourages decision making.



Galileo
Infinity Software
\$69.95
Grade 9-Adult

Galileo provides thorough instruction in astronomy via an on-screen planetarium. The student can define a geographical location, direction, and time of year from which to view the sky, and the program provides the appropriate display. A telescope feature lets you zoom in to any object or area and move through space to get different angles. To get information on a star or planet, simply click on it. Galileo is very thorough and requires concentration.

SUBJECT TO TESTING

Providing your child with various types of educational software helps ward off the boredom that is sure to encroach when only one learning method is employed. Some programs work best in certain situations. For instance, the MicroEd and Queue offerings provide a palatable means for reviewing classroom instruction and preparing for standardized tests. Creativity packages and educational games, on the other hand, encourage productive breaks from academics. ►



THE STUDENT BODY

SEVERAL TYPES OF programs answer to roll call in the Amiga educational market. I have identified six categories. Regardless of the subject matter, all learning programs belong to at least one group, and many combine characteristics of two or more.

Drill and Practice: Despite its objectionable name, the drill-and-practice (i.e., repetitive demonstration and rehearsal) method can be effective. Many educational programs—especially elementary-level programs—rely on practice to make perfect. The best of this bunch are enhanced by creative graphics, animation, speech, and sound.

Games: Probably the best programs for motivating students, educational games downplay traditional study, yet place great value on the child's ability to answer questions correctly. Games make a child *want* to learn in order to win or get better scores. Many educational games have a drill-and-practice format, while others require decision making, problem solving, and reading comprehension.

Tutorials: Tutorials teach concepts and skills in various ways. Some present material and then quiz students on the facts; not surprisingly, these types of programs are often boring. Another type of tutorial is the discovery method, whereby students learn as they advance through a sequence of steps.

Simulations: Role-playing software provides a setting and circumstances, often enhanced by graphics and sound, with which the student must interact. Simulations can be tutorial in nature, introducing new concepts and honing skills as the student makes decisions and tries to solve problems in the new environment. Role playing emphasizes learning by doing, an excellent method of teaching.

Interactive Adventures: Similar to simulations, interactive adventures are text based rather than graphics oriented. Such software requires that the pupil study a particular subject (in a classroom or from a book) before entering the program. After such preparation, the student can answer questions successfully to progress through the adventure.

Tools: Programs you would not normally think of as part of the educational category—word processors, database managers, spreadsheets, and graphics and music programs—can serve as educators by easing the hardship of getting involved in new activities. This type of program is becoming popular as a means of learning to compose music, for instance, without having to play an instrument. □

—MM

Order Toll Free 800-558-0003 *Since 1982* ComputAbility Consumer Electronics Order Toll Free 800-558-0003

AMW 8-89

IVS Trumpcard and Seagate Hard Drive Packages for A2000 Series

S	ST-138N 30 MEG	479 DEL
E	ST-157N 49 MEG	529 DEL
A	ST-177N 60 MEG	759 DEL
G	ST-225N 20 MEG	469 DEL
T	ST-251N 40 MEG	539 DEL
I	ST-277N 60 MEG	619 DEL
E	ST-296N 80 MEG	709 DEL

These kits include IVS Trumpcard SCSI hard drive ctrl. cable, software and delivery in the contiguous USA. This is not an assembly kit! It is a package.

Hard Drive Cards (A-2000)

ST-138N 30 MEG	499 DEL
ST-157N 49 MEG	549 DEL
ST-177N 60 MEG	759 DEL

These cards include IVS Trumpcard ctrl., mounting brkt, cbl, software, and delivery in the contiguous USA.

Hard Drive Cards

For A-2000 equipped with Bridgecard

ST-138N 30 MEG	349 DEL
ST-157N 50 MEG	419 DEL

These hard cards are for an Amiga-2000 with a bridgecard. These drives will take up 1.5 IBM slots on the Amiga 2000 motherboard.

Free delivery in the Contiguous States

Modems

Amiga 1680 Modem	99
Avatec 1200E	69
Avatec 2400	139

Trumpcard 500 and Seagate Hard Drive Packages for Amiga 500

ST-138N-30 Meg	549 Delivered
ST-157N-49 Meg	579 Delivered
ST-177N-60 Meg	799 Delivered

These Packages include Trumpcard 500 enclosure, IVS Trumpcard SCSI hard drive Ctrl., Software & free delivery in the contiguous USA

Seagate SUPER SALE

ST-125N 20 Meg - SCSI	329
ST-138N 30 Meg - SCSI	315
ST-157N 49 Meg - SCSI	349
ST-177N 60 Meg - SCSI	569
ST-225N 20 Meg - SCSI	279
ST-251N 40 Meg - SCSI	375
ST-277N 60 Meg - SCSI	429
ST-296N 80 Meg - SCSI	539

Supra 2400 Baud Modem & Cable

• SPECIAL \$139 •

Free Delivery to the 48 Contiguous States

XETEC Fast Card System w/ Seagate

Hard Drive Packages for Amiga 2000

ST-138N-30 Meg	469 Del
ST-157N-49 Meg	509 Del
ST-177N-60 Meg	729 Del

Card features Xetec's DMAx hard, autoboot ROM, auto-config circuitry, 25 pin SCSI conn., disk, utilities manual.

XETEC Fast Card System w/ Seagate

Hard Drive Packages for Amiga 500

ST-138N-30 Meg	659 Del
ST-157N-49 Meg	699 Del
ST-177N-60 Meg	919 Del

System includes Adaptor with autoboot ROM, enclosure, manual, Fast Track disk with utilities & shielded SCSI cable.

MASTER 3A Disk Drive

1010 Compatible \$139
Free Delivery to the Contiguous States

Special VIDEO PACKAGE PANASONIC 1410 CAMERA 16MM LENS WITH VARIABLE IRIS COPYSTAND WITH LIGHTS DIGVIEW GOLD \$419 DELIVERED!

Authorized Amiga Dealer

CALL US!
For All Your

AMIGA

Needs!

MISC. HARDWARE

Ami GEN	135
Super GEN	669
Magni 4004 Genlock	1399
Flicker Fixer	455
Perfect Sound	89
Chiron FB 354 Internal Drive	99
Perfect Vision	175
Color Splitter	89
ASDG Dual Serial Port	199

PANASONIC Printers

1180 NEW NEW NEW	189
1191 NEW NEW NEW	229
1124 NEW 24 Pin	329

STAR Printers

NX-1000	165
NX-1000 Rainbow (color)	229
NX-2400	299

AMIGA SOFTWARE

1943	25.95	Colony	31.95	Fast Break	28.95	Kristal	31.95	Pageflippor Plus/FX	87.95	Rocket Ranger	31.95	Text Ed Plus	48.95
3D Demos	69.95	Comic Setter	59.95	Federation	31.95	Lancelot	26.95	Pen Pal	94.95	Roger Rabbit	28.95	Test Drive 2 - The Duel	28.95
3D Options	31.95	Comic Art Dks (eo)	20.95	Ferrari Formula 1	31.95	Last Inca	24.95	Phaser	57.95	Romantic Ectodome	25.95	California Chall.	14.95
A-Talk 3	64.95	Contra	25.95	Flend Freddy/Big Top	31.95	Leaderd duo pack	22.95	Photon Paint 2.0	94.95	Rubicon Alliance	20.95	Supercars	14.95
A/C Basic	124.95	Curse Buster	19.95	Fine Print	31.95	Leathemack	24.95	Photon Paint Surface	19.95	Savage	24.95	Thunder	24.95
Advantage, The	46.95	Cyber Complex	21.95	Flare Zone	22.95	Lecture Sult Larry	25.95	Photon Vid-Cell An.	87.95	Scavenger	CALL	Thinker	38.95
After Burner	31.95	Dark Side	24.95	Flight Simulator II	31.95	Lecture Sult Larry II	31.95	Photon Video Trans.	180.95	Scrabble	26.95	Thunder Blade	31.95
Alien Syndrome	24.95	Data Storm	24.95	European Scen Dsk	19.95	Life and Death	31.95	Pinball Wizard	22.95	Scribble	46.95	Time and Magik	26.95
AmigaDOS ToolBox	38.95	Deathbringer	24.95	Form in Flight	69.95	Lights Camera Act	48.95	Pioneer Plague	25.95	Scribble Platinum	87.95	Times of Lore	24.95
AniMag	64.95	Defender/Crown	31.95	Formation	44.95	Logiworks	184.95	Planet of Lust	24.95	Secutiles Analyst	49.95	Titan	28.95
AniM 4D Jr.	87.95	Deja Vu: 1 or 2	31.95	Front Page	74.95	Lords / Rising Sun	31.95	Platoon	28.95	Sex Vrens-Outlet Sp	25.95	Tower Toppler	31.95
Animator Apprentice	174.95	Deluxe Music Cnst 2.0	61.95	Future Design Disk	22.95	Magellan	114.95	Pocket Rockets	25.95	Shadowgate	31.95	Transcripts	41.95
Annals of Rome	23.95	Deluxe Paint III	97.95	Galleo II	42.95	Magie Johnson 512	24.95	Police Quest 1 02 2	31.95	Shakespeare	74.95	Trials of Honor	32.95
Arcax	29.95	Deluxe PhotoLab	97.95	Gauntlet I or II	31.95	Magie Johnson I Mg	31.95	Populus	32.95	Shinobi	31.95	Turbo Star 3.0 I Mg	114.95
Arkanois	18.95	Deluxe Print II	51.95	Gehtsburg	38.95	Manhunter - N.Y.	31.95	Ports of Call	28.95	Shogun	31.95	TV Show	64.95
Aunt Arlie Advan.	25.95	Deluxe Productions	128.95	GFA Basic 3.0	87.95	Marble Madness	13.95	Power Windows 2.5	54.95	Slide Arms	25.95	TV Text	64.95
Artura	25.95	Deluxe Video V1.2	84.95	GO	24.95	Maxi Beacon Typing	31.95	Powerword	26.95	Silent Service	24.95	Twilight Zone	24.95
Attack on London	22.95	Demon's Winter	26.95	Gold of the Realm	24.95	Maxi-Plan 500	92.95	Precisely	48.95	Slm City	28.95	Ultima 4	38.95
Audio Master 2	58.95	Design 3D	59.95	Gold Rush	24.95	Maxi-Plan Plus	123.95	Print Master Plus	28.95	Skate Wars	31.95	Ultima III	24.95
Award Maker	32.95	Designasaurus	30.95	Gomf Button	46.95	MediaLine Clip Art	21.95	Pro Script	28.95	Sky Blaster	18.95	Undersea Comanda	31.95
Awesome Arcade Fk	32.95	Devon Ale Dia Capet	1.95	Grabbl	18.95	Menace	19.95	Pro Sound Design	99.95	Sky Chase	24.95	Universal Military Sim	31.95
Axe of Rage	31.95	Digidroid	59.95	Grand Prix Circuit	31.95	Michton Hl Dsk #1	32.95	Pro Video Gold	177.95	Sky Fox II	13.95	Vampire's Empire	28.95
B.A.D.	29.95	Digipoint	38.95	Gunship	35.95	Micro Fiche Filer Plus	114.95	Pro Write 2.0	69.95	Sky Shark	22.95	Vide Effects 3-D	113.95
Boal	19.95	Digipoint 3.0	64.95	Harley Davidson	31.95	Micro Lawyer	34.95	Pro-Draw	112.95	Slipped Stream	17.95	Video Fonts	28.95
Boi of Power 1990	31.95	DigMew Gold	124.95	Hash Enterprises	CALL	Microbot Design Dsk	22.95	Professional Page	128.95	Softwood File II	62.95	Video Tiler	84.95
Bard's Tale	31.95	DigWork 3D	82.95	Harpoon	25.95	Midl Magic	CALL	Structured Clip Art	36.95	Sorcerer Lord	23.95	VideScope 3D 2.0	115.95
Bard's Tale II	36.95	Disk Master	28.95	HEAVY METAL	28.95	Midl Rec Studio V1.1	39.95	Templates	36.95	Space Harrier	31.95	Interior Design	22.95
Batman	28.95	Disk Mechanic	54.95	Heroes of the Lance	26.95	Midl View	23.95	Practons 1 & 2	21.95	Space Quest 1 or 2	31.95	Vindicators	CALL
Battle Chess	31.95	Dos 2 Dos	31.95	Hole In One	21.95	Mighty Nerds	31.95	Project D+ Backup	30.95	Space Quest 3	CALL	VIP Professional	59.95
Battle Hawks 1942	31.95	DOUBLE DRAGON	25.95	Hole In One-Cse Dsk	13.95	Mindroll	19.95	Project Master	129.95	Space Racer	19.95	Virus Infection Protec	28.95
BattleTech:Cr Hk Inc.	31.95	Doug's Math Aquar	46.95	Hollywood Poker	22.95	Mislan Con Bat	32.95	Prospect Mazes/ Xor	25.95	Speedball	24.95	Vista 3-D	87.95
Berzerk 3	22.95	Dragon Force	32.95	Hostage	29.95	Mixed Up Mother Gse	19.95	Pub Games	25.95	Spinworld	18.95	W Shell	29.95
Blasterskies	CALL	Dragon's Lair	33.95	Hunt For Red October	31.95	Modeler 3D	56.95	Publisher's Choice	114.95	Star Gilder II	28.95	War In Middle Earth	31.95
Blood Money	25.95	Draw A-2000	159.95	Hybris	24.95	Moebius	38.95	Publisher Plus	64.95	Star Ray	29.95	W. Gretzky Hockey	31.95
Boomerang	25.95	Dungeon Master	24.95	Hyper Dome	22.95	Movie Setter	59.95	Puzzle Storybook	25.95	Star Trek: Final Front	36.95	Who, What, When	64.95
Bride of the Robot	24.95	Dungeon Quest	31.95	Indiana Jones/TpIDm	24.95	Murder on the Alkan	39.95	Quick Silver	41.95	Star Wars	24.95	Willow	25.95
Broadcast Tiler	184.95	Dynamic Drums	46.95	Indoor Sports	30.95	Musik Studio 2.0	49.95	Qix	22.95	Street Fighter	25.95	Wind Walker	25.95
Bubble Bobble	25.95	Earl Weaver Baseball	31.95	Innovatob 2	48.95	Musik X	184.95	Quarter Back	42.95	Strip Poker II	25.95	Wings Of Fury	25.95
Bubble Ghost	22.95	Commissioners Disk	14.95	Instant Music	13.95	Netherworld	39.95	Questron II	32.95	Studio Magic	59.95	WordPerfect	134.95
Calamus	274.95	MLBPA Stats	14.95	Inter Font	69.95	Night Force	28.95	Rambo III	22.95	Sub Battle Sim	14.95	Works Platinum, The	CALL
California Gamet	31.95	Elan Performer	35.95	IntroCad	46.95	Novelty Fonts	48.95	Rampage	24.95	Super Back	48.95	Wld Class Leader Bd	28.95
Calligrapher	74.95	Eliminator	24.95	Investors Advantage	59.95	ObliTator	25.95	Rastan	25.95	Superbase Personal	46.95	World Tour Golf	13.95
Captain Jack	31.95	Ellie	28.95	Jack Nicklaus Golf	31.95	Off Shore Warrior	24.95	Raw Copy	36.95	Superbase Personal 2	87.95	X-Spacs	84.95
Captain Fliz	19.95	Empire	31.95	JN Courses of 1989	14.95	On Line Platinum	58.95	Realm of the Warlock	21.95	SuperBase Pro 3.0	189.95	Zak McKracken	29.95
Carn. San Diego/Wld	28.95	Excellence I Meg	158.95	Joi	31.95	Operation Wolf	25.95	Reel Fish'n	87.95	Superlan	87.95	Zany Golf	26.95
Carler Command	28.95	Exolon	31.95	Journey	31.95	Optics	114.95	Renegade	25.95	Superior Ice Hockey	31.95	Zoetrope	87.95
Centerfold Squares	18.95	F-40 Pursuit Sim	28.95	Jug	24.95	Oswald	23.95	Return To Atlantis	13.95	Sword of Sodan	31.95	Zork Zero	38.95
Chessmaster 2000	28.95	FA/18 Interceptor	31.95	Karafants	49.95	Outrun	31.95	Rhyrning Notebook	26.95	T.V. Sports Football	31.95	Zynaps	22.95
Chessmaster 2100	31.95	Facc II	20.95	Kind Words V2.0	64.95	Page Penderer 3-D	94.95	Ring Slide	24.95	Tanglewood	24.95		
Chromapoint	48.95	Foery Tale Advan	30.95	King's Quest IV	31.95	Page Setter	59.95	Road Polder	24.95	Technocap	31.95		
City Desk 2.0	114.95	Falcon	31.95	Kingdoms of England	31.95	Page Stream	127.95	Roadwar 2000	26.95	Temple of Doom	31.95		
Clue Master Defect	25.95	Fantavision	38.95	Knights of Legend	31.95	Page Thinker	59.95	Robocop	28.95	Tetraquest	24.95		
								Rock Challenge	25.95	Totls	20.95		

IF YOU DON'T
SEE IT . . . CALL!

MasterCard

VISA

Since 1982 ComputAbility Consumer Electronics NO CREDIT CARD SURCHARGE

Order Toll Free
800-558-0003

WI ORDERS AND INFORMATION
414-357-8181 FAX 414-357-7814
P.O. BOX 17882 Milwaukee, WI 53217

ORDERING INFORMATION: Specify system. For fast delivery send cashier's check or money order. Personal and company checks allow 14 business days to clear. School P.O.'s welcome. C.O.D. charges are \$4.00. In Continental U.S.A. include \$3.00 for software orders. 5% shipping for hardware, minimum \$6.00. MasterCard and Visa orders please include card #, expiration date and signature. WI residents please include 5% sales tax. HI, AK, FPO, APO Puerto Rico and Canadian orders, please add 6% shipping, minimum \$6.00. All other foreign orders add 15% shipping, minimum \$15.00. All orders shipped outside the Continental U.S.A. are shipped first class insured U.S. mail. If foreign shipping charges exceed the minimum amount, you will be charged the additional amount. All goods are new and include factory warranty. We do not guarantee compatibility & version #s. Due to our low prices all sales are final. All defective returns must have a return authorization number. Please call (414) 357-8181 to obtain an R.A. # or your return will not be accepted. Prices and availability subject to change without notice. Shipping and handling are non-refundable. We ship the latest versions available to us, updates must be handled by and used directly with the manufacturer.

Your child is ready to learn and your Amiga is an able instructor. Make the most of this potential with the right software. Keep the selection criteria in mind, do some comparison shopping, and have fun! ■

Margaret Morabito is president of the Computer-Assisted Learning Center (CALC) and founder and director of the

tutoring and continuing education centers on PC-Link, AppleLink, and Q-Link. A former college English instructor, she has used computers for teaching since 1981 and is the author of many articles on education via computers. You can reach her on line (PC-Link: PCLearning, AppleLink: LCenter, Q-Link: TCenter) or by mail at PO Box 734, E. Rochester, NY 14445.

MANUFACTURERS' ADDRESSES

AlohaFonts

PO Box 2661
Fair Oaks, CA 95628-2661

Britannica Software

345 Fourth St.
San Francisco, CA 94107
415/546-1866

Hilton Android Corp.

PO Box 7437
Huntington Beach, CA 92615
714/963-4584

Infinity Software

1144 65th St.
Suite C
Emeryville, CA 94608
415/420-1551

JMH Software

7200 Hemlock Lane
Maple Grove, MN 55369
612/424-5464

Learners Image

560 600 North
Logan, UT 84321
801/752-5608
800/255-8791

MicroEd

PO Box 24750
Edina, MN 55424
612/929-2242

MicroIllusions

17408 Chatsworth St.
Granada Hills, CA 91344
818/360-3715
800/522-2041

The Other Guys

PO Box 8
Logan, UT 84321
800/942-9402

Queue Software

562 Boston Ave.
Bridgeport, CT 06610
203/335-0908
800/232-2224

Unicorn Software

2950 E. Flamingo Rd.
Greenview Park, Suite B
Las Vegas, NV 89121
702/737-8862

St. Louis



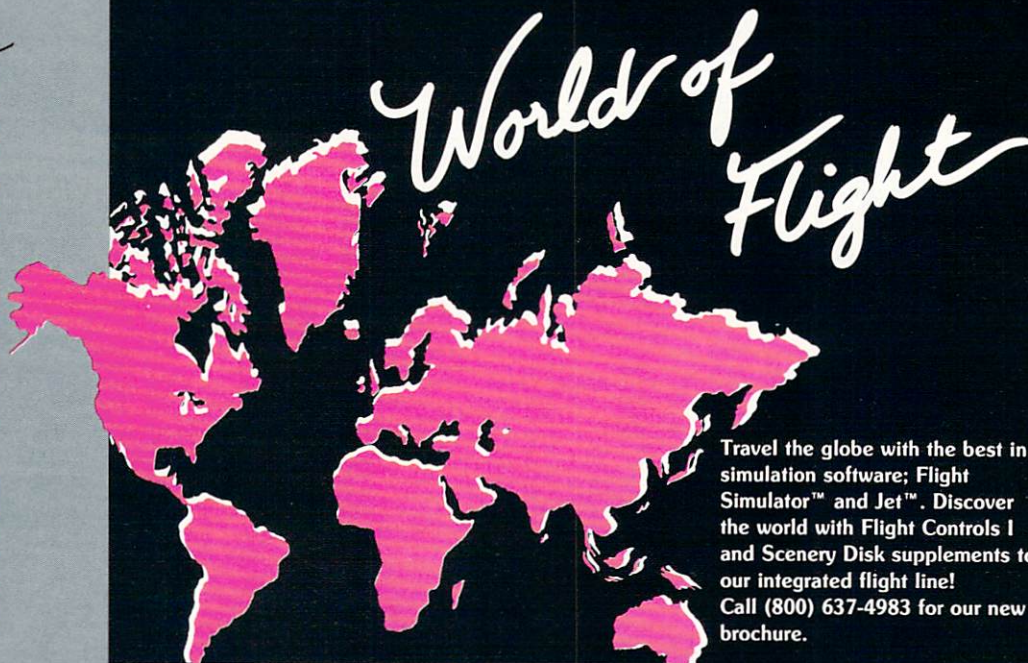
Hawaii



Paris



Tokyo



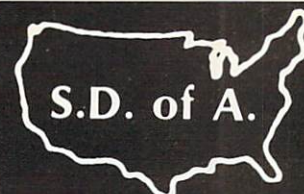
Travel the globe with the best in simulation software; Flight Simulator™ and Jet™. Discover the world with Flight Controls I and Scenery Disk supplements to our integrated flight line! Call (800) 637-4983 for our new brochure.



Flight Simulator, Jet, and Flight Controls I are trademarks of SubLOGIC Corp. IBM screens shown. Other computer versions may vary.

subLOGIC

SOFTWARE DISCOUNTERS OF AMERICA



USA/Canada Orders—1-800-225-7638

PA Orders—1-800-223-7784

Customer Service 412-361-5291

ORDER LINE HOURS: Mon.-Thurs. 9:00 AM-9:00 PM Fri. 9:00 AM-7:00 PM Sat. 10:00 AM-4:00 PM Eastern Time.

- Free shipping on orders over \$100 in continental USA
- No Surcharge for VISA/MasterCard
- Your Card is not charged until we ship

2 Dynamite INTRACORP Titles At New Low SDA Prices!



Business Card Maker

NOW
\$9.88
Each



Murder On The Atlantic

ABACUS	ANTIC
Assem Pro.....\$49	Bo Bo.....\$23
Becker Text.....\$89	Crash Garrett.....\$25
Professional Data Retrieve Call	GFA Basic 3.0.....\$95
Text Pro Word Processor \$49	ARCADIA
*Abacus Books in Stock! Call	Double Dragon.....\$26
ACCESS	ARTWORK
W.C. Leader Board.....\$29	Bridge 5.0.....\$23
ACCOLADE	Centerfold Squares.....\$19
Bubble Ghost.....\$23	Daily Double Horse Racing \$19
Fast Break.....\$29	Jigsaw Puzzlemania.....\$19
4th & Inches Football.....\$29	Linkword Languages.....Call
4th & In. Team Const. \$9.88	Strip Poker 2.....\$25
Grand Prix.....\$32	S.P. Data Disk 4 or 5 \$14 Ea.
Hardball.....\$25	Tank Attack.....\$19
Jack Nicklaus Golf.....\$32	World Snooker.....\$16
J.N. Golf Champ Course \$14	BAUDVILLE
Test Drive.....\$25	Video Vegas.....\$23
Test Drive 2: The Duel.....\$29	BETHESDA
T. Drive 2 Calif. Scenery \$14	Gretzky Hockey.....\$32
T. Drive 2 Super Cars.....\$14	Gridiron.....\$19
ACTION WARE	BRODERBUND
Capone.....\$25	Carmen San Diego
Phaser Gun.....\$39	World.....\$29
Prison.....\$25	Fantavision.....\$39
ACTIVISION	Operation: Clean Streets \$25
Arthur: The Quest.....\$32	Sim City.....\$29
Battle Chess.....\$32	Sky Chase.....\$25
Battlehawks 1942.....\$32	Space Racer.....\$19
Neuromancer.....\$29	Star Wars.....\$25
Rampage.....\$25	BYTE BY BYTE
Shanghai.....\$14	Animate 3-D.....\$99
Zak McKracken.....\$29	Sculpt 3-D.....\$65
AFGIS	CENTAUR
Animagic.....\$65	B.A.D. Disk Optimizer.....\$32
Audio Master 2.....\$59	Sculpt Animate 4D Jr.....\$95
Draw 2000.....\$169	CINEMAWARE
Lights, Camera, Action! \$49	Defender of the Crown.....\$32
Ports of Call.....\$32	King of Chicago.....\$16
Videoscape 3D.....\$129	Kristal.....\$32
Video Titrer.....\$89	Lords of Rising Sun.....\$32

Rocket Ranger.....\$32	GAMESTAR
S.D.I.....\$16	GFL Champ. Football.....\$14
Sinbad.....\$16	GOLD DISK
TV Sports Football.....\$32	Comic Setter.....\$59
DATA EAST	Desktop Budget.....\$44
Bad Dudes.....\$29	Movie Setter.....\$59
Batman.....\$29	Professional Draw.....\$129
Platoon.....\$29	Professional Page.....\$249
Super Hang-On.....Call	INFOCOM
DATASOFT	Battletech.....\$32
Android Decision.....Call	Beyond Zork.....\$14
Hunt for Red October.....\$32	Journey.....\$32
Rubicon Alliance.....Call	Shogun.....\$32
Sorcerer Lord.....\$23	Zork Trilogy.....\$32
Time & Magik.....\$26	Zork Zero.....\$39
DESIGNWARE	INKWELL
Designasaurus.....\$32	Amiga Light Pen 2.0.....\$89
DIGITEK	MANDARIN
Hole in One.....\$25	Lombard Rally.....\$25
Hole in One Course Disk	MASTERTRONIC
2 or 3.....\$14 Ea.	Scrabble.....\$26
Hollywood Poker	MEDALIST
(X-Rated, Digitized).....\$23	Master Ninja.....\$19
Joe Blade.....\$19	Twilight's Ransom.....\$19
DISCOVERY	MELBOURNE HOUSE
Arkanoid.....\$19	War in Middle Earth.....\$32
Better Dead Than Alien.....\$23	MICHRON
Marauder 2.....\$25	Airball.....\$25
Sword of Sodan.....\$32	Fright Night.....\$25
Zoom!.....\$19	Goldrunner 2.....\$25
ELECTRONIC ARTS	HiSoft Pro. Basic.....\$99
Artura.....\$26	Leatherneck.....\$25
Bard's Tale.....\$32	Major Motion.....\$25
Bard's Tale 2.....\$39	Tanglewood.....\$25
Chessmaster 2100.....\$32	

Ask your salesperson: "What's on Sale this Month?"

Deluxe Music Const.....\$65	Time Bandit.....\$25
Deluxe Paint 3.....\$99	MICROILLUSIONS
Deluxe Photo Lab.....\$99	Blackjack Academy.....\$25
Deluxe Productions.....\$129	Craps Academy.....\$25
Empire.....\$32	Faery Tale Adventure.....\$32
FA/18 Interceptor.....\$32	Fire Power.....\$16
Ferrari Formula One.....\$32	Music X.....Call
Firzone.....\$21	Photon Paint 2.0.....\$95
Instant Music.....\$14	Romantic Encounters.....\$25
Life & Death.....Call	MICROPROSE
Marble Madness.....\$14	Gunsip.....\$35
Populous.....\$32	Silent Service.....\$25
Skyfox 2.....\$14	MICROSYSTEMS
Star Fleet 1.....\$36	Excellence W.P.....\$159
Weaver Baseball.....\$32	The Works—Platinum.....\$179
Weaver B.B. 88 Stats.....\$14	MINDSCAPE
World Tour Golf.....\$14	Action Fighter.....\$25
Zany Golf.....\$26	Alien Syndrome.....\$25
EPYX	Balance of Power.....\$25
Axe of Rage.....\$32	Balance of Power 1990.....\$32
Battleship.....\$19	Blockbuster.....\$25
California Games.....\$32	Captain Blood.....\$32
Death Sword.....\$19	Combat Course.....\$25
Final Assault.....\$19	De Ja Vu 1 or 2.....\$32
4x4 Off Road Racing.....\$9.88	Gauntlet 2.....\$32
Impossible Mission 2.....\$19	Harrier Combat Sim.....\$32
Mind-Roll.....\$19	Hostage.....\$29
Space Station Oblivion.....\$19	Indiana Jones.....\$25
Street Sports Basketball.....\$14	Joker Poker.....\$9.88
Sub Battle Simulator.....\$9.88	Outrun.....\$33
Technocop.....\$32	Perfect Score SAT.....\$49
The Games: Winter Ed.....\$32	Road Raider.....\$25
Winter Games.....\$9.88	Shadowgate.....\$32
World Games.....\$9.88	Space Harrier.....\$32
FREE SPIRIT	Super Star Ice Hockey.....\$32
Amiga Alignment System \$32	Thunder Blade.....\$32
Sex Vixens From Space.....\$25	Uninvited.....\$32
FTL	NEWTEK
Dungeon Master.....\$25	Digi-Paint.....\$39

EPYX

As a hired thief, you'll search thru a maze-like mansion with many rooms, puzzles & passageways seeking precious hidden jewels.

Devon Aire
List \$49.95

SDA Discount Price \$32



Digi-View Gold.....\$139

ORIGIN

Times of Lore.....Call

Ultima 4.....\$39

PAR SOFTWARE

Express Paint 3.0.....\$84

PRECISION

Superbase Personal 2.....\$95

Superbase Profess. 3.....\$189

PSYGNOSIS

Baal.....\$19

Ballistix.....\$23

Blood Money.....\$25

RAINBIRD

Carrier Command.....\$29

Universal Military Simulator \$32

READYSOFT

A-Max (ROMS RQ).....Call

Dragon's Lair.....\$39

SEVERA HINT DISKS

Bard's Tale (H. Disk).....\$14

Dungeonmaster (H. Disk) \$14

Heroes of Lance (H. Disk) \$14

Shadowgate (H. Disk).....\$14

SIERRA

Black Cauldron.....\$25

Gold Rush.....\$25

King's Quest 1, 2, or 3 \$32 Ea.

Leisure Suit Larry.....\$25

Manhunter.....\$32

Mother Goose.....\$19

Police Quest.....\$32

Space Quest 1 or 2.....\$32

Thexder.....\$23

SOFTLOGIC

Pagestream.....\$129

SPECTRUM HOLOBYTE

Falcon.....\$32

Tetris.....\$23

SSI

Demon's Winter.....\$26

Heroes of the Lance.....\$26

SPOTLIGHT

Dark Side.....\$25

Deathbringer.....\$25

Federation.....\$32

Speedball.....\$25

Total Eclipse.....\$25

SUBLOGIC

Flight Simulator.....\$32

Jet.....\$32

Scenery Disks.....Call

TAITO

Bubble Bobble.....\$23

Operation Wolf.....\$23

Qix.....\$23

Rambo 3.....\$23

Renegade.....\$23

THREE-SIXTY

Dark Castle.....\$25

Warlock.....\$23

UNICORN

Aesop's Fables.....\$29

Math Wizard.....\$29

Read & Rhyme.....\$29

UNISON WORLD

Art Gallery 1 or 2.....\$19 Ea.

Art Gallery: Fantasy.....\$19

Fonts & Borders.....\$23

Print Master Plus.....\$25

WORD PERFECT

Word Perfect W.P.....Call

ACCESSORIES

Air Drive Internal.....\$119

Air Drive External.....\$149

Bonus 3 1/2" DSDD.....\$11.99

Disk Case (Holds 45).....\$6.88

Disk Drive Cleaner.....\$6.88

Mouse Pad 8 1/2 x 11.....\$6.88

Sony 3 1/2" DSDD.....\$16.90 Bx.

Supra Hard Drives.....Call

Wico Bat Handle.....\$17

Wico Ergostick.....\$19

SPOTLIGHT SOFTWARE

The new, critically acclaimed spotlight line of software brought to you by Cinemaware is taking the country by storm.

Death Bringer

List \$39.95

SDA Discount Price \$25



Journey into the world of invincible knights & incredible sieges, battles, combats & victories. For the stout of heart & strategic of mind.

Kingdoms of England
List \$49.95

SDA Discount Price \$32



P.O. BOX 111327—DEPT. AMW—BLAWNOX, PA 15238

Circle 128 on Reader Service card.

*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order: Orders with cashiers check or money order shipped immediately on in stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.'s! Shipping: Continental U.S.A.—Orders under \$100 add \$3; free shipping on orders over \$100. AK, HI, FPO, APO—add \$5 on all orders. Canada & Puerto Rico—add \$7.50 on all orders. Sorry, no other International orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from S.D. of A. is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on S.D. of A.'s 800# order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

MODEM OWNERS: You can order from our Amiga Shop via the CompuServe, GENie and Q-Link electronic malls.



#6

**An occasional series
of tips, techniques,
and tricks for
creating more
imaginative Amiga
graphics.**

By Joel Hagen

Tricks With Text



YOU MAY BE surprised to discover that your favorite paint program is a highly versatile tool with which you can create a wide range of display effects with text. Many of the features we have discussed in this series in relation to painting and drawing techniques can also be used with text in strikingly effective ways. Text manipulation capabilities are not limited to only one or two specialized paint packages, either. All the effects presented in this article have been done with DeluxePaint II (Electronic Arts/\$129.95), but most could also be produced with other programs, such as Photon Paint (Micro-Illusions/\$99.95), Deluxe PhotoLab (Electronic Arts/\$149.95), and The Director (Right Answers Group/\$69.95), or in conjunction with PIXmate (Progressive Peripherals/\$49.95).

If you are new to the Amiga, be aware that you can customize the font directory in your paint package with your own favorite fonts. Font sets are available both commercially and through public domain disks. You can also create your own using font editors, such as the one on your Extras disk.

First, make a subdirectory in your font directory and copy the different point sizes into that directory. Remember to also copy the .font file for that style into your main font directory. These new fonts will appear in the paint package when you load the font directory from the menu option. If you have several disks full of fonts you like to use, you can name each disk Fonts and load it in df1: when you run DPaint. DPaint's priority will look to that disk instead of the usual font directory. If you change to another Fonts disk, pull up the screen format requester and click OK. DPaint will reread the new Fonts disk. A large number of font styles in the directory,

however, will cause problems in DPaint II, although not in DPaint III.

"BRUSHING" UP YOUR TEXT

The two illustrations accompanying this article show several examples of text manipulation. I work on a spare screen for these operations, typing out the text, then treating it as a brush. The palette has been set up with four to six values of the background color ranging from dark to light, the background itself falling mid-range. Be sure the background is transparent when you cut out the text (or, if you are using DPaint III, make sure auto transparency is on). You may find it handy to go to the Brush menu and select Handle at corner rather than the default center position. This lets you cut a brush and have it remain in place rather than jump as you complete the cut. With the text as a brush, you are ready to try some effects. Clear your work screen to the background color, and choose a foreground color that contrasts with it, or is a lighter or darker value of the background color.

The first example in Figure 1 is Outline. Set Prefs to Fast FB (fast feedback) and use the circle tool. Draw a small circle a few pixels in diameter using the text as a brush. This makes a blob of foreground color on the screen that may not look legible at all. Select another color from the palette for visibility and hit F2 to make the text brush become that color. Position the text in the center of the "circle" you just made and click the left mouse button to lay it down in the new color. Clicking the right button stamps out the text in the background color, leaving a hollow outline. The first

Your paint program is full of features that can also be used to create a wide variety of unique, distinctive-looking display effects with text.

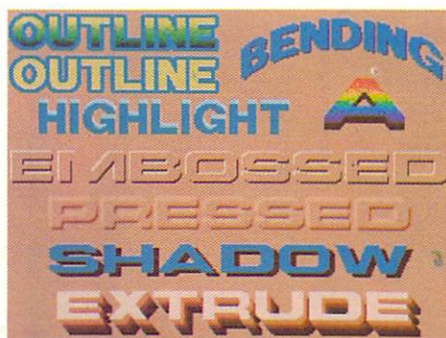


Figure 1. Examples of effects produced when different operations are performed on a text brush.

Outline example shows this simple stage, while the second shows the result of doing a vertical gradient fill in each letter. The right mouse button in the Fill tool brings up the Fill requester. You must establish a Range of colors in the palette that the gradient fill can use.

Below the Outline examples is Highlight. The text brush in F2 Mode, Color, is stamped down first in a bright highlight color, then shifted straight down a few pixels and stamped again in the desired text color.

Below that is a variation on this operation, the Embossed look. The text brush is stamped down in a bright value of the background color, then moved two pixels over and two pixels down and stamped down in a dark value. The brush is then centered and stamped in the background color. For the Pressed effect, cut out a rectangle big enough to completely cover the text. From the Mode menu, select Smooth and stamp

the rectangle over the text. This softens it as shown in the example.

ME AND MY SHADOWS

The next example in Figure 1 is an old standby, the Drop Shadow. Text is stamped down first as shadow color, then offset and stamped again as foreground color. Usually a shadow looks best offset to the lower right. Extrude is a variation on Drop Shadow. Select the straight-line tool and draw a short line at a 45-degree angle in a shadow color. Now stamp the text down in a highlight color. The actual example shown is a bit more complex. Set up a Range of colors from dark to light, and set Mode to F7, Cycle. The brush cycles through the range as it draws the line.

At the upper right of Figure 1, you will see a text brush that has been vertically bent using the Bend option in the Brush menu. Below that, there is a block letter created using gradient fill with a drop shadow to give it a look of dimension.

If you are using The Director, Highlight, Embossed, Outline, Extrude, and Drop Shadow effects can be done in any font directly from the script without using IFF screens full of prepared text. This is a great memory saver. Simply specify font, color, and location before giving the text command, and repeat those commands with the color changes and offsets suggested here. For animation, this is also a powerful way to put text directly into any Anim if you run it with The Director.

Figure 2 shows the word "shadow" in several variations, illustrating a favorite effect of mine. The technique relies on using the Smooth mode, which we discussed previously in relation to the

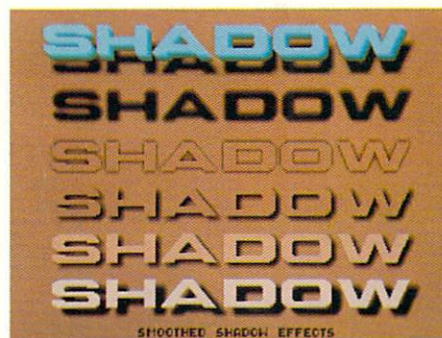


Figure 2. Using the Smooth mode you can produce a wide variety of text-shadowing effects.

Pressed effect. Smoothing is done to a dark value of the text to soften the shadow edges into the background, giving a more natural diffuse look. Repeating the operation softens it further. (You can achieve the same effect with PIX-mate using the Average operation in Image Process.) Compare these drop shadow variations with those in Figure 1. The hard, jagged edges of the shadowing in Figure 1 are gone, giving us quite a distinctive look, not often used in Amiga displays.

These are only a few of the many interesting ways you can manipulate text in your paint program. Explore *all* the paint tools yourself with a text brush to discover the countless possibilities available to you. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. He will be happy to answer questions concerning "Accent on Graphics" if you include a S.A.S.E. when writing to him at 10512 Sawyer, Oakdale, CA 95361.



**CREATIVE COMPUTERS IS THE
OFFICIAL
AmiExpo
RETAILER**
Come see us at Booth #37
The LARGEST BOOTH
At AmiExpo Chicago — July 28-30
CALL 800-32-AMIGA FOR INFORMATION

3-DEMON	71
4x4 OFF ROAD RACING	32
4TH & INCHES CONSTRUCTION	9
4TH AND INCHES	29
64 EMULATOR 2	49
A B ZOO	25
A-TALK III	64
AAARGH!	23
AC BASIC-COMPIER	134
AC FORTRAN	210
ACCOUNTANT	186



ACQUISITION 1.3	45
ACTION FIGHTER	25
ADRIUM	51
ADVENTURES OF SINBAD	42
AGE'S ANIMATOR	25
AGE'S DRAW	181
● AGE'S DRAW 2000	181
AESOP'S FABLES	19
AIRBALL	25
ALEXANDRIA	1
ALLEN SYNDROME	36
ALL ABOUT AMERICA	38
ALPHA FONTS 1, 2, or 3	12
ALTERNATE REALITY	27
ALPHABETICALLY HANDY	25
AMI KIT	25
● AMIGA 'C' LANGUAGE	31
AMIGA DOS EXPRESS	15
AMIGA DOS TOOLBOX	15
AMIGA FONTS (FFTS)	15
● AMIGA LISP LANGUAGE	31
ANALYTIC ART-GRAPHICS	36
ANGROMEDA MISSION	25
ANIMATED KINGDOM	25
ANIMATE 2D	30
ANIMATION	62
ANIMATION EDITOR	36
ANIMATION EFFECTS	32
ANIMATION FLIPPER	52
ANIMATION MULTIPLE	52
ANIMATION ROTOSCOPE	52
ANIMATION STAND	33
ANIMATOR'S APPRENTICE	18
ANNALS OF ROME	2
ANTI-VIRUS	2
ARAZO'S TOMB	3
ARCADE ACTION PACK	3
AREXX	3
ARITHMETIC	3
ARXKNOI	1
ART GALLERY 1 & 2	2
ART GALLERY FANTASY	2
ART OF CHESS	2
ASAH'S FONTS	2
ASSEMBLY	7
ATREDES (BBS)	9
AUDIOMASTER II	13
AUNT CAROL ADVENTURE	2
AUNT CAROL TRANSLATOR	13
AUTOPILOT	2

WITH B.A.D. ACCELERATOR SOFTWARE (up-to-500% SPEED INCREASE)

FEATURES: • CSI 3200 • Clickless • Small compact design • Metal case • Compatible with all Amiga computers • Low power consumption • Hinged dust cover • Drive disable switch • 1-year warranty.

ALSO AVAILABLE: CSI 2200 internal drive for Amiga 2000—100% compatible with same mechanism as Commodore 2010 \$149.00

AWARD MAKER PLUS	31
AWARD MAKER SPORTS	19
ATTEC 6814M-D	0
ATTEC C PROFESSIONAL	124
ATTEC C PROLOG SPIC	365
BAAL	1
BAD CAT	30
BALANCE OF POWER 2000	34
BALANCE OF POWER (BOOK)	2
BALLISTICS	29
BARBARIAN	1
BARDS TALE	35
BARDS TALE CLUE (BOOK)	10
BARDS TALE II	35
BARDS TALE II CLUE (BOOK)	10
BARDS TALE 4INT DSI	1
BASIC GRAMMER SERIES	19
BATTLE CHESS	32
BATTLE HAWKS 1942	31
BATTLE SHIP	32
BATTLETECH	31
BBS-PC	3
BECKER TEXT	95
BENCHMARK C LIBRARY	4
BENCHMARK IF LIBRARY	4
BENCHMARK MODULE C	18
BENCHMARK MODULE LIBRARY	6
BEST BUSINESS MGMT	35
BETTER DEAD THAN ALIVE	2
BEYOND ZORK	3
BIONIC COMMANDO	29
BLACK JACK ACADEMY	25
BLACK LAMB	2
BLACK SHADOW	29
BLITZRIEG (1 MEG VER.)	31
BLOOD BUSTER	32
BLOOD MONEY	32

1. Our new mini-computer assures you:
 - Immediate Customer Service and Order Status
 - Advanced inventory control and ordering thus minimizing back orders and delays.
2. Now with even larger facilities and twice the staff.
3. The best Amiga service center anywhere!
4. California and U.S. toll-free ordering.

