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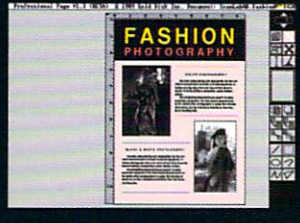

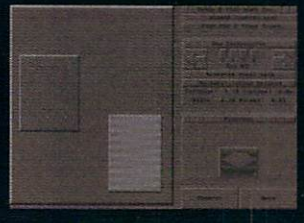

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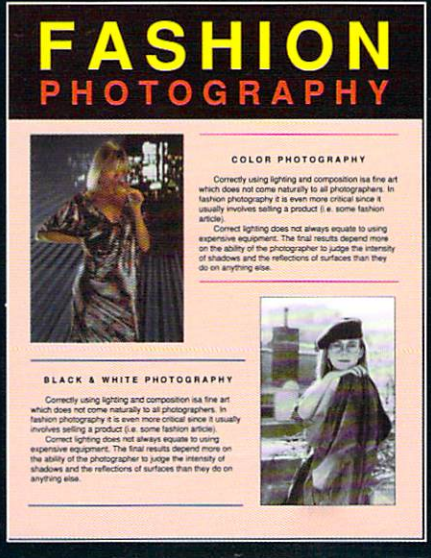

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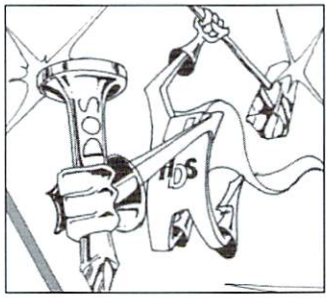

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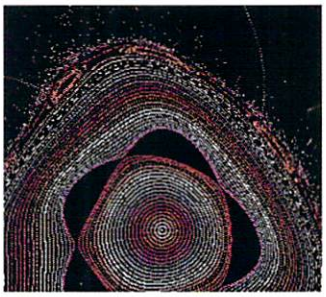

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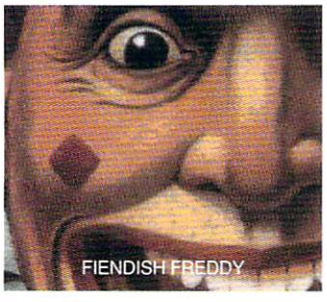

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JUGGETTE ANIMATION : Eric Graham's "Juggler" in a DPaint III adaptation.

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Special Thanks to
Mr. & Mrs. Nelson Moskowitz, Anna & Vince of Faces& Fashions Photography, Rita K. Smith, Spencer Whetstone, Kevin Karlin, Tysone Liotta, Frank Luncheon,Stephen Miller, Mark Niedzielski, Kim Schaefer, Scott Savelson, Chet Solace, Clyde R. Wallace Sr., Mal Hee Wallace

A.X. Magazine is not associated with Commodore Business Machines, Inc.
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U.S. Subscription rate is $69.95 per year (for 6 issues). Subscriptions outside the United States please add $24.95 for shipping. Canadian subscriptions should inquire with our Canadian distributor.

POSTMASTER: Send address changes to :
A.X. Magazine, 6820 Distribution Drive , Beltsville, Md 20705

Primary Operations Offices
6820 Distribution Drive
Beltsville, MD 20705
(301)595-0950
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CHECKPOINT
TECHNOLOGIES

THE SERIAL SOLUTION

a dual-port internal serial card for the Amiga 2000

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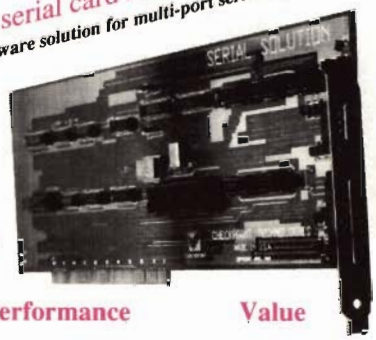

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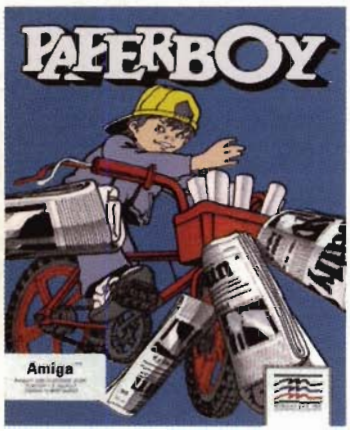
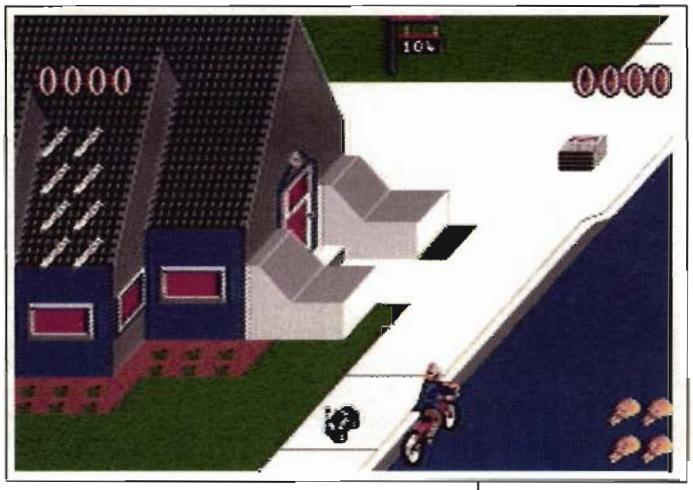
Paper Boy

What Else Could You Want ?

By:Charles White





I've just got one word to describe *PaperBoy* by Mindscape: fun. I've got to admit, I've never really enjoyed arcade games that much. I've even seen this one in the arcades before, and it never intrigued me. But I tried it here on the Amiga, and it's got me hooked.

The morning is young, the air is crisp and cold, the sun begins sending yellow-orange shards of warmth peeking over the tops of glistening mountain peaks. I can't see it, but I hear it in the distance--the strains of some strange tropical bird. Wait, that's no tropical bird, that's a lawn mower, and those aren't mountains, they're houses. Oh no! I'm in the jungles of suburbia!

I lean back a little on my bicycle seat; I can feel the soft weight of my newspaper bag resting gently just under my arm. Cupping my hand to my eyes to block the morning sun, I peer down the road looking for subscribers' houses. Conveniently all the subscribers' houses are painted yellow. Time is wasting, and the morning is growing old, fast. Pressing down on my bicycle's pedals, my trusty bicycle glides off into the morning with the gentle squeak of Sears quality.

Dodge left--missed that poodle--up onto the curb, and down the sidewalk. Jogger--dodge right. Here comes a yellow house; oops, missed the mailbox. That crashing sound must have been the living room window; maybe it was a bedroom window, no time to contemplate. Another subscriber coming up. Twap, right in the mailbox. Ack! dodge left--lawnmower--no problem.

Up ahead, here it comes, joy of joys--a non-subscriber's house. How do I know? It's not painted yellow, of course. Toss, crash, another window, but that's o.k., I get $100 for every non-subscriber window I just *happen* to break. As my distributor always says "at least they get a free paper." Knocking over trash cans, tombstones and joggers are fun, but hey, you don't get paid for that useless stuff.

Uh oh, there he is, the bulbous guy I can never avoid. He always decides to start jogging just when I get to his house. This time I'll squeeze by. Ack--dodge left--right--no left--ahhhhh, ooff. O.k., o.k., so next time I'll get by him. I pick up my trusty Sears quality, and squeak off down the sidewalk again.

During my route, picking up extra newspaper bundles along the way, I get most of my subscribers, but I miss a couple. So a few subscribers cancel the paper, hey, I've got more important worries. Such as, garbage on the sidewalks, construction workers, drainage grates, remote control cars, and other offensive obstacles that get in my way.

At the end of the route is one of my favorite parts: the test track. Rolling past dirt roads, jumps, targets and more goodies. Toss papers, collect points, jump streams, what more could a paperboy want. If I can get to the finish line before time is up, a cheering crowd awaits me.

