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DECEMBER 1990/JANUARY 1991
VOLUME 2, NUMBER 5

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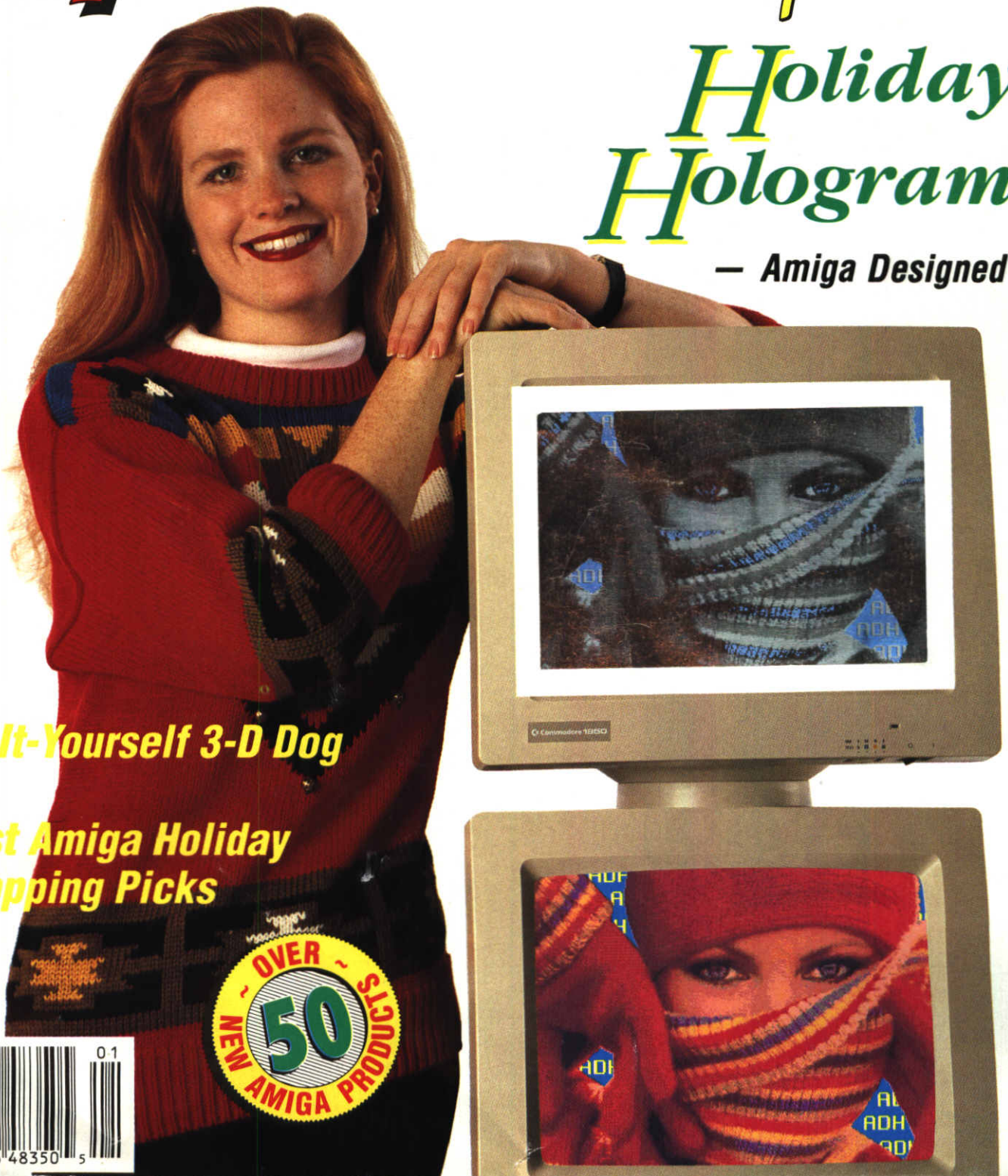
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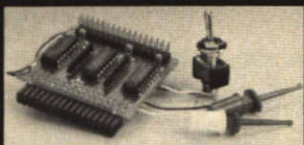
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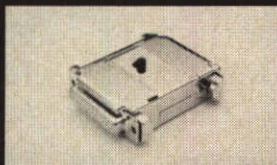
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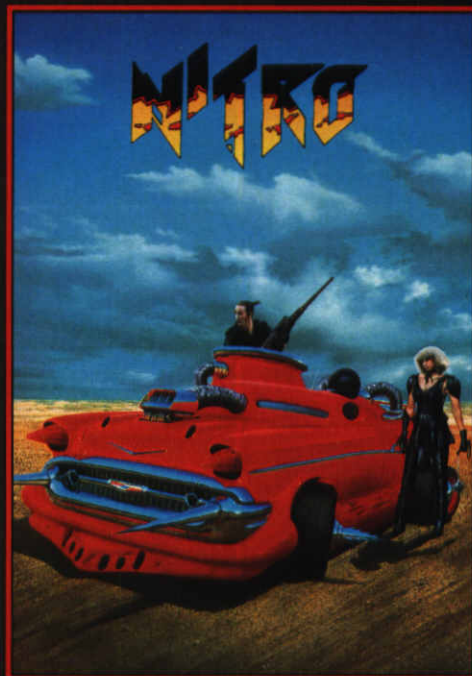
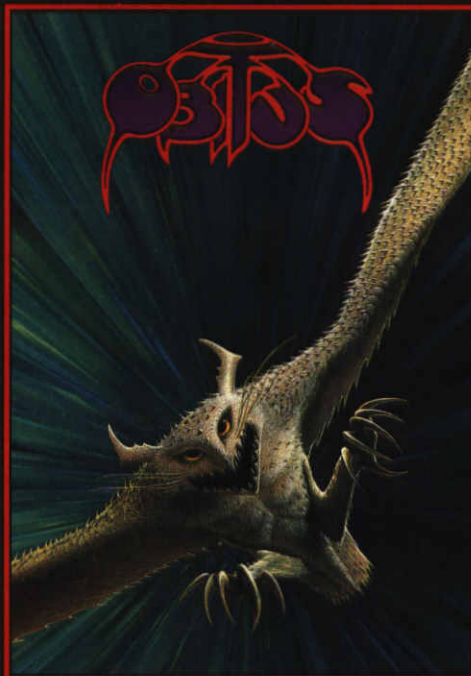
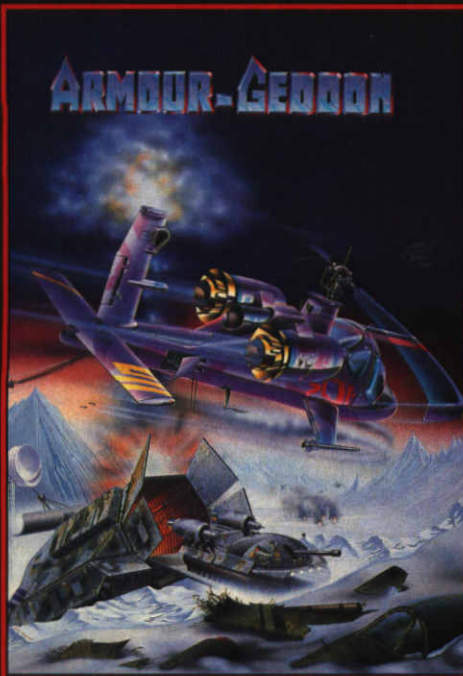


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Armour-Geddon	Amiga
Obitus	Amiga
Nitro	Amiga



DISK FEATURES

28

Statistics Cruncher

By Timothy Cain

Analyze the numbers with your Amiga

16

Do-It-Yourself 3-D Dog

By Gene Hamm

Make 3-D animations that jump from your Amiga screen

30

Killing Game Show

Hands-on demo of the hot new Psygnosis game

39

Killer Chess

By Greg "Maddog" Knauss

You and your opponent move as fast as you can -- simultaneously!

64

Rotation

By Todd Bach

Give your brain cells a workout with this number-sliding puzzle

68

3-D AnimFont

Flashy, colorful animated 3-D text brushes from Sys-Jam

All articles marked with the disk symbol have programs or files on this month's Amiga Plus Disk! If you bought this magazine without the disk, here's how to order yours now!

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FEATURES

36 Holiday Holograms Made On Amiga

By Kevin Brown

How we created the 3-D picture on this magazine's cover

43 Amiga Classics

By Guy Wright

These Golden Oldies still among today's best products

50 Best Products Reviewed in AMIGA Plus

By Carolyn Cushman

Our critics' picks of the 1989-90 crop

66 Producing the AMIGA Plus Art Contest Video Cassette

By Peter Lulleman

New horizons for Amiga art video



DEPARTMENTS

- 9 Editorial
- 10 Reader Input
- 11 Alert Box News
- 58 New Products
- 70 New Users HELP
- 94 Shoppers Mart
- 96 Reader Art Gallery



DECEMBER/JANUARY
Volume 2, Number 5

AMIGA+ plus™

REVIEWS



Cover Story . . . 36

19 Speedy Hard Disk With "Intelligent Buffering" *By Tom Bucklin*
ICD claims AdSCSI 2000 is fastest Amiga hard drive

24 Disney Animation Studio *By Steve Segal*
Create your own pro-quality Mickey Mouse cartoons easily

27 BaseBoard *By Steve Carter*
Four-megabyte Amiga 500 -- on the installment plan

33 Pixound -- Onscreen Colors Into Music *By Sylvia Pengilly*
Hearing your Amiga art

47 Hoops Amiga *By Russ Ceccola*
Magic Johnson's Basketball, Fast Break, TV Sports: Basketball, OMNI-Play Basketball

72 Professional Draw 2.0 *By Mark Koulian*
Easy smooth-line drawing with speed, power, and auto-tracing

74 ProWrite 3.1 *By Pamela Rothman*
New champion Amiga word processor??

78 Xetec's FastCard Plus *By Morton Kevelson*
Affordable SCSI hard disk with up to 8Mb fast RAM

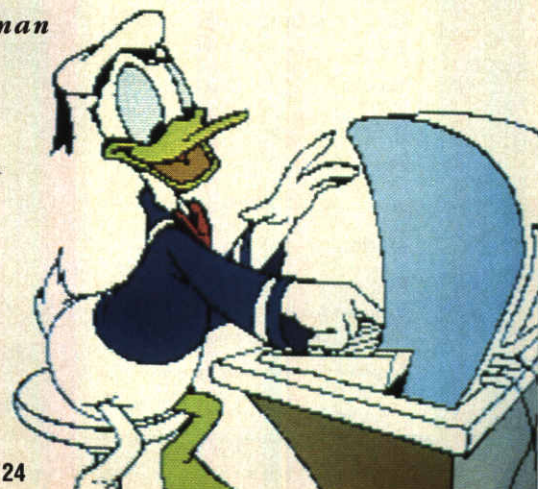
80 Quick Shots *Game Column By Guy Wright*
Flood, Pirates, Dragon's Lair II, NY Warriors, The Plague, Manhunter II

85 Vista: Beyond Fractals *By Carolyn Cushman*
Real-life 3-D landscapes, generated on your Amiga

87 DEB Board *By Arnie Cachelin*
Extra video slot for high-end Amiga 2000 expansion

90 AMOS *By Russ Ceccola*
Mandarin's fast, powerful BASIC does it all

91 Trackballing on Amiga *By Arnie Cachelin*
Our tester actually traded in his mouse



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Magazine (in which advert appeared)

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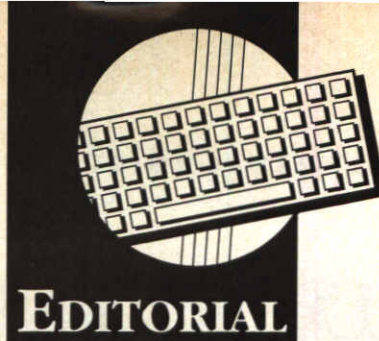
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Our first order of business this time is to welcome to AMIGA Plus the former subscribers of Amiga Sentry Magazine. Tom Bucklin's all-review Sentry was an important Amiga publication and we're proud that Tom chose AMIGA Plus as the most appropriate magazine to fulfill Amiga Sentry's subscriber obligation.

With this issue's review of ICD's AdSCSI 2000 hard disk controller, Tom Bucklin also joins Guy Wright (Amiga World editor during its first five years) as an AMIGA Plus Contributing Editor.

Now Non-Disk Subscriptions Too

After one-and-a-half years of publishing AMIGA Plus, we're offering a major new option in response to strong demand from readers. Starting with this holiday issue, you can subscribe to a full year of AMIGA Plus (six bi-monthly issues) *without* the disk and pay only \$14.95.

This new \$14.95 non-disk subscription is *way* less than half of the \$39.95 one-year subscription with disk. We still believe that the AMIGA Plus disk subscription is the best Amiga software value around — and thousands of paid-up subscribers agree. However, over the months we have heard from many other readers who really like the magazine, but who have software needs so specialized that much of the disk's contents aren't truly relevant to them.

So now we're offering the choice you wanted — subscribe with disk or no disk, it's a great buy either way. With this new change, you'll notice a slight shift in the way that the magazine reads. There won't be any more pages used for detailed explanations of how to operate the AMIGA Plus disk programs. All that information will now be on the disk in easy click-to-read text files. The liberated magazine space will be used for additional reviews and how-to articles.

(Disk Subscribers: You'll still get just as much outstanding software on each issue's disk, even with a few longer text files added. We always compress as many files as necessary to fit everything onto the disk, and decompressing the files by just clicking on an icon couldn't be easier.)

Holograms & Videos

In these magazine pages and on disk, AMIGA Plus continues to come up with new breakthroughs and special values for readers like you. This issue's cover features the first hologram ever used in a computer magazine, as far as we know. The full story of how the Amiga is being used to create master holograms for duplication is here for you to read.

AMIGA Plus is also involved with the upcoming release of the highest-quality Amiga video tape ever produced, featuring the best of the First Annual AMIGA Plus Art Contest. In this issue you can see images from the video and read about the ambitious production techniques involved.

Still another first in this issue is the full-featured interactive disk demo of a major new shoot-'em-up from Psygnosis, **The Killing Game Show**. Just double-click a Workbench icon and you can play the entire first level of this spectacular graphic game.

All these outstanding features are typical of what you can expect to get in every excitement-packed issue of AMIGA Plus, so stick with us in '91 and don't miss out.

Nat Friedland
Editor, AMIGA Plus



YOUR LETTERS TO AMIGA PLUS

READER INPUT

Uphill Battle

I currently work at the United States Department of Agriculture's Eastern Regional Research Center where I create charts, slides, and posters for scientists to use in showing their work. I had been campaigning at USDA for over a year to get an Amiga, but kept running into a brick wall. They make me work on clumsy, expensive IBM and Mac machines. I recently wrote an article in the center's newsletter talking about multimedia and Amiga and expected to be challenged or ridiculed. Instead I got total apathy and practically no response at all. Oh well! They stumble along in a black-and-white, single-tasking, text-based world and I try not to laugh out loud when they talk about how wonderful their PC's are.

David Starks
Imagi-Vision
Philadelphia, PA

For a sample of David Starks' work, see the Reader Art Gallery in this issue. — + EDITORS

HamItUp! Responds

This is both a thank-you letter and a letter of complaint for the review of my product, **HamItUp!**, by Curt Kass in the August/September 1990 issue.

Several positive aspects of **HamItUp!** were omitted in the review. It failed to mention that **HamItUp!** is more than just a set of color charts, but comes complete with a 35-page manual which helps users understand RGB color relationships and gradient dithers. The unique layout of the charts allows users to quickly inspect any printer's ability to properly represent all of the Amiga's 4096 colors.

The manual also informs users that they can change the charts' black background in any HAM program. (The latest version (1.01) simplifies the process by allowing you to print charts with black or white backgrounds, and includes "The Blender" which allows you to create and save 16-color blends as brushes to be used in any Amiga paint program.)

I appreciate the review, but feel that Curt Kass has a conflict of interest, in that he is also the developer of one of the products in the review.

Francis Gardino
Delta Graphics, Inc.
Brighton, MA

Curt Kass included a wealth of information on all three color-matching programs, far more than we had space for, so some of the blame must fall on his editors' heads. It's impossible to mention every aspect, positive or negative, of a product being reviewed. We try to cover the points we consider significant to most potential buyers, but inevitably that means leaving out details that some users find important. Also, for highly specialized products such as HamItUp!, it's often difficult to find a qualified reviewer who doesn't have some professional stake in the field. When this kind of situation comes up, we bend over backwards to try to ensure that the published review is fair. — + EDITORS

Video Visions Rebuttal

Regarding your recent review of Video Visions ("New VideoWare," August/September 1990), I feel that two paragraphs is hardly long enough to cover a 24-disk collection consisting of eight volumes and five mini-volumes. Reviewer Guy Wright gen-

eralizes the images, calling them "bland backgrounds." Volume One, for instance, provides general pattern-like backdrops for users to edit and add to, as a sort of clip art. If I added bells and whistles for video emphasis myself, users could not edit the material easily for their own use. The generalization also fails to include the logos featured on Volume Seven, or packages like the Animator Set (2-D and 3-D objects). If there was little space, the review should have picked on one specific volume, rather than making such generalizations.

The comment about subdued colors is accurate (a necessity for good video reproduction) but calling them bland misses the point. (The greenish photo reproduced in the magazine didn't help.) I have been putting together these disks for videographers for the last two years, with repeat customers, and would hate to see prospective new customers put off by an inaccurate review. If you truly intend to be the premier information resource for Amiga-based video, multimedia and graphics arts you should try to be more accurate in your reviews.

Charles Voner
CV Designs
Medford, MA

The first part of the above answer to Delta Graphics also applies here. Also, we probably didn't make it clear enough that we sent our reviewer only one or two Video Visions packages — not the entire 24-disk series. Perhaps mistakenly, we thought it would be a service to our readers to edit the review in such a way as to call attention to the availability of this extensive video clip-art series. — + EDITORS.



NEWS FROM THE AMIGA COMMUNITY

ALERT BOX

Amiga at the Helm

Computer navigation goes to sea

BY PAM AND KEN RIELI

The captain peered nervously through the fog off Valdez, then returned to study his electronic chart. Sea conditions had pushed the huge tanker off course and dead ahead the notorious Bligh reef waited to make history for the second time.

Suddenly, an alarm sounded and a bright red OBSTRUCTION warning flashed onscreen! The Amiga-based navigator kicked into action, pinpointing exact geographic coordinates of the charted hazard. Within seconds a new heading was entered into the computer and the autopilot went into evasive maneuvers. A second Alaskan oil spill had just been averted.

This scenario is not an excerpt from a sci fi paperback. Phoenix Engineering Systems in Michigan has actually built and tested a scanning navigation system which could prevent EXXON-type disasters and everyday boat groundings. First to feature artificial intelligence routines, the **Scan-Ahead Navigator** includes its own Map Generator program which produces color-coded electronic charts for the navigator. Communications between the Amiga and optional marine devices are routed through a special MarineLAN integrator.

Introduced in the early 1980s, electronic chart machines present a bird's eye view of a boat's geographic posi-

tion on a digitized chart. How does the computer know where the boat is? Old salts used sextants and celestial sightings to get around. The Scan-Ahead Navigator contains automatic dead reckoning and electronic positioning modes.

Loran (Long Range Navigation) is one type of electronic positioner. Radio signals are transmitted from ground stations to onboard receivers, which translate the signals into latitude/longitude position. In many areas, these signals reach inland and can be used to position land vehicles or planes. As loran data feeds into your computer, the boat's position

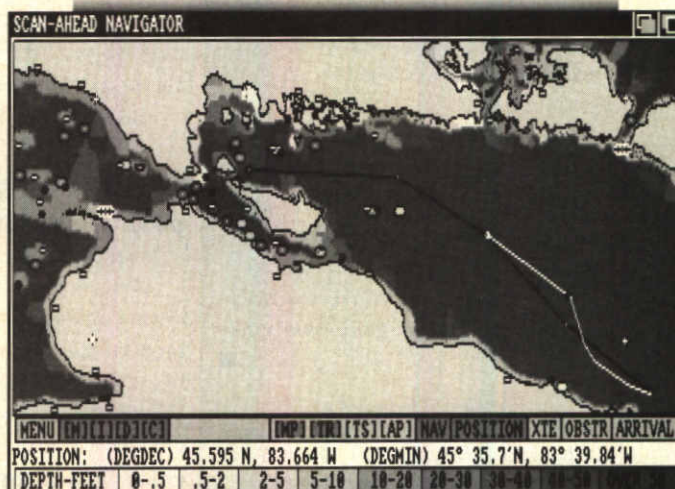
marker moves across the screen, accompanied by vital information.

Setting Up

To install your onboard Amiga navigation system, you will need the following in addition to your computer — the "Scan-Ahead Navigator" package, a shielded monitor, a loran receiver with a 0183 data output port, a power inverter, a line stabilizer and hookup cables.

Because electromagnetic waves from CRTs interfere with loran reception, the monitor must be enclosed in a metal case. You can buy a shielded monitor from a computer systems

Scan-Ahead Navigator uses artificial intelligence to detect obstructions on this electronic chart of the Straits of Mackinac.



manufacturer, or have a metal fabrication shop build one for you, or make your own plywood box lined with thin sheet aluminum or foil. In all cases, a small muffin fan must be installed to keep the monitor cool.

Although most equipment designed for marine use operates on the boat's 12-36vdc battery system, both your Amiga and its monitor require 110vac power. You will need a 400 watt power inverter plus a 600 watt line stabilizer to convert 12vdc to a stable 110vac. There are two types of inverters. Square wave inverters do not provide a good, clean output for running computer equipment, so it's best to use a frequency-controlled sine wave inverter.

Also, we *don't* recommend taking hard disks to sea! Sudden knocks will cause most hard drives to crash. If you need more storage, why not use extra floppy drives? Or consider the new high density floppies capable of storing 10-20 megabytes.

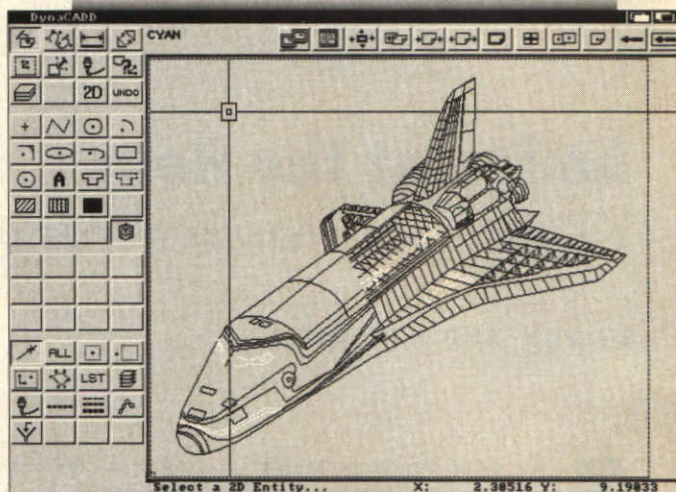
The ideal location for your Amiga command center is down below at the traditional chart station, which usually consists of a chart table with an enclosed storage cabinet beneath and an instrument panel above. Experienced sailors batten down (bolt or clamp) everything to prevent damage as the boat pounds or heels. If your boat doesn't already have a grounding plate fitted to the bottom of the hull, you must have one installed. The negative side of the battery connects to this plate along with the monitor shield and other electronic equipment.

All systems GO? Fire up your engine and turn on the electronics gear. With the Scan-Ahead Navigator operating system disk in DF0 and a chart disk in DF1, boot up the navigator, lay in your route and you're ready to sail. Your Amiga will guide you safely home again. ■

SCAN-AHEAD NAVIGATOR From \$750. Phoenix Engineering Systems, 4240 Lakeshore Road, Deckerville, MI 48427. (313) 376-4843.

News Briefs

The work screen from the new Amiga version of Ditek's popular DynaCADD 2-D and 3-D drafting software.



Amiga DynaCADD Is Here

This work screen is from the debut Amiga version of **DynaCADD**, which is now shipping. Ditek's \$995 program was rated the best computer-aided design and drafting software for the IBM PC (by CAD/CAM Magazine) and for the Atari ST (by START Magazine). DynaCADD works in both 2-D and true 3-D, featuring easy-to-use automatic dimensioning to North American or European standards. All or part of any drawing at any scale can be accurately sent to virtually any printer or plotter. Compugraphic's desktop publishing fonts are used for DynaCADD text functions.

ISD Marketing, (416) 479-1880.

High-end Amiga marketing push starts off with bang

With 15 Value-Added Resellers (VARs) signed up in just 60 days, Commodore sees booming potential in its brand-new program for selling Amigas as part of customized professional multimedia systems. National Sales Manager Jeff Goss has been busy trekking to professional trade shows such as Video Expo and Presentation '90. Com-

modore's VAR program provides discounts, as well as technical and marketing support for VARs who develop Amiga-based installations for key professional markets.

Goss says that the Amiga VAR effort is targeting multimedia uses such as point-of-sale animated displays, interactive school courseware, and workstations for industrial processes like gas chromatography.

Bally Casinos Install Amiga In-House Video

Bally's two Atlantic City casino hotels, the Grand and Park Place, have upgraded their in-house electronic information displays with Amiga video production systems packaged by Video Arts of Mansquan, New Jersey.

Milwaukee Computer Art Instruction

Commodore has donated the Amiga for University of Wisconsin-Milwaukee's new AEEIM Lab — the Art-Education Electronic Instruction Media Laboratory which will train art teachers in the use of computer instruction at all school levels. ■

DINO WARS



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Actual Amiga screens shown

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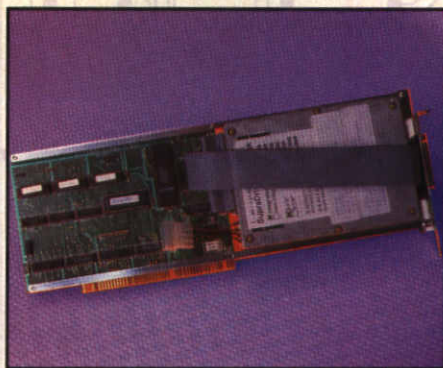
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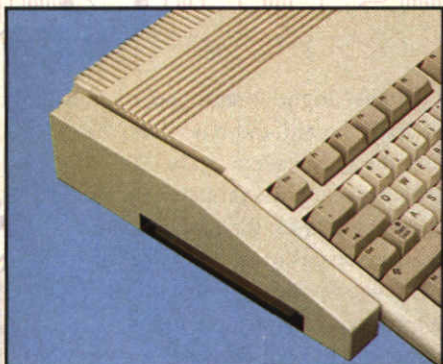
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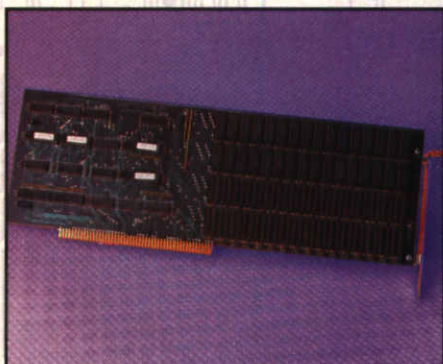
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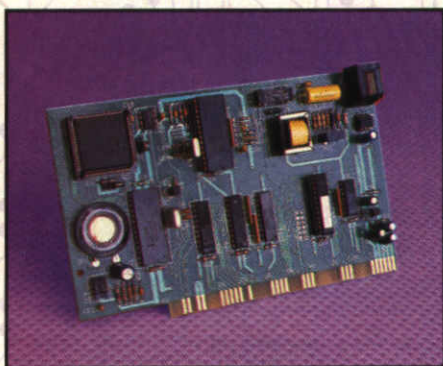
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Creating 3-D animations that jump from your Amiga screen



Anaglyph 3-D glasses put a red filter in front of your left eye and a blue filter in front of your right eye. You look at a red drawing superimposed over a blue drawing. These two drawings are at slightly different angles.

The red filter makes the red drawing invisible to the left eye. The blue filter makes the blue drawing invisible to the right eye. Your brain creates an illusion of 3-D while combining the filtered images as black and white.

The most common question from anybody attempting a first 3-D drawing is something like, "Should the red drawing be on the left or on the right?" The answer is, "That depends on whether red is the foreground or the background."

For a clearer idea of how this works, imagine your 3-D glasses with a red line going diagonally-right from your red (left) filter, and a blue line going diagonally-left from your blue (right) filter. These lines intersect to make an X.

From the bottom of the X to the intersection is the foreground, and the red line is on the left. From the intersection to the top of the X is the background, and now the blue line is

on the left. In the foreground, the farther apart the red and blue lines, the closer the image seems to be. But in the background, the farther apart the red and blue lines, the farther away the image seems to be.

The intersection of the X is called the focal point. It is the middle-ground where both drawings are exactly on top of each other, so I can just draw that part in black. The intersection is where I place the most important part of the picture, whatever I want the viewer to see first. The eye is naturally attracted to the spot where it's easiest to focus.

3-D Success Factors

When choosing a subject for a 3-D drawing I look for something with a lot of perspective. I prefer at least three planes of interest — foreground, middle-ground, and background. In computer terms, traditional composition is a pleasing balance of X (horizontal) and Y (vertical) coordinates. But for a 3-D composition to work you must also integrate the Z (depth into screen) coordinate.

If you ever looked at a 3-D comic book, most of the pictures probably seemed like arrangements of flat cardboard cutouts as in a shooting gallery. Too many 3-D comics are merely conversions of two-dimensional artwork,



*'m a freak for
"anaglyph" 3-D—
the kind of 3-D*

pictures you usually look at through 50-cent paper glasses with red and blue lenses. I actually used to hand-draw 3-D pictures with red and blue pencils. But now with Deluxe Paint III and my Amiga, I can create entire 3-D animation sequences for transfer onto videotape. Here's how I made the 3-D Dog on this issue's AMIGA Plus Disk...



3-D Dog

BY GENE HAMM

where the same drawing is shifted left and right for each eye. To avoid that flat look you must draw the subject from two different angles.

Another key to successful 3-D is the palette. You can set the screen requester to four colors to save memory, because black, white, red and blue are all you really need. I drew my 3-D Dog in low resolution, but in interlace or high resolution it would probably look better.