BUTCHER 2.0	2
C-LIGHT	3
• C-ZAR	12
CAD PARTS FOR INTRO CAD	1
CALCULUS	3
CALIFORNIA CHALLENGE	3
CALIFORNIA RAMFS	3
• CALIBRI	149
CALLIGRAPHER	8
CAPE 68K ASSEMBLER 2.0	5
CAPITALIZATION SERIES	1
CAPONE	2
CAPTAIN BLOOD	3
CAPTAIN FIZZ	1
CARRIER COMMAND	3
CASINO FEVER	2

CB TRAP PLUS...	64
CELEBRITY COOKBOOK	22
CENTERFOLD SQUARES	19
CHARON 5	25
CHESSMASTER 2000...	32
CHROMA PAINT	51
CHRONO QUEST	33
CITY DESK 2.0	93
CLIP ART #1 THRU 8. EA.	12
COMBAT COURSE	25
COMIC SETTER	64
COMIC SETTER (FUNNY DATA)	22
COMIC SETTER (SF DATA)	22
COMIC SETTER (SUPERHEROS)	22
COSMIC BOUNCER	25
CRAPS Academy	25
CRASH GARRET	25
CRAZY CARS	25
CRITICS CHOICE	162
CROSSWORD CREATOR	34
CUSTOM SCREENS	31
CYGNUS ED PROFESSIONAL	64
DART CASTLE	25

DATASLOW	23
DEATH SWORD	25
DECIMAL DUNGEON	32
DEFCON 5	25
DEFENDER OF THE CROWN	34
DEJA VU	34
DELUXE HELP CALLIGRAPHER	22
DELUXE HELP FOR DXPAIN2	22
DELUXE HELP FOR DXPAIN2 II	22
DELUXE HELP FOR PHOTON	22
DELUXE HELP PAGE SETTER	22
DELUXE MAPS	16
DELUXE MUSIC 2.0	69
DELUXE PAINT II	73
DELUXE PAINT III	99
DELUXE PHOTO LAB	99
DELUXE PRODUCTIONS	139
DELUXE VIDEO 1.2	89
DEMONSTRATOR	21
DOS CARTE	22

OVER 1300 ITEMS
The best NEW products • The LOWEST PRICES
NEW PRODUCTS ARRIVE DAILY. CALL FOR UNLISTED ITEMS.

DESIGN DSK	CA
ARCH. VSCAPE OR SCULPT	22
FUTURE VSCAPE OR SCULPT	22
HUMAN VSCAPE OR SCULPT	22
INSTRUMENT VSCAPE OR SCULPT	22
MICRO VSCAPE OR SCULPT	22
★ DESIGNSAURUS	37
DESIGNER DATA BUSINESS 1	45
DESIGNER DATABASE HOME 1	25
DESKTOP BUDDY	26
DESTROYER	26
DEV DSK (ASSIGNED UTIL)	7
DEVAPC ANIMATE ASSEMBLER	129
DIG-VIEW UPGRADE	13
DIRECTOR'S TOOLKIT	24
DIRECTOR	45
DISCOVER CHAMELEON	14
DISCOVER CHIMER	14
DISCOVER MATH	14
DISCOVER NUM	14
DISCOVER US HIST / GEO	14
DISCOVER VISION	58
DISK TO DISK	34
DISKMASTER	37
DISTANT ARMIES	29
DOMINOS	26
DOS TO DOS	37
DOUBLE DRAGON	27
DOUG'S MATH AQU. LIBRARY	9
DOUG'S MATH AQUARIUM	51
DOUGS COLOR COMMANDER	19
DOUGS 4-4-4-4-4-4	19
DR TS BACH SONGBOOK	159
DR TS COPYIST PROF	159
DR TS C2 CARTRIDGE	51
DR TS C2 RIDER	92
DR TS C2-ED/LIB	92
DR TS DIGI100/ED/LIB	92
DR TS DR DRUMS	17
DR TS DR KEYS	17
DR TS DX HEAVEN ED/LIB	92
DR TS E501/SOHO ED/LIB	92
DR TS E501/ED/LIB	92
DR TS KAWAI K5 ED/LIB	109
DR TS KCS LEVEL 2	219
DR TS KCS VI 6	219

DR. T.S. EXICON ED/LIB	92
DR. T.S. MIDI RECORD STU.	43
DR. T.S. MT-32 ED/LIB	92
DR. T.S. PCMT0 ED/LIB	92
DR. T.S. MATRIX-6 ED/LIB	92
• DRAGON'S LAIR	38
DREAM ZONE	5
DUNGEON MASTER	32
DUNGEON MASTER HINT DSK	12
DUNGEON MASTER SECRETS	45
DYNAMIC DRUMS	45
DYNAMIC STUDIO	139
EARL WEAVER BASEBALL	17
EARL WEAVER STATS	31

BOON STAR	25.95
EMETIC SKIMMER	25.95
EMPIRE	34.33
ENCORE	45.95
ENIGMA DEVICE	25.95
ENLIGHTENMENT	15.95
EVIL GARDEN	25.95
EXCELLENCE	15.95
EXPRESS COPY	25.95
EXPRESS PAINT 3.0	80.95
EXTEND	25.95
FACC II	21.95
FAERY TALE ADVENTURE	31.95
FANTASY TALE BORDERS	31.95
FALCON	32.95
FAMILY TREE	32.95
FAMOUS COURSES #1	24.95
FANCY CARDS & SCULPT 3D	32.95
FANCY 3D FONTS TURBO SILV	32.95
FANTAVISION	42.95
FERRARI FORMULA ONE	32.95
FEUD	12.95
FINAL ASSAULT	32.95
FINAL MISSION	32.95
FINE PRINT	41.95
FIRE BLASTER	9.95
FIRE N FORGET	25.95
FIRE ZONE	32.95
FIRE-BRIGADE	32.95
FIREPOWER	16.95
FIRST LETTERS & WORDS	32.95
FIRST SHAPES	32.95
FISH	29.95
FLIGHT SIMULATOR II	37.95
FLOW	64.95
FOOT WORKS	25.95
FONTS AND BORDERS	25.95
FOOTMAN	25.95
FORMATION	45.95
FORMS IN FLIGHT	75.95
FOUNDATIONS WASTE	23.95
REACTION ACTION	25.95
FRIGHT NIGHT	25.95
GALACTIC CONQUERER	29.95
GALAXY THING	25.95

OVER 1300 ITEMS
The best NEW products • The LOWEST PRICES
NEW PRODUCTS ARRIVE DAILY. CALL FOR UNLISTED ITEMS.

GALLERY 3.0 (SCULPT)	51
GAMES, THE WINTER EDITION	32
GAUNTLET II	33
GEAR BEER RALLY	11
GEOMETRIC LIBRARY	13
GETTYSBURG	38
GETTYSBURG TURNING POINT	40
STRA BASIC 3.0	48
GIZMOZ 2.0	45
GLOBAL CONQUER	27
GO! DISK FLOT SET II	25
GOLD RUSH	25
GOLD SPELL II	29
GOLDDRUMMER II	29
GRAPH 3.0 (SOFTWARE ONLY)	27
GRAND SLAM	26
GRAND SLAM TENNIS	31
GRAPHICS STUDIO	29
GRAND STATES II	25
GRICKET HOCKEY	29
GRID IRON W/TEAM DISK	25
GUILD OF THIEVES	38
LEADSHIP	38
HACKER II	27
HAMMER SPREAD SHEET	25
HAMANDEL	28
HARBALB	28
HARRIER COMBAT SIMULATOR	32
HIDE COACH	32
HEROES OF LANCE HINT DISK	13
HEROES OF LANCE	13
HIGHWAY HAWKS	25
HISQST BASIC PROF	103
HIT DISK VOL 1	32
HOLE IN ONE	25
HOLLYWOOD BUILDERS	29
HOMEBUILDERS C&C	29
HOSTAGE	29
HOT & COOL JAZZ	21
HUNT FOR RED OCTOBER	34
HYBRIS	25
HYPER PALETTE	25
IMPACT-BUSINESS GRAPHICS	62
IMPOSSIBLE MISSION II	32
INDIANA JONES	25

INDOOR SPORTS	31
INNOVA TOOLS	52
INSTANT MUSIC 1.2	33
INTELLITYPE	35
INTERCEPT	37
INTERCHANGE	29
INTERCHANGE CONVERSION	14
INTERCHANGE OBJECTS #1	14
INTERCHANGE TSLV MODULE	14
INTERFONT	75
INTERNATIONAL SOCCER	25
INTROCAD	49
INVESTOR'S ADVANTAGE	64
INVISION	133

IT'S ONLY ROCK & ROLL	21.9
• FORTH PROFESSIONAL	17.9
JET	37.4
JET SET FONT SET	32.5
JINKTER	25.9
JOE BLADE	19.9
JOKER POKER	32.4
JOURNEY	32.4
JUG	25.9
KAMPFGRUPPE	41.9
KARA FONTS HEADLINES	51.9
KARA FONTS HEADLINES 2	47.9
KARA FONTS SUBLINES	47.9
KARATE KID II	17.9
KARTING GRAND PRIX	17.9
KENNEDY APPROACH	29.9
KEY TO "C"	22.9

- Order by 12 noon (P.S.T.) and receive in-stock items the following day.*
- Rates start at \$5.00.
- Please call for exact rates and details.

YIDTALK	27.9
KIKUGI	18.9
KINDERFARM	34.8
KNOWLEDGE	34.8
KING OF CHICAGO	36.4
KINGS QUEST I, II, OR III	36.4
KINGS QUEST I, II HINT DSK	32.9
KNIGHT CORN	30.9
LANCELOT	27.9
LASER UP FONTS VOL. 1	31.9
LASER UP PLOT 1-2	31.9
LASER UP PINT 1-2	31.9
LASER UP UTIL. VOL. 1	31.9
LAST INCA	25.9
LATTICE 'C' 5.0 COMPLETE!	186.9
LATTICE 'C' 5.0 COMPLETE!	186.9
LEASCRIPST	27.9
LEADER BOARD DUAL PACK	27.9
LEADER BOARD GOLF GAME	27.9
LEADER BOARD TORNA DSK	13.9
EARNING CURVE	13.9
LEARNING THE ALPHABET	13.9
LEATHERNEED	27.9
LEISURE S. LARRY HINT DSK	12.9
LEISURE SUT LARRY	26.9
LEVE CYCLES AMIGA	19.4
LIGHTS 'COMPARACT' ACTION	59.9
LIQUID LAGUNAS A-1	63.9
LINT (GIMPLE)	63.9
LION'S/CALLIGRA FONTS	58.9
LOGIG WORKS ADVANCED	1.9
LORDS OF THE BEIGE SUN	1.9
LOTTO PRODIGY	14.9
LOTTOPRODIGY	14.9
INTELLIGENT MUD	114.9
MABELLAIN	119.9
MAGICAL MYTHS	25.9
MAJOR MOTION	25.9
MANHUNTER	25.9
MANIA	25.9
MARABOU II DUPLICATION	27.9
MARBLE MADNESS	27.9

MASTER NINJA	30.95
MASTERING CLI	25.95
* MASTERPIECE FONT, 20-DSKS	167.95
MATCH IT	25.95
MATH MAGICIAN	27.45
MATH TALK	34.95
MATH TALK FRACTIONS	26.95
MATH WIZARD	32.46
MATH-AMATION	34.95
MAVIS BEACON TYPING	60.95
MEAN MAN SO	32.95
* MEAN PLANE	124.95
MEAN 18 COURSE DSK	14.95
MEAN 18 COURSE DSK II	14.95
MEAN 18 GOLF	28.95
MEDIALINE BACKGROUNDS 1	25.95
MEDIALINE CLIP ART	22.95

VIDEO & AUDIO:

- Sculpt Animate 4D Jr.
- Page Render 3D
- Broadcast Titler
- Design 3D
- Kara Fonts Headlines 1
- Pro Video Gold
- Photon Paint 2.0
- Music X
- Caligari
- Dr. T's KCS Level 2
- Animagic (Aegis)
- Quasar Sound

- Operation Wolf
- Lords of the Rising Sun

- Rastan
- Bubble Bobble
- Kingdoms of England
- Test Drive 2
- Downhill Challenge
- Rampage
- Oswald
- Blasteroids
- Vindicators
- Magic Johnson's Basketball
- Shogun
- Thunder Blade
- Action Fighter
- Tiger Road
- Scorpion
- Prospector
- Indiana Jones
- Battle Hawks 1942
- Prison
- Airball
- Gauntlet II
- Circuit Grand Prix

- Titan
- Gunship
- Blood Money
- BUSINESS**
- PRODUCTIVITY:**
- Page Stream
- The Works Platinum
- Pro-Net
- Pro-Board
- Transcript
- Project Master
- Pen Pal
- Professional Draw
- Formation
- EDUCATIONAL:**
- My Point
- Discover Numbers
- Discover Math
- Discover Chemistry
- Discover Alphabet
- Discover US History
- Discover Geography
- Designasaurus
- UTILITIES:**
- B.A.D. (hot floppy and hard disk accelerator)
- HARDWARE:**
- A-Max (Macintosh Emulator)
- Vicing I Hi-Res Monitor
- Gen Lock
- Vault Hard Drives
- Ameristar Ethernet
- Tool Box (A1000/A500)
- Microbatics 8-up DIPF (0/8MB)
- Megaboard 2000 (2MB)

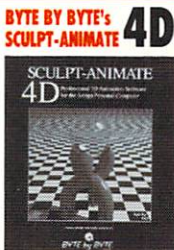
PLEASE CALL FOR PRICES AND AVAILABILITY

Circle 199 on Reader Service card

GVP GREAT VALLEY PRODUCTS

For Amiga 2000:	
Syquest removable 42 MB HD	995.00
IMPACT HC/45—48 MB 28ms Hard Card	799.00
IMPACT HC/400—42 MB 11ms Hard Card	799.00
IMPACT HC/800—84 MB 11ms Hard Card	1199.00
For Amiga 500: (NEW LOW PRICES!)	
IMPACT A500-SCSI/HD20—20 MB HD	599.00
IMPACT A500-SCSI/HD45—45 MB HD	899.00
IMPACT A500-SCSI/HD400—42 MB	
11ms High-Speed Hard Drive	949.00
IMPACT A500-SCSI/HD800—84 MB	
11ms High-Speed Hard Drive	1399.00
Quantum 805, 84 MB 11ms 3.5" HD	995.00
Shock mounted, 64KB cache (for 11ms speed), SCSI interface.	
Compatible with IMPACT or A2000 boards.	
Quantum 405—42 MB version of above drive	599.00

PLANET PROBE	19.95	SOFTWOOD FILE SG	22.71
PLATOON	29.21	SOLITAIRE ROYAL	22.71
POKER SOLITAIRE	22.95	• SORCER (AES)	49.95
POLICE QUEST	32.46	SORCER LORD	22.95
• PORTS OF CALL	29.95	SOUND OASIS	64.95
POWER WINDOWS 2.5	58.47	SOUNDLAB	209.95
POWERSTYX	22.95	• SOUNDQUEST, WHOLE LINE OF	
PRE CALCULUS	25.95	EDUC/LIBRARIES	CALL
PRIME IS MISSING	35.95	SOUNDSCAPE PATTERN SPAT	35.95
PRIME TIME	25.95	SOUNDSCAPE UTILITIES I	35.95
PRINT MASTER ART GALLERY 1	18.73	SOUNDSCAPE UTILITIES II	42.95
PRINT MASTER ART GALLERY 2	18.73	SOURCE LEVEL DEBUGGER	49.95
PRINTMASTER PLUS	31.23	SPACE CUTTER	19.95
PRISON	29.95	SPACE MATH	32.46
• PRO BOARD	389.95	SPACE QUEST	27.38
PRO FONTS 2	24.95	SPACE RACER	19.46
PRO FONTS 4	22.95	SPACE SCHOOL SIMULATOR	22.95
PRO MIDI STUDIO	130.95	SPACE STATION	9.95
• PRO NET	194.95	SPACE STATION OBLIVION	32.46
PROBABILITY THEORY	36.95	SPACEQUEST	33.00
PROF. PAGE TEMPLATE	38.95	SPELLBOOK	25.95
• PROFESSIONAL DRAW	129.95	SPELLER BEE	31.25
• PROFESSIONAL PACE	220.00	SPELLING IMPROVEMENT	25.95
PROJECT D	31.95	STAR WARS	25.95
PROJECT MASTER	CALL	STAR WARS EMPIRE STRIKES	30.25
PROMISE SPELLING CHECKER	34.95	STARFLEET I	29.95
PROSCRIPT	32.95	STARGLIDER II	29.95
PROSPERITY	32.46	STARWAY	19.95
PUBWITTE 2.0	78.10	STELLAR	28.95
PUBLISHER'S CHOICE	129.95	STELLARYX	25.95
PUNCTUATION SERIES	19.46	STOCK MARKET-THE GAME	16.95
QUADRILAIEN	19.95	STREET SPORTS BASKETBALL	13.95
QUARTERBACK	45.95	STRIP POKER DATA #4	12.95
QUESTION II	32.46	STRIP POKER DATA #5	12.95
QUICK MERGE	37.95	STRIP POKER II	25.95
QUINTETTES	29.95	STRUCTURED CLIP ART	38.95
QUIZAM	23.10	STUDIO FONTS 1 (COLOR)	29.95
RAMPAGE	25.95	STUDIO MAGIC	64.95
RAW COPY 1.3	38.95	SUB BATTLE	24.95
REACH FOR THE STARS	27.95	SUMMER CHALLENGE	49.95
REBEL & RHYME	31.95		
REAL-A-RAMA	32.46		
REALM OF THE WARLOCK	22.74		
REBEL CHARGE CHICKAMANGA	38.95		
REEL FISHIN—GONE FISHIN	30.88		
RENEGADE	22.95		
RETURN TO ATLANTIS	34.95		
RETURN TO GENESIS	22.95		
ROAD RAIDERS	25.95		
ROADWARR 2000	27.47		
ROADWAR EUROPA	29.95		
ROADWARRS	23.95		
ROBBERY	16.21		
ROBOT READ A500S FABLES	19.95		
ROBOT READ CHICKEN LITTLE	19.95		
ROBOT READ LITTLE RED HEN	19.95		
ROBOT READ UGLY DUCKLING	19.45		
ROCK CHALLENGE	25.95		
ROCKET RANGER	32.46		
ROCKFORD	23.95		
ROMANTIC ENCOUNTER	25.95		
SAMPLEWARE, EA	16.95		
SARGON III	35.95		
SCARY MUTANT SPACE ALIENS	25.95		
SCENERY DSK #1	19.95		
SCENERY DSK #11 EAST COAST	18.72		
SCENERY DSK #7 EAST COAST	18.71		
SCENERY DSK, EUROPEAN	17.95		
• SCHEMATIC CAPTURE	199.95		
SCORPION	25.95		
SCORABLE	27.46		
• SCULPT ANIMATE 4D	299.95		
SCULPT ANIMATE 4D JR.	99.95		
SDI CINAMAWARE SERIES	34.95		
SEASONS AND HOLIDAYS	21.95		
SECONDS OUT	19.46		
SECURITIES ANALYST	49.95		
SEX VIKENS	25.95		
SHADOW GATE	31.95		
SHAKESPEARE	148.95		
SHANGHAI STRATEGY GAME	27.46		
SHERLOCK	27.00		
SHOGUN	38.95		
SILENT SERVICE	25.95		
SINBAD & FALCON	34.95		
SKY BLASTER	19.95		
SKY CHASE	26.95		
SKYFOX II	27.45		
SLIP STREAM	16.95		
SMOOTH TALKER	33.95		
SNAKE PIT	24.95		
SOCIAL STUDIES	19.46		



The most sophisticated and powerful 3D animation & ray-tracing software available on ANY PERSONAL COMPUTER. AND IT'S ALSO THE EASIEST TO USE.

\$350

TV TEXT	54.95	MIDGET RACER	349.00
TWILIGHT ZONE	25.95	MIDI GOLD 2000 (INT.)	68.47
TWILIGHTS RANSOM	19.95	MINIMEGS, A500 512 KB	299.00
TXED FOLD	51.95	MINIMEGS, A500 1 MB	449.00
ULTIMA III	28.95	MINIMEGS, A500 2 MB	749.00
ULTIMA IV	42.95	MINIMEGS, A1000 512 KB	299.00
ULTRA DSK	37.95	MINIMEGS, A1000 1 MB	449.00
UMS CIVIL WAR DATA DSK	12.95	MINIMEGS, A1000 2 MB	749.00
UMS VIETNAM DATA DSK	12.95	• NERKIE BENLOCK	1975.00
UNIVERSITY SOUND TRATION	25.97	OKIMATE 20 W/PLUG N PRNT	249.00
UNIVERSITY	34.95	OKIMATE 20 W/PLUG N PRNT	249.00
UNIVERSITY MILITARY SIM	32.46	OMEGA STR. SAMPLER A1000	79.95
VAMPIRE'S EMPIRE	29.95	PANASONIC WV1410 CAMERA	225.00
• VIDEO EFFECTS 3D	129.95	• PANASONIC WV1500 CAMERA	320.00
VIDEO VEGAS	24.10	PEOPLE METER BIO FEEDBACK	39.95
• VIDEOQUEST 3D	124.95	PERFECT SOUND A500/2000	67.95
• VIDEOITRUS	99.95	PERFECT SOUND A500/2000	67.95
VIP VIRUS	32.46	PERFECT VISION A1000	169.95
VIRUS (GAME)	19.46	• PERFECT VISION A500/2000	169.95
VOCABULARY IMPROVEMENT	25.95	• PRO RAM A2000 2 MB	699.00
VYPER	25.95	• PRO RAM A2000 4 MB	1199.00
W. SHEL	31.95	PROCESSOR ACCELERATOR CMI	159.00
• WAR & MIDDLE EARTH	36.99	PROGEN	399.00
WAR ZONE	9.95		
WARLORDS	22.71		
WBEETRA	21.95		
WHO FRAMED ROGER RABBIT	29.95		
WHO WHAT WHERE WHEN	64.95		
WILLOW	25.95		
WINDOW PRINT II	22.95		
WINTER GAMES	27.46		
WORD MASTER	32.46		
• WORD PERFECT	179.00		
WORD PERFECT LIBRARY	84.95		
• WORKS, THE [PLATINUM]	191.95		
WORLD CLASS LEADER BOARD	25.97		
WORLD GAMES	27.46		
WORLD TOUR GOLF	27.46		
WRITE N' FILE	59.95		
WSHELL	32.46		
• X-CAB	299.95		
ZAK MCKRACKEN	29.95		
ZANY GOLF	27.95		
ZERO GRAVITY	19.46		
ZETROPE	89.95		
ZOOM	21.95		
ZORK ZERO	38.95		

HARDWARE

68020-12 CPU/PROCESSOR	170.00
68030-16/20 CPU/PROCESSOR	570.00
68881 CRYSTAL OSC. 16MHZ	5.00
68881-16 MATH COPROCESSOR	200.00
68881-20 MATH COPROCESSOR	300.00
68882-20 MATH COPROCESSOR	500.00
68882-25 MATH COPROCESSOR	620.00
A500 POWER SUPPLY MW-738	84.95
ALCOTIN SAMPLER 500/2000	69.95
AMAS MIDI SAMPLER	109.95
• AMERISTAR ETHERNET	799.00
• AMERISTAR BENLOCK	149.00
AMPLIFIED SPEAKERS 2x50	84.95
APRO DRAW 1212 10 CURSORS	464.95
APRO DRAW 1212X 2 CURSORS	499.95



• BOING OPTICAL MOUSE	99.95
CA-880 FLOPPY DRIVE	199.00
AMIGA MOUSE	65.00
DOS 1.3 ROM	39.95
CLTD TIMESEVER	57.95
CMI MIDI I (EXT.)	52.76
CPS 500-POWER SUPPLY A500	74.95
• CEA DRASSTER RAM ACCEL SET	599.00
• CEA FASTTRACK 8020 ACCEL.	750.00
CSI 2200 INT. EXT. FLOPPY	149.00
• CSI 3200 AMIGA EXT. FLOPPY	159.00
DELUXE MIDI INTERFACE	59.95
DESKJET 128K RAM CART	117.95
DESKJET PRINTER (300 DPI)	749.00
• DISI VIDEO GOLD A500/A2000	149.00
EASYL 500 TABLET	369.00
EASYL 1000 TABLET	369.00
EASYL 2000 TABLET	369.00
ECE MIDI 1000	48.95
ECE MIDI 500/2000	48.95
ESCORT 48 MB HRD DR A500	879.00
ESCORT 48 MB HRD DR A1000	859.00
FLASH CARD	199.95
• FLICKER FIXER (HARDWARE)	419.00
• FRAMERABBER	519.95
FUTURE SOUND A500	93.95
FUTURE SOUND-AUDIOSAMPLER	142.00
GEN ONE GENLOCK	739.00
GOMT 3.0 W/BUITON	48.95
GVP A2000 AUTOBOOT EPROM	29.95
GVP A500 RAM/ROM MODULE	69.95
• GVP STQUEST 42MB CRTG NO	1060.00
HURRICANE 68030 ADAP. BRD.	230.00
HURRICANE A1000 ACCEL. BRD.	350.00
HURRICANE A1000 MEM BRD.	470.00
HURRICANE A2000 ACCEL. BRD.	470.00
HURRICANE A2000 MEM BRD.	470.00
HURRICANE DRAM, 1 MEGabyte	340.00
TIME & MPRINT	399.00
• INTRUDER ALERT	124.92
LASERJET II RAM, 1MB	419.95
LENS, 16 MM. NO IRIS F1.6	21.85
LENS, 16 MM. W/IRIS F1.6	66.25
LIGHT PEN	97.95
LIVE! 500	289.00
LIVE! 1000	270.00
LIVE! 2000	349.00
MAGNI 400A GENLOCK	1595.00
• MANAGER MOUSE (SOFTWARE)	149.95
MICRO MEGS	169.95
MICROBT 4xOP-SIMM BRD.	74.50
MICROBT 8-UP DIP W/KB	145.00
MICROBT 8-UP DIP W/MB	649.00
MICROBT 8-UP RAM BRD OK	145.00
• MICROBT, HAND-FAIR SCSI	239.90

Boing! Mouse

Professional Optical 3-button mouse for your Amiga.

- Optical technology eliminates friction and momentary coefficients for super-precise handling.
- No moving parts for increased reliability.
- Middle button makes it the only mouse compatible with A2024 software and X Windows.
- Compatible with ALL Amiga computers.

SPECIAL PRICE!
LIMITED TIME ONLY: 199.95

QUANTUM 40 MB DRIVE, 11MS	599.00
QUANTUM 80 MB DRIVE, 11MS	995.00
• ROLLAND MT-32 TONE MODULE	549.00
SOUND SAMPLER	86.95
SPIRIT 1 MB FOR A1000	249.00
• SPIRIT DELUXE MUG	214.48
STAR N1000 PRINTER	199.00
STAR N1000 RAINBOW	279.95
STARBOARD 2 SCSI MODULE	100.00
STARBOARD 2 UPPER DECK	80.00
STARBOARD 2/500 OK	300.00
STARBOARD 2/1000 OK	250.00
STARBOARD S82000 ADAPTER	42.00
STEREO SOUND SAMPLER STRV	87.95
• SUPERER	699.00
• SUPRA DRIVE 20 MEG A500	699.00
• SUPRA DRIVE 20 MEG A500	699.00
• SUPRA DRIVE 30 MEG A1000	799.00
• SUPRA DRIVE 30 MEG A500	799.00
TRUMP CARD SCSI CONTR 2000	629.00
TINY TIGER 40MB A2000/500	799.00
TINY TIGER 80MB A2000/500	1129.00
TOOL BOX, ESCORT FOR 1000	230.00
TOOL BOX, ESCORT FOR A500	170.00
TRUMP CARD SCSI CONTR 2000	169.95
• TWIN-DRIVES EXT 3.5" FDD	219.00
• UNIDRIVE 3.5" EXT. DRIVE	169.00
• VAULT 30MB HARD DRIVE	699.00
VAULT 40MB HARD DRIVE	799.00
VAULT 65MB HARD DRIVE	939.00
VI 500 VIDEO INTERFACE	59.95
VI 500 VIDEO/RF MODULATOR	69.95
VI 2000 VIDEO INTERFACE	69.95
VI 2000 VIDEO/RF MODULAT.	79.95
X-SPICS 3D	99.95
XEROX 4020 DISK HOLDER	1149.00
XEROX 4020 STARTER KIT	156.00

ACCESSORIES

A500 & MONITOR CARRY BAGS	69.95
AMIGA BAG FOR A500	29.95
AMIGA BRASS KEY RING	3.95
AMIGA FASHION GOLF SHIRT	19.95
AMIGA FASHION JACKET	39.50
AMIGA MUG	6.95
AMIGA NOTE PAD	4.99
AMIGA PEN & PENCIL SET	19.95
AMIGA PLASTIC VISOR	1.95
AMIGA SLEEVE TSHIRT	7.95
AMIGA TERRY CLOTH VISOR	5.50
AMIGA TIE PINS	4.95
AMIGA TOWEL	19.95
AMIGA TWILL CAP W/ICORD	7.95
• CABLES, almost all available	CALL
CLEANING KIT LRG ALLSOP	14.95
CLEANING KIT SM ALLSOP	6.95

SPECIAL HOT PRODUCT—

Deluxe Paint III
\$99.95

The hottest selling point and animation software on the Amiga by ELECTRONIC ARTS!

CONTROL CENTRE FOR A500	71.95
COPI/CAMERA STAND LIGHTS	64.95
CURTIS 3.5" DISK FILE 30	7.95
CURTIS 3.5" DISK FILE 80	8.95
CURTIS 3.5" DISK FILE 160	9.95
DESKJET BLACK CARTRIDGE	15.95
• DESKJET FONTS, almost all available	CALL
• DESKJET STAND/ORGANIZER	84.95
DIGI-DROD	69.95
DUAL GUN ADAPTER	24.95
• DUST COVER, almost all available	CALL
DUST COVER FOR A500	8.95
DUST COVER, A1000 W/MON.	13.95
DUST COVER, AMIGA MONITOR	11.95
DUST COVER, SMALL PRINTER	11.05
EPYX 200X JOYSTICK	11.95
EPYX 500X JOYSTICK	14.95
ERGO STICK	17.95
FLICKER MASTER	21.95
FLOPPY WALLET	7.95
FOUR PLAYER ADAPTER	11.95
FUJI DISKETTES	19.95
G. E. SURGE PRO EPC-INS	34.95
GAME PLAY COMPACT DISK	12.95

MORE CREATIVE PROMOTIONS!

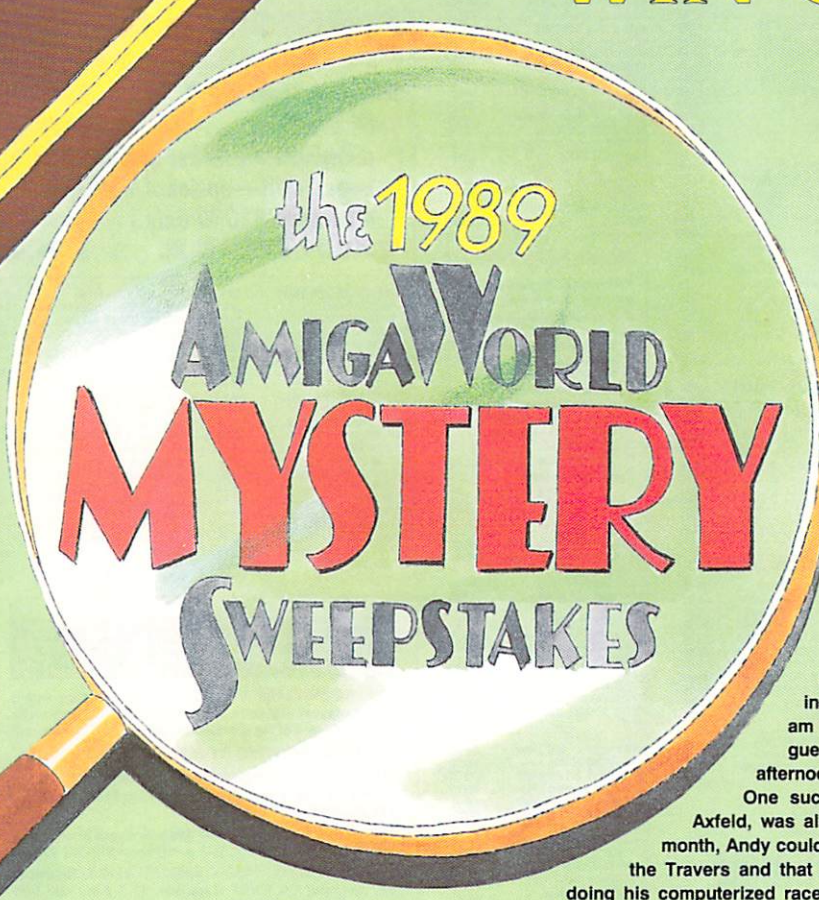
- 2 MB RAM CARD** **\$549.00**
(For A2000—Expandable to 8 MB.)
- Amiga Live! 2000** **\$349.00**
- Flicker Fixer** **\$479.00**
(Eliminate all flicker and scanline gaps 100%—optional multisync monitor—A2000 only.)
- SCULPT-ANIMATE JR.** **\$ 99.95**

GENDER BENDER (DIGI-VIEW)	20.95	• PAINTJET PRINTER STAND	66.95
INTERACTIVE CABLE	9.95	PAINTJET TRANSPARENCY FILM	54.05
KEYBOARD SKIN A500	19.95	PAINTJET 2-FOLD PAPER	59.95
KEYBOARD SKIN A2000	19.95	POWER-WEBS JOYSTICK	12.95
KEYBOARD SKIN A2000	19.95	PRINT & WEAR	12.95
KRAFT MAZEMASTER JOYSTICK	9.95	QUICKSHOT II JOYSTICK	14.95
LASERJET II TONER CRTG	104.00	RAM 256K1 - 12 CHIPS	10.95
LASERJET II S 514 TRAY	145.95	RAM 256K1 - 15 CHIPS	9.95
LASERJET II COURIER FONTS	144.50	RAM 256K1 - 16 CHIPS	9.95
• LASERJET II ENVELOPE TRAY	75.95	RAM 1MBX1 - 12 DIMMS	370.00
LASERJET II ENVELOPE TRAY	279.95	RAM 1MBX1 - 10	328.00
LIGHT	18.95	ROGUEWINTER RIBBONS (3)	4.95
HIGH-IMPACT PAPER	48.95	SUDY DISKETTES, COLORED	72.00
MICRO 50 3 1/2" DISK HOLDER	19.95	SONY DISKS 100 - 12 DIMMS	279.00
MOUSE COVER W/GLASSES	5.95	SOUNDCAPE MIDI PACKAGE	279.00
MOUSE MASTER	29.95	STAR NX-1000 RIBBON	10.95
MOUSE MAT	6.95	STAR RAINBOW COLOR RIBBON	10.95
MOUSE WASH	6.95	TAC-2 JOYSTICK	10.95
PAINTJET BLACK COAT	29.10	TAC-2 JOYSTICK DISKHOLDER	26.95
PAINTJET COLOR CART	29.10	TEAM TECH 60 DISKHOLDER	26.95
PAINTJET COT-SHEET PAPER	13.60	TRACKBALL 2 BUTTON MOUSE	39.95
PAINTJET DUST COVER	13.60	• WIC3 3-WAY JOYSTICK	25.95
• PAINTJET PAPER CATCHER	23.95	XEROX 4020 4-PACK INK	29.95

WIN OVER \$25,000

MURDER AT SARATOGA

Part II



the 1989 AMIGA WORLD MYSTERY SWEEPSTAKES

IF YOU DECIPHERED our little numbers games at the end of Part I last month, you now know who the murder victim is. And you have the answer to the first question of the Mystery Solution: WHAT HAPPENED? If you didn't get the answer, you may still be able to deduce it from this month's clues, which begin on page 56.

In any event, when working on this month's clues, remember to keep a copy of last month's story and list of characters at hand. You will need them for reference and to piece together all the elements of the entire Mystery Solution.

This month you will be getting some help from one of the characters. We pick up the story the morning after the Travers Stakes, the Silverspoon Ball, and, of course, the murder. About 6 am the Saratoga police discovered the victim, who was found with numerous stab wounds that reveal a recurring pattern of three curved incisions in each group, all approximately four inches apart. Around 7 am the police called all of last night's patrons at Madigan's and all the guests at the Silverspoons' party, summoning them to an inquest this afternoon at 2 pm in the Grand Ballroom of the Gideon Putnam Hotel.

One such person, newspaper columnist and computer handicapper Andy Axfeld, was already suspicious of yesterday's events. If you remember from last month, Andy couldn't believe that longshot Hope's Last Chance was capable of winning the Travers and that Rambling Boy would finish a dismal last. After all, Andy has been doing his computerized race form figures for over 10 years and results like yesterday's almost never happen.

Andy has been on the phone and out about town all morning talking to people concerning the murder. Now, at noon back in his room, he has put together all his information in the form of a chronology of yesterday's events. He knows that somewhere within it lies the key to solving the murder, and that he—and you—will find it in the two hours remaining before the inquest.

All of the facts Andy has gathered are true, but only some will be relevant, while others will prove to be red herrings. When you have sifted through all of them (along with the elements of the story presented last month), and deduced the connecting links between the relevant ones, you will know the Mystery Solution: WHAT? WHO? WHERE? WHEN? HOW? and WHY?

When you do, fill out the Mystery Coupon (or a facsimile) at the bottom of page 55. All entries must be received by Tuesday, August 15, 1989. In order to give everyone an equal chance of winning—and to discourage anyone from "stuffing the ballot box" with multiple submissions—you may enter only once. Also, only one entry per return address will be accepted. Please remember that prizes are not transferrable. Send your entry to AmigaWorld Mystery Sweepstakes, 80 Elm St., Peterborough, NH 03458.

The 12 Finalists will be selected from a random drawing of all correct entries held on Thursday, August 17, 1989. Listen for your telephone notification that day. Confirmation will follow by mail. Which of the 12 Finalists will win the Grand Prize is something we cannot reveal right now. (This is a mystery, after all, and you know there's always going to be a final twist or two.) All 12 Finalists, however, will be made aware of how the Grand Prize winner will be selected when they are notified on August 17.

A separate Consolation Drawing from the remaining correct entries will be held immediately after the Finalists have been drawn. Consolation Prize Winners will be notified by mail within two weeks.

The complete solution to the mystery, plus the names of the Grand Prize Winner, Runner-up Winners, and other Finalists, will appear in the October issue. A complete list of prizes will appear in November.

The odds of winning will depend on the number of correct entries received. If the prize is not claimed, a second drawing will be held to award it. Taxes and duties on all prizes are the sole responsibility of the winner. Prizes are not transferrable, nor are they redeemable for cash value.

No purchase necessary. All federal, state and local laws apply. Void wherever prohibited by law.

Anyone of any age may enter. Minors must be accompanied by parent or legal guardian to claim the prize. If the winner resides outside the US or Canada, the Amiga 2000HD prize will be shipped to the winner at our expense. There will be no Getaway Weekend in this case.

Employees of IDG Communications Inc., its affiliates, subsidiaries, advertising and promotion agencies, and their families are not eligible to enter.

Entry constitutes permission to use the winner's name, photograph, or other likenesses for promotional purposes without further compensation to the winner. Submissions become the property of AmigaWorld and cannot be returned. AmigaWorld is not responsible for lost, misdirected, or late mail. All entries received after August 15 are void and ineligible for the drawing.

The winner and his or her companion assume all risks and dangers incidental to traveling to and from the site of the Getaway Weekend, and agree that AmigaWorld, IDG Communications Inc. and its affiliates, and the organizers of AmiEXPO, are not liable for any injuries, loss, or other mishaps suffered during the period specified for the Getaway Weekend.

WORTH OF PRIZES

The Grand Prize

An Amiga 2000HD Plus

A Getaway Weekend For Two

Your Amiga 2000HD includes a 40-megabyte hard-disk drive, one megabyte of RAM, and a color monitor. And we'll fly you and one guest to collect your prize at AmiEXPO in Santa Clara, CA, at a special presentation ceremony to be held Saturday, October 21, 1989.

You'll be the personal guests of AmigaWorld at the No. 1 Amiga show in the country and receive V.I.P. treatment from AmiEXPO organizers. Our Getaway Weekend includes two round-trip airline tickets (depart 10/20/89, return 10/22/89) and hotel accommodations (compliments of AmiEXPO) for two nights.

The Amiga 2000HD with monitor has been generously donated by GO AMIGO! of Redwood City, CA.

Runner-Up Prizes

Second Prize

An Amiga 500

Your Amiga 500 includes 512K RAM, one disk drive, and a color monitor. This prize has been generously donated by LIGHTSPEED Distribution of Portland, OR.

Third Prize

A Xetec Hard Drive System

This 20-megabyte hard-drive system will be made available to you in whichever configuration is required by your system—Amiga 500, A1000, or A2000. This prize has been generously donated by The Software Shop of Worcester, MA.



Other Finalist Prizes

Fourth Prize
flickerFixer (MicroWay)

Fifth Prize
The Productivity Power Pack
Superbase Personal II (Precision)
Superplan (Precision)
A-Talk III (Oxxi)
SupraModem 2400 (Supra)

Sixth Prize
The Vital Video Pack
GEN/ONE Genlocking Encoder (Communications Specialties)
Desktop Video Graphics Tape Series (Cape Fear Teleproductions)

Seventh Prize
Dr. T's Starter Studio (Dr. T's Music Software)
Level II Sequencer
Copyist Professional
Editor/Librarian of your choice
Model-A MIDI Interface

Eighth Prize
The Gorgeous Graphics Pack
Easy! (Anakin)
36 35mm Color Slides of IFF or HAM images (Hammond Photographic Services)

Ninth Prize
The Helpful Home Management Pack
PHASAR (Antic)
Tax Break (Oxxi)
Microfiche Filer (Software Visions)

Tenth Prize
Super Seven Game Pack-I
Seven different Amiga game favorites

Eleventh Prize
Super Seven Game Pack-II
Seven more Amiga favorites

Twelfth Prize
Super Seven Game Pack-III
And still a third selection of seven!

MYSTERY SWEEPSTAKES CONTRIBUTORS*

Precision Inc.	\$3899
Sound Quest Inc.	\$3725
ReadySoft Inc.	\$1019
Communications Specialties Inc.	\$895
Dr. T's Music Software Inc.	\$848
Talto Software Inc.	\$700
MicroWay Inc.	\$595
Oxxi Inc.	\$573
Supra Corporation	\$540
Blue Ribbon Bakery	\$500
Anakin Research Inc.	\$499
Software Visions Inc.	\$495
Intelligent Music	\$398
Soft-Link Inc.	\$350
DigiTek Software	\$340
Pre'spect Technics Inc.	\$334
Xetec Inc.	\$300
Spectrum HoloByte	\$290
Antic Software	\$290
Strategic Simulations Inc.	\$260
Pacific Peripherals	\$250
Magnetic Images Co.	\$250
Abacus	\$242
The Computer Outlet	\$200
Visual Aural Animation	\$198
Moonlight Development	\$160
Poor Person Software	\$160
DMH Technologies	\$150
Hammond Photographic Services	\$144
Electronic Arts	\$110
Psygnosis Ltd.	\$105
Cape Fear Teleproductions Inc.	\$100
Public Domain Software Resource	\$72
Graphic Expressions	\$65

* This list does not include the sponsors—GO AMIGO!, LIGHTSPEED Distribution, and The Software Shop—of the three top Prizes outlined above, nor the dollar values of those prizes. Nor does it include the value of the Getaway Weekend, which cannot be determined until the winner's location is known. However, using the manufacturers' suggested retail prices for the Grand Prize and the Runner-up Prizes, and an estimated value of \$1500 for the Getaway Weekend, the total value of the Contest is \$25,951 when these are added to the total of the list above.

MYSTERY COUPON

AmigaWorld Mystery Sweepstakes
AmigaWorld
80 Elm St., Peterborough, NH 03458
Entries must be received by August 15, 1989.

WHAT? (victim) _____

WHERE? _____

HOW? (weapon) _____

Address: _____

Day Phone: _____

WHO? (murderer) _____

WHEN? (be specific) _____

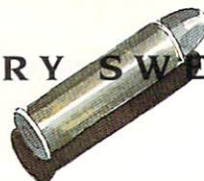
WHY? (be brief) _____

Evening Phone: _____

Name: _____

THE 1989 AMIGAWORLD MYSTERY SWEEPSTAKES

Chronology of Events—Saturday



6:30 am Preparatory to leaving for his stable and while his wife slept upstairs, Buford Langtry breakfasted alone in the dining room of the Gideon Putnam Hotel, 10 minutes' drive west of the racetrack. The Langtrys, residents of Louisville, KY, have taken a suite—two bedrooms, living room, and terrace—for the August season. Miranda Langtry is an accomplished actress in Louisville's famous regional repertory theater.

6:40 am Mindy Lee Silverspoon was up early and in the kitchen of the Canfield Casino, where she went over the party's food preparations with her young caterer, Preston Green. Green is the illegitimate son of Willy McDermott.

6:50 am A bright-colored sports car was seen pulling up in the Gideon Putnam parking lot outside the dining room window.

7:00 am Jeremiah Stone breakfasted on the verandah of his elegant residence across the road from the racetrack with Clara Gilsum. The two were discussing details of Clara's long-cherished Spa City Development scheme in which Stone is the major investor. Marjorie MacKenzie's Three Legs Farm is situated in the middle of the parcel of land earmarked for development.

8:00 am Everett Whitley, Jeremiah Stone, and Bill Walker were at Whitley's stable going over Rambling Boy's strategy for the race. Young Whitley, age 28, has worked for Stone since he was 15 and became head trainer at 21 upon the death of his father (Stone's trainer for 25 years). Jockey Walker, who weighs 112 lbs. and is left-handed, was about to take Rambling Boy out for his morning gallop when Harry Stone came to a screeching halt outside the stable in his red Maserati, nearly puncturing his front tire on a pitchfork on the ground nearby. His father was furious that Harry could have spooked Rambling Boy, but Harry laughed it off. Stone had spoken only yesterday about his son's carelessness and loose living, threatening once again to disinherit him.

At the stable of Syl Vestry, directly adjacent to Whitley's, the trainer was engaged in similar preparations with Marjorie MacKenzie and "Kid" Russell concerning Hope's Last Chance. Russell is right-handed and also weighs 112 lbs.

In the stable next to Vestry's, which belongs to Buford Langtry, jockey "Juice" Johnson waited for Langtry. The trainer had last night left him written instructions to meet him at 7:30 am. Langtry goes to his stable every night at 11 pm for a brief check on his horses. Whitley performs a similar check every night at 12 midnight, while Vestry does likewise at 1 am. Johnson got tired of waiting for Langtry, and left at 8:15 am. Johnson was once suspended by the Racing Commission for six months for consorting with known gamblers.