But back to the real world. The joystick controls the bicycle motion, left and right, move left and right, of course. Forwards and backwards, slow and speed up the trusty Sears special past nasties. The fire button tosses the papers. The graphics are good, and very close to that of the arcade version. The music is moving, well, it's good. There are lots of ways to get points, and lots of things to keep you from getting points. But then again, lots of other games have those things. The important thing is that this game is just pure fun. So much fun in fact, that if the crusty fellow that edits this magazine would pause for a moment, lean back, pop that cigar out of her mouth, then even she might enjoy this game.

Analysis

Why so much fun? breaking windows, riding your bike, and feeling the breeze in your face--what else could you want?

Paperboy
Mindscape, Inc.
3444 Dundee Rd.
Northbrook, IL 60062
(312)480-7667

A Review of the ASDG Dual Serial Board

By: Harv Laser

More serial ports for AMI

One of the Amiga's greatest advantages over other personal computers is that every Amiga comes out of its carton "fully endowed." By this I mean that each model Amiga is equipped with two mouse/joystick ports, a parallel/printer port, a serial port, stereo audio jacks, video ports, external disk drive connector...basically everything you need to start computing as soon as you bring it home and set it up.

Ask any of your friends who own PCs or MS DOS clones what kind of gymnastics they had to go through to see color on their monitors or to hook up a mouse or a modem. Chances are if your IBM-owning pals wanted to tela-communicate they had to go out and buy a serial card for their computers, while all your Amiga needed was a modem and a cable because your computer already had the serial port hardware built in.

The Amiga's problem was, up until recently, that it could only have one serial port since there wasn't any reasonable or relatively inexpensive way to add others. This put artificial limits on folks who wanted to hook up and use a serial-port printer, MIDI instruments, plotters, drawing tablets, or more than one modem at the same time. Sure you can connect multiple serial peripherals through an octopus of cables and "A/B/C" switchboxes but only one device can talk to the Amiga's single serial port at a time.

Why would anyone want more than one modem? Well, running a multi-line Bulletin Board System (BBS) is a good example. If you've got a few telecomm hours under your belt you've probably seen multi-line systems which run on MS-DOS or UNIX-based computers, where more than one person can use the system at a time. Those machines have had multiple-serial port add-on boards for a long time. Now it's the Amiga's turn to join that crowd.

ENTER THE DUAL SERIAL BOARD

ASDG Inc. of Madison, Wisconsin, is shipping their *Dual Serial Board* or *DSB*. Packaged in an unassuming carton that looks like it belongs on a supermarket's "generic products" aisle next to plain white cans of string beans and detergent, the *DSB* is a high-quality piece of hardware which adds two more RS-232 serial ports to the Amiga 2000, 2000HD, or 2500.

The *DSB* is a full-length card which easily installs into one of the 2000 series machine's Zorro II (Amiga) slots or a Bridge slot. All you need is a screwdriver and about ten minutes of time. (Remember, opening your Amiga yourself voids the warrantee.) When finished you'll see two new ports sticking out the back of your Amiga; the *DSB*'s serial ports terminate in a "DB9" connector, similar to your mouse/joystick ports. This is the standard "PC-AT" style fitting, and is used since two regular full-sized DB25 connectors, like Amiga's standard serial port, wouldn't fit end to end on the *DSB*'s edge. (Using DB9s also cuts down on manufacturing costs.)

To connect your modems (or other serial devices) to either of the *DSB*'s ports you'll need a new cable; if you're not a hardware hacker who can make up his own, just visit your nearest IBM-supporting computer shop and tell them you want an "AT style modem cable." They'll know what you're talking about. Expect to pay up to $20.00 for one of these cables.

The *DSB* requires some special software so your modem or other serial peripheral can talk to it; a disk of "Multi-Serial Port Software" packaged with each *DSB*. Your Amiga's built in serial port only talks to the "serial.device" that lives in the DEVS drawer on your *WorkBench* disk. ASDG has cooked up their own special device for the *DSB* called the "siosbx.device" which can talk to either or both of the *DSB*'s ports or to ports on additional *DSB*s as well (you could install more than one *DSB* into your

ASDG's new "serial.device" file is actually a program called the "Serial Dispatcher."

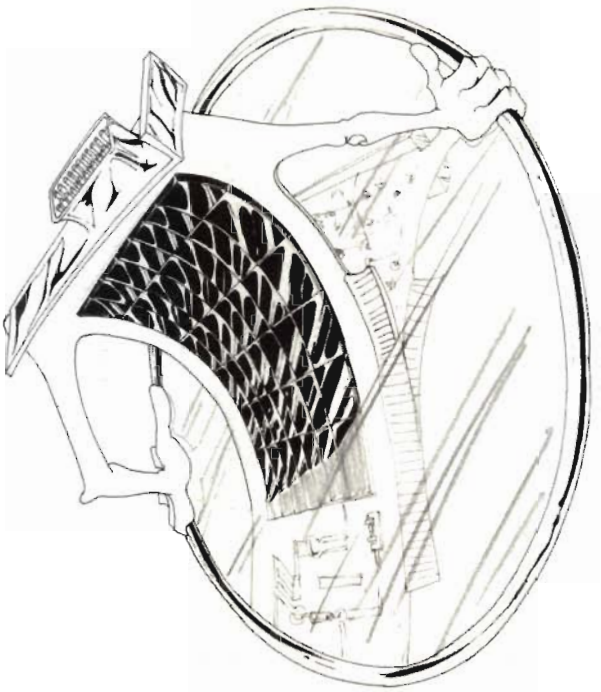
2000 if you have slots available--each *DSB* adds two more serial ports).

The *DSB*'s software disk includes a very intelligent program that makes software installation a snap. Click the little "install" icon and the program will put a copy of "siosbx.device" into your assigned DEVS: directory, it will rename your old Commodore-supplied serial.device to "cbmser.device" and it will copy a new file to that directory called "serial.device" (which is really something else altogether).

FOOL YOUR SOFTWARE

ASDG's new "serial.device" file is actually a program called the "Serial Dispatcher." All of your Amiga terminal programs automatically open "serial.device" when you run them. This is usually transparent to you, the user--you don't know it's happening. Well, in order for your terminal software to be able to talk to the *DSB* it has to be told to use the new "siosbx.device" instead. There are two ways to do this: modify your terminal software, or intercept its calls to "serial.device" and divert/dispatch it to the new ASDG device instead.

With ASDG's *Serial Dispatcher* installed, run your terminal program. The *Dispatcher*, now disguised under the name of "serial.device" will pop a requester up onto your screen and ask you if you want to use one of the *DSB*'s ports or your built-in Amiga serial port. Make your choice, the requester will close, and if you chose one of the *DSB*'s ports your terminal program will never be the wiser--it will simply talk to the *DSB*'s ports instead of the Amiga's. This software is very slick.



One small problem might crop up when you opt to use the Serial Despatcher method of talking to your *DSB*--some Amiga terminal programs open the serial port more than once when they run. *Baud Bandit 1.0* does it three times (the upcoming *Bandit* upgrade, however, will only open the serial device once). So does COMM 1.34 and all its derivatives. *Handshake 2.12a* opens the serial port many times when run. (*JR-COMM* is one of the few current programs I found that opens the serial device only once when first run). The *Serial Dispatcher's* requester pops up to ask you its questions each time your terminal software opens the device, forcing you to click on its 'yes/no' gadgets multiple times before it will go away. If you find this annoying there are two alternatives:

1) Some recent terminal programs such as *Baud Bandit* and *JR-COMM* have their own requesters which let you specify which device you wish to open each time the program is run. (Check your software's documentation to see if it has this capability and where to find the requester). Simply replace "serial" with "siosbx" and the *Dispatcher's* requester won't bother you anymore.

This will also let you customize multiple copies of such programs so that each copy will talk to a different device and then, with one *DSB* installed, you have three serial ports, and so you can actually run three *Baud Bandits* or three *JR-COMMs*, simultaneously, or mix and match them, memory permitting, each talking to its own port and modem!