I once worked on a commercial graphics project with a 3-D expert named Gordon Brooks, who taught me about effective 3-D color palette settings. For 3-D Dog, I set the first color to black and the second color to white. I made the background white. For red, the third color, I set the sliders to R-15, G-8, B-8, H-0, S-8, and V-15. For blue, the fourth color, I set the sliders to R-0, G-15, B-15, H-8, S-15, and V-15. You can fiddle with saturation levels of the red and blue to suit your individual monitor and eyesight, but it's best to standardize the settings, videotape your animations and let viewers adjust their own TV sets.

Doing the Dog

The 3-D Dog was animated twice, first for the viewer's left eye and second for the right. The first time it was drawn in black lines. In the ANIM

menu of Deluxe Paint III, I set the frame count to four. Then I drew the dog in frame 1, and clicked on copy to all. Now all the frames had the same dog on them.

I moved to frame 3 and clicked on Fix Background, so I could draw the extreme of the eyes bugging out and the tongue flapping. I drew the changes in red, so they wouldn't be confused with the original drawing. When I was happy with the changes I clicked on Free Background, and erased only the old black lines that had been replaced. I then stencilled the red lines to black again.

I went back to frame 2 and drew the inbetween the same way I did frame 3. I copied frame 2 to the spare screen, and moved to frame 4. Next I copied frame 2 from the spare screen to frame 4, completing the animation cycle in two-dimensional form.

For the right-eye second pass, I stencilled the black lines to red and saved the picture as: Dog-01 red. Then I activated Fix Background and put on a pair of red and blue glasses I had saved from an old 3-D comic book.

Starting with frame 1, I examined the drawing, deciding where to place the blue overlay. The eyes, tongue, and lower jaw are what I want the eye to focus on first, so they would be at the intersection of the red and blue line. These parts don't move

during the animation cycle, so making them a resting point for the eye helps emphasize the exaggerated perspective of the 3-D Dog's bugged-out eyes and flapping tongue.

I wanted the muzzle to come forward, so with both eyes open I would look at the muzzle and see how far to the right I wanted to place the blue line. To double-check, I just blinked my eyes back and forth to see how far the line jumped. If I got it wrong, I could easily make changes without damaging the red picture, because the background is fixed.

The nose was drawn like the muzzle. The ears started at the intersection in black and then curved away as a blue line which gives a graduated sense of depth. I wanted the background circle to recede, so I drew the blue on the left. Everything is drawn first in outline. Fill is saved for the end.

When I was finished with the drawing, I switched to the blank J screen and freed the background, stamping down the blue drawing which I saved as Dog-01blue.

Then I moved on to frame 2. Only the eyes and tongue needed to be redrawn in blue. The tongue was drawn in the same method as the ears. The red and blue lines begin close together and the blue gradually moves farther to the right as it approaches.

Shading 3-D

The dog's big eyes come forward, so the blue is on the right. Since the eyes are now protruding spheres, I emphasized this with shading. I really wanted gray shading, but having only red, blue, black and white in my palette, I made a checkerboard pattern of red and blue. A pattern fill would have worked for big areas of shading, but in the close quarters of a 3-D drawing this could easily get out of control. The first step in making the checkerboard pattern was to click the right mouse button on the Straight Line tool. Then in the Spacing requester, I set the Every Nth Dot to 2. That way I could draw a broken red line with a space every other pixel, change color, shift over one pixel and draw a broken blue line, winding up

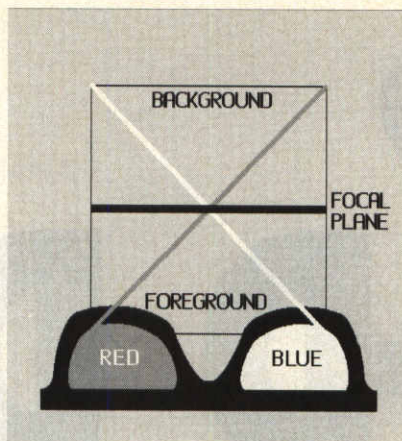
3-D Dog on Disk

To start the 3-D Dog animation, just double-click on the 3D-DOGanim icon in the main window of this issue's AMIGA Plus Disk. Now all you need for viewing the action is a pair of red and blue glasses.

An outstanding source for 3-D glasses and all kinds of fascinating 3-D items is: Reel 3-D Enterprises, P.O. Box 2368, Culver City, CA 90231. Write for their catalog.

However, it's surprising how many households still have some red and blue 3-D glasses lying around, due to the occasional appearances of 3-D posters, 3-D comic books, or TV broadcasts of old 3-D movies. Or you could simply make your own 3-D glasses with some red and blue cellophane framed in cardboard.

To make it easier for viewers to adjust their TV sets, I put 30 seconds of side-by-side red and blue squares ahead of the animation. The blue square was on the right, so viewers could put on their 3-D glasses and adjust the TV colors until the red square disappeared through the red lens and the blue square disappeared through the blue lens.



3D-Drawing guide (Overhead view).

with a checkerboard pattern.

After drawing the the blue version of the eyes and tongue, the rest of the face that remained unchanged was just copied from frame 1. To accomplish that, I selected the Polygonal Brush from the Toolbox, and drew a freehand brush around the ears which were visible around the big eyes in frame 2, and stopped just short of completing the brush. I flipped back to frame 1 and cut out the ears. Returning to frame 2, I registered the ears and pasted them down. I followed the same procedure with the jaw. When frame 2 looked finished, I flipped to the J screen, freed the background and saved the blue version of frame 2.

Frame 3 followed the same procedure as frame 2. When it was finished, it was time to put the red and blue images together. It can be a pain to figure out where the red and blue overlap into black, but animator Eric Daniels showed me 10 steps with Deluxe Paint stencils that make it easy.

1. Put the red picture on the front screen.
2. Put the blue picture on the back (J) screen.
3. Turn on the grid. (It makes the pictures easier to line up.)
4. Make a brush of the red picture.
5. Make a stencil of the color blue and invert it.
6. In the mode menu, pick F2 and

change the brush color to black.

7. Stamp the brush onto the blue picture.
8. Clear the stencil, then change the stencil to blue and black.
9. In the mode menu, pick F1 and change the color to red.
10. Stamp the red brush onto the "blue" picture.

That finishes the picture and you can view the final results with your red and blue glasses. But these 10 steps must be repeated for every frame of animation.

3-D Dog Output

For videotaping 3-D Dog I just ran a cable from my Amiga's RGB Out into my SuperGen genlock which connects to my VCR's Video In.

I also had good luck printing 3-D Dog on the Hewlett Packard PaintJet. Adjusting red and blue saturation in the Deluxe Paint III palette can compensate for individual printer bias.

My parting advice for 3-D artists is that you can make the most unreal things appear real, so unchain your imagination. Precise mathematical formulas for 3-D imagery only apply to photographing solid 3-D objects. When I followed those rules, my drawings were flat, static, and boring. But the more I outrageously exaggerated the perspective, the more my drawings achieved a hyper-reality. Something that couldn't possibly exist is right there before my eyes. ■

Gene Hamm is a commercial Amiga animator from Petaluma in Northern California. His "Hidden Performer" animation technique appeared in the June/July 1990 AMIGA Plus.

DELUXE PAINT III \$149
Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.

ICD's AdSCSI 2000

Exclusive "intelligent buffering" delivers blazing speed

BY TOM BUCKLIN

++++

AdSCSI 2000

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ICD, 1220 Rock Street, Rockford, IL 61101. (815) 968-2228

A compact half-card for the Amiga 2000, the ICD **AdSCSI 2000** packs a lot of punch into a SCSI hard disk controller. It is available as either a stand-alone controller capable of supporting the full spectrum of SCSI drives, or as a pre-configured hardcard with the drive of your choice pre-mounted and wired.

A really outstanding strength of the AdSCSI 2000 is its "intelligent buffering." This ROM-based feature uses a 66K slice of available system memory to enhance the controller's speed. My benchmark tests with MKSoft's DiskSpeed 3.1 showed that the intelligent buffer dramatically speeds up the performance of the AdSCSI controller — as much as two to three times faster. (See the Test Results Chart.)

Overall I would rate the ICD AdSCSI 2000 controller among the best for performance, clearly giving substantial bang for the buck. Its software control of hardware functions,

intuitive formatting environment, and speed enhancement with ICD's intelligent buffering system combines to create an impressive hard disk controller board.

(According to an announcement from ICD, their own DiskSpeed tests of the AdSCSI 2000 against three other popular Amiga hard disk controllers rated the AdSCSI as 26% to 131% faster than the competition. — + EDITORS)

Easy Set-Up

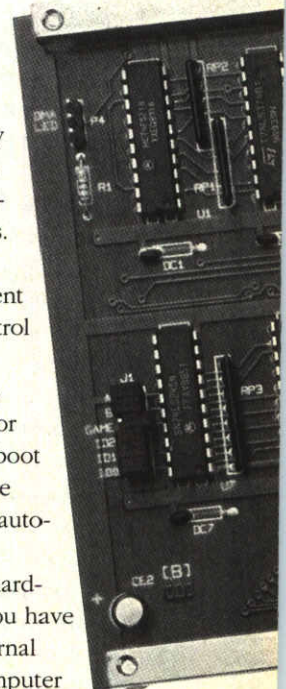
In the version supplied for this review, dual card-mounted rails are used to support a 3-1/2" hard disk drive. A board-resident power connector for the drive is provided, as well as a keyed 50 pin socket for SCSI signal connection to the drive via standard SCSI ribbon cabling. Additionally, there is a socket for connection to the external DB25 SCSI port, which is integral with the support frame. Since a keyed cable is provided for the latter, cabling should not be a problem. A 50-pin SCSI cable for connection to an off-board hard drive is not provided, but ICD states that they will swap the card's power cable and short SCSI cable for one.

Prior to installation of the controller, you'll need to configure the board for your system by way of six on-board jumpers. These points set up your SCSI ID number, enable and disable the controller's "intelligent buffering," select a startup delay of either eight or 18 seconds (allowing the hard drive to attain proper speed), and whether or not your system will

autoboot. A chart in the 26-page manual indicates configurations produced by the off-on states of these junctions. In my opinion, DIP switches would be more convenient than the jumpers. However, ICD's thoughtful ROM-resident software switches control two of the most-used functions. By holding down either the right or left mouse buttons at boot up, you can disable the board's buffering and autoboot functions.

Installation of the hard-card was a snap. If you have never installed an internal hard drive in your computer before, the first thing that will become immediately apparent is the width of the card. In any other position except slot one (closest to the co-processor slot), you forfeit two slots for the single device.

Initial set-up of the drive is accomplished elegantly by ICD's formatting software supplied on a bootable 3 1/2inch disk. Clicking on the ICD_Formatter icon from the Workbench will poll the available online SCSI drives and allow you to select which device will be active in the formatting process. If the drive has been previously formatted, related partition information will be either be automatically displayed or can be loaded by selecting the Load icon. A complete



format, starting with low-level operation, is simplified by the program's control layout. Instead of options selected through pull-down menus, all processes are accomplished through icons. In addition, prompting for the next logical sequence is provided through flashing frames around appropriate controls.

The program will recognize most common embedded SCSI controllers and provide a suggested Interleave setting for optimum speed, although you may edit this figure to your own choosing. Selection of the Format icon will begin a low level format after choosing the Continue option from an initial Abort window. But unlike most formatting programs, there aren't any "second chance" prompts before formatting begins.

Simple Partitioning

After formatting, choosing the Partition option will display default partition information based on a single partition holding the full capacity of the drive. By editing specifications on the partition information line, you can choose to have the drive configured at up to 30 individual partitions of various sizes. Partition sizing may also be accomplished using the Split option. This handy option allows you to configure your drive in two or more equally sized partitions.

Partitions may be created with or without FFS, and three options are available under the Flags switch. Boot will make the partition bootable under 1.3+ Kickstart. Mount creates a partition that will not autoboot, but will be automatically recognized for Mounting by the ICD bios. Skip will create a partition that must be mounted by the AmigaDOS Mount command. As in all Mount devices, partitions created under the Skip flag require an appropriate entry in the mountlist. An entry is not created by the ICD software, so you'll have to make note of your partition info and manually edit your startup mountlist if you want to use this option.

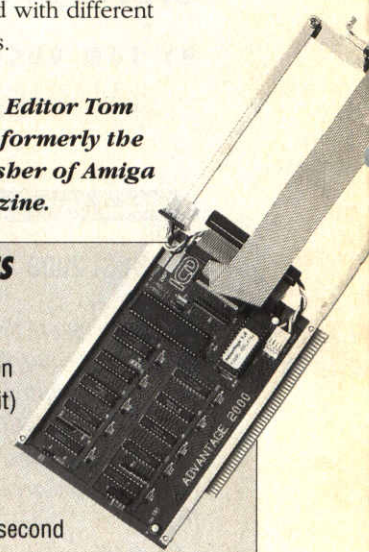
As with the Format command, the Partitioning does not incorporate a "second chance" option, so care must

be taken. Partitioning by default verifies all sectors on the drive, although you may increase/decrease the intensity of verification, or skip this operation altogether (not recommended). I was a bit surprised to find that Partitioning ended with the automatic transferring of Workbench files from the ICD floppy disk to the newly partitioned hard disk. ICD explained this was for new users who might otherwise autoboot an empty hard disk.

I successfully created a number of different partitions on various SCSI drives with the ICD formatter and found the software to be stable and

capable. Partitions created to autoboot did so, and partitions created with the Mount flag were also recognized and mounted by the system. I was particularly impressed with how well the ICD system works with removable media. Routines built into the ROM/driver consistently recognized media change, even in cartridges created with different partition maps.

■ **Contributing Editor Tom Bucklin** was formerly the editor/publisher of *Amiga Sentry* magazine.



AdSCSI 2000 TEST RESULTS

Test Program: Diskspeed v. 3.01
 CPU: Amiga 2000
 Memory: 1Mb chip RAM w/2Mb expansion memory (16-bit)
 Drive: Quantum 40S
 Partition: Full capacity
 Test Intensity: Medium

Test result figures are given in units per second

With AdSCSI Intelligent Buffering Enabled:

Files Create	= 29	Seek/Read	= 203
Files Open/Close	= 50		
Files Scan	= 146		
Files Delete	= 65		
Buffer Size =	512	4096	32768
Bytes Create	83,676	177,	302 338,506
Bytes Write	90,473	191,876	503,631
Bytes Read	92,937	246,421	451,658
			642,190
			640,148

With AdSCSI Intelligent Buffering Disabled:

Files Create	= 11	Seek/Read	= 203
Files Open/Close	= 40		
Files Scan	= 118		
Files Delete	= 30		
Buffer Size =	512	4096	32768
Bytes Create	29,238	154,628	266,834
Bytes Write	30,088	190,379	454,590
Bytes Read	69,518	242,343	451,658
			638,119

With AdSCSI Intelligent Buffering Enabled and DMA/CPU Contention:

Files Create	= 23	Seek/Read	= 132
Files Open/Close	= 39		
Files Scan	= 105		
Files Delete	= 52		
Buffer Size =	512	4096	32768
Bytes Create	58,919	156,979	327,760
Bytes Write	60,268	188,111	446,276
Bytes Read	64,024	208,574	446,400
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Disney

Even before the invention of motion pictures, artists created the illusion of motion by flipping through a series of slightly different hand-drawn images. You could track the flow of action by using thin paper or a light box to see the drawings underneath. There have been a few Amiga programs with techniques for creating frame-by-frame animation drawings. Zoetrope from Antic Software had a way to see the previous drawing in blue, and R & DL's Lightbox allowed you to see underneath frames.

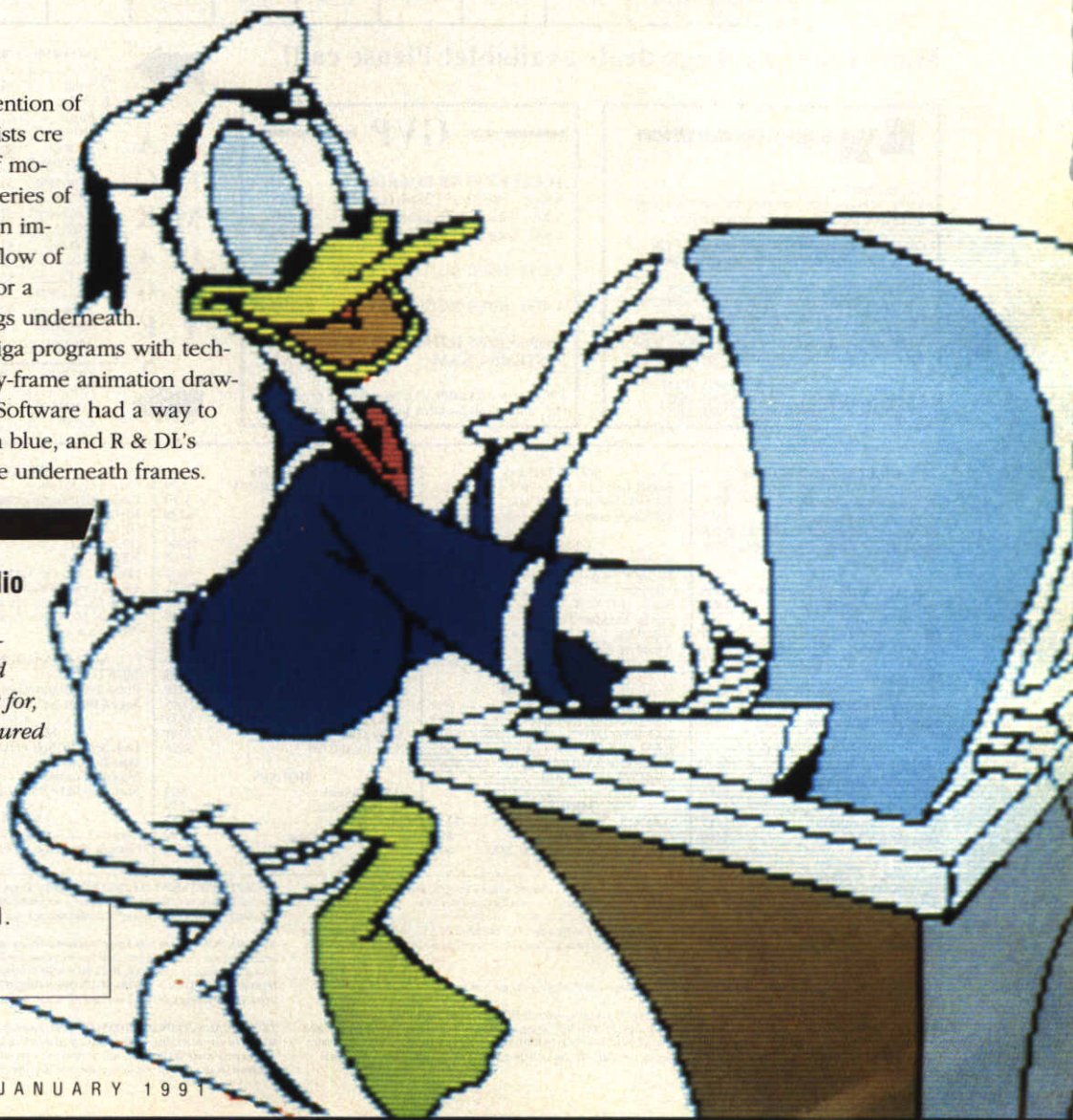
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Disney Animation Studio

For frame-by-frame hand-drawn animation, the kind that Walt Disney is famous for, this friendly and full-featured software has no equal.

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Animation Studio

A top Amiga animator exercises this software

REVIEW BY STEVE SEGAL

But no such program is nearly as easy to use and full-featured as the **Disney Animation Studio**.

From Silent Software, the same developers who created the Roger Rabbit Game, Disney Animation Studio is a tool for doing character animation, the kind of animation too long missing from the world of computers. Character animation is not appropriate for 3-D logos or flipping titles. But for frame-by-frame hand-drawn animation, the kind Disney is famous for, this program has no equal.

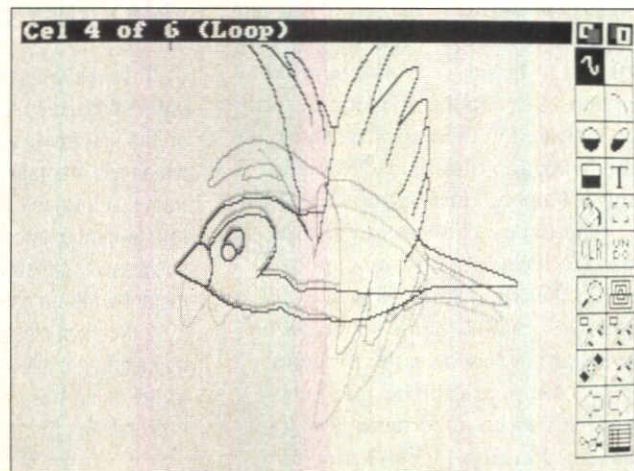
Disney Animation Studio has three parts — Pencil Test for drawing the animation, Exposure Sheet for adjusting the timing, and Ink & Paint for coloring.

Pencil Test is the heart of the program and almost all of your creative work will be done here. The program basically shows you the previous three frames of animation in varying shades of gray (or any color you choose) and you can draw the next frame in black. This seemingly simple function is extremely powerful for character animation, and can be indispensable once you get used to it. It's so simple that you don't really need the manual, except for the unique

copy protection. Just draw with the mouse, the same as you would with any paint program, and use the RIGHT ARROW key to advance to the next frame. You'll immediately see the picture you just drew in a lighter color. Then you draw a new cel (image on a transparency) to create the motion. You can play back your pictures at virtually any frame rate.

A useful feature is Enforce Frame Rate, which tells you if the animation is running slower than you specified. This can happen when your drawings get complex, with lots of changes per frame. You can save the scene either as a series of IFF screens, in the standard ANIM format, or in Disney Animation Studio's own format called CFAST. All these files are strictly black & white and the CFAST files are almost always larger than ANIMs. The main advantages of CFAST is that it saves and loads quickly and includes an Exposure Sheet.

Another unique feature is Jump-To-



Disney's Animation Studio comes with some of our favorite animated characters already drawn and animated.

Cel which lets you assign 10 different cels to the 10 different number keys. You can get instant onscreen display just by pressing the appropriate key. This is especially useful when in-betweening, but you can't draw while the reference cel appears. There is also a feature that lets you copy a cel to a buffer and then paste it onto any frame you wish. But be careful, because this erases any previous information on that frame. You also must be careful when deleting a frame, because there is no warning and it can't be Undone. There is also a minor inconvenience with brushes. If you use the right mouse button to pick up or paste a custom brush, the contents of the brush disappear. In order to see it again, you can click the left mouse button and then click Undo.

Exposure Sheet

The Exposure Sheet is patterned after a real animation studio X-sheet. It has a long column for frames and another column for cels and a large space to the right for comments and sound information. Changing the cel numbers allows you to vary the timing of individual cels, hold them, and even change the order. This is done with word processing type commands (cut, copy, paste, search). It's great way to test different timings and to experiment with strobes and recycling. You can set the start and end frame, so when you're working on a long animation you don't need to watch the whole thing. Then you can save the X sheet and use it in the Pencil Test program. You also have the option of saving the animation exactly as indicated in the Exposure Sheet, so the animation can be loaded in the Ink & Paint module or into DPaint III.

The Exposure Sheet can also be used to include sound, it supports SMUS files from Sonix as well as IFF sampled sounds. Some sound FX (effects) are included on the program disk. You practically have to be a programmer to understand how to use this function. When I tried to preview one of my IFF sound FX the computer locked up. But if you use the sounds included with the program it works fine. You can use your own digitized IFF sounds as long as they have an .instr extension, and don't try to preview the sound even when the computer asks if you want to. It's great fun to have the animation play with synchronized sound. The bad news is that the Exposure Sheet information isn't carried over to the Ink & Paint program, so we'll have to wait for version 2.0 to get sound with color.

Ink & Paint

The Ink & Paint module, for coloring your animation, is sort of a stripped-down DPaint III. It can load an animation and color-fill the shapes. This works as a standard flood fill or a fill-to-color. There are very few drawing tools, so you must use the

Pencil Test program for all drawing.

You can't capture or load a custom brush. There's no way to resize the drawing tool, and there are no built-in brushes in the toolbox. (I have saved a selection of pre-made brushes to load as needed.) If you need to fix the drawing when the color spills out of holes in the lines, you must use the single pixel brush and that can be time-consuming. It's also a little difficult to find the line breaks, since you don't see the shape being filled. You just see the frame for a second and then the shape, or often the whole screen filled.

TWO DISNEY STUDIO TIPS

1. To make an effect like handwriting on the screen, you can start writing on the first frame and press RETURN—which will automatically step to the next frame without releasing the mouse button. So just by pressing RETURN in successive frames you can create an instant write-on animation.

2. You can clean up rough drawings by inserting a blank frame after the rough, hand-tracing the clean-up and then deleting the rough frame.

You must return to the Pencil Test module in order to adjust the timing, add or delete frames, or adjust the speed. So if you do some coloring, and then save and load it into the Pencil Test, be sure to resave or you'll lose whatever color work you did. The advertising for Disney Animation Studio says that it works in 4,096 colors. To most Amiga users, that means HAM—but not on this product. The creators claim that by using the pattern colors (basically single-pixel checkerboard) you can get what looks like 4,096 colors.

Video Filter

The Ink & Paint module has an NTSC filter which automatically converts the colors to only those legal in video. This is a very handy feature since I often forget to customize my palette for video until I'm recording

sequences on tape. There is also a "frisket" which works exactly like DPaint's stencil. You select the color registers you want protected, and they can't be erased or drawn over. Another powerful function of the Ink & Paint program is that it's capable of having a different palette on each frame. You can load individual cels on successive frames and keep the original colors throughout. You can load a series of IFF pictures in succession, but it will load the entire contents of the directory. So if you want to pack a series of pictures, you've got to make a directory containing only the pictures you want loaded. To load only one picture at a time, don't use the Load IFF menu. Instead use Load Cel from the Edit Menu.

Disney Animation Studio works in all Amiga screen resolutions. But for standard and severe overscan, you must hold down the SHIFT key and press the ARROW keys to move to the edges. You can load a standard ANIM with up to 32 colors and in Ink & Paint you can instantly change the number of colors. When you load an ANIM in Pencil Test, only the first bit plane (first two colors) will be loaded. And of course if you save over the original all the old color information will be lost. It is advisable to convert the ANIMs to two colors, with the first color being the background and the second being the line color.

One way to convert a full color animation to two colors is to make a frisket (stencil) out of the background color and put the next color into the background color requester. Then clear all the frames and this will put the second color everywhere but the background. Save the two-color animation under a new title. This technique works in DPaint as well as Ink & Paint. However, DPaint will do all frames automatically while in Disney's Ink & Paint you must do each frame manually.

Controls

It's helpful that Disney Animation Studio mostly uses the same keyboard shortcuts that DPaint uses. However,

Continued on Page 55

Killer Chess

Both players simultaneously move as fast as they can

BY GREG "MADDOG" KNAUSS

Speed kills!— and the more the merrier— in this zany, joystick driven version of chess.

Chess is usually a methodical game. Players attempt to out-think their opponents, usually taking as much time as they want, hours or even days. But what if players didn't need to wait for their opponent to make a move before they make another one themselves? A whole new dimension is added to the classic game. Imagine chess where all the legal moves apply, but if you can think fast enough, you can make several moves before your opponent has a chance to push one piece. The result is Killer Chess, a joystick-busting version of this traditionally sedate game.

Start the Slaughter

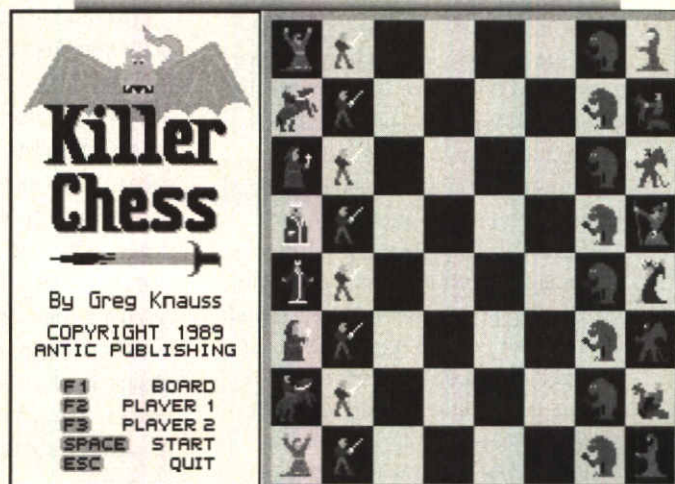
To play Killer Chess, simply double-click on the Killer Chess icon on the AMIGA Plus disk. A title screen will appear on the left side of the screen, and a chess board on the right.

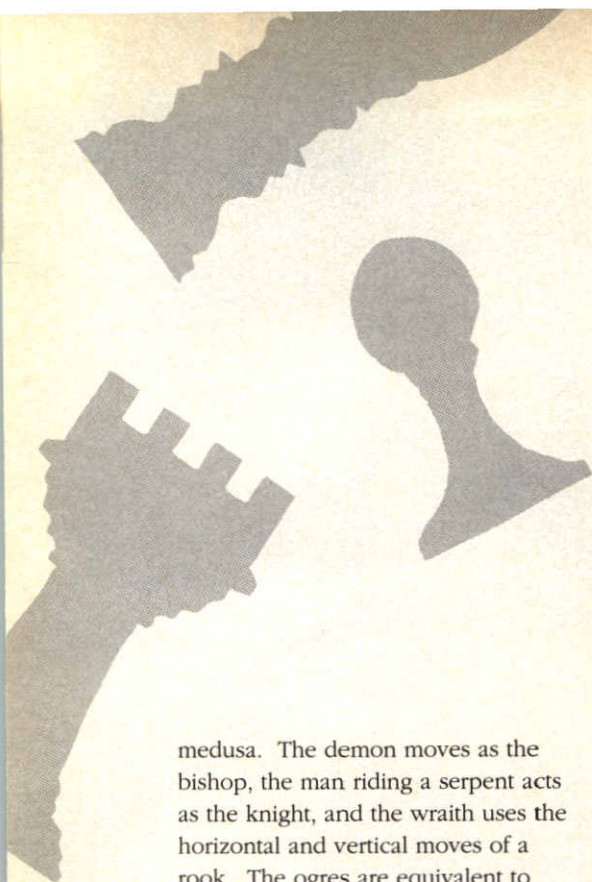
Pressing the F1 key changes the way the chess pieces are arranged on the board. Each new setup requires a different strategy. Players who excel at the standard setup can be reduced to amateur status with a new board.