9:00 am At the opening of the Adirondack Trust Bank, which is five minutes' drive north of the racetrack, Jeremiah Stone, Buford Langtry, Harry Stone, Big Joey D., and D.B. Silverspoon were all in various lines at the tellers' windows. Jeremiah withdrew \$50,000, Buford: \$5000, D.B.: \$10,000, Harry: \$10,000 against his trust fund, and Joey D. cashed a \$50,000 bank check.

9:10 am Marjorie MacKenzie arrived at Madigan's and met Davis Longfellow for breakfast. The widow

confided that if Hope's Last Chance didn't win the race, she didn't think she could meet next month's mortgage payment on Three Legs Farm. Longfellow is a frequent dinner guest at Marjorie's—although he rarely stays past 8 pm.

Andy Axfeld himself was also at Madigan's talking with Jimmy "The Satchel" Mikaros. Jimmy has been denied entry to the racetrack's grounds because of his bookmaking activities.

9:20 am Big Joey D. and Cherry Flowers were seen driving by the Casino. Cherry got out of the car to take some pictures.

9:25 am Buford Langtry arrived at Madigan's and ordered a double bourbon, and engaged the proprietor in conversation. Jake Madigan was a bos'n's mate in the Navy during the Vietnam War.

9:35 am Cherry Flowers arrived at Madigan's to seek out Jimmy "The Satchel," and in a not-very-discreet voice placed a \$10,000 bet against Rambling Boy. Cherry was seen at Madigan's the previous night where she introduced herself to Everett Whitley and engaged him in quite intimate conversation for over an hour.

9:45 am Cherry Flowers left Madigan's just as Marjorie MacKenzie got up to leave. Langtry headed over in the direction of the bookmaker, but spotted his old friend Davis Longfellow. The two men quickly became locked in deep conversation. Longfellow worked on *The Louisville Courier-Journal* before moving to Saratoga.

10:30 am Harry Stone returned to the bank and withdrew another \$10,000 against his trust fund.

11:00 am Buford Langtry arrived at the Racing Secretary's office to withdraw his charge Dervish from the Travers Stakes. He explained that he had conferred with the horse's octogenarian owner, who is in Kentucky, and they both felt Rambling Boy was unbeatable. Seven years ago Langtry lost a \$25,000 bet to Jeremiah Stone in a match race between their best horses.

12:00 Noon Buford Langtry returned to his stable, walked next door to Syl Vestry's stable, where Davis Longfellow was talking with Syl, but then returned to his own stable.

1:00 pm Jeremiah Stone, carrying an attache case, was seen arriving at Clara Gilsum's real estate office. After Stone left, Davis Longfellow, who had just come from the Mayor's office, was seen driving up to the front entrance, picking up Clara, and driving off to the Gideon Putnam for lunch.

1:30 pm Big Joey D. and Cherry Flowers arrived at the Terrace Dining Room at the racetrack. Cherry was wearing "Trouble" perfume.

2:00 pm Buford and Miranda Langtry also arrived at the Terrace, brushing past Big Joey D. and Cherry on the way to their own table. Miranda was wearing "Obsession" perfume.

2:15 pm Cherry Flowers told Joey she was going to the "powder room," went downstairs to the public bar, and met Harry Stone. Harry gave her a hug while slipping a brown envelope into her open purse. Harry once had a one-night fling with Cherry a couple of years ago when she was "performing" in Albany. Meanwhile, Willy McDermott was seen stopping at Joey's table carrying an open briefcase.

2:30 pm Jeremiah Stone and Everett Whitley arrived at their table at the Terrace after a final check on Rambling Boy. Stone had two quick martinis and then began a somewhat sentimental monologue addressed at Whitley to the effect that "it was seven years ago today that Everett's daddy had died" in that terrible training accident when he [Stone] had demanded that Whitley's father reshoe the stable's Travers hopeful because he had been kicking up such a terrible storm in his stall.

3:00 pm Miranda Langtry excused herself from her table to walk back to the stables. While walking by Everett Whitley's barn, she met Harry Stone, who said he had just fed Rambling Boy a couple of his favorite treats—carrots. On their way back to the Terrace, they met Whitley who headed toward the stable to check on some last-minute preparations.

3:30 pm "Kid" Russell stopped by Syl Vestry's stable to pick up his tack for the big race. As he approached the tack room, however, he heard Syl talking out loud about something that sounded like "Hope's Last Chance, indeed!" But no one besides Vestry was present and the trainer was sipping steadily at his hip flask of scotch.

4:00 pm Jimmy "The Satchel" Mikaros picked up the phone at Madigan's and called in his action on the big race to the syndicate: "\$50,000 to win on Rambling Boy, \$10,000 the entire field against Rambling Boy, and \$5000 to win on Hope's Last Chance." Madigan, trying to listen at the end of the bar, scowled and walked out the back door.

4:30 pm Jockeys and trainers assembled at the paddock where the horses were being saddled for the big race. Bill Walker, with his perennial pocketful of carrots, offered Rambling Boy one but the horse turned his head away.

5:00 pm Marjorie MacKenzie, on her way to the paddock, met Davis Longfellow, who was seen putting his arm around her, leading her back to her box seat, and saying, "Don't worry, my dear, Syl's got him ready and it's all in God's hands now."

5:15 pm The gates opened, the horses were off, and in a swift two minutes Hope's Last Chance shocked the crowd with a 100-1 upset victory, while Rambling Boy trailed in last.

5:25 pm The ceremony in the Winner's Circle to present the Travers trophy to Marjorie MacKenzie was a totally chaotic affair because nearly everyone connected to both the winner and the losing favorite was in a state of shock. Davis Longfellow led Marjorie quickly away from the crowd after the presentation. Syl Vestry spirited Hope's Last Chance away from the photographers and back to his stable, meeting Buford Langtry who appeared to offer his congratulations.

From here on, the principals in our story retired to various pubs, hotel rooms, or wherever—reappearing at either Madigan's or the Silverspoon party later in the evening, as described in Part I. Andy Axfeld has no further information about their activities beyond what we already know, except for these two facts: Cherry Flowers was seen at the railroad station—alone—boarding the 1:30 am train out of town, and a red Maserati was seen speeding away from the Gideon Putnam Hotel parking lot at 2 am. ■

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

SOFTWARE SUPPORT INTERNATIONAL

CONVENIENCE—FAST SERVICE—RELIABILITY—SUPPORT

AMIGA AMIGA

Abacus Software

Amiga DOS Toolbox	39.00
AssessPro	63.00
BeckerText	96.00
DataRetrieve	51.00
TextPro	51.00

ABACUS BOOKS

Amiga Basic In & Out	19.00
AmigaDOS In & Out	16.00
Amiga For Beginners	14.00
Amiga Machine Language	16.00
Amiga Tricks & Tips	16.00
Amiga Programmers Guide	22.00
Amiga Drives In & Out	22.00
Comp Disks all books	ea. 13.00
Presenting The Amiga	14.00



F.C. for Leader #1	15.00
Leaderboard Dual Pak	24.00
W.C. Leaderboard	36.00

ACCOLADE

Bubble Ghost	24.00
California Challenge	15.00
Famous Courses vol2	15.00
Fourth & Inches	12.00
Fourth & Inches Team	12.00
Graphics Studio	39.00
Hardball	36.00
Mean 18	36.00
Super Cars Disk	15.00
Test Drive	36.00
Test Drive II	36.00

ACTIONWARE

Actionware Phasar Gun	43.00
Casino	27.00
P.O.W.	27.00
Prison	27.00



Animator	66.00
Arazok's Tomb	27.00
Audio Master 2	66.00
Images	27.00
Impact	51.00
Lights, Camera, Action	51.00
Modeler 3D	66.00
Ports of Call	33.00
Sonix	51.00
Video Titrer	96.00

ANTIC

Design Disks	24.00
GFA BASIC 3.0	90.00
Phasar	51.00
Pioneer Plague	27.00
Zootrope	90.00

Artworx

Bridge 5.0	24.00
Centerlines Squares	21.00
Linkword series	ea. 21.00
Strip Poker II	27.00
S.P. Data #4 & #5	ea. 15.00

BAUDVILLE

Award Maker Plus	33.00
Award Maker Sports	21.00
Dream Zone	33.00
Video Vegas	24.00

Broderbund Software

Downhill Racer	24.00
Fantavision	39.00
Sky Chase	27.00
Space Racer	21.00
Stars Wars	27.00

CENTRAL COAST

Disk 2 Disk	33.00
Dos 2 Dos	36.00
Quarterback	45.00

CINEMAWARE

Defender of The Crown	33.00
King of Chicago	18.00
Lords of The Rising Sun	33.00
S.D.I.	18.00
Sinbad	18.00
Rockin' Ranger	33.00
Three Stooges	33.00
TV Sports Football	33.00

DIGITEK

Hole in One Min. Golf	27.00
Hole in One Data #3	15.00
Hollywood Poker	24.00

DISCOVERY

Ankanoid	21.00
Better Dead Than Alien	24.00
Grabbit	21.00
Hybris	27.00
Sword of Sodan	33.00
V.I.P.	33.00
Zoom!	21.00

EPYX

Bards Tale II	39.00
Bards Tale Hints	12.00
Chessmaster 2000	30.00
Deluxe Music v2	66.00
Deluxe Music v3	96.00
Deluxe PhotoLab	96.00
Double Dragon	28.00
Earl Weaver Baseball	33.00
Empire	33.00
F.A-18 Interceptor	33.00
Ferran Formula One	33.00
Mavis Beacon	30.00
Zany Golf	27.00

Artworx

Bridge 5.0	24.00
Centerlines Squares	21.00
Linkword series	ea. 21.00
Strip Poker II	27.00
S.P. Data #4 & #5	ea. 15.00

BAUDVILLE

Award Maker Plus	33.00
Award Maker Sports	21.00
Dream Zone	33.00
Video Vegas	24.00

FIREBIRD/RAINBIRD

Carrier Command	30.00
Starglider II	30.00
Univ. Military Sim	33.00

GOLD DISK

ComicSetter	66.00
ComicArt Science F	24.00
ComicArt Superheroes	24.00
ComicArt Funny Figs	24.00
Desktop Budget	45.00
Font Set-I	24.00
Gold Spell-II	30.00
LaserScript	30.00
MovieSetter	66.00
PageSetter	96.00
Professional Draw	126.00
Transcript	45.00

INCOGNITO SOFTWARE

Atreides	96.00
Footman	27.00
Snake Pit	24.00
Targis	27.00

INFOCOM

Battletorch	33.00
Journey	33.00
Shogun	33.00
Zork Zero	39.00

MICRODEAL/MICHTRON

Devpac v2	66.00
Host Basic Pro	102.00
Major Motion	27.00
Time Bandit	27.00

MICROILLUSIONS

Black Jack Academy	27.00
Criaps Academy	27.00
Faerytale Adventure	33.00
Faerytale Hints	9.00
FreePower	18.00
Photon Paint v2	96.00
Romantic Encounters	27.00



Action Fighter	27.00
Alien Syndrome	27.00
Balance of Power 1990	33.00
Captain Blood	33.00
Deja Vu	33.00
Harner Combat Sim	33.00
Hostage	30.00
Indoor Sports	33.00
Indy Jones	27.00
Out Run	33.00
Road Raider	27.00
Shadowgate	33.00
Space Harrier	33.00
Superstar Ice Hockey	33.00
Thunder Blade	33.00
Uninvited	33.00

NEWTEK

DigiPaint	33.00
Digiview	138.00
Digiview Gold	138.00

OMNITREND

Breach	27.00
Breach Scenario Disk 1	18.00
Paladin	27.00
Paladin Quest Disk 1	18.00

ORIGIN SYSTEMS INC.

Autoduel	33.00
Moebius	33.00
Ultima-III	27.00
Ultima-IV	39.00

PRECISION

Superbase	51.00
Superbase Personal-II	96.00
Superplan	96.00

PROGRESSIVE PERIPHERALS

CLI-Mate	27.00
Diskmaster v1.3	33.00
DR Term Pro	66.00
Intro CAD	51.00
Micro Lawyer	39.00
PIX-Mate	45.00

PSYGNOSIS/PSYCLAPSE

Baal	21.00
Ballistix	24.00
Barbarian	27.00
Captain Fuzz	21.00
Highway Hawks	24.00
Menace	27.00
Obiterror	27.00
Terrapods	27.00

READYSOFT

Dragons Lair	39.00
64 Emulator-II(500)	51.00
64 Emulator-II(1000)	51.00
Scary Mutant Aliens	27.00

Spectrum HoloByte Inc.

Falcon	33.00
Solitaire Royale	21.00
Tetris	24.00



Heroes of The Lance	27.00
Phantasia-III	27.00
Queston-II	33.00

subLOGIC

Flight Sim-II	33.00
Jet v2	33.00
Scenery Disk #7	21.00
Scenery Disk #9	21.00
Scenery Disk #11	21.00
Scenery Disk W. Europe	21.00
Scenery Disk Japan	21.00

TITUS

Crazy Cars	27.00
Fire & Forget	27.00
Galactic Conqueror	30.00
Off-Shore Warrior	27.00

UW UNISON WORLD INCORPORATED

Art Gallery 1, 2, OR 3	ea. 21.00
Fonts & Borders	24.00
Printmaster Plus	33.00

ZUMA GROUP

TV Show	66.00
TV Text	66.00
Zuma Fonts 1-5	24.00

MISCELLANEOUS

AREXX	33.00
Aunt Arctic Adven	27.00
Battle Chess	33.00
Butcher	27.00
Casino Fever	27.00
Cygnus Ed Pro	66.00
Dark Castle	30.00
Distant Armies	30.00
Dungeon Master	27.00
Dungeon Master Hints	12.00
Evil Garden	27.00
FACC-II	24.00
Fine Print	33.00
Galileo-II	45.00
GFL Championship F B	15.00
Grand Slam	33.00
Gridiron	21.00
Kind Words	66.00
Page Stream	126.00
Poker Solitaire	24.00
Prime Time	27.00
Pro write 2.0	81.00
Sculpt 4D Jr	96.00
Shanghai	15.00
Silent Service	27.00
Turbo Silver	126.00
Twilight Zone	27.00
Typing Tutor	24.00
War in Middle Earth	33.00
Warlock	24.00
Wayne Gretzky Hockey	33.00
Wordperfect	186.00
Wordperfect Library	84.00
WShell	33.00

ACCESSORIES

AMERICAN COVERS	
Amiga 500 Dust Cover	10.00
Amiga 1000 Dust Cover	15.00
Amiga 2000/2500 Dust C	15.00
1010 Drive Dust Cover	8.00
1020 Drive Dust Cover	8.00

CREATIVE MICROSYSTEMS	
MDI Interface	70.00
V-I 500 Interface	50.00
V-I 500RF Interface	60.00

DATASHARE	
Modem Cable (1000)	14.00
Modem Cable (500/2000)	15.00
Processor Accelerator	175.00
Printer Cable (1000)	18.00
Printer Cable (500/2000)	15.00

PRACTICAL SOLUTIONS	
Mouse Master	30.00
SUPRA	
2400 Supra Modem	150.00
T.S.R. HUTCHINSON	
Flicker Master	15.00

AMIGA BOOKS

COMPUTER BOOKS	
1st Book of the Amiga	14.00
2nd Book of the Amiga	14.00
Advanced Amiga Base	14.00
Amiga Applications	14.00
Amiga Programmers Guide	15.00
Beginners Guide Amiga	14.00
Elementary Amiga Basic	13.00
Inside Amiga Graphics	15.00
Kids & the Amiga	13.00
ML Programming Guide	16.00
Using AmigaDOS	14.00

SYBEX BOOKS	
Amiga Handbook vol1	19.00
Amiga Handbook vol2	19.00
Amiga Programmer's G	19.00



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, Inc.
2700 NE Andresen Road / Vancouver, WA 98661

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



Circle 226 on Reader Service card.

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

AmigaDOS Utilities—Part 1

Trying to make a good thing better, Team info.phile takes a two-part look at some AmigaDOS utilities. Judging from this first batch, you may be better off sticking with your standard equipment.

By Mark L. Van Name and Bill Catchings

MOST OF THE time in info.phile we examine the tools that come as part of AmigaDOS' standard equipment. In this column we begin a two-part look at some of the products on the market that try to make AmigaDOS in general, and the CLI in particular, easier to use.

AMIGADOS EXPRESS

One of the biggest problems with the CLI is that it's so large that it can be tough to remember everything you need to know to use it. AmigaDOS Express aims to simplify that task with an on-line CLI manual. Bantam Electronic Publishing, a sister group to the division of Bantam Books that publishes the *AmigaDOS Manual*, markets this program, and its text is very similar to the text in the manual.

Fortunately, you don't have to wade through all that text in one file. Instead, you get to it via three pull-down menus that AmigaDOS Express installs.

The Projects menu has choices that introduce AmigaDOS Express, start a new CLI, and summon the Preferences tool. Unfortunately, that last option does not work with AmigaDOS 1.3. It counts on Preferences being in the root directory of your Workbench disk (as it was in AmigaDOS 1.2), but in 1.3, Preferences is in the new Prefs directory.

Sadly, AmigaDOS Express is not alone in its assumption of 1.2. All the products that we cover in this month's column are designed to work with 1.2. We realize that it's difficult and expensive for software vendors to keep up with new versions of AmigaDOS, but if they want to sell utilities, they ought to make that effort.

The other two AmigaDOS Express menus, DOS Help and Command, contain choices that cover general topics and individual commands, respectively. The options on the DOS Help menu discuss the basics of using the CLI, devices, directories, command formats, error messages, and the standard Amiga text editors. The Command menu covers all

of the 1.2 CLI commands, breaking them into five groups.

All of the explanatory text appears in full-screen windows that have page numbers in the lower left and browsing gadgets—next/prev screen and exit—in the lower right. You can work in the CLI and, when you're stuck, click in the Workbench screen and get help from an AmigaDOS Express menu.

Of course, you have to ask yourself whether you want to spend \$29.95 for on-line help, or whether you'd rather sit at your Amiga with the standard AmigaDOS manual and a stack of old info.phile columns nearby. We recommend spending the \$29.95 on a good game and keeping the manual nearby.

SYSTEM MONITOR

Zen Software's System Monitor tries to give Amiga users a different kind of help. You install it by running a program ►



InterComputing Inc.

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

In business since 1984; Amiga support since 1985
Member of Dallas Better Business Bureau

We are a service oriented business
offering discount prices

FAX: 1-214-660-3695

Customer Service and Order Status call: 1-214-988-3500

COMPLETE PRODUCT LISTING AVAILABLE

Call toll free: **1-800-622-9177**

MEMORY EXPANSION

Amiga 500 & 1000

Starboard 0 K	A1000	239.95
Starboard 1 MB	A1000	499.95
Starboard 2 MB	A1000	795.00
Starboard 512 K	A1000	399.95
Starboard Multifunction Card		74.95
Starboard SCSI Module		99.95
Starboard Upper Deck		44.95
M501 0 K		59.95
M501 512 K with Clock		159.95
Mini Meg A1000 with 0.5 MB		359.95
Mini Meg A1000 with 1.0 MB		499.95
Mini Meg A1000 with 2.0 MB		789.95

Amiga 2000 & 2500

8-UP Memorycard DIP	0K	159.95
8-UP Memorycard DIP	2MB	595.00
8-UP Memorycard DIP	4MB	995.00
8-UP Memorycard DIP	6MB	1335.00
8-UP Memorycard DIP	8MB	1795.00

VIDEO SOFTWARE

Artistic Expressions	
Vol. I & II each	39.95
Broadcast Titler	199.95
Comic Setter	66.95
Deluxe Paint 3.0	109.95
Deluxe Productions	144.95
Director	44.95
Director Toolkit	27.95
Fantavision	39.95
Innvision	169.95
Intro CAD 2.0	49.95
Movie Setter	69.95
Pageflipper Plus FX	99.95
Pagerender 3-D	109.95
Pagestream	139.95
Pagestream Fonts	
#1-5 each	29.95
Photon Paint 2.0	99.95
Professional Page	239.95
Sculpt 3D	69.95
Sculpt 4D	399.95
TV Show NTSC/PAL	62.95
TV-Text	62.95
Turbo Print	32.95
Turbo Silver	129.95
Zoetrope	99.95
Inovatools I	

MUSIC & AUDIO

Audiomaster II	69.95
CMI Midi Interface	69.95
Dr. T's 4-OP Deluxe	99.95
Dr. T's Copyist	199.95
Dr. T's DX Heaven	99.95
Dr. T's KCS 1.6	166.95
Dr. T's Kawai K1 Lib.	99.95
Dr. T's Midi	
Recording Studio	44.95
ECE Midi-A500/2000	44.95
ECE Midi-A1000	44.95
"M"	154.95
Midi Cable 5' black	8.95
Midi Cable 8' color	11.95
Midi Gold external	69.95
Midi Gold internal	69.95
Music Mouse	49.95
Perfect Sound	64.95
Soundscape	
Audiogitizter	79.95
Pro Midi Studio	124.95
Utilities I	39.95
Studio Magic	69.95
Synthia	66.95
Texture	

BUSINESS

Analyze 2.0	62.95
BEST Management	
System 2.0	299.95
Critic's Choice	159.95
Cygnus Ed Prof.	69.95
Excellence	179.95
Financial Plus	199.95
Kindwords	66.95
Maxi Plan 500	99.95
Maxi Plan Plus	129.95
Microfiche Filer	69.95
Microfiche Filer Plus	112.95
Money Mentor 2.0	59.95
Pen Pal	109.95
Phasar 3.0	66.95
Prowrite 2.0	72.95
Super Base Personal II	99.95
Super Base Prof. 3.0	199.95
Superplan	109.95
TexEd Plus	54.95
The Works-Platinum	169.95
Wordperfect	
Shake	

HARD DRIVES

GVP Impact Drives:	
0MB-80meg Quantum	1199.95
0MB-No Drive	299.95
2MB-80meg Quantum	1699.95
2MB-No Drive	699.95
Hardframe DMA	
SCSI Controller	239.95
Phoenix Drives:	
22Meg A-1000	599.95
22Meg A-2000	549.95
32Meg A-1000	699.95
32Meg A-2000	749.95
48Meg A-1000	799.95
48Meg A-2000	749.95
80Meg A-1000	1299.95
80Meg A-2000	1249.95
Quantum Pro-80Meg	875.95
Supra 30MB Drive	699.95
Supra 30MB HDisk	699.95
Miniscribe	

FDATA-10 DRIVE

Our best selling
'1010' compatible drive
for all Amigas.

\$ 139.95

FDATA-20 DRIVE

Two 3.5" drives in one small
case. Clean design, quiet,
and at a great price.

\$ 249.95

VIDEO HARDWARE

A-Pro Draw 9x6	399.95
A-Pro Draw 12x12	499.95
Amiga Live A 1000	219.95
Amiga Live A 2000	329.95
Amiga Live A 500	299.95
Color Splitter	89.95
DigiDroid	64.95
Digi View 3.0	139.95
Digi View Gold	139.95
Easyl 500	319.95
Easyl 1000	339.95
Easyl 2000	349.95
Flicker Fixer	499.95
Panasonic 1410	
Camera Kit	239.95
Perfect Vision	175.95
Polaroid Palette	2199.95
Super Gen	699.95
X-Specs 3D	99.95

PROGRAMMING

A/C Basic Compiler	129.95
A/C Fortran-AB Soft	179.95
Aztec C Developer	219.95
Aztec C Professional	159.95
Aztec Source Level	
Debugger	59.95
GFA Basic 3.0	99.95
Lattice C 5.0	219.95
Lattice C ++	399.95
Lint	69.95
Power Windows 2.5	56.95

MISCELLANEOUS

Arexx	32.95
BAD	32.95
CLI Mate	27.95
DOS-2-DOS	42.95
Disk Mechanic	56.95
EZ-Backup	32.95
Facc II	22.95
Project D	32.95
Quarterback	44.95

HEWLETT PACKARD INK-JET PRINTERS

HP-Deskjet
HP-Printjet

799.00
999.00

DISK DRIVES

A2010 Internal 3.5"	149.95
AIR Drive External	169.95
AIR Drive Internal	134.95
California Access	
Drive CA-880	169.95
F-DATA 10	139.95
F-DATA 20	249.95
Drive Extension Cable	19.95

MODEMS

Supra 2400 baud ext.	149.95
Supra 2400 baud int.	149.95

AMIGA 500 Starter Pack

A500 with 1Meg
2 Drives
Monochrome Monitor
949.95

Prepay with check or
money order and get free
UPS-ground shipping
and a FREE GAME!

A-MAX

134.95

The 'MAC' Emulator for the Amiga
works with all Amiga models

ROM-Set

139.95

For use with A-MAX

3.5" Drive

199.95

MAC-compatible; for use with A-MAX

TRADE UP!

We will trade in your Amiga 500 or
1000 towards a new Amiga 2000 or
2500. Call for details!

Government, corporate & institutional

**Purchase Orders
are welcome!**

As always we have the most 'customer friendly' terms: S/H \$3.95 in cont. USA; Minimum order is \$30.00; MASTERCARD & VISA with NO credit card fee; in Texas add 7% Sales Tax. We ship to APO addresses. RMA# required on all returns. 18% restocking charge. All prices subject to change without notice.



from the CLI. Don't try to install it by clicking on its program icon, by the way, or you'll get the infamous "Software error—task held" message, followed promptly by a visit from the guru.

Once you've installed the System Monitor, its System Window appears. That window shows the current CPU usage, as well as how much chip, fast, and total RAM you're using, all in four little bar graphs. This display is fine, but you can get the same information, in windows that are not quite as pretty, in the FreeMap and PerfMon tools that are standard parts of your 1.3 Extras disk.

The System Monitor does, however, offer a second monitor window—the Task Window. This window lists the tasks that are currently running in your Amiga, asks you to pick one of those tasks, and then displays information about that task. That information includes such exciting goodies as the task's current state, signal flags, address, and so on.

Let's face it, who cares about that stuff? Most of us are trying to get work done with existing Amiga applications, not writing new ones, and the Task Win-

dow's data does us virtually no good. Now, if you're trying to develop a multitasking application, then this information could be priceless. For most of us, however, it's not very useful, and we certainly don't think it's worth the \$49.95 that Zen wants for the package.

DISK MAGIC

Disk Magic (DMH Technologies) tries to act as a CLI replacement, cramming all of its capabilities into one very busy window.

That window has two major areas. The top half is split vertically into two directory displays. One side is the source directory, and the other is the destination. Most file operations are based around these source and destination directories. You can change which is the source and which the destination, and you can also choose which directories you display in each side.

The lower half of the Disk Magic window displays a very large collection of gadgets. Each of these gadgets triggers an operation and brings up the requester window for that operation. Most of these operations can work on several

files or directories at once. For example, you can select, with mouse clicks, a group of files and directories from your source directory, and then click on the Copy gadget to copy those files and directories to your destination directory.

There are gadgets for all the major 1.2 commands, as well as for a few shareware file-archival and compression programs that come on the Disk Magic disk.

Disk Magic's biggest weakness is that it is sometimes just too clever. The manual warns you that practically everything you can touch in its extremely busy window will trigger some function, and that's the truth. To learn to use Disk Magic to its fullest potential, you really have to log some serious time experimenting with it. It retails for only \$49.95, but we have to give it a qualified recommendation. Disk Magic is interesting, and you might find it easier to learn than the CLI, but you should definitely insist on a trial run before you consider buying it.

METACOMCO'S SHELL

Remember Metacomco? That's right—it's the company that, in conjunction with Commodore-Amiga, wrote the original ►

More than just a Disk Copier!

Project D is the most powerful Amiga disk copier ever created. It allows you to protect your software investment by making backup copies of your personal, public domain, and commercial software (it even copies copy-protected software!). No other copier allows you to copy to all four disk drives at the same time. No other copier keeps a list of the errors that happened during the last backup. No other copier lets you set the starting and ending tracks of a backup. No other copier has been continuously supported for the past two years.

Project D was designed with the future in mind. We offer registered owners inexpensive, frequent upgrades to our parameter file so you can backup your latest software without having to wait months for new 'Brain Files'.

Project D includes three other useful utilities as an added bonus! The **OmniCopy** Tool can be used to make backups of software that you have for other computers (like MS-DOS or Atari ST). **EditorTool** allows you to examine and edit AmigaDOS disks all the way down to the MFM level. **CatalogTool** is a powerful automatic disk cataloging utility that lets you maintain detailed lists of your software library.

Compare the features of Project D to the competition and you will see that Project D is quite simply the best disk copier package money can buy!

All these great features for only **\$49.95** and that includes shipping and handling! Order Today!

To order, send check or money order
(US Funds on US Bank) to:

Fuller Computer Systems, Inc.
P.O. Box 9222
Mesa, AZ 85214

or call (602) 497-6070 for more information.

Project D: The Disk Copier... Plus!

See How Project D Stacks Up Against The Competition

	<u>Project D</u>	<u>RawCopy</u>
Duplication Speed	80 Sec.	100 Sec.
Easy To Understand User Interface	YES	NO
Upgradable With Parameter Files	YES	NO
Catalog Utility Included	YES	NO
Copies other formats	YES	NO
Copies Itself	YES	NO
Copies RawCopy V1.3	YES	NO
Price	\$49.95	\$59.95

"Project D is by far the most comprehensive disk-utility package available for the Amiga today."

Mitchell Lopes - Editor, Robo City News

"I consider Project D to be akin to a well equipped luxury automobile; it gives a smooth ride and lots of easy to use operations."

Denny Atkin - AmigaWorld (Feb. 1989, pp. 92-94)

"The user interface is wonderful..." Info Rated: 4+ stars
David Martin - Info Magazine (Sept/Oct 88, p. 16)

AmigaDOS operating system. Well, the folks at Metacomco took a look at the AmigaDOS 1.2 CLI and decided that what we needed was not a window-driven CLI alternative, but rather a new, improved CLI.

Enter the Shell. For \$69.95 it lets you edit your command line, recall previous commands, create aliases for text strings, make commands resident, create Shell variables, and even customize its opera-

tion courtesy of a special Shell startup file.

Sounds pretty good, right?

It should. You get all those features—at no extra charge—in AmigaDOS 1.3's Shell. Even if you have to buy 1.3 at full retail price, it's over \$40 cheaper than the Metacomco Shell.

To be fair, there are some differences. Metacomco's Shell has a different history mechanism; it works like the one in Unix

and is a bit more powerful than the one in 1.3. Its commands for handling variables are also a little more robust than 1.3's. It has Push and Pop commands that let you easily return to a directory that you just left. And, you can assign macro strings to any of your ten function keys.

But are those few improvements worth \$69.95? No, we don't think so, especially when you consider that you really have to buy 1.3 anyway, if for no other reason than its FastFileSystem and fewer bugs.

HANG ONTO YOUR WALLET

Are any of these utilities really worth the price? That really is the key question for all these products. Utilities are nice to have around, but, like all other programs, they must justify their costs. On that basis, we can't wholeheartedly recommend any of these utilities. In our next column, we'll look at another batch of utilities. Maybe we'll have better luck then. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. Write to them at 10024 Sycamore Rd., Durham, NC 27703.

Manufacturers' Addresses

Bantam Electronic Publishing

666 Fifth Ave.
New York, NY 10103
212/765-6500
800/223-6834, ext. 9479

DMH Technologies

14873 95th Place
Minneapolis, MN 55369
612/420-5572

Metacomco

5353 E. Scotts Valley Drive
Scotts Valley, CA 95066

Zen Software

815 East 7th Ave.
Olympia, WA 98501
206/352-0766

THE WORLD OF COMMODORE



**The Computer Show
For Everyone!**
Featuring
AMIGA • C-64 • C-128 • PCs
September 22, 23 and 24, 1989
Valley Forge Convention Center
Valley Forge, Pennsylvania

Welcome to a spectacular world of Commodore computing — a world devoted to the **Amiga, C-64, C-128 and Commodore PCs**. You'll discover the software you've always wanted to try, plus amazing, new programs. You'll find printers and plotters. Modems and monitors. Disk drives and joy sticks. Lasers and light pens. MIDI and mice. All the big and little stuff that make computing more productive, more creative — more fun! And some of the best bargains you'll find anywhere!

It's all in one place — at the 2nd annual North-Eastern World of Commodore. Whether you compute for business or fun, at home or school, you can't miss this computer show!

THE WORLD OF COMMODORE

September 22, 23 and 24, 1989

Fri. noon-8pm/Sat.&Sun. 10am-5pm

Admission \$10 Students/Seniors \$8

Includes seminars & stage demonstrations

Exhibitors contact: The Hunter Group
(416) 595-5906 Fax (416) 595-5093. Produced in
association with Commodore Business Machines.

FREE THE PING!...

FREE SHIPPING ON SOFTWARE ORDERS OVER \$100!

Via UPS 2nd Day Air, US Only
(Alaska & Hawaii excluded). COD add \$3.00

TELECOMMUNICATIONS

A-Talk III	\$69
Atredes BBS	\$69
Atredes w/SkyPaint	\$99
BBS-PC!	\$99
Dr. Term Pro	\$69
Online! v2.0	\$45

THE LIGHTSPEED ADVANTAGE:

- Three years Amiga market experience.
- Excellent Technical Support from experienced Amiga users.
- Authorized Dealer! All Systems in stock!
- Up-front policies.
- Our team is comprised entirely of Amiga owners and enthusiasts.
- Competitive prices.
- Toll-Free Customer Service!

Amiga is a trademark of Commodore-Amiga.

Phasar	\$65
Pro Write 2.0	\$79
Superbase Personal 2	\$89
Superbase Professional	\$199
Super Plan	\$99
Transcript	\$49
Word Perfect	\$195
Word Perfect Library	\$85
Works Platinum	\$195

POLICIES:

Shipping Info: Software is \$2.50/item (\$5 max) via UPS Ground. For UPS 2nd Day Air add \$1.50 to the Ground rate. COD add \$3.00. Next Day Service available. Other carriers, Hardware, and Foreign rates may be extra.

Other Policies: No charge to Credit Card until shipping date, and no surcharges. Exchanges only for defective items, and for same item only. We cannot guarantee product satisfaction.

DESKTOP PUBLISHING

Award Maker Plus	\$32	PageStream	\$129
City Desk 2.0	\$129	Professional Draw	\$129
Comic Setter	\$69	Professional Page	\$225
Fine Print	\$32	Pro Fonts 1 & 2 (ea)	\$25
JetSet Laser Utility	\$29	Pro Script	\$32

PRODUCTIVITY

The Accountant	\$189
Analyze! 2.0	\$69
Data Retrieve	\$59
Data Retrieve Pro	\$199
Desktop Budget	\$49
Excellence!	\$175
Formation Form Builder	\$49
Kind Words	\$65
Maxiplan Plus	\$129
Microfiche Filer Plus	\$129
MFF Business DBases	\$39
MFF Home DBases	\$29
Money Mentor	\$65

ENTERTAINMENT

Action Fighter	\$32	Impossible Mission II	\$15
Airball	\$27	Journey	\$32
Aunt Arctic Adventure	\$27	King of Chicago	\$32
Baal	\$21	Kybos	\$23
Balance of Power 1990	\$32	Lords of Rising Sun	\$32
Ballistyx	\$23	Magic Johnson	\$32
Battle Chess	\$32	Mean 18	\$29
BattleHawks 1942	\$32	Neuromancer	\$29
BattleTech: Crescent Hawk	\$32	Operation Wolf	\$23
Blitzkrieg Ardennes	\$39	Outrun	\$32
Blood Money	\$27	P.O.W.	\$27
Breach	\$27	Paladin	\$27
Bubble Bobble	\$23	Pioneer Plague	\$27
California Games	\$32	Prime Time	\$27
Captain Blood	\$32	Qix	\$27
Carrier Command	\$29	Rastan	\$27
Creature	\$27	Realm of the Warlock	\$23
Data Storm	\$27	Renegade	\$23
Death Bringer	\$27	Rocket Ranger	\$32
Devonaire	\$32	Roger Rabbit	\$29
Dragon's Lair	\$42	Shanghai	\$15
Dungeon Master	\$27	Shogun!	\$32
Elite	\$29	SIM City	\$32
Faery Tale Adventure	\$32	SkyChase	\$27
Falcon	\$32	Sky Shark	\$27
Federation	\$32	Speed Ball	\$27
Flight Simulator II	\$32	Starglider II	\$29
FS II Scenery (ea)	\$18	Street Cat	\$21
Harpoon	\$27	Street Fighter	\$27
Hole in One Mini Golf	\$23	Sub Battle	\$15
Hostage	\$29	Superstar Ice Hockey	\$32
Hybris	\$27	Sword of Sodan	\$32
		Techno Cop	\$32
		Terrorpods	\$27
		Test Drive II: The Duel	\$29
		Test Drive II Cars	\$15
		Test Drive II Scenery	\$15
		Three Stooges	\$32
		Thunder Blade	\$32
		Total Eclipse	\$27
		TV Sports Football	\$32
		Twilight Zone	\$27
		Universal Military Sim.	\$32
		UMS Scenarios 1 or 2	\$15
		Vortex	\$27
		War in Middle Earth	\$32
		Wayne Gretzky Hockey	\$32
		Zak McKracken	\$29
		Zoom!	\$21
		Zork Zero	\$42

ELECTRONIC ARTS

Aaargh!	\$25
AD&D Heroes	\$25
Annals of Rome	\$23
Artura	\$25
Awesome Arcade Pak	\$32
Bard's Tale	\$32
Bard's Tale II	\$39
Bard's Tale Clue Book	\$11
Bard's II Clue Book	\$11
Chessmaster 2100	\$32
Deluxe Music	\$65
Deluxe Paint II	\$85
Deluxe Paint III	\$95
Deluxe PhotoLab	\$95
Demon's Winter	\$25
Double Dragon	\$25
Dragon Force	\$32
Earl Weaver Baseball	\$32
EWB Commissioner Disk	\$15
EWB MLBPA 1988 Stats	\$15
Empire	\$32
Ferrari Formula One	\$32
Firezone	\$23
Gettysburg	\$39
Global Commander	\$25
Interceptor	\$32
Kampfgruppe	\$39
Life and Death	\$32
Marble Madness	\$15
Mavis Beacon Typing	\$32
Pub Games	\$25
Questron II	\$32
Reach for the Stars	\$25
Rebel Charge	\$39
Reel Fish'n	\$25
Roadwar 2000	\$25
Rockford	\$25
Sorcerer Lord	\$23
Time & Magik	\$25
World Tour Golf	\$15
Zany Golf	\$25

How to FREE THE PING! (Part One)

In every order we ship you'll find a Custom Button "trapped" inside. If it has a picture of the "Ping" on it, you'll be entitled to 10% Off your next order, just for setting him free! (Maximum discount \$25.00)
So go ahead, Make the Jump... and Free The Ping!



ORDERS & CUSTOMER SERVICE
1-800-525-4428



AT LIGHTSPEED

MUSIC & MIDI

AudioMaster II	\$69	M for Amiga	\$159
Dr.T's Copyist Pro	\$165	Midi Magic	\$99
Dr.T's KCS V1.6a	\$165	Pro Midi Studio	\$129
Dr.T's Level II	\$219	Pro Sound Designer	\$119
Dr.T's Midi Studio	\$45	Sonix	\$49
Dr.T's Editors (ea)	\$99	Sound Oasis	\$75
Dynamic Studio	\$129	Texture	\$99

GRAPHICS & ANIMATION

ANIMagic	\$65
Broadcast Tiller	\$189
Butcher 2.0	\$25
Digi Paint	\$49
Director	\$49
Draw 2000	\$179
Fantavision	\$45
Grabbit!	\$23
Homebuilder's CAD	\$139
InterFont	\$79
Invision	\$139
Modeler 3D	\$65
MovieSetter	\$69
Photon Paint II	\$99
Pro Video Plus GOLD	\$189
Pro Video Fonts (ea)	\$99
Sculpt-Animate 4D	\$439
Turbo Silver 3D	\$124
Turbo Silver Terrain	\$23
Video Effects 3D	\$129
Videoscape 3D	\$124
X-CAD Designer	\$385
Zoetrope	\$89

THIS MONTH'S SPECIALS!

Complete **A-MAX** Emulation Package!
Includes: A-MAX, 128k ROM's,
and Fully Compatible 800k Drive!

Total Price: \$449!

HARD DRIVE PRICE REDUCTIONS

Choose your Controller!
Hard Frame, or Supra.

Add your choice of Drive: **Total Price!**

Seagate 48 Mb 3.5"	\$649
Seagate 65 Mb 5.25"	\$699
Seagate 80 Mb 5.25"	\$849
Quantum 40 Mb 3.5"	\$799
Quantum 80 Mb 3.5"	\$1149
Quantum 106 Mb 3.5"	\$1249
Overdrive Special!	
8 Mb Seagate Hard Card	\$599!

PROGRAMMING

AC Basic	\$139	Innovatools II	\$59
ARexx	\$32	Lattice C 5.0	\$199
Benchmark Modula 2	\$129	Lattice C ++	\$359
C Library	\$65	Magellan	\$125
IFF Library	\$65	Manx Aztec C Devel	\$189
Simplified Lib.	\$65	Manx Aztec C Pro	\$135
C.A.P.E. 68k Assem.	\$65	Manx Source Debugger . . .	\$55
DSM (Disassembler)	\$49	Metacomco Assembler . . .	\$89
DevPac Amiga (HiSoft)	\$69	Metacomco Pascal 2.0 . . .	\$89
Extend 1.2	\$29	PowerWindows 2.5	\$69
G.F.A. Basic	\$89	True Basic	\$69
HiSoft Basic	\$99		
Innovatools I	\$59		

HARDWARE & ACCESSORIES

MISC. HARDWARE

Chinon 3.5" Internal	\$115
Master Uni-Drive	\$139
Master 3A-1 Drive	\$139
Supra 2400 Baud Modem . . .	\$129
Supra 2400 Internal Modem . .	\$135

GRAPHICS HARDWARE

AProDraw 12x12 Tablet	\$499
Color Splitter	\$79
Digi-View 3.0	\$145
Digi-View Gold	\$145

Easy! (All Models)	\$369
FrameGrabber	\$565
Live 2000	\$349
Panasonic Camera w/Lens . . .	\$249
Perfect Vision	\$179
Polaroid Palette	\$2295

MUSIC HARDWARE

A.M.A.S. Midi Sampler	\$129
CMI Midi External	\$65
Midi Gold 500	\$59
Midi Gold 2000	\$65
Perfect Sound	\$69
Pro Sound Designer	\$119
Spirit Midi Star	\$229

HARD DRIVES

Quantum 42Mb 3.5"	\$599
Quantum 80Mb 3.5"	\$969
Quantum 105Mb 3.5"	\$1069
Seagate 48Mb 3.5"	\$449
Seagate 65Mb 5.25"	\$519
Seagate 80Mb 5.25"	\$649
Supra 30Mb (500/1000)	\$725
Supra 60Mb (500/1000)	\$949
Supra 80Mb (500/1000)	\$1299

CONTROLLERS

GVP SCSI 2000	\$249
GVP Impact 1Mb/OK	\$299
GVP Impact 2Mb/OK	\$329
HardFrame 2000	\$249
Overdrive 2000	\$175
Supra 500/1000	\$209
Supra 2000	\$219

GREAT VALLEY PRODUCTS

A2000 Hard Cards:	
GVP 42Mb Quantum	\$799
GVP 80Mb Quantum	\$1195
GVP 20Mb Seagate	\$575
GVP 30Mb Seagate	\$699
GVP 48Mb Seagate	\$799

**Call for hardware
shipping rates.**

GENLOCKS

Amigen	\$149
Gen One	\$725
Magni 4004	\$1495
ProGen	\$379
SuperGen	\$649

SYSTEM/RAM EXPANSION

AMAX Mac Emulator	\$125
8-Up! 8Mb/OK DRAM	\$149
8-Up! PopSIMMs (4)	\$75
GVP 500 OK RAM Module	\$69
GVP Module w/2Mb RAM	\$579
KwikStart 1.3	\$155
MegaBoard 2Mb 2000	\$579
MiniMags 512k	\$335
MiniMags 1Mb	\$499
Phoenix Card Cage	\$159
Phoenix Cage w/Power	\$225
Starboard II w/512K	\$459
Spirit Inboard 1000	\$229
Spirit Inboard 500	\$229

ACCESSORIES

Boing! Optical Mouse	\$99
Copy Stand	\$55
Epyx 500XJ Joystick	\$16
GOMF! Button	\$49
Mouse Master	\$29
PowerPlayer Joystick	\$24
Trackball Mouse	\$45
X-Specs 3D Glasses	\$99

BOOKS

AmigaBASIC In & Out	\$19
AmigaDOS In & Out	\$16
AmigaDOS Manual	\$19
C for Beginners	\$16
C for Advanced	\$19
Sybox Handbook Vol 1	\$19
Sybox Handbook Vol 2	\$19
Programmer's Guide (Peck) . . .	\$19

Notice: We aid Law
Enforcement agencies
in the prosecution of
Credit Card fraud!

L I G H T
SPEED
D I S T R I B U T I O N



6335 SE 82nd, Portland, OR 97266, (503) 777-1008, FAX: (503) 777-1252

A Division of Daxis Systems, Inc.

Circle 122 on Reader Service card.

THE GAME PRESERVE

Cheap Thrills

Double your fun for half the money with public-domain games.

By B.G. Hunter

YOU'VE SHELLED OUT about a zillion simoleons to buy your Amiga and a killer joystick, and you don't have much left for games, right? Don't worry: check out public-domain software. Disks cost about seven bucks a pop, and many contain several games. While some of these games are as good as any you can buy, some are pretty rough, and some just plain don't work. They include no printed documentation, customer support, or guarantees.