2) For programs which lack such requesters, you can use a binary file editor like *NewZap*--search for all occurrences of "serial.device" and replace it with "siosbx.device" (note that both names are the same number of characters in length). This is known as "patching" a piece of software. If you go this route, be sure you work ONLY on a backup copy of your software and do not insert any extra character spaces. Remember, Amiga is very sensitive to the length of executable programs. Do something wrong using an editor like *NewZap* and if you add even one extra byte to a program it may crash or refuse to run at all.

It stands to reason that once you've patched a program in this way you'll have to patch it again to make it look for a different serial port, so consider using a program which lets you easily reset the device name. Also remember, you can't have two programs or files in the same directory with the same filename, so, for example, if you have one copy of *Baud Bandit* which talks to "serial.device" and another which talks to "siosbx.device" you'll have to give them slightly different names or keep them in different directories.

Installing and using the *DSB*'s special software with your own is not at all complicated but these are things of which you should be aware.

MORE FEATURES FOR DEVELOPERS AND USERS ALIKE

Besides giving you two more serial ports, the *Dual Serial Board* offers more.

The bundled disk, besides carrying those new devices explained above, also contains two "Handlers"--SERX-Handler and SERXI-Handler (which the installer program will copy to your assigned L: directory).

Without getting too technical here, the ".device" files provide "Exec level software support" while the "-handler" files provide "DOS level software support." "SERX-Handler" is similar to the standard AmigaDOS handler "Ser:" (buffered input/output) and SERXI-Handler to "Aux:" (unbuffered or interactive input/output). For a device to talk to a handler, an entry in DEVS:Mountlist must exist, so ASDG also provides example mountlist entries for their handlers and explains all the parameters required to get the job done.

What all of this complicated gibberish means isthat ASDG has done their job well and provided both the software developer and Joe-User with all the software bits and pieces to access the *DSB* in all the same ways that the built in Amiga serial port can be accessed. The dozen stapled pages of documentation that accompany the *DSB*, while far from glamorous or glossy, do a completely adequate job of telling you everything you need to know to use this new hardware and software and get you up to speed quickly.

The disk also holds a few freely-distributable terminal programs, including one written by ASDG's Aaron Avery, called *Gonzales* whose documentation claims it offers absolutely fast throughput of any existing terminal software when using the Ymodem transfer protocol with the *DSB*.

The *DSB*'s use of "Zilog" chip technology allows the board to out- perform by far the speed of the standard Amiga serial port. If you've bought and are using a high-speed modem and are seeing more errors during file transfers than you like, the *DSB* might just be the cure for those ills. Due to its special hardware you can simply push more data through the *DSB* at faster speeds than the standard serial port can handle.

Most average users will simply be interested in the *DSB* for the two more serial ports it adds. Consider the possibilities. Run a Bulletin Board on your Amiga and allow two callers to log in at the same time while you can dial out to your favorite boards or networks using the third port. Run multiple terminal programs at once; log into a BBS and download while you're logged into Another host and chatting in a live conference or uploading! Download while composing on your MIDI synth.

There are lots of possibilities here for a reasonable price, the *Dual Serial Board* makes it possible. Another winner from ASDG Inc.

DUAL SERIAL BOARD
Suggested retail price: $249.95
ASDG Inc.
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Madison, WI 53713
(608)273-6585

What all of this complicated gibberish means is that ASDG has done their job well . . .

THERE'S 2 PORTS IN ONE!!

AMIGA 3000

According to very reliable sources, here are the latest planned features of the Amiga 3000 (unconfirmed by Commodore).

--68030/881 16MHz or 68030/882 25MHz
--Amiga Enhanced Chip Set
--1 Meg Chip RAM expandable to 2MHz on board
--1 Meg Fast RAM expandable to 4MHz on board
--Built-in Display Enhancer
--Internal SCSI Hard Drive (50 Mbyte planned)
--Internal Real Time Clock with RAM
--4 new Zorro III expansion slots:
(Each is downward compatable existing A2000 Zorro II cards)
1 100 pin only slot
2 100 pin only slots with AT style extensions
1 100 pin slot-in-line w/a A2000 style video slot
--1 CPU expansion connector: 1
200 pins with processor takeover capability
Can support advanced processor/RISC/CACHE's etc.
--External expansion connectors:
23 pin Amiga video (15.75 KHz typical)
External SCSI connector
External Floppy/Serial/Printer/Audio/Keyboard/Joysticks
--32 bit access to on board ROM
--32 bit CPU access to chip RAM
--32 bit fast RAM supporting Custom Controller Static column mode DRAMs & allowing CPU burst access to RAM
--32 bit DMA based onboard SCSI controller
--Low-profile case supporting total of 3 internal 3.5 inch drives
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Flicker Fixer	459.00

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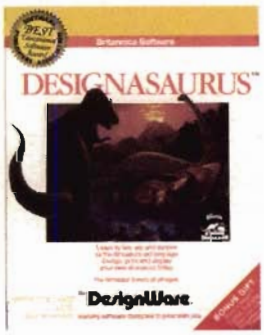
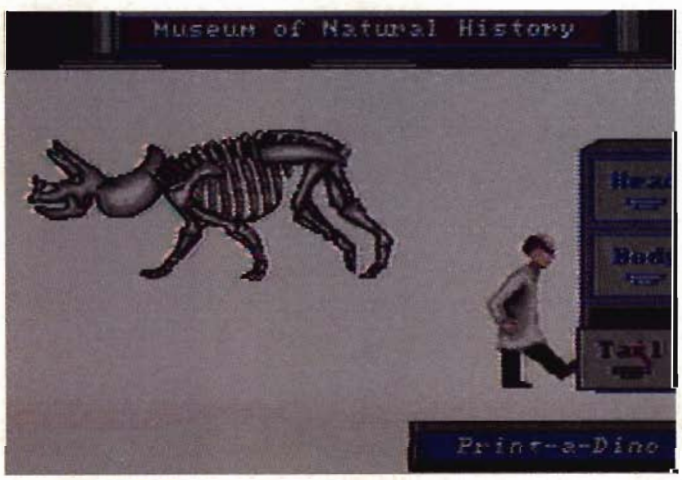
DESIGN

By: Bob Stransky



Do you remember the last time you went to the museum to look at dinosaur fossils? Now, thanks to Britannica Software, the dinosaurs can come to visit you! With *Designasaurus*, you can examine dinosaur fossils, create your own dinosaurs from a selection of bones at the museum, print pictures of dinosaurs, and even experience a dinosaur's life in each of several different prehistoric ecosystems.



But be warned--you might just learn something while you're playing. *Designasaurus* is one of those sneaky educational programs which provide useful information while being disguised as a game. These insidious programs trick unsuspecting users into learning interesting facts without their even noticing what's happening.

The *Designasaurus* package contains one unprotected program disk, a manual and a sheet of iron-on transfer paper which can be placed into your printer so you can make a transfer for your very own dinosaur T-shirt. Since the disk is not copy protected, I strongly encourage you to make a backup copy. This is especially important if young children are going to be using the program (my little sister has an uncanny ability to corrupt disks while using them); Britannica will charge you $12.00 for a replacement disk.

To start the program, simply click on the *Designasaurus* icon from *WorkBench*. The manual states that the Amiga should be booted with the *Designasaurus* program disk, but I prefer to boot the Amiga with my standard *WorkBench* disk, and then to insert the *Designasaurus* disk. This permits me to use my normal printer preferences when printing out my dinosaur pictures.

Upon start-up, the program's main menu appears. The title graphics and theme music are quite good. This menu has four choices: "Walk Dino," "Build Dino," "Print Dino," or "Exit."

"Walk Dino" permits you to walk a dinosaur (from a choice of three different species) through several different ecosystems. If you choose to be a Brontosaurus or a Stegosaurus, you must eat plants along the way and avoid the Tyrannosaurus Rex, in order to survive. If you choose to be a Tyrannosaurus Rex, you must eat any other dinosaur that you see, or you will die from starvation. Bar charts at the top of the screen show vital statistics, such as the number of calories you have remaining and information concerning the current ecosystem. You can see your effect on the ecosystem as you eat. If you make it through all five ecosystems, you will be able to print a certificate stating that you helped

ASAURUS

An Educational Software Review

a dinosaur to survive.