The F2 key changes the left-hand player's pieces from the traditional chess statues into medieval characters. The king and queen fill their normal roles, but monks replace the bishop. The mounted character moves like the knight and the wizard is equivalent to the rook. The foot soldiers may attack as pawns.

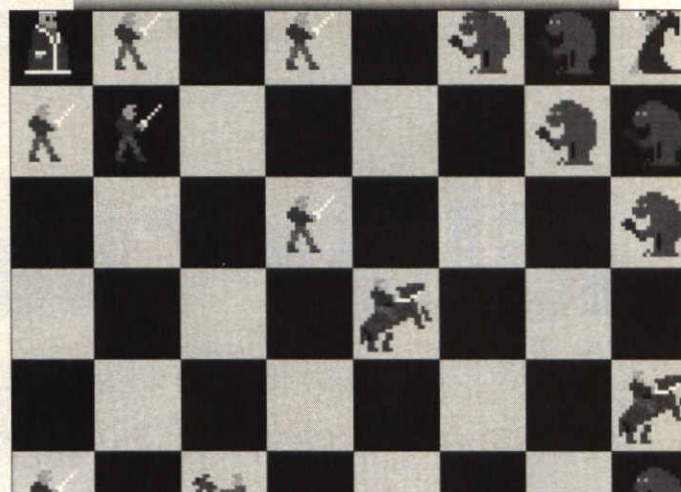
F3 transforms the right-hand player's characters to monsters. The king becomes a mage and the queen a

Opposing armies stand ready for frenzied combat on a classic battlefield... the chessboard!





**Once the melee
has begun, the
kings cower in
the corners while
the fearless
footsoldiers fight
for them.**



medusa. The demon moves as the bishop, the man riding a serpent acts as the knight, and the wraith uses the horizontal and vertical moves of a rook. The ogres are equivalent to pawns.

When you are at the title page, the ESCape key will leave the game and return you to the desktop. If you are playing a game, the ESCape key will abort it and return you to the title screen. Press the SPACEBAR to start a game.

Play Killer Chess

When a game of Killer Chess starts, you control the white (left-hand) pieces with a joystick in the mouse port. A second joystick in the joystick port controls the black (right-hand) pieces.

Each player moves a cursor (light blue for white, dark blue for black) with the joystick. To pick up a piece, move the cursor over it and press the joystick button. An outline appears around the square to remind you which piece you are moving. Now move the cursor to another square, and press the button again. If the move is legal, your piece moves with an accompanying high-pitched sound. If you attempted an illegal move, all you get is a thudding raspberry. To drop a currently-selected piece, just move the cursor to it, press the button again and the piece will be dropped.

Killer Chess games usually go very fast, with players moving their pieces as quickly as possible. When the game ends, the loser's remaining players are cleared off the board, and the game will wait for the gloating winner to press the joystick button. The game then returns to the title page. ■

This was the first Amiga program by longtime ST programmer Greg Knauss. (However, his Amiga translation of Tornado Alley Flight Controller saw print in the last issue). After three published versions of Killer Chess, he promises he'll never do another.

ABOUT THE PROGRAM

Killer Chess is the Amiga port of the Atari ST program which appeared in START magazine, which itself was a translation of the Atari 8-bit program which originally appeared in Antic magazine.

The conversion of Killer Chess from the ST to the Amiga was a painless process, because the original was also written in GFA BASIC. On both computers, GFA is the simplest and most complete programming environment I have come across. Most changes made after I moved the program code to the Amiga involved sound (because of the differences in hardware) and screen setup (screens and windows needed to be opened on the Amiga.) Other than that, the program logic and user input worked perfectly the first time.

To draw the pieces and title picture I used NEOChrome, an ST-only graphics program from Atari Corporation. Instead of redrawing all the graphics for the game, I decided it would be easier to port the already existing pictures from ST to Amiga. The ST's low resolution 16-color graphics are laid out in memory in word sections for each bit-plane. That is, the first word in screen memory corresponds to the first sixteen pixels on the first bit-plane, the next word is the first sixteen pixels on the second bit-plane and so on, for all four bit-planes. The fifth word corresponds to pixels 16 through 32 on the first bit-plane. All I had to do was write a small program that read in an ST file and converted this format, a word at a time, to the Amiga's bit-plane after bit-plane style.

ST and Amiga users often fight, be it in computer stores or on BBSs. This is a shame, because both computers are excellent, with their own strengths and weaknesses. They should not be viewed as opposites, but as two separate and unique machines, each to be explored and enjoyed.

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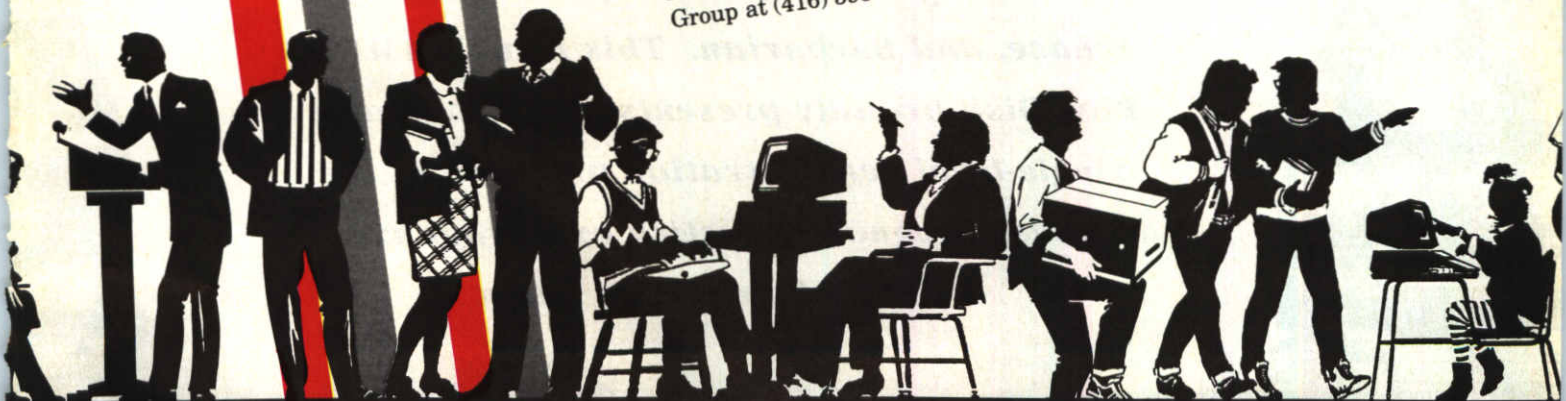
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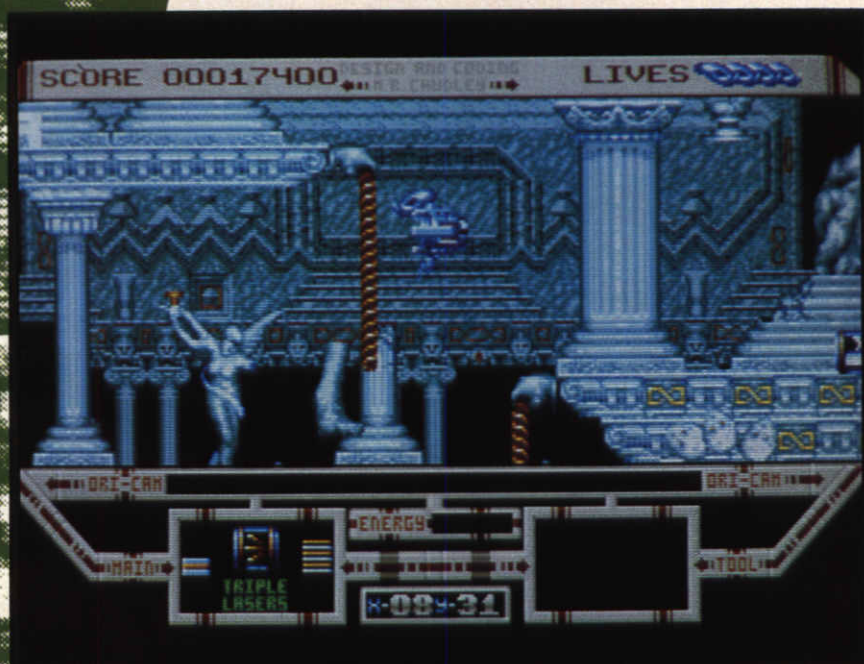
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SPECIAL DISK FEATURE



KILLING GAME SHOW

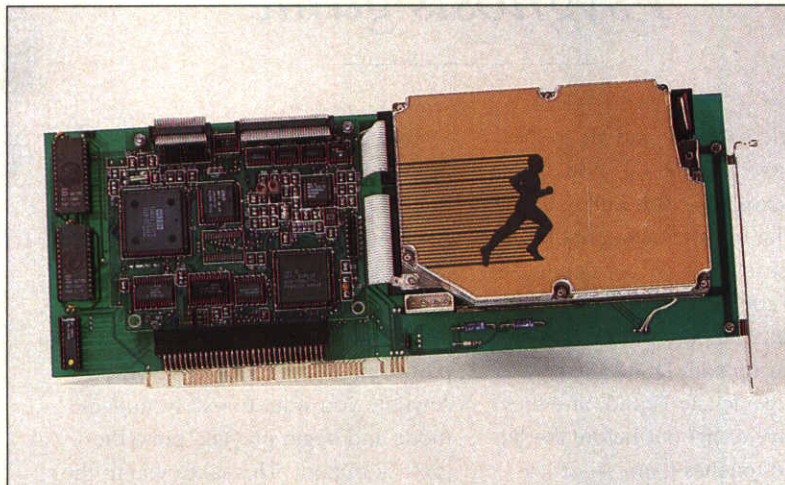
England's Psygnosis Ltd. is known for their graphically stunning and fiendishly challenging Amiga shoot-em-up games, with multiple scrolling planes, non-stop action, and remarkably detailed images.

Some of the memorable Psygnosis bits include Shadow of the Beast I & II, Blood Money, Menace, and Barbarian. This issue's AMIGA Plus Disk proudly presents a fully playable single-level demonstration program of the latest Psygnosis joystick extravaganza — The Killing Game Show.

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Shown here: ALF-RG1-RLL

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ON
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Hands-on demo of the hot new Psygnosis game

Welcome, one and all, to the most popular TV show this side of Klaxos 9 — The Killing Game Show. Why is it the most popular show? Because we do our damndest to kill the contestants, that's why! We put them in a pit that slowly fills up with DOLL (Deadly to Organic Life Liquid) and they have to get out before the liquid touches them — or it's next contestant time. Sounds easy? Well, wait till you get a load of our specially created HALFs (Hostile Alien Life Forms) which infest the pits.

To ensure that the show doesn't finish too soon (we like to give value for money) we outfit our contestants by getting rid of their lower body and reinforcing the barely-alive remains in titanium armor, complete with exchangeable weapons systems. The contestants (MUGs, as we call them) move around each pit on their hands, climbing walls, blasting attacking HALFs and collecting weapons and door keys in their dash for the pit's pinnacle....

Getting Started

Technically brilliant, Psygnosis's manic arcade action game puts you in control of the armored contestant who's racing to find the exit of this tortuous pit. Using joystick controls, you move around the perimeter of the pit, collecting weapons and tools to help you solve the many intricate puzzles that bar your escape.

Run the game by double-clicking on The Killing Game Show icon in the main window of this issue's AMIGA Plus Disk. If you let the game load without pressing the joystick trigger, the game goes into demo mode and you can watch a MUG maneuver past some of the initial obstacles. Anytime you want to exit from demo mode and begin playing, press the joystick button. This takes you to the level selection screen (this demo only contains one level), where you press the button once again to start play.

Whenever you die, you can watch a replay of your last run, and take over control anytime by pressing the joystick button. Press F on the keyboard to "fast forward" this replay.

Joystick control is simple. Move the stick left or right to move in those directions. Move the stick up to jump or climb — you can walk up some walls. Move the stick down to crouch or descend. To open the lumpy caskets, crouch down and blast them. Crouch over to pick up the tools and weapons revealed inside the casket. Press the joystick button to shoot with the current weapon (indicated at the bottom left of the screen) and hold down the joystick button to use the current tool (shown at bottom right). Press the SPACEBAR to pause the game. Press ESCAPE while paused to quit the current game and return to the level selection screen. To exit the program, you must restart your Amiga. ■



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Hearing Your Amiga Art

Pixound turns screen colors into music

REVIEW BY SYLVIA PENGILLY

++++

Pixound

Pixound is such fun that I have literally had to drag friends away from the computer, and it has real potential as a serious composing tool.

\$99

Hologramophone Research, 638 Summit Avenue, St. Paul, MN 55105.
(612) 228-9142

"If you think your Amiga art looks good, wait until you HEAR it!" So reads the opening line of the instruction manual for **Pixound**, Hologramophone's exciting new program that turns color into music. Graphics are called to the screen, and as the pointer touches a color, it plays a set of three tones which you have assigned to that color's red, green and blue content. These pitch messages work with the internal Amiga sounds, and with any MIDI synthesizers you have connected to your Amiga.

If your Amiga audio outputs are connected to your stereo system or monitor speaker, you will hear sound as soon as the program is loaded. To hear what happens with a real graphic, go into the Gallery menu, where you will find several sample graphics.

Load a picture, start moving the pointer across the screen and you will hear the pitches change as the pointer touches the various colors. Your own graphics can be easily imported from a second disk drive using Load Pix in the Session menu. However, be sure to use only low-resolution graphics without overscan. Color cycling with the TAB key produces a musical ostinato by cycling the current palette colors over a stationary pointer. Different cycling modes are available by using SHIFT Q,W,E,R.

Changing Sounds

There are several ways to change the sounds produced by a graphic, one of which is by changing the palette. This can be done from the Amiga keyboard, and a handy keyboard map is provided. The program can store and load four different palettes when you press various keyboard combinations. One of my favorite functions is the random palette generator (SHIFT-TILDE keys), which creates incredibly beautiful palettes,

especially when the pointer is close to the bottom of the screen. You may well want to save some of these palettes to be used later in a paint program, and this can be done using Save Screen To IFF from the Task menu. Do this before calling up a paint program in background, otherwise the paint program's screen will be saved.

The Tune Palette function in the Setup menu allows you to tune any given palette to play music in three-part harmony. Another way to vary sounds is by changing the scale or mode. The latest version of Pixound has a wonderful array of 60 different modes/scales including major and minor, all the Medieval modes, Pythagorian, and even some newly-created custom scales, which are great fun to experiment with. All these scales can be transposed using the Amiga keyboard.

MIDI users will find some very powerful options, especially if you own a multi-timbral synth such as the Proteus XR. MIDI triggers from each

Creative minds who are intrigued by the correlation between art and music will enjoy Pixound enormously.



of the three "voices" (red, green, and blue) can be sent to any combination of voices on the synth, giving your graphics the potential to out-do the New York Philharmonic, at least in amplitude! The program can also remember seven different patches (combinations of synthesizer voices) and change sounds "on the fly" with your number keys.

Painting Pixounds

You can toggle between Pixound and any paint program, such as Deluxe Paint III, that you run in the background. You can grab the DPaint screen via the Gallery menu and bring it into Pixound, or, even more exciting, you can select Share from the Gallery menu and actually create a graphic in DPaint while creating music in Pixound.

The Pixound manual is clear, well written, and tells you most of the things you need to know. If you do run into trouble, as I did a couple of times, you will be delighted with the

help and support from Hologramophone Research. Pixound will run on a 512K Amiga, but a few functions will not be available if you only have 512K memory.

For sheer fun, Pixound has such great appeal that I have literally had to drag friends away from the computer. At a deeper level I am challenged as a "serious" composer to try to use Pixound to create something of intrinsic artistic merit. I don't feel that I have succeeded yet, but I have made a few attempts.

In a version of J.S. Bach's "O Sacred Head" chorale, I tuned the RGB content of each successive color in the palette to approximate one of harmonizations of this melody and play multiple repetitions when you press the TAB key. In my "Pix Set," 12 tones have been arranged into a specific set (order), using a gray palette in which the three RGB colors are all tuned to the same pitch. The first 12 gray tones (not including the black background) represent the original

form of the set. This is followed by six blocks of black (silence) to separate it from the next 12 gray shades, which represent the inversion of the original set. The TAB key plays the results with color cycling — Arnold Schoenberg would have loved it! These graphics were created using the technique described in my earlier article, *Painting with F5* from the June/July 1990 *AMIGA Plus*. My "Mandel Curl" is a fractal graphic derived from the Mandelbrot set, and produces an interesting ostinato when the pointer follows the curve.

Creative minds who are intrigued by the correlation between art and music will enjoy Pixound enormously, and even if you don't produce the masterpiece of the 20th century, you will certainly have fun trying!

Professor Sylvia Pengilly is Director of the Electronic Music Composition Studio at Loyola University in New Orleans.

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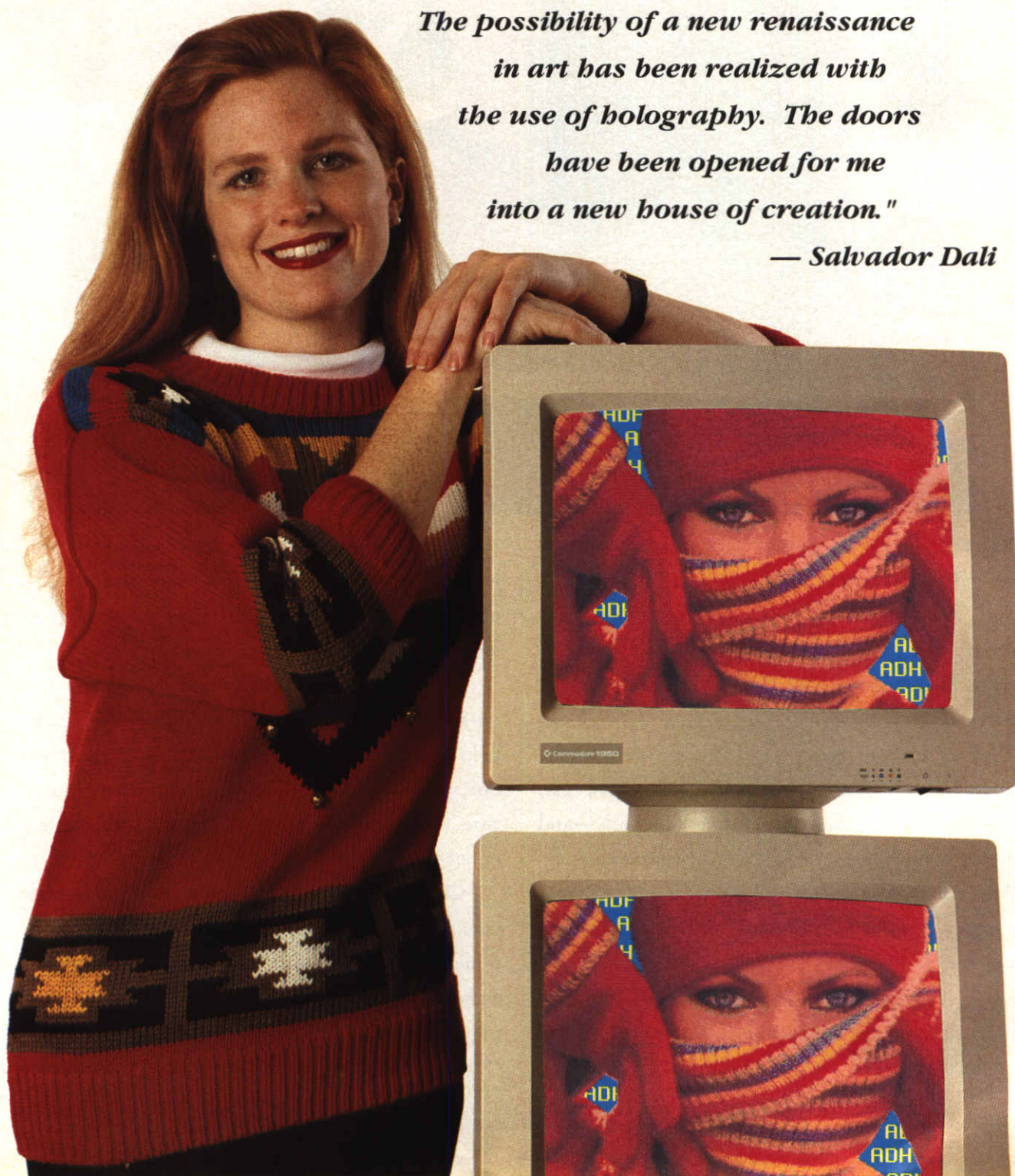
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HOLOGRAMS

*The possibility of a new renaissance
in art has been realized with
the use of holography. The doors
have been opened for me
into a new house of creation."*

— Salvador Dali



MADE ON AMIGA

How the 3-D picture on this cover was created

BY KEVIN BROWN

How Holograms Work

The basic theory of making holograms was invented by Dennis Gabor in 1947. (In Greek, "Holos Gramma" means the whole message.) However, holography was actually impossible until the 1960 invention of the laser (Light Amplification via Stimulated Electron Radiation). Light consists of wave-form energy, and a beam of laser light is uniquely pure — its waves are identical in length and highly synchronized.

Holography creates and reproduces genuine three-dimensional images by generating "light interference patterns" with a medium-powered industrial laser. To make a hologram, a beam of laser light is split in two. One part, the "reference beam," goes directly to a photo-sensitive emulsion. The second part, the "object beam" is reflected onto the object to be recorded as a hologram. The three-dimensional shape of this object reflects the laser light back into the path of the reference beam.

Where the reference beam and the reflected light (object beam) intersect, the light waves interfere with each

other, forming an "interference pattern" that reproduces the image of the three-dimensional object. If a photo-sensitive material is put at the point of interference, the three-dimensional image can be captured in a process similar to exposing photographs. This is the original "master" hologram.

For the human eye to see the original three-dimensional image in a hologram, the optical alignment of the master hologram must be reproduced. This means the human eye must be lined up with the original object, while a "point" source of light meets the hologram in the same alignment as the reference beam which recorded it.

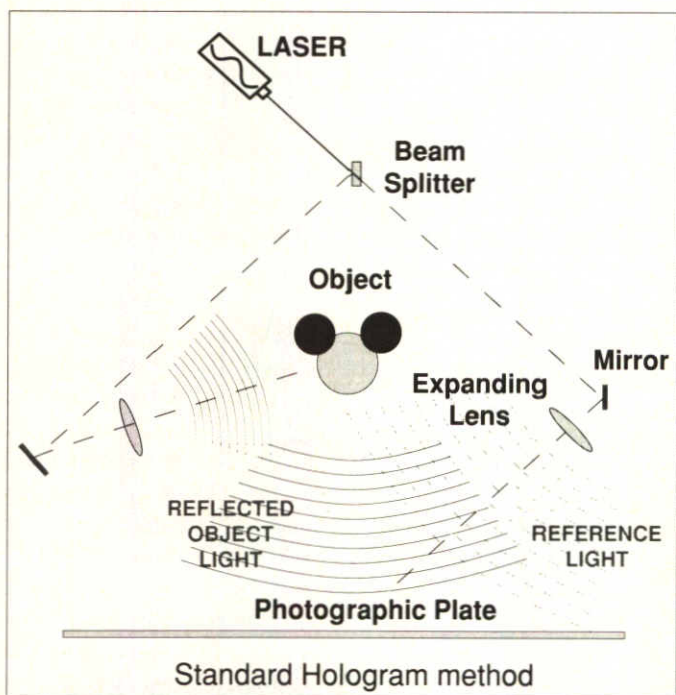
Hologram Barriers

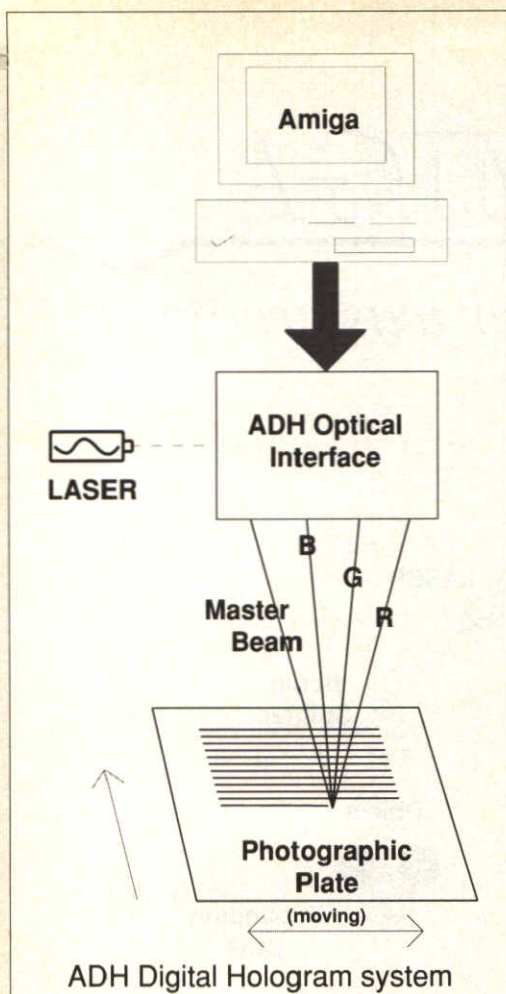
Early holograms were slow and expensive to make. They required completely vibration-free optical laboratories — and they could render only

monochrome (one color) images.

In 1967, the first mass-produced hologram appeared in the "World Book Science Annual." It came with a special "monochromatic narrow band pass filter" that attached to a slide projector lens and converted its light to a purer format necessary for viewing the hologram.

During the 1980s, techniques were developed to record and mass-produce holograms by micro-embossing. These embossed holograms are becoming increasingly commonplace today — appearing as anti-counterfeiting devices on credit cards and currency — or as graphic novelties on cereal boxes, baseball cards,





magazine covers, and even t-shirts.

These embossed holograms are inexpensive to produce in volume. But the high cost of originating the master hologram — typically \$10,000 to \$20,000 — has made the technology practical for only large-volume users. Lack of accurate color control in embossed holographic images is another barrier that must be overcome in order to widen the market.

After five years of intensive research by Frank Davis in conjunction with the Anthony Foundation of Houston, he and I helped form Advanced Digital Holographics to refine and market an inexpensive means of converting computer images into mass-produced full-color holograms. We use the Amiga computer to process holographic images such as the one on the cover of this magazine.

Computer Holograms

In order to understand how multi-color holograms are created and re-

produced, you need to know something about the optical process of diffraction.

As a light-wavefront passes by an opaque edge, or through an opening, weaker secondary wavefronts are generated — apparently originating at that edge. These secondary wavefronts interfere with the primary wavefront and with each other, forming various patterns of "diffraction."

Standardized diffractions can be reproduced on glass or plastic bonded to an aluminum layer that's been etched with fine equidistant grooves by a diamond-edged blade. With proper shaping of the diamond edge, the groove pattern — called a "grating" — can concentrate most of the energy into a single order — such a grating is said to be "blazed".

"Holographic diffraction gratings" are produced by the interference (intersection) of two coherent beams of laser light. Instead of using a diamond-edged tool to physically etch the grating, a series of interference fringes corresponding to the grooves of the desired grating are recorded on a photo-sensitive emulsion. Controlled holographic gratings diffract incoming wavefronts of light into a predetermined color wavelength.

The hologram on the cover of this magazine actually consists of 64,000 independently controlled holographic diffraction gratings. When viewed simultaneously, the resulting image appears complete and in full color. But if you examined this hologram under a microscope, you'd see it really consists of a series of independently controlled holographic diffraction gratings corresponding pixel-by-pixel to the original computer image.

In other words, imagine that each pixel (computer screen dot) is an independent prism that can produce a specific color of light. Lightwaves enter each of these tiny prisms and are reflected back to your eye by the aluminized backing of the hologram, resulting in a full-color image.

Amiga-Designed Holograms

Because of the Amiga's outstanding graphic capabilities, affordable price, and user-friendly software, we chose it as the computer platform for the Advanced Digital Holographics system. We currently use EA's Deluxe Paint III and NewTek's Digi-View 4 to originate standard IFF graphic files for holographic conversion.

An IFF picture file contains digital information about the percentage of RGB (red, green, blue) for any pixel location in the graphic image. Using an equation known as Bragg's Law, we can align optics to three predetermined positions at the angles necessary for creating optimum "blazed" RGB-wavelength gratings. A fourth Beam of laser light is used as the reference beam to interfere with the three primary color beams, yielding a specific color for each of the 64,000 controlled holographic gratings.

For example, in the Deluxe Paint III color palette, the color yellow is composed of red and green in equal "color-level" values of 15. Our special Advanced Digital Holographics image-printer then exposes the holographic emulsion with equal intensities (exposure values) of the primary red and green beams to produce the color yellow.

From the three primary color beams, any color of the visible light spectrum can be precisely controlled and recorded on a photo-sensitive emulsion. With conventional Amiga "bit mapping" techniques, we can render more than 16 million colors in the holographic image.

In addition to accurately rendering color in the holographic image, our exclusive Advanced Digital Holographics technology can reduce or enlarge the holographic image to any size by changing the size and shape of the "holographic pixel." The hologram on this magazine's cover consists of 13,701 holographic exposures per square inch. The image could be reduced even more because of the microscopic resolution capability of

the holographic emulsion.

Single-Beam Technology

Although in this explanation we talk about red, green, and blue light beams, there is in fact only *one* color of laser light used to expose the photographic emulsion. The references to red, green and blue are actually about approximations of the angles of light interference which diffract specific colors of recorded light.

The cover hologram was made with a Lyconix Helium-Cadmium laser that yields light of a near-ultraviolet color. However, a laser that generates red or another-color could have recorded the image on different photo-sensitive emulsions.

Advanced Digital Holographics technology uses a single frequency (color) of laser light to generate a color image on a black and white emulsion, yielding all colors of the visible light spectrum without any dyes or other color processes. This is a *new* color process that permits the mass-production of inkless images using light itself to create the purest colors technologically possible.