The lack of a guarantee coupled with wide distribution leaves the disks susceptible to viruses. I've had

no problems with the leading disk distributors, but to play safe, you should follow three rules:

1. Make a new copy of your Workbench disk to be used only for playing public-domain games.
2. Make a copy of each public-domain disk before you use it.
3. When you finish playing, turn your Amiga off and reboot with your standard Workbench disk.

The procedure insures the worst a virus could do is to infect your "gaming" Workbench disk and public-domain disks, which are all backed up.

While in the public domain, some of the games are "shareware." The idea behind shareware is that, if you like the software, you send a modest payment to the author. If you like a game, donate the few bucks; your payment might encourage the author to write more good games.

PD PLAYGROUND

Here are a few of my favorite games from the stack of over 40 disks that I examined. While often you can find a game on more than one disk and the networks, I'll mention only the disk from which I ran it.

Many of these programs are versions of popular board or card games—such as Sheldon Leemon's ▶



Yankee or Rebel?

**JUST
\$14.95!**

NEW!

Your Workbench needs our Tool Chest

Introducing the *AmigaWorld* Tool Chest! A brand-new collection of special software written for your Amiga. Now there's no need to know how to program, draw, animate, or compose on your computer because the *AmigaWorld* Tool Chest gives you all the tools your Workbench needs. It's that easy!

Each bi-monthly release of the Tool Chest gives you two disks packed with high-quality Amiga programs, utilities, games, professional clip art, pre-defined animation objects, sound and music files, and the best of Amiga Shareware. Plus, you get an original Amiga animation complete with an animation-player program! Users of every Amiga model—and at every level of skill—will be thrilled with these top-quality programs and tools.

All for just \$14.95 per issue!

The Premier issue of the *AmigaWorld* Tool Chest gives you...

Programs—

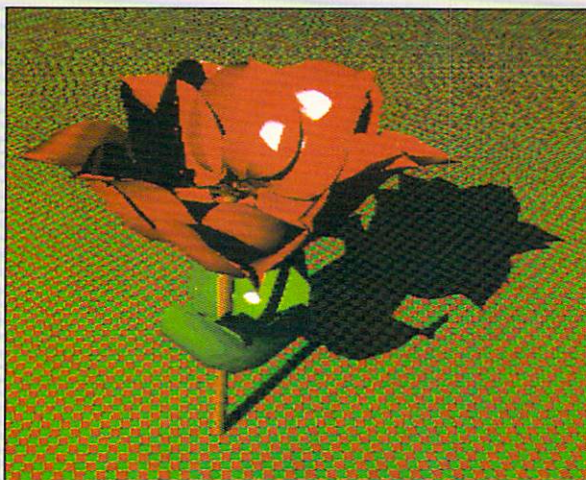
WBSalv, a disc-recovery program that you can run from Workbench.

Mosaic Maker, an easy way to create Escher-like graphics.

Alien Duels, a lightning-fast arcade clash with an alien invasion force. Joystick required.

Clip Art—

Monsters! Monsters! Monsters! You'll have a great time incorporating these fantastic creatures into your graphics creations.



Animation Objects—

The Horse, a beautifully detailed chess piece.

The Rose, a delicate complex object.

The Sail, a great object for your water-born animations.

Sounds and Music—

A collection of very weird sound effects for use in your programs.

PLUS a brand-new, disk-length animation from Gene Brawn, a master of Amiga animation!

The *AmigaWorld* Tool Chest. What no Workbench should be without.

TRY IT! To order, use the coupon below or look for the special insert in this issue.

**For immediate service
call 1-800-343-0728.**

Charter Subscription Opportunity! Save \$20 off the single copy price and get these charter subscriber benefits:

- automatic delivery of every two-disk edition for an entire year. That's 12 disks in all, delivered every other month.
- FREE *AmigaWorld* Public Domain Library Catalog.
- *AmigaWorld* subscription/renewal discount certificate.
- Discount on AmiExpo admissions!
- Full Money Back Guarantee. If you are not completely satisfied with the *AmigaWorld* Tool Chest, simply return it for an immediate refund.

☐ **YES!** Send me the *AmigaWorld* Tool Chest Vol. 1, #2 today. My payment for \$14.95 is enclosed.

☐ Save me \$20. Enter my one year (6 issue) charter subscription for \$69.95.

Name

Address

City State Zip

☐ Check/Money Order Enclosed (payable to *AmigaWorld* Tool Chest)

☐ Charge my: ☐ MasterCard ☐ Visa ☐ American Express

Account# Expires

Signature

Foreign Orders, add \$2.50 for Air Mail Delivery.

Foreign Subscriptions are \$84.95, postpaid. Payment required in US Funds drawn on US Bank.

Note that some animations require 1MB of memory.

***AmigaWorld* Tool Chest, 80 Elm Street, Peterborough, NH 03458**

1-800-343-0728 • 1-603-924-9471 AW889

YachtC (Fred Fish #10). Yup, this is good old Yahtzee for one to four players. The graphics aren't great, but the game works and it's fun.

Another new twist on an old game is David Addison's Monopoly (Software Excitement #23). (You'll see Addison's name on a lot of these games.) While this version is faithful to the original, it also adds a few cute touches, such as a little train that chugs across the screen when you draw the "Ride the Reading" Chance card. You play against three computer opponents. One of them, Betty, thinks that railroads are "icky" and won't buy them. My only objection to playing with this bunch is that they are downright uncooperative when it comes to trading properties.

Addison seems to like card games particularly. His Cribbage program (Software Excitement #123) plays well, although I was able to stay even with it generally. Addison's two versions of solitaire, Klondike and Canfield (Chiron Conceptions Entertainment #6), are also enjoyable. Klondike adds scoring to standard solitaire: You pay \$52 per hand, and you get back \$5 for each card you play on the foundation. (I'm glad it's not real money.) Be careful how you use the mouse: Click too long and Klondike will flip over two cards. While Canfield does not offer scoring, it adds a few new elements to traditional solitaire, such as building on cards other than Aces.

The one problem with Addison's card games is that his four "10" cards have a T on them, not a 10. I want my cards to look like cards, whether they're on the screen or in my hand.

If you're a Hearts fan, try playing against the three computer opponents in Mark Slone's Hearts game (Chiron Conceptions Ami Arcade #3). I thought I was hot stuff until I tried its expert mode. Then my opponents ganged up and creamed me.

The same disk holds Bull Run by David Townsend.

Bull Run is a Civil War battle re-creation similar to those hexagonal-tiled Avalon Hill war games that I could never get anyone to play. As either the Union or the Confederacy, you try to capture the town held by the opposition. The graphics are very good, the game is entertaining, and you can finish it in only 20 minutes.

MAZES, BLACK HOLES, AND MONSTERS

If arcade games are more your style, try PacMan 87 by Steve Jacobs and Jim Boyd (Software Excitement #131). An improvement on the basic PacMan concepts, the game offers three skill levels and five game-board levels. You use your joystick to avoid such stationary obstacles as stabbing knives, electric arcs, and flamethrowers, as well as the usual moving ghosts. You move among the game-board levels by using stairs. This game is better than many that have claimed my money. Get this disk!

Another interesting disk is Chiron Conceptions Ami Arcade #4. Its many games include Hari Wigunga's Wheel of Fortune, a version of Adventure, and weak renditions of Checkers and Backgammon. The real treat, however, is Orbit 3D by Richard Horne.

Who can resist sitting in front of an Amiga wearing 3-D glasses? I certainly can't. Orbit 3D's basic play is not spectacular. Your goal is to keep your ship alive as long as you can. You have a limited amount of fuel, oxygen, and torpedoes, but you can replenish those supplies by docking with the mother ship. Sound easy so far? The problem (no problem, no plot) is that you're orbiting a black hole. I never got very good—I kept shooting the mother ship instead of the asteroid—but I still had a great time.

A simpler but equally enjoyable 3-D game is 3D Breakout by Tim Kemp (DevWare FunDisk 0001). You bounce a ball against squares on the ceiling and walls. If the ball falls through the floor, you lose it. Sure, it's easy to play, but I just love watching the ball zoom at me and bounce off the front of the screen.

As usual, I've saved my favorite for last. Hack, by John Toebes and the Software Distillery (Fred Fish #62), is a version of the Unix adventure game of the same name. I've spent days fighting monsters and exploring the many floors of its 40-level dungeon. You play a character on a quest for the Amulet of Yendor (Rodney spelled backwards). You can gain and increase attributes, such as strength and longevity, by defeating monsters. You'll die without the proper equipment, such as armor and weapons. Keep your eyes open for wands, potions, and scrolls with which to experiment. To complete the game, plan to invest many hours, especially because Hack generates its levels and the functions of its objects dynamically.

PD Suppliers' Addresses

Amicus Disks
PiM Publications Inc.
PO Box 869
Fall River, MA 02722

Chiron Conceptions
PO Box 19474
Jacksonville, FL 32245-9474

DevWare
PO Box 215
La Jolla, CA 92038-0215

The Fred Fish Disk Collection
PiM Publications Inc.
PO Box 869
Fall River, MA 02722

Public Domain Software Resources
PO Box 7175
Loma Linda, CA 92354

The Software Bug
PO Box 8302
Somerville, NJ 08876

Software Excitement
PO Box 5069
Central Point, OR 97502



The game changes every time you play it.

This version of Hack is very well done. While most versions represent monsters with letters, here they're small pictures in a special font. Just be sure to set your Amiga to 60 characters per line rather than 80.

I also tried versions of Missile Command, Asteroids, Space Invaders, and other early arcade favorites. None were big winners, but all rekindled fond mem-

ories and were worth an evening or two. At these prices, you can afford to check out a lot of them. Buy a pile and have a good time.

Although not the type to be caged in an office, B. G. Hunter does skulk in occasionally to pick up his mail. Write to him c/o AmigaWorld, Editorial Dept., 80 Elm St., Peterborough, NH 03458.

G A M E R E V I E W S

ALIEN SYNDROME

By Peter Olafson

ALIEN SYNDROME is an arcade shoot-'em-up with a sci-fi theme, ported to the Amiga by Sega (via Mindscape). Aside from a couple of rough edges, it's a very creditable job.

Your task is to collect hostages from four levels of an alien-occupied space station before a time bomb detonates. You choose either a male or female character; both are well-muscled Stallone types, indistinguishable but for the colors of their jumpsuits and the pitches of their death screams.

This is not an easy game; in fact, it's so difficult that I would have appreciated the ability to resume play on the level where I last died. You're not just shooting creatures; as you make your way through the space station, you must figure out the most efficient course to travel for collecting the hostages, and then hightail

it to the exit, all within a stingy time limit. There are maps on the walls, with the hostages highlighted, to help you out (nice of the aliens to post 'em, eh?), and an array of increasingly savage weapons available for the taking.

Even then, within that same time limit, you have to go one-on-one against a "super-alien." Hope you brought the right weapon. Hope you know how to use it. Hope you have the presence of mind not to be repulsed by the alien's boyish good looks and to concentrate on annihilating him. (Hint: The laser works well against the first one; just don't take anything for granted!)

There's a problem or two with details, but nothing hair-tearing. On the first level, for example, characters have difficulty turning corners if they walk too close to the walls—the kind of thing that can cost



Shoot the slugs; rescue the hostages.

you when the enemy is in hot pursuit. After dying, I'd like to get back into the game a wee bit faster before my alien-slaughtering lust ebbs; there are no fewer than five screens between death and rebirth. And once a few aliens start meandering around the screen, there's a noticeable

drop in scrolling speed.

This is a challenging, colorful game, though—difficult enough to test your mettle, but not so tough that you'll quit in frustration. (\$49.95, Sega, distributed by Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667, 800/221-9884. Joystick required.)

STAR WARS

By Louis R. Wallace

EACH STAGE OF Star Wars is a high-speed, 3-D flight simulation that is every bit as fun as the arcade original. The imagery even rivals the light-

ing-fast vector graphics of the stand-up version.

As Luke Skywalker, you have a three-part mission. First, dodge fireballs and destroy the Imperial TIE fighters in a space-based dogfight. Darth

Vader's personal ship is in the fray, and while you can score extra points by blasting him, you can never destroy him.

In phase two of the Death-star attack, you fly over the

surface of the Battle Station, trying to shoot the laser towers while avoiding fireballs from the towers and ground ▶

ONLY The BEST For AMIGA For LESS!

CompuNik Computers Authorized AMIGA Dealer Service Center

This Months Specials:

20 MB Drive <small>Hard disk only</small>	\$369
40MB Quantum	549
65 MB Drive <small>Hard disk only</small>	520
80MB Quantum	939
AIR Exter. 3.5" Dr.	149
Amigen Genlock	139
Avatax 1200B <small>Modem</small>	79
Digi View Gold	135
GVP 40MB HD <small>A2000</small>	789
GVP 40MB HD <small>A500</small>	899
GVP 80MB HD <small>A2000</small>	1099
Hard Card A2000 <small>40 MB</small>	699
Inter. Dr 500/2000	125

Aegis AniMagic \$50

Panasonic Camera	\$239
Frame Grabber	519
Supra 30 MB HD	649
Supra 45 MB HD	729
Supra 80 MB HC	1079
Supra 2400B Mod.	129
SuperGen Genlock	649
Star NX1000 Prt.	185
Star NX Col. Prt.	285
Live 2000	329
Live A500/1000	255
My-T-Mouse	45
Xerox 4020 Col.	1079

SOFTWARE

Assembler	\$65
Amiga WB 1.3	23
3-Demon	68
Accountant	175
Adrum	46
Aegis Animator	80
Aegis Draw 2000	175
Aegis Images	24
Aloha fonts	15
Amiga Dos Express	20
Analytic Arts	38
Animate 3D	94
Animation Effects	31
Animation Stand	31
Animation Multiplane	55
Animator Apprentice	170
Asha's Fonts	55
ATalk III	62
Atredes RBS	90
Audio Master II	63
AZTEC C Pro.	145
B.A.D.	32
Broadcast Titrer	185
Butcher 2.0	25
CAD Parts	15
Calligrapher	80
CB Tree	62
City Desk	89
City Desk Art Compa.	20
CLI Mate	25
Clip Arts Vols.	12
CZ Master Editor	69
Comic Setter	59
Comic Setter-Funny	22
Comic Setter-SIFI	22
Comic Setter-Sup. H.	22
Data Retrieve	47
Deluxe Help (All)	23
Deluxe Music	65
Deluxe Paint III	95
Deluxe Photo Lab	90
Deluxe Production	120
Deluxe Video	88
Design Disks	22
DIGA	47
DIGI Paint	42
Director	42
Disk Mechanic	53
Disk To Disk	32
Disk Wick	30
DOS To DOS	35
DOS Express	19
Dr. T's KCS	155
Dr. T's M.R.S.	41
Dynamic Drums	47

ACCESSORIES

MicroLawyer	\$39
MIDI Magic	90
Modeler 3D	62
Money Mentor C	56
Move Setter	59
Multi Forth	57
Multi Prefs	17
Music Student	36
News Letter Fonts	27
Micro Base	24
Micro Text	24
Outline	42
Page Flipper +FX	93
Pagesetter	83
Pagestream	129
Photon Paint II	95
Photon Cell Anim.	86
Photocopythesis	90
Pixmate	42
Pro Video Plus	176
Pro Video Font Sets	75
Professional Page	219
Professional Draw	129
Prowrite 2.0	70
Project D	30
Publisher Plus	115
Quarterback	42
Raw Copy	36
SAFE T NET	31
Sculpt 3D	63
Shakespeare	135
Sonix	47
Soundquest D-50	23
Studio Magic	34
Superbase II	49
Superbase Pro.	59
Super Plan	26
Synthia	28
Tax Break	175
Texture	350
T Shell	28
Textcraft Plus	26
Tool Cady	35
Transport Cont.	65
Turbo Silver	29
TV Show/Text Ea.	99
Video Effects 3D	23
Video Scape 3D	55
Video Titrer	65
W Shell	61
Word Perfect	115
Word Perfect Lib.	35
Write 'N File	115
Zectrope	26
Zuma Fonts (All)	110

GAMES

2 Way Switch box	30
15" Monitor stand	55
1084 Carring case	49
A500 Carring Case	57
Mouse Pad	7
Phaser Gun	55
Ergo Stick Joystick	23
Disk Holder 50	24
Sony 3.5" (10)	20
BASF 3.5" (10)	18
Transvestor 2500	39
Tilt & swivel Satnd	39
X-Specs 3D	65
A1000 Parallel Cbl.	83
A500/2000 Par. Cbl.	20
Modem Cable	20
Serial Cable	42
Monitor Exten.Cbl 4'	20
Disk Dr. Exten. Cbl	20
A500 Imagewriter cbl	20
Autoduel	\$25
Balance Power1990	33
Battle Chess	30
Bureacracy	25
Calif. Games	30
Cosmic Bouncer	19
Dark Castle	27
Defender Of Crown	32
Deja Vu	35
Dragon's Lair	40
Earl Weaver Beball	35
Emerald Mine II	30
F/A-18 Interceptor	35
Falcon	49
Flight Simu. II	95
Hitchhikers Guide	13
Lord of Rising Sun	31
RoadWar 2000	25
Roger Rabbit	179
Silente Service	23
Sinbad	57
Snake Pit	125
Sowrd of Sodon	115
Starfighter II	84
Sub Battle	30
Tehno Cop	169
Three Stooges	80
TV Sports Football	60
Uninvited	33
Ultima IV	38

OUTSIDE CA ORDERS ONLY PLEASE!

For Info, Consultation, Tracing orders

Call our Customer Service

800-225-4017 (213) 854-0550

402 S. San Vicente Blvd. Los Angeles, CA 90048 Hrs. 10AM-7PM

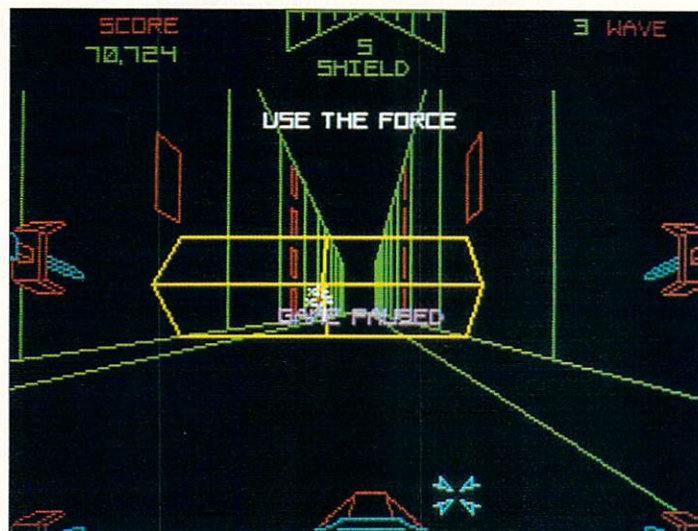
Policy: UPS ground \$3.50 per item- 2nd Day Air \$6.00 per item. (SIGNATURE REQUIRED NO DRIVER RELEASE). NO COD's. Shipping & Handling not included and are non-refundable. Personal Checks allow 20 days to clear. Product subject to availability. Prices subject to change. Add 3% for VISA/MC, 5% A.E. Defective merchandise repaired or replaced with the same item only. Rejected or Returned product subject to 20% restocking fee. No refund for products defective or incompatible or not performing satisfactory. no guarantees for product performance. In CA add sales Tax.

installations. If you destroy all the laser towers, you get a bonus of 50,000 points and are lucky to be alive.

For the climactic sequence,

must start at the beginning of the trench again.

Once you have defeated the Deathstar, you begin again at a new level (there are 99 in



Trench warfare.

you fly through the trench leading to the Deathstar's only vulnerable spot, the exhaust port. This is the toughest part yet: You must shoot and avoid fireballs as you go over and under an assortment of walls. If you manage to get a well-timed blast into the exhaust hole, you are rewarded with the sight of the Battle Station exploding. Miss, and you

all), this one a little tougher, with more ships and obstacles in your way. To make the game more challenging, you can start at level 1, 3, or 5.

Star Wars is an excellent port of the arcade favorite. It's fun, and I like it. (\$39.95, Broderbund Software Inc., 17 Paul Dr., San Rafael, CA 94903-2101, 800/521-6263. No special requirements.)

BALLISTIX

By Denny Atkin

MIX SOCCER, PINBALL, air hockey, and fast-paced arcade action and you get the apocalyptic ball game Ballistix. Each player tries to guide a puck to the enemy goal by blasting balls against it, causing it to ricochet across the field. Playing in an arena resembling the Boston Garden after a minor nuclear holocaust, Ballistix athletes have to contend with hyperspace tunnels, bumpers, pools of acid on the playing surface, magnets, red arrows

that speed up the ball, and splitters, which fill the screen with dozens of balls, causing the puck to careen wildly about the arena. Winning offers no respite, only another level with new obstacles. If you want incredibly fast head-to-head action, Ballistix is your game.

While this is primarily a two-player game, you can play solo in a tilted arena where

the ball has a natural tendency to head directly toward your goal. Battling gravity, however, lacks the challenge and strategy involved with a real opponent.

Ballistix isn't one of those games you'll master in a few days and toss onto a shelf. If you manage to conquer all 80 levels in the two-player competition (and the 50 in the solo game), you can customize the game with the two options screens. Just changing a single

setting to make the game balls fire from your goal rather than from your player's arrow-cursor makes Ballistix almost a new game.

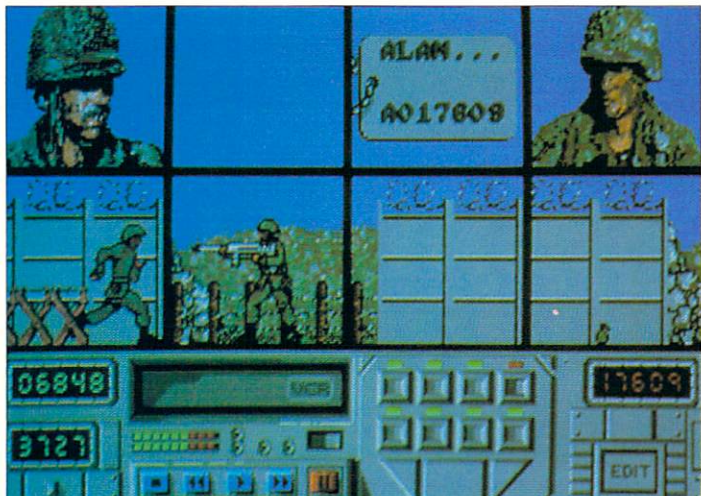
Behind Ballistix's outstanding graphics, great sound effects, and excellent techno-pop soundtrack, the game is well thought out and just plain fun. It's a standout in the flooded arcade-game market. (\$34.95, *Psychapse*, PO Box 483, Addison, IL 60101, 800/669-4912. Joystick required.)

COMBAT COURSE

By Neil Randall

BECAUSE YOU'VE PROVEN your ability, you've been admitted into Combat Course for Special Forces training. You take the role of a top-notch

walls, crawl through drain pipes and under barbed wire, leap out of the way of guard dogs, avoid simulated enemy fire, and do ten push-ups



Beyond basic training.

soldier who must run five training courses of increasing difficulty. The drill sergeant watches, shouting orders and deducting points for incorrect procedures. Complete the series, and you go back to the beginning to run them more efficiently.

You'd better be in good shape. First up is the Physical course, in which you jump over obstacles, climb over

whenever the drill sergeant commands. Next, in the Risk course, you must plant dynamite, jump over mines, learn to throw a grenade, glide along on pulleys, and avoid enemy machine-gun fire. The third basic course is Combat, where you engage in hand-to-hand combat, fire your SMG, sneak up on enemy guards, ►

This ad was prepared in PageStream, importing the bit-mapped image and the EPS logos & shears, printed with PixelScript 1.1 at 2X this size on the HP LaserJet, then reduced by half.

PixelScript™ v1.1

The PostScript interpreter for the Amiga

PixelScript (formerly PrintScript) enables you to print PostScript files on your Preferences printer, giving you its very finest output.

PixelScript v1.1 includes:

- A full Intuition interface—run PixelScript from either the Workbench or the CLI. You can choose your file with point-and-click requesters.
- More graphics support—rotate half-tone images and print Encapsulated PostScript clip art.
- Support for all major PostScript-generating word processing and desktop publishing packages, including the new releases.
- An AREXX port, and more!

PixelScript v1.1 also runs faster now, and in less memory.

Introducing... the PostScript Series: Fonts, Clip Art, and Utilities

Pixelations™

Pixelations, Inc.
P.O. Box 547
Northboro, MA 01532 USA
508-393-7866

All product names and symbols are the trademarks of their respective companies.

Circle 284 on Reader Service card.

AC/BASIC™ V1.3 — NEW

Easy to use compiler is **very fast** with great **graphics**. Plus, AC/BASIC is the only BASIC compiler for Amiga that is **compatible with the AmigaBASIC** interpreter so your existing programs can be compiled with no changes and run up to **50x faster**.

Easy to use documentation is indexed and includes over **200 examples** on disk: plus a full **spreadsheet** written in AC/BASIC and **HAM** graphics examples

Extensions include: **SELECT CASE**, **BLOCK IF**, **STATIC** arrays. **Recursive** subprograms. Create stand-alone applications (no redistribution fee) NCP \$195.

AC/FORTRAN™

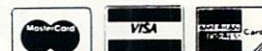
Mainframe quality, full feature **ANSI FORTRAN 77** compiler includes: **Debugger**, **Linker**, **Library Manager**, **Runtime Library**, **IEEE** math, and **C** interface. Supports **Complex** numbers, **Virtual** arrays, **Overlays** and **Linking**. Not copy protected. \$295.

68020/68881 version also available \$495.

abssoft
Scientific/Engineering Software

2781 Bond Street, Auburn Hills, MI 48057/(313) 853-0050

Amiga trademark of Commodore/Amiga. Microsoft trademark of Microsoft Corp.



Telephone orders welcome

Circle 175 on Reader Service card.

AmigaWorld 69

MOVING?

Subscription Problem?

Get help with your subscription by calling our new toll free number:

1-800-525-0643

In Colorado: 1-447-9330

between 9 a.m. and

5 p.m. EST

Monday-Friday

If possible, please have your mailing label in front of you as well as your cancelled check or credit card statement if you are having problems with payment.

If moving, please give both your old address and new address.

AmigaWorld
P.O. Box 58804
Boulder, CO 80322-8804



**This is . . .
VIDEO
MADNESS!**

We Do The Unusual Cables

IBM - DEC - H.P. - APPLE -
APOLLO - AMIGA - ATARI - VGA -
MULTISYNC - SAMPLERS - S-VHS - COAX

\$1800 to \$5700 + shipping & handling

**If You're Convinced It
Will Work ... CALL!**

**FREDMOND
CABLE**

For The Dealer Nearest You!

EAST COAST	WEST COAST
615-478-5760	206-882-2009

MasterCard VISA

and avoid enemies approaching from behind. The fourth course, called Combined, takes you through Physical, Risk, and Combat in turn, while the fifth, the Cobra Construction Set, links all types of obstacles in a random order.

You control your actions with a joystick or the keyboard; the keyboard is the best choice. The interface is frustrating and illogical, allowing you to do things, such as fire your SMG when you don't want to (at great cost in points) or let go of the pole you're hanging from, merely because you released the joystick button inadvertently.

When you've mastered all

five courses, you can construct your own with the course editor. Building a course is time consuming but relatively easy.

Combat Course has an appeal, albeit a limited one. Its graphics and sound are excellent, and its perspective forces you to act quickly and intuitively. Unfortunately, running through course after course gets tedious, and mastering the interface takes longer than it should. Still, the subject matter is brand new—a fact that alone merits praise. Try before you buy. (\$39.95, *Mindscape Inc.*, 3444 Dundee Road, Northbrook, IL 60062, 312/480-7667, 800/221-9884. No special requirements.)

HEROES OF THE LANCE

By Patrick Quaid

HEROES OF THE Lance is an official Advanced Dungeons and Dragons product published by SSI, but, contrary to what you might expect, it is not a role-playing game. It is, instead, an arcade game (or, as the manual defines it, an "action" game).

Your band of adventurers delve into some ruins in the hope of retrieving something called the Disks of Mishakal. If you run into anything or anyone on the way, kill it. Don't bother trying to reason with it or interrogate it—being alive in this game is a capital crime. This simpleminded approach is even more tedious in practice than you would think.

Combat, by far the most important aspect of Heroes of the Lance, is not as interesting as Advanced Dungeons and Dragons combat or even the combat of other adventure games. You control only one of the eight pre-defined characters in your party at a time;

for the most part, the only character that will fight is the one that you are controlling at any given time. The other seven just watch helplessly as the first guy either prevails or gets clobbered. The one character you control simply chops away at his or her foe using one of three swings. You can't surround your enemy, fire volleys of arrows, or otherwise gang up on it.

The party moves left and right in response to your joystick or keyboard commands. Although the graphics are not up to the level we expect from Amiga games, they are the strength of this game, which tells you something about the rest of it.

The game also has several bugs. Every now and then it will have problems with the graphics of the character you control and draw garbage on the screen. This makes the

graphical interface unusable until you switch lead characters. There are other graphical anomalies that don't have much of an effect on the game, but detract somewhat from its limited appeal.

If you want a good adventure game, you can do much better than Heroes of the

Lance. If action is what you want, get one of the Kung-Fu fighting games. They have similar story lines, and normally have more worthwhile combat. (\$39.95, *Strategic Simulations*, 1046 N. Rengstorff Ave., Mountain View, CA 94043, 415/964-1353. No special requirements.)

FIRE-BRIGADE

By Patrick Quaid

IN FIRE-BRIGADE, A reenactment of the 1943 battle for Kiev, you command the Soviet 1st Ukrainian Front or the German 4th Panzer Army. The computer or another person, either present or via modem, controls the enemy. You can begin at any of the battle's three major phases, and handicap the players according to their experience.

You control as much of the battle as you like, and your staff handles the rest. Because the game allows you to determine logistics, air support, frontages, objectives, pace of advance and withdrawal and several other factors, this administrative help is certainly welcome. As further assistance, the game is unprotected and comes with a well-written manual, three order-of-battle diagrams, and a map of the area around Kiev.

Fire-Brigade's realism compliments its flexibility. Combat takes into effect not only the type and current strength of the units involved, but also their morale, fatigue, and contact with their command and supply lines. The game also considers the quality of the

field commander, whose inability to carry out your orders can be just as exasperating for you as it was for the historical generals.

This frustration stems from the fact that you issue orders to the Soviet Armies or German Korps, not to the individual divisions they command. You give the orders with the mouse at the beginning of the day-long turn, then passively watch the results. You must think of the battle in the same terms as the actual commanders did.

Fire-Brigade's realism and flexibility make it fun to play, but Panther Games could have come up with a more interesting battle. Of the battle's three major phases, the first is lopsided in favor of the Soviets. The second is almost as bad in favor of the Germans. These positions are fairly common in war, however, and the last part of the battle is fought on relatively even ground. Victory conditions based on the actual battle give both sides a reasonable goal, even though the eventual outcome is, after all, history. (\$49.95, *Panther Games*, distributed in the U.S. by *Computer Software Service*, 2150 Executive Dr., Addison, IL 60101, 312/620-4444. No special requirements.) ■

ARTISTIC EXPRESSIONS

- Over 150 borders & graphics on each disk
- Gray scale shading
- All in high resolution
- Example files on each disk



QUALITY, AFFORDABLE CLIPART

Vol. 1 - Holidays, Cowboys, Business, Old English Monograms
Vol. 2 - Home, Teddies, Music, Flowers, Elegant Monograms

Available Now! Only \$49.95 each



P.O. Box 5772
Arlington, TX 76005

214-660-4780

Circle 158 on Reader Service card.

HDutil The complete Hard Disk utility US\$69-95

Fast backup mode - 20 Meg. in under 50 minutes ⊗ Include/exclude files by wild card - date - archive bit - list - globally - or by point and click ⊗ Auto configures to multi hard drive or partition systems ⊗ Works with all AmigaDos compatible hard drives ⊗ Multi tasking - designed to run in the background ⊗ 3 backup/restore modes - Dos backup mode allows you to access your backup disks with standard Dos tools ⊗ Formats disks as required ⊗ Catalog of files ⊗ Builds, sorts and manipulate all files and directories/subdirectories ⊗ Runs from WBench or CLI ⊗ Works equally well with dual floppies ⊗ Full intuition interface for ease of use ⊗ Many additional features allow you to - copy files - delete /move/rename files or directories - make new directories - copy or format floppy disks - interface with other programs to Type or Edit text files, View picture files and more. ⊗ Written in 68000 Assembler code ⊗ Minimum 512k Amiga required ⊗ NOT COPY PROTECTED

AutoKick Modify 1000 KickStart disks US\$29-95

(or for the 500/2000 with additional equipment, burn new Eproms)
Software autoconfig contiguous blocks of fastmem - increase available chipram ⊗ Perform internal addmem of another block of fastmem to speed reboots ⊗ Install a font of your choice in place of Topaz-8 font provided on KickStart ⊗ Install code into KickStart to prevent the spread of any of the known viruses ⊗ Reduce the annoying click from empty drives ⊗ Speed up floppy operation ⊗ Modify KickStart to use any floppy to boot from ⊗ Full intuition interface - all operations selectable from gadgets ⊗ Runs from CLI or WB ⊗ coded in 68000 Assembler ⊗ NOT COPY PROTECTED

DigiSoft
(no 2 Pay 10)

12 Dinmore Street, Moorooka,
Brisbane, Queensland.
AUSTRALIA 4105
Telephone (617) 277-3255

YES WE ACCEPT

Visacard

Mastercard

Bankcard

All orders shipped promptly
All orders include AirMail

Circle 55 on Reader Service card.

AmigaWorld 71

GO AMIGO!

THE WORLD'S LARGEST DISTRIBUTOR OF AMIGA™ PRODUCTS

SPECIALS... SPECIALS... SPECIALS... SPECIALS...

**FEDERAL
EXPRESS**

**GET IT
TOMORROW
WITH FEDERAL EXPRESS!**

- Order by 1pm Pacific Time, receive items by 3pm the next day
- Less than UPS Blue: \$6 for first 2 items, \$3 for each additional
- Some restrictions apply — call for complete details

GVP
GREAT VALLEY PRODUCTS
A2000 Hard Cards
42MB: \$799
80MB: \$1099

Other size/brands/models available

TOOL BOX

A2000 Chassis for
your A500 or A1000

In Stock Now!

**Midget
Racer** By CSA

68020 Accelerator for
all Amiga models.

from **\$369**

My-T Mouse

Replacement Mouse
for all Amiga models

Still \$42!

ATTENTION SHOPPERS!

DON'T FORGET.
GO AMIGO HAS THE BEST PRICES
AS WELL AS THE BEST SERVICE.
WE WILL MEET OR BEAT ANY LEGITIMATE
DEAL ON ANY AMIGA PRODUCT.

HARDWARE... HARDWARE... HARDWARE... HARDWARE

A-SQUARED Live — A1000\$259 Live — A500\$345 Live — A2000Call	GO AMIGO! Disk Head Cleaner\$15 30 Disk Case\$10 ImageWriter II CableCall Printer Cable\$20 Modem Cable\$20 Mouse Pad\$10 Sony CablesCall Custom CablesCall	Black Ribbon\$6 Color Ribbon\$7
ACCESS ASSOCIATES Alegra 512KCall	GREAT VALLEY PRODUCTS 68030 AcceleratorsCall Impact SCSI/RAMCall A2000 Hard CardsCall A500 ProductsCall	PAGE Carrying Bags for A1000/500/1084Call
AMICORE Transvestor 2500\$44	HAITEK X-Specs 3D\$97	PACIFIC PERIPHERALS OverdriveCall Subsystem 500\$219 Subsystem 500 w/3.5"\$365
AMINETICS People Meter\$53	HYPERTEC Deluxe MIDI\$74	PANASONIC VW 1410 Camera/Lens\$239 Variable Iris Lens\$79 11801 PrinterCall 11911 PrinterCall 1124 PrinterCall
ANAKIN Easy! — A1000\$369 Easy! — A500\$359 Easy! — A2000\$399	INKWELL Light Pen\$99	PHOENIX CPS 500 Power Supply\$84
APPLIED VISIONS FutureSound (Requires adapter for A500/2000)\$144	KETEK Command CenterSale!	PRACTICAL SOLUTIONS Mouse Master\$31
ASDG Multi Port Serial CardCall	MAGNI Magni 4000 GenlockIn Stock! Magni 4000-SIn Stock!	PROGRESSIVE PERIPHERALS Frame GrabberCall Pro Gen Genlock\$349
AVATEX 1200e Modem\$85 1200HC Modem\$115 2400 Modem\$199	M.A.S.T. Unidrive\$144 Twin Drive\$269 MiniMagsLowest! Tiny TigersCall	QUANTUM SCSI Drives (The Best)Lowest!
C. LTD. C View 1 (NTSC)\$39 C View 2 (C/L)\$39 Timesaver (A1000)\$55	MICROBOTS Starboard II (All Sizes)Call MultiFunction Module\$75 SCSI Module\$103 8 Up (A2000)Call Hard FrameIn Stock! Pop SIMMsCall	RONIN Hurricanes!Best Price!
CALIFORNIA ACCESS CA-880 3.5" Drive\$159	MICROWAY Flicker Fixer\$469 PAL version available!	SAFESKIN Clear Keyboard Covers\$19
COMMUNICATION SPECIALTIES Gen OneLowest!	MIMETICS Amigen Genlock\$149 Audio Digitizer\$85 MIDI Int. (A500/2000)\$45	SOUTHERN TECH My-T Mouse\$42 Internal Drive A2000\$119
CREATIVE MICROSYSTEMS Processor Accelerator A500/A2000\$174 A1000\$179 Video Interface/RFCall A500Call A2000Call	MOTOROLA 68881 Co-ProcessorsCall Speeds from 12Mhz to 20Mhz	SPRINT TECHNOLOGY 1.5MB for A1000Call Hard Disk InterfacesCall
CSA Over 30 BoardSale! 68020 BoardsCall Midget RacerHOT	NERIKI Neriki GenlockCall	STAR MICRONICS NX1000 Rainbow\$259
DIGITAL CREATIONS SuperGenCall	OKIDATA Okimate 20 with Plug n' Print\$199	SUNRIZE INDUSTRIES Perfect Sound\$69 Perfect Vision\$199 Color SplitterIn Stock!
ECE MIDI — A500\$58 MIDI — A1000\$58 MIDI — A2000\$58		SURFSIDE Master 3A 3.5"\$149
EPSON EX-800 w/Color\$499 (Other Models Available)		SUPRA 2400 Modem\$144 2400zi Internal (A2000)\$149 Hard DrivesCall
EXPANSION TECHNOLOGIES 50MB Hard Drive A1000\$879 32MB Hard Drive A500\$729		SYNERGY A500 Hard DrivesCall New Low Prices!
		TECHNICOVER Cover for A500\$14

ELECTRONIC ARTS SOFTWARE

Aaargh!\$25	First Letters and Words\$36	Queston II\$38
Alien Fires\$29	First Shapes\$34	Quizam\$25
Alternate Reality\$29	Gettysburg\$42	Reach For The Stars\$33
Annals of RomeIn Stock!	Global Commander\$29	Rebel ChargeIn Stock!
ArturaCall	Heroes of the LanceIn Stock!	Reel Fish'n\$32
Awsome Arcade Pak\$36	Hot & Cool Jazz Disk\$19	Return To Atlantis\$19
Bard's Tale\$32	Hunt For Red October\$36	Roadwar 2000\$32
Bard's Tale II\$43	Instant Music\$32	Roadwar Europa\$31
Battle Droidz\$26	Instant Music Data\$19	Roadwars\$26
Black Cauldron\$29	Intellitype\$19	Rockford\$26
Chessmaster 2000\$30	Interceptor\$35	Rubicon AllianceCall
Chessmaster 2100Soon!	Kampfgruppe\$46	Scrabble\$29
Commissioner's DiskCall	Kid Talk\$34	Seasons & Holidays\$19
Cosmic Relief\$27	Lancelot\$29	Skyfox II\$19
Deluxe Music\$63	Leisure Suit Larry\$35	Smooth Talker\$36
Deluxe Paint II\$84	Mad Libs\$16	SorcererCall
Deluxe Paint III\$99	Marble Madness\$19	Speller Bee\$34
Deluxe PhotoLab\$104	Master DetectiveCall	Thexder\$26
Deluxe Productions\$129	Master Ninja\$21	Time & MagikIn Stock!
Deluxe Video 1.2\$84	Math Talk\$34	Wizard WarsCall
Dinosaur Discovery KitCall	Math Talk Fractions\$34	Wrath of Nicodemus\$29
Double DragonIn Stock!	Mavis Beacon\$33	Zany GolfIn Stock!
Earl Weaver Baseball\$35	Phantasia\$31	
Earl Weaver 88 Stats\$15	Police QuestIn Stock!	
Empire\$36	Pub Games\$26	
Ferrari Formula 1\$36	Puzzle StorybookCall	

This section includes products from First Byte, SSI, and other companies whose products are distributed by Electronic Arts!

VISIT OUR RETAIL STORE SOON!

NOW SHIPPING BY FED-EX!