The "Build Dino" selection takes you to the Museum of Natural History where you become an amateur paleontologist and construct dinosaurs from partial skeletons. You can connect heads, bodies and tails from a group of 12 different skeletons to create new dinosaurs. Once the dinosaur is completed, you can name it and print it out. The program then explains different features about the dinosaur you have created and gives postulated environments in which it could have lived. This information is very interesting!

Choose "Print Dino" and you can print out pictures of 12 different dinosaurs in their native habitats. These pictures come in two sizes, regular and poster size, and are quite suitable for coloring. (You can also make T-shirt transfers using this part of the program.) The regular size picture is about 8-1/2" x 7" and also includes some very interesting information about the dinosaur. The poster size printout takes up four sheets of paper which must be taped together to make a complete picture. My only complaint is that the relatively low resolution of the print routines makes the poster sized pictures look rather choppy. I much preferred the appearance of the regular size prints over the poster sized ones.

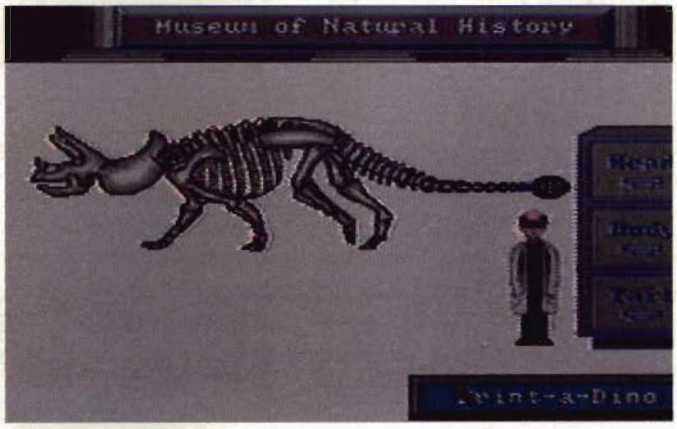
There is a plethora of interesting facts packed into this program. For example, did you know that the correct name for the Brontosaurus is actually Apatosaurus? Neither did I, until I printed out a picture of the Brontosaurus. Like I said before, this information just sneaks up on you when you least expect it. I also must admit that I enjoyed being a Tyrannosaurus Rex and chomping on those other helpless dinosaurs. (Maybe this program is a good way to work off aggression.)

I experienced a problem with the program crashing once in a while. When changing from the different menu selections, the message "file memory exhausted" would appear and the program would simply end. I adjusted the stack size of the program to 38000 bytes by clicking on the program's icon and selecting the *WorkBench* "Info" menu choice. After fixing the stack size, the program failed to crash again. Also, although the program multitasks fine, it doesn't let you pop other screens to the front while it's running. While this is really not a problem, it is an inconvenience to get to another screen (for example if you needed to adjust the *WorkBench* printer preferences).

As educational software goes, *Designasaurus* is definitely first-rate. Information is provided in simple, easy to understand language. The activities are interesting and even somewhat humorous at times (watch how the paleontologist opens the file cabinet drawers at the museum). Graphics and sound are very good throughout the program. If you or your children are interested in dinosaurs, then this program is definitely right for you.

Designasaurus
Britannica Software
345 Fourth St.
San Francisco, CA 94107
(800)572-2272

As educational software goes, Designasaurus is definitely first-rate.

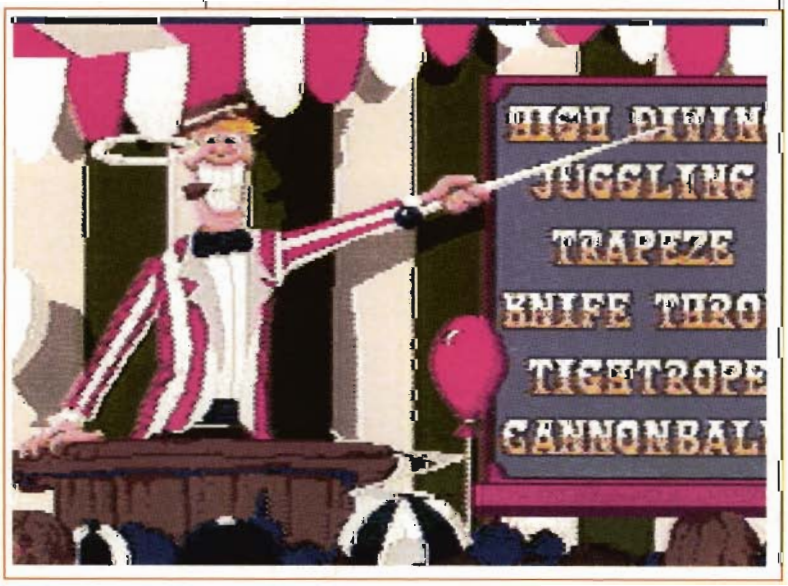


FIENDISH FREDDY'S BIG TOP O'FUN

BY: BOB STRANKSY

Have you ever dreamed of running away and joining the circus? Well, here's your chance to work under the Big Top. There's only one problem: your circus, the Big Top O'Fun, owes a lot of money ($10,000 dollars to be exact) and it's due tonight! If you can't pay, the circus will be flattened and an office building will take its place. You'll have to perform your tricks especially well tonight in order to make enough money to pay the debt and save the circus. A "distinguished panel of judges" will rate your performances of six different circus feats of daring and skill and will pay you accordingly. However, Fiendish Freddy doesn't want you to succeed, and he will do everything in his power to sabotage your acts.

The game comes on three unprotected disks, which means that you will be able to make back-up copies or install it on your hard disk (although no instructions are provided for doing this). You will, however, need the manual in order to start the game (you are prompted to type in a word from a specific page during loading); you will also need to refer back to the manual for instruction during some of the acts.



The game begins with some title screens and a bit of the story. You are met by a long (and I mean long!) black limo whose occupant shows you a $10,000 loan agreement which just happens to be due tonight. Then the limo speeds off with you running behind, and Fiendish Freddy appears to begin his mischief. I have to say that the sounds and graphics of the opening sequence (and the rest of the game, for that matter) are excellent. The music and sound effects roll smoothly from one to the next throughout the entire game. The background scenes are original, well-drawn screens; the animated characters are relatively realistic and a whole lot of fun.

After the opening sequence, a carnival hawker appears and lets you choose either to practice a particular act or to begin a game. One to five people can play this game at a time (the more the merrier!) although the $10,000 must be raised by an individual player, not accumulated by the group. So, no matter how many players are in the game, each one must work just as hard as if he or she were playing alone. The game periodically gives an update of how much money each player has earned so you can tell who's in the lead.

The first of the acts is high diving. As Horace the High Diver, you must complete four jumps from successively higher platforms while performing specific poses during your plunge. But watch out, Freddy is flying around with an industrial-strength fan trying to blow you off course. If you

continue to page 52

IMPACT The Geat Valley Products BOARD 68030/68882

By: Bob Stransky

Almost all Amiga users have felt it at one time or another. You know, the need for speed! Whether it's ray-traced graphics or just some serious number crunching, we've all felt that it would be great to speed things up a bit. Fortunately for A2000 owners, there's an answer. Great Valley Products has recently increased the clock speed of their already fast Impact 68030 board from 25 MHz to a blazing 28 MHz. But that's not all; with just the replacement of the board's oscillator, the Impact board can run at an incredible 32 MHz!

The *Impact* board is a 68030/68882 processor board which fits into the A2000 CPU slot. It has an onboard hard disk interface and can support up to eight Megs of 32-bit RAM on a daughterboard which attaches to the main board. The *Impact* board is of an asynchronous design, which means that the 68030 runs independently of the Amiga's 7.16 MHz base clock speed. This permits the board to run many timing sensitive programs which might not work with other accelerator boards.