The Cover Hologram

We chose NewTek's well-known Digi-View 4 demonstration image, "Fashion Model," as the subject for the AMIGA *Plus* cover hologram because of its detailed photo-realism and brightly contrasting colors. With Digi-View we converted the image into a 30-color IFF file. Then the image was loaded into Deluxe Paint III for additional enhancement. The background was quite dark, so we put in two bright background colors to produce a holographic image that would have consistently bright color values throughout.

The enhanced IFF file was then loaded into an Amiga 500 for use with proprietary Advanced Digital Holographics software that controls our holographic printer via the Amiga par-

allel port. The graphic file was written directly to the holographic emulsion pixel-by-pixel. The resulting holographic image could be mass-duplicated. It consisted of 64,000 distinct holographic exposures and was completed in a little under six hours — approximately three holographic exposures per second.

Our finished hologram image was converted by James Rivers Products of Richmond, Virginia via "electro-formation" into a nickel plate and then mass-duplicated by embossing onto a special polyester made by Transfer Print Foils of East Brunswick, New Jersey and suitable for hot-stamping on the AMIGA *Plus* cover. This precision hot-stamping, utilizing a laser registration device, was done at Letterhead Press in Wauwatosa, Wisconsin.

Future Applications

Clients of Advanced Digital Holographics (ADH) can create their own computer graphics in-house and transfer the data to our hologram mastering studio by modem. Unlike conventional holographic techniques, the ADH process directly converts the computer image into an accurately colored hologram, at substantial savings of time and money.

Another major benefit of the new ADH technology is that multiple exposures can be made onto a holographic emulsion by rotating the photo-sensitive material along a Z-axis. It's possible to record thousands of distinct images on the same holographic emulsion — even a motion picture hologram.

More and more artists are finding holography an exciting new medium. In fact, because of the near-infinite resolution potential of ADH holograms, they could store much more digital music information than a compact disk and cost much less to reproduce.

Especially promising applications for scientists are possible with ADH

holography. Prior to this new technology, the image display generated by conventional electron microscopes was limited to the resolution of a computer monitor. Now all the digital information received by the interface can be imaged for analysis, without resolution limits. A breakthrough in medical endoscopy will be the recording of interior cellular structures without physically removing tissue samples.

To enhance credit card security holograms, ADH's new technology could store more than 256,000 *pages* of text and graphics on a mass-produced holographic image no bigger than a postage stamp. ADH is currently working on an inexpensive optical reader for hologram data. ■

Kevin Brown is the president of Advanced Digital Holographics, Inc.

HOLOGRAM CREDITS

These leading companies in the holographic industry collaborated to produce and convert the hologram appearing on this cover of AMIGA *Plus*.

Micro Embossing and Hotstamping Foil Produced by:

Transfer Print Foils, Inc., 15 Cottera Lane,
East Brunswick, New Jersey 08816.
Contact: Marc O. Woontner (201) 238-1800.

Precision Hotstamping by:

Letterhead Press, Inc., 155 North 120
St., Wauwatosa, Wisconsin 53226.
Contact: Mark Mulvaney, (414) 258-1717.

Special Thanks for Project Coordination by:

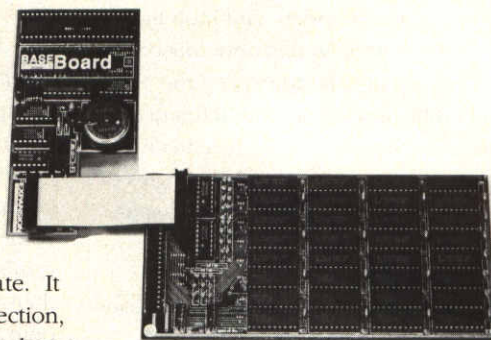
James Rivers Products, Inc., 5420
Distributor Drive, Richmond, VA 23225.
Contact: Drury Baughan, (804) 233-9145.

Kevin G. Brown is the President of Advanced Digital Holographics, Inc.,
20267 Old Cutler Rd., Miami, Florida
33189. (305) 255-3840, Fax (305) 255-0339, CompuServe 71650,1776.

Add 4Mb to your Amiga 500 – and do it YOUR way

The BaseBoard accepts as many chips as you can afford

Reviewed by Steve Carter



+++1/2

BaseBoard

Inexpensive, not hard to install and invisible to use, the BaseBoard is a great buy for memory expansion. It allows the user to add different amounts of memory chips, which is a big plus.

\$159.95

Expansion Systems, 44862 Osgood Road, Fremont, CA 94539. (415) 656-2890.

The BaseBoard is a memory expansion board that plugs into the Amiga 500's 512K memory expansion slot, but it isn't limited to 512K. The BaseBoard can add up to 4 megabytes of RAM chips without using the expansion bus.

Leaving the bus open for other expansion peripherals comes at a small price. There is an additional board that plugs into the Gary chip socket, so you must open the case of your Amiga 500 to install it. But the only tools needed are a number 9 Torx screwdriver, a small standard screwdriver and a pair of needlenose pliers. I installed my BaseBoard in about 30 minutes. My unit had 1 1/2 megabytes of RAM, and with the included CRam program I found all of it available. Running various software, including memory-intensive programs, showed absolutely no problems.

The BaseBoard Manual is only six

pages long, but is quite adequate. It falls a bit short in installation section, but causes no problems greater than a little inconvenience. On the plus side, the manual does cover how to install a Super Agnus chip, which in combination with the BaseBoard will really benefit users who want to move up from the Fat Agnus.

Down Memory Lane

Depending on your memory configuration, you may need to add the small CRam program to your startup-sequence to make the memory available to the system. CRam adds any RAM that was not EXEC-configured at power up.

If you have a Fat Agnus chip, you are still limited to 512K of chip RAM. If the memory chips are installed in the manual-specified order, up to the first 2Mb of fast RAM are EXEC-configured so the CRam program is not required.

If your Amiga has a Super Agnus, which can address 1Mb of chip RAM, the first 512K of RAM on the BaseBoard is EXEC-configured if it was installed in row zero of the BaseBoard. Any additional RAM requires the CRam program to make it available to the system. With either Agnus, at least 512K of RAM will be added without the use of the CRam program, so those RAM-hungry self-booting games can still benefit from the BaseBoard.

To get a little more technical, memory in the Amiga is made available in different size blocks.

Having 2Mb of memory doesn't guarantee that your favorite memory-intensive program will now be free of memory restrictions. Some software requires that the memory be contiguous before it can be used. If your Amiga 500 has a Super Agnus, unless there's a modification the BaseBoard makes the additional memory available in 512K blocks, which may not be large enough for some programs. Expansion Systems offers a special B version of the PAL chip for the BaseBoard that will increase the size of the contiguous memory to as much as 2Mb.

Certainly one of the best features of the BaseBoard is that the memory can be user installed. So, for those on a budget, the BaseBoard can be purchased with a minimum amount of RAM, and then added to as funds are available. The BaseBoard uses readily-available 20-pin 256K X 4 DRAMs (80 to 120 nanoseconds).

As for power consumption, the board uses 350ma, which Expansion Systems states is about the same as Commodore's 501 memory board. The BaseBoard also includes a battery-backed clock which responds to the standard DOS commands used to set the clock on the Commodore 501 memory board. All of this is built on a four-layer board, which was free of modifications and overall looked and felt very solid. ■

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Golden oldies still among today's best products

In the past five years a lot of Amiga hardware and software has come and gone. Some of it was great and some of it stank. Some products were so far ahead of their nearest competitors that other developers just stopped trying to compete. There are also areas where there is no one single "best buy." This article will focus on those Amiga products that continue to perform year after year, and we'll look back at a few golden oldies that might qualify for an Amiga hall of fame. Prices given are for the most recent version of a product, and I tried to list only products which are still in production — or at least available directly from the manufacturer. This short list can't cover every program or piece of hardware, so please forgive me if I left out your personal favorite. As an old veteran of the computer wars I have seen a lot, but not everything.

Graphics

We all know what a great graphics computer the Amiga is. Fortunately there have always been very good



Deluxe Paint "Venus"

graphics programs available.

When people first saw **Deluxe Paint** (\$149) from Electronic Arts on the Amiga it was hard to believe that another company would even try to compete. Deluxe Paint had just about everything and more. But there were a few things that DPaint couldn't do which left room for 4,096-color HAM programs like **Photon Paint** from MicroIllusions (\$149.95) and **Digi-Paint** (\$99.95) from NewTek. While DPaint still holds the lion's share of the paint program market (and has sold more than any other program on the Amiga) it would be hard to find a serious Amiga artist who didn't own at least two or all three programs.

When it comes to ray tracing and rendering software, the giants are **Sculpt-Animate 4D** (\$499.95) from Byte-by-Byte and **Turbo Silver** (\$199.95) from Impulse. These two programs have been fighting it out since ray tracing programs were first introduced and you will find people swearing that each package is the best — or using both. Of course, when you talk about Sculpt and Silver you have to mention **InterChange**

(\$49.95) from Synthesis. This plucky little utility program has been the neutral Switzerland in the ray tracing war, quietly and efficiently converting files between Sculpt and Silver for years.

Music & Education

Music seemed to get a slow start on the Amiga, but gradually picked up momentum. There are a few golden oldies still around, such as **Deluxe Music Construction Set** (\$99.95) and **Instant Music** (\$19.95) from Electronic Arts, and **Music Mouse** (\$79) now distributed by Dr. T's, who make the very serious **Keyboard Controlled Sequencer** (\$249.95).

Educational software for the Amiga also remains a little spotty. Probably one of the best educational programs is Broderbund's **Where in the USA is Carmen Sandiego?** (\$49.95), an old title on other machines, but relatively new to the Amiga. It is a detective game that effectively hides the fact that it is really teaching geography. Free Spirit has had a line of **Barney Bear** (\$34.95) programs out for years now and the **Discovery** (\$39.95) series from MicroIllusions has been teaching math and spelling just as long. **Robot Readers** (\$29.95) from Hilton Android have been around since the Amiga got started and so has the **Talking Coloring Book** (\$29.95) from JMH Software. (For more on early educational software, see Dean and Hannah Friedman's overview in the October/November issue. — + EDITORS)

A few grades up, **Doug's Math Aquarium** (\$89.95) from Seven Seas Software lets you visualize mathematical functions graphically. At a higher level, True BASIC has been churning out high school and college level pro-

grams that teach mathematics from **Arithmetic** to **Calculus** (\$49.95). Two of the early adult skill teaching programs were **Typing Tutor** (\$34.95) from Academy and **Mavis Beacon Teaches Typing** (\$49.95) from Software Toolworks.

Productivity

In the realm of productivity there are a few old favorites that just seem to keep going. For word processing, **WordPerfect** (\$250) from the WordPerfect Corp. seems to lead the pack by default, perhaps because of all those closet MS-DOS users who use WP at work. Love it or hate it, few programs have lasted as long as WordPerfect.

Once you get those words in order another Amiga classic will help put them on paper. **Professional Page** (\$295) from Gold Disk remains on the top of the desktop publishing pile.



Where in the USA is Carmen Sandiego?

Meanwhile, **PageStream** (\$299) from Soft-Logik has been dramatically improved after being around for a while. To get the words looking good the entire line of **Kara Fonts** (\$49.95) from Kara Computer Graphics and **Zuma Fonts** (\$34.95) from Zuma Group are practically timeless.

When it comes to managing data there are two golden oldies. There

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orders (800) 451-4319

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ville, MD 20850
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Britannica

345 Fourth St., San
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(415) 546-1866

have been many others trying to dethrone them, but they remain champs. At the high-end there is **Superbase** (\$349.95) from Precision Software, the heavyweight of relational database programs. If you can't do it with Superbase you probably can't do it on an Amiga. In the welterweight class there is **MicroFiche Filer** (\$99) from Software Visions. There are probably more mailing lists, personal phone books, and user group member files on MFF than any other file manager program.

Perhaps Amiga users don't find spreadsheets of any kind all that exciting. Still, if there is a classic in the spreadsheet area it is probably **MaxiPlan** (\$250), originally distributed by OXXI, renamed Plan/IT and dist. by BEST, now MaxiPlan-III and intermittently distributed by Intuitive Technologies. The only other spreadsheet that might fall into the classic category is **Superplan** (\$149.95) from Precision Software. It has only been out for a year or two but on this particular track being around for more than a few months makes you an old-timer.

The one area of productivity that changes players the most often is telecommunications. **OnLine!** (\$99.95) from Micro-Systems and **A-Talk** (\$99.95) from OXXI have been around for quite a while and many people have stuck with them. **Arc** and **Zoo**, two freely-redistributable file compression utilities, have been bouncing around the telecommunication boards almost since day one.

Programming

SAS Institute's **Lattice C** (\$300) and Manx's **Aztec C** (\$299) have been racing along neck and neck since the early days. The only way to tell who



TV Text Professional

is currently ahead is to find out who has released the most recent update. Almost 99% of all Amiga software ever written was done using one of these two C compilers.

ARexx (\$49.95) from William Hawes is being used by more and more programs as the preferred method of communicating with each other. The **GRABBIT** (\$29.95) screen grabber from Discovery, **Quarterback** (\$69.95) hard disk backup program from Central Coast Software, the anti-Guru **GOMF** (\$39.95) from Pro-Tronic Systems Limited, virus-fighting **VirusX** (freely redistributable) by Steve Tibbett, and **Disk-Master** (\$49.95) file management software from Progressive Peripherals have all become Amiga utilities that most serious Amiga folk use all the time.

Video

It may be strange to think of golden oldies in an area that is only a few years old to begin with, but there are a few programs and peripherals designed for Amiga video work that started early and continue to perform. **FrameGrabber** (\$699.95) from Progressive Peripherals & Software is still about the the best for grabbing video images. **SuperGen** (\$749.95) from Digital Creations and the **Magni**

(\$1,695) line from Magni Systems still seem to be the genlocks of choice. **Broadcast Titler** (\$389.95) from InnoVision Technology and JDK's **Pro Video Gold** (\$249.95) from Shereff Systems have both been around for a few years, competing for the title of best titler, while **TV*Text Professional** (\$169.95) from Zuma Group still manages to provide titling features the others don't. Along the same lines Electronic Arts' **Deluxe Video** (\$149.95), Right Answers Group's **The Director** (\$69.95), and Zuma Group's **TV*Show** (\$99.95) have been used by professionals and weekend Spielbergs for both live presentations and video work.

The **Digi-View** (\$199.95) digitizer from NewTek was never fancy or expensive, but thousands of people still use it to get images into their Amigas. If you want to use Digi-View with a color camera, the **Color Splitter** (\$119.95), now produced by MicroSearch has always been just about only way to do it.

Games

Perhaps the hardest category to judge objectively is entertainment software. Everyone has their own ideas about what games are the best and why. However, if we look back into the short Amiga history of games there are plenty of titles that stand out as classics.

Probably the first Amiga classic in the game world is the golf game **Mean 18** (\$44.95) from Accolade. One of the first games on the Amiga (as far back as Workbench 1.0) it is still a good, solid game. On a par with Mean 18 is **Leader Board** (\$44.95) from Access, another golf game that stands up well. Pre-released about the same time in

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17 Paul Dr., San Rafael,
CA 94903-2101
(415) 492-3200, (800)
521-8268

Byte-by-Byte
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Ste. 150, Austin, TX
78759, (512) 343-4357

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lage, CA 91382
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dova, CA 95742, (916)
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Executive Cntr., Ste.
#37, Tampa, FL 33614
(813) 983-8028

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Rd., Needham, MA
02194, (617) 455-1454

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Electronic Arts
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CA 94404
(415) 571-7171

Free Spirit
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town, PA 19530
(215) 683-5609

Amiga history was the surreal puzzle/maze/arcade game **Mindwalker** (\$49.95) sold by Commodore, one of the first games to use HAM screens.

On the arcade game side, many titles remain challenging. **Arkanoid** (\$29.95) from Bethesda may hold the all-time record for game sales and is still worth investing in, if you can find



Test Drive

a copy. Psygnosis has come up with a number of arcade classics over the years starting with **Barbarian** (\$39.95) and then **Terrorpods** (\$39.95), **Menace** (\$29.95), and **Blood Money** (\$39.95), all featuring great graphics and good arcade action.

Electronic Arts also deserves mention for releasing a string of great games. Many of these EA classic games are no longer being manufactured, but are still widely available at catalog prices of about \$19.95 each. EA started out on the Amiga side with conversions of their other titles such as **Larry Bird One-on-One**, **Archon** and **Archon II**, and **Seven Cities of Gold**, then began expanding with titles like **Arctic Fox**, **Bard's Tale** and **Earl Weaver Baseball** (\$49.95).

Another company with a string of entertainment hits is Cinemaware. When they came out with **Defender of the Crown** (\$49.95) in '86 it was greeted with universal awe by the

users and envy by the competition. It set a standard for entertainment graphics that Amiga owners have come to expect in every Cinemaware game, from **S.D.I.** (\$24.95), **Sinbad** (\$29.95), and **The Three Stooges** (\$49.95), to **Rocket Ranger** (\$49.95) and **Lords of the Rising Sun** (\$49.95).

In the awe-inspiring graphics world there have been some notable offerings. **Battle Chess** (\$49.95) by Interplay is a chess game reminiscent of the Star Wars holographic chess game played on the Millennium Falcon. Three-dimensional figures fight to the death every time a piece is taken, plus it plays a pretty good game of chess. **Faery Tale Adventure** (\$49.95) from MicroIllusions features excellent graphics for a text-based illustrated adventure game.

Strategy & Adventure

Heading into the strategy realms, the top chess game has to be **Chessmaster 2000** (\$44.95) distributed by Electronic Arts. **Shanghai** (\$39.95) from Mediagenic taxes the brain a little less than chess but is equally fun, a simple tile-matching strategy game that can take months to master.

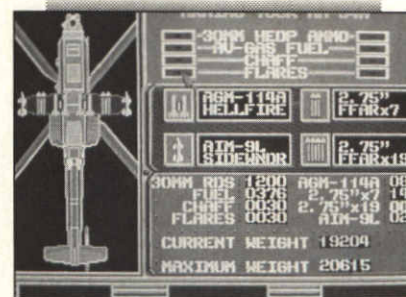
Strategic Simulations Inc. has done more war-game simulations than just about anyone. **Rebel Charge at Chickamauga** (\$59.95) and **Gettysburg** (\$59.95) are two of the best in this genre. Other SSI simulation/role-playing games include **Roadwar 2000** (\$39.95), and their entire Dungeons and Dragons line. As far as role-playing games go, the **Ultima** (\$59.95) series from Origin Systems will always remain good games. **Dungeon Master** (\$39.95) from FTL Games still draws a lot of attention as well.

As far as simulations go, there are

a number of titles each with their own merits. **SimCity** (\$49.95) from Broderbund and **Populous** (\$49.95) from Electronic Arts have been popular world-building simulations. The submarine simulation **Silent Service** (\$69.95), **F-19 Stealth Fighter** (\$69.95), and **Gunship** (\$54.95) from MicroProse; **Flight Simulator II** (\$49.95) and **Jet** (\$49.95) from subLOGIC; and **Falcon** (\$49.95) from Spectrum HoloByte are considered among the best in flight and underwater simulations.

In sports, one of the early players was Bethesda Softworks' **Gridiron!**, (\$39.95) and later **Slapshot!** (\$59.95), action/strategy games with a lot going for them. **Test Drive** (\$19.95) from Accolade can still get most people revving their engines.

On the text-based game side the



Gunship

all time classic of classics has to be **Zork** (\$14.95) and its sequels, all from Infocom (now part of Mediagenic). Zork was one of the first games on any computer, even before the first PC came out, and people are still wandering its caves. **Deja Vu** (\$49.95) from Mindscape will probably last for quite a while. Whether you like him or hate him, the **Leisure Suit Larry** (\$59.95) line of illustrated text adventures from Sierra are un-killable. ■

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Gold Disk P.O. Box 789, Streetsville, Mississauga, Ontario, Canada, L5M 2C2, (416) 602-4000	Gramma 17730 15th Ave. NW, Suite 223, Seattle, WA 98155, (206) 363-6417	Hilton Android P.O. Box 7437, Huntington Beach, CA 92615, (714) 722-1996	Infocom see Mediagenic	INOVAtronic 8499 Greenville Ave., Ste. 209B, Dallas, TX 75231, (214) 340-4991	Interplay 3710 S. Susan, Ste. 100, Santa Ana, CA 92704, (714) 545-9001, orders (800) 545-9001	JMH Software 7200 Hemlock Lane, Maple Grove, MN 55369, (612) 424-5464

Hoops Amiga

Magic Johnson's Basketball, Fast Break, TV Sports Basketball, OMNI-PLAY Basketball

REVIEW BY RUSS CECCOLA

A typical basketball game is fast-paced and can't be decided until the last shot is made. Because of the game's very nature, there are many possible ways to approach adapting basketball to the home computer. Each of the four Amiga basketball programs reviewed here approaches the sport from a different viewpoint and excels in what it attempts.

Magic Johnson's Basketball

A great translation of the arcade hit, Magic Johnson's Fast Break Basketball, this is strictly an action game.

However, of the four titles reviewed here, Virgin Mastertronic's **Magic Johnson's Basketball** has the fastest action and the most fluid movement. You can play against a friend or the computer as you control a two-man team. The goal is to extend the time of gameplay by accumulating points for performing well in categories such as the number of slam dunks, steals and fouls. All scores are multiplied by a factor and the results are tallied. If the total surpasses 1,000 points, the game is extended. If not, hit the showers.

For Amigas with at least 1 megabyte of memory, you will hear a lot more sound in the game than the swish of the net and the crowd. The opening music is infectious and the ball bounces are realistic. The graphics and gameplay are the best parts. The screen looks very nice and shows a third of the court at any time. The movements of the players are smooth and moving them around on the screen is easily done. My only complaint is with the manual — and that's only because it doesn't explain how to get a high score to extend the game. I discovered this only from multiple plays of Magic Johnson's Basketball. In the one-player game, if

you beat all seven levels of players, you get to play a half-court game against Magic himself. I haven't achieved this yet, but I'll bet it's exciting. In any case, Magic Johnson put his endorsement on the nicest all-arcade basketball game available now.

TV Sports: Basketball

Cinemaware's TV Sports: Basketball contains just about everything I could think of to duplicate a complete season of professional basketball, from opening games to the championship series. Player movements are fluid and accurate statistical data is



TV Sports: Basketball

presented via a clipboard. You can set up the season and league any way that you desire, from the length of

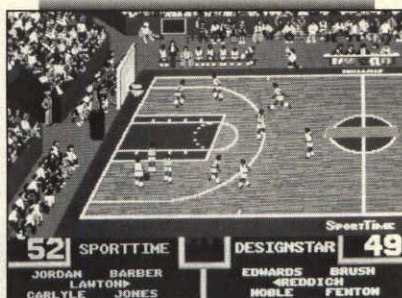
each quarter to the number of men on each team. Other variables include the ratings of each team member and league schedules. Rankings are shown on the clipboard for every team in the league and individual team and player totals can be accessed as well.

What sets Cinemaware apart from other games are the beautiful, highly detailed graphics, realistic sound effects and great music. TV Sports: Basketball takes all of those elements and presents a game that sounds and looks as good as it plays. The interface is very easy to use. I didn't really need the manual, except for some of the more unique options. TV Sports: Basketball lives up to its name and includes announcers, cheerleaders and halftime shows to round out the package. The game is perfect for those interested in simulating an entire season of pro basketball and replaying those important games in an exciting and colorful way.

Fast Break

Going beyond arcade action, Accolade's **Fast Break** adds cumulative statistics and a library of plays for use in the game, plus the ability to design your own plays if desired. Fast Break is a three-on-three game with a half-court perspective at an angle instead of from the side. Although the players look a little cartoonish and the computer is a tough opponent that will steal the ball from you if you get anywhere near a member of the opposing team, Fast Break is fun to play and challenging to beat. Your full roster consists of six men — two guards, two centers and two forwards. You can switch players during timeouts and between quarters. The players on each team supplied with the game are evenly matched. The game's forte lies in play selection. By choosing the right movements for your players, you can fake out and eventually beat your opponent.

Plays include all of the standards and you can shoot the ball in a number of ways as well. Designing your own play is easy to do and requires that you pick four places for a player



OMNI-PLAY Basketball

to move to during a play. The members of your team that you aren't controlling will follow these directions as you control the leader of the play. Statistics are accumulated for the game so that you can compare performances after the competition. Fast Break is the perfect basketball game for those people who want the action of an arcade game and the strategy of a real basketball game.

OMNI-PLAY Basketball

If you are looking for the ultimate in basketball games, **OMNI-PLAY Basketball** is easily the one to get. OMNI stands for Options Manager 'N' Installer, the main screen to get you involved in the OMNI-PLAY system. This screen lets you load in the different modules available for the system, the attraction that makes OMNI-PLAY Basketball and other SportTime OMNI-PLAY sports such a hit. OMNI-PLAY Basketball is a module-based system that keeps all of the statistics you need for every team in your league for the latest nine seasons. Realistically, if you made duplicates of your disks every time you finished up nine seasons, you could keep an entire team history. More than just statistics, OMNI-PLAY Basketball offers a good selection of plays for the aspiring coach to choose from for his team.

You can set OMNI-PLAY Basketball to play all of the games automatically so you can sit back and watch or you can take control of a team and try to bring it a win. The interface is very easy to use and has so many features

that it would take an entire review to adequately cover them. The graphics are beautiful and show a half-court perspective from the opposite end of the court. The games are presented like network television broadcasts with two goofy announcers (Nick and Bob) making comments on the game, and cheerleaders to liven things up. Other modules allow you to emulate the NCAA and NBA leagues, create a fantasy league, print out the stats and change the perspective to a side view. With the system so expandable and complete, I can do nothing less than give top honors to OMNI-PLAY Basketball as the most complete and accurate simulation of basketball.

Final Score

As you can see, each of the above four titles has its own features that make it worth considering. Personally, I like TV Sports: Basketball best because I'm not a big stats person and I enjoy colorful, easy-to-use games. But I still consider all the others worth looking into — it really depends on what you yourself want in a computer basketball game.

Russ Ceccola is a programmer and engineer from Philadelphia. He has reviewed Amiga games for many publications.

MAGIC JOHNSON'S BASKETBALL \$49.95
Melbourne House (Virgin Mastertronic), 18001 Cowan Street, Suites A & B, Irvine, CA 92714. (714) 833-8710.

FAST BREAK \$44.95
Accolade, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128. (408) 985-1700.

TV SPORTS: BASKETBALL \$49.95
Cinemaware. Distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.

OMNI-PLAY BASKETBALL \$49.95
SportTime, 3187G Airway Avenue, Costa Mesa, CA 92626. (714) 966-1311.

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BEST

PRODUCTS

REVIEWED IN AMIGA PLUS

*Our Critics'
Picks of the
'89-'90 Crop*

Information in parenthesis after the first mention of each product name is the following: (1) numbers of the AMIGA Plus volume and issue where the review originally appeared, (2) latest price, (3) name of manufacturer. Elsewhere in this issue, an alphabetical listing of the manufacturers named here gives you their addresses and phone numbers. Note that the more powerful applications software often requires, or at least highly recommends, minimum one megabyte of memory.

Some of best-known and most widely used Amiga products came out before AMIGA Plus started publishing with the May 1989 issue so they were never reviewed here even though they are often the subjects of our detailed how-to articles. This kind of product is covered in this issue in Contributing Editor Guy Wright's "Amiga Classics" article.

BY CAROLYN CUSHMAN, AMIGA PLUS ASSOCIATE EDITOR

Inter-Computer & Programming

A-MAX (1.4, \$199.95, Readysoft) "A-Max really runs most of the best-known Macintosh applications software on your Amiga." The upcoming version of A-Max will overcome previous limitations on hard disk support.

Lattice C++ (1.1, \$500, SAS Institute) brings object-oriented programming to the Amiga. "An excellent programming tool for the Amiga."

MAC-2-DOS (2.1, \$99.95, Central Coast) "MAC-2-DOS and a Mac floppy drive offer a solid, easy-to-use and economical solution for an Amiga user who needs to deal with Mac data."

DOS-2-DOS (1.6, \$55, Central Coast) Transfers files between AmigaDOS and IBM or Atari ST formats. "This converter has been invaluable to the editors of AMIGA Plus since our first issue."

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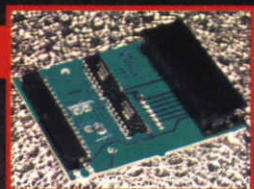
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(1.6, \$99.95,
NewTek) A

favorite for 4,906-color HAM work around our offices, particularly for its Repeat function and nifty drawing modes.

Photon Paint 2.0 (1.2, \$149.95, Microlusions) "A HAM mode paint program that supports enough powerful features to please the most demanding artist." It's the only HAM software that can use ANIM files for moving images.

Art Department (2.4, \$89.95, ASDG) "More than 16 million colors or 256 gray shades...The ultimate 24-bit Amiga image processing powerhouse." The brand-new Professional version adds AReXX and scanner compatibility.

PixelScript (1.3, \$89, Pixelations) was reviewed under its earlier title of PrintScript. "The most affordable way to bring the power of PostScript to your Amiga. It's slow and memory-hungry, but it works!"

CAD

"Without a doubt, **X-CAD Professional** (2.2, \$499, American Software) with **X-Shell**

Professional (2.2, \$199, GrafX) is professional-level CAD software. But both programs need to become more accessible to users."

"With a few refinements, elimination of a few bugs and the addition of freehand, **UltraDesign** (2.2, \$399.95, Progressive Peripherals) could be an excellent and professional CAD program that makes it worthwhile for many design professionals to buy an Amiga." New version 2.0 is claimed to be a significant improvement.

MultiMedia

CanDo (2.2,

\$149.95, INOVA-

tronics) A very powerful, stable and user-friendly program for creating interactive applications.

AmigaVision (2.3, \$149.95, Commodore) provides an even easier-to-use interface than CanDo. "Practically all input can be accomplished by clicking on buttons or text. It's a truly exceptional program that puts the incredible power of the Amiga into the hands of novice users."