ARABUS Amiga DOS Toolbox \$40 AssemPro \$114 BeckerText \$114 DataRetrieve \$59 DataRetrieve Professional \$149 TextPro \$59 Amiga Machine Lang \$24 Amiga Tricks & Tips \$17 Many other books with disks available! ASBOTT A/C Basic (v1.3) \$134 A/C Fortran \$199 ACCESS SOFTWARE Heavy Metal Land Combat \$31 Tenth Frame \$29 World Class Leader Bld \$29 World Class Course Disk \$29 ACCESS TECHNOLOGY A Cad \$146 Fancy 3-D Fonts \$55 Now Available for Turbo Silver! ACCOLADE Bubble Ghost \$29 Famous Course Disk \$17 Fight Night \$34 4th & Inches \$29 Hardball \$37 J Nicklaus Golf \$30 Mean 18 \$27 Portal Wizard \$29 Test Drive II \$31 Test Drive II Data (Each) \$31 The Train \$15 ACS Word-Works \$67 Grade Manager \$69 Learning Curve \$55 Music Student I \$43 ACTIONWARE Creature \$28 Phaser Gun \$45 P.O.W. \$28 Prison \$28 ACTIVISION Battlehawks 1942 \$34 Battle Tech \$34 Beyond Zork \$35 Fish \$31 GameStar Tiles \$31 GeeBee Air Rally \$28 Journey \$28 Rampage \$29 Shanghai \$29 Zak MacCracken \$31 Zork Zero (w/ Graphics) \$31 ADDISON WESLEY Amiga Manuals (Now w/ 1.3!) \$24 Puppy Love \$24 AGNIS Animagic \$67 Animator/Images \$67 Arazok's Tomb \$32 Art Pak 1 \$32 Audio Master 2.0 \$63 Diga \$49 Draw 2000 \$49 Impact \$54 Lights Camera Action \$58 Modeler 3D \$36 Ports of Call \$36 Sonix \$39 Sound Trax 1 or 2 \$39 Video Trifler v1 \$39 Videocase 3D 2.0 \$122 ALPHA Aloha Fonts (each) \$15 ConSoundTration \$30 AMIGO BUSINESS Kickwork 1.3 (1000 only) \$134 ANCO Art Of Chess \$24 Face Off \$18 Las Vegas \$25 Micro Base \$39 Micro Text \$25 Mike The Magic Dragon \$19 Robbery \$19 Sky Fighter \$19 Super Six \$25 ANTIC Bobo \$24 Crash Garrett \$27 Human Design \$24 Future Design \$24 Architectural Design \$24 Microbot Design \$24 PHASAR 3.0 \$61 Pioneer Player \$27 Zootrigger \$27 Turbo Silver Data Disks Available! AROCK Masterpiece Fonts \$165 ARTWORK Bridge 5.0 \$27 Centerfold Squares \$24 Linkword Languages \$24 Strip Poker II \$28 Strip Poker III \$28 Strip Poker Data (Each) \$15 Thai Boxing \$17 ASDG Cube Master \$26 Advanced \$26 FACC II \$25 AVANTE-GARDE Benchmark Modula-2 \$134 Benchmark C Library \$31 Benchmark IF Library \$71	Benchmark Simplified \$71 Benchmark Debugger \$71 AVI Animated Fonts \$71 For Deluxe Paint III BAUDVILLE Award Maker Plus \$24 Award Maker Sports Disk \$31 Dream Zone \$20 B.E.S.T. INC. All Products \$21 BETHESDA Gridiron \$21 Wayne Gretzky Hockey \$34 BLANK SOFTWARE Sound Lab Amiga \$239 BLUE RIBBON BAKERY Who What Where When \$21 BRITANNICA Desognasaur \$34 BRODERBUND Downhill Challenge \$24 Fantavision \$39 Operation Clean Streets \$27 SimCity \$31 Sky Chase \$28 Space Racer \$21 Where In The World \$30 BROWN WAGON Easy Legend \$21 Express Paint 3.0 \$30 MidMagic \$38 Pen Pal \$21 Project Master \$130 Stellar Conflict \$29 TV Show \$17 TV Text \$21 Wordleap \$25 Write and File \$79 Zuma Fonts \$21 BUENA VISTA Roger Rabbit \$31 BYE BYE BYE Amiga 3D \$21 Sculpt 3D \$21 Sculpt 3D XL \$21 Sculpt Animate 4D \$21 Sculpt Animate 4D Jr. \$21 Tate Fonts \$48 C.L.T.O. Jet Set \$35 Jet Set Font Sets \$35 CAPCOM Bomber Command \$28 Defender of the Crown \$28 Side Arms \$21 CENTRAL COAST SOFTWARE Disk 2 Disk (New Version) \$37 Dos 2 Dos \$37 Quarterback \$54 CINEMAWARE Defender of the Crown \$21 King of Chicago \$21 Lords of the Rising Sun \$33 Rocket Ranger \$33 S.D.I. \$31 Sinbad \$31 TV Sports \$31 Three Stooges \$32 COMMAND SIMULATIONS Blitkrieg/Ardennes \$42 CONSTELLATION All Titles \$21 COSMI President is Missing \$21 CREATIVE SOLUTIONS ConSoundTration \$30 DATA EAST Bad Dudes \$21 Guerrilla War \$21 Robo-Cop \$21 DATA RESEARCH Key to C (V. 2.0) \$25 DELTA RESEARCH J-Forth (New Version) \$21 DEMONWARE Andromeda Mission \$28 Detonator \$28 Evil Garden \$31 DESIGN LABS Fine Print \$36 DESIGNING MINDS Chrono Paint \$54 DIGITAL CONCEPTS Toron 2081 \$18 DIGITEK Amegas \$24 Clever & Smart \$24 Cyber Complex \$24 Drum Studio \$35 Final Mission \$24 Gunshot \$24 Hole In One \$25 Hole In One Courses \$21 Holy In One Pucker \$21 Paranoia Complex \$21 Power Slick \$21 Sky Blaster \$21 Spin World \$21 Thunder Boy \$26 Vampire's Empire \$26 DISC COMPANY Critic's Choice \$178 Kind Words 2.0 \$21 Publisher's Choice \$19 SuperBack \$21	DISCOVERY SOFTWARE Arkadid \$23 Arkadid II \$23 Better Dead Than Alien \$23 Grabbit \$24 Hyperion \$24 Marduk II \$25 Sword of Sodan \$21 Virus Infection Protection \$32 Zoom \$20 DISK COUNT SW Spelling Tutor \$21 Vocabulary Tutor \$21 DOMAR Star Wars \$21 DR. T Patch Editors \$21 KCS \$177 KCS Level II \$21 MIDI Recording Studio \$149 The Copyist Pro \$149 We Have Nothing From Dr. T! EAGLE TREE SOFTWARE Butcher 2.0 \$25 Distant Armies \$21 EASWARE Home Builder's Cad. \$139 Home Builder's Choice \$21 EAST/WEST Take Stock \$34 EIDERSOFT Express \$24 Casino Fever \$29 ELAN Invasion (Rec. Level/ New Ver.) \$141 Performer \$21 EMERALD INTELLIGENCE Magellan (New Version) \$129 EPYX Battleship \$21 California Games \$21 Devanore \$21 Dive Bomber \$21 Four By Four \$21 Games, Writer Edition \$34 Mind Road \$21 Skate Wars \$21 Space Station \$21 Street Cat \$21 Sub Battle \$21 Techno Cops \$21 Under Sea Commando \$21 ESCAPE SEQUENCE Photosynthesis \$108 ETHOS Casino Fever \$26 Poker Solitaire \$24 EXPRESSWAY Express Copy \$31 EZ SOFT EZ Backup \$36 FINALLY Animation \$21 B Paint \$27 FIRST ROW Honey/Moors \$21 Prime Time \$27 Twilight Zone \$29 FREE SPIRIT Last Inca \$28 Media Line Fonts \$21 Securities Analyst \$56 Sex Visions From Space \$24 Ultimate Dos Utilities \$46 FTL Dungeon Master \$29 FULLER COMPUTING Project 0 (New Version) \$21 GIMPEL SOFTWARE Lint \$85 GOLD DISK Comic Setter \$74 Comic Setter Data Disks \$21 Design 3D \$66 Desktop Budget \$26 Font Set 1 \$48 Gold Spell 2 \$34 Movie Setter \$49 Page Setter \$21 Professional Draw \$21 Professional Page 1.2 \$21 Pro Templates \$38 Structured Clip Art \$21 Transcript \$21 GRAMMA SW Nag Plus \$54 GRAPHIC EXPRESSIONS Mastering G.L. \$29 HATTEX A Drums \$21 Amic Term \$21 Calcic \$44 HASH ENTERPRISES Animation Editor \$40 Animation Effects \$35 Animation Flipper \$40 Animation Multipane \$35 Animation Rotoscope \$35 Animation Stand \$35 Animation Apprentice \$21 Apprentice Libraries \$21 HILTON ANDROID Alsop's Fables \$19 Chicken Little \$19 Little Red Hen \$19 Little Red Pigs \$19 Ugly Duckling \$22	HI SOFT DevPac Amiga \$21 Turbo Basic \$115 HYPERTEXT GOMF (Latest Version) \$21 GOMF 3.0 w/Buttons \$54 IMAGE TECHNOLOGY Dungeon Quest \$20 Ringuide \$21 IN COGNITO Atreides Pro BBS \$99 Kingdoms of England \$21 Opticks \$21 Realm of the Warlock \$25 Snake Pit \$21 Targis \$21 IMPULSE Turbo Silver \$124 Terrain Disk \$36 INFINITY SOFTWARE Galileo 2 \$49 Grand Slam Tennis \$38 Hot Licks \$30 Shakespeare v1.1 \$99 While They Last! INNOVATION Broadcast Title \$21 Video Effects 3D \$142 INOVATRONICS InovaTools (New Version) \$65 Power Windows 2.5 \$63 INTELLIGENT MEMORY Emmetic Skimmer \$21 Garrison II \$21 TurboPrint \$38 INTELLIGENT MUSIC M \$149 INTERACTIVE SOFTWARES Calligrapher \$69 Atlas Fonts \$21 Lion's Calligraphers \$21 Newsletter Fonts \$32 Studio Fonts \$32 INTERPLAY Battle Chess \$34 Neuronancer \$21 INTRACORP Trump Castle \$28 JOK IMAGES Pro Video Gold \$199 Font Libraries for PV+ (each) \$74 JHM SOFTWARE Easy Title \$39 KARA Headlines 1 or 2 \$53 Subheads \$55 KFS SOFTWARE The Accountant \$189 KONAMI Boot Camp \$31 Contra \$31 Jackal \$31 Rushin Attack \$31 LAKE ROBERT LOGIC Call Mechanic \$60 LATITUDE C++ \$21 C.S.O. \$199 Compiler Companion \$78 Other Products \$21 LIGHTNING PUBLISHING The Big Picture \$23 LYNN'S LUNA C WB Extras \$25 MAGIC BYTES Print Panther \$34 MAGNETIC IMAGES Clip Art Disks 1-8 (Each) \$15 MANX Library Source \$199 Aztec C-Dev \$199 Aztec C-Prot \$149 Source Level Debugger \$57 MASTERTRONIC Kickstart 2 \$18 Kickstart 3 \$18 Metropolis \$31 Ninja Mission \$18 Sideviewer \$21 Space Ranger \$18 MELBOURNE HOUSE Magic Johnson Hoops \$21 War In Middle Earth \$21 World Trophy Soccer \$21 MERIDIAN SOFTWARE Demonstator \$27 Zing! \$49 Zing! Keys \$49 Zing! Spell \$49 METACOM ISO Pascal (New Version) \$57 Macro Assembler \$49 Dynamic Studio \$44 METRON I Snell \$33 MIGHTRON AB Zoo \$21 Anball \$28 Caldwyn \$28 Karate Kid II \$22	MICRODEAL Hit Night \$28 Hit Disk \$28 Insanity Fight \$28 International Soccer \$28 Jug \$27 Leathernecks \$29 Major Motion \$27 Ringide \$21 Slaggon \$29 SlapStream \$17 Tanglewood \$27 Tetra Quest \$27 Time Bandits \$28 Zero Gravity \$21 MICRO ENTERTAINMENT Golden Pyramid \$21 MICRO ILLUSIONS Black Jack Academy \$29 Craps Academy \$26 Discovery Data Disks \$21 Ebonstar \$29 Fairy Tale \$21 Galactic Invasion \$19 Land of Legends \$21 Music X \$21 Photon Paint \$69 Photon Paint Expansion \$23 Photon Vid Transporter \$21 Photon Vid. Cel Animator \$21 Planetarium \$21 Romantic Encounters \$29 Tracers \$27 Turbo \$19 MICRO MAGIC Forms in Flight 2.0 \$80 MICRO MASTER Aquavature \$21 Arena \$15 MICROPROSE Gunship \$21 Kennedy Approach \$30 Silent Service \$24 MICROSEARCH City Desk 2.0 \$34 Head Case \$21 MICROSIMULATIONS Tied Plus \$57 MICRO SYSTEMS SOFTWARE Analyst 2.0 \$74 BBS PC \$106 SoundSpace (Req. 1MB) \$159 Flipside \$31 Online! Platinum \$31 Organize! \$63 Scribble! Platinum \$33 The Works! Platinum \$199 MIMETICS 3 Demon \$72 Pattern Splatter \$21 MINDSCAPE Action Fighter \$28 Balance of Power \$31 Balance of Power 1990 \$21 Blockbuster \$27 Blocker \$21 Captain Blood \$21 Combat Course \$21 Deja Vu II \$21 Deja Vu Combat \$21 Hostage \$21 Indiana Jones \$28 Ice Hockey \$33 Indiana Sports \$33 Joker Poker \$33 Perfect Score SAT \$52 Road Raider \$27 Shadowgate \$33 Uninvited \$31 Willow \$28 MINDWARE Aunt Arctic Adventure \$27 Chronon 5 \$21 Holmes \$21 Des Cartes \$24 PageFlicker F/X \$101 Pender 3D \$108 PageSync \$21 MSI Raw Copy 1.3b \$39 MY MICRO BAD \$21 NEW HORIZONS SOFTWARE Flow \$69 ProWrite 2.0 \$75 ProFonts (each) \$26 ProScript \$33 NEWTEK Dig-Paint \$45 Dig-Drop \$174 Dig-View 3.0 \$131 Dig-View Gold \$131 NEW WAY Sound Oasis \$21 Dynamic Drums \$21 Dynamic Studio \$144 OCEAN SW Batman \$34 OMNITREND Beach \$29 Beach Scenario \$19 Caldwyn \$29 Paladin Scenario \$19	OPCODE SYSTEMS AMAS \$49 ORIGIN SYSTEMS Auto Duel \$21 Moebius \$28 Ogre \$35 Ultima III \$29 Ultima IV \$39 OTO DSM Disassembler \$44 OXKI A-Talk III \$21 MinPlan 500 \$21 Nimbus 1.3 (New Version) \$21 PEACOCK SYSTEMS GB Tree \$79 POLYLOFT SOFTWARE Crossword Creator \$35 Dominos \$18 Four In One \$22 POOR PERSON Thinker \$21 PRECISION SOFTWARE Pro Sound Designer \$21 Superbase Personal II \$99 Superbase Professional 3 \$229 PROGRESSIVE PERIPHERALS CLIMAT \$25 DiskMaster \$25 DM Term Pro \$79 InterCAD \$63 Mathimation \$42 MicroLaywer \$42 Pixmap \$54 PSYGNOSIS Aquavature \$21 Arena \$15 RAILROAD Baal \$22 Ballistic \$27 Barbarian \$21 Blood Money \$21 Captain Fizz \$21 Chrono Quest \$34 Deep Space \$21 Fire Brigade \$33 Menace \$24 Obliterator \$21 Star Wars \$21 Terrorpods \$28 QUESTREK Mission ConBat \$21 RAINBIRD Excellence (Req. 1MB) \$19 Carrier Command \$33 Corruption \$21 Silicon Dreams \$25 Scribble! Platinum \$33 StarGlider II \$21 Star Wars \$21 USMS Data Disks \$21 Virus \$21 READYSOFT Bomb Busters \$23 Cosmic Mutants \$21 Dragon's Lair \$38 Ganymed \$22 Rock Challenge \$27 ROB VIEW CREATIONS DeluxeHelp \$21 Deluxer for Deluxe Paint II \$21 Fraction Artist \$21 Kinema \$33 Linger Master \$33 Magic Myths \$35 Math Wizard \$35 Read & Rhyme \$33 Read-A-Rama \$33 Word Master \$35 SCORPION Black Shadow \$25 Foundation Waste \$25 I Luddicrous \$24 Phantasm \$24 Space School Simulator \$24 Synapse \$21 Transputer \$24 SEEDONA SOFTWARE Money Mentor \$39 SEGA Afterburner \$21 Alien Syndrome \$28 Out Run \$21 Vortex \$21 Space Harrier \$36 SEVEN SEAS SOFTWARE Color Commander \$21 Doug's Library Disk \$11 Doug's Math Aquarium \$59 SOFT CIRCUITS I Debug \$76 SOFTGANG Final Trip \$18 Power Pack (3 Games) \$21 Space Fight \$18 Vader \$18 SOFTLINK MultiPret \$23 Stuffed \$28 SOFT LOGIC PageStream \$129 PageStream Forms \$21 PageStream Fonts \$21 SW ADVANTAGE Investor's Advantage \$79 SOFTWARE TERMINAL Tele Epic \$21 Telegrams \$26 Teleview \$29 Teleview II \$21	SOFTWARE VISIONS Microscopy Plus \$115 SOUND QUEST Patch Editors \$21 Texture \$21 Texture 2 \$21 SPECTRUM HOLOBYTE Falcon = HOT! \$21 Solitaire Royale \$22 Tetris \$25 SPOTLIGHT Death Bringer \$27 Speedball \$27 Total Eclipse \$27 STAR SOFT Formula One \$21 Frost Byte \$21 Seconds Out Boxing \$21 Stock Market Game \$19 Santa Paravia \$21 SUBLOGIC European Scenery \$20 Flight Simulator 2 \$32 Japan Scenery \$20 Jet \$35 Scenery Disk 7 or 11 \$21 Scenery Disk 9 \$21 SUNRISE INDUSTRIES Desktop Artist \$23 Studio Magic \$75 SUNSHINE SOFTWARE Extend \$21 Home Inv Manager \$27 SYNOPSIS Interchange \$40 Interchange Object \$21 Interchange \$21 Turbo Silver Conversion \$15 TAITO Renegade \$21 Renegade Wolf \$21 TAURUS X-Cad \$425 THE OTHER GUYS Promise \$39 Match II \$29 Reason \$21 Synthia \$75 THREE SIXTY Dark Castle \$29 Warlock \$24 TIGRESS Disk \$36 TITUS Crazy Cars \$27 F4D Pursuit \$21 Fire & Forget \$21 Off Shore Warrior \$21 TRUE BASIC Developer's Toolkit \$39 Runtime Package \$109 True BASIC \$21 Libraries (Each) \$39 TSR MEDIA Boomer-Ad \$21 UNICORN Adv. of Sirbad \$35 Angry Apple \$33 All About America \$42 Animal Kingdom \$35 Arabian Nights \$33 Fraction Artist \$21 Kinema \$33 Linger Master \$33 Magic Myths \$35 Math Wizard \$35 Read & Rhyme \$33 Read-A-Rama \$33 Word Master \$35 UNIVERSAL WORLD Art Gallery 1 or 2 \$20 Fantasy \$21 Fonts & Borders \$21 Print Master Plus \$33 VEGA AmKit \$29 VIDEO VISIONS Data Disks for PageFlicker \$21 VISIONARY DESIGN DataStorm \$21 Vortex \$21 WILLIAM HAWES ARexx \$36 W-Shell \$36 WORDPERFECT CORP. WordPerfect \$179 WordPerfect Library \$21
---	--	---	--	---	--	---

Orders Only: **800-BE-AMIGA™**

In California: **800-843-2842**

Customer Service: **415-364-9714** Now on Compuserve: **71230, 2412**

Facsimile (FAX): **415-365-2073**

Send Mail Orders to: **GO AMIGO** 2682D Middlefield Road, Redwood City, CA 94063
 (Money Order, Cashier's Check, or Qualified P.O. only. California residents add sales tax.)

SHIPPING INFO: Software shipping rates are \$2.50/item using UPS Ground service (max. \$7.50) or \$4.50/item using UPS 2nd Day Air Service (max. \$13.50). For Federal Express shipping rates, see opposite page. Call for hardware rates. APD, Mail foreign shipping extra. Call for more info. **RETURN & REFUND POLICY:** All returns must have an RMA #. Call Customer Service to request an RMA #. Defective merchandise under warranty will be repaired or replaced. Returned product must be returned postage prepaid with all original packaging. We do not offer refunds for defective products or products that do not perform satisfactorily. We make no guarantees for product performance. Any money back guarantees must be handled directly with the manufacturer. **OTHER POLICIES:** We do not charge your card until the product actually ships. Purchase order customers must have credit application on file. No surcharge for VISA and MasterCard. When ordering with credit card, PLEASE include expiration date and name of bank! Call Fridays for unannounced specials.

Amiga is a trademark of Commodore-Amiga. Go Amigo is in no way associated with Commodore-Amiga. Delivery subject to product availability. Prices subject to change. Circle 26 on Reader Service Card

from p. 16

machine, Superplan is a complete data-analysis and business decision-making tool. In addition to its primary function as a spreadsheet, the package incorporates a programmable non-relational database, a statistical/business charting package, and a project-management system. With its exhaustive number of capabilities, it is no surprise that the program consumes nearly 415K. While it functions adequately on a one-megabyte system, at least two megs of RAM is appropriate for multitasking a number of projects or working with very large spreadsheets.

NUMBER CRUNCHER

As with all spreadsheets, you enter data into Superplan by way of cells. Superplan sports a huge 1024 × 2048 cell matrix, and allows you to name cells and ranges of cells. The program protects cells from accidental deletion, and allows you to link spreadsheets so you can create three-dimensional-type applications (i.e., call on cells from other spreadsheets). Superplan also allows you to divide the display—either horizontally or vertically—so that you can easily compare two spreadsheets or two areas of a single spreadsheet that are separated by many rows or columns.

Superplan shines in terms of control options. You can navigate the program via pull-down menus, Lotus-like slash commands, or command options and screen gadgets. You can specify individual cells and cell ranges in formulae and operations either by typing their names or by clicking on them with the mouse. The price for this flexibility is limited display space for data; only 16 rows of cells are accommodated on non-interlaced screens and 41 rows on an interlaced display. A nice option would be to forgo all gadgets and command lines in favor of extra rows.

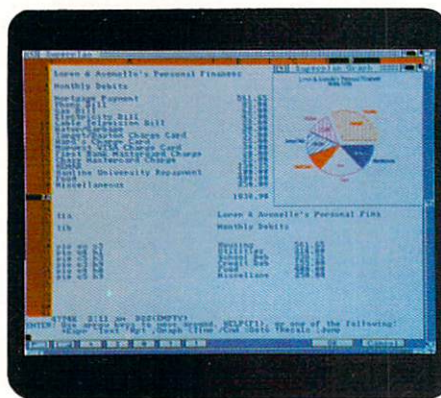
Superplan serves up a data-crunching smorgasbord to appease the huge appetites of calculation-intensive applications. The program includes a complete spread of mathematical, financial, logical, and temporal functions—74 in all. The only area in which I found Superplan deficient was statistical functions. While count, average, maximum, and minimum are all included, standard deviation,

variance, and median are noticeably absent. These are easy enough to derive, however, and through all my tests I found Superplan to be a fast and accurate calculator. As a boon to those who work with data from multiple environments, Superplan can read from and write to such industry-standard file formats as .wks (Lotus 1-2-3), .CSV, .DIF, and the dBase II and III formats.

QUERY TO AND FRO

Superplan can sort items within tables on the basis of single or multiple cells within a row, conduct criteria-based text and numeric queries on ranges of cells, and copy or delete cells that meet a specified criterion. Additionally, several arithmetic functions perform calculations based on related data within tables.

These features, in concert with Superplan's programmability, allow the program to function quite ably for small database applications. I would not rec-



Picture this: object-oriented graphs.

ommend using Superplan to manage a database of more than a few hundred items with a limited number of fields, however, because its cellular nature is not conducive to speedy queries or data entry flexibility.

TIME IN A BOTTLE

Superplan addresses the hot new theme of project management by combining the data-management and -analysis abilities of a traditional spreadsheet with facilities for doing time studies, projections, and scheduling. In linking these two concepts, the program helps you do detailed "what if" analyses on both time and resource aspects, and thus gauge the global effects of such events as a crucial staff member's illness or an overrun of cost or time in any area.

Superplan's approach to project management is both logical and comprehensive. Central to its time-study and -forecast portion is an ability to automatically construct a planning calendar or timesheet based on the smallest significant unit of time. Within the timesheet, human and capital resources are visually linked (by way of markers) to individual tasks according to the amount of time assigned them. From there, Superplan can calculate a "critical path"—a sequence of tasks that are dependent upon each other—and report numerous statistics. For procrastinators, a float function lets you to build in anticipated extensions to deadlines. Finally, Superplan's Gantt chart represents your project graphically in terms of time, resources, and tasks.

PLEASING TO THE EYE

Superplan exploits the Amiga's graphics prowess by allowing you to create stunning graphic representations of your data in nine forms, including variations of the traditional line, bar, and pie charts. In all cases you have complete control over text and title placement and sizing, element cross hatching, color, axis scaling and increments, grid, and footnotes. Superplan uses a plotter-like object-oriented system for rendering its graphics into a window separate from your data. This makes it possible to resize text and graphics precisely, and move them quickly and easily—even push them to the rear of the spreadsheet display. The object-oriented system precludes the usage of standard-bitmapped Amiga fonts in graphs, but because Superplan saves graphs in IFF format, you can easily add them via a paint program.

To create the graphs themselves, you use Superplan's graphics-command language to imbed directives into cells containing the data you want to represent graphically. While this system gives you tremendous control, it makes the graph-creation process time consuming, tedious, and difficult to master. A better approach would be an additional option for creating graphs through a menu-driven dialogue process that would imbed the commands automatically.

Building further on its graphic strengths, Superplan gives you a number

Another bit of insight on the part of Superplan's designers was their inclusion of an alternative print mechanism. This is particularly nice as Superplan's object-oriented graphics facility allows your graphs to be scaled mathematically to your printer's best resolution and to your size requirements. Using this option I got great results on both an Epson-compatible dot-matrix and a Hewlett-Packard-compatible laser printer.

AUTOMATION

Closing out Superplan's litany of features is its three-way programmability. The Autos facility, which allows you to assign as many as 254 keystrokes to each ALT-, CTRL-, or function-key combination, works with all of your spreadsheets. Macros, on the other hand, reside in one or more cells and allow you to automate operations within a specific spreadsheet. They, too, can access any of Superplan's facilities, but provide more sophistication. You can set up Macros to start automatically once the host spreadsheet loads, use them to call autos or other macros, even create entire turnkey-type applications in which Superplan itself is transparent. Superplan's ARexx port allows the program to control other ARexx-compatible applications or be controlled by them. Using this facility, you could use Superplan to create invoices or graphs based upon data (or calculations from data) in your database package. (For more examples and a list of ARexx-compatible programs, see the article entitled "ARexx—The Missing Link" on p. 30 of this issue.)

ALL THIS

Fortunately, Superplan's extensive functions are eloquently documented in its 337-page spiral-bound, indexed manual. The book is divided logically according

to topic and includes a number of illustrations and examples. A reference guide and a disk full of examples are also included in the package.

Although it is designed primarily for advanced productivity users, Superplan is accessible on all levels. The program's abilities are limited only by your imagination and ingenuity, and you will likely never outgrow Superplan's capacity. With some effort, you can even construct Superplan systems that rival mainframe applications in terms of power, and surpass them in terms of consistency and ease of use.

Superplan
Precision Inc.
Surrey, UK
01-330-7166

8404 Sterling St.
Suite A
Irving, TX 75063
214/929-4888
\$149.95
One megabyte required.

DISK MAGIC

Pull a mouse out of your hat and make it perform CLI tricks.

By C.W. Mann

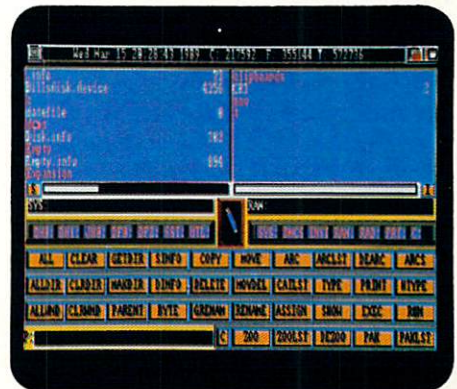
AT FIRST GLANCE, Disk Magic looks no different than the many other utilities that allow mouse-controlled access to CLI functions. This program, however, constitutes the most comprehensive effort I have seen to make the Amiga fully operable via mouse. What sets Disk Magic apart are its definable features, among them 14 definable directory gadgets and 108 definable menu functions. Engaging these options requires CLI literacy, though. Unlike most CLI eliminators, Disk Magic is geared not toward those who do not know how to use the CLI, but toward those who would rather not. It is a generalized DOS utility, file-management tool, and system-automation program all in one.

Disk Magic has 35 ready-to-use functions, including a disk-and-directory catalog feature, and the ability to dump files to screen or printer in Hex and AS-

CII formats. It supports ARC, ZOO, and PAK (the package includes these CLI-based public-domain archiving utilities and documentation for them) directly; the command strings these programs call on most often are resident in Disk Magic's code structure. You can run and execute binary and script files with a mouse click, as well, and Disk Magic offers wild-card capability for both moving files and copying files and directories en masse. Two other features that are nice but not novel are disk-format and -copy functions with safety options that you can set by editing the configuration file. You can work on your choice of an eight- or four-color screen, which features two windows side by side, one for your source device and the other for destination.

WATCH CAREFULLY, NOW

Disk Magic's differential is its extraordinary flexibility. With your own text editor, you can configure the program's data file of over 3100 bytes and thus perform almost any operation by simply clicking a gadget or selecting a menu



Make the mouse part of your CLI act.

item. Setting lag time between successive ARC, ZOO, and PAK functions is easy. So is specifying the interval between frames in a slide show (one setting allows you to click the mouse to change frames), and turning the sound on and off. Customizing the program beyond this point, though, can be tricky.

Programming a gadget requires that you assign it a name and set up a default path. Let's say that you do a lot of work on a partition of your hard drive called Waterfalls, and would like to be able to access that partition via a gadget. If Wa- ►

terfalls is a division of a subdirectory called Pictures which is in turn a subset of the Paint directory, you must edit the third line of the Gadget sub-table within the DiskMagic.data file to read Paint (this names the third button under the Disk Magic file windows Paint), then change the third line of the Gadget Path grouping in the same file to read DH2:Paint/Pictures/Waterfalls.

The same applies to each item in Disk Magic's seven pull-down menus. Once you decide how a menu item will be and what it is to do, you must edit the corresponding command sequence in the appropriate line of the default-file section. You can launch up to 108 full commercial applications (or DOS commands or other functions) from Disk Magic's pull-down menus in this manner. You have full control over literally every pull-down menu function (linked operations), but you must know how to manipulate AmigaDOS to succeed...and the manual offers no help in this regard. If you get it wrong, the system will do the wrong thing or fail to respond. Don't buy this program unless you know how to troubleshoot!

THE OPENING ACT

Disk Magic installed easily on my hard disk from its non-bootable floppy (the manual promises that future releases will boot from DF0:). It worked fine with a hard drive, floppies, RAM:, and Workbench 1.3's RAD:, and it multitasked perfectly with every system enhancement program I own. Every function I tried performed just as the documentation promised.

I met with the guru only once—while I was exiting my test run with over 300K free.

Disk Magic runs from its own non-interlaced screen, independent of Workbench. This is fine for most purposes, but the results of issuing a Run command (to start another program) from Disk Magic's CLI vary. While some programs open in front of the Disk Magic screen as they should, others stay glued to the Workbench screen sending Disk Magic's screen to the back. This is not Disk Magic's fault, but you should be aware that some of your experiments may fail.

MANEUVERING TO MANEUVER

The 5½×8½ stapled manual is fairly thorough in scope, but the phraseology

is almost impenetrable, and misspellings and poor grammar are distracting. Reading the program is far easier than reading the manual, so I suggest that you keep the manual for reference and play with the program to unlock its secrets.

Disk Magic is helpful for those who need to manipulate lots of compressed downloaded files quickly, and programmers will find it useful for automating the entry of commonly used command lines. On the other hand, Disk Magic does not display entire trees of files and directories for quick viewing, and there is no direct way to manipulate the AmigaDOS protection bits from the program. People who configure Amiga systems for offices or industrial applications will find Disk Magic useful; my only reservation regarding this application is that Disk Magic provides no means for disabling AmigaDOS function gadgets and directory windows, and as long as they stay active, the system is vulnerable to curious mouse-button pushers.

Disk Magic is not perfect, but its impressive performance and flexibility lend hope for the future. It is an effective, high-level tool. Its base functions are as easy to use as those of other CLI utilities, and thus, while it is beyond the scope of most mouse-bound Amiga users, it offers a path for growth.

Disk Magic

DMH Technologies

14873 95th Place
Minneapolis, MN 55369
612/420-5572
\$49.95

No special requirements.

3-D DESIGN DISKS

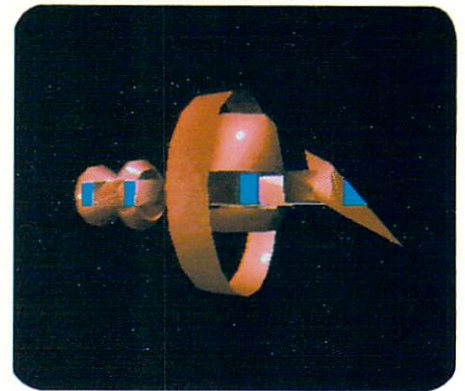
Like a good cake mix, these disks can help you achieve great results in a snap.

By Wayland Strickland

CREATING A DETAILED three-dimensional object is not a quick or easy task, no matter which design program you use. Antic Software can save you time

and effort with its Design Disks, a library of 3-D "clip art" pieces you can assemble together or combine with your own creations. The four-part series gives you a variety of subjects to include in your scenes, from futuristic spacecraft and robotic models to architectural components and the human skeleton.

All disks are available in three versions: one for use with VideoScape 3D and Modeler 3-D (both by Aegis), an-



I have seen the Future disk, and it contains a Ringship model.

other for Sculpt 3D, Sculpt-Animate 4D, and Sculpt-Animate 4D Jr. (from Byte by Byte), and a third for use with Turbo Silver (Impulse). I tested the VideoScape/Modeler version of each single-disk package. The disks are non-copy-protected, and each includes a Read_Me file containing directory assignments, animation tips, and so on. Because the objects are saved in text format, you can transfer them to other programs using Interchange by Synthesis. All objects are composed of triangles, which makes for fast rendering and permits easy conversion to programs (such as Turbo Silver) that employ this type of polygon, but slows down the process in VideoScape and Modeler, which use complex polygons.

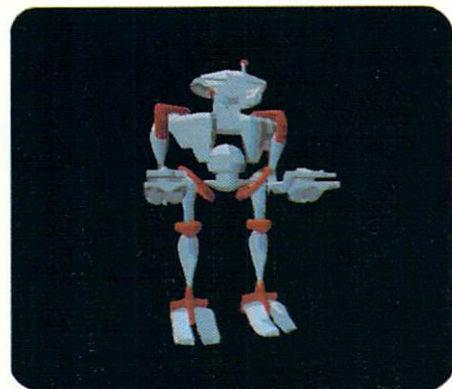
All of the design packages come with a set of blueprints—hardcopy diagrams of the individual pieces and, in some cases, assembled models with listings of the parts that make them up.

AN EYE TOWARD THE FUTURE

The Future Design Disk is a collection of parts you can combine to form complex

space-age objects and vehicles. The disk's directories group together similar types of pieces. They are: Crewmods (main bodies of space ships), Engines (engine parts), Wheels (wheels and tread sets), Wings (airfoils and solar panels), Tanks (fuel tanks), Frames (whose purpose is to connect pieces to the main body), and Ringdisc (circular airfoils).

The root directory contains several impressive space ships and robotic vehicles



Microbotics: the making of tripods and other automatons.

constructed from the various parts on the disk. A complete android is also in the root directory, although its components are not available separately. Strangely, the space station pictured on the Future Disk package is not included in complete form, and its axis, an extruded hexagon, is not provided in any of the directories. Nevertheless, a dia-

gram of the space station is included in the blueprints.

In addition to detailing all available components, the Future Design Disk blueprints provide various sub-assemblies to demonstrate possible combinations of the individual pieces.

In a related vein, the Microbot Design Disk contains robot parts—numerous heads, bodies, claws, hands, legs, feet, treads, and so on—plus five intricate robot models. You can interchange parts for almost unlimited possibilities, or start from scratch and build your own automatons. The Microbot blueprints contain detailed drawings of the sample robots and a breakdown of the files they derive from. Also on the blueprints, you will find the number of vertices, faces, and component objects listed for each individual part and each assembled model.

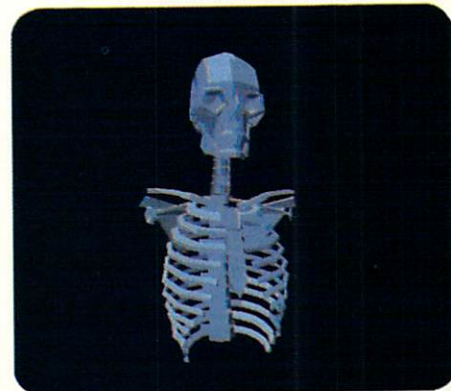
FROM THE GROUND UP

The Architectural Design Disk is full of walls, doors (with frames and without), roofs, arches, columns, skylights, and staircases. Like the Future Disk, each category has its own directory. There are 11 arches including circular, gothic, paragonthic, and one called shell. Roofing includes domed, extruded, and four square styles. There are also four types of towers and six varieties of columns.

Wall frames allow you to create skeletal structures. Walls, with and without openings for doors and windows, are included. There are also eight kinds of

doorways and doors, and nine types of windows—including round, square, triangular, half, and full. Skylights come in three shapes: Two are square, one is rectangular, and one is hexadecimal. Probably the most impressive object of this package is the spiral staircase; a four-step standard staircase is also provided.

The Architectural blueprints are very well drawn, although they do not include any mention of the objects' relative



HeadTorso takes it from the top.

size—a feature that would make it easier to use them with homemade objects. There is only one demonstration object included in this package, however—on Page Three of the blueprints. There are several completed structures, a deck house, a plaza, and an ordinary house. Here too, it would have been useful for the manufacturer to include these completed models on the disk, providing an ▶

“Narly Drive, Dude.”

-Stevie “Surfs-up” Sherman - Malibu, California-
Satisfied CA-880 owner



California Access™ All rights reserved.
780 Montague Expwy. #403, San Jose, CA 95131
Tel. (408) 435-1445, Fax. (408) 435-7355
Stevie “Surfs-up” Sherman is a fictitious character,
however, Malibu, California does exist.

Here at California Access™ we believe “Surfs-up” said it best. But don't take his word. Purchase your own CA-880 disk drive and let us know what you think of this narly drive.

Narly Features:

- Passthrough
- Power Disable Switch
- Low Power Consumption
- 880K Capacity



example of how a complex, finished object may be accomplished.

DEM BONES

The Human Design Disk provides skeletons for both genders separated into three main object files. The first file, HeadTorso, contains the skull and upper thorax. ArmsHands includes left and right arms and hands, while HipsLegs is composed of the pelvis and both legs.

A joint file identifies the locations of joints within the human body. There is also a right hand, which is well-represented except for the carpals; while the wrist is actually made up of 6-8 individual bones (carpals), the 3-D object represents them as a single bone. Finally, the two files called WatchMan and WatchWoman are very simple geometric block figures. These are useful for projects that do not require great detail, as they save you from waiting for the computer to render each bone.

The skeletons do a good job of representing the largest bones and their placement within the body. They do not, however, show such details as the smaller joints, bone processes, foramina, and so on—even though these are labeled on the blueprints in some cases. While the vertebrae look good, the ribs are a bit squareish, and the feet are positively without definition—they look like shoes!

The blueprints contain Latin terminology that is both common (humerus) and not as well-known (os coxae). This can result in confusion, especially if this package is being used to teach basic anatomy terminology: The humerus is a specific bone, while the os coxae is a region or area of bones. In addition, the blueprints attempt to label bones that are indistinguishable, at least for these drawings.

ALL TOGETHER, NOW

The process of assembling pieces to create complex objects is much easier in Modeler 3D (which is an especially adept object editor) than with VideoScape (whose forte is rendering). In addition to more completed objects, I would like to see further animation tips included on the disks. My complaints are minor,

though; I think a lot of people will find Antic's Design Disks helpful.

Future Design Disk Microbot Design Disk Architectural Design Disk Human Design Disk

Antic Software

544 Second St.
San Francisco, CA 94107
415/957-0886
800/234-7001
\$34.95 each

Compatible 3-D software required.

TOOL BOX EEC-2120, EEC-2520 PHOENIX PEC-2500

Two slots are better than none.

By Morton A. Kevelson

No matter how hard you try, you just cannot get Amiga-2000 style peripheral cards to function inside an A500 or A1000. There's no need to despair, though; Expansion Technologies and Phoenix Electronics both offer boxes that hook up to your expansion bus and accommodate Zorro 2 peripherals. I recently tested Expansion Tech's Tool Box models EEC-2520 and EEC-2120, which let you use two 100-pin boards with the Amiga 1000 and A500 respectively, and the Phoenix PEC 2500, which is identical to the Tool Box 2520—except for the logo. There is a good reason for the similarity: All three boxes are manufactured by Phoenix Electronics (Phoenix makes a model PEC-2100 for the A1000, as well, and offers the option of a buffered 86-pin coprocessor slot on both units).

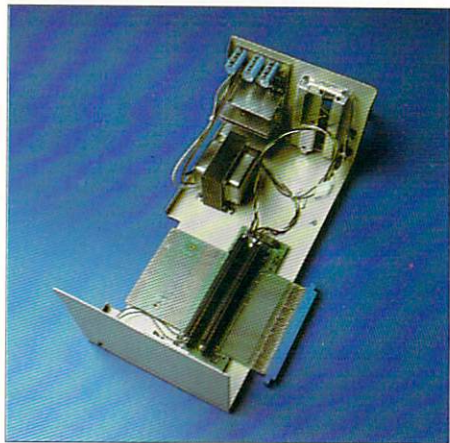
MEASURED UP

All the cases are smaller than the average bread box—7½ inches wide and 14¾ inches deep—and rest on four rubber feet. The A500 style measures 6¼ inches in height while the A1000 box stands 7½ inches. Installed on the Amiga 1000, the box extends about 6 inches beyond the back of the computer, while the front of the Amiga 500 unit protrudes 1½ inches forward of the expansion slot.

Inside each box's sturdy aluminum housing, a double-sided circuit board holds a pair of gold-plated 100-pin slots. In addition, each chassis contains one

86-pin connector to the computer's expansion bus (also gold plated) and a wave-soldered pass-through port, which allows you to connect other peripherals to the outside of the expansion box. The fine, lightly-insulated wires that run across the bottom of the case call for you to take care while inserting expansion cards.

A power connector for a hard disk (which makes it easier to join the drive with a controller) was installed on the circuit boards of both the PEC 2500 and



Inside they're all the same.

EEC-2120, but not on the EEC-2520. (According to Expansion Technologies, however, all boxes are now shipped with internal power connectors.) The only way to fit a hard drive in any of the boxes is to configure it as a hard card. Inside the A1000 chassis, a hard card should be installed in the slot furthest from the bus; in the first slot, a hard card blocks half of the second slot. In the 500 version, a hard card fit fine in either position.

BACK OF THE BOX

The box's rear panel looks a bit like the back of the Amiga 2000's expansion section: Two cutouts (on the A2000 there are seven) allow you access to the installed cards—so that you can connect a 5¼-inch drive with a Bridgeboard, for instance. While the A2000 comes with metal plates to cover each slot, however, the Phoenix box arrived with just one, and neither Expansion Tech package included any such covers. Normally, when

you buy an expansion card that requires connection with something outside the chassis, you get a plate complete with connector. For boards that require no such connection, however, a metal strip may or may not be supplied. None of the units came with covers for the pass-through connector, either. Leaving these ports exposed not only allows leakage of radio-frequency radiation (which can interfere with other electronic devices nearby), but leaves the box—and the cards inside—vulnerable to damage by stray paper clips and the like.

Also on the rear panel of each box is an AC fuse holder. Labels on the EEC-2120 and PEC 2500 holders indicate that the fuse is one-half amp, while the EEC-2520's label calls for a five-amp fuse. I pulled the fuses out and found two were five amps and one was a half amp. I am disappointed by the apparent lack of quality control, and suggest that you verify the fuse amperage on your unit, should you buy one.

JUICE IT UP

The 18-gauge power cord is seven feet long, and terminates in a standard three-prong, grounded plug. An LED (light-emitting diode) on the unit's lower left corner glows green to indicate that the power is on. There is no power switch and none of the instruction manuals mention a preferred power-up sequence for computer and expansion box.

While the Expansion Technologies boxes come with internal power supplies, Phoenix sells the units with and without power supplies. A power supply of some kind is essential given that the Amiga 500 has no reserve power capacity and the A1000 has very little. Although the manuals discuss various alternatives for hooking up your own supply, I recommend buying the system complete. You would have to mount a third-party power unit externally (there is little extra room inside the case)—a makeshift setup.

According to Expansion Technologies, the power supplies built in to the units I tested put out both five and 12 volts (but not — 12), and are rated at four amperes for five volts and two amperes for 12. This is the equivalent of 44 watts, which should be adequate for powering a pair of Zorro-II cards and a hard drive plus one or two boards on the pass-through connector. To be safe, you should check

the power requirements of your cards with their manufacturers.

The power supply is based on two low-power, MC1723, adjustable-voltage regulator, integrated circuits. Each circuit is boosted by a pair of 2N3055 bypass transistors encased in metal and mounted on aluminum heat sinks. While short-circuit protection, current limiting, and thermal sensing are incorporated in the MC1723s, I would like to see fuses on both outputs to further guard against component failures. In the unlikely event of a short circuit in the transistors (their usual failure mode), excessive voltage would be applied to your installed expansion cards, and could render them useless.

ONE SIZE FITS SOME

The box's unbuffered design allows it to support only one DMA device. Lack of buffering also means that configuring information must pass from one board to the next. Thankfully, the circuit board has a jumper block you can set to allow use of the second slot while the first is unoccupied. A second jumper lets you run peripherals connected to the outside

of the chassis while both slots are empty.

Compatibility with third-party expansion cards is an open question, as there are subtle design differences between the Amiga 2000's expansion bus and the unbuffered expansion chassis. These differences are, according to Expansion Technologies, less problematic on the A500 than on the A1000; the company has found no problems with any memory boards or hard-drive interfaces in the A500, although Microbotics recommends that their HardFrame not be used in either box. For the A1000, Expansion Technologies' spokesperson mentioned that the Amiga 2000 version of LIVE! (A-Squared) would not work with the Tool Box, and I had no luck running the LIVE! 1000 version on the pass-through connector either. The Tool Box manual lists several products that have been found to be compatible with the EEC-2120: Expansion Technologies' Flash!Card, the Phoenix HCA SCSI hard-disk controller, the Microbotics two-meg RAM card and 8-UP! board (B version), and the Commodore A2090A controller and A2058 card. I tested the A1000 Tool Box with a Micron two-meg ▶

Ext. 3.5" Drive

Only

\$125.⁰⁰

Introducing the new external 3.5-inch drive, fully compatible with the Amiga 500/2000.

Compatibility you are looking for at an affordable price.

MEIJI®

ORDER ONE FOR
YOUR AMIGA TODAY!

**1-800-433-6224 (Outside N.Y.)
516-763-1025 (In New York)**

KINSON PRODUCTS CORPORATION

484 Sunrise Highway
Rockville Centre, N.Y. 11570

Amiga is a registered trademark of Commodore Business Machines

Circle 91 on Reader Service card.

board and had no problem most of the time, but occasionally got a guru message while booting up.

The Expansion Technologies manual stresses the importance of grounding your Amiga 1000's PAL chips, as they have found this affects the expansion port (although I have used other peripherals and expansion devices before on my A1000 without problem). I suggest that you test the expansion box with any peripheral cards you own or intend to buy before committing yourself to a final purchase. If your chosen cards work, the flexibility the expansion boxes provide will be worth the price.

Tool Box EEC-2520 and EEC-2120

Expansion Technologies

46127 Landing Parkway

Fremont, CA 94538

415/656-2890

\$259.95 (with power supply)

No special requirements.

Phoenix PEC 2500

Phoenix Electronics

PO Box 156

Clay Center, KS 67432

913/632-2159

\$179.95

\$254 (with power supply)

No special requirements.

X-Shell

Hang on, X-CAD, it's X-Shell to the rescue!

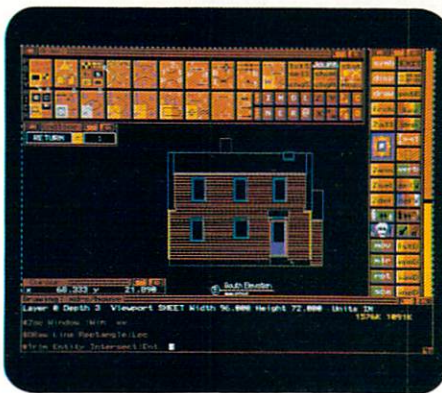
By Stephen Ellerin

AS THE SHELL of an egg allows us to handle the stuff inside without getting a fistful of yolk, a "shell" program helps us to handle its base application more easily. GrafX Computing's X-Shell provides a convenient, mouse-driven interface for the user of X-CAD (Taurus), serving as an efficient command console for a powerful, but very difficult-to-use CAD program that left this reviewer with very sticky hands when evaluating it as a stand-alone product. [For the author's review of X-CAD, see the June '89 issue of AmigaWorld, p. 76.]