Although most software appears to work well with the *Impact* board, some copy-protected games wouldn't load or run properly on my Amiga with the board installed. The board can be disabled at bootup by shorting across a jumper (GVP recommends the installation of a toggle switch for this purpose), enabling the Amiga's own 68000 to operate. However, when the 68030 is disabled, the hard disk interface and all 32-bit memory is also disabled. There is an additional oscillator slot on the board so that the 68882 FPU can be run at a higher speed than the 68030 CPU, giving an extra punch for programs which perform lots of floating-point calculations.

Installation of the *Impact* board is simple. I was able to install the board without any problems in about 10 minutes. The *Impact* board is well designed and constructed with the possible exception of several capacitors which stick out from the right side of the board and tend to get caught in the power supply wiring during installation and removal. As the board is installed in the CPU slot immediately adjacent to the power supply, things get a bit tight.

I performed several benchmarks on the A2000 both with and without the *Impact* board installed. I also tested the board at both the supplied 28 MHz and the modified 32 MHz clock speeds. Here are the results of two public domain benchmarks:

	MIPS	CPUSpeed
A2000 without 68030 board:	0.839809	101%
With 68030 board at 28MHz:	8.315916	514%
With 68030 board at 32 MHz:	9.416092	550%

Using two Megs of 100 nanosecond 16-bit fast RAM (I don't have a 32-bit RAM board) and a 32 MHz oscillator on the 68030/68882 board, my A2000 ran at an amazing 9.4 MIPS! That's over 1100% faster than the stock Amiga. Even at 28 MHz, the *Impact* board makes the Amiga run 10 times faster (according to the MIPS benchmark) than with the stock 68000. The CPUSpeed benchmark is probably more realistic due to the number of wait states introduced by the slow memory, but even in this case the Amiga is running over five times as fast as with the 68000.

What would this extra power mean to the average

Installation of the Impact board is simple. I was able to install the board without any problems in about 10 minutes.

IMPACT BOARD 68030/68882

Another feature of the Impact board is the built-in 16 bit hard drive interface.

user? Well, for one, the machine doesn't bog down during serious multitasking. Windows pop up much faster and mouse response is much better. With the installation of either four or eight Megs of 80 nanosecond 32-bit memory (also available from GVP), the board becomes even faster by taking advantage of the 68030's BURST mode. You can also use the 68030's onboard Memory Management Unit to remap the Kickstart ROM into 32-bit memory for extra speed.

One of the advantages of the 68030 over previous 680x0 series processors is the presence of onboard data and instruction caches which store the most recently used data and instructions. Since many programs use small loops, this can speed things up significantly because the 68030 doesn't need to keep looking to memory to get instructions and data. However, a potential problem for some users would be the use of DMA (Direct Memory Access) devices in the Amiga when using the 68030's onboard caches.

A DMA device is one which reads and writes directly to memory without the intervention of the processor. (One particularly well known DMA device is the Agnes chip installed in the Amiga.) If a device changed the information in memory while the 68030 had a copy stored in its cache, the data in the cache would no longer be valid, and data errors or even a system crash could result from the 68030 using this invalid information. GVP has disabled the caching of data and instructions which were fetched from CHIP RAM. This alleviates any potential problems with modification of data by the custom chips. Users can disable caching of data or instructions (or both) fetched from fastRAM by using the SetCPU program supplied with the board.

Another feature of the Impact board is the built-in 16 bit hard drive interface. GVP claims that this interface has data transfer rates in excess of 700 kilobytes per second! The interface connects to an IDE (Integrated Drive Electronics) type disk drive, such as the Quantum 40 or 80 Meg AT drives. With GVP supplied autoboot ROMs installed, the board will boot the Amiga from a Fast File System partition. There have been rumors that the board would not boot up properly when using *Kickstart* and *Workbench 1.4*. GVP states that this simply isn't true and that they have several machines running *WB1.4* in their offices.

Replacement of the 28 MHz oscillator installed on the Impact board is extremely easy. Since the oscillator is placed in a socket instead of being soldered to the board, replacement requires only that the chip be pulled out and a new chip pushed into place. Although GVP does not officially support use of the 32 MHz oscillator, a number of *Impact* owners (including myself) have been running boards at 32 MHz for some time without any problems. The GVP board's asynchronous design permits the board to be run at just about any speed, so if you wanted, you could run the *Impact* board even faster than 32 MHz, but you would run the risk of exceeding the capacity of the chip and weird things might start to happen. (The 32 MHz limit was reached by trial and error.)

The other problem you might have with increasing the clock speed would be if the 32-bit RAMs on the daughterboard (if you have one) were unable to keep up with the processor and your Amiga either crashed or hung up. A GVP representative assured me that it is virtually impossible to damage either the Impact board or the chips by increasing the clock speed.

Even the most timid hacker should feel comfortable with the installation of the *Impact* board. However, if you feel uncomfortable about opening the Amiga, have an authorized dealer install the board for you. (Remember that opening your Amiga yourself voids the warrantee.) It is quite easy to cause costly damage to either the GVP board or to your Amiga if you are not very careful. The Impact board is well designed and constructed and will definitely speed up your Amiga. Installation of a 32 MHz oscillator in place of the 28 MHz chip installed provides an additional 10% increase in raw computing power. The addition of either four or eight megabytes of 32 bit RAM and an AT style hard drive can transform the Amiga into a very power workstation. If you're looking for great speed at a decent price, the *Impact* board may be right for you.

Impact 68030/68882 Board
Great Valley Products
225 Plank Ave.
Paoli, PA 19301
(215)889-9411

Fast & Furious

The *Hardframe/2000*

By: Glen Deskin

The *Hardframe/2000* is a high speed, DMA SCSI host adaptor card for the Amiga 2000 from MicroBotics, Inc. It supports autobooting under *AmigaDOS 1.3* and later, is autoconfiguring under *AmigaDOS 1.2* and *1.3*, and can handle up to seven SCSI devices. The card is designed with the ability to attach a 3.5" hard drive right to the card itself, making it into what is commonly known as a "hardcard."

INSTALLATION

When you open your *Hardframe/2000* you will notice that there is no instruction manual, except for a one page installation procedure summary that tells you that the main manual in a README file on the installation disk. This can be quite a hassle for those who do not have access to a printer to print out the manual. However, the documentation is quite thorough, with lists of parameters for most of the major hard drives available.

The card also includes screws for mounting a 3.5" drive on the card, a power cable that allows a 3.5" card-mounted drive to take its power directly from the *Hardframe/2000* (this is great if you mount a drive right on the card and put the card in one of the slots farthest from the Amiga's power supply, where the Amiga's power connectors may not reach), and a 50 pin ribbon cable (already connected to the card). Installing the Hardframe card is simply a matter of inserting it into any open Amiga expansion slot.

SETUP

After installing the *Hardframe/2000* card and any hard drives, you must boot the machine with the supplied installation disk. First run the program called HardFormat to do a low level format on your hard drive (this is not the same as AmigaDOS FORMAT command). HardFormat will scan the SCSI bus and tell you exactly what is connected to the *Hardframe/2000*; if you have more than one device connected, just pick the one you want to format.

Next, run the program RDPrep if you wish to have the drive autoboot. Under AmigaDOS 1.2 and *1.3* the *Hardframe* will automount your hard drives (i.e., no entries are required in the DEVS/MOUNTLIST file). RDPrep installs the information for autobooting in a specified area of the hard disk (the Rigid Disk Block area). The RDPrep program is extremely easy to use; just point to the option you wish to change and click the mouse. RDPrep initially calculates a standard set of defaults for your particular hard drive, so there is practically no thought involved. RDPrep allows you to set up partitions on your hard drive, but the easiest way to use your hardframe is to have just one partition. In this case you can click on the One Disk Auto-Install icon, thereby setting up your drive for one partition without supplying any information.

After running RDPrep, all that is left to do is to format the drive using the standard AmigaDOS FORMAT command, copy your workbench disk to the hard drive, and you're set to go. By the way, *Hardframe* is FAST! It formatted a 20 Meg Seagate drive in under 5 minutes! (Quite an improvement over Commodore's A2090 controller.)