Video

"Focus Video (1.5, \$159,

A-Squared) lets you capture and modify a group of image

frames simultaneously. There's no slow, tedious one-frame-at-a-time video animations." Focus is primarily for use with the excellent Live! framegrabber.

"At its simplest level, **Elan Performer** (1.4, \$59.95, Elan Design) is an easy-to-use slide show for displaying Amiga graphics. Its possible applications include automated advertising displays, interactive presentations and video recordings."

MovieSetter (1.2, \$99.95, Gold Disk) "This powerful 2-D animation program makes it surprisingly easy to create sequences that look professional enough for a Saturday morning TV cartoon show."

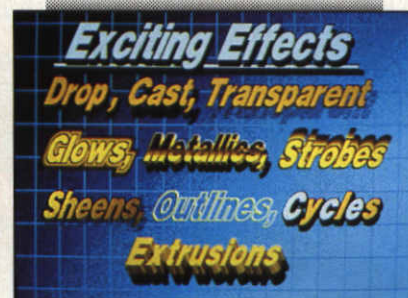
MediaPhile (2.1, \$195, Interactive MicroSystems) "If you are even partially serious about desktop video... the MediaPhile VCR controller can probably do what you need, and more."

TV*Text Professional (2.1, \$169.95, Zuma) "An exceptional product for anyone who needs professional-quality text screens."

Video Effects 3D (2.1, \$199, InnoVision) "A dedicated 3-D titling effect generator, not for the faint-hearted.



Digi-Paint "the Gallery"



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Ontario, Canada
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Suite 109, Austin,
TX 78746, (512)
328-6650

NewTek

115 W. Crane St.,
Topeka, KS 66603
(913) 354-1146
(800) 843-8394

The results are nice and the manual is helpful."

Guy Wright's Abacus book **Amiga Desktop Video Guide** (\$19.95) lists a number of start-up video systems at varying prices. Among the products he recommends most highly are **Page Flipper Plus F/X** (\$159, Mindware) for animation and **PIXmate** (\$49.95, Progressive Peripherals & Software) for image processing.

Music

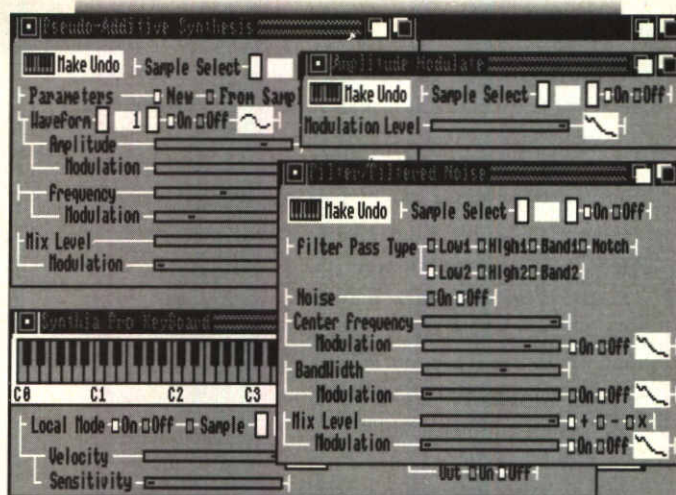
Bars&Pipes (2.1, \$250, Blue Ribbon Bakery) and **TIGER Cub** (2.2, \$99, Dr. T's) are this year's two hot entry-level sequencers, for MIDI or the internal Amiga sounds. Both appeared as full-featured demos on *AMIGA Plus* Disks — Bars&Pipes on the April/May 1990 disk, Tiger Cub on the August/September 1990 disk. Bars&Pipes uses an entertaining plumbing metaphor to control the music data, "combining many MIDI capabilities into a modular and open-ended package." TIGER Cub is "a powerful and easy-to-learn music program at a surprisingly low price, with notation printing added to make the bargain even better."

Synthia Professional (2.2, \$395, Other Guys) "Amiga musicians can synthesize and edit high-quality 16-bit sounds with Synthia Pro, but learning to get the right sounds takes time."

Dr. T's Copyist Professional (1.1, \$275) "Create and print truly professional music scores. For professional musicians as well as serious amateurs, Copyist Professional fills a vital need."

Dr. T's Keyboard Controlled Sequencer V1.6A (1.2, \$249.95) "KCS gives you the ability to create just

Synthia Professional



about anything in music you can imagine. This epic musical toolbox is the embodiment of versatility and power."

M (1.4, \$199, Dr. T's) "Best algorithmic music software for the Amiga. The outstanding interface gives you real-time control over many sound parameters at once, encouraging musical experimentation without sacrificing human creativity."

Word Processors

Word processors seem to be mostly a matter of taste — there's no single program that's right for everyone. Known for its picture/text mixing capabilities, **ProWrite** (1.1, \$175, New Horizons) was our early choice for in-house word processing and this issue's review of Version 3.1 indicates it's gotten even stronger.

Transcript (1.5, \$69.95, Gold Disk) neatly provides all the basics

and is our current in-house word processor because of its Professional Page compatibility. With recent bug fixes Transcript is more solid than ever before though I still get more crashes than we like when trying to multi-task with it. For heavy duty word processing with just about every feature imaginable, **Word Perfect** (1.1, \$250) still leads the pack. Its previously un-Amiga-like interface has been fixed in the current 4.1 version.

Finance, Organizers & ModemWare

Comparing the respective virtues of two appointment schedulers, **NAG Plus 3.0** (1.3, \$79.95, Gramma Software) has a gadget-oriented system that makes it particularly easy to learn, but **Who! What! When! Where!** (1.3, \$99.95, Blue Ribbon Bakery) goes one step further by incorporating a sophisticated address directory.

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Ste. G, Beaverton,
OR 97006
(503) 626-2022

PHA\$AR 4.0 (2.2, \$89.95, Antic Software) "PHA\$AR is a real boon to those of us who want to use our Amiga to make our lives more efficient as well as more creative." This home finance program includes an updated federal income tax module.

Desktop Budget (1.3, \$69.95, Gold Disk) "Using an icon-based system, Desktop Budget is effectively designed to simplify the task of home budgeting and accounting."

Baud Bandit (1.6, \$49.95, Progressive Peripherals & Software) "Baud Bandit is the current Amiga telecommunications program of choice. It handles like a fast, slick sports car."

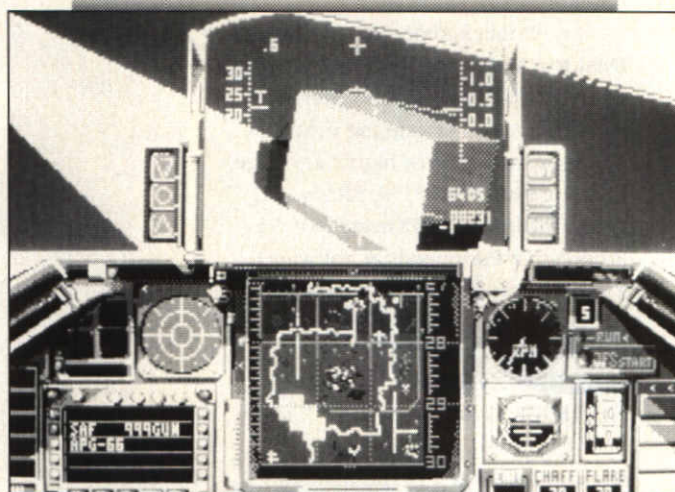
Games

Drakkhen (2.3, \$59.95, Data East) "The complexity of the quest combined with the eerie scrolling effects makes Drakkhen into an enchanting adventure. A rare treat for all adventure gamers."

Dungeon Master (1.3, \$39.95, FTL) "This vast adventure captures the essence of Dungeons & Dragons role-playing games. It's well balanced between arcade action and problem-solving."

Our premiere issue described **Tetris** (1.1, \$34.95, Spectrum Holobyte) as "a powerful new addiction for intelligent gamers. If you enjoy puzzle solving and strategy games, Tetris offers you heights of satisfaction rarely found in computer games." With the sequel **Welltris** (2.4, \$34.95), the addictive fun takes on a challenging 3-D twist.

Falcon: Operation Counterstrike



Shufflepuck Cafe (1.6, \$39.95, Broderbund) "In this slam-bang air hockey simulation your opponents are the bizarro denizens of a 'Star Wars' cafe! The AMIGA Plus staff couldn't get enough of this one."

Populous (1.5, \$49.95, Electronic Arts) "Does the urge to play God grab you from time to time? Does Armageddon appeal to you? If so, Populous is for you — just about the most fascinating and addictive game for the Amiga yet." I still play this one at home.

Shadow of the Beast (1.6, \$49.95, Psygnosis) Graphically brilliant, and insanely difficult for all but the most skilled shoot-'em-up fanatics.

Qix (1.5, \$34.95, Taito) "Unique among arcade games, and rightfully considered a classic." I'd still be playing it at the office, but it doesn't work with my super Agnus.

Sim City (1.6, \$44.95, Broderbund) "This unique simulation challenges you to control a city, and the intriguing realism makes it hard to put away."

In air combat, **Falcon** (1.2, \$34.95, Spectrum Holobyte) is "a true flight simulation that's fast, challenging, colorful and just plain great to operate." Adding to the excitement is **Falcon: Operation Counterstrike** (1.5, \$24.95), which is "not just an add-on mission disk, it's a dramatic upgrade of the Amiga's best combat flight simulator." **Battlehawks 1942** (1.5, \$49.95, Lucasfilm) is a close second, with WWII sky thrills galore. **Gunship** (1.4, \$49.95, MicroProse) got our highest five-plus rating as the best helicopter combat simulator. ■

Soft-Logik

11131 S. Towne
Square, Suite F, St.
Louis, MO 63123.
(314) 894-8608.

Software Toolworks

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Novato, CA 94949.
883-3000.

Software Visions

12625 La Tortola, San
Diego, CA 92129.

Spectrum Holobyte

2061 Challenger Dr.,
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(415) 522-3584.

Strategic

Simulations Inc. (SSI)
see Electronic Arts.

subLOGIC

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(800) 637-4983.

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C, Los Gatos, CA 95030.
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DISNEY from Page 26

when multi-tasking I'm used to clicking the mouse pointer inside the screen to re-activate the program, but in Disney Animation Studio that action draws a line from the point where you activated the other program to the point where you re-activated Disney Animation Studio. So then you have to use Undo to remove the line.

You cannot get out of the Exposure Sheet without first going through Pencil Test. This is rarely an inconvenience, because the two modules work together. But since sound requires exact syntax, and previewing your own tracks must be done outside the module, that part can take a few extra steps.

The manual is nicely illustrated and easy to understand, with the exception of the sound section. A history and analysis of character animation is included. This analysis is very useful because good character animation is much more than just one drawing followed by another and another. It's

a complex series of gestures, subtleties, and understanding of what makes believable characters and believable motions.

Disney Animation Studio is generally memory-efficient, since you can load whichever module you need. It will work on a 512K Amiga. I did have a problem with a high-resolution overscan animation. Although the animation was small, less than 100K, I didn't have enough chip memory to save anything but a CFAST file even when I loaded from the CLI. The same animation gave no problems in DPaint III and loaded from Workbench.

Demos Galore

The program comes with two player programs — Flick for playing silent animations and Flicker for playing them with sound. A series of sample animations are included for you to modify and study. There is also a disk containing a digitized collection of classic Disney animation scenes — Alice running, Mickey walking, etc. —

which are even better for study than using the single frame control on your VCR. These scenes are CFAST files in a proprietary format called "secure." They cannot be saved or duplicated. What did you expect? These are Disney characters, after all. But you can also save your own animations "secured," so that they cannot be changed.

It's ironic that none of the sample scenes in Disney Animation Studio were made with the Pencil Test program. They were all digitized from paper drawings — still the most popular way to create Disney-style animation. But in the not-too-distant future, quality character animation will be created from scratch on computers using software like this. ■

Steve Segal and his Amiga are currently producing many of the digital effects for ABC-TV's Rick Dees late-night show. Steve was an early beta-tester for Disney Animation Studio.

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Statistics Cruncher

*Analyze the
numbers
with your
Amiga*

BY TIMOTHY CAIN

***Got some numbers
you need to inter-
pret into real-life
facts and trends? If
you know your way
around regressions,
correlations, ANOVAs
and T-Tests, you can
thoroughly analyze
your statistics with
the easy- to-use
Statistica program
on this issue's
AMIGA Plus Disk.***

Statistics play a vital role in modern society. Everything from the movies people rent to the toothpaste they prefer is studied at one time or another. When all your information has been gathered, statistics provide the tools needed to interpret your data. My Statistica program is the Amiga translation of several of the most commonly used statistical formulas. These tests allow you to describe and make inferences about a larger population by sampling a subset of it.

Statistica is easy to use — if you have at least some knowledge of statistical methods and terminology. Statistica supports means and standard deviations, and offers both independent and dependent T-tests, as well as a one-way ANOVA, regression, and a data editor.

Getting Started

In order to save space on this issue's disk, we compressed the Statistics Cruncher program. However, decompressing this program couldn't be easier. Simply click once on the Un-

CrunchStatistica icon in the main window of this issue's AMIGA Plus Disk, hold down the SHIFT key and double-click on the disk or drawer icon where you want to store Statistica. Or if you have only one floppy disk drive and no hard disk, just double-click on the UnCrunchStatistica icon. The files will then go to your RAMdisk, and the script will ask you to insert another disk to copy them onto.

After Statistica has been decompressed, you can run it just by double-clicking on the program's icon. You'll also see a Statistica.Doc icon on which you can double-click to bring up a detailed text file explaining what the program does and how to operate it. ■

Timothy Cain is from Des Moines, Iowa where he is working towards a PhD in experimental design and statistics. He owns Quantum Video Productions, an Amiga industrial video company.

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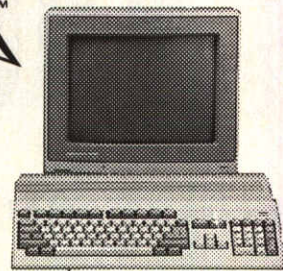
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Excellent Adventure

Hey dudes — it's **Bill and Ted's Excellent Adventure**, a wacky arcade and adventure game based on the the hit movie.

You go traveling through time to find at least six famous historical figures willing to be part of your awesome final report for history class. (\$39.95)

Intracorp, (305) 252-9040, (800) 468-7226 (orders only).

SPOC's Funbench

Get over twenty games in this collection, with solitaire card games, puzzles, number games and more, an entertaining alternative to arcade shoot-'em-up violence. \$20, demo disk \$2.

S.P.O.C., (918) 432-5774.

UnSane Solitaire

UnSane Creations presents a series of solitaire card games, **Sea-Haven Towers**, **Accordion**, and the mathematically-challenging **Calculation** (\$29.95 each). These games depend

more on skill than luck, and for long-lasting value each has dozens of variations to play. Also in the works is the fast-paced **Poker Solitaire** (\$34.95), with a competitive mode for up to four players.

UnSane Creations, (314) 442-2468.

Loopz, Days of Thunder

Ready to play with more shapes? **Loopz** (\$49.95) challenges you to build loops from random pieces onscreen — complete a loop and it disappears, and you score points. The more complex the loop, the more points you score. **Days of Thunder** (Price not set.) provides stock car racing thrills as you pick your car, then prove yourself as a driver in this game based on the hit movie.

Mindscape/Software Tools, distributed by **Electronic Arts**, (415) 571-7171.

VIDEO

Credit Text Scroller 2.0

Creating scrolling text screens is easier than ever with **Credit Text Scroller** version 2.0. Additions from 1.0 (August/September AMIGA Plus New Products) include new AREXX macros, HAM text overlay capability (when used with NewTek's Digi-Paint 3), variable positioning of subtitles with FlexiTitler, and the new SuperScroll Format, which allows a single disk to hold thousands of smooth-scrolling lines. \$49.95, 1Mb required.

Mindware International, (705) 737-5998.

MegaPaint

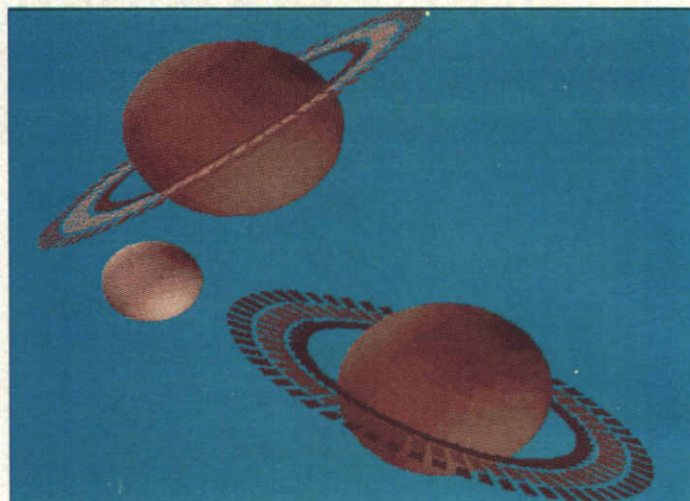
Get ready for the first 24-bit Amiga paint program that delivers 16 million colors at broadcast quality NTSC. **MegaPaint**

effects also include 16.7 million transparency levels and multi-directional gradient fills with variable dithering. With the fast vector-drawn menu system, easy tools and extensive modes, you get 180 ways to apply electronic paint. Minimum 2Mb memory required, hard disk and Mimetics FrameBuffer recommended. (Price not set).

Pseudo Vision, (509) 926-6623.

MultiVisions, Animated Intros & Spots

Created with CanDo, **Video Visions: MultiVisions** (\$40, CanDo source version \$80) loads and displays IFF pictures, ANIMs, ANIM brushes, and PFX Plus animations, letting you create your own slide shows, add hires titles and edit scripts. Also,



Draw4D

add animation to your home videos with Video Visions **Animated Intros** and **Animated Spots**. \$16.95 each, ANIM-loading program required. **CV Designs**, 61 Clewley Road, Medford, MA 02155.

Genesis

A fractal landscape art-animation program, **Genesis** lets you create random landscapes, with control over water levels, etc. Once you've created your landscape, you can fly through it using the built-in animation generator. Other modules let you convert landscapes to formats

compatible with Turbo Silver, Sculpt-Animate 4D, VideoScape 2.0. \$149.

MicroIllusions, (818) 785-7345.

Draw4D

A new approach to 3-D structured drawing, Draw4D makes designing and animating 3-D objects easy. Files can be saved in ANIM, IFF, and Gold Disk's Clip format, with 256 shades of grey allowing full-color support for Professional Draw 2.0. \$249, 1Mb required.

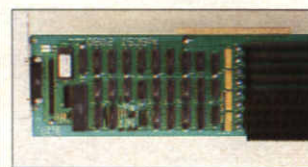
Adspec Programming, (216) 337-3325.

HARDWARE

AdSCSI 2080, AdRAM 560D

ICD's **AdSCSI 2080** combines 8Mb of memory expansion and a speedy high-performance controller for as many as seven hard disks on a single board that needs only one slot. (\$279.95 without RAM chips.)

The **AdRAM 560D** (2Mb \$279.95) module adds an extra 2Mb of RAM to your Amiga 500 system, when plugged into a fully-populated (4Mb) AdRAM 540 module (\$159.95 without RAM-chips), which fits into the A501



AdSCSI 2080

expansion port. ICD's Advantage 2000 high-speed SCSI host adapter (for the Amiga 2000 and 3000) has been renamed the AdSCSI 2000. (\$199.95)

ICD Incorporated, (815) 968-2228.

A-Max II

With its new upgrade, the **A-Max II** (\$249.95) Macintosh emulator offers better speed and compatibility, offering the ability to play Macintosh digitized sounds, and enabling most major Amiga hard drive controllers to give full hard drive support during Macintosh emulation to both Amiga and Mac hard drives. A-Max also supports other standard SCSI devices, such as the LaserWriter IISC and scanners, through compatible Amiga hard drive controllers. Also in the works is **A-Max II Plus** (price not set), a card for the Amiga 2000 (and greater) that gives AppleTalk and MIDI compatibility, as well as the ability to use Mac-format disks with standard Amiga drives.

Readysoft, (416) 731-4175.

DoubleTalk

An AppleTalk-compatible local area network for all Amiga models, DoubleTalk takes full advantage of the Apple File Protocol used in standard Macintosh networks. An Amiga-only DoubleTalk network runs twice as fast as a standard Appletalk network, sharing files, printers, and other resources. No dedicated system server is required. Price to be announced.

Progressive Peripherals & Software, (303) 825-4144.

DataStation, DigiScope Plus

For scientific and engineering uses, the **DataStation** is a high-performance data-acquisition and process-control expansion board, with 16 12-bit analog to digital (A/D) conversion channels, two digital to analog (D/A) conversion channels, 32 digital input-output (DIO) channels and three instrumentation counter-timer channels. Prices vary with configuration, from \$475 to \$1,450. The **DigiScope Plus** (\$159.95, or \$179.95 with filters option) software package lets you acquire, analyze and display such real-world signals, acting in

its minimum configuration as a digital storage oscilloscope emulator. **DigiScope Plus** works with the DataStation, or can acquire signals from any parallel port digitizer. An optional digital filter design and processing package is available.

ACDA Corporation, (516) 689-7722.

SupraDrive 500XP

For the Amiga 500, the **SupraDrive 500XP** combines a complete hard disk system, up to 8Mb of fast RAM, and a variety of configuration options, all in one small case — with an external SCSI port and convenient external configuration switches. Prices start at \$679 for a 20Mb drive with 512K of memory installed.

Supra, (800) 727-8772, (503) 967-9075.

ScanLock Extended Warranty

Owners of the ScanLock external genlock can now get the **ScanLock One Year Extended Warranty**, which includes full parts and labor plus guaranteed factory repair/calibration in four days or less. \$95 per year.

VidTech, (305) 477-2228.

MultiFaceCard

Prespect's MultiFaceCard is a half-length that holds two serial ports and two parallel ports which can all transfer data simultaneously, along with the Amiga's two built-in ports.

Prespect Technics, (514) 954-1483

Carrying Cases

For Amiga users on the go, these bags are designed to make carrying your Amiga with you easy. The **AmiTote 500** (\$89.95) meets airline restrictions for carry-on baggage, and holds the cpu, power supply, mouse, two slim-line 3.5 inch floppy drives, or the Supra SP series of hard drives — plus space for some disks and papers, and a handy outside pouch. The **AmiTote**

1084/1950 bag (\$69.95) can accommodate monitors in either series, with room for cables. Bags for the A-2000 and A-3000 are also planned.

Left Hemisphere, (509) 325-0155.

GVP SeriesII RH-5500

A 5 1/4 inch, half-height hard disk, the **GVP SeriesII RH-5500**

uses the Ricoh-5500 50-megabyte removable-media hard drive to provide virtually unlimited storage for memory-intensive applications, such as multi-media applications and 3-D animations. (\$999, includes 50Mb cartridge and GVP SCSI controller.).

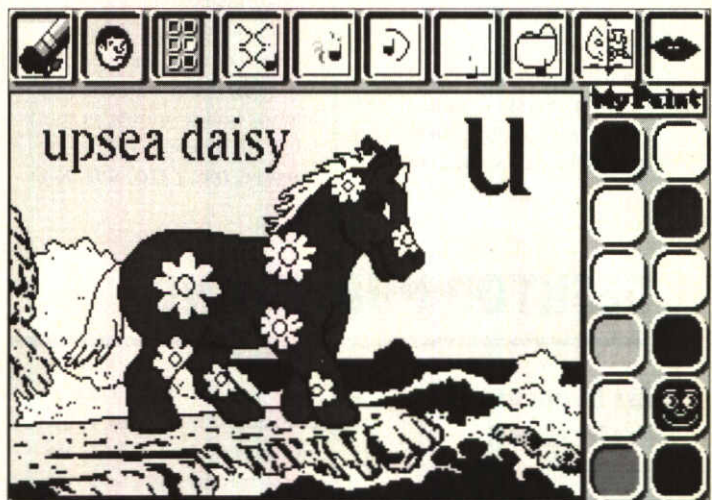
Great Valley Products, (215) 33-8770.

EDUCATION

Discovery 2.0

Improving on the original educational game series, **Discovery** version 2.0 gives students

ability to save and load paintings. For even more fun, two **Coloring Book** disks teach **Alphabet Fun!** and phonetics



MyPaint 2.0

five starships to play in, with improved graphics and animations. A utility included lets you use the many add-on disks from the old **Discovery**, and new disks are in the works. \$39.95.

MicroIllusions, (818) 785-7345.

MyPaint 2.0, Coloring Disks

Version 2.0 of the critically-acclaimed **MyPaint** program for kids features an enhanced interface, faster operation, full printing capabilities, and the

with the **Majelix Characters**. \$49.95, **Coloring Book** disks \$24.95 each.

Centaur Software, (213) 542-2226.

Barney Bear Goes to Space

For the younger set (ages 3-8), Barney Bear's latest adventure takes him on an accidental trip on a space shuttle, ending up on a space station full of interesting and educational activities. \$34.95, 1Mb required.

Free Spirit Software, (215) 683-5609.

MIDI

MusicX Jr.

If you've been wanting to try Music-X, but don't need all the high-powered tools, try **MusicX Jr.** (\$149.95), a scaled-down version of the popular music program. The full Music-X (\$299) version 1.1 is now available, adding a control mapper, velocity sculpting and multiple serial support.

MicroIllusions, (818) 785-7345.

MusicBox B, Multi-Media Kit

For Bars&Pipes users, Blue Ribbon Bakery presents two new add-ons. **MusicBox B** contains new tools and accessories, including a multi-song loader and 4 CheckPoint MIDI Ins and Outs that allow Bars&Pipes to support 80 MIDI channels. **The Multi-**

Media Kit includes an SMUS converter, ARExx, a MIDI player, and the Cue Card, which uses MIDI events to cue animation and graphics both via ARExx and keystroke macros (works with Deluxe Video, Elan Performer and others). \$59.95 each.

Blue Ribbon Bakery, (404) 377-1514.

MIDI Math

See the relationship between math and music with **MIDI Math**, an algorithmic composer and four-track sequencer. It uses mathematical equations to create original music, saving files in standard MIDI format for use with other sequencers. MIDI MATH can load and play internal Amiga sounds, or use MIDI instruments. \$49.

Borotec, Inc., (216) 481-3642.

DESKTOP PUBLISHING

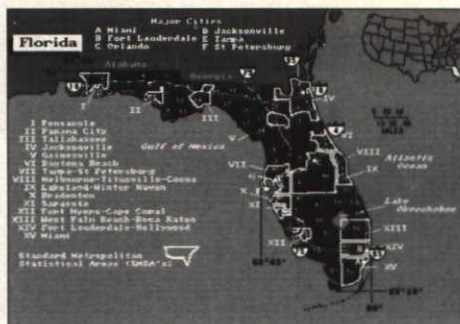
Art Department Professional

ARExx support, scanner control, and a greatly expanded format compatibility — for both Amiga and other computer images —

are among the important features added to the new **Professional** version of ASDG's **Art Department**. The basic version of this outstanding image processor was reviewed in our previous issue. \$199, upgrade \$75.



Art Department Professional



Map Pics - U.S.

Also available are a **Conversion Pack** (\$89.95) and **Presentation Graphics Pack** (\$129.95). **ASDG, (608) 273-6585.**

Gold Disk Fonts

This series consists of four separate custom font packages, **Publisher Pack, Designer Pack, Decorative Pack** and **Video Pack**. Each package contains three typefaces based on AGFA Compugraphic outline fonts, plus a special utility to scale and convert any Gold Disk typefont into a bitmapped Amiga font. \$59.95 each, 1 Mb required. **Gold Disk, (416) 602-4000, (800) GOLD-DSK.**

PGS.Struct.#1

HiTech News expands their clip art line with **PGS.Struct.#1** (\$19.95), a collection of structured drawings designed for use with Soft-Logik's PageStream desktop publishing program. **HiTech News, (704) 252-4933.**

Map Pics - U.S.

This four-disk package provides maps for all 50 of the United States, a timezone map, regional maps and state outline brushes, all in 16-color, 640 X 400 IFF format. \$59.95. **Tangent 270, (303) 322-1262.**

ONLINE

GENie Monthly Fee

For anyone interested in the PostScript language, GENie has added a new PostScript RoundTable, with messages, conferences, and libraries of related public domain software. GENie has also reduced its price. For only \$4.95 per month, subscribers get unlimited evening/weekend access to over 100 online areas. For premium areas of GENie, the non-prime hourly fee has been cut to \$6. There's no signup fee or any extra charges for faster modems. **GENie, (800) 638-9638.**

Delphi Bargain

The Delphi online service has

reduced usage rates for its most active members with the 20/20 Advantage Plan. Members receive 20 hours of evening access per month for \$20, with additional time only \$1.20 per hour. The basic membership rates has been reduced to a \$5.95 monthly charge that includes the first hour, with each additional hour \$6. To join Delphi, dial (800) 365-4636 with your computer and modem, and press RETURN twice. At the Username prompt, type JOINDELPHI, and at the Password prompt, type SAVE. The \$29.95 sign-up fee includes an online account and first month of membership. **Delphi, (617) 491-3393, outside MA (800) 544-4005.**

ADVERTISEMENT

PRODUCTIVITY

UltraDesign

Version 1.1 of the **UltraDesign** CAD system offers a new Object Editor which allows easier editing and manipulation of objects through a dialog window. A special new freehand tool simplifies drawing objects with unusual attributes. \$399.95. **Progressive Peripherals & Software, (303) 825-4144.**

Maverick Amiga

The best-selling archival system for the C-64/128 comes to the Amiga with **Maverick Amiga**, using a custom Analog Control Environment to make operation easy. \$39.95. **Software Support International, (800) 356-1179, (206) 695-9648.**

excellence! 2.0

New **excellence!** version 2.0 boasts increased speed (up to 175 words per minute), longer path names, an expanded dic-

tionary and thesaurus, new printing flexibility, color PostScript support, better memory management to allow more graphics in a document, and much more. \$199.95.

Micro-Systems Software, 12798 West Forest Hill Blvd., Suite 202, West Palm Beach, FL 33414. (407) 790-0770.