X-Shell begins its life-support assistance to X-CAD long before you ever

boot it up on your Amiga. The effect of the confusing documentation that made X-CAD so hard to work with is largely negated by X-Shell's exemplary manual—a well-written, logically organized booklet in tabbed, loose-leaf format complete with an index. Unfathomable X-CADese is here translated into readily comprehensible English. You will still need the X-CAD documentation to fully implement the base program; but now you have able-bodied reference assistance to make that job more manageable.

If you've already been using X-CAD, jump directly into the X-Shell manual for clarification of X-CAD material and instructions for putting X-Shell to use. If



X-Shell gives you a handle on dozens of X-CAD commands.

you're new to X-CAD, start by briefly perusing the X-Shell manual to gain some familiarity with terms and capabilities. Then skim X-CAD's documentation. Finally, go back and read X-Shell's manual in depth, especially the explanation of the command sequence. Although each X-Shell command icon represents an entire X-CAD sequence, you may need to refer often to X-Shell's manual until you have comfortably buttoned down each X-CAD clicking sequence. The initial learning process here may be a bit time-consuming, but it will save you a lot more time later when you are using the program under actual working conditions.

INSTALL AND LOAD

Because GrafX cannot sell X-CAD, you must install the latter on your X-Shell disk. The manual coaches both floppy- and hard-disk users through a simple installation routine. Allow 20 to 30 minutes

for each installation. You can safely ignore the "Error 205" message after copying the last X-CAD file: "xcdocs" is an empty file in the initial release of X-CAD.

X-Shell and X-CAD make a memory-intensive combination. GrafX recommends at least 2.5 megabytes of memory, although I have used them together in a 1.5-meg system by limiting each drawing file to what I would plot on a single page.

Once installed, start your system with a warm boot. X-Shell employs a battery of public-domain software, which comes with the program. Using Runback, it loads Conman, changes the default font, loads Workbench, and then loads X-CAD. The entire process took six to seven minutes on my dual-floppy system.

As it loads, you can channel much of the program into RAM via a recoverable-RAM disk (such as ASDG's or the RAD: option on AmigaDOS 1.3). If your system has less than the recommended 2.5 megs of memory, however, skip this option. When I tried it with a 1.5-meg system, X-CAD would not load.

If your system has the extra memory, X-Shell rewards you by providing faster, smoother operation with minimal disk access—although GrafX still suggests adding a disk-caching program.

As X-CAD loads, watch X-Shell swing into action. Through X-CAD's Command window, you will see X-Shell rapidly execute strings of instructions, including those for creating "viewports" (the X-CAD name for windows). This is no mean feat: Setting up a viewport in X-CAD alone can take over 30 keystrokes.

X-SHELL MENUS

Once you're in X-Shell, brightly colored, well-designed screen menus control each major group of program functions and drawing commands. Each X-Shell icon replaces a score of X-CAD commands. Although GrafX succeeded in its overall attempt to make each icon represent both your desired task (such as drawing one line perpendicular to another) and the sequence required for execution, be prepared to refer to the manual frequently at first. In future revisions, GrafX has promised to simplify the learning process through selective use of colors in its task icons. A tutorial in this area is also in the works.

The program offers four main menus. ►

harness the power of your Amiga—
Learn to use AmigaDOS and the CLI—
Become an Amiga Power User—
with...

THE AMIGA COMPANION

Second Edition

by Rob Peck

The AMIGA COMPANION, Second Edition, is your comprehensive guide to AmigaDOS and the CLI. In clear, concise, easy-to-understand language, the Amiga Companion shows you how to use the full range of powerful AmigaDOS and CLI commands. You'll get maximum performance from your Amiga 500, 1000, or 2000. Authored by former Commodore-Amiga innovator Rob Peck, the AMIGA COMPANION provides you with a thorough understanding and mastery of this vanguard computing system.

CONTENTS AT A GLANCE

The first edition of the AMIGA COMPANION helped thousands of Amiga users master basic, advanced, and innovative command skills in over a dozen help-filled chapters, including...

Introduction to the CLI
AmigaDOS Shortcuts
Tools on the Workbench
Information Commands
Modifying Files Using AmigaDOS Commands
The Heart of the CLI
Configuring AmigaDOS
AmigaDOS Command Scripts
Console Control Characters
AmigaDOS 1.3
Software in the Public Domain
Amiga Answers
Plus Five Helpful Appendices and a Complete Index.

Now, the second edition gives you even more!

Satisfaction Guarantee: If you don't get at least a dozen helpful ideas from the AMIGA COMPANION, simply return it within 10 days for a complete refund!

NEW, IN THE SECOND EDITION

- Full coverage of AmigaDOS 1.3
- A new chapter on hard disks
- Expanded CLI and SHELL commands
- Over 50 additional pages of user-friendly examples and tips
- A new MicroEMACS appendix
- All topics completely revised and updated

Plus...

- Expedited delivery of your order via FIRST CLASS MAIL!

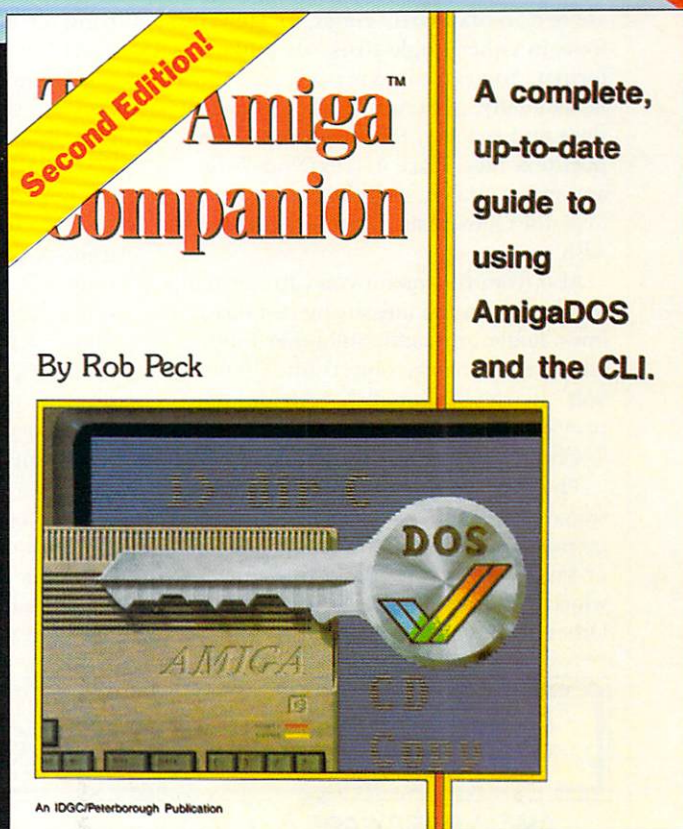
About the author: Rob Peck is one of the most respected and knowledgeable leaders in the Amiga community. Rob wrote the ROM Kernel Manual, the bible of Amiga developers. Rob is also the author of Programmers Guide to the Amiga and numerous magazine articles.

You don't need to be a technical expert to put the AMIGA COMPANION to work for you. The moment you open this help-filled book, you'll get more out of your Amiga than ever before! And as your skills develop, you'll find plenty of advanced ideas and information to make the AMIGA COMPANION the most valuable reference book you own!

ORDER NOW!

Use this coupon to order your copy for expedited First Class Delivery. Or for even faster service, call 1-800-343-0728 and charge it on American Express, MasterCard or VISA. Order Today!

NEW EDITION!



EXCLUSIVE OFFER TO AMIGA WORLD READERS!

The AMIGA COMPANION has limited distribution in bookstores, but you can order your copy direct from the publisher. Just \$19.95! Call 1-800-343-0728 or mail this coupon today.

YES! Send me _____ copies of the AMIGA COMPANION, Second Edition, for just \$19.95 each plus \$2.50 per copy for first class delivery.

Name _____

Address _____

City _____ State _____ Zip _____

☐ My check or money order is enclosed (payable to AmigaWorld)

Charge my: ☐ American Express ☐ MasterCard ☐ Visa

Account# _____ Exp. date _____

Signature _____

Foreign Orders. Payment in US funds drawn on US bank is required. Orders outside of North America, please add \$6.00 per book for Air Mail shipping and handling. Domestic orders allow 2-4 weeks for delivery.

THE AMIGA COMPANION

IDG Communications/Peterborough

80 Elm Street • Peterborough, NH 03458 AW889

Use the Display menu, which controls the viewport, to set your grid and select your layer, depth, and color. The Drawing menu accelerates the drawing process by replacing X-CAD's command strings with a single button.

The Symbols menu allows you to create text in Standard, Times, or Helvetica fonts in either single-stroke or outline format. You can place text vertically, horizontally, or at any angle, and adjust slant and spacing, too. You can also import text files. Place a "TextNode" on any object drawn, and the corresponding text will follow that object anywhere you wish to move it.

Also from this menu you can create dimension lines for measuring distances, lines, angles, or radii. Still other buttons allow you to merge objects into "symbols" (parts). Although X-CAD did not provide any samples, GrafX includes a few basics to get you started.

The Manage menu, as its name might suggest, lets you manage the other menus. Here, for instance, you can load or save your drawings and find out which files are contained on your disk. Other screen buttons from the Manage

menu include Rotate, Move, Copy, Delete, Zoom In, Zoom Out, Scroll, and Change Viewports.

A GOOD EGG OR JUST AN EMPTY SHELL?

Any useful evaluation of X-Shell must consider both programs. The creation of a shell that brings the power of X-CAD to the designer who is not a programmer is a significant achievement. For the first time, I enjoyed working with X-CAD and felt truly able to capitalize on its speed and unique features. X-Shell may not have taken all the hassles out of using X-CAD, but it minimizes them considerably. For instance, I still have to zoom in to an incredibly tiny area to fully utilize a one-inch grid (the minimum degree of accuracy that I want my drawing to display), and then zoom back out to view my results, but at least these operations now take only a moment to execute.

Although X-Shell provides gadgets for the most commonly used X-CAD commands, it does not cover them all. In fact, I think that GrafX missed one of the most powerful features of X-CAD by

skipping over the Window command (which lets you draw a rectangle around any group of objects and then act on them en masse). Fortunately, you can easily access commands not supported. To use Window, for instance, type in W and tap the space bar when the X-CAD display prompts you for LOC (location) or ENT (entity). Next, when the X-CAD Command window responds with :LOC, click in two diagonal corners to define your rectangular window. Then finish the command in X-Shell.

X-Shell handles well, and although you occasionally must refer to X-CAD's dreary manual to clarify points, it makes X-CAD accessible. In tandem, X-Shell and X-CAD provide a sophisticated CAD solution for \$800—considerably less than comparable packages on other systems.

X-Shell

GrafX Computing
35 Newell Place
Fairfield, CT 06430
203/255-5166
\$199

X-CAD required; 2.5 megabytes recommended. ■

Sensational Service With *Sprite Technology*

AMIGA HARDWARE

Amiga 500	\$579
Amiga 2000	CALL
Amiga 2000HD	CALL
Amiga 2500	CALL
Amiga 20M/500	\$649
Commodore PC40	CALL
1084S Monitor	\$309
501 Ram Card	\$159
Amiga 1010 Drive	\$209
Amiga 1680 Modem (1200)	\$108
3.5" Internal Floppy	\$119
3.5" External Floppy	\$149
2088 Bridgeboard	\$499
2286 Bridgeboard	\$1125
2090A SCSI Board	\$299
2058 2MB RAM	\$679
DigiView Gold	\$149
GenOne	CALL
GVP 40Q Hardcard	\$799
GVP 30 Hardcard	\$686
GVP 25mhz 030 Accelerator	CALL
Microbotics Starboards	CALL
MicroWay Flicker Fixer	\$489
20 MEG HD/500	CALL

Supra 2400 Modem	\$149
Supra Internal Modem	\$149
Supra 2MB/2000	\$565

AMIGA SOFTWARE

Amax Mac Emulator	\$125
Animate 3D	\$94
Broadcast Titler	\$189
Capone	\$25
Deluxe Paint III	CALL
Deluxe Photo Lab	\$98
Digi-Paint	\$44
Dragon's Lair	\$39
Draw 2000	\$175
Dungeon Master	\$25
Excellence	\$189
F/A-18 Interceptor	\$33
Falcon	\$32
Fantavision	\$38
Gunship	\$34
Heroes of the Lance	\$26
Intro CAD	\$54
Interfont	\$75
Jet	\$32
Lattice C 5.0	\$204

Lords of the Rising Sun	\$32
LV Backup	\$44
Math Wizard	\$35
Maxiplan 500	\$94
Maxiplan Plus	\$135
Modeller 3D	\$63
On Line Platinum	\$97
Pagestream	\$125
Photon Paint 2.0	\$94
Professional Draw	\$123
Professional Page	\$246
Project 'D'	\$32
Pro Video Gold	\$195
Prowrite 2.0	\$78
Rocket Ranger	\$32
Quarterback	\$44
Sculpt 3D	\$72
Star Wars	\$25
Test Drive II	\$28
The Works Platinum	\$156
Turbo Silver	\$125
Videoscape 3D	\$125
Videotitler	\$93
Word Perfect	\$199
Workbench 1.3 Update	\$19

Amiga Music Pack

SHS-10 Yamaha Keyboard, MIDI Interface & Cable, Deluxe Music Construction Set

Pack w/ computer buy

Music Ware

AudioMaster II

Deluxe Music

Dr.T's Midi Rec Studio

Dr.T's DX Heaven

M for Amiga

Perfect Sound

Pro MIDI Studio

Sonix

Texture

Amiga Accessories

Beach Towel

Golf Cap - grey or white

Golf Shirt - L or XL

Golf Umbrella - 48"

Sweatshirt - white L or XL

Starter Software Kit

Money Mentor, TV Text,

Arkanoid, Text Craft Plus,

Graphics Studio

Amiga is a registered trademark of Commodore Business Machines, INC. Prices subject to change without notice. Please inquire about our policies & procedures.



Sprite Technology

ORDERS: **800-634-9315**

INQUIRIES: **404-535-8806**

9-6 MON-FRI
E.S.T.

COME ABOARD *AmiEXPO*

and We'll Blow You Away in The Windy City

The Amiga Exposition

Sponsored by

AMIGA
W O R L D

July 28 - 30, 1989

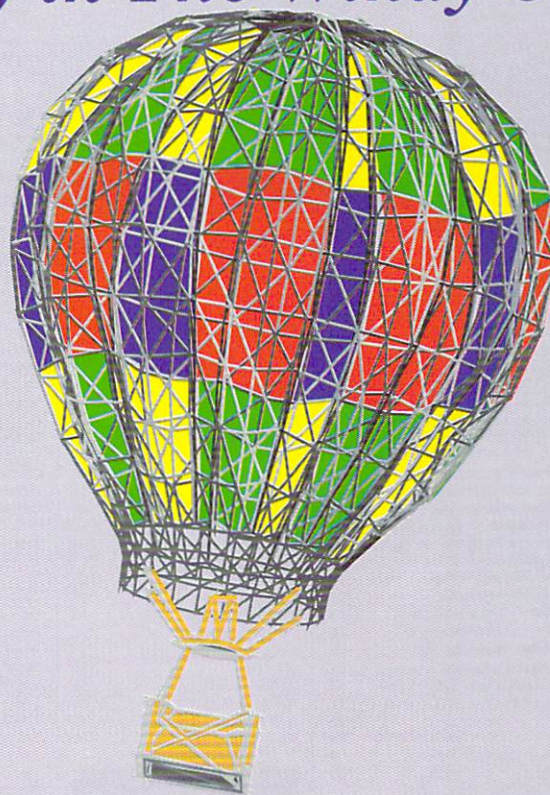
The Chicago Hyatt Regency

151 East Wacker Drive

Chicago, Illinois

*10,000 Attendees and 120 Amiga
Companies Will Be There.*

DON'T MISS THE FLIGHT!



Admission includes the Exhibition, Seminars, Keynotes & Amiga Artists Theatre!

120 Amiga Exhibitors Featuring State of the Art Software and Hardware, at the lowest prices!

Master Classes Available in Amiga Graphics, Video, Programming, Animation, Music and Publishing!

Seating for Master Classes is limited; call for schedule and availability before registering.

PRE-REGISTRATION DEADLINE IS JULY 14, 1989

For Hotel Reservations Call the Hyatt Regency at (312) 565-1234. Deadline for hotel reservations is June 26, 1989.

For discounted airfares, call American Airlines at (800) 433-1790 and give them this ID: S-83536.

*Register by Mail, or Bring This Coupon to the show or Call 800-32-AMIGA Nationwide (or 212-867-4663)
For Your Ticket to The Amiga Event!*

Yes, I want to come to AmiEXPO - Midwest

☐ Friday ☐ Saturday ☐ Sunday

**Registration is
\$5 Additional
At The Door**

One day - \$15

Two days - \$20

Three days - \$25

Master Class(es) - List Class and Time - \$50 Each

Total Amount Enclosed _____

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

For ☐ MasterCard or ☐ VISA Payment

Expiration Date _____

Account Number _____

Name as it appears on card: _____

Signature _____

Make Check or Money Order Payable to:
**AmiEXPO 211 E. 43rd St., Suite 301
New York, NY 10017**

Bring Coupon to the door and get these Pre-Registration Prices!

BRIWALL

Our Fourth Year
In Business!
We Know How
To Service
Our Customers!

SOLID PRODUCTS & SOLID SUPPORT

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

24 HOURS — TOLL FREE

1-800-638-5757

OUTSIDE USA CALL 1-215-683-5433

SATISFACTION
GUARANTEED

No Surcharge On
Charge Orders
Friendly Service
Customer Service
Business Hours
M-F, 9-5 EST

ACCESSORIES

2 Midi Interface Cables 5' each	\$15
Amiga Monitor or Dsk Drv Extensn	19
Cable Connector BNC M/RCA F	2
Composite Video Cable RCA M/M 6'	3
Control Center	79
Copy Stand with Lights	65
ECE Midi 1000	49
ECE Midi 500/2000	49
Gender Changer/Parallel Adapter	21
Ink-Black Cart.-Canon 1080A	12
Ink-Color Cart.-Canon 1080A	18
Ink 60ml Bottle	
Black, Cyan, Magenta, Yellow	40
Ink 5ml Cartridge	
Black, Cyan, Magenta, Yellow	5
Ink Adapters for Canon PJ1080 et al	2
Joystick-Bat Handle	22
Joystick-Ergo Stick	22
Joystick-Super 3 Way	25
Lightpen for Amiga	89
Modem Commodore 1680	69
Modem-Mini A1000	79
Modem-Mini A500/A2000	79
Modem-Supra 2400 w/o cable	139
Modem Cable 500/2000 6 feet	17
Monitor Cable Amigen to 1084	21
Mouse-Boing Optical	95
Okimate Plug N Print-Amiga 500	75
Paper Canon PJ1080A-Roll	8
Paper H.P. Paint Jet	30
Printer Cable 500/2000	
Parallel Printer 6 ft.	18
Printer Cable 500/2000	
Serial Printer	16
Ribbon - Okimate 10/20 BLACK	6
Ribbon - Okimate 10/20 COLOR	6
Ribbon Renew-Re-Ink w/no Equip	5
Star NX1000R Color Ribbon	9

BOOKS

1001 Things to do with Amiga	11
3D Graphics Programming +	17
AMIGA C for Beginners +	15
Amiga C-Advanced Prgrmmers +	22
Advanced Amiga BASIC Book	15
Machine Lang Prog Guide	17
Amiga 3D Graphics Prgrmmng +	17
AmigaBASICSInside&Out Book +	20
Amiga DOS Inside&Out Book +	17
Amiga DOS Manual	20
Amiga DOS QUICK Ref Manual	12
Amiga DOS Reference Manual	19
Amiga Disk Drives Inside&Out +	24
Amiga Machine Language Book	17
Amiga Microsoft Prog Guide	17
Amiga Programmer's Guide	15
Amiga System Progrm's Guide	27
Amiga Tips & Tricks Book	17
Amiga for Beginners	15
More Amiga Tips & Tricks +	17
Programmer's Guide to Amiga	22
ROM KernRefExe&Lib&Devic	28
Elementary Amiga BASIC Book	13
Inside Amiga Graphics	15
Inside the Amiga With C	21
Inside the Amiga With C	21
* Disks for Books	12

GENERAL BUSINESS

Citydesk v 2.0	\$129
Data Retrieve	52
Easy Ledgers	199
Excellence(specify 512K or 1meg)	169
Family Tree (Your)	35

Flow	65
Fre D Speed Dialer	36
Haicalc	39
KFS Accountant	195
Kindwords	69
Magellan	139
MaxiPlan Plus	125
MaxiPlan 500	95
Microfiche Filer	69
Microfiche Filer Plus	119
Microlawyer	39
Nag Plus v3.0	49
Nimbus Accounting v1.3*	109
Pen Pal*	99
P.H.A.S.A.R.v3.0	69
Page Setter	90
Page Stream	129
Prowrite v 2.0	75
Professional Pages 1.1	249
Publisher Plus	64
Scribble-Platinum	99
Security Analyst	49
Shakespeare	89
Superbase Personal 2	105
Superbase Professionalv3.0	235
Super Plan	105
Scribble-Platinum	99
Who What When Where	69
Word Perfect	179
Works - Platinum Edition	199

EDUCATIONAL

Adventures of Sinbad	\$ 32
Aesop's Fables	32
All About America	39

CHECK YOUR CURRENT MAILORDER HOUSE! DO THEY?

- | | |
|--|--|
| <input type="checkbox"/> Advertise their shipping policy | <input type="checkbox"/> Have 24 hour toll-free ordering |
| <input type="checkbox"/> Offer fast, friendly and reliable service | <input type="checkbox"/> Have in-house technical support |
| <input type="checkbox"/> Have a fair return/exchange program | <input type="checkbox"/> Treat you with respect & value |
- IS PRICE YOUR ONLY CONCERN? CALL US & SEE HOW EASY MAILORDER CAN BE!**

Animal Kingdom (Wonders of)	32
Decimal Dungeon	32
Dinosaur Discovery Kit*	29
First Letters/Words	30
First Shapes	30
Fraction Action	32
Kid Talk	30
Kinderama	32
Linkword: French	24
Linkword: German	24
Linkword: Italian	24
Linkword: Spanish	24
Math Talk	30
Math Talk Fractions	30
Math Wizard	32
Math-amation (College)	55
Mavis Beacon Typing	36
Mother Goose	25
My Paint	36
Perfect Score SAT	55
Read & Rhyme	32
Read A Rama	32
Smooth Talker	30
Speller Bee	29
Surgeon	34
Word Master	32

ENTERTAINMENT

AD&D Heroes of the Lance	\$29
Alien Syndrome	29
Arkanoïd	20
Awesome Arcade Pak	36
Baal	24
Balance of Power 1990	36

Barbarian	28
Bard's II: Destiny Knight	39
Bard's Tale I	33
Bard's II: Clue Book	12
Battle Chess	36
Battlehawks 1942	36
Battle Tech	36
Blackjack Academy	27
Blood Money*	29
Breach	27
Bridge 5.0	25
Bubble Bobble	27
Bubble Ghost	27
California Games	29
Capone	27
Captain Blood	36
Carrier Command	32
Centriford Squares	24
Chessmaster 2100	36
Chrono Quest	36
Craps Academy	32
Death Bringer	29
Defender of the Crown	33
Double Dragon	29
Dragon's Lair	39
Dungeon Master	29
Earl Weaver Baseball	35
Empire	36
Fast Break	32
F18 Interceptor	36
Faery Tales	32
Falcon	35
Flight Simulator 2	35
Galileo 2.0	29
Galileo 2.0	49
Gone Fish'n	35

Speedball	29
Shadow Gate	33
Shanghai	27
Space Quest 2	36
Star Fleet 1	39
Star Glider 2	32
Stellar Conflict	27
Strip Poker!	29
Sword of Sodan	34
TV Sports Football	36
Test Drive 2	34
Three Stooges	33
Time & Magic	29
Total Eclipse	29
TriPack(PresMiss, DefCrwn5, Suply)	29
Twilight Zone	29
Ultima IV	39
Universal Military Simulator	35
Video Vegas	25
Virus	25
War and Middle Earth	36
Zach Macrackin	32
Zany Golf	33
Zoom	20

CREATIVITY/GRAPHICS

AniMagic	\$69
Animate 3D	99
Award Maker Plus	35
Broadcast Titrer	199
Business Card Maker	37
Calligrapher v 1.05	79
Celebrity Cookbook	27
Comic Setter	69
Comic Setter Clip Art EACH	25

Video Scope 3D 2.0	139
Video Titrer 1.1	99
X-Specs	92
Zoetrope	89
Zuma Fonts-each	25

SOUND/MUSIC

Deluxe Music Construction	\$ 65
Dr. T Copyist II	219
Dr. T KCS v16a	165
Dr. T KCS Level 2	279
Dr. T MT32 Voices	39
Dr. T Midi Recording Studio	49
Dynamic Drums	52
Dynamic Studio v2.4	135
Future Sound Sampler	139
M Intelligent Music	139
Music-x	195
Perfect Sound A1000	65
Perfect Sound A500	65
Sonix	52
Sound Oasis	65
Sound Sampler	85
Soundscape Pro Midi Studio	129
Studio Magic	65
Synthia	65
Texture	99

UTILITIES/LANGUAGES

64 Emulator 2/Amiga 500	\$ 52
64 Emulator for Amiga 1000	52
A Talk III	69
AC/BASIC v 1.3	135
Amiga Workbench 1.3	24
Amikit	34
Ami...Alignment	39
Amiga DOS Toolbox	42
Arrexx	35
Assempro	64
Aztec C Developer Compiler	195
Aztec C Professional Compiler	129
Aztec C Source Level Debugger	79
BAD Disk Optimizer	32
BBS PC	99
Benchmark Modula 2	129
Benchmark Modula 2-Libraries	69
Butcher 2.0	25
C.A.P.E. 68K v2.0	59
CLJ Mate	27
DOS 2-DOS	39
DSM	49
Developer's Pak 2	69
Disk 2-Disk	35
Diskmaster	39
FACC II	25
GFA BASIC	99
GOMF V3 with Hardware Switch	49
Gomf v3.0	27
Grabbit	20
Inova Tools	52
Lattice C++	339
Lattice C V 5.0 Developer Pack	205
Mac Emulator(AMAX)	135
Professional BASIC	119
Power Windows 2.5	59
Project D v1.1	35
Quarterback	45
Raw Copy v1.3	42
Super Back	59
True BASIC Libraries EACH	35
True Basic 2.0	69
UltraDOS	19
Virus Infection Protection	33
Virus Protection Toolbox	42
W Shell	35

Products marked with * were not
released at time ad was prepared.
Please call for firm price and availability.

HARDWARE

A Pro Draw 12x12 w/cursor	\$499
Case 1-3.5" HH w/pwr & Fan	85
Case 2-5.25" HH w/pwr & Fan	79
Chinon A2000 Intrnl 3.5" Floppy	99
DRAM 256Kbx1 150ns	8
DRAM 256Kbx4 100ns	25
DRAM 256Kbx4 120ns ZIP	28
DRAM 1Mbx1 100ns	21
Flexidata FD-10	149
Flexidata FD-20	259
32MB Seagate 3.5" 40ms	340
48MB Seagate 3.5" 28ms	370
64MB Seagate 5.25" 40ms	call
82MB Seagate 5.25" 28ms	call
40MB Quantum 3.5" 19/12ms	575
80MB Quantum 3.5" 19/12ms	939
100MB Quantum 3.5" 19/12ms	call
40MB Syquest 5.25" 25ms Remvbl	call

GENLOCKS

AmiGen	\$149
Gen/One	625
ProGen	369
Magni 4004	1389
Scanlock	895
SuperGen	669

MONITORS

Mitsubishi DiamondScan 14	\$549
Monterm Viking	call
NEC 30	749

PRINTERS

Abaton Quickstep Postscript Laser	3495
Canon PJ1080A Color Ink Jet	519
Canon Bubble Jet 360dpi/132clm	799
Fujitsu LED Postscript	call
Laser Express	2199
Okimate 20	155
Star NX-1000 Rainbow Color	259
Xerox 4020 Color Ink Jet	1139

VIDEO

Flicker Fixer	\$479
Panasonic WV 1410 Camera	189
Rainbow 16mm Lens w/variable iris	49

AMIGA

1084S Stereo Monitor	call
2058 Mem Board w/2MB(8MB max)	call
Amiga 68020/6881 w/2MB	call
Amiga 500	call
A501 512KB w/clock	call
520 Video Adapter	call
Amiga 2000, 2000HD or 2500	call
2088 XT Bridgeboard	call
2286 AT Bridgeboard	call

A SQUARED

Live! 1000	\$249
Live! 500	285
Live! 2000	319

CACHE SYSTEMS

Hard Drives	call
-------------	------

COMPUTER SYSTEM ASSOCIATES

Midget Racer w/68020	\$349
Midget Racer w/68020&68881/16	519

DIGITRONICS

RC4 Ramcard 2000 (OK)	\$199
RC4 w/case, pwr & A500 adpt (OK)	280

GREAT VALLEY

A2000 S044	call
A2000 68030/16 or 25MHz	call
A2000 SCSI Hrd Dsk Cntr 2MB OK	299
A2000 2/0 SCSI Cntr w/80MB Qnt 1249	
A2000 40MB SCSI Hrd Crd Ontm	799
A2000 80MB SCSI Hrd Crd Ontm	1159
A500 30MB SCSI Hard Drive	759
A500 40MB SCSI Hard Drive	1020
A500 80MB SCSI Hard Drive	1429

MAST

MicroMags (A501 Substitute)	\$159
MiniMags 512KB A500 or A1000	315
MiniMags 1MB A500 or A1000	449
MiniMags 2MB A500 or A1000	749
Tny Tgr 30MB A500/2000 or 1000 629	
TnyTgr40MB Qnt 500/2000, 1000 799	
Tny Tgr 48MB 500/2000 or 1000 769	
TnyTgr80MB Qnt500/2000, 1000 1129	
Tny Tgr Plus	call
Twin Drive	259
UniDrive	149

MICROBOTICS

HardFrame	\$249
8 Up (OK)	185
StarBoard II	269

MIMETICS

Frame Buffer (OK)	\$489
Frame Capture	159

PACIFIC PERIPHERALS

Overdrive	\$199
Synergy 500	219
Subsystem 500	249

PHOENIX

Exp Chassis A500 or A1000	\$159
Exp Chassis w/pwr A500 or A1000	239
Hard Drives	call

PROGRESSIVE PERIPHERALS

ProRAM 2000 OK (8MB max)	\$249
ProRAM 2000 2MB (8MB max)	629
FrameGrabber	539

SPIRIT

Inboard A1000 or A500	\$229
SIN A500	269

SUPRA

A2000 Internal Modem	\$145
Hard Drives	call

XETEC

Fast Card	\$159
Fast Track (OMB)	call
Hard Drives	call

PACKAGES

FastTrack w/case and 64MB	call
Fast Track w/case and 62MB	call
Frame Buffer w/1MB RAM	699
8 Up w/2MB (8MB max)	515
RC4 2000 w/512KB	295
RC4 500 w/512KB	375
Starboard II w/512KB	395
Spirit Inboard w/512KB	375
Trump or FastCard w/32MB	499
Trump or FastCard w/48MB	529
Trump or FastCard w/64MB	649
Trump or FastCard w/158MB	1359
Trumpcard 500 w/32MB	559
Trumpcard 500 w/48MB/28ms	589

Let us put a
custom package deal
together for you!
Please Call M-F, 9-5EST

Actual shipping costs on hardware.

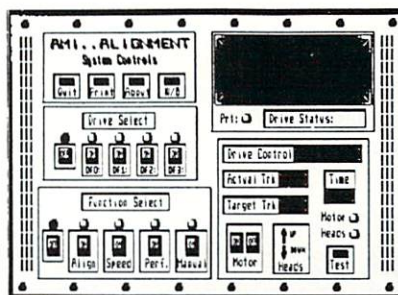
ADULT FUN ADVENTURE



JUST \$29



Ami...Alignment



Treat your drives with respect!
A full-featured diagnostic & alignment system.

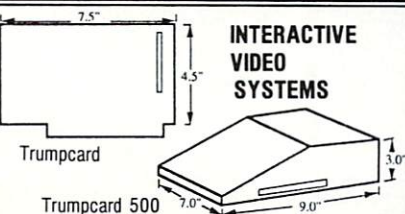
OUR PRICE \$39



Purchase any 3 of the following titles and we will give you either "Clever & Smart" or "Gunshoot" absolutely FREE!

Batman	\$32	Battle Tech	\$36
Deathbringer	29	Lords of Rising Sun	36
Sim City	32	War & Middle Earth	36
Test Drive 2	34	Falcon	35
Planet of Lust	29	Battlehawks 1942	36
Gunship	38		

(Offer expires 8/30/89)



INTERACTIVE VIDEO SYSTEMS

Trumpcard

Trumpcard 500

Scope measured transfer rates at over 400KB per second. User customizable driver with support for Quantum, Seagate, Maxtor, Conner and SyQuest removable. Trumpcard 500 uses A2000 compatible SCSI controller and RAM board.

Premium 500HD or HC series assembled, formatted and ready to use by IVS

Trumpcard	159
Trumpcard 500	219
2MB RAM Board	call
Trumpcard w/SyQuest 40MB	call

BRIWALL

SOLID PRODUCTS & SOLID SUPPORT
PO Box 129/58 Noble Street
Kutztown, PA 19530

Toll-Free 24 Hour Order Line 1-800-638-5757

24-Hour Order Line Outside USA
1-215-683-5433

24-Hour FAX Line - 1-215-683-8567

Customer Service - 1-215-683-5433

Technical Support - 1-215-683-5699

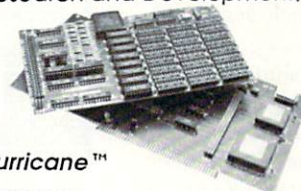
PLEASE COME VISIT US!

Monday - Friday 9AM-6PM EST
Saturday 9AM - 12 Noon EST



Ronin

Research and Development, Inc.



Hurricane™

68030 28MHz
0 wait state w/65ns RAM (uses same memory board as -020) SCSI interface on board.

68030 28Hz 1-4 MB or 6-16 MB	call
68020	call
Memory Board	call
Chinon Scanner 300dpi	call

SHIPPING POLICY: All ORDERS received before 3PM EST will normally be shipped within 2 business days. Out of stock items will be shipped by the same shipping method as original order, normally within 3 or 4 business days. All UPS shipments are sent SIGNATURE REQUIRED/NO DRIVER RELEASE. ADD the following shipping charges to your TOTAL software order:

UPS: Ground \$4.00 (cont USA ONLY); Air/Rush \$7.00 (Includes Puerto Rico/Hawaii); Overnight \$12.00 + \$2.50 per item (must be received by 12 NOON).

PRIORITY MAIL: USA \$4.00 (includes APO/FPO); Canada/Mexico \$6.00; Other Foreign \$4.00 Handling + Actual Shipping + 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 phone number, shipping address, charge card number, expiration date & name of bank.

ACCEPTED PAYMENT METHODS: We welcome payment by PREPAID (by Personal Check or Money Order); MASTERCARD; VISA; SCHOOL PURCHASE ORDERS, COD orders are welcome for established Briwall Customers Only (\$4.00 additional). All payments must be in USA DOLLARS. 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 replaced with the same item only.

TECHNICAL SUPPORT (M-F - 9:30AM-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, price, compatibility with your computer, 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, printer, compatibility questions, etc., you will get the most help from our TECHNICAL SUPPORT LINE 215-683-5699.

WHAT'S NEW?

*This month's delights require a hammock and
an iced drink for the full effect.*

Compiled by Jan Jackson

UNTITLED PASSION

WITH VIDEO PAGE (\$199.95), Microshuki's professional video-titling system, you can mix fonts of various sizes and colors on each line, let the program space them, and re-enter the picture by defining effects. Large requesters provide for easy viewing at a distance. The US distributor is Impulse Inc., 6870 Shingle Creek Pkwy., Minneapolis, MN 55430, 612/566-0221. *Reader service number 557.*

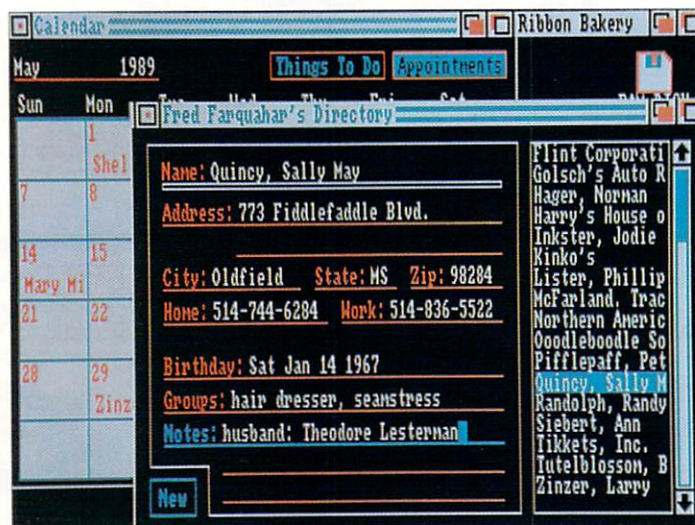
BACK TO FORTH

ENTER THE WORLD of commercial programming with **JForth Professional 2.0**, an interactive language. The latest version includes an updated interface to graphics and menus, hashing for faster compilation, precompiled Include files, command-line history, a source-level debugger with breakpoints, IFF support, plus an animation system and an improved store of development tools. The package (\$179.95) includes two assemblers and a disassembler. Key in with Delta Research, PO Box 1051, San Rafael, CA 94915, 415/485-6867. *Reader service number 554.*

AND SOMETIMES WHY

IF YOUR LIFE doesn't fit on your calendar, try **Who! What! When! Where!** (\$99.95). The program, which supports ARExx, is designed to help you keep track of names, addresses, phone numbers, and birthdays. You can categorize

each person into various groups for cross-referencing. Your social director is Blue Ribbon Bakery, 1248 Clairmont Rd., Suite 3-D, Atlanta, GA 30030, 404/377-1514. *Reader service number 550.*



Something from the oven at Blue Ribbon Bakery.

COMMON KARMA

INTERCHANGE, the program that lets you share files between otherwise-incompatible 3-D graphics programs, has extended its reach. A new **InterChange Conversion Module** writes and reads objects to and from the latest version—3.0—of Turbo Silver (Impulse). InterChange retails for \$49.95, the new turbo converter costs \$29.95. If you own

the current Turbo Silver converter, you can upgrade for \$15.

The second package, **InterFont 3-D Object Font Designer**, supports Gold Disk's Professional Draw and Professional Page via InterFont, InterChange's companion character-design program.

CHARGED LETTERS

GENERATE WORD POWER with **Font-Works** (\$99.95). The program lets you design your own electrifying alphabets, capture letters from IFF pictures, or add a variety of effects to the fonts provided. You can enlarge characters to 1024 x 1024 pixels, and customize the palette by changing or mixing colors. Plug in by calling ACS Software, 2135 E. Sunshine, Suite 106, Springfield, MO 65804. *Reader service number 555.*

The **Lons Fonts** collection is designed for use with InterFont (Syndesis), making it compatible with all packages InterFont supports. Each set (\$29.95) is rendered proportional by InterFont's conversion module. Connect with Micro Momentum Inc., 100 Brown Ave., Johnston, RI 02919, 401/949-5310. *Reader service number 556.*

With InterFont you can create fonts and organize in 16-color then transfer them to Pro Draw or Pro Page via the conversion module. The Draw module is included in the new InterFont release; current InterFont owners can get it by contacting Syndesis, 20 West St., Wilmington, MA 01887, 508/657-5585. *Reader service number 563.* ►

VISA
MASTERCARD
DISCOVER
NO SURCHARGE

COMPUTER MART

800-443-8236

INFORMATION
409-560-2826

New Low Price
SUPRA 2400 MODEM

\$129.00

HAYES COMPATIBLE
300/1200/2400 BAUD

SOFTWARE

3-DEMON 68.00
3D FANCY FONTS 48.00
AARGH 21.00
AC BASIC 135.00
AC FORTRAN 198.00
AEGIS DRAW 2000 158.00
ALTERNATE REALITY 25.00
ANALYTIC ART 38.00
ANALYZE 2.0 52.00
ANDROMEDA MISSION 25.00
ANIMATE 3D 95.00
ANIMATOR APPRENTICE 187.00
ARCHITECTURAL DESIGN 22.00
AREXX 30.00
ARKANOID 25.00
ASSEMPRO 69.00
ATALK III 60.00
ATREDES BBS PRO. 90.00
ATREDES TERMINAL 30.00
AUTO DUEL 34.00
AWARD MAKER 32.00
AWE. ARCADE VOL. 1 35.00
B.A.D. 30.00
BARD'S TALE II 37.00
BATTLE CHESS 30.00
BBS-PC 92.00
BENCHMARK MODULA 2 138.00
BENCHMARK LIBRARIES 69.00
BLITZ. ON THE ARDENNE 37.00
BREACH 28.00
BRIDGE 5.0 22.00
BUBBLE BOBBLE 26.00
BUBBLE GHOST 25.00
BUTCHER 2.0 23.00
CALIFORNIA GAMES 27.00
CALLIGRAPHER 74.00
CAPE 66K ASSEMBLER 59.00
CAPONE 35.00
CAPTAIN BLOOD 31.00
CARRIER COMMAND 28.00
CENTERFOLD SQUARES 20.00
CHESSMASTER 2000 31.00
CHRONOQUEST 24.00
CITY DESK 95.00
COMICSETTER 66.00
COMICSETTER DATA DISKS 22.00
CRITICS CHOICE 150.00
CYBER COMPLEX 21.00
CYGNUS ED PRO 60.00
DARK CASTLES 28.00
DATARETRIEVE 53.00
DECIMAL DUNGEON 32.00
DEFCON 5 28.00
DELUXE HELP DISKS 22.00
DELUXE MUSIC 2.0 69.00
DELUXE PAINT II 86.00
DELUXE PHOTO LAB 98.00
DELUXE PRINT II 57.00
DELUXE PRODUCTIONS 138.00
DELUXE VIDEO 1.2 86.00
DESIGN 3D 60.00
DESTROYER 27.00
DETONATOR 25.00
DEVPAK ASSEMBLER 60.00
DIGA 51.00
DIGI PAINT 41.00
DIRECTOR 44.00
DIRECTOR TOOLKIT 28.00
DISCOVERY DATA DISKS 14.00
DISCOVERY MATH 28.00
DISC. SPELL 28.00
DISC. TRIVIA 28.00
DISK MASTER 48.00
DISK MECHANIC 55.00
DOS TO DOS 32.00
DOUGS MATH AQUARIUM 51.00
DR. T'S SOFTWARE CALL

DRAGON'S LAIR 39.00
DRUM STUDIO 30.00
DUNGEON MASTER 24.00
DYNAMIC DRUMS 51.00
DYNAMIC STUDIO 138.00
EARL WEAVER BASEBALL 35.00
EMERALD MINES 13.00
EMERALD MINES II 28.00
EMPIRE 35.00
EMPIRE STRIKES BACK 24.00
ENCHANTER 21.00
EUROPEAN SCENERY DISK 18.00
EXCELLENCE 174.00
EXPRESS PAINT 3.0 78.00
FA INTERCEPTOR 35.00
FACC II 24.00
FAERY TALE ADVENTURE 35.00
FAERY TALE HINT BOOK 10.00
FALCON 30.00

HOT LICKS 32.00
HUMAN DESIGN 22.00
HUNT FOR RED OCTOBER 35.00
HYBRIS 24.00
INDOOR SPORTS 35.00
INOVATOOLS #1 55.00
INSANITY FIGHT 28.00
INTELLITYPE 35.00
INTERCHANGE 32.00
INTERFONT 72.00
INTERNATIONAL SOCCER 24.00
INTROCAD 51.00
INVESTOR'S ADVANTAGE 66.00
JACK NICHOLAS GOLF 30.00
JET 36.00
JET SET UTILITIES 24.00
JEWELS OF DARKNESS 21.00
JINXTER 28.00
JOE BLADE 21.00
KAMPFGRUPPE 39.00
KARATE KID II 28.00
KARATE KING 19.00
KARTING GRAND PRIX 19.00
KINDERAMA 32.00
KINDWORDS 63.00
KING OF CHICAGO 35.00
KINGDOMS OF ENGLAND 30.00
LANCELOT 26.00
LAS VEGAS 19.00
LATTICE C 5.0 204.00
LAZERSCRIPT 29.00
LEADER BOARD DUAL PACK 21.00
LEATHER GODDESSES 26.00
LEXCHECK 27.00
LIGHTS, CAMERA ACTION 51.00
LINKWORD LANGUAGES 19.00