SUPPORT

One of the most impressive things about the *Hardframe/2000* is the technical support offered by MicroBotics. I initially tried setting up the *Hardframe* with a Seagate ST277N 65 Meg 5.25" drive and encountered some problems. I promptly called MicroBotics and was surprised at how much the technician knew about the hard drive itself (as well as the *Hardframe* card and software). He told me to run a test procedure on the drive and monitor the drive as it went through its self test. I found out that the drive itself was bad, so I decided to use an ST225N, which worked without a glitch.

CONCLUSION

Overall, the *Hardframe/2000* is a great piece of hardware. My only real complaint is that there is not a printed instruction manual. If one were included, so that you didn't have to print out the documentation from disk, the *Hardframe/2000* would be flawless.

One of the most impressive things about the Hardframe/2000 is the technical support offered by MicroBotics.

DISTANT SUNS

By: Macus Adams

"...the authors spent a great deal of time to get the average person to understand the terms used in astronomy."

Have you ever looked up into a clear winter night's sky and focused your attention on a star or planet and wondered what it might be called? Well, if you have an Amiga and the program *Distant Suns* you can find out exactly what the name of that celestial object is, and a lot more.

Distant Suns by Michael Smithwick and Virtual Reality Laboratories, is a program that has a data base of 2200 stars and planets. But you are not limited to *just* those 2200 stars and planets, you can purchase an upgrade to expand the database to over 9100 stars and planets. You can even enter your own data it it's not available to you in the database.

This program has so many features I couldn't begin to mention them all in this article, so I will mention the ones that I found most interesting. By clicking on one of the dots (stars) that appear on the screen a message box appears and gives you information about that particular object.

Some of the information given includes the rise and set of the star on the earth, and the distance in astronomical units and in light years, from the Earth. The box can also include information about when the next meteor shower will coincide with the object, and if their is history behind the object, the message box will also display interesting facts about the object.

Another interesting feature of the program is its ability to search and locate stars or planets that you input. *Distant Suns* will search the sky until it finds the star you asked for and show you it's location. Telescope is a feature that, when activated, gives you a view of the stars you are currently looking at as if you were seeing them through a small telescope. *Distant Suns* even has the ability to export the screen to an IFF file or even print right to your printer.

Probably the strongest feature of this software package is the manual. You can tell that the authors spent a great deal of time to get the average person to understand the terms used in astronomy. The manual gives clear and easy to understand examples of all the terms and functions used throughout the program. The manual, in some instances, even gives you data to enter to see previous astrological events such as a solar or lunar eclipse. There are a number of charts and tables in the manual to make finding stars or planets easy. One table gives you the longitude and latitude of popular cities and countries around the world. Some other tables include planetary data and major visual meteor shows. The manual even takes star gazing a step further and gives you information to help you purchase a real telescope.

Although *Distant Suns* is an interesting program and is loaded with features that should keep the average computer person busy for hours, probably the only person that would get good use out of it is the amateur astronomer or star gazer who would like to become more educated about the heavens. Despite this, I praise the author of this program and manual, a job well done!

Editor's Note: *Distant Suns* recently received an endorsement from Arthur C. Clarke, author of 2001: A Space Odyssey. "I'm totally awed by what you have done!...it's beautiful, especially when all the lights are off..."

Distant Suns
Virtual Reality Laboratories, Inc.
2341 Ganador Ct.
San Luis Obispo, CA
(805)545-8515

A Game Review

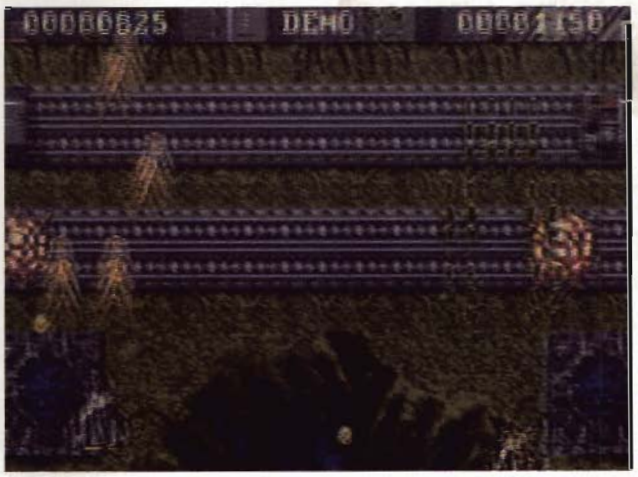
Battle Squadron

By: Steve King

Hang onto your joysticks arcade gamers, a space shoot-'em-up that puts the dedicated arcade games to shame has arrived. As commander of a Delta II class cruiser, your mission is to rescue two fellow commanders who are being held hostage by the evil Barrax forces on the planet of Terrainia--a major weapons research and development center for the Barrax Empire.

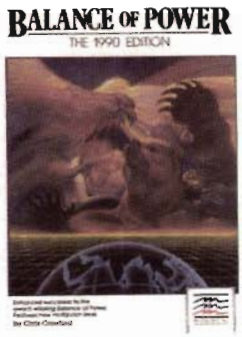
You begin the game by flying over the surface of Terrainia, while being confronted by enemy ships and land emplacements. As you move, the scenery scrolls smoothly both vertically and horizontally; your craft banks as it moves across the screen. Painstaking detail has gone into the rendering of the enemy ships, tanks, cannons and landscape. Initially, your ship is armed with laser beam weapons and three nova missiles, but as the game progresses you can recover any of 25 different weapons which the Barrax spaceships have jettisoned. Each weapon has its own destructive characteristics and digitized sound effect. The external terrain segment of the game uses the Extra_Halfbrite graphics mode so 64 colors are available to highlight the texture and shadowing of the landscape.

Once you have successfully completed a pass over the terrain, you fly into the subterranean levels where greater dangers and adventure await. There are two surface and two underground levels which take over thirty minutes each to complete. As you progress, the dangers increase and you encounter more devastating and unusual enemy weapons ranging from wasp-like creatures to boar heads. The animation in *Battle Squadron* is perhaps the best and most detailed I have seen to date. The images and colors are crisp and vivid. The scenery, ranging from deserts, craters, and complex, moving machinery is unbelievably realistic. When you destroy some of the more advanced creatures, they die by shriveling up and not by merely disappearing in the usual ball of fire. What fascinated me the most in *Battle Squadron* was the "chameleon" ship--an invisible jellyfish-like craft of shimmering transparency that you can only tell is present by the sporadic distortion of the scenery as it passes.



While the play in *Battle Squadron* is by no means unique or unpredictable, the high quality graphics, animation and sound (including the driving musical score) set it apart from other computer arcade games. Moreover, it truly demonstrates the Amiga's capability to equal, and even outshine, any dedicated arcade machine. With more games like *Battle Squadron* on the market, people will no longer ask whether the Amiga version is as good as the arcade game, but whether the arcade version is as good as the Amiga's.

Battle Squadron
InnerPrise Software, Inc.
128Cockeysville Rd.
Hunt Valley, MD
21030
(301)785-2266



You can display information such as spheres of influence, recent major events, levels of military aid, relations between countries, likelihood of a coup d'etat, and much, much more.

BALANCE of POWER The 1990 Edition

A geopolitical simulation of the superpowers with you in control.

Balance of Power, the 1990 Edition is a geopolitical simulation in which you, as the leader of one of the superpowers, attempt to gain influence over the rest of the world at the expense of your opponent, who can be either the computer or another human. The scenario starts in the year 1989, and if by 1997 you have more "popularity points" than your opponent, you win. Sounds simple, but it turns out to be a very complex and challenging task. One other snag - if you (or your opponent) starts a nuclear war, you both lose!

This is the second version of *Balance of Power*, revised to include some additional features and bring it more up to date with current political situations. Of course, recent world events such as the Panama invasion, the pending reunification of Germany, and other major changes in Eastern Europe occurred too late to be included in this program. Even as I write this, another government is going through change - namely, the upset of Daniel Ortega in the Nicaraguan elections. This is rather ironic, considering that the theme of *Balance of Power* centers around situations just like these.