Gold Disk Office

A collection of five full-featured business applications, **The Gold Disk Office** uses multi-tasking, ARexx and compatible file formats to provide a high level of integration between the Office Write word processor, Office File data manager, Office Calc spreadsheet, Office Graph business graphics program, and Office Page desktop publishing module. The publisher accepts IFF graphics and Professional Draw 2.0 clips, uses AGFA Compugraphic outline fonts and has full PostScript support. \$295. **Gold Disk, (416) 602-4000.**

PROGRAMMING

F-Basic 3.0

Version 3.0 of this compiled BASIC language system now adds an integrated editor environment, direct 68020/68881 support, IFF sound file player, faster code, a built-in matrix package, and complex numbers. Version 3.0 of the **F-Basic Source Level Debugger** (SLDB) is also available, with new find commands, keyboard control, and integration into the F-Basic 3.0 editor/compiler/linker/debugger environment. F-Basic 3.0

\$99.95, with SLDB \$159.95. **Delphi Noetic Systems, Inc., (605) 348-0791.**

Laserdisk Controller Library

Integrate the Pioneer LD-V2200 laserdisc player into your programs using ACDA's new **Laserdisk Controller Software Library** (\$99.95), a linkable library of C routines compatible with both Aztec C and Lattice C. **ACDA Corporation, (516) 689-7722.** ■

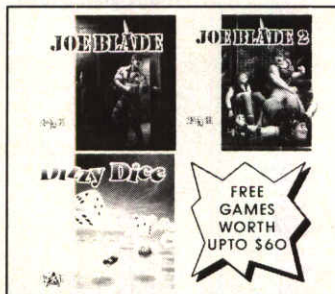
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JOE BLADE II, "KEEP THE PUNKS OFF THE STREETS", BLADE II DOES IT AGAIN
ANOTHER #1 HIT IN ENGLAND. 84% REVIEW.
DIZZY DICE-"GREAT SLOT MACHINE SIMULATOR"

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SPECIAL DISK FEATURE

Rotation

Give your brain cells a workout with this number-sliding puzzle!

BY TODD BACH

Remember those little toy squares filled with bits of plastic marked with numbers that you had to slide around until the numbers were all in order? Usually after you played it for a while, all the squares would stick and jam. The squares never jam with Rotation, and all you need to do is click on a number to slide it effortlessly into the adjoining blank space. But you can't cheat by pulling pieces out, either.

Play may be simple, but solving the Rotation puzzles requires some mind-grinding exercise in logic and planning ahead. The board that appears onscreen is filled with

Todd Bach's AmigaBASIC realization of the classic slide-the-tiles game gives you three puzzle sizes to choose from and times your game.

numbered square tiles. Only one space is not filled, and you can slide any adjoining tile into that space with just a click of the mouse. The object is to put all the numbers in correct order. Three sizes of puzzle make sure there's plenty of challenge for even the sharpest player. Just press the appropriate letter (Small, Medium, or Large) at the prompt. With the timed competition mode, two players can challenge each other to see who solves these tricky puzzles fastest.

If you find yourself saying "That's impossible!" just keep sliding those tiles around. It can be done, and you'll eventually spot patterns that let you position the tiles as you want them. Once you think you've got the technique down, you're ready to time yourself, or take on an opponent.



On Disk

Before you can play Rotation, it must be copied to a disk which also has AmigaBASIC on it. The easiest way to do this is to get a blank, formatted floppy, drag the AmigaBASIC icon from your Workbench Extras disk onto the blank disk, then drag the Rotation icon over to the same disk. To start the game double-click on its icon. (If you want to keep AmigaBASIC on a different disk, click once on the Rotation icon, then hold down SHIFT and double-click on the AmigaBASIC icon.) To quit the game, hold down CONTROL-C. ■

Todd Bach of Boise, Idaho is a 15-year-old programmer who got started on the Commodore 64 five years ago.

NEW!

AMIGA PLUS MAGAZINE-ONLY SUBSCRIPTION



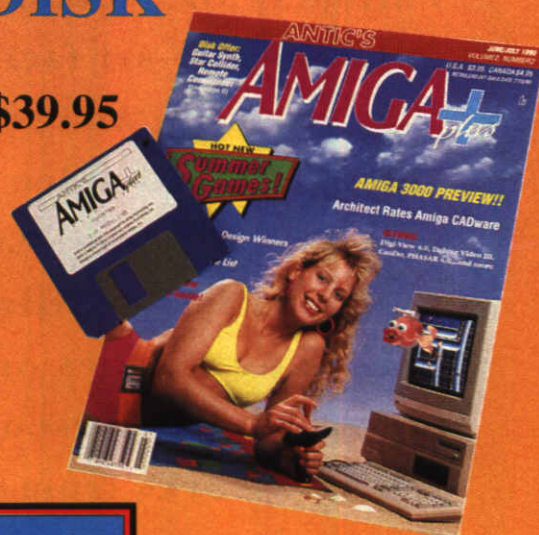
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Producing the

AMIGA Plus Art

Contest

*Behind the scenes
at Philadelphia
Video Lab*

BY PETER LULLEMAN



*A*s regular *AMIGA Plus* readers know (October/ November 1989, page 43), Peter Lulleman's Philadelphia Video Lab is the state-of-the-art facility for transferring Amiga screen image files to video tape or photographic film. Lulleman is currently putting the finishing touches on a two-cassette video presentation of the best works from the First *AMIGA Plus* Art Contest. Here he writes a progress report about the new techniques used for this pioneering Amiga video production.



The Temporal Doorway, another work by first prize winner Mark Cashman

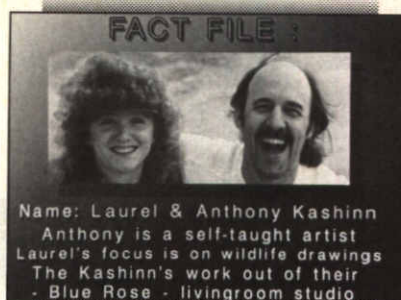
Producing the *AMIGA Plus* Art Contest tapes is a very exciting project. What intrigues me most is that the Amiga is the only tool used, and you see so many different styles of images and animations created with it. The work which has been submitted ranges from the simplest style that a 13-year-old girl draws, to the most sophisticated painting as if done on a canvas. The same is true for animations, from simple to complex.

Only about 10% of the images on the tapes were done by professional artists who make a living out of it. Fully 90% of the work was done by "ordinary" people like the shipping clerk, pipe layer, electrician, Air Force pilot, secretary, student, and retiree. Here you will find your true

artists who express themselves in their work without any prejudices. And I have been amazed to learn how widespread the audience for AMIGA Plus magazine is. We got a lot of contest entries from Canada, which makes sense. But how about Australia, Africa, the Middle East and Europe!

I'm even more impressed with the work itself. For example, the first of the two tape volumes will start up with a tribute to Jay Miner, the man who has been called the "father" of the original Amiga computer. It so happened that one of the entries was a short animation of Jay Miner as a Merlin. I phoned the artists, Tony and Laurel Kashinn, and suggested it would be worthwhile to make the anim longer. To make a long story short, the conversations have been so stimulating to all of us that the final anim on the tape is now version 7.3. I think the quality of it should make even Jay Miner proud to be recognized and honored in this way.

Talking to so many people who



An artist-introduction from the video.

will be on the tape, I can say that they are very interesting, emotionally involved and supportive. It is truly a pleasure to work together with them, and reinforced my conviction that there is a very strong Amiga community out there. So I feel that just simple name credit is not enough at the end of the tapes. Rather than just a string of short credits, the Amiga Creations tapes will introduce the people behind the work. Everyone is introduced with their portraits, name, and work.

Ultra Quality Control

I'm sure the buyer will see very close to the same quality image that I get on my high-end equipment. The Amiga is fully integrated into my broadcast-quality transfer system. And also I am able to use Super VHS in my work. In the past I have opposed Super VHS as a professional format, but since JVC came out with their 11 series, I'm all for it. What JVC has done to the chroma processing is outstanding — even old VHS tapes in playback are looking pretty good. To the sincere Amiga user I would like to say: Get the JVC BR-S811U recorder. It has vertical interval time code, like is used in broadcast, so you do not lose a soundtrack in editing, and it is ideal for single frame recording. I use the recorder in VHS as well as in Super VHS on a daily basis to test the images and animations from the AMIGA Plus Art Contest.

Naturally, people have different tape decks and, more important, different monitors or video receivers. In

Continued on Page 69

AMIGA CREATIONS VOLUMES 1 & 2

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SPECIAL DISK FEATURE

3-D ANIMFONT

Flashy, colorful, animated 3-D text brushes from Sys-Jam

3-D AnimFont on this issue's AMIGA Plus Disk is a working demonstration of Sys-Jam's new 3-D animated font packages. Included are all the uppercase letters of an 8-color, 35-frame Anim Brush-compatible typeface. Each letter was rendered by Sys-Jam's Gary Price in low resolution with lighting changes that produce a reflective effect. Some of the letters (B-P) have different palettes, so you get a variety of color sets ready to use with your animated text.

On Disk

In order to save space on this issue's disk, the 3-D AnimFonts have been compressed into a single file called 3D-Fonts.LZH. However, you can automatically decompress these files with a script we provided.

Simply click on the Uncrunch 3DFont icon in the main window of this issue's AMIGA Plus Disk, hold down the SHIFT key and double-click on the disk or drawer icon where you want to store the 3-D AnimFonts. Or if you have only *one* floppy disk drive, just double-click on the Uncrunch3DFont icon. The files will then go to your RAMdisk, and the script will ask you to insert a disk to copy them onto. When the files are all uncrunched, the script will also give you a chance to view the fonts, and their various color schemes.

Using 3-D AnimFonts

To use the 3-D AnimFont you will need Deluxe Paint III from Electronic Arts, or other graphic software that accepts AnimBrushes.

Load Deluxe Paint III, selecting SWAP to save memory. Choose low resolution and eight or more colors. Use the ANIM menu, select FRAMES and set the number to 35. In ANIM, choose ANIMBRUSH and select LOAD, choose drive and select the letter you want. (Whoops, weird colors, huh?) To fix the colors, select

CHANGE COLOR/USE BRUSH PALETTE from the PICTURE menu. This will use the color scheme of the most recently loaded AnimBrush.

If you want to try some of the alternate palettes for the fonts, load one of the letters B-P, and use its palette. If you want the default Bronze colors, load the letter A, or one from Q-Z before changing the Palette. If you want to go back to the previous colors, select CHANGE COLORS/RESTORE PALETTE. Now move the Mouse to where you want the letter and press the left mouse button. Select the ANIM/MOVE menu item (make sure frames are set to 35) and click on DRAW. To play your new anim, type the number 4.

Some Tricks

To erase an animated letter, select the background color for the foreground color, press F2 (Color mode), go to the first frame of both ANIM and AnimBrush, and place the Background colored letter over the animated letter. Click the mouse and use



Drop shadows can be created using DPaint's color mode with these 3-D font AnimBrushes.

MOVE to erase all the successive frames. This is also a neat way of generating animated drop shadows. Just put the black Shadow version down, switch back to matte mode (F1), and put the regular AnimBrush down a bit above and to the left.

You can paint your brush frames on successive ANIM frames by holding the LEFT AMIGA key down while holding the left mouse button down. When you do this, you should see the frames of your animation stepping through, as the AnimBrush frames are painted on each. You can move the brush while AnimPainting as well.

An easy way to resize these letters is to use DPaint's EFFECTS/ PERSPECTIVE/DO menu item to set a size for

one letter, then automatically rescale subsequent letters you load. Select PERSPECTIVE DO, and you should see a container grid for your brush. Now hold the CONTROL key down and move the mouse up and down to resize the container. When you have a size you like, release CONTROL and stamp the brush in position. You can now use MOVE or AnimPaint with it. If you load another letter, it will come in at its original size, but if you then select PERSPECTIVE DO, it will be resized automatically, ready for use. ■

More 3-D AnimFonts

If you like the sample 3-D AnimFont on this issue's AMIGA Plus Disk, you can purchase either of Sys-Jam's complete two-disk sets, ModFont and BlockFont, featuring additional fonts in even more spectacular spinning and rolling effects. Send \$39.95 for each set to: Sys-Jam, Suite 315, P.O. Box 3751, Escondido, CA 92033. (619) 432-9947; BBS, (619) 432-9057.

CONTEST VIDEO from Page 67

order to overcome this, the tapes have at the very beginning a monitor set-up screen. This will enable viewers to adjust their individual gear for the best possible image quality.

The master tape is done in high-end component video in order to stay alive through three or four generations of editing. The final duplication is done with the best JVC duplicator money can buy, which has the same quality as their 811 professional editing deck. This and the fact that I duplicate on the most expensive tape, rather than dubstock, yields in the end a copy of the highest quality.

You will see the difference even on a normal consumer deck. In order to accommodate the buyers in their various playback capabilities, I'm offering three different versions — VHS copy on VHS mastertape stock, VHS on Super VHS tape (which gives even better VHS quality), and a full Super VHS version.

All the tape formats will have a hi-



Jay Miner as Merlin, by Tony and Laurel

fi soundtrack. Music is a very important part of the tapes. In contrast to other Amiga tape productions you have seen, I do not use library music. It would not fit the image sequences. Wherever the original soundtrack matches the quality of the image, we will have the original. But over 80% of the work came without sound. Composer Michael Levanios is doing the music score individually to fit the imagery. ■

CONTEST VIDEO ARTISTS

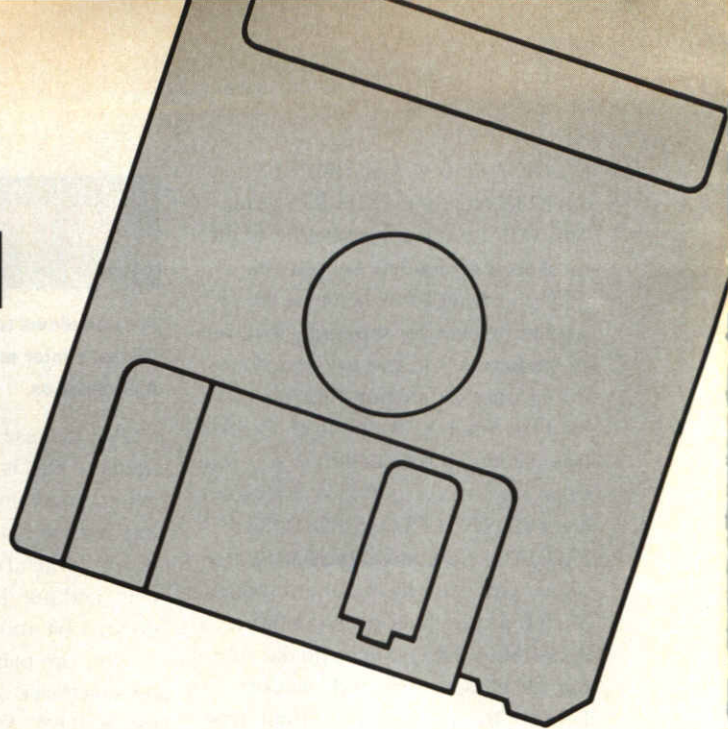
The following list of AMIGA Plus Art Contest winners whose work will be exhibited on the Philadelphia Video Lab double-cassette set may not be 100% complete. Some additional artists will be added if tape space permits. Everybody whose work appears on these tapes gets a free copy of the set.

Robert Anderson	Paul Marciano
Ilene Astrahan	Dennis Martelli
Mark Cashman	Heather Marusek
Howland Clarke	Mike Medwid
David Clemons	Greg Nelson
Murray Davidson	Rick Parks
Kenneth W. Edwards	Allen Pichtel
Alan Henry	Marvin Prather Jr.
W. van Heekeren	Patricia Rizzo
Julia Hoerner	James Rudy
Michael Holloway	Mark Smith
John Jordan	William Thorne
Anthony Kashinn	Glenn Ur
Laurel Kashinn	Williams & Sherman
Frank Lantz	Jeff Zinuticz
John Lullie	

New Amiga Users' Help

Hands-on disk basics: Format, Select, Rename

BY ARNIE CACHELIN,
AMIGA PLUS TECHNICAL EDITOR



No matter what you use your Amiga for, you will certainly need to work with floppy disks. Every Amiga has at least one disk drive that accepts standard 3.5-inch double-sided, double-density "floppy" disks.

These disks are called "floppies" because inside their rigid plastic cases are the actual flexible disks. Like cassette tapes, the magnetic-coated disk surfaces can be changed by tiny magnets in your disk drives. This allows the disk to save and recall information. It also means that the information can be damaged if your disks get too close to household magnets — such as the magnets stuck to your refrigerator.

When you buy a box of disks, they contain *no* information yet. If you insert one of these blank disks into your Amiga disk drive, you will see a disk icon saying DF0:BAD. The Amiga thinks this brand-new disk is bad because it has no recognizable "format," so you must write a format onto the disk by "initializing" or "formatting" it. Note that when you initialize a disk that is already Amiga-formatted you

erase whatever information it previously contained!

To FORMAT a floppy disk with your Amiga, click the left mouse button once on the disk's icon and select Initialize from the Workbench Disk menu.

(To select Workbench menu items: Hold down the right mouse button. Slide the mouse pointer across the top of the screen, and then down to the menu item you want. Release the mouse button when your chosen item is highlighted.)

After you have selected Initialize, a small requester window will appear asking you to Insert New Disk or Cancel. This is very important, because it gives you a chance to save your disk if you have accidentally selected Initialize while a disk with important information was in the drive.

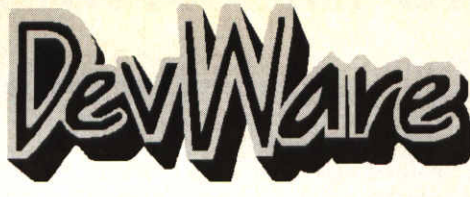
In fact, Initialize gives you a second warning immediately, just to be sure. (Another way to make sure you don't accidentally over-write your disk is to slide *open* the "write-protect tab" at the top-right-front corner.) If you selected Continue in both requesters, it will show the Amiga counting

through the 80 cylinders (circular tracks) on the disk, first formatting and then verifying that the disk had no errors.

Now that the disk has been formatted, you will notice that it is named "Empty." Even an empty disk must have a name on the Workbench. Obviously it can be very confusing both for you and for your Amiga to have a bunch of disks all named Empty (and no longer empty anyway). So you should rename the disk.

RENAME a disk by clicking the left mouse button once on it and then selecting Rename from the Workbench menu.

Now delete the old name with the DELETE key, making sure you don't leave any blank spaces, and type in a new one. Press RETURN and the disk will be renamed. Wait a few seconds after renaming the disk before you remove it, because the Amiga could still be writing the new name to the disk. You can damage your disk if you remove it or turn off the Amiga while the disk drive is accessing the disk and the busy light is on. ■



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Public Domain Library

The Antic Amiga Plus Public Domain Library presents *DevDisks* by DevWare. DevDisks are the public domain library of choice for the serious Amigaphile. Each Disk is chalked full of nothing but the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a FREE volume on your next purchase. We always only use SONY disks!

Featured Disk

WB53:Graphics - The disk contains C-light - The easiest to use raytracing we have seen to date. This one start our life as a full featured commercial product similar to Sculpt3d. Now it has been released to the PD, our gain! Raytracing programs can generate stunning highly reflective surfaces of realist objects. Also, sMovie - a full featured video text filter similar to ProVideo, Broadcast Tiffier. Great video scrolling, wipes, special effects, and more...

New Disks

FD36:Games - Including Euchre - a wonderful card game, HeadGame - a sort of headless (ha) shoot'em up, Simpson - a shoot'em up loosely based on the TV show, Streets&Alleys - a good solitary card game, taxman - an math educational game.

FD37a & b:Tactical Games - Empire (2.2w) This game comes highly recommend. New with a full featured graphic front end. Empire is a rich simulation of international politics, economics and war, which is played over a period of a few of months by 2 or more people. Players can run their countries from the normal Amiga keyboard, or via a modem at 300 to 2400 baud. Counts as two disks.

FD38:Games - Includes TinyBall - This tiny baseball game is very big in play action. CribbageMaster - an incredible cribbage program, Spades - a well done card game, ChineseCheckers - A computer version of this classic, Puz2 - a slide piece puzzle game and construction set.

FD39a & b:Tobias Star Trek - This is a new completely different version of Star Trek than that found on FD12. This one was created by the german author Tobias. The game is in english, the instruction are currently in german (looking for a translation). Excellent!!! Counts as two disks. Requires 512k memory a 500, 2000 or Pal Amiga.

FD40:Arcade - MiddleEast - a timely arcade game of death and destruction set in Iraq, BackToTheFutureII - a very playable demo version of this soon to be released commercial game, City - a missile command clone.

WB43:Business - This disk contains AnalytCalc - probably the most powerful spreadsheet program on the Amiga.

WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads, ...), people, and transportation.

WB50:Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunrise, thrstDemo, night, waves, and woom.

WB54:Printing - This disk contains several routines to help with the chore of printing. Including Gothic - Finally a Banner printer, PrintStudio - a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features. Lila - with ease, print ASCII files to a PostScript printer, and many more.

WB55:Application - XCopyII - a full featured disk copier, make backups of write protected disk with this one. RoadRoute - find the quickest route from one city to another, highway description included, Dairy - a diary program like "Dougy Howard M.D.", Cal - a calendar program. MapGen - a database tailored to maintain records on articles and publications, and more.

WB56:General Utilities - This disk contains FullView, a great graphic display, text viewer, and printer (see Amiga World, Oct. 90, pg. 116), plus many more.

WB57:Animation - This disk has several "Demo" style animations, including: Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.

DD69:Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFRag but greatly improved, Selector - put menus on your workbench screen.

DD70:Game construction/parser tool - ADL (which stands for "Adventure Definition Language") is a programming language and run-time environment designed for the convenient implementation of Adventure-like text games.

Other Great Disks

FD5: Tactical Games - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very hard forming.

FD6: GAMES! - This disk is chocked full of games including: Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: PACMAN - This disk contains several pacman type games including: PacMan87, MazMan and Zonix.

FD9: Moria - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLife - A dungeon adventure game. Considered a must have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranois, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arknoide/break out type game, Trix - a Qix type clone.

FD16: Strategy Games - Includes Diplomacy and Empros, both great conquer and rule mini strategy games in computer to Simcity and Populus. Also includes blackbox, hearts, and others.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72): A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD24:Strategy Games and Others - Includes Dicey, a yathzee type clone, MM a master mind type clone, Flipper an othello type clone, China an great implementation of Shanghai, CircuitWars a challenging game based on electronics, and Etrain a computer based model train set construction set for the enthusiast.

FD26:Arcade Games - Marble slide, truly this is a commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants, a small version of the arcade game of the same name, also SuperBreakout a pong/arknoide type game.

FD29: Shoot'em up's - WWII - your the pilot of a world war II plane flying through enemy territory, you've just been spotted, good luck on you mission, Skiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrinth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.

FD32: Game Cheats and Flight Simulator - Includes an instrument flight simulator for a DC10. Also Cheats and Hints for the following games, Earl Weaver, Falcon, It c.f.i.d., SimCity, SpaceAce, Space Quest, Test Drive hd install, and Extract - a program that gets all of the text from within a game (or other) which helps cheating easier. Also several football teams (team files).

FD33: Arcade Games - Freddy a mario brothers type of game, Gerbils a target practice game, Pipeline a german interpretation of Pipe Dreams, from a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.

FD35 Omega (v.1.3) - A new, dungeon and outdoors adventure game in a similar vain as hack, rouge, and moria. This version is considerably faster and better than all previous versions. Play time several weeks or months.

WB4:Telecommunication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) - Handshake is a Full featured VT52/100/102/220 terminal emulator.

WB6: Fonts #2 - ShowFont(4.0) This program allows you to view fonts. Over 30 large AmigaDOS fonts (some up to 56pts)

WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and much more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A real must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: WordText Processors - This disk contains the best editors Includes,TextPlus (2.2a) full featured word processor Dme(v.1.35) a great programmers editor with strong macro features,TeXEd(v2.8) an enhanced Emacs type editor, and a spell checker.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function. BezSurf2 produces awesome pictures of objects one could turn on a lathe. Can also map if image files onto any surface that it can draw. Now compatible with most 3D packages and VScreen makes a virtual screen anywhere, great for DTP.

WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any enter user global coordinate. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to help with harddisk backups, FileMast - a binary file editor, LabelPrinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it!

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mead (1.2b) a well done new release of this PD cad program, now comes with predrawn common circuit components for insertion into schematics.

WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.

WB38: Plotting and Graphics - Ploxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, fully featured. Tessellator - a program that helps generates fantastic looking, recursive M.C. Escher type pictures.

WB39: Music - Intuitracker is an german offer of an exquisitely well done program that allows you to play Amiga music as if from a CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.

WB40: Music - CD on a disk, 90 minutes of modern music on this well presented collection.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program.

DD47: Pascal - This disk contains everything needed to program in pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.

DD51: Circuit Analysis - Aspic (2.3) A full featured program for electric circuit analysis.

DD52: Scientific - This disk contains several great programs and C source routines for the scientist and science student. Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600k of Lattice C source FFT - ft C source.

DD54: Compression - This disk is loaded with ALL of the best file compression programs and aids for the Amiga. Many of the programs can be used by the user. Includes Arc(2.3), Lharc(1.0), Lhwarpl(1.03), Pkax(1.0), PowerPacker(2.3a) a must have by all, Zip(1.0), Warp(2.04), and Zoo(2.0). Also IFFCrunch an excellent compression for IFF files.

DD55: ARP - On this disk you will find the complete ArpRel3.0 release including the full user docs, the full Developers guide, and Conman (1.4). ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.

DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and visa versa, Icond - a new improved IconX clone, KillAgnus - disables 512k of chip ram. Also several utilities that improve your startup-sequence, plus 25 more programs.

DD62: Basic and Xscheme - Cursor - a full featured Amiga Basic compiler, basic and text - several wonderful routines to help in basic programmers, and Xscheme - an interpreted object oriented programming language.

DD65 C Tutorials - Several well done tutorials on how to program the Amiga. Includes tutorials and working examples on Device drivers, IFF reads and writes, Sound implementation, Arcade game design and implementation, Double Buffering, and others. A must have for Amiga Programmers.

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Easy Smooth-line Drawing

REVIEW BY MARK KOULIAN

As a graphic designer, I rely completely on **Professional Draw 2.0** for jobs like creating corporate logos, headlines, product labels, medical & technical illustrations, schematic diagrams, converting halftones into line art — just to name a few!

Gold Disk's Professional Draw 1.0 was a major breakthrough as introduced in early 1989, taking the Amiga to new horizons in professional color illustration and design. Perhaps an equal breakthrough is this year's Professional Draw 2.0. This upgrade is much faster and packed with exceptional new features. It puts virtually all pre-press production tools at your fingertips.

Probably the most important new feature in Professional Draw 2.0 is its auto-trace utility. By tracing around pixel edges, the software automatically creates structured line art from any bitmap. This is excellent when you need quick line art, although for maximum precision it's sometimes faster to import the bitmap onto your page and trace it manually, instead of editing the auto-tracing.

Other significant new additions to 2.0 include text-wrapping along any curve, and color dithering that puts over 1,000 colors onscreen at one time. Also, you can now blend shapes and colors through any number of steps, creating smooth airbrush-like effects or a transition of one form into another.

Basic Concepts

ProDraw 2.0 comes on one program disk and one fonts/utilities disk. The clearly written manual includes a 30-page tutorial that takes you on a guided tour of all aspects of the program. Hard disk installation is simple — create a directory, double-click on ProDraw's INSTALL-HD icon and everything will be taken care of for you.

Loading Professional Draw 2.0 brings up the work-screen and creates a page to work on. The entire work-screen operates like a drawing board, while the page functions like a piece of paper on top of the drawing board. You can move drawings around, stack them aside on the drawing board, and later bring them back to combine on the page. Professional Draw 2.0 treats drawings (including text shapes) as groups of objects, while any single element in a drawing is an object that can be edited separately. You can clone, blend shapes and colors, wrap around any curve, scale, rotate, mirror, distort, with full support of color.

Tools & Menus

At the right is a tool box with 16 icons divided into three groups. Four

++++1/2

Professional Draw 2.0

ProDraw 2.0 is the ultimate structured drawing (no jagged lines) Amiga software. It's much faster than the original version, and adds powerful new features, including auto-tracing.

\$295

Gold Disk, P.O. Box 789, Streetsville, Mississauga, Ontario, Canada L5M 2C2. (416) 828-0913, U.S. orders (800) 387-8192. Minimum 1Mb memory required.

With Speed, Power, and Auto-tracing.

icons manipulate the page and the objects (graphic elements), six icons are the main drawing tools, and another group of six are editing tools. The menu bar at the top, a specification and command center, has seven pull-down menus.

Professional Draw 2.0's Page Menu lets you specify page sizes up to 22 X 22 inches, with margins, crop marks, registration marks, bleed, and positioning for output. You can save and retrieve page templates, which is useful for projects requiring identical multi-page layouts.

From the Project/Import Bitmap Menu, you can import, scale and crop any bitmap graphic, either to incorporate it into your illustration or to use it as a template for manually tracing it with the drawing tools. Color bitmaps will be displayed in gray shades, but output is in full color. You can import EPSF encapsulated PostScript clips as well, but unfortunately you would not be able to see any image, a grey area will be displayed on screen indicating the clip.

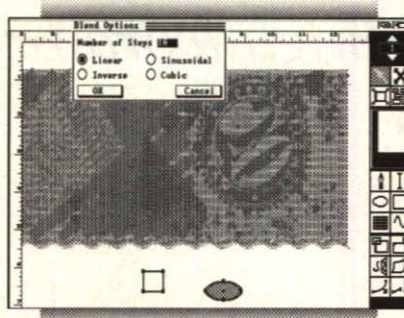
Limitless Output

Hard-copy output is virtually limitless. From the Project/Output Menu you can print to a dot-matrix printer, or to the most sophisticated PostScript printer, or a plotter. Professional Draw will output to the highest resolution of any printer. Printing to dot-matrix, you have the options of scaling the page, controlling density and dithering, outputting in black & white, gray scale or color.

Printing to PostScript, you can either output your file to an on-line printer, or to disk for later printing, set your output to be negative, emulsion up, emulsion down (in case of film), control the screen density and angle. You have the option to print in black & white, as a color separation, or print to a color PostScript printer. Within the Print to PostScript window you can also output your file as an EPSF, and export to other publishing programs.