ONLINE 45.00
OPERATION CLEANSTREETS 24.00
OPTICKS 66.00
ORGANIZE 63.00
OUTLINE 32.00
OUTRUN 29.00
P.O.W. 28.00
PACBOY 19.00
PAGE STREAM 138.00
PAGEFLIPPER + F/X 94.00
PAGESETTER 94.00
PALADIN 28.00
PERFECT SCORE 55.00
PERSECUTORS 13.00
PHANTASIE III 28.00
PHASAR 3.0 56.00
PHOTON CELL ANIMATOR 104.00
PHOTON PAINT 66.00
PHOTON PAINT 2.0 90.00
PHO. PAINT SURFACE DISK 18.00
PIONEER PLAGUE 24.00
PIXMATE 44.00
PLATOON 28.00
PLUTOS 21.00
PORT OF CALL 32.00
POWER WINDOWS 2.5 62.00
PRINTMASTER + 32.00
PRO ASM 66.00
PRO BOARD 355.00
PRO MIDI STUDIO 125.00
PRO NET 355.00
PRO SOUND DESIGNER 98.00
PRO VIDEO PLUS 179.00
PRO. DATARETRIEVE 195.00
PROFESSIONAL PAGE 240.00
PROJECT D 32.00
PROMISE 34.00
PROWRITE 2.0 78.00
Q-BALL 21.00
QUADRILIENS 18.00
QUARTERBACK 48.00
QUESTRON II 32.00
RAW COPY 36.00
ROAD RAIDERS 24.00
ROADWAR 2000 28.00
ROADWAR EUROPA 31.00
ROCKET RANGER 35.00
ROGER RABBIT 27.00
ROMANTIC ENCOUNTER 28.00
RUSH N ATTACK 28.00
SARGON III 35.00
FS SCENERY DISK 18.00
SCRIBBLE 2.0 63.00
SCULPT 3D 66.00
SCULPT 4D 419.00
SEX VIXENS 24.00
SHANGHAI 28.00
SILENT SERVICE 28.00
SILICON DREAMS 21.00
SINBAD & FALCON 35.00
SKY CHASE 27.00
SKYFOX 14.00
SLAYGON 28.00
SONIX 49.00
SOUND QUEST 56.00
SOURCE LEVEL DEBUGGER 35.00
SPACE QUEST 29.00
SPACE STATION OBLIVION 29.00
SPELLBOUND 25.00
SPELLER BEE 35.00
STARGLIDER II 28.00
STELLAR CONFLICT 28.00
STELLARX 24.00
STREET CAT 27.00
STRIP POKER II 24.00
STUDIO MAGIC 63.00
SUB BATTLE 27.00
SUPERBACK 48.00
SUPERBASE PERSONAL 95.00
SUPERBASE PRO. 207.00
SUPERPLAN 99.00
SUPERSTAR ICE HOCKEY 35.00
SWORD OF SODAN 30.00

SYNTHIA 69.00
TARGIS 24.00
TAX BREAK 48.00
TECNOPOP 29.00
TELEGAMES 22.00
TELEWARS 28.00
TERRORPODS 28.00
TEST DRIVE 33.00
TEXTPRO 53.00
THAI BOXING 14.00
THE ACCOUNTANT 190.00
THE THREE STOOGES 35.00
THE WORKS PLATINUM 178.00
THEXDER 26.00
THUNDER BOY 21.00
TIME AND MAGIK 26.00
TIME BANDITS 28.00
TRACER 22.00
TURBO SILVER 115.00
TV SPORTS FOOTBALL 29.00

CM 65 MEG A500/A1000 879.00
CM 65 MEG A2000 799.00
CM 85 MEG A500/A1000 966.00
CS-1 COPY STAND 51.00
CVIEW 1 35.00
CVIEW 2 35.00
DELUXE MIDI INTFCE 63.00
DIGI-DROID 62.00
DIGI-VIEW 3.0 139.00
DIGI-VIEW GOLD 139.00
ECE MIDI 50.00
EPYX 500 XJ JOYSTK 14.00
ERGOSTICK JOYSTK 18.00
EXP. TECH HARD DRIVE KIT 286.00
FLASH CARD A2000 SCSI 186.00
FLICKER FIXER 510.00
FLICKER MASTER 12.00
FRAMEGRABBER 529.00
FUTURE SOUND 136.00
GEN ONE GENLOCK 699.00



CALIFORNIA
ACCESS CA-880
NEW LOW PRICE
149.00

GVP™

High Speed
A2000 HardCards
40 MEG 11ms \$799
80 MEG 11ms \$1199

FAMILY TREE 30.00
FANTAVISION 38.00
FERRARI FORMULA I 35.00
FINE PRINT 30.00
FIRE POWER 16.00
FIRST LETTERS & WORDS 35.00
FLIGHT PATH 737 19.00
FLIGHT SIMULATOR II 36.00
FLIPSIDE 38.00
FLOW 65.00
FORMS IN FLIGHT II 72.00
FORTRESS UNDERGROUND 19.00
FRACTION ACTION 32.00
GALILEO 2.0 44.00
GETTISBURG 42.00
GIZMOS 2.0 22.00
GNOME RANGER 14.00
GOLD RUNNER 28.00
GOLD SPELL II 29.00
GOLDEN PATH 32.00
GOLF 3.0 24.00
GOMF 3.0 W/ BUTTON 51.00
GRABBIT 21.00
GRADE MANAGER 52.00
GRAPHIC STUDIO 50.00
GREAT STATES II 25.00
GRID START 19.00
HACKER II 28.00
HALLEY PROJECT 31.00
HARDBALL 28.00
HARRIER COMBAT SIM. 35.00
HARRIER MISSION 19.00
HEAD COACH 35.00
HEROES OF THE LANCE 26.00
HITCHHIKERS GUIDE 21.00
HOLE-IN-ONE MIN. GOLF 22.00
HOLLYWOOD POKER 22.00
HOLMES! 35.00
HONEYMOONERS 25.00

LION'S FONTS 54.00
LRDS OF THE RISING SUN 31.00
LOTTERY MAGIC 18.00
LURKING HORROR 28.00
M 155.00
MAGELLAN 117.00
MANIC INVADERS 19.00
MARBLE MADNESS 35.00
MASTER TYPE 28.00
MATH MAGICIAN 28.00
MATH TALK 35.00
MATH TALK FRACTIONS 35.00
MATH WIZARD 32.00
MAVIS BEACON TYPING 35.00
MAXIPLAN 500 94.00
MAXIPLAN PLUS 126.00
MEAN 18 28.00
MENACE 28.00
METACOMCO PASCAL 2.0 81.00
MICROBOT DESIGN DISK 22.00
MICROFICHE FILER PLUS 108.00
MICROLAWYER 38.00
MIDI MAGIC 92.00
MIKE THE MAGIC DRAGON 16.00
MIMETICS UTILITIES I 40.00
MINI PUTT 24.00
MISSION CON-BAT 29.00
MISSION ELEVATOR 32.00
MODELER 3D 88.00
MOEBIUS 41.00
MONEY MENTOR 61.00
MOVIE CLIPS 21.00
MOVIESETTER 63.00
MULTI-FORTH 56.00
MUSIC MOUSE 50.00
MUSIC STUDENT 35.00
MUSIC STUDIO 35.00
OBLITERATOR 28.00
OF THE FLESH 24.00
ONE ON ONE 14.00

HARDWARE

8 UP OK 169.00
8 UP W/1 MEG 399.00
8 UP W/2 MEG 655.00
8 UP W/4 MEG CALL
8 UP W/8 MEG CALL
ADAPTEC 4000 126.00
ADAPTEC 4070 170.00
AIR DRIVE EXT. 159.95
AIR DRIVE INT. 139.95
AMIGEN GENLOCK 147.00
APRODRAW 12 X 12 480.00
BUS EXPANDER 485.00
C LTD REPLACEMENT KYBD 98.00
C LTD HARD DRIVES CALL
CALIFORNIA ACCESS 149.00
C LTD A500 512K OK 30.00
C LTD CORONA SCSI CALL
C LTD SCSI 500 156.00
C LTD SCSI 1000 180.00
C LTD SCSI 2000 119.00
CM 20 MEG A500/A1000 639.00
CM 20 MEG A2000 539.00
CM 40 MEG A500/A1000 799.00
CM 40 MEG A2000 749.00
GO 64 36.00
GO 64 INTERFACE CABLE 15.00
GVP 20 MEG HARDCARD 575.00
GVP 30 MEG HARDCARD 698.00
GVP 45 MEG HARDCARD 816.00
GVP AUTOBOOT EPROM KIT 29.00
GVP FD2010 FLOPPY 135.00
GVP IMPACT A500 CALL
GVP A500 RAM MODULE 66.00
GVP SCSI/RAM A2000 OK 1M294.00
GVP SCSI/RAM A2000 OK 2M324.00
GVP SCSI/RAM A2000 2M 750.00
HARDFRAME 2000 257.00
HD-64 HARD DRIVE CASE 125.00
INBOARD OK A1000 216.00
INBOARD 512K A1000 386.00
INBOARD 1 MEG A1000 556.00
INBOARD 1.5 MEG A1000 726.00
INBOARD OK A500 239.00
INBOARD 1 MEG A500 546.00
INBOARD 2 MEG A500 853.00
KICKSTART ELIMINATOR 120.00
M501 512K A500 EXP. OK 65.00
MIDI GOLD A500 58.00
MIDI INSIDER A2000 65.00
MIDI STAR 216.00
MODEM CABLE A1000 15.00
MODEM CABLE A500/A2000 15.00
MOUSE MASTER 27.00
MOUSE PADS 9.00
NEC PINWRITER 2200 432.00
PERFECT SOUND 66.00
PERFECT VISION 189.00
PRO GEN GENLOCK 384.00
PROCESSOR ACC 149.00
PROGRAM 2 MEG A2000 599.00
PROGRAM 8 MEG W/2 MEG 675.00
SCSI CABLES 25.00
SEAGATE ST157N 48 MEG 510.00
SEAGATE ST225N 20 MEG 345.00
SEAGATE ST251N 40 MEG 440.00
SEAGATE ST277N 65 MEG 510.00
SEAGATE ST138N 30 MEG 394.00
SEAGATE ST296N 85 MEG 635.00
STARDRIVE SCSI CONT. 102.00
SI COLOR SPLITTER 74.00
STARBOARD II OK 260.00
STARBOARD II 512K 435.00
STARBOARD II 1 MEG 605.00
STARBOARD II 2 MEG 944.00
SUPER GEN GENLOCK 699.00
SUPRA 2400 MODEM 129.00
BRICK A500 POWER 102.00
TIMESAVER 55.00
TOOLBOX A1000 3 AMP 214.00
TOOLBOX A1000 144.00
TOOLBOX A500 1 AMP 152.00
TRUMPCARD CONT. 165.00
VI-2000RF 78.00
VI-500RF 78.00
WV-1410 W/LENS.CABLE 238.00
X-SPECS 3D 94.00

Expansion Technology ToolBox

2 Slot Expansion uses A2000 Cards for
your A500 or A1000

Starting as low as **\$144**

SHIPPING INFO: Software rates are \$2.10/item (Max\$8.00) UPS Ground or \$4.00/item (Max 14.00) UPS 2nd Day Air. Call for Hardware shipping info. REFUND & RETURN POLICY: Defective merchandise under warranty will be repaired or replaced. Returned product must be in original packaging. We do not offer refunds for defective products or for products that do not perform satisfactorily. We make no guarantees for product performance. Money back guarantees must be handled directly with the manufacturer. All returns must have an RA #. Call 409-560-2826 for an RA. Returned products are subject to a 20% restocking fee. Prices subject to change without notice. Delivery subject to availability.



FEDERAL
EXPRESS

Standard Air
Available on Request

Computer Mart
105 Lynn St.
Nacogdoches, TX 75961

I CAN SEE CLEARLY NOW

YOUR A2000 WILL have no secrets when it's housed in an **ACD 2000 Plexi-glass Case** (\$400). This clear case replaces the Amiga's stock housing to let you see the machine's internal mechanisms in action. The main board, power sup-

ply, storage media, and port connectors are all visible.

Each case is made to order by Advanced Computer Design, Carl-Schurz-Str.11, D-2800 Bremen 1, West Germany, 49 421 3499517. *Reader service number 577.*



Your system's appearance is limited only by your imagination, says Advanced Computer Design.

DESKTOP FELLINI

LEARN MORE ABOUT the how, why, and when of computer video graphics with Cape Fear Teleproductions' three-part series of instructional videotapes. **Video Graphics Techniques** provides an introduction to signal theory, hardware requirements, font selection, text backgrounds, genlocking and keying, and effects, while **Color Cycling Animation** explains how to use color cycling for text and object animation, cartooning, background manipulation, and flow diagrams. Finally, **Digitizing For Effect** shows you how to transform photos and drawings and black-and-white video film into full-color digital images. To begin filming, contact Cape Fear Teleproductions Inc., 605 Dock St., Wilmington, NC 28401, 919/762-8028. *Reader service number 553.*

C HERE!

PUT YOUR C programs on the inside track with **Aztec C Express** (ACE). The newest version of Manx's software development environment allows you to make direct connections from edit to compile to test. Without leaving the ACE environment, you can automatically return from compiler to editor, and target errors for immediate correction and re-compilation. The program includes a fully integrated "point-and-shoot" project manager, a source-level debugger, and assorted development tools including non-Aztec editors and implements. Choose either the developer's (\$299) or the professional (\$199) package. Manx Software Systems has your ticket: PO Box 55, Shrewsbury, NJ 07702, 800/221-0440 or 201/542-2121. *Reader service number 560.*

AMIGA HARDWARE

Lowest prices on all hardware

Call for latest prices & availability

RSISystems
1-800-752-RSIS
1-800-752-7747

20% RESTOCKING FEE ON ALL ITEMS RETURNED

Circle 154 on Reader Service card.

Which hard disks for AMIGA?

Curious?

Any
(IBM compatible)
with our **A.L.F.!**
(Amiga Loads Faster)

Safer with CHECKDRIVE.
Faster with FASTFILE-SYSTEM.
50% more MB with RLL-CONTROLLER.
More economic – even defective hard disks can be used.

For more information:

Prespect Technics Inc.

P.O. Box 670, Station H
Montreal, Quebec H3G 2M6
Phone: (514) 954-1483
Fax: (514) 876-2869

BSC Büroautomation GmbH

Postfach 400368
8000 München 40 W-Germany
Phone: (89) 308-4152
Fax: (89) 307-1714

Circle 230 on Reader Service card.

MCP

Associates, Inc.

New York's Premier AMIGA Specialists

Exhibitors, AMI EXPO

SPECIAL COMMODORE-AMIGA EDUCATIONAL PROMOTION

Package A:

The AMIGA A500 Educator System
Advanced graphics / sound capabilities

A500 CPU
AMIGA A501 Memory Expansion
AMIGA A1084S RGB Color Monitor

PRICE: from \$999.95

PLUS

THE WORKS! Platinum Edition*

CLImate Disk Utility

AMIGADOS Quick Reference
(Retail Value \$350.00 FREE w/purchase)

Other Packages/Systems Available

Eligibility: Any school employee, school district, college, university or other educational institution, including museums, business & technical schools & intermediate units. Write/Call for special forms for submission. Offer valid till 12/31/89.

* Includes Word Processor, DataBase, Spreadsheet & Telecommunications

Authorized Education Dealers — Distributors

SERVICE — PARTS — REPAIRS

Competitive Pricing — Excellent Service & Quality

Visit Our Retail Store — Parking Available

28-21 Astoria Blvd., Dept AW
Astoria, NY 11102-1933

Tel: 1-212-221-6272 FAX: 1-718-956-9028

Tel: 1-718-956-9000

Circle 162 on Reader Service card.

MUSICALLY INCLINED

DO YOU FIND it tedious to write repeating refrains when composing? The **OPUS-1 MCL** music-composition language lets you define chunks of music to insert as needed. You can generate very small music files in IFF and SMUS format that will repeat for an extended time. The program allows import of standard Amiga IFF-Instrument files and supports external MIDI synthesizers. Your conductor is Ariadne Software Ltd., 273 Kensal Rd., London, UK, W10 5DB, 01 960 0203. *Reader service number 551.*

Link your Amiga with a Korg DW-8000 or EX-8000 via a MIDI interface to perform real-time editing with **DWEL**. The program lets you transmit up to 64 instruments to your synthesizer's bank and load from single instruments or entire banks on Amiga

disks. For would-be guitarists, **Guitar Chord Tutor** will help you learn finger positions and read music through a graphics interface. Both DWEL (\$79) and Guitar Chord Tutor (\$39) are available from Synthetic Reality Software, PO Box 360, Albany, MN 56307, 612/845-4755. *Reader service number 552.*

Get a firm grip on your scores with **MIDI Sample Wrench**. Use this professional sound-editing package (\$279) to download 16-bit sounds from MIDI samplers or disk files, modify them with editing and digital signal processing, and upload them to other MIDI samplers (sampler support is provided through libraries). Tune up with dissidents, 730 Dawes Ave., Utica, NY 13502, 315/797-0343. *Reader service number 575.*

A LITTLE THIS, A LITTLE THAT

ABACUS HAS ADDED six new titles to its Amiga Reference Library Series. **More Tricks & Tips for the Amiga** (\$19.95) offers techniques and hints for programmers. Read about ray tracing (in all screen resolutions), light sources, and shading in **3D Graphics Programming in BASIC** (\$19.95). **Graphics Inside & Out** (\$34.95) covers both simple operations (drawing points, lines, and rudimentary patterns) and complex (such as using your Amiga's bitmap graphics and animation features). Or, design and program interfaces with Intuition, use jump tables and dynamic arrays, and learn to combine assembly and C programs with **Advanced C for the Amiga** (\$24.95). **Advanced System Programming on the Amiga** (\$34.95) offers insight on AmigDOS 1.3. Finally, learn

how to protect your disks from viruses with **Amiga Virus Protection Toolbox** (\$59.95), a book-and-disk combination. The software includes Boot Check to prevent startup viruses, Recover to restore information to disk, and Check New to identify new data files. Hit the books by calling Abacus, 5370 52nd St. S.E., Grand Rapids, MI 49508, 616/698-0330. *Reader service number 558.*

The **AmigaDOS 1.3 Reference Book** (\$3.50) is a 12-page guide offering standard-devices and assignments lists, CLI and Shell error codes, and ED editor commands. Your librarian is the Computer Club Company, 13013 Lee Jackson Highway, Suite 142, Fairfax, VA 22033, 703/968-7588. *Reader service number 559.* ■



The Computer Outlet

P.O. Box 3663 Charleston, WV 25336

1-800-533-3622

Amiga Hardware & Software

CPU's - Printers - MODEMS



Amiga Accessories

AMAX with Mac ROMs	\$255.00
Air Drive Internal 3.5	\$113.00
Air Drive External 3.5	\$139.00
Amiga Serial Cable 25 - 25 pin	\$16.00
Amiga Monitor Cable 9 - 23 pin	\$12.00
Color Splitter	\$75.00
Epyx Joystick	\$16.00
Flicker Master Screen Filter	\$11.00
Frame Grabber	\$559.00
Panasonic WV1410 Kit	\$262.00
Supra 2400 baud Modem	\$125.00

Miscellaneous

3.5 Bulk Disks each	\$1.20
5.25 Bulk Disks each	\$3.31
Disk Holder 3.5	\$5.00
Disk Holder 5.25	\$5.00
Inland Disk Holder 3.5 (40)	\$5.00
Inland Disk Holder 3.5 (80)	\$9.00
Rolltop Disk Holder 3.5	\$16.00
Mouse Pads	\$6.00

Amiga Software

Software Starter Kit - TV Text, Money Mentor, Arkanioid, Text Craft Plus, Graphics Studio	\$79.00
A Talk Ill	\$56.00
Adventure of Sinbad	\$28.00
Animal Kingdom	\$28.00
Animator	\$56.00
Animate 3D	\$100.00
Animate 3D (PAL)	\$100.00
Arazoks Tomb	\$22.50
Architectural Design Disk	\$21.00
Art Pack #1	\$21.00
Audiomaster 2	\$57.00
Aunt Artica Adventure	\$22.50
B.A.D.	\$27.00
Battle Chess	\$30.00
Better Dead than Alien	\$21.00
Blackjack	\$24.00
Blood Money	\$24.00
Bridge 5.0	\$20.00
Captain Blood	\$24.00
Casino Fever	\$24.00
Chess Master 2000	\$29.00
Chrono Quest	\$24.00

Comic Setter	\$59.00	Fire & Forget	\$24.00
Comic Art Super Heros	\$20.00	Flight Simulator II	\$34.00
Comic Art Funny Figures	\$20.00	Fourth & Inches	\$27.00
Comic Art Science Fiction	\$20.00	Fraction Action	\$28.00
Cubemaster	\$21.00	Graphics Studio	\$34.00
Deluxe Help Digi Paint	\$21.00	Gygnused Professional	\$62.00
Deluxe Help Photon Paint	\$21.00	Hole in One	\$24.00
Diga	\$45.00	Human Design Disk	\$21.00
Digi Paint	\$36.00	The Hunt for Red October	\$32.00
Digi View Gold	\$128.00	Hybris	\$24.00
Digidroid	\$60.00	Images	\$22.50
Disk Master	\$33.00	Intellitype	\$31.00
DOS-2-DOS	\$31.00	Joker Poker	\$31.00
Double Dragon	\$25.00	Kinderama	\$28.00
Draw	\$45.00	Lights Camera Action	\$45.00
Draw 2000	\$157.00	Logic Works	\$57.00
Dungeon Master	\$25.00	Logic Works 2.0	\$168.00
Emerald Mines	\$13.00	Magellan	\$131.00
Emerald Mines II	\$25.00	Marble Madness	\$28.00
Excellence	\$168.00	Math Wizard	\$28.00
FACC Floppy Accelerator	\$21.00	Menace	\$18.00
Faery Tales	\$30.00	Modeler 3D	\$56.00
Falcon	\$30.00	Movie Setter	\$56.00
Fantavision	\$36.00	M. Beacom Teaches Typing	\$29.00
FA-18 Interceptor	\$32.00	Page Flipper	\$90.00
Ferrari Formula I	\$31.00	Page Stream	\$121.00

HORS D'OEUVRES

Hints, tips and techniques

from your fellow Amiga users.

These tidbits from our readers are not always going to be to everyone's liking. In fact, some of them may not go down well at all. We can't test everything to the last detail, so be sure to work with backup copies of your disks when experimenting with any of these tips. If you find that one of these tips is, shall we say, unpalatable, then see if you can determine how it should have been prepared and then let us know. Every programmer knows there is more than one way to skin a mouse, and we hope that this will be a springboard for discussion of the best, fastest, strangest, and most useful hints and tips for everyone.

1.3 CRASHES

WHEN I FIRST started using the 1.3 version of AmigaDOS, I was getting some pretty serious crashes, requiring me to turn off the computer and reinsert Kickstart. This only happened with Kickstart 1.3 and certain programs. I was never able to determine what was causing the deep crashes. I checked these disks for viruses and they were clean. The solution turned out to be surprisingly simple: Just boot with Kickstart 1.3 and a good 1.3 Workbench disk and INSTALL the disk in question.

*Alan Stanley
Prince Edward Island, Canada*

PD DOC FILES WITH PROWRITE

THE EASIEST WAY to review the documentation that comes with PD software is to read the doc file into a good word processor. If you use ProWrite (New Horizons Software) you have to create a

dummy file first and then rename the icon so that it is the same as the doc file, or ProWrite won't read it (e.g., save a blank page as dummyfile, then go to the CLI and RENAME DUMMYFILE.INFO DOC.INFO). It will then load properly and you can reformat it to suit your own needs. You can use the word processor's built-in capabilities to search, print, toggle through pages, and print only those portions that you need for hard copy. You can do the same thing with your capture file when you've been online. You can format your downloaded text, easily get rid of menus, etc. that you have captured but don't want, and then format what you wish to keep and save, and/or print what's left either as a single large file or multiple smaller files.

*Alan Stanley
Prince Edward Island, Canada*

GRID POINTER

HERE'S A LITTLE trick I discovered while waiting for my mouse to be repaired.

Just about everyone knows that you can move the mouse pointer with the keyboard; just hold down one of the two Amiga keys while using the cursor arrow keys, and you will have control of the pointer. Now try this. Hold down an Amiga key and the Shift key, and then press the cursor arrow keys. The pointer will move through an invisible grid, somewhat similar to the DeluxePaint Grid option.

*Santiago Badano
Montevideo, Uruguay*

INVINCIBLE KNIGHTS

HERE'S A TIP for Defender of the Crown enthusiasts. You can get 1024 in-

vincible knights for your campaign army and an equal amount for your home army! You can also become a super expert swordsman when raiding or rescuing.

To get the invincible knights, type in "k" simultaneously as you are building the army's soldiers with the left mouse button. Press "continue" and you will find you have been given 1024 knights in each army. This sure helps when playing the game to win.

*Trevor C. Blount
Wasilla, AK*

DITHERING AND OKIMATE 20

IF YOU HAVE an Okimate 20 printer, go ahead and try the Halftone Dithering mode (in the Graphic 2 window of Preferences). The manual says that Halftone only works well on printers with a resolution greater than 150 dpi, but it works fine on the Okimate and gives greater detail in color printouts. Don't bother trying F-S (Floyd-Steinberg) Dithering; it only makes the picture darker and can't be used with Smoothing.

*Nick Radov
Watsonville, CA*

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an AmigaWorld surprise gift. ■



ESTABLISHED
1968

MONTGOMERY GRANT

AMIGA
WORLD
8/89

OUTSIDE USA CALL
(718)692-0790

FOR CUSTOMER SERVICE
Call: Mon-Fri, 9:30AM-4:30PM
(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, 8:30-6:00/Sat, CLOSED/
Sun, 9:30AM-7PM

FOR ORDERS & INFORMATION CALL TOLL FREE

1-800-759-6565

OR WRITE TO:

Montgomery Grant
Mail Order Dept.
P.O. Box 58 Brooklyn, NY, 11230

FAX NO. 7186923372
TELEX 422132 MGRANT

ORDER HOURS: Monday-Friday, 9:00am-7:00pm / Saturday - CLOSED / Sunday, 9:30am-6pm

NO SURCHARGE FOR CREDIT CARD ORDERS / WE INVITE CORPORATE & EDUCATIONAL CUSTOMERS
CORPORATE LEASING & PERSONAL FINANCING AVAILABLE RUSH SERVICE AVAILABLE-CALL FOR DETAILS

<p>COMMODORE AMIGA 500</p> <p>Amiga 500 w/512K RAM Built-in 3.5" Disk Drive Mouse</p> <p>\$529</p> <p>AMIGA 500 W/1084S & 1010 DISK DRIVE \$949</p>	<p>COMMODORE AMIGA 500</p> <p>Amiga 500 w/512K RAM Built-in 3.5" Disk Drive Mouse</p> <p>COMPLETE WITH: 1084S RGB COLOR MONITOR</p> <p>\$799</p>	<p>COMMODORE AMIGA 2000</p> <p>Keyboard 1MB Expandable to 9MB Built-in 3.5" Disk Drive</p> <p>\$1429</p>	<p>COMMODORE AMIGA 2000</p> <p>Keyboard 1MB Expandable to 9MB Built-in 3.5" Disk Drive</p> <p>COMPLETE WITH: 1084S RGB COLOR MONITOR</p> <p>\$1699</p>
<p>AMIGA 500</p> <p>RGB COLOR PACKAGE Amiga 500 w/512K RAM Built-in 3.5" Disk Drive RGB Color Monitor Mouse FREE Software</p> <p>\$729</p>	<p>AMIGA 2500</p> <p>3MB RAM Built-in 3.5" Disk Drive 40MB Hard Drive Keyboard Mouse Amiga Basic System Software</p> <p>\$3199</p>	<p>AMIGA 2000</p> <p>RGB COLOR PACKAGE A-2000 Computer w/Keyboard 3.5" Disk Drive RGB Color Monitor FREE Mouse & Software</p> <p>\$1559</p>	<p>AMIGA 2000 HD</p> <p>1MB Ram Built-in 3.5" Disk Drive 40MB Hard Drive Keyboard Mouse System Software Amiga Basic</p> <p>\$1999</p>

-CUSTOMER BEWARE- Many of our competitors, unable to match our discount prices, quality service & support, are telling our customers that we sell used or refurbished merchandise. They are also saying that our products do not come with a COMMODORE AMIGA U.S.A. Warranty. **DONT BE FOOLED!** MONTGOMERY GRANT sells only brand new, factory fresh merchandise complete with a Commodore USA warranty that can be serviced coast-to-coast thru hundreds of authorized Commodore Amiga service centers. Buy with confidence from an established dealer like ourselves with over 21 years experience.

<p>AMIGA HARD DRIVES FOR AMIGA 500</p> <p>XETEC FASTTRAK JR(20MB).....\$579 XETEC FASTTRAK Q.40(42MB).....\$869 TRUMPCARD 500 external chassis-enables any SCSI Hard Drive to operate with AMIGA 500</p> <p>TRUMPCARD 500 & SEAGATE ST-138N(30MB).....\$529 Hard Drive PACKAGES for ST-157N(49MB).....\$579 Amiga 500 ST-177N(60MB).....\$749 Same PKG. as above with XETEC Fast Trak external chassis can be expanded to 8MB RAM-add.....\$149</p>	<p>Seagate XETEC</p> <p>3.5" & 5.25" HARD DRIVES FOR AMIGA 2000 THESE SEAGATE HARD DRIVE PACKAGES COME COMPLETE WITH XETEC HARD DRIVE CONTROLLER CARDS</p> <p>ST-125N(20MB).....\$439 ST-225N(20MB).....\$439 ST-138N(30MB).....\$459 ST-251N(40MB).....\$499 ST-157N(40MB).....\$519 ST-277N(60MB).....\$569 ST-177N(60MB).....\$699 ST-296N(80MB).....\$659</p>	<p>AMIGA PERIPHERALS</p> <p>A-1010 DISK DRIVE \$159 A-2300 GENLOCK \$269 A-2088-D BRIDGE BOARD \$469 A-501 EXPANSION MODULE \$149 NEW A-2286D AT BRIDGE BOARD \$1079 A-1084S RGB \$279 A-1680 MODEM \$99.95</p> <p>ALL OTHER AMIGA PERIPHERALS & ACCESSORIES-IN STOCK!</p>
<p>COMMODORE C-64C COMPUTER \$119</p> <p>C-64/C DELUXE PACKAGE COMMODORE C-64C COMPUTER COMMODORE 1541-C DISK DRIVE COMMODORE COLOR PRINTER 12" MONITOR GEOS SOFTWARE PROGRAM</p> <p>SAME PKG w/COLOR MONITOR.....\$449 C-1541 II DISK DRIVE SPECIAL.....\$159.95</p>	<p>COMMODORE C-128/D COMPUTER \$409</p> <p>C-128D DELUXE PACKAGE C-128D COMPUTER W/BUILT-IN DISK DRIVE COMMODORE COLOR PRINTER 12" MONITOR</p> <p>SAME PKG. W/1902 RGB Color Monitor.....\$629 C-1571 Disc Drive.....CALL C-1581 Disc Drive.....\$179</p>	<p>COMMODORE COLT IBM XT COMPATIBLE PKG. \$499</p> <p>640K 4.77-7.16 MHz 1 Floppy Drive 12" High Resolution Mono Monitor MS DOS and GW Basic</p> <p>SAME PKG. w/2 Floppies.....\$549 SAME P-KG. w/One Floppy and One 20MB Hard Drive.....\$749 COLT w/1084-S Monitor.....\$729</p>
<p>AMIGA COMPUTABLE ACCESSORIES</p> <p>FLICKER FIXER.....\$439 GEN ONE.....\$499 SUPRA 2400 Zi Internal Modem.....\$129 A-MAX MAC Emulator for Amiga.....\$149.95 GO-64/64 Emulator for Amiga.....\$49.95 Great Valley Products.....CALL</p>		

<p>PANASONIC</p> <p>KXP-1180.....\$177.95 KXP-1191.....\$229.95 1092L.....\$289.95 KXP-3131.....\$319.95 KXP-1124.....\$329.95 KXP-1595.....\$409.95 KXP-1524.....\$519.95 KXP 1450-Laser \$1349.95</p>	<p>OKIDATA</p> <p>OKIMATE 20.....\$139.95 OKIDATA 180.....\$219.95 OKIDATA 183.....\$269.95 OKIDATA 320.....\$329.95 OKIDATA 390.....\$454.95 OKIDATA 321.....\$459.95</p>	<p>STAR</p> <p>NX-1000.....\$164.95 NX-1000 RAINBOW.....\$219.95 NX-1000C.....\$164.95 NX-1000C RAINBOW.....\$224.95 NX-2400.....\$294.95</p>	<p>PRINTERS</p> <p>HEWLETT PACKARD</p> <p>LASERJET SERIES II \$1629</p> <p>SANYO PR-3000 \$59.95 DAISY WHEEL PRINTER</p>	<p>EPSON</p> <p>LX-810.....\$179.95 LQ-500.....\$279.95 FX-850.....\$339.95 LQ-510.....\$329.95 FX-1050.....\$429.95 LQ-850.....\$519.95 LQ-950.....\$569.95 LQ-1050.....\$729.95 LQ-2550.....\$899.95</p>	<p>CITIZEN</p> <p>1202.....\$134.95 180D.....\$149.95 MSP-40.....\$269.95 MSP-50.....\$299.95 MSP-15E.....\$315.95 MSP-45.....\$359.95 MSP-50.....\$299.95 COLOR OPTION KIT for MSP-50.....\$49.95</p>	<p>TRIBUTE</p> <p>124.....\$359.95 COLOR OPTION KIT FOR T-124.....\$49.95</p>	<p>NEC</p> <p>P2200.....\$339.95 P5200.....\$499.95 P5300.....\$649.95</p>
--	---	--	--	---	---	--	---



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. 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 #600233

HELP KEY

Cool Dude Lou gets your pictures a movin' and a groovin'.

By Louis R. Wallace

IFF-Y STANDARDS

Q: Where can I acquire documentation on the IFF standards, especially graphics and SMUS under the 1.3 operating system?

S. Browning
Rantoul, IL

A: Originally available to registered developers from CATS (Commodore Amiga Technical Service), all this information can now be found in the latest release of the *Amiga ROM Kernel Reference Manual: Includes & Autodocs* (\$32.95, Addison-Wesley). Documenting the 1.3 system software, this volume has about 160 pages of information on the IFF standards, including ILBM, SMUS, FTXT, 8SVS, and several forms registered by third-party companies. Two additional volumes in the series are scheduled for release by summer: *Amiga Hardware Reference Manual* (\$24.95) and *Amiga ROM Kernel Reference Manual: Libraries and Devices* (\$34.95). Check your local bookstore for availability, or call Addison-Wesley for information at 617/944-3700.

SPRITELY EDITOR

Q: I am trying to write some game programs using Amiga Basic, and I have some questions about sprites. First, I can't stand the sprite editor that comes with

the Extras disk. I cannot draw accurately with it, and it has crashed several times. Are there any other sprite editors available for use with Amiga Basic? Second, is it possible to define a sprite image with Amiga Basic using POKE and DATA statements as you can on the C-64, so that you don't have to load the objects from disk?

M. Lawrimore
Stockbridge, GA

A: I have seen several public-domain sprite-editor programs over the years, so you should be able to find one by looking in a catalog from a public-domain disk service. If you need to make BOBs, you can use a good paint program such as DeluxePaint III (Electronic Arts) to draw them, then use one of the public-domain conversion programs to convert the brush to an Amiga Basic BOB file.

Yes, you can convert Amiga Basic Objects to DATA statements, and you don't need to use POKE to put them in memory. Because Amiga Basic saves sprites and BOBs essentially as special string variables, you can use some BASIC commands to convert the string to data. To demonstrate, here is a simple example of converting an Amiga Basic object called bob\$ to data statements:

```
I=LEN(bob$)
PRINT "data ";L datalines=INT(I/10)
lo=I-(datalines*10)
```

```
FOR i=0 TO datalines-1
PRINT "data ";
FOR j=0 TO 9
a=ASC(MID$(bob$,i*10+j+1,1))
PRINT a;
IF j<9 THEN PRINT ",";ELSE PRINT
NEXT j
NEXT i
PRINT "data ";
FOR j=0 TO lo-1
a=ASC(MID$(bob$,i*10+j+1,1))
PRINT a;
IF j<(lo-1) THEN PRINT ",";
ELSE
PRINT
ENDIF
NEXT j
PRINT
END
```

With a little work you could write this data to a disk file, where it could be saved to disk and merged with one of your programs. Then, to re-create the object, you would just read the data back:

```
READ n
FOR i=1 TO n
READ a
nbob$=nbob$+CHR$(a)
NEXT i
```

Now you have the image back into a string variable in memory where it can be used in your program.

For a good book on the subject of Amiga Basic programming, take a look at *Advanced Amiga Basic* by Tom Halfhill and Charles Brannon (\$18.95, COMPUTE! Publications, 912/275-9809). While several years old, it is still full of great

tricks, and it does have a complete listing for an object datamaker.

CLASS MOTION

Q: Help! I want to create animations for my classroom demonstrations on an Amiga 500. Besides graphics and motion, I want to add digitized sounds and user interaction to the animations. I tried using DeluxeVideo. It is very clumsy and very limited, but at least it offers what I need. Are there any other commercial animation tools I could use that would be suitable for an entry-level animator, plus offer sound and keyboard support?

S. Connell
Los Angeles, CA

A: It sounds like you need The Director (\$69.95, The Right Answers Group, 213/325-1311), which lets you combine graphics, animations, sounds, mouse and keyboard, fancy display wipes, and a simple programming language into a multimedia Amiga event.

Photon Video: Cel Animator (\$149.95, MicroIllusions, 800/522-2041) also allows you to combine sounds with your animation. The program was designed to be a companion tool to the traditional cel animator, and allows you to load an animation into RAM, then synchronize sound playback to individual frames of the animation. ■

M.C.S. WE DON'T CLAIM TO HAVE THE LOWEST PRICES ON AMIGA ...

**WE PROVE IT!
NOBODY BEATS US!**

THINK YOU FOUND A GOOD DEAL? OURS WILL BE BETTER!

**3.5
DS/DD
69¢**
\$25 Purchase Required

SUPRA 2400i \$98	512K RAM \$149	20 MG H.D. \$249	2 MG RAM \$299	MISC.
FROM ●Aupra 2400 119* ●Avatex 1200E 68* ●Avatex 1200 HC 89* ●Avatex 2400 138* W/Cable Purchase-Add \$10 Alone	●Minimegs New Low Price s.c.s.i. \$139 Controllers FROM	SEAGATE W/Controller ●30 MG 299 ●40 MG 349 ●65 MG 399 ●80 MG 499 ●40 MG Quantum 559	FROM ●8-Up Board Call ●Starboard 2 OK 235 ●Inboard 1.5 MG OK 235 ●Megaboard 2000 (1mg) 375 ●Megaboard 2000 (2mg) 449 ●Pro Ram 2000 599	●RCA Camera 99 ●Panasonic 1410 185 ●Super Gen 670 ●CSA Midget racer Call ●Sony 3.5 DS/DD 15(10) ●Subsystem500/1000 200 ●Hardframe 238 ●Digiview 3 D 128 ●Digidroid 62 ●Copystand 55 ●Pro Gen 349 ●Amigen 149 ●Amiga Genlock1300 99 ●Frame Grabber 520 ●Boing Bouse 100 ●My-T Mouse 42 ●C-View 36 ●VI500 Video Interface 59 ●Easy! 500/1000/2000 from299 ●Flicker Fixer 440 ●Perfect Vision 168 ●Elec Color Splitter 90 ●Live 500/1000/2000 Call
3.5 EXTERNAL DRIVE \$125	STAR \$219 RAINBOW	PHOENIX 20MG HD \$519	G.V.P. PRODUCTS WE SELL THEM FOR LESS	
●3.5 Internal 98 ●Flex Data 3.5 ext. 138 ●3.5 Dual Drive 245 ●Master 3A 135 ●Uni Drive 135	●NX1000 170* ●Okimate 20 190* ●Panasonic1180 179* ●Panasonic 1124 319* ●Panasonic Laser 1399 *W/2 ribbon purch-Add \$10 alone	●Supra 60MG ●C Ltd ●Vault 30MG ●Xetec ●Many More! Call!	●Subsystem 500 ●1MG/2MG Boards ●Hard Cards ●68030 Accelerator	

ABACUS Amiga Dos Tool Box \$36 Assempro \$60 Becker Text \$90 Data Retrieve \$48 Text Pro \$48 Disk Drives Inside/Out \$27 Amiga Tricks & Tips \$18 Amiga C \$23 Amiga Dos Inside/Out \$18 Amiga Machine Lang \$18 Amiga C for Beginners \$33 Amiga Sys prog Guide \$23 Amiga Basic Inside/Out \$18 Amiga 3D Graphics \$18 More Tricks & Tips \$18	ARTWORK Bridge 3.0 \$21 Centerfold Squares \$18 Linkword Languages \$18 Strip Poker 2 \$24 Hollywood Poker \$12 ASDG FACC II \$21 Cygnus Ed \$60 AVANTE GARDE Benchmark Module 2 \$120 BAUDVILLE Award Maker Plus \$30 Sports Library \$18 BETHESDA Wayne Gretzky Hockey \$30 BRITANNICA Designasaurus \$30 BRODERBUND Ultima Trilogy \$36 Carmen SanDiego World \$27 Sim City \$CAll Downtown Challenge \$18 Fantavision \$36 Star Wars \$24 BROWN WAGH Easyedgers \$CAll Express Paint 3.0 \$84 Publisher Plus \$60 TV Show \$60 Word Text \$24 Zuma Poms (1-4) \$21 Pen Pal \$21 Midi Magic \$90 BUENA VISTA Roger Rabbit \$27 BYTE BY BYTE Script/Animate 40 Jr \$90 Animate 3-D \$95 Script 3-D \$65 Script/Animate 4D \$390 CAPCOM Bionic Commando \$24 CENTAUR SOFTWARE Forms In Flight II \$72 B.A.D. \$30 CENTRAL COAST Disk to Disk \$30 DOS 2 DOS \$33 Quarterback \$42 CINEMAWARE Deathbringer \$24 Federation \$30 King of Chicago \$30 Lords of Rising Sun \$30 Rocket Ranger \$30 S.D.I. \$18 Sinbad \$18 3 Stooges \$30 Defender of the Crown \$30 TV Sports Football \$30	DIGITEK Drum Studio \$30 Extra Courses \$12 Hole 1 Mini Golf \$24 Vampires Empire \$27 Hollywood Poker \$CAll DISCOVERY Arkandid \$20 Grabbit \$18 Hybris \$24 Marauder II B file 10 \$24 Sword of Sodor \$30 VI P \$18 DISK CO. Publishers Choice \$120 Supertack \$48 Kind Words 2.0 \$60 DR. T MUSIC SOFTWARE KCS Level II \$210 Copyist Pro 2 \$168 K.C.S. \$150 Mid Recording Studio \$42 EASEWARE Zoom \$120 Home Builders Cad \$49 ELAN DESIGN Invision \$120 Performer \$36 ELECTRONIC ARTS AAARGH \$23 Alternate Rity(city) \$26 Awesome Arcade Pk \$32 Bard's Tale \$32 ChessMaster 2000 \$29 Commissioners Disk \$14 Deluxe Music \$62 Deluxe Paint III \$92 Deluxe Photo Lab \$92 Deluxe Productions \$122 Deluxe Video 1 2 \$80 Double Dragon \$26 Earl Weaver \$32 FA/18 Interceptor \$32 Ferrari Formula 1 \$32 Marble Madness \$32 Master Ninja \$26 Mavis Beacon \$32 Wizard Wars \$26 Zany Golf \$26 EMERALD INTELLIGENCE Magellan \$117 EPYX California Games \$30 Battleship \$24 Dive Bomber \$24 Games Winter Edition \$30 Impossible Mission 2 \$15 Technocop \$30 4x4 Road Racing \$15 FIRST BYTE First Letters & Words \$26 First Shapes \$26 Kid Talk \$26 Math Talk \$26 Math Talk Fractions \$26 Smoothtalker \$26 Speller Bee \$26 FREE SPIRIT Securities Analyst \$48 Sex Vixons from Space \$24 FTL Dungeon Master \$24 FULLER COMPUTER Project D \$30 GOLD DISK Transcript \$42 Pro Page Templates \$36 Pro Draw Clip Art \$36 Supertack \$42 Design 3D \$60 Comic Setter \$60 Funny Figures \$21 Movie Setter \$60 Page Setter \$90 Pg Setter Prof 1 2 \$240 Prof Draw \$120 Super Heroes \$21 GRAMMA SOFTWARE NAG \$48 HARDWIRED Denaris \$18 Jinks \$24 HASH Animator Apen 3.2 \$177 Animator Jr \$48 Many More \$Call HYPERTEK GOM! \$53 GOM! Button \$24 IMPLUSE Turbo Silver \$120 INFINITY Galileo II \$42 Shakespeare \$78 INFOCOM Journey \$36 Shogun \$36 Zork Zero \$36 Battletech \$30 Innovation Broadcast Titrer \$180 Video Effects 3D \$120 INTERPLAY Battle Chess \$30 Neuromancer \$24 JDK IMAGES Pro Video Gold \$180 Font Library 1 \$78 Font Library 2 \$78 KARA Subheads \$42 Headlines 2 \$48 Kara Fonts \$96 LATTICE Lattice 5.0 \$180 Lattice C plus \$CAll MANX Aztec C Developers \$195 Aztec C Pro \$130 Library Sources \$180 Source Level Debugger \$49 MELBOURNE HOUSE War in Middle Earth \$30 Magic Johnson B-ball \$30 MICRO DEAL Fright Night \$24 Airballs \$24 4 Player Adapt \$CAll Major Motion \$24 International Soccer \$24 MICROILLUSIONS Craps Academy \$24 Data Disks \$12 Discovery Mathor Spell \$24 Fairy Tale \$30 Photo Vid Cel Animator \$90 Music X \$180 Photon Paint II \$90 MICROMASTER Your Family Tree \$30 MICROPROSE Gunship \$36 Silent Service \$24 MICROSEARCH City Desk 2.0 \$120 Head Coach 2.0 \$30 MIMETICS 3 Demon \$68 Pro Midi Studio 1 4 \$125 Uniflex 1 or 2 \$30 Midi Interface \$48 Sound Sampler \$80 MINOSCAPE Thunderblade \$30 Action Fighter \$24 Indiana Jones \$24 Balance/Power 1990 \$30 Captain Blood \$30 Combat Course \$24 Hostage \$27 Indoor Sports \$30 Outrun \$30 Shadowgate \$30 Space Harrier \$30 Superstar Ice Hockey \$30 Uninvited \$30 Alien Syndrome \$24 RoadRaiders \$30 Deja Vu \$30 MINOWARE Anti-Artic Adventure \$24 Charon 5 \$21 Descartes \$24 Page Flipper \$30 Pg Flipper Plus F/X \$96 Page SynC \$60 PAGErender 3D \$96	MSI Raw Copy \$36 M.S.S. Excellence \$180 Scribble Platinum Ed \$60 Works Platinum Ed \$177 NEW HORIZONS Flow \$30 Postscript \$30 Pro Fonts 1 \$21 Pro Fonts 2 \$21 Pro Write 2.0 \$75 NEWTEK Dig Paint III \$60 A500 Adapter \$24 Digidroid \$62 Digiview 3.0 \$128 Digiview 3.0 Upgrade \$12 Digiview Gold \$12 NEW WAVE SOFTWARE Dynamic Drums \$48 Dynamic Studio \$60 Sound Oasis \$120 OMNITREND Breath \$24 Paledin \$24 Scenerio Disks \$15 ORIGIN SYSTEMS Ultima IV \$36 OXXI A-talk 3 \$60 Maxiplan 500 \$90 Maxiplan Plus \$120 PRECISION SOFTWARE SuperBase Personal \$48 SuperBase Personal II \$30 SuperBase Pro 3.0 \$210 Super Plan \$90 Pro Sound Designer \$96 PROGRESSIVE CLI-mate \$24 Disk Master \$30 IntroCad 2.0 \$48 Mathamation \$42 Pxmte \$48 PSYGNOSIS Blood Money \$24 Aquaventure \$24 Baal \$18 Ballistix \$21 Barbarian \$24 Captain Fizz \$18 Chrono-Quest \$30 Menace \$18 Oboliter \$24 Terror Pods \$24 RAINBIRD Carrier Command \$27 Starlight 2 \$27 Universal Milit Simu \$30 UMS Vietnam \$15 UMS Civil War \$15 READY SOFT A-Max \$120 Dragon's Lair \$36 RGB Deluxe Help \$180 RIGHT ANSWERS GROUP Director \$42 Director Tool Kit \$CAll SEDONA SOFTWARE Money Mentor \$60 SOFTLOGIC Page Stream \$120 Page Stream Fonts \$24 SOFTWARE VISIONS Business Designer \$36 Home Designer \$24 MicroFiche Filer \$60 MicroFiche Filer Plus \$108 SPECTRUM HOLOBITE Solitaire Royal \$21 Falcon \$30 Tetris \$21 SSI Gettysburg \$38 Heroes of the Lance \$26 Kampfgruße \$38 Queston 2 \$32 Wrath of Nododemus \$26 SUBLOGIC Flight Simulator II \$32 Jet \$32 Scenery Disks \$26 SUNRISE INDUSTRIES Elctr Color Splitter \$94 Perfect Vision \$170 TAITO Rampage \$24 Bubble Bobble \$21 Operation Wolf \$21 Renegade \$21 THREE SIXTY INC. Dark Castle \$27 Harpoon \$27 Thunder Ridge \$24 TRUE BASIC True Basic \$60 9 Libraries (each) \$30 UNICORN All About America \$36 All other titles \$30 UNISON WORLD Art Giry 1 & 2 Combo \$24 Art Gallery 1&2 ea \$18 Fantasy \$18 Fonts & Borders \$21 Printmaster Plus \$30 VISIONARY DESIGN Datastorm \$24 WILLIAM HAWES Axxex \$30 W-Shell \$30 WORD PERFECT INC. Library \$78 Word Perfect \$150
--	---	--	---

Orders Only: M-F 10-8 Sat 10-6

800-433-7756

In Michigan:

313-427-7713

Customer Service: 12-5PM EST (M-F)

313-427-0267

FAX

313-427-7766

No Surcharge for MC/VISA/DISCOVER

M.C.S.