Playing the Game

First, you select what level game you are playing; beginner, intermediate, expert, or the new "multipolar". Since this is a very complex simulation, it is important to master (or at least become familiar with) one level before advancing to the next. Secondly, you choose the number of players. You may either play against the computer or another person. After that, you choose what side you are going to play; USA or USSR.

You are then presented with a map of the world. This is the main display, where most of your information is obtained. Depending on selections from different menus, you can display information such as spheres of influence, recent major events, levels of military aid, relations

between countries, likelihood of a coup d'etat, and much, much more. Double click on a country, and a detailed chart is presented giving you tons of information about that country. Perhaps the most important menu, "events", is also available. This is where you get all the information about what's going on in the world. All the major policy decisions by your opponent are presented here giving you the option to challenge them. Suppose the USSR sends 20 million dollars to the insurgents in Costa Rica - a news item will be generated informing you of this, you can then challenge them diplomatically, and they will respond by either backing down or refusing your demand. This is where things get touchy and may escalate. As the interaction goes on, it becomes more visible to the rest of the world. Back yourself into a corner and give in, you'll lose credibility with your allies. It is even possible to get both sides tense enough to ignite an accidental nuclear war. Again, if this happens, both sides lose. After all, it is difficult to win in an all out nuclear exchange.

The remaining menu options allow you to set your policies, for example: aid to the Contras in Nicaragua.

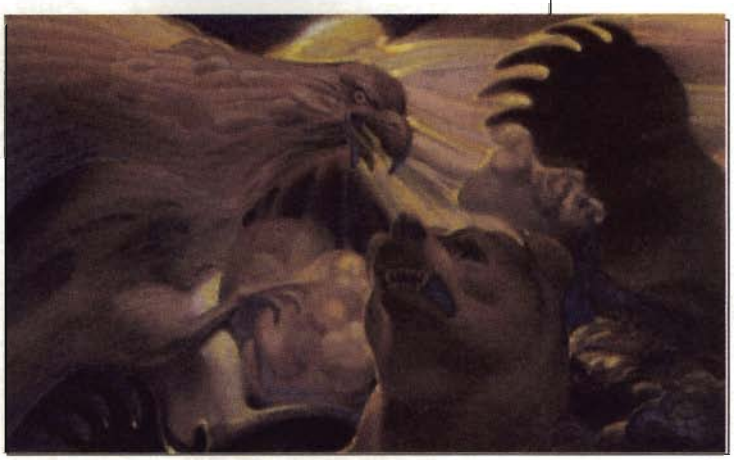
Anything that irks the other side, of course, will be challenged. You then have the option to back down or stand up to your actions. Be careful, for if you consistently play aggressively, the other side will also become more aggressive. Additionally, the rest of the world will take note of this and become more wary of your actions.

This is only the tip of the iceberg - there are many more factors involved in this simulation. The beginner level is limited to things such as military aid and aid to insurgents; as you move up in difficulty, options such as trade policies, diplomatic pressure, and destabilization are added. All of these interact with each other making the game more complex, and considerably more realistic.

Pros and Cons

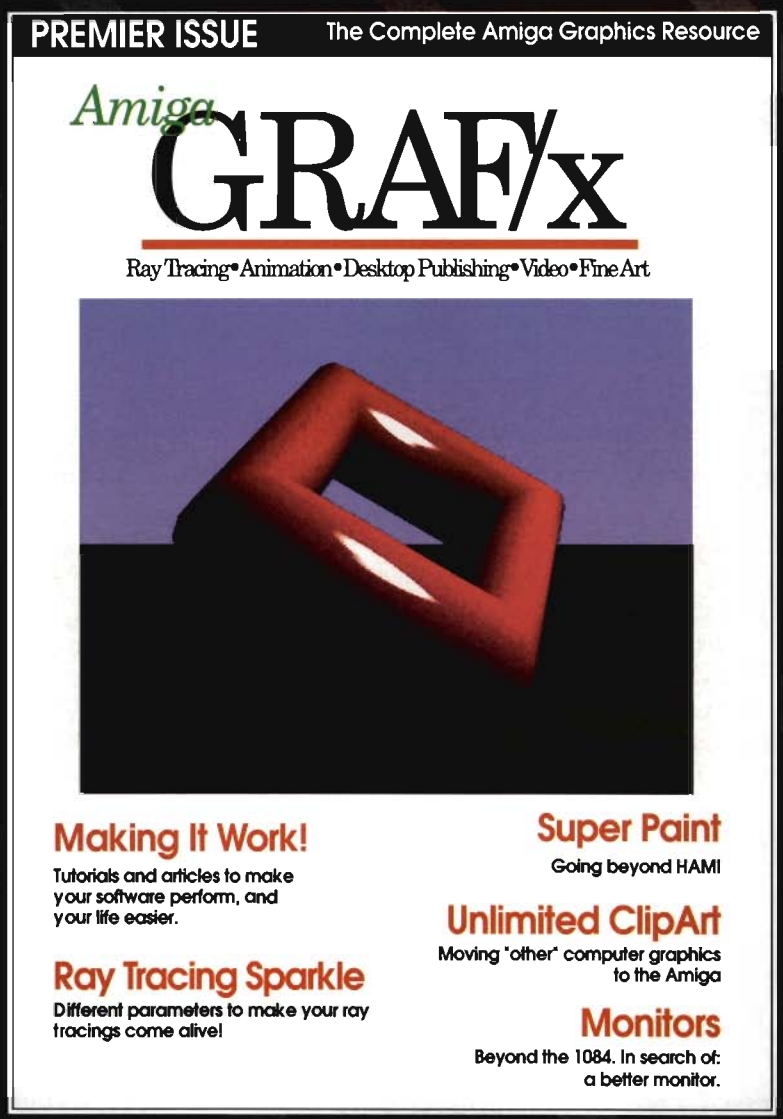
Overall, I consider this an excellent simulation. It does seem realistic enough, even though I am rather naive concerning world politics. A good understanding of geography will also help while playing; if you're not up to snuff on where the countries are, this program will force you to learn, otherwise, you'll spend a lot of time randomly clicking around the world in order to find out where the Russians sent their troops! The instruction manual takes you through all of the options step by step, and the author even goes as far as to explain the program logic and why it reacts as it does. Obviously, a great deal of research and thought was put into this. Be sure to read his explanations as to why the program reacts as it does in crises situations!

Now for the complaints. This program was written for the Macintosh, which is quite obvious when you play it. Although some changes have been made to accommodate the features of the Amiga, I feel they didn't go far enough. For example: the maps of the world were coded in the original



Menu options allow you to set your policies, for example: aid to the Contras in Nicaragua. Anything that irks the other side, of course, will be challenged.

continued on page 28 ▶



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Draw The Tools Window PROGRAM

Part 3 of the Modula II programming tutorial.

by: Richie Bielak

We will create a window containing one gadget to represent each drawing tool.

INTRODUCTION

In the last installment of the Draw program we added a number of new drawing tools. Until now, tools were selected from a menu. However, with more than ten tools, selection from the menu has become cumbersome. Today we will replace the menu with a window containing graphic gadgets that represent the drawing tools. Selection of a new tool will be accomplished simply by clicking on the appropriate gadget.

THE PLAN

Our plan of action is simple; we will create a window containing one gadget to represent each drawing tool. The user of Draw will be able to open this window by making a selection from the Action menu. After selecting a tool, the window can be closed if the user so desires.