Select any of the drawing tools from the tool box and create your

drawing. There's the Pen tool, the Ellipse, the Rectangle, the Grid, or Free-hand tools. Rotate the whole image or any single object at a precision of 1/10 degrees, either numerically or using the Rotation tool. Scale (change



Professional Draw 2.0 at work on the illustration for this article.

size) to any percentage and aspect ratio. Create mirror images, or magnify any area up to eight times larger. Distort and modify the shape of your drawing just like a rubber plate, stretching it in X or Y Perspective, or shearing it.

From the Object Menu, you can clone any object or a group of objects, specifying the offset, scale and rotation angle of the clone. Create "compound objects" of two overlapping transparent objects. Align and center a group of objects relative to each other.

Text Graphics

Text in Professional Draw is treated like any other graphic object. Letters are built up of smaller structures. For example, the letter "O" is a compound object built from two circles, with a see-through transparency within the inner circle. Of course, Professional Draw is not a typesetting program, text is available mainly to create a few words in fancy treatments such as headlines and logos. But you can use all the Compugraphic fonts available for Gold Disk's Professional Page desktop publisher.

A text requester enables you to slant at any angle, and to kern (adjust space between letters), at any point size. From the Special Menu, you can automatically align and rotate text around circles or curves.

Another powerful feature is the ability to create libraries of clips — anything from text, or simple drawings, to complex illustrations. From the Clip Menu, name your graphic and save it as a clip. Load the clip any time and drop it on your page or import it into Professional Page to use in your layout as a graphic application.

From the Attributes Menu, select your line color, fill color, line weight, line pattern, and line joins. Use colors from the color list or create new colors, and save color libraries for future applications. Create colors by referring to a process color simulator, and entering precise screen percentage values in the YMCK requesters or match to imported bitmap colors, by moving the RGB sliders. When outputting your document as a four-color separation, Professional Draw will generate a YMCK separation, according to the pre-defined values in precise registration. Or you can define a color in your document as Mechanical, and it will be separated into a fifth non-process color. This is useful when applying extra PMS colors that can't be broken down into YMCK, such as metallic colors. ■

Mark Koulian operates Koulian Graphic Studios in Huntington, New York. His ProDraw how-to feature with disk clip-art appeared in the April/May 1990 AMIGA Plus.

STRUCTURED DRAWING

Much like conventional pen and ink line-art, structured drawing is the composition of objects — lines or geometric forms — to make an image. With computerized structured drawing, you can edit each object separately. Since the image is a description of lines and forms for computer-printer communication, your hard-copy output is always the best available from any output device. In contrast to a structured graphic, a bit-mapped graphic is a mosaic of square pixel dots forming an image. Even with output from a high-resolution printer, bit-map images will always show "jaggies" (jagged outlines).

ProWrite 3.1

New champion Amiga word processor??

REVIEW BY PAMELA ROTHMAN

++++

ProWrite 3.1

The most powerful version of this popular word processor is packed with hot new features like a thesaurus with 300,000 cross-references, fast spell checking as you type, multiple columns in two styles, and macros with an ARexx port.

\$175

New Horizons Software, 206 Wild Basin Road, Suite 109. Austin, TX 78746. (512) 328-6650. Minimum 1Mb memory required, not copy-protected. Upgrades: From 1.0, \$80; 2.0, \$65; 2.5, \$55; 3.0, \$10.

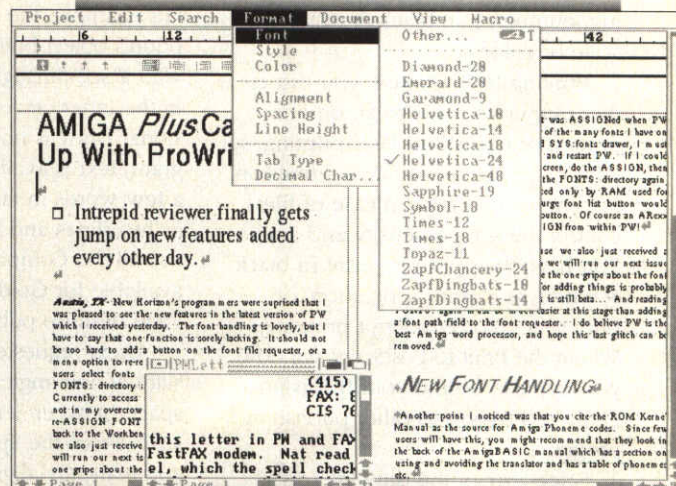
ProWrite is an excellent word processor whose virtues have been copied, but never duplicated, in lesser word processors. It allows you to combine color graphics and multiple colored fonts in the same document, with a complete WYSIWYG display. Many of the new features in 3.1 have been requested

by loyal users. Most eagerly awaited, and worth the wait, is the new updated file requester. It is as simple to use as ever, but it will now let you type file names and/or paths directly into a text box, move forward or backward between disks, and select a path from a list of disks and system assignments.

Always quick and responsive, ProWrite 3.1 is even faster than previous versions. I can't imagine anyone out-typing it. It inserts text just as quickly at the beginning of a 266K

document as it does at the beginning of a 25K document. Your documents can get as big as your system memory allows. Searching, saving, scrolling, and formatting are also fast. You can get to the bottom of a long document instantly. This is a sign of a well-written and efficient program. Such a program will multi-task very well because it is not tying up the computer's main microprocessor with busywork. Keep this in mind the next time you find yourself thinking, "I don't type

ProWrite 3.1 lets you conveniently customize your font menu with all your favorite faces and still load new fonts from disk at any time for full font flexibility.



fast, so it doesn't matter to me how fast it is."

One of ProWrite's greatest strengths lies in its superior editing features. Mouse usage implementation is truly versatile. You can point, click, and drag the pointer to highlight text, click twice to highlight a word, or thrice to highlight a sentence. If you prefer to use the keyboard, the cursor keys can be combined with the SHIFT, ALT, and CONTROL keys to move the cursor about and to highlight the text. If the text you want to delete is highlighted, the new text can be typed over it, without requiring you to cut it away first. You can also paste over highlighted text, removing and replacing it in one operation.

Onscreen text can be boldfaced, italicized, underlined, or displayed as subscripts and superscripts. If your printer supports these type-styles, they will carry over to the printed page. All the standard word process-

ing features such as cut, copy, paste, and search with replace are implemented to operate without getting in your way or bothering you with needless requesters.

New Undo

There is a new Undo function, which has become one of my favorite enhancements. The things you can Undo comprise a long list, such as all editing and formatting commands, alignment changes, moving a picture, ruler changes, and many more. You can even change your mind and Undo the Undo.

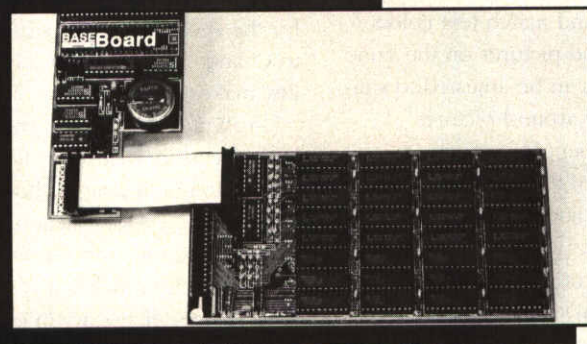
Your working environment is now completely customizable and can be saved to a ProWrite Prefs file. The default file, ProWrite Prefs, will be automatically loaded when the program starts. Other Preferences settings can be loaded by double-clicking on an icon representing one of your alternate sets of preferences or by using a

command line argument. Almost anything that can be changed will be saved in ProWrite Prefs, including your default margins, fonts and styles, printer settings, screen colors, whether to type in typeover or insert mode, the style of date and time insertion, the page numbering style, ruler type, layout, and many more.

Auto-Speak

The new adjustable Speak command, which accepts either text or phonics input, can have your favorite voice settings saved with the document. You can even choose your favorite fonts, up to 18 styles and sizes, and place them in a font submenu for easy accessibility. When you use the main font menu it displays a sample of the fonts to show what they look like. You can select the font you want and use it right away or click on the "List In Font Menu" box to add it to your font submenu. The font sub-

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menu is saved with ProWrite Prefs.

ProWrite 3.1 has more keyboard equivalents than previous versions, utilizing every letter of the alphabet and more, making forced visits to the mouse very rare. Whenever a requester comes up, the most likely choice is always highlighted so the RETURN key will select it. Most Cancel functions can be chosen with the ESCape key.

You can work with up to 10 different windows open at once, with the ability to cut and paste between them. Formatting can be controlled independently, from paragraph to paragraph, or inherited from the previous paragraph. There are separate copy and paste commands which can be used to copy the margins, tab stops, spacing and justification of one paragraph to another. If you tab to a centered tab stop and start typing, everything you type is centered under that tab. The format of the paragraph which contains the cursor is represented by a ruler that appears at the top of each window. A paragraph instantly reflects any changes made to the ruler.

Ruler Jewels

The ruler can be left on or off in any given window as needed, displaying in inches, centimeters, pitch, pica, or points. Most ruler measurements are shown in physical distances from the edge of the actual paper, so setting one-inch margins is easily done without guesswork. The exception is the pitch display, which measures from the first printable character. The whole document can be set up to accurately display the printed page, reflecting spacing and margins, giving you true WYSIWYG word processing. This is a boon to anyone who needs complete control of their printed output. ProWrite provides many ways to get the printed output you want, including Print with Merge for form letters, smoothing, and print reduction for high quality output on a dot-matrix printer. You can also print back-to-front, odd-even, or collated.

You can now adjust the page size

to custom measurements, allowing you to fully utilize the capabilities of your printer. There is also an option to remove the gaps between pages when printing. No gap printing is needed when printing mailing labels. ProWrite will print either draft or NLQ text and pictures simultaneously, switching modes on the printer automatically as needed. When printing in Standard mode, you now have the ability to choose the print density in dots per inch from the Page Setup requester.

You can resize any pictures which

ProWrite 3.1 is easy to use, yet powerful enough for the professional.

appear in the document, and adjust any of the eight available colors, using simple sliders, to produce the best image on your printer. Fonts can be displayed in any of the eight available colors except the background color. You can mix and match text colors, styles, sizes and pictures on the same line. Margins can be adjusted to simulate text flow around pictures.

The Document Info menu option already showed the number of characters, words, lines, sentences, paragraphs, pictures and pages contained in the document within the current window. What's new is the number of sentences, as well as the average word length (in characters) and average sentence length (in words.) This kind of information is used by programs that gauge the readability and complexity of your document. ProWrite 3.1 shows a readability grade level right in the Document Info window. This review is written on an eleventh grade level, to give an example.

Continuous Spell-Check

Spell checking with the new 100,000-word dictionary is much faster, and a new feature lets you spell check continuously as you type. Even the continuous spell checking option doesn't slow down the program's ability to keep up with my typing. If you misspell a word while using continuous spell checking, the screen flashes and a beep sounds. Another new function is the ability to make corrections to a misspelled word, when using the regular spell checking option, instead of retyping the correct word from scratch. If you don't know the correct spelling you can ask for suggestions, which will replace the misspelled word with a single mouse-click.

You can either look up the spelling of a single word or spell-check a range of text. The program knows which paragraphs have already passed muster and skips them for greater spell checking speed. The requester used during spell checking is well thought-out, unlike some I've seen that cover the entire screen. How can you check for context without seeing your text? The misspelled word is both highlighted in the document and shown in the text box of the requester. When you change the word in the text box, the default box for the spell checker moves from Skip to Change, so a press of the RETURN key makes the change.

ProWrite also lets you build an unlimited custom dictionary for words which do not appear in the main dictionary. The custom dictionary is an editable text file, and ProWrite's built-in Sort function makes it easy to keep your custom dictionary in order. If you accidentally let a misspelled word get into your user dictionary, you can remove it very easily. The Sort function can be used to sort any highlighted text, in alpha or reverse alpha order.

Time Stamping

Another welcome new feature is the ability to insert the current date and time anywhere in the document,

either as fixed text or as an automatically updating marker that changes to reflect the current date and time whenever you open the document again. There are six different date formats to choose from, and the time can be shown in either a 12-hour or a 24-hour display.

When loading or saving text files with ProWrite, you are now given a choice between formatting the text with line-feeds at the end of every line or just at the ends of paragraphs. This feature increases ProWrite's compatibility with other word processors and text editors. Although ProWrite will produce standard ASCII text files, files saved as text lose all font and color information, while keeping tabs and spacing between paragraphs.

If any changes have been made in your current document and you try to close the program down, ProWrite will ask you if you want to save changes before exiting. If the normal save requester cannot be displayed due to a low memory situation, ProWrite informs you that memory is low and automatically saves the current document to DF0: under the name ProWrite.Recover. This is a great safety feature, but it would be even better for hard disk user if ProWrite let you choose the destination of the ProWrite.Recover file.

The ProWrite manual is easy to use, with sections for quick reference and a good index. You can start writing without the manual, but I recommend browsing through it to find all the editing shortcuts and special features this program offers. For instance, there's a function that hooks together columnar text with graphics for video storyboarding.

Also included is a System Mover utility, for moving system files such as fonts and printer drivers from one disk to another, a RAMdisk Start Utility, and a file conversion program that converts other word processor files while retaining much of the original document's formatting information.

I have been using ProWrite for the past three years and I can attest to its

reliability. I have never lost a file or had a system crash or freeze-up while using ProWrite. This gives New Horizons the confidence to offer a unique Bug Free Guarantee. ProWrite is guaranteed to perform as documented in the User's Manual or they will fix it free within 30 days. I have always found New Horizons to be a responsive and friendly company.

This program offers a broad range of features combined with speed and

ease of use. ProWrite 3.1 will fill the word processing needs of most people very nicely. It is as intuitively easy to use, yet powerful enough for the professional. I highly recommend this product. ■

Novelist Pamela Rothman was featured in the 1989 Amiga print ads appearing in Newsweek, Time and Life, as well as in the supporting dealer demo video.

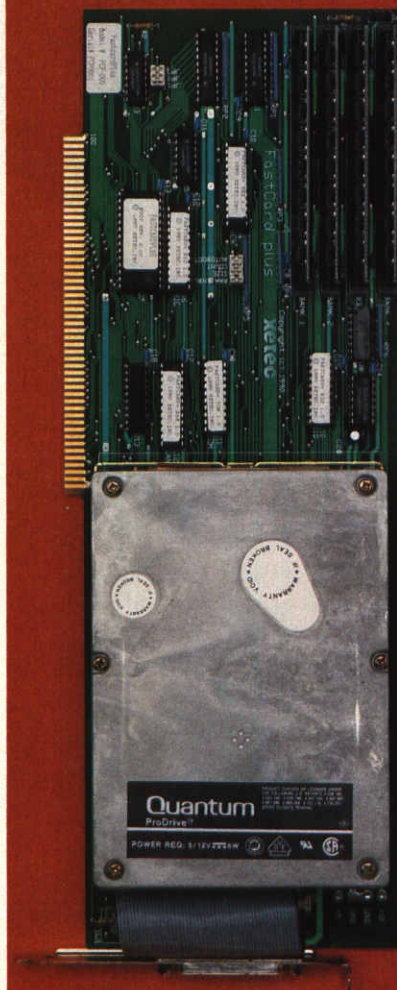
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Xetec FastCard Plus

Add a SCSI hard drive and up to 8Mb of fast RAM to your Amiga 2000

REVIEW BY MORTON KEVELSON

++++

FastCard Plus

Combining a high-performance SCSI interface with an 8Mb RAM board on a single plug-in-card, FastCard Plus conserves dollars in your pocket and slots in the Amiga 2000.

\$175

Xetec, 2804 Arnold Road, Salina, KS 67401. (913) 827-0685.

Xetec (pronounced zeetek) began as an active player in the Commodore 64 market years ago. **FastCard Plus** is Xetec's latest offering for the Amiga 2000. The unit I looked at was fitted with a Quantum 40 megabyte hard disk and 4Mb of fast RAM. By combining a large RAM cache with 33 sectors per cylinder, Quantum hard drives tend to be very fast. As can be seen from the following test results, the combination of a Quantum 40S with the FastCard Plus is no exception.

Copy DH0:Large to RAM:

159 kilobytes per second

Copy RAM:Large to DH1:

212 kilobytes per second

Copy DH0:Dir to RAM:

21 kilobytes per second

Copy RAM:Dir to DH1:

16 kilobytes per second

For these tests, Large is a single 3Mb file and Dir is a directory consisting

of a total of 169 kilobytes in 62 files.

Timing was done with a stopwatch.

Following are the Diskperf test results:

Buffer Kilobytes	Read (K/second)	Write (K/second)
512	63	28
4096	160	142
8192	252	163
32768	361	231
131072	431	294
524288	456	314

File Creates/Deletes:

15/28 per second

Dir Scan

98 entries per sec.

116 Seek/Read per sec.

ALF Speedtest:

Buffer Kilobytes

16 440K per second

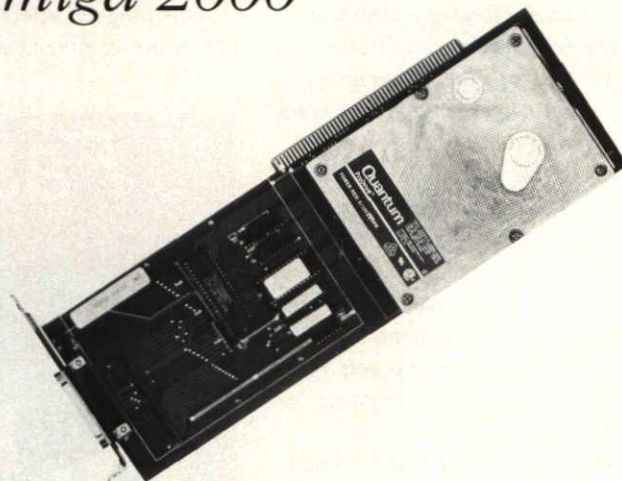
128 624K per second

Setting Up

Since the FastCard Plus came pre-assembled, installation consisted of plugging it into the Amiga 2000,

hooking up a power connector to the hard drive and plugging in the connector from the computer's front panel LED to its mate on the FastCard. If you are providing your own hard drive then you have the option of either mounting it on the FastCard or installing it in one of the Amiga's drive bays. The FastCard has a standard 50-pin SCSI header for connecting internally mounted drives, and a 25-pin SCSI connector on its rear mounting bracket for hooking up external SCSI drives. An onboard jumper lets you configure the system to boot from floppy with AmigaDOS 1.2 or to Autoboot from the hard drive if you have installed the AmigaDOS 1.3 ROMs in your system. Another set of jumpers lets you choose the SCSI device address for the system.

RAM can be added to the FastCard Plus by installing pairs of SIMMs. The four onboard SIMM sockets accept either one megabyte or four megabyte SIMMs. The one megabyte SIMMs let you add either two megabytes or four megabytes of RAM. A pair of four



megabyte SIMMS provide the eight megabyte RAM maximum that the basic Amiga 2000 can accept. Since the RAM card portion appears to the system as a single plug-in card, there is no way to configure six megabytes of RAM on the FastCard Plus.

As shipped from the factory, the Quantum drive was pre-formatted with all boot software installed. FastCard Plus presently autoboots from a small, old file system. Partition automatically transfers control to a fast file system. Xetec is still expanding their driver software with plans to add support for removeable media drives and optical media drives. Autobooting directly from a fast file system partition requires that a part of the driver code be placed in ROM (read only memory) located on the Fast Card Plus. This would make user upgrades more expensive.

FastCard Utilities

For those of you who are adding your own hard drive, or reformatting

and creating new partitions on your present hard drive, Xetec has provided a pair of partition utilities to simplify the task. The simple version of the partition utility requires that you enter little more than the partition's name and the partition's size as a percentage of the total hard drive capacity. The program takes care of all the rest, and I found it to be easy and virtually foolproof.

If you are the adventurous sort, or if you like to feel that you need to have more control of your system, then you can use the complex partition utility. In this case you will be able to enter esoteric data such as cylinder ranges, number of surfaces, interleave, device handler and so forth. Whichever partition utility you elect to use, keep in mind that the FastCard Plus does not require any mountlist entries in the devs directory. The partition data is stored on a set of hard blocks on the drive itself.

When you are finished partitioning and formatting, the MakeAutoBoot

utility makes it easy to place the proper files on the hard drive to let itself start.

In view of the large capacity of even the smallest hard drives, data security becomes an important issue. The X-chive (pronounced zeekive) program provided with FastCard automates backup of the hard disk information to floppy disks. The data is stored in standard AmigaDOS format. Large files are automatically broken up across two or more floppies and the archive bit of backed up files can be automatically set. Although X-chive does not have all of the features found in the more advanced standalone backup utilities, it is more than adequate for its intended task.

FastCard Plus is a high performance combination RAM expansion and hard disk card. Its supporting software is complete, effective and easy to use. ■

Mort Kevelson is an engineer in New York City and a highly active Amiga hardware reviewer.

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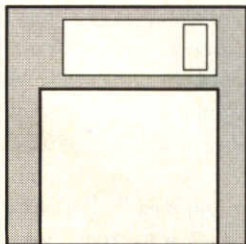
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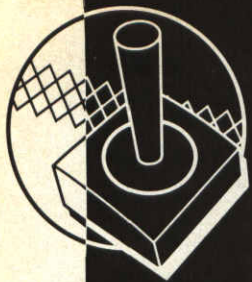
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GAME REVIEW COLUMN BY GUY WRIGHT

QUICK SHOTS

Flood, Pirates, Dragon's Lair II, NY Warriors, The Plague, Manhunter II



The Plague

++++

When some genetic experiments go wrong and mutated beings go out of control, the experimental breeding grounds must be purged at all costs. Your mission in **The Plague** is simple — destroy everything that moves. You are sent in with the basic blaster rifle but can pick up five other kinds of weapons along the way. The blaster rifle fires in either quick bursts or, if you hold down the fire button, it builds up power for one big blast. The graphics and sound in *Plague* are top quality and the game play is fast

and smooth. There are four levels, each one finishing with a mega-creature, stronger than the dozens of species you will already have encountered.

Plague is a simple zap-fest of destruction. There are hundreds of creatures flying, crawling, jumping, squirming, falling, and swarming at you at all times. There are also places where you must climb ropes, jump from rock to rock over pools of bubbling lava, hop over poisoned objects, and generally keep moving at all times. There are definite patterns of actions you must learn to get past each problem and even the hard-core

Plague

arcade freaks will spend a good deal of time solving each level. *Plague* is a good solid shoot-em-up.

Manhunter II: San Francisco

+++1/2

When aliens invaded Earth, mankind lost the battle, and in the dark future of **Manhunter II: San Francisco**, life has changed dramatically. Humans are not allowed to speak or even look at each other. Surgically implanted tracking devices monitor everyone's movements (above ground, that is). While humans are regarded as something less than cattle, the aliens found that they could not survive in Earth's oxygen-rich atmosphere, so complete elimination of humans was impractical. The aliens also had to assign some humans the task of tracking down subversive elements. These chosen few are the manhunters.

You start on a fast chase out of New York in hot pursuit of a renegade human. He flies his stolen ship into the ruined city of San Francisco. Just as you are about to catch him your ship hits a building and crashes to the street, crushing another manhunter. Your only option is to pick up the trail (and identity) of the killed manhunter. You can transport yourself around the city and you have a MAD (Manhunter Assignment Device)

which can help you to some extent. By tracking the movements of characters, following them to various locations, and some plain old sleuthing you must identify and capture your foe. If he really is your foe.

Manhunter II is a 3-D adventure game where you use the mouse to move around, inspect items, gather clues, and use the MAD. You pick locations on a map screen and transport to those locations. As you explore more of the city you can transport to more locations. Each location is displayed graphically and by clicking on items you can pick up, look at, and fight people and things.

The graphics, animation, and sounds are only fair by Amiga standards, but the storyline makes up for most of that. There are a few arcade sequences, but they are nothing to write home about, and don't seem to really fit the overall flow of the game. In the beginning the vague nature of the mission and the kinds of actions

you perform are a bit puzzling, but as you learn your way around you become more and more involved. This sense of involvement is the best thing about Manhunter, making it easy to lose yourself in the plot. Unfortunately, the graphics and arcade sequences make this just less than a very good game.

Flood

++++

Deep in a maze of secret underground caverns, Quiffy the green Blobbie has found life pretty mundane, wandering about, climbing the walls and ceilings, eating the trash left behind by some long-departed civilization, and trying to stay out of the way of the many strange and slightly silly creatures who share the caverns. Recently, however, the mysterious water faucets scattered about have somehow turned themselves on, slowly filling the caverns. Quiffy decides to



Manhunter II: San Francisco

pack up and head for dryer climates, but in order to get out of the soggy caverns he must pass through 36 "normal" levels and a further six seemingly designed to thwart escape. Along the way Quiffy feels obligated to pick up all the trash before continuing to the next level.

From the Bullfrog creative team that hit big with Populous, **Flood** is basically a jumping, climbing, maze game where each level is a puzzle.

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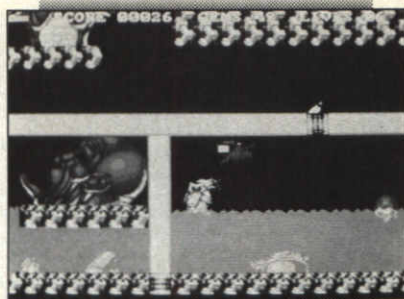
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Flood

You must find all the pieces of trash (which can look like almost anything) and make it to the teleporter before the water rises too high, one of the 11 creatures who prowl the caverns eats you, or you blow yourself up. There are all sorts of objects that can both help and hurt Quiffy along the way, like cocktails to make him invincible for a short time, bombs, and balloons to ride on.

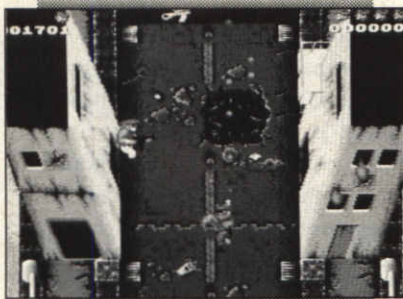
The graphics and sound effects are very good and the puzzles are intriguing. There are more than enough elements in the game to keep you going for quite a while and the joystick action is fast and easy to learn. Flood is more of a thinking game than a fast-reaction arcade challenge and that makes it quite enjoyable. The creatures are "cuddly" and the early levels could be played by children of almost any age. While there are many ways for Quiffy to get killed the game has a very light and fun feel to it.

NY Warriors

++++1/2

Fifteen years from now, what is left of civilization is not pretty. Gangs of punks have taken over the streets, and as if that weren't enough, terrorists have planted a nuclear bomb in the World Trade Center, planning to blackmail what is left of New York City in **NY Warriors**.

As a self-appointed vigilante with a flair for weapons, you set out to reach the World Trade Center at the other end of the city, but it isn't going to be a casual stroll through the park. You



NY Warriors

must pass through some of the toughest neighborhoods imaginable, filled with Sluggers, Sammies, Ramboids, Assassins, Jet Packers and more. It isn't going to be easy, but life on the streets of New York never was.

NY Warriors is 95% blast-everything-that-moves and 5% maze navigation. You start out with five lives and a rifle. There are four difficulty levels which also determine the number of times that you can continue after you have used up your original five lives (easy level = 1 continuation, normal = 2 continuations, etc.). There are eight different gangs that you will have to fight, as well as a host of other lethal obstacles. There are six different weapons that you can pick up along the way to help blast through the enemy. When you defeat each gang you get a chance to rest while a map displays where you have been and what you must do to pass through the next level.

The graphics and sound in NY Warriors are exceptional. The game is as close to the original arcade version as you will find anywhere. You are shown an overhead view of your character and the city streets and scenes scroll smoothly as you wind your way toward your goal. The action is non-stop mayhem — to stand still is to die. You must be hyper-fast on the trigger and be ready to dodge like crazy. The game play and joystick response is very fast and sure, without a lot of subtleties. A rapid-fire joystick can be a plus at times, but you can deplete a weapon's ammunition. About the only strategy is

knowing when to hold back your firepower and when to go berserk.

There are times at the ends of levels when the screen is nearly filled with flying shrapnel, bullets, flames, explosions, and debris. If you like mindless destruction in non-stop waves of death then you should love NY Warriors.

Dragon's Lair II: Escape from Singe's Castle

++++1/2

To determine who would wed his daughter Daphne, the king held a marvelous contest and invited the bravest and strongest knights to attend. The air was filled with the sounds of lances crashing, horses thundering, and crowds cheering. Finally, the last contest was over and Dirk the Daring was declared the winner. But just as Dirk reached out to take Daphne's hand, she was snatched into the air and carried off by Singe, the pet dragon of the evil wizard of Nor.

You play Dirk the Daring in this sequel to **Dragon's Lair** (originally a Don Bluth creation for a laser disk arcade game). Rescuing Daphne takes every bit of skill, talent, brains, quick reactions, and luck that you can muster. There are dozens of rooms and obstacles to overcome, and a randomizing feature insures you won't be playing the same game twice.

Game play is essentially the same as in the original Dragon's Lair. As you plunge into each new scene you must decide which actions to perform and when. Most actions require only



Dragon's Lair II: Escape from Singe's Castle

a single joystick move, but timing is critical. If you make the right move at just the right moment, Dirk makes it through the level. If not, Dirk dies a terrible death.

Just about all the irritating problems found in the first Dragon's Lair game have been corrected in this sequel, making Singe's Castle much more enjoyable. You can now adjust the difficulty and save games after each level. Disk access has been improved, you can install the game on a hard disk, and you can even link the game to the original Dragon's Lair program. The Helper option assists you in making moves, though the closer you get to Singe's lair the less effective the help becomes.

The real stars of the game, however, are the remarkable graphics and animation. Each sequence is as clear and well drawn as any of Don Bluth's full-length animated films. Even though they are drawn in a Disney-like cartoon fashion, they are impressive. Singe's Castle has to be one of the best graphics action games ever created on the Amiga.

Pirates!

++++1/2

In the 17th century the Caribbean islands were constantly changing hands. With the French, British, Spanish, and others all competing for a foothold in the New World, the seas were not safe for anyone — and somewhere between the islands roamed the merciless pirates. It was a ruthless and dangerous time where a brave buccaneer could build a good crew, raise a fortune, and, if he played his cards right, even marry and settle down with a land grant somewhere. If it meant carrying out a mission for an island governor one day and then sacking his cities the next, so be it.