Send Mail Orders To: MCS, 12864 Farmington Rd., Livonia, MI 48150

Sorry no walk in traffic
All returns must have RA # Merchandise found defective will be repaired or replaced
We do not offer refunds for defective products or for products that do not perform
satisfactorily. We make no guarantees for product performance. Any money back
guarantee must be handled directly with the manufacturer. Call for shipping & handling
info. Prices subject to change without notice. Shipping & Handling are not refundable.
Returned products subject to a 20% restocking fee
12864 FARMINGTON ROAD, LIVONIA, MI 48150
We cannot guarantee compatibility

DEALER INQUIRIES INVITED

InfoMarket

DISK BLOW-OUT SPECIAL

Featuring C.I.TOH, Sony, etc.: 3.5" DSDD, 100% Lifetime Warranty!

The DISK Specialists — Distributors

MCP
Associates, Inc.

DSDD - Blue
\$1.19

C.I.TOH

DSDD - Rainbow
\$1.29

Price per disk based on 100 Disk min. purchase, w/labels. Sony, MCP's and other brands and quantities available. Call or Write for Quantity Disk Pricing & AMIGA Product Brochures. Prices subject to change w/out notice. S/H \$5.50 min. for disks; for CODs add \$3.00. Call for details. Educational, Corporate & Dealer Inquiries invited. PO's accepted.

MCP Associates, Inc., PO Box 6260, Dept. AW, L.I.C., NY 11106-1933

Tel: 1-718-956-9000

Exceptional Service & Quality

FAX: 1-718-956-9028



AMIGA SALES & SERVICE

SALE PRICES

Amiga 500	\$569.00
A501 RAM Card	154.95
3.5" External Drive	139.95
Mouse for 500, 1000, 2000	49.95
Supra 2400 Baud Modem	139.95
Internal 3.5" Drive for 2000	109.00
8UP (2 MG) Board for 2000	495.00

CALL FOR OTHERS

FREE ESTIMATES ON ALL REPAIRS

WE ARE AUTHORIZED WARRANTY
CENTER. FAST TURNAROUND.

WE CARRY PARTS, CHIPS, POWER SUPPLIES &
ALL OTHER ACCESSORIES FOR YOUR COMMODORE & AMIGA.

AMPEX SYSTEMS, INC.

5344 Jimmy Carter Blvd., Norcross, GA 30093 FOR MORE INFO. CALL (404) 263-9190

**US Universal
Systems**

We Ship Anywhere

UPS RED & BLUE Available

Visa, MC, Discover, Certified Chk. & COD

7004 175th St. SW, Edmonds, Wa 98020

Your Amiga Source

AMIGA Hardware & Software

Over 700 Titles In Stock

For The Best in Amiga

Products Call US Now!!

Open Sundays, NOON to 5PM PST

1-800-624-3554

FAX 206-672-2442

MIDI-MICE

Software allows you to control virtually ANY VIDEO, MUSIC,
or PAINT program from your MIDI instrument.

- Transform MIDI events into mouse and keyboard events
- Fully programmable with instant recall and edit
- Multitask on any model Amiga™, MIDI interface required

Please send your check or money order of \$85.00 to
(California resident please add 6% sales tax)

Tensor Productions
280 Mathilda Drive #9
Goleta, CA 93117



RAWCOPY V1.3

• Ultra-powerful backup tool for your AMIGA™

- Copies software that no others will
- Deprotects many of your favorite programs
- Supports up to four 3.5" disk drives
- Mouse-driven user interface

To Order:
Micro Systems International
1143 Monroe St.
Carleton, Michigan 48117
Call (313) 654-8402

Now Shipping
\$59.95

Free shipping and handling
Michigan residents add 4% tax
Quantity pricing available

Amiga 500 Repair. . . \$68.00

Fast Turnaround!

1-800-373-1188

Please call and obtain a tracking number before
shipping your unit to us. Thank you!

National Quality Service

10407 Blue Ridge Blvd., Suite 335
Kansas City, MO 64134

INCLUDES PARTS!

SERVICE ON ALL

COMMODORE PRODUCTS

90-DAY WARRANTY

ON ALL REPAIRS

MC / VISA / COD / M.O.

Motherboard only. NQS reserves the
right to refuse service on excessively
damaged units. No packages
accepted without TN.

PELICAN WARE

PO Box 680, South Street

Plattekill, NY 12568

1-800-637-4286, in New York (914) 566-0633

SPECIAL!! Pagestream \$120.00

Software and Hardware Products for the Amiga
call or write for free catalog

ART NUDES!!! --- HAM/IFF PICTURES

You can use these pictures for Desk Top Publishing and Desk Top Video. We have
hundreds of HAM pictures covering subjects from Exotic Nudes to Ocean Sailing. Our
SAMPLER DISK contains pictures+catalog. 15 disk Set and DA-Sampler don't have nudes.

DA-SAMPLER DISK \$10 15 DISK PICTURE LIBRARY SET \$125

P-SAMPLER NUDE DISK \$10 3 DISK ART NUDES OFFER \$25

NINE DISK ART NUDES SET \$75

To order ART NUDES you must sign a statement that you are 18 or older

DigitalArts/257

1033 Peachtree St. NE, Atlanta, GA 30309

Introducing...Electronic Ecstasy!!



Videk Scanlock CALL	Silent Drive external \$149	Quantum 40mb drive \$539
Super Gen 2000s CALL	Silent Drive internal \$119	Quantum 80mb drive \$869
Magni Genlock \$1559	F-Data Dual Drive \$259	Quantum 105mb drive \$959
Casio MT-140 Midi KB \$139	Hard Frame 2000 \$239	Microbotics 8-up! card CALL
C Ltd. Han-D-Scan \$319	Xetec Fast Card CALL	Mini-Megs Ram Expan CALL
Flicker Fixer \$469	Midget Racer 68020 \$349	Supra 2400 Baud Mdm \$129
Mitsubishi M-Sync 13" \$549	GVP 68030 board CALL	Incomm 4800 Bd Mdm \$299

CALL OUR TOLL
FREE ORDER LINE: 800-999-9670 FOR PRICE QUOTES AND
INFORMATION CALL (805) 682-8330

For mail orders or brochure send to: Electronic Ecstasy, 1401 La Cima Road, Santa Barbara, CA 93101 • Prices subject to change

MASTERPIECE PROFESSIONAL FONT COLLECTION® 20 DISK SET

The Largest Collection Of Fonts And Clip Art
Available In A Single Package For The AMIGA.

100 DIFFERENT FONT STYLES

This doesn't mean 10 sizes of 11 fonts. It means
110 DIFFERENT Fonts.

LARGES SIZES • HI-RES

Specially Designed For Video Work. 95% of the
fonts are over 100 pt. tall. Easily resized smaller.

PATTERN CLIP ART

141 hi-res DPaint II pages. There are thousands
of objects and examples.

BRUSHES 2 Disks Full Of Color Brushes

COLORFONTS 4 Disks Full Of Colorfonts

100 PAGE MANUAL Full Size Font Printouts

20 DISK SET - ONLY \$199.00

VISA / MC • COD • Company Check

Contact your local AMIGA dealer or order
direct from AROCK Computer Software
1306 E. Sunshine, Springfield, MO 65804
1-800-288-AROCK

The InfoMarket

AMIGAWORLD'S InfoMarket is a great opportunity
for those with AMIGA products to reach over 95,000
Amiga owners. AmigaWorld is the only publication
with a subscription offer reaching every new Amiga
owner, national newsstand distribution by ICD Hearst,
and single copy sales in computer stores carrying the
AMIGA as well as large bookstores such as B. Dalton
and Walden Books.

To reserve your 1/12 or 1/9 page display ad call
Heather Paquette at 1-800-441-4403. We accept
checks, money orders, MasterCard or VISA.

Make the most
of your advertising
investment! Reserve
your space in the
AmigaWorld Info-
Market today!
Call Heather
Paquette at
1-800-441-4403.

AMIGA
WELCOME TO



Computerized Lesson
Authoring System

- Create Your Own Software
- Use Plain English Commands
- Then Let Your Amiga Write The Program

For use in homes, schools and businesses
For more information, call or write:

MicroEd

TOUCH TECHNOLOGIES

PO Box 24750
Edina, MN 55424 (612) 929-2242



Don't let those
finger aerobics get you
down! There's an easier way to
change between your mouse and
joystick, instantly with just a touch of
a button. It's the handiest switchbox around.

MOUSE MASTER

(602) 322-6100

\$39.95

plus shipping & handling.
MC, Visa, COD's welcome



1135 N. Jones Blvd. • Tucson, AZ 85716

Circle 293 on Reader Service card.



800-544-6599
WI: 414-544-6599

Software		Hardware	
ANIMagic	63.99	68030 GVP	CALL
B.A.D.	33.00	8-Up! DIP OK	150.00
Batman	30.99	AMAX	140.00
Battlehawks 1942	33.89	FAST CARD	170.00
Brood Money	27.99	Floppy Drive, CA-880	150.00
Broadcast Titer	195.00	Floppy Drive, Unidrive	136.25
Dig Paint 3.0	60.99	Floppy Drive, Internal	115.00
Elite	24.99	Future Sound 2000	93.95
GunShip	37.99	HardFrame 2000	235.00
HISoft BASIC Professional	115.00	Impact A2000-2/0 OK	293.20
Jet Master (Crd.)	61.99	Joystick, ERGO	20.00
KCS 1.7	CALL	Light Pen	94.00
Lattice C 5.0	190.00	Livel 2000	315.00
Level II (Dr. Ts)	219.00	Memory, 501 clone	170.00
Pen Pal	CALL	MIDI, ECE	50.00
Photon Paint 2.0	99.00	MIDI Gold 2000	65.00
Prof. Page ClipArt	36.99	Midget Racer	350.00
Sculpt Animate 4D Jr.	110.00	Mini Megs 512K	325.00
Sim City	32.99	Modem, Supra Internal	140.00
Where is Carmen Sandiego?	32.99	Mouse, Bong!	110.00
		Mouse, My-T-Mouse	44.99
		Processor Accelerator 1000	195.00
		Spirit Board OK	220.00
		SubSystem 500	235.00
		Tool Box	215.00
		Trump Card	175.00

Info: 414-544-2066
BBS: 414-544-6567

Visa/MC/CODs
M-F 9-5 CST

2414 Pendleton, Waukesha, WI 53188

Circle 275 on Reader Service card.

Finally...Amiga owners can again yell
"Fore" because your MEAN 18:
Ultimate Golf™ has more courses to
play than the other guys!! Now you can
order:

U.S. Open Courses I: Sinnecock Hills, Merion, Winged
Foot, Bellverie & The Country Club (Brookline).

PGA Championship Courses: Oakmont, Firestone,
Pinehurst, #2, Oakland Hills & Southern Hills.

British Open Courses: Muirfield, Sandwich, Carnoustie,
Royal Birkdale & Royal Lytham & St. Annes.

PGA Tour Courses I: Doral, Torrey Pines, TPC Sawgrass,
Cypress Point & Indian Wells.

Each 3 1/2" diskette has five (5) great courses, just
\$20 each disk, US currency. Send your check
or money order to

MOONLIGHT DEVELOPMENT,



329 Shoreline Place, Decatur,
IL 62521. Please allow 2-3
weeks for delivery.

Mean 18: Ultimate Golf is a trademark of Accolade.
AMIGA is a trademark of Commodore-Amiga, Inc.

Circle 292 on Reader Service card.

35mm COLOR SLIDES

from your IFF or HAM files

- Brilliant Color
 - No Curvature Distortion
- as low as \$1/slide

Call or Write for order form, price list & sample

HAMMOND
PHOTOGRAPHIC
SERVICES

11280 Washington Place
Culver City, Ca. 90230
(213) 390-3010

PARENTS! TEACHERS!

NIMBLE NUMBERS Educational Program

COUNT - ADD - SUBTRACT - MULTIPLY - DIVIDE
PreSchool to Age 8, Remedial: USED IN NEW ZEALAND SCHOOLS

BRIGHT GRAPHICS - NATURAL DIGITIZED SPEECH - FUN!

DISK NOT COPY PROTECTED: BACKUPS OK!

ORDER NOW FROM: **HOKIANGA SOFTWARE**



PO Box 67, Rawene, Hokianga, New Zealand 0473
phone (INT) +64 887 57761 Ask for details and list

ONLY \$29.75
plus \$3.95 Air Freight

MicroEd

Educational Software K thru ADULT

ALL CURRICULAR AREAS•INCLUDES RELIGIOUS PROGRAMS
SEND FOR A LIST OF OUR SOFTWARE

MicroEd, Incorporated
P.O. Box 24750
Edina, MN 55424
612-929-2242

T-SHIRTS & S-SHIRTS IMPRINTS

from your IFF or HAM files

in full Color

T-SHIRTS \$20 SWEAT SHIRTS \$25 Specify (S)(M)(L)(XL) ,white only.
Add \$5 for S/H

TAKE 1
VIDEO PRODUCTIONS, INC.
537 S. CUYLER AVE.
Oak Park, IL 60304

VISA/MASTER
CARD
ACCEPTED

For order
information call
(312) 321-8253

AmigaWorld is a publication of IDG Communications, the world's largest publisher of computer-related information. IDG Communications publishes over 90 computer publications in 33 countries. Fourteen million people read one or more IDG Communications publications each month. IDG Communications publications contribute to the IDG News Service offering the latest on domestic and international computer news. IDG Communications publications include: ARGENTINA'S *Computerworld Argentina*; ASIA'S *Communications World*, *Computerworld Hong Kong*, *Computerworld Malaysia*, *Computerworld Singapore*, *Computerworld South-east Asia*, *PC Review*; AUSTRALIA'S *Computerworld Australia*, *Communications World*, *Australian PC World*, *Australian Macworld*; AUSTRIA'S *Computerwelt Oesterreich*; BRAZIL'S *DataNews*, *PC Mundo*, *Micro Mundo*; CANADA'S *Computer Data*; CHILE'S *Informatica*, *Computacion Personal*; DENMARK'S *Computerworld Danmark*, *PC World Danmark*; FINLAND'S *Mikro*, *Tietoviikko*; FRANCE'S *Le Monde Informatique*, *Distributive*, *InfoPC*, *Telecoms International*; GREECE'S *Micro and Computer Age*; HUNGARY'S *Computerworld SZT*, *PC Mikrovilage*; INDIA'S *Dataquest*; ISRAEL'S *People & Computers Weekly*, *People & Computers Bi-Weekly*; ITALY'S *Computerworld Italia*; JAPAN'S *Computerworld Japan*; MEXICO'S *Computerworld Mexico*; THE NETHERLANDS' *Computerworld Netherlands*, *PC World Benelux*; NEW ZEALAND'S *Computerworld New Zealand*; NORWAY'S *Computerworld Norge*, *PC World Norge*; PEOPLE'S REPUBLIC OF CHINA'S *China Computerworld*, *China Computerworld Monthly*; SAUDI ARABIA'S *Arabian Computer News*; SOUTH KOREA'S *Computerworld Korea*, *PC World Korea*; SPAIN'S *CIMWORLD*, *Computerworld Espana*, *Commodore World*, *PC World Espana*, *Comunicaciones World*, *Informatica Industrial*; SWEDEN'S *Computer Sweden*, *Mikrodatorn*, *Svenska PC World*; SWITZERLAND'S *Computerworld Schweiz*; UNITED KINGDOM'S *Computer News*, *DEC Today*, *ICL Today*, *LOTUS*, *PC Business World*; UNITED STATES' *AmigaWorld*, *CD-ROM Review*, *CIO*, *Computer Currents*, *Computerworld*, *Digital News*, *Federal Computer Week*, *FOCUS Publications*, *inCider*, *InfoWorld*, *Macintosh Today*, *MacWorld*, *Computer + Software News*, (*Micro Marketworld/Lebhar-Friedman*), *Network World*, *PC World*, *Portable Computer Review*, *Publish!*, *PC Resource*, *PCGames*, *RUN*, *Windows*; VENEZUELA'S *Computerworld Venezuela*; WEST GERMANY'S *Computerwoche*, *Information Management*, *PC Welt*, *Run*, *PC Woche*, *RUN*.

Manuscripts: Contributions in the form of manuscripts with drawings and/or photographs are welcome and will be considered for possible publication. *AmigaWorld* assumes no responsibility for loss or damage to any material. Please enclose a self-addressed, stamped envelope with each submission. Payment for the use of any unsolicited material will be made upon publication. All contributions and editorial correspondence (typed and double-spaced, please) should be directed to *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458; telephone: 603-924-9471. **Advertising Inquiries** should be directed to Advertising Offices, IDG Communications/Peterborough, Inc., 80 Elm St., Peterborough, NH 03458; telephone: 800-441-4403. **Subscription problems or address changes:** Call 1-800-525-0643 (in CO, 1-303-447-9330) or write to *AmigaWorld*, Subscription Dept., PO Box 58804, Boulder, CO 80322-8804. **Problems with advertisers:** Send a description of the problem and your current address to: *AmigaWorld*, 80 Elm St., Peterborough, NH 03458, ATTN.: Sue Maizel, Customer Service Representative.

List of Advertisers

Reader
Service
Number

- 124 Abacus Software, **27**
- 224 Abacus Software, **16**
- 175 AbSoft, **69**
- 72 AmiEXPO, **83**
- * *AmigaWorld*,
Amiga Tool Chest, **65**
Amiga Companion, **81**
InfoMarket, **94, 95**
- 132 Briwall, **84, 85**
- 71 Cache Systems, Ltd. L.P., **45**
- 73 California Access, **77**
- 86 CAPCOM USA, **2**
- 156 CompuNik Computers, **68**
- 148 Computability, **47**
- 41 Computer Mail Order, **35**
- 69 Computer Mart, **87**
- 199 Creative Computers, **52, 53**
- 28 Digital Creations, **25**
- 35 Dr. T's Music Software, **43**
- 210 Elan Design, **4**
- 183 Fuller Computer
Systems, Inc., **60**
- 26 Go Amigo, **72, 73**
- 150 Gold Disk, **CII**
- 177 Gold Disk, **1**
- 245, 127 Great Valley Products, Inc., **5**
- 145, 62 Great Valley Products, Inc., **7**
- 50 Inovatronics, Inc., **29**
- 125 InterComputing, Inc., **59**
- 91 Kinson Products Corp., **79**
- 117 Konyo International, Inc., **CIII**
- 92 Leisure Genius, **15**
- 122 Lightspeed Distribution, **62, 63**
- 162 MCP Associates, Inc., **88**

Reader
Service
Number

- 44 Micro Computer Services, **93**
- * MicroEd, Inc., **95**
- * Montgomery Grant, **91**
- 292 Moonlight Development, **95**
- 38 New Horizons Software, **17**
- 102 NewTek, Inc., **CIV**
- 75 Oxxi, Inc., **33**
- 158 PCM Industries, **71**
- 284 Pixelations, **69**
- 293 Practical Solutions, Inc., **95**
- 230 Prespect Technics, Inc., **88**
- 123 Psygnosis/CSS, **23**
- 113 Redmond Cable Corp., **70**
- 154 RSISystems, **88**
- 275 Safe Harbor, **95**
- 128 Software Discounters
of America, **49**
- 194 Software Excitement, **41**
- 226 Software Support Int'l, **57**
- 206 Sprite Technology, **82**
- 228 SubLOGIC Corporation, **48**
- 56 Taito Software, Inc., **9**
- 112 Taito Software, Inc., **11**
- 13 The Computer Outlet, **89**
- 151 The Hunter Group, **61**
- 134 The Software Shop, **37**

* This advertiser prefers to be contacted directly

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

NOTICE TO ADVERTISERS

All advertising is subject to the approval of the Publisher and *AmigaWorld* reserves the right to refuse advertising without notice. The advertising herein that has been typeset and/or designed by *AmigaWorld* is the property of *AmigaWorld*, and not that of the advertiser. The advertiser has purchased the right of reproduction in *AmigaWorld* only, and does not have the right to reproduce the ad in any other publication, without the expressed written consent of *AmigaWorld*. Advertisers and/or their agencies assume the responsibility for the condition of the contents of the advertising printed herein and agree to indemnify the Publisher of *AmigaWorld* for any claims and/or expenses incurred therefrom. *AmigaWorld* is not responsible for changes to artwork after the given advertising deadlines, nor assumes responsibility for mistakes, misprints, or typographical errors, and will not issue credits of any kind for such errors. *AmigaWorld* advises advertisers that statements regarding shipping and handling charges, warranties and/or money-back guarantees should be included within all forms of advertising in *AmigaWorld*. The opinions expressed in the articles and advertising appearing herein are those of the authors and/or advertisers and are not necessarily those of *AmigaWorld*.

FYI

AmigaWorld apologizes for delay in shipping its Public Domain discs during January, February and March '89. Our new Special Products Department is now handling all orders in a timely manner. If you have an outstanding Public Domain order dating before April, please write to Susan Maizel in Customer Service.

As a service to its readers, *AmigaWorld* will periodically publish the names of companies who are having difficulties meeting their customer obligations or who have gone out of business. Readers are advised to contact *AmigaWorld* before dealing with these companies: **Computer Best**, **FutureSoft Applications**. If you have any questions or concerns about advertisers in *AmigaWorld*, please contact: **Susan Maizel, Customer Service Representative, AmigaWorld Magazine**, 80 Elm Street, Peterborough, NH 03458. Through our customer service representative, *AmigaWorld* assists readers with problems they may have with advertisers. However, *AmigaWorld* does not assume any liability for advertiser's claims.

To Receive FREE Product Information



TEAR

out the perforated card.
Please print or type your
name and address where
indicated.

CIRCLE

the numbers on the card
that correspond to the
reader service numbers on
the advertisements that
interest you.

ORDER

a one year subscription to
AmigaWorld by circling 500
on the card.

MAIL

the card with your check,
money order or U.S.
currency to:
AmigaWorld
Reader Service
Management Department
P.O. Box 5170
Pittsfield, MA 01203-5170
Or, you may request billing.

LOOK FOR

your subscription in 10 to
12 weeks.

REMEMBER

to put the proper postage
on the card.

READER SERVICE

☐ Mr.
☐ Mrs.
☐ Ms. Name _____
Title _____
Address _____
City/State/Zip _____
Telephone _____

- A. Do you own an Amiga?
☐ 1. Yes ☐ 2. No
- B. If no, will you purchase one of the following?
☐ 3. Amiga 500 ☐ 6. Other (please specify)
☐ 4. Amiga 2000 ☐ 7. I currently have no purchasing plans.
☐ 5. Amiga 2500
- C. Would you purchase an Amiga magazine which had a bound-in disk of demo programs, tutorials, etc?
☐ 8. Yes ☐ 9. No
- D. Which software packages will you purchase in the next 12 months? (Please choose all that apply.)
☐ 10. Entertainment ☐ 17. Database Management
☐ 11. Word Processing ☐ 18. Financial Management
☐ 12. Communications ☐ 19. Graphics
☐ 13. Spreadsheets ☐ 20. Education
☐ 14. Home Productivity ☐ 21. Music
☐ 15. Programming
☐ 16. Video
- E. Which peripherals will you purchase in the next 12 months? (Please choose all that apply.)
☐ 22. Animation ☐ 24. CAD/CAM
☐ 23. Sound/Speech ☐ 25. Other
- F. If you are not a subscriber, please circle 499 on this card.
- G. If you would like a one year subscription to AmigaWorld (12 issues), please circle 500 on this card. Each subscription is \$29.97. Canada and Mexico \$38.97. Foreign Surface, \$49.97. Foreign Airmail \$84.97 (U.S. Funds Drawn on U.S. Bank). Orders from outside of North America must be prepaid. Please allow 10-12 weeks for delivery.

August card valid until October 31, 1989.

1	6	11	16	21	201	206	211	216	221	401	406	411	416	421
2	7	12	17	22	202	207	212	217	222	402	407	412	417	422
3	8	13	18	23	203	208	213	218	223	403	408	413	418	423
4	9	14	19	24	204	209	214	219	224	404	409	414	419	424
5	10	15	20	25	205	210	215	220	225	405	410	415	420	425
26	31	36	41	46	226	231	236	241	246	426	431	436	441	446
27	32	37	42	47	227	232	237	242	247	427	432	437	442	447
28	33	38	43	48	228	233	238	243	248	428	433	438	443	448
29	34	39	44	49	229	234	239	244	249	429	434	439	444	449
30	35	40	45	50	230	235	240	245	250	430	435	440	445	450
51	56	61	66	71	251	256	261	266	271	451	456	461	466	471
52	57	62	67	72	252	257	262	267	272	452	457	462	467	472
53	58	63	68	73	253	258	263	268	273	453	458	463	468	473
54	59	64	69	74	254	259	264	269	274	454	459	464	469	474
55	60	65	70	75	255	260	265	270	275	455	460	465	470	475
76	81	86	91	96	276	281	286	291	296	476	481	486	491	496
77	82	87	92	97	277	282	287	292	297	477	482	487	492	497
78	83	88	93	98	278	283	288	293	298	478	483	488	493	498
79	84	89	94	99	279	284	289	294	299	479	484	489	494	499
80	85	90	95	100	280	285	290	295	300	480	485	490	495	500
101	106	111	116	121	301	306	311	316	321	501	506	511	516	521
102	107	112	117	122	302	307	312	317	322	502	507	512	517	522
103	108	113	118	123	303	308	313	318	323	503	508	513	518	523
104	109	114	119	124	304	309	314	319	324	504	509	514	519	524
105	110	115	120	125	305	310	315	320	325	505	510	515	520	525
126	131	136	141	146	326	331	336	341	346	526	531	536	541	546
127	132	137	142	147	327	332	337	342	347	527	532	537	542	547
128	133	138	143	148	328	333	338	343	348	528	533	538	543	548
129	134	139	144	149	329	334	339	344	349	529	534	539	544	549
130	135	140	145	150	330	335	340	345	350	530	535	540	545	550
151	156	161	166	171	351	356	361	366	371	551	556	561	566	571
152	157	162	167	172	352	357	362	367	372	552	557	562	567	572
153	158	163	168	173	353	358	363	368	373	553	558	563	568	573
154	159	164	169	174	354	359	364	369	374	554	559	564	569	574
155	160	165	170	175	355	360	365	370	375	555	560	565	570	575
176	181	186	191	196	376	381	386	391	396	576	581	586	591	596
177	182	187	192	197	377	382	387	392	397	577	582	587	592	597
178	183	188	193	198	378	383	388	393	398	578	583	588	593	598
179	184	189	194	199	379	384	389	394	399	579	584	589	594	599
180	185	190	195	200	380	385	390	395	400	580	585	590	595	600

August card valid until October 31, 1989.

☐ Mr.
☐ Mrs.
☐ Ms. Name _____
Title _____
Address _____
City/State/Zip _____
Telephone _____

- A. Do you own an Amiga?
☐ 1. Yes ☐ 2. No
- B. If no, will you purchase one of the following?
☐ 3. Amiga 500 ☐ 6. Other (please specify)
☐ 4. Amiga 2000 ☐ 7. I currently have no purchasing plans.
☐ 5. Amiga 2500
- C. Would you purchase an Amiga magazine which had a bound-in disk of demo programs, tutorials, etc?
☐ 8. Yes ☐ 9. No
- D. Which software packages will you purchase in the next 12 months? (Please choose all that apply.)
☐ 10. Entertainment ☐ 17. Database Management
☐ 11. Word Processing ☐ 18. Financial Management
☐ 12. Communications ☐ 19. Graphics
☐ 13. Spreadsheets ☐ 20. Education
☐ 14. Home Productivity ☐ 21. Music
☐ 15. Programming
☐ 16. Video
- E. Which peripherals will you purchase in the next 12 months? (Please choose all that apply.)
☐ 22. Animation ☐ 24. CAD/CAM
☐ 23. Sound/Speech ☐ 25. Other
- F. If you are not a subscriber, please circle 499 on this card.
- G. If you would like a one year subscription to AmigaWorld (12 issues), please circle 500 on this card. Each subscription is \$29.97. Canada and Mexico \$38.97. Foreign Surface, \$49.97. Foreign Airmail \$84.97 (U.S. Funds Drawn on U.S. Bank). Orders from outside of North America must be prepaid. Please allow 10-12 weeks for delivery.

1	6	11	16	21	201	206	211	216	221	401	406	411	416	421
2	7	12	17	22	202	207	212	217	222	402	407	412	417	422
3	8	13	18	23	203	208	213	218	223	403	408	413	418	423
4	9	14	19	24	204	209	214	219	224	404	409	414	419	424
5	10	15	20	25	205	210	215	220	225	405	410	415	420	425
26	31	36	41	46	226	231	236	241	246	426	431	436	441	446
27	32	37	42	47	227	232	237	242	247	427	432	437	442	447
28	33	38	43	48	228	233	238	243	248	428	433	438	443	448
29	34	39	44	49	229	234	239	244	249	429	434	439	444	449
30	35	40	45	50	230	235	240	245	250	430	435	440	445	450
51	56	61	66	71	251	256	261	266	271	451	456	461	466	471
52	57	62	67	72	252	257	262	267	272	452	457	462	467	472
53	58	63	68	73	253	258	263	268	273	453	458	463	468	473
54	59	64	69	74	254	259	264	269	274	454	459	464	469	474
55	60	65	70	75	255	260	265	270	275	455	460	465	470	475
76	81	86	91	96	276	281	286	291	296	476	481	486	491	496
77	82	87	92	97	277	282	287	292	297	477	482	487	492	497
78	83	88	93	98	278	283	288	293	298	478	483	488	493	498
79	84	89	94	99	279	284	289	294	299	479	484	489	494	499
80	85	90	95	100	280	285	290	295	300	480	485	490	495	500
101	106	111	116	121	301	306	311	316	321	501	506	511	516	521
102	107	112	117	122	302	307	312	317	322	502	507	512	517	522
103	108	113	118	123	303	308	313	318	323	503	508	513	518	523
104	109	114	119	124	304	309	314	319	324	504	509	514	519	524
105	110	115	120	125	305	310	315	320	325	505	510	515	520	525
126	131	136	141	146	326	331	336	341	346	526	531	536	541	546
127	132	137	142	147	327	332	337	342	347	527	532	537	542	547
128	133	138	143	148	328	333	338	343	348	528	533	538	543	548
129	134	139	144	149	329	334	339	344	349	529	534	539	544	549
130	135	140	145	150	330	335	340	345	350	530	535	540	545	550
151	156	161	166	171	351	356	361	366	371	551	556	561	566	571
152	157	162	167	172	352	357	362	367	372	552	557	562	567	572
153	158	163	168	173	353	358	363	368	373	553	558	563	568	573
154	159	164	169	174	354	359	364	369	374	554	559	564	569	574
155	160	165	170	175	355	360	365	370	375	555	560	565	570	575
176	181	186	191	196	376	381	386	391	396	576	581	586	591	596
177	182	187	192	197	377	382	387	392	397	577	582	587	592	597
178	183	188	193	198	378	383	388	393	398	578	583	588	593	598
179	184	189	194	199	379	384	389	394	399	579	584	589	594	599
180	185	190	195	200	380	385	390	395	400	580	585	590	595	600

To Receive FREE Product Information



TEAR

out the perforated card.
Please print or type your
name and address where
indicated.

CIRCLE

the numbers on the card
that correspond to the
reader service numbers on
the advertisements that
interest you.

ORDER

a one year subscription to
AmigaWorld by circling 500
on the card.

MAIL

the card with your check,
money order or U.S.
currency to:
AmigaWorld
Reader Service
Management Department
P.O. Box 5170
Pittsfield, MA 01203-5170
Or, you may request billing.

LOOK FOR

your subscription in 10 to
12 weeks.

REMEMBER

to put the proper postage
on the card.

READER SERVICE



PLEASE USE
FIRST CLASS
LETTER
POSTAGE

AmigaWorld
Reader Service
Management Department
P.O. Box 5170
Pittsfield, MA 01203-5170



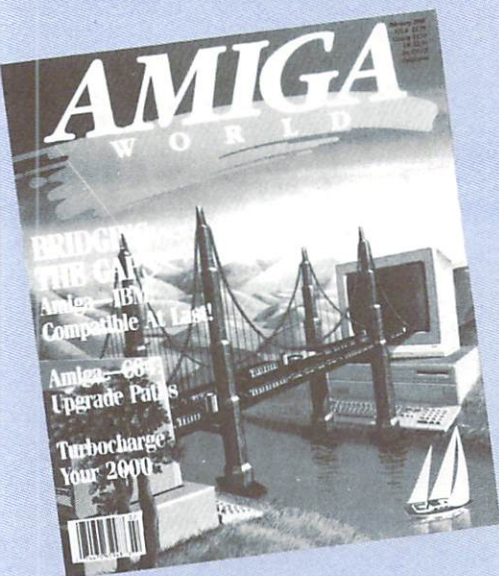
PLEASE USE
FIRST CLASS
LETTER
POSTAGE

AmigaWorld
Reader Service
Management Department
P.O. Box 5170
Pittsfield, MA 01203-5170



AMIGA WORLD

**Subscribe Now
And Save
37% OFF
The Cover Price**



- *AmigaWorld*...the only high-quality Amiga-specific magazine on the market. It's as fresh and dazzling as the computer itself!
- *AmigaWorld*...where expert authors will lead you through the exciting and revolutionary features of the Amiga!
- *AmigaWorld*...helping you discover and utilize a whole new world of computer graphics and sounds!
- *AmigaWorld*...because creative computing was never so exciting and easy!

**Get 12 Issues
of AmigaWorld for
\$29.97.
That's 37% Off The
Basic Newsstand Price!**

The IDG Communications Guarantee

As the world's largest publisher of computer-related information, we unconditionally guarantee your *AmigaWorld* subscription. If you're not completely satisfied, tell us. We'll refund the full price of your subscription—no questions asked.

YES!

I want to save 37% off the newsstand rate. Enter my 12 issue subscription to *AmigaWorld* for the low subscription price of \$29.97. If I'm not satisfied at any time, I will receive a full refund—no questions asked!

☐ Bill Me

☐ Payment Enclosed

Name _____

Address _____

City _____ State _____ Zip _____

Please make checks payable to *AmigaWorld*.

Canada & Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (U.S. Funds drawn on U.S. Bank). Prepayment is required on all Foreign Surface and Foreign Airmail orders. All prices are 1 year only. Please allow 6-8 weeks for delivery.

AMIGA WORLD

498D1

YES!

I want to save 37% off the newsstand rate. Enter my 12 issue subscription to *AmigaWorld* for the low subscription price of \$29.97. If I'm not satisfied at any time, I will receive a full refund—no questions asked!

☐ Bill Me

☐ Payment Enclosed

Name _____

Address _____

City _____ State _____ Zip _____

Please make checks payable to *AmigaWorld*.

Canada & Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (U.S. Funds drawn on U.S. Bank). Prepayment is required on all Foreign Surface and Foreign Airmail orders. All prices are 1 year only. Please allow 6-8 weeks for delivery.

AMIGA WORLD

498D1

YES!

I want to save 37% off the newsstand rate. Enter my 12 issue subscription to *AmigaWorld* for the low subscription price of \$29.97. If I'm not satisfied at any time, I will receive a full refund—no questions asked!

☐ Bill Me

☐ Payment Enclosed

Name _____

Address _____

City _____ State _____ Zip _____

Please make checks payable to *AmigaWorld*.

Canada & Mexico \$38.97, Foreign Surface \$49.97, Foreign Airmail \$84.97 (U.S. Funds drawn on U.S. Bank). Prepayment is required on all Foreign Surface and Foreign Airmail orders. All prices are 1 year only. Please allow 6-8 weeks for delivery.

AMIGA WORLD

498D1



BUSINESS REPLY MAIL

FIRST-CLASS PERMIT NO. 1247 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

IDG Communications/Peterborough
AmigaWorld
P.O. Box 50365
Boulder, CO 80321-0365



BUSINESS REPLY MAIL

FIRST-CLASS PERMIT NO. 1247 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

IDG Communications/Peterborough
AmigaWorld
P.O. Box 50365
Boulder, CO 80321-0365



BUSINESS REPLY MAIL

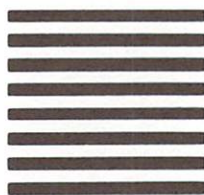
FIRST-CLASS PERMIT NO. 1247 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

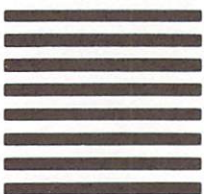
IDG Communications/Peterborough
AmigaWorld
P.O. Box 50365
Boulder, CO 80321-0365



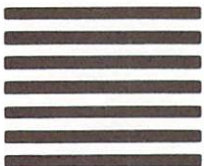
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



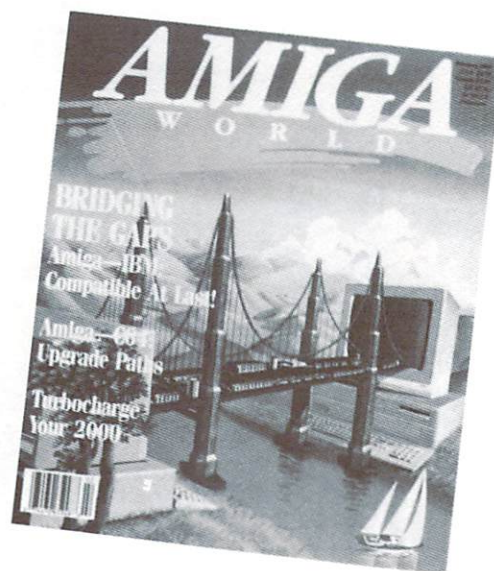
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED
STATES



**Subscribe Now
And Save
37% OFF
The Cover Price**



- *AmigaWorld*. . .the only high-quality Amiga-specific magazine on the market. It's as fresh and dazzling as the computer itself!
- *AmigaWorld*. . .where expert authors will lead you through the exciting and revolutionary features of the Amiga!
- *AmigaWorld*. . .helping you discover and utilize a whole new world of computer graphics and sounds!
- *AmigaWorld*. . .because creative computing was never so exciting and easy!

**Get 12 Issues
of AmigaWorld for
\$29.97.
That's 37% Off The
Basic Newsstand Price!**

The IDG Communications Guarantee

As the world's largest publisher of computer-related information, we unconditionally guarantee your *AmigaWorld* subscription. If you're not completely satisfied, tell us. We'll refund the full price of your subscription—no questions asked.

Take a Close Look at the Master-3A



Introducing the

MASTER-3A

100% AMIGA® COMPATIBLE 3 1/2" Compatible Disk Drive

Inside the incredibly small Master-3A is a powerhouse
of advanced technology for your *Amiga*.®

- ☐ Full 1 Year Warranty
- ☐ Extremely quiet operation
- ☐ Double sided/ double density 1 MB capacity
- ☐ Durable metal case eliminates radio frequency interference and drive noise
- ☐ Pass through connector lets you easily add additional drives
- ☐ Extra long shielded input cable (28") lets you position drive where you want it
- ☐ Spring loaded door keeps out dust
- ☐ Smaller, slimmer design (4" w X 1 1/4" h X 9" d)
- ☐ Consumes less power

For an even closer look at the *Amiga*® compatible Master-3A,
phone your nearest dealer:

Computer Direct (IL)
(312) 382-6811
(800) 289-9473

ComputAbility (WI)
(414) 357-8181
(800) 558-0003

Micro Computer Service (MI)
(313) 427-7713
(800) 433-7756

Manufactured by
Oceanic



Distributed by

Konyo International, Inc. Outside CA 800-356-5178 / Inside CA 714-633-1026 / FAX 714-633-5339

DIGI-VIEW

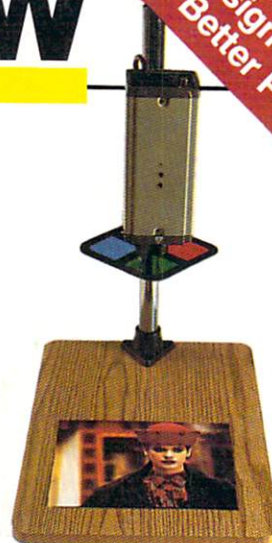
GOLD

All-New!
Hardware and Software
Designed for A500/2000—
Even Better Pictures Than Before!

1.



2.



Actual 4096 color Digi-View Gold picture

3. Simply the Best.

The all new Digi-View Gold is the best video digitizer for the Amiga. Period. Nothing else even comes close. Why? The secret is that Digi-View Gold captures 2.1 million colors in memory, giving you an incredible 100,000 apparent colors on screen simultaneously.

And it's easy to use. Just 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 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 and 2000, and plugs directly into the parallel port. Digi-View Gold's powerful image capture and manipulation software (version 3.0) now has complete control of color and sharpness, full overscan, extra halfbrite, and a special line art mode for desktop publishing.

Circle 102 on Reader Service card.

*Requires standard gender changer for use with Amiga 1000. Video camera required; not included. NewTek sells a video camera, copy stand, and the Digi-Droid automated filter wheel for Digi-View Gold. If your local retailer doesn't carry these products, call us at 913-354-1146. Digi-View Gold is a trademark of NewTek, Inc. Amiga is a trademark of Commodore-Amiga, Inc. Be seeing you!!

Only Digi-View Gold:

- Can digitize in all Amiga resolution modes from 320x200 up to 768x480 (full hi-res overscan)
- Uses 2 to 4096 colors (including extra halfbrite)
- Uses exclusive Enhanced HAM for super fine detail
- Is 100% IFF compatible and works with any graphics software
- Can digitize 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

If you want the highest quality graphics for your Amiga, as easy as 1, 2, 3; then you need the new version of the best selling video digitizer of all time: Digi-View Gold.

Only \$199.95

Digi-View Gold is available now
at your local Amiga dealer.
Or call 1-800-843-8934

NewTek
INCORPORATED