Pirates! is a role-playing graphic strategy game with a few arcade elements for spice. You start as an apprentice captain and with a bit of skill

Pirates!



and swordsmanship you will soon be a captain. While the ultimate goal is to retire with as much money as you can plunder, your first missions will be just trying to stay alive.

There are numerous ports scattered about the Caribbean Islands but not all of them will welcome you with open arms. You will need to sharpen your sword-fighting skills and learn how to navigate your ship(s) through the sometimes tricky waters or maneuver skilfully during naval battles. You will have to trade for supplies, keep your men happy, and most of all stay alive. You can either go free-booting on your own or try to duplicate some of the historical escapades of the real pirates.

The game has very good graphics and a few sound effects. (The pirate music can be turned off if you like.) The mouse interface is simple to use and the few arcade-style battle sequences are not too difficult to master. As you slowly build your forces, the politics of the times begin to affect your decisions and you get a good sense of what it must have been like. The game is a good blend of graphics, simulation, and role-playing that should keep you going for many an evening. Retire wealthy or end up swinging from the gallows, it's all up to you. Yo ho!

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Vista

Real-life landscapes for animation

REVIEW BY CAROLYN CUSHMAN,
AMIGA PLUS ASSOCIATE EDITOR

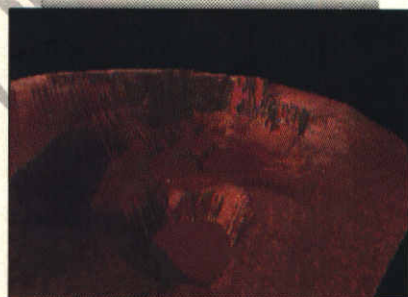
Vista will let you generate billions of fractal landscapes, or take a tour through a 3-D Mandelbrot or Julia set. But far more satisfying are the landscapes generated from United States Geologic Survey (USGS) Digital Elevation Mapping (DEM) data, which creates landscape models accurate to within a few meters. The basic Vista package comes with landscape files for El Capitan and Half Dome in Yosemite Valley, Crater Lake, Mount

St. Helens (before and after) and the caldera of Mons Olympus on Mars. All you need to do is load the data and then click on Render to visit these famous locations.

The fractal landscape generator uses a random seed to create islands of various heights dotting a bright blue sea. These amazingly realistic islands could certainly be used as backgrounds for 3-D art, or to help design terrain for adventure games, but over-

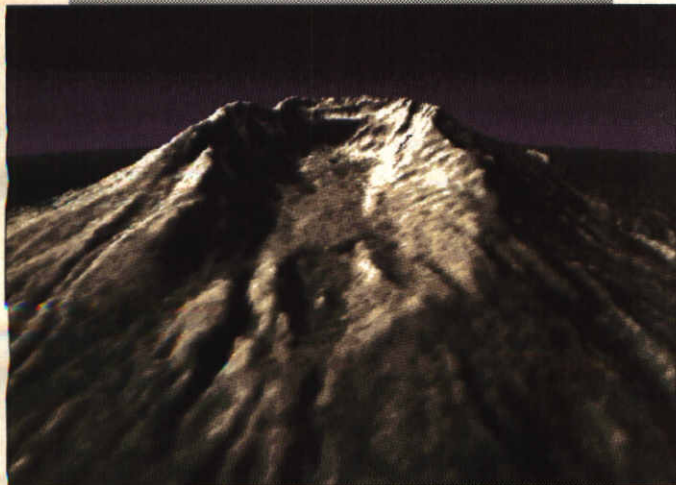


Overhead shot of Mt. St. Helens



The crater of Mons Olympus on Mars

all they're too similar to each other to be particularly interesting. On the other hand, the two DEM landscapes generated from the Mandelbrot set



Evening scenes can be created by adjusting Vista's color and contrast controls. This twilight shot of Mt. St. Helens was rendered with a beta version of Vista 2.0, with Gouraud shading.

+++1/2

Vista

More than a fractal landscape generator, Vista also recreates real landscapes using U.S. Geological Survey data. Simple script facilities make it easy to animate a trip to the crater of Mt. St. Helens, or explore the valleys of Yosemite park.

\$99.95

Virtual Reality Laboratories, 2341 Ganador Court, San Luis Obispo, CA 93401. (805) 545-8515. Minimum 1Mb memory required, not copy-protected.

and the Julia set are distinctly different, somewhat confusing, and impressively weird. Unfortunately, in the Vista format they lack the infinitely repeating detail obtained from dedicated fractal-generating programs.

Whatever the landscape, plenty of gadgets make it easy to adjust the lighting or palette, change the snow and water levels, or move the viewpoint. An overhead view acts as a map on which the camera and target are placed with simple point-and-click mouse movements. Users can also type in x, y, and z-coordinates for more accurate placement — or use a special radius indicator that makes it easy to move the camera smoothly towards a target for animations.

Scripts make animation even easier. For each frame, you simply set camera and target coordinates on the terrain map, then use a drop-down menu to enter those coordinates in the script. When you execute the finished script it renders your landscape at each setting, saving a series of IFF HAM files. You can even use any script with any landscape, although if the terrain is too dissimilar you risk having the camera go below ground level at some point for a very confusing look at the underside of the hollow landscape.

Vista is easy to learn, and the manual helpful, though it does have some minor inaccuracies. Creating the perfect script can be tricky, and the only way to edit a script is to load it into a text editor. You can add to your script from within Vista, but you'll need to know the last coordinates you used — there's no way to get Vista to show them to you. Still, it's easy to set up a script, and even trial runs are

Another product of Vista 2.0 (beta), this grey-scale version of a 3-D Mandelbrot owes its smoothness to Gouraud Shading.



exciting to watch. On our Amiga 3000, rendering in the least-detailed preview mode, images were generated fast enough to give the feel of animation. (Rendering lengthy scripts in full detail, on the other hand, can take hours.) There's a certain thrill to trying to catch a mountain at just the right angle, or create the effect of flying down the cliffs at El Capitan.

There are serious limitations to the quality of the final images, unfortunately. Each landscape occupies a square in the center of a great blue ocean, so forget those far-off, mountain-lined horizons. You can change the ocean color to imitate the nearest land, but the illusion is never quite effective. In fact, some of the most dramatic images use a black background, showing the squared-off model floating in space. With details limited by the accuracy of the DEM data (30-meter resolution), closeups of any landscape reveal very blocky terrain, no matter how you try to Smooth or Blend it. And despite having internal 15-bit color representations of each rendered scene, Vista presents and saves them in standard HAM — with all the usual problems of bleeds and artifacting.

For serious 3-D modelers, Vista converts DEM files to Turbo Silver data, but the resulting files require considerable memory to render — landscapes created in this mode con-

tain around 130,000 polygons each.

Two new versions of Vista are planned, both using 24-bit color. One uses the same DEM files as the current version, but offers more options for display, including gouraud shading and overscan (2Mb will be required). A professional version of Vista will render landscapes with up to 500,000 polygons, use the Mimetic Frame Buffer to support 24-bit IFF files, and may even include a terrain editor — but all this will require a minimum 4Mb of RAM. Virtual Reality Laboratories also plans to release further disks of DEM data in the near future, including a disk of scenic points on Mars. Data for other exotic locales from California, Washington and Utah are in the works.

Such upgrades could make Vista invaluable for serious animators and artists, and an interesting tool for the study of topology. At present, however, Vista is more a fascinating toy. It has a variety of amusing features, such as the optional fractal music, which would make great sound effects for old sci-fi films, with gurgles and bleeps evocative of spaceship takeoffs, mad scientists' laboratories, etc.. Needless to say, this isn't something you want to listen to for hours on end, but it's amusing once in awhile — and *the eventual silence* does let you know when rendering is done. ■

Extra Video Slot for High-End Amiga 2000s

Moving your Flicker Fixer out of the way

REVIEW BY ARNIE CACHELIN,
AMIGA PLUS TECHNICAL EDITOR

++++1/2

Denise Extender Board

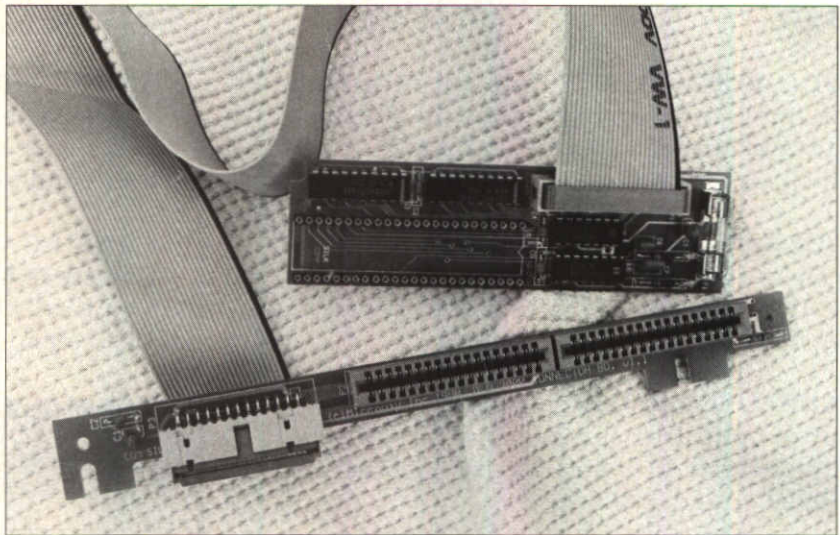
DEB doubles the video expandability of an Amiga 2000 equipped with a Flicker Fixer board. This greatly increases display options for high-end Amiga uses such as desktop publishing and CAD.

\$99

MicroWay, P.O. Box 79, Kingston, MA 02364. (508) 746-7341.

MicroWay's **Denise Extender Board (DEB)** is a simply a chip socket with a ribbon cable attached to an expansion slot connector. But it delivers a highly significant option for Amiga 2000s equipped with Flicker Fixers. By directly tapping the Amiga's Denise co-processor chip, DEB essentially gives you a second video expansion slot. It lets you move your Flicker Fixer out of the Amiga's only video slot and onto a small patch of open space at the left edge of the Amiga 2000 motherboard.

Installation is simple, but if you



Mikroway's deceptively simple Denise Extender Board is actually two boards and two ribbon cables.

are squeamish at the thought of partially dismantling your Amiga and removing static-sensitive chips from the motherboard, then you should probably have your dealer do this for you. Installing the DEB means removing the Denise chip from its socket under the power supply/Disk drive chassis on the Amiga motherboard. Once the cover, power supply and Denise chip have been removed, the Denise can

be plugged into the top of the DEB socket and the DEB plugged into the Amiga's Denise socket. The ribbon cable must now snake its way through all your Amiga expansion cards and past the bridgeboard.

The DEB Flicker Fixer slot sits way over on the wrong side of the tracks in line with the last IBM PC-XT slot (leaving enough room for a PC half card). It attaches to the motherboard

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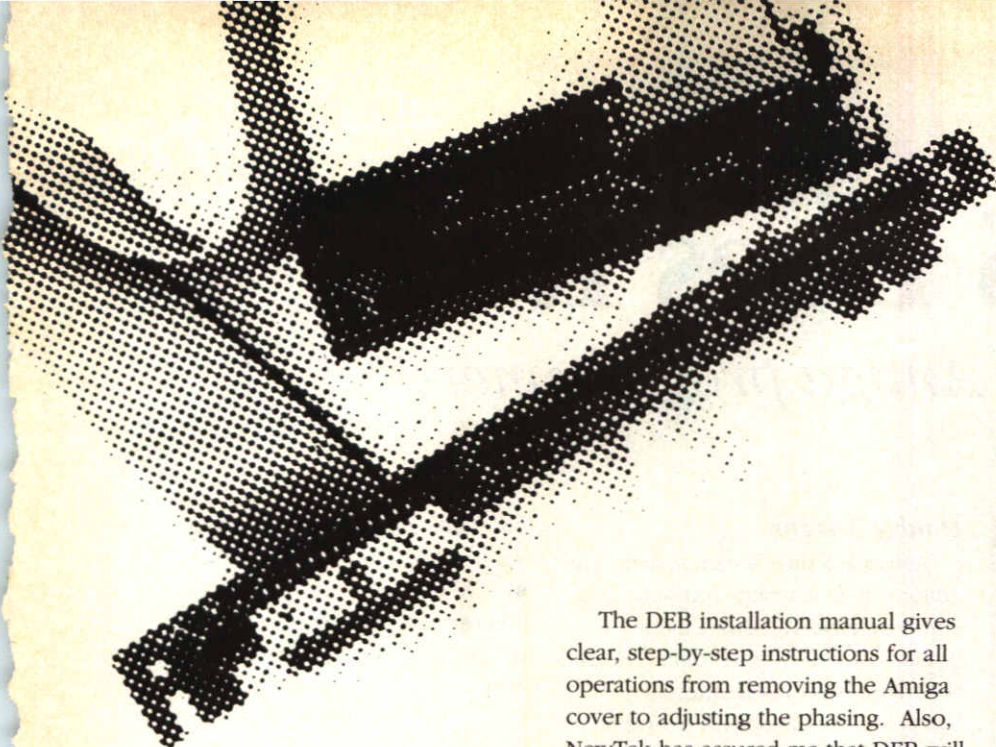
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with an included pair of screws and standoffs. To mount the Flicker Fixer in the new slot, remove the original bracket and connector, replace the Amiga case's leftmost back-panel blank with your new video out connector, and attach this connector to the original video out port on the Flicker Fixer.

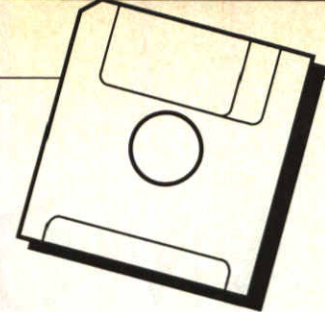
It will probably be necessary to adjust the Flicker Fixer phasing. While this is usually as simple as using the supplied screwdriver to tweak a screw on the Flicker Fixer board, this screw is no longer accessible when the Flicker Fixer is installed in the DEB. The phasing adjustment must therefore be made while the Amiga cover is open, and the machine is powered on and displaying the Flicker Fixer test screen. This is potentially (pun intended!) the most dangerous thing you could ever do to your Amiga, since a slip of the screwdriver could easily short-circuit and fry some of our favorite electronic components (the fuse on the DEB socket will protect the Amiga if you short something on the Flicker Fixer). Fortunately the screwdriver supplied is one of those ultra-insulated 99% plastic-covered tools created for this purpose, and the adjustment process can be accomplished in about a minute.

The DEB installation manual gives clear, step-by-step instructions for all operations from removing the Amiga cover to adjusting the phasing. Also, NewTek has assured me that DEB will work with their long-awaited Video Toaster board. This is very important, because the Video Toaster will quickly become *the* video expansion slot inhabitant for many of the high-end Amiga users who already own a Flicker Fixer. ■

What's a Flicker Fixer?

Microway's Flicker Fixer is a \$495 video display board that gets rid of the Amiga's annoying high-resolution "interlace" flicker. The Flicker Fixer deinterlaces the Amiga's Video signal and sends it to a MultiSync (multiple scan rate) or VGA monitor instead of the standard Amiga RGB monitor. While the Flicker Fixer and a compatible monitor may cost almost as much as the Amiga 2000 you use it with (\$1,000-\$1,300), it provides a rock-steady display for high-resolution work such as professional desktop publishing and CAD (computer-assisted design).

The idea of buying a video enhancement board may be anathema to most Amiga users, but it is the norm for IBM PCs and color Macs, which usually come with *no* built-in display capabilities although they cost more than an Amiga. Macintosh and PC-compatible users must choose from a variety of graphics boards and standards, which often leads to a morass of hardware/software incompatibility problems.



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AMOS Does It All

Best BASIC for Amiga programmers??

REVIEW BY RUSS CECCOLA

++++

AMOS

AMOS is perfectly suited for creating Amiga demos, games, educational software and much more.

\$59.95

Mandarin Software. Europa House, Adlington Park, Adlington, Macclesfield, Cheshire SK10 4NP, England. 0625 859333.

Mandarin Software of England has taken BASIC on the Amiga to new heights with the **AMOS** language. AMOS has over 500 commands that simplify graphics, screen manipulation and all of the other tasks that programmers traditionally had to create from scratch. AMOS is easily the best version of BASIC I've seen for the Amiga. It includes all the standard BASIC commands needed for programming and complete sets of graphics, sound, menu, screen, window, sprite and bob commands for further exploration.

As you discover commands that would have taken you many lines before, you'll appreciate why AMOS is subtitled "The Creator." With this system, you really can be writing programs in 15 or 20 minutes. In a short while, I designed an easy-to-use program for young children to learn their ABCs. I incorporated speech for pronouncing the letters and used a different color for all 26. In a few minutes, I had my nephew hooked up to my Amiga enjoying every minute of it.

Double Screens

AMOS is a dual-screen system. The editor screen is where you write and edit programs. The direct mode screen lets you type in commands and see their results instantaneously. Switching back and forth between screens is as easy as pressing the ESCape key. I used direct mode to check new commands I learned before incorporating them into a program and possibly introducing a large number of bugs into the code. This method worked out well. The only commands you can't use in direct mode are loops and DO structures, and you can live without them there.

The editor is very easy to use. Ten boxes at the top correspond to function keys. Clicking the right mouse button brings up another ten. These function keys are assigned the most-used editing commands, like SAVE, NEW, FIND, etc. The rest of the editor screen is used entirely for code. Most editing functions can be activated with a function key or one or two key combinations.

AMOS can have more than one program or accessory in memory at the same time. You can switch back and forth between programs easily and even transfer code from one program to another. AMOS also offers the use of procedures to well-organized programmers. You can search for the Procedure statements using the arrow keys. Also, you can fold and unfold the code for a procedure, leaving only the procedure name and parameters. This reduces the amount of code you must stare at and shows more clearly the organization of the program.

It is an unwritten law of computer

programming that programs never work the first time. To save you the trouble of having the program crash, you can test the syntax before running it. To keep your code looking neat, a function key will indent it for you — a programmer's dream at the touch of a button.

The AMOS command set contains a lot of highly specialized groups of related functions. One set manipulates memory locations and data banks. Another set takes care of screen manipulations. Other sets deal with graphics, sounds/music, windows, menus and colors.

Topping things off is the AMOS Animation Language (AMAL). Animating sprites and bobs was never this easy. AMAL takes away the tediousness usually associated with animation, with one command often replacing many lines of code.

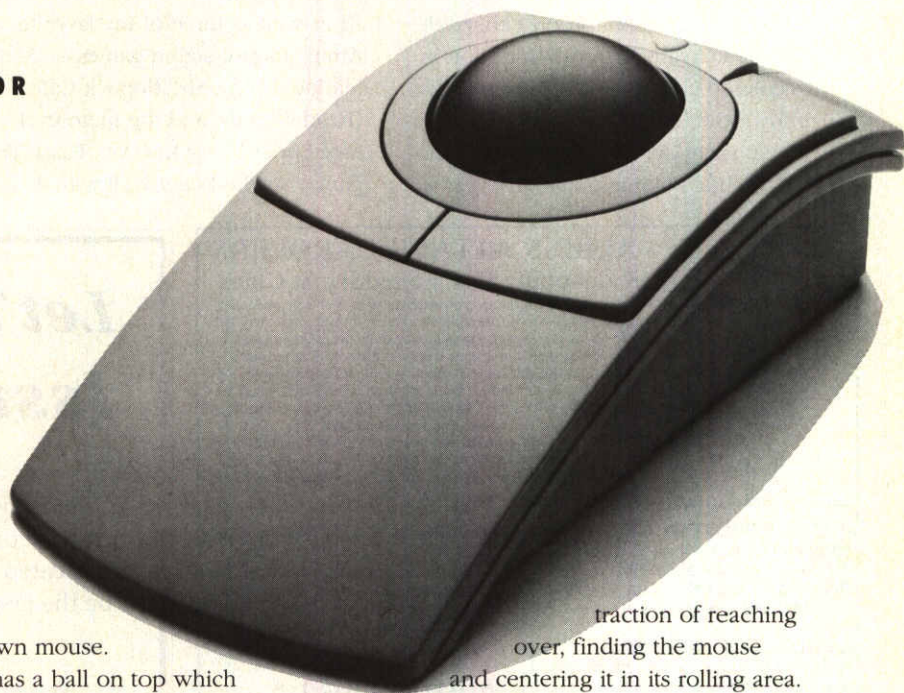
AMOS is a real bargain for its price tag. Although not designed solely for games, AMOS is well-suited for this purpose. Two of the many utilities that come on the disks are a sprite editor and a screen/map editor. These and others make the tasks of creating graphics for games much simpler. To really show you what AMOS can do, Mandarin has put three games and an educational program on the data disk.

My overall impression with AMOS is very positive. The book-size manual is well-written, and the editor is easy to use. Anytime I need to design a program at home, I will always turn to AMOS. Future products in the AMOS line will include AMOS 3D and an AMOS compiler to increase execution speed even more. ■

Trackballing on Amiga

Our tester actually traded in his mouse

REVIEW BY ARNIE CACHELIN,
AMIGA PLUS TECHNICAL EDITOR



++++

AmTRAC Trackball

Solidly made and well-designed, this first trackball for the Amiga could be a godsend for users suffering from severe desk clutter.

\$99

MicroSpeed, 44000 Old Warm Springs Blvd., Fremont, CA 94538. (415) 490-1403.

The AmTRAC Trackball from MicroSpeed is a replacement for your mouse that could be tremendously appealing to many Amiga users. A trackball looks a lot like an upside-

down mouse.

It has a ball on top which you roll with your fingers to control mouse pointer movement. Unlike a mouse, a trackball remains stationary when you use it, so you don't need a clear area on your desk to roll around on. You will also be saved from the frustration of rolling off your desk or mousepad just as you were about to beat that high score. Trackballs are popular among non-gamers too, because this pointing device sits right next to the keyboard for convenient access during keyboard intensive work, without the dis-

traction of reaching over, finding the mouse and centering it in its rolling area.

The AmTRAC is a solid and well-designed product. It's the first trackball for the Amiga and the first Amiga offering from MicroSpeed, whose trackballs for IBM PCs and Macs are quite popular. Installing it couldn't be easier, just unplug your mouse from your Amiga and plug in the AmTRAC's six-foot-long cord.

The trackball moves very smoothly over small and large distances, and the hand angle is quite comfortable. Large buttons extend above and below the ball and along the sides, mak-

ing them accessible to thumb or finger presses from a variety of hand positions. The front of the AmTRAC where you place your hand gradually slopes down till it's almost flush with your desk, so that you can rest your hand on the desk just like you do with the keyboard. Indeed, AmTRAC's length is about the same as that of an Amiga 3000 keyboard, and the beige and gray AmTRAC housing and ball match the A3000 colors very well. At 3.75 inches, AmTRAC's footprint is just a bit wider than a 3.5-inch diskette.

Buttons

Mice have buttons as well as balls, so it should be no surprise that the AmTRAC has a button on either side of the actual ball, and a third button centered above the ball which locks down the left button to simplify dragging, sizing, or painting. Rolling the ball while holding down a button is

not difficult once you get the hang of it, and you will get the hang of it quickly if you use the Amiga's pull-down menus much. The AmTRAC can easily be reconfigured to drag-lock with the right button instead of the left by simply holding down the right button while clicking the center button. Unlike the PC version (PC-TRAC), AmTRAC does not allow the drag-lock button to function as the middle button of a three-button mouse. However, three-button mice are not very useful for most Amiga applications (although the operating system does support a middle mouse button), so this should not be a problem.

I tested the AmTRAC with word processing software and Deluxe Paint III as well as three of my favorite Amiga mouse-action games — Marble Madness (EA), Shufflepuck Cafe (Broderbund), and the motorcycle race Super HangOn (Data East). The games worked very well with Am-

TRAC, and I felt the action was smoother and the control better. When I tried again with a mouse after using the AmTRAC I couldn't beat my previous scores. Painting was also quite smooth, although it sometimes seemed difficult to click without moving the ball slightly. Slowing the mouse speed from the Workbench with Preferences alleviated this problem, as did using the LEFT-ALT/LEFT-AMIGA key combination for clicking the left mouse button.

At first, I was not sure whether I liked using a trackball instead of a mouse. I wondered whether it really had been so distracting to grope around for my mouse while typing. But when I plugged in a standard Amiga mouse again, I wanted the trackball back. A trackball is not for everyone, nor for every application, but if you want one on your Amiga, MicroSpeed's AmTRAC is the only (ball)game in town and a very good one.



ALIENS ATTACK CAROLERS

Kidnapping Plot Foiled By S. Claus

Fortunately the Christmas software shopper won't be abducted by high prices at California Shareware. Although there may be space aliens lurking among company employees (rumor has it that the Amiga Librarian is from a planet circling the star Betelgeuse), this has no effect on the quality or quantity of software in our library. Each program is reviewed, rated, and combined with others of similar themes to make it easy for you to decide on a disk. You are also GUARANTEED a VIRUS-FREE environment whenever you obtain a disk from us. Listed below are the latest and greatest additions to our Amiga library. From all of us at California Shareware, have a Merry Christmas and a Happy New Year!

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Advertisers' Index

Advertisers	Page No.
ACTIONWORKS	41
AMIGA VIDEO MAGAZINE	42
ANTIC SOFTWARE	88
ANTIC SOFTWARE	98
AVG STUDIOS	94
BOONE TECHNOLOGIES	95
BOROTEC, INC.	95
BRITISH MAGAZINE DISTRIBUTORS	55
BRIWALL	22-23
CALIFORNIA SHAREWARE	92
CENTRAL COAST SOFTWARE	4
COAST TO COAST TECHNOLOGIES	51
COMMODORE BUSINESS MACHINES	35
DEVWARE	71
DIGITAL WIZARDS, INC.	IFC
DIGITEK, INC.	13
DR. T'S MUSIC SOFTWARE	BC
EXPANSION SYSTEMS	75
FREE SPIRIT	IBC
GRAPEVINE	95
HI TECH NEWS	94
INTERACTIVE VIDEO SYSTEMS	21
INTERCEPTOR GROUP	63
INTERCOMPUTING INC.	84
JEK GRAPHICS	95
JPK THE DESKTOP PUBLISHER	95
MONTGOMERY GRANT	29
PANTHER GAMES	8
PHILADELPHIA VIDEO LAB	67
PRE SPECT TECHNIKS INC.	31
PSYGNOSIS	5
RAMCO RIBBON, INC.	95
SAXMAN SYSTEMS	79
SAXMAN SYSTMES	81
SILVER FOX SOFTWARE	95
SOFTWARE SUPPORT INT.	57
SPRITE TECHNOLOGY	49
SUPRA CORPORATION	14-15
UTILITIES UNLIMITED	3
VIEWPOINT DIGITAL PRODUCTIONS	94
WORLD OF AMIGA	59
XETEC	77

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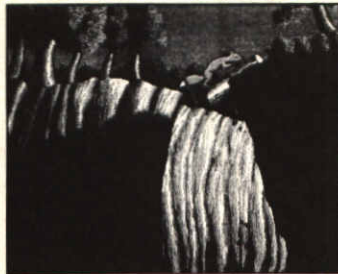
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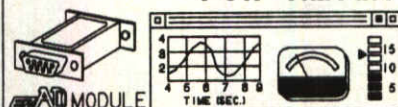
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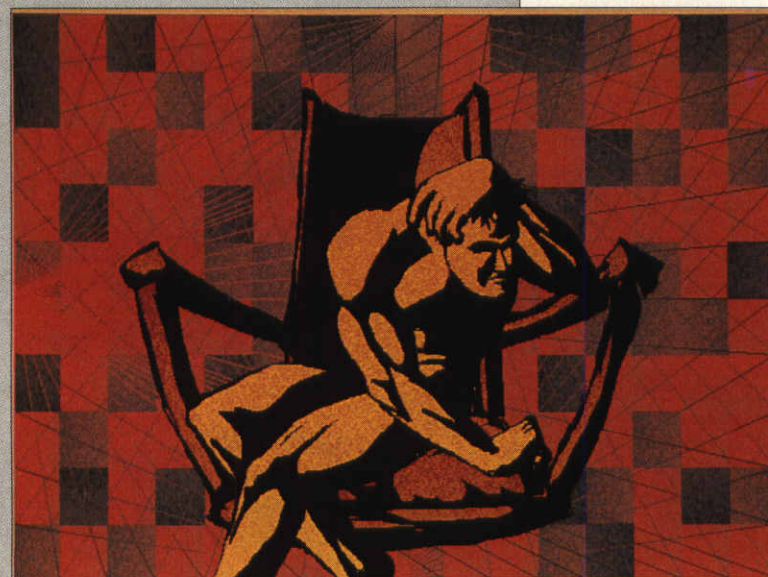
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Over Load



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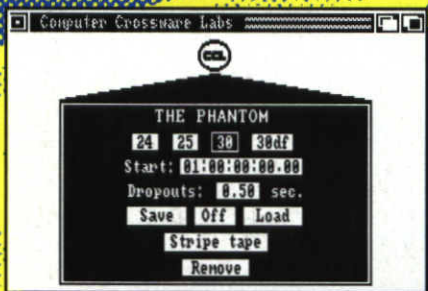
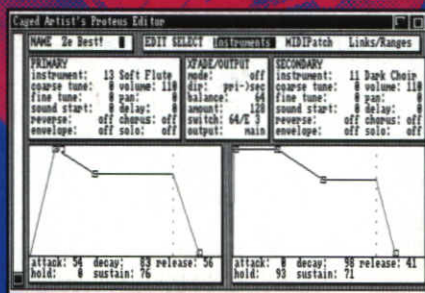
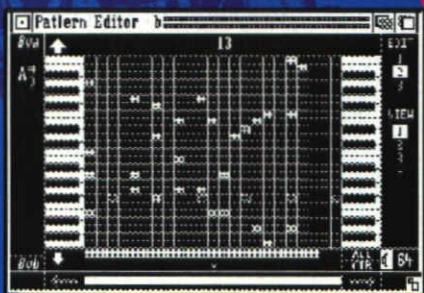
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