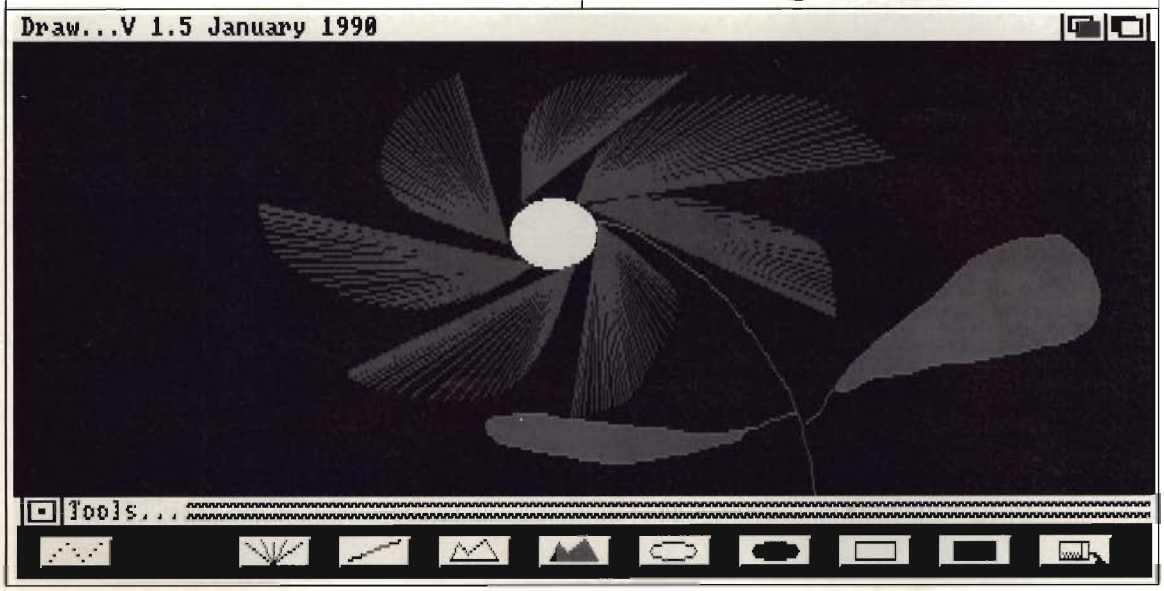
To implement this feature we will have to solve a few interesting problems. First, we will have to process IDCMP messages from two different windows at the same time. Second, we will have to select and de-select gadgets when a new tool is chosen. This turns out to be trickier than it sounds, as a facility for mutual exclusion among a group of gadgets is not provided by Intuition. Finally, to have our program look cleaner we will use images created with *Deluxe Paint* for our gadgets. Figure 1 shows the new look of the Draw screen.

Most of the code implementing the above features is found in the modules: TOOLSWINDOW.MOD and TOOLSIMAGES.MOD. In addition, the main module (DRAW.MOD) has also changed.

HANDLING IDCMP MESSAGES

The procedure OpenToolsWindow (from module ToolsWindow) opens the Tools window with these IDCMP-Flags: Closewindow, GadgetDown, and MenuPick. The need to recognize Closewindow and GadgetDown events is clear; we want to close the Tools window and we want to know when a gadget is selected. The reason for MenuPick, although less obvious, is also simple. When the window opens we attach the Draw menu to it so

Figure 1. The Draw Screen



Mutual exclusion does not exist for gadgets; therefore, we must implement automatic de-selection ourselves.

that the user can make the usual menu selection even when the Tools window is active.

Until now, handling of IDCMP messages in the Draw program was easy, since we only had to deal with one window and one IDCMP port. To wait for a new message we simply called the WaitPort procedure.

With two windows we have two ports to deal with. Since either port can receive a message first, we cannot use the WaitPort procedure. Instead we will use Amiga Exec signals to suspend our program until an IDCMP message arrives at either port.

A signal is a single bit that can be set or cleared by many tasks. In addition, a task can suspend until a particular signal, or a group of signals is set. The Wait procedure (imported from module Tasks) allows a program to suspend until one of a group of signals is set. A signal mask is passed to Wait to specify which signals will wake the program up. When the program is resumed, Wait returns a mask with the bit set at a position that correspond to the number of the signal that caused the wake-up.

Each IDCMP port has an associated signal (the mpSigBit field), which is set whenever Intuition enqueues a message to the port. To wait for a message on one of two ports we simply have to call Wait procedure with a mask containing bits set for the appropriate signals. Because in Modula-2 set-types are represented as bit masks. After declaring WaitMask to be of type SignalSet, we use the following code to set up the required mask:

```
(* Clear the WaitMask *)
WaitMask := SignalSet{};

(* Insert the number of the signal for the drawing *)
(* window into the WaitMask *)
INCL(WaitMask, CARDINAL(wp^.UserPort^.mpSigBit));
```

The signal number of the Tools window IDCMP port is added into the WaitMask when the window is opened and it is removed when the window is closed (see the code in DRAW.MOD).

Once the WaitMask is initialize we can wait for IDCMP messages coming to either port, by calling the Wait procedure:

```
sig := Wait (WaitMask);
```

After a signal is received, we have to figure out from which port a message should be removed. This is easy, as the variable *sig* will contain the number of the window's signal. Assuming that *wp* points to the drawing window and *toolsWp* points to the Tools window, the following code will remove the message from the correct port:

```
IF CARDINAL (toolsWp^.UserPort^.mpSigBit) IN sig
THEN  msgptr := GetMsg (toolsWp^.UserPort^);
ELSE      msgptr := GetMsg (wp^.UserPort^);
END;
```

The above code is extracted from the ProcessMessages procedure in the Draw module.

GADGET MUTUAL EXCLUSION

When Intuition menu structures are built, it is possible to define a list of menu items to be mutually exclusive. That means that only one item can be selected and checked-off at a time. When a new selection is made, the check mark moves to the new item. Unfortunately, such mutual exclusion does not exist for gadgets. Therefore, we must implement automatic de-selection ourselves.

To select or de-select a gadget, we simply set or clear the Selected bit in the Flags field of the gadget record. However, since the gadgets we modify are already being displayed we have to follow a special protocol in order to make sure our updates don't conflict with Intuition (the method for implementing such mutual exclusion is described in the *Enhancer 1.2* manual from Commodore).

These steps must be followed: first, we have to remove the gadget from the gadget list; then we modify the Flags field; finally we insert the gadget back. For instance, the code below marks a gadget as selected:

```
pos := RemoveGadget (wp^, gp^);
INCL (gp^.Flags, Selected);
pos := AddGadget (wp^, gp^, pos);
```

Note that the *pos* variable is used to remember the position the gadget occupied in the list, so that it can be inserted in the same place.

Once the appropriate flags are set, we call the RefreshGList procedure to redraw the new gadget list in the window.

The procedure SelectTool, in the ToolsWindow module, handles the selection and de-selections of gadgets as well as the assignment of the new tool procedure. The complete code for the SelectTool procedure is found in LISTING #1.

GETTING IMAGES

There are a number of different ways for getting images into programs. A utility that can be purchased with the *Benchmark Modula 2* package provides an easy and efficient way to attach images to programs.

Benchmark's tools consists of a program, ADDIMG, which can be used to attach images to an executable file, and of a module, FindImages, that is used to retrieve addresses of the loaded images.

ADDIMG converts IFF format files into appropriate bitmap structures and places them in a separate hunk (a hunk is a segment of an executable program that is loaded into a contiguous piece of memory), that is marked for loading into CHIP memory.

The module FindImages export procedures that allow us to get pointers to the loaded images. In addition, size information is also provided, so that Image records can be properly set up for use with other Intuition objects.

All gadget images were drawn with *Deluxe Paint* and saved as brushes in .img files (these are included on the disk). After the Draw program is linked, the ADDIMG utility is used to attach the images to the executable program.

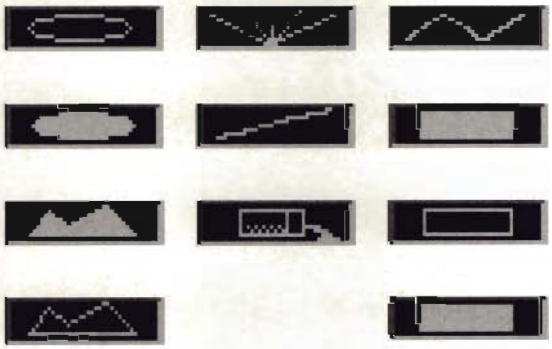
Code in the module ToolsImages sets up an array of Image records by using procedures from FindImages. Each Image record describes a single image loaded in memory. This array is then used when the gadget list is created in the ToolsWindow module.

CONCLUSION

This completes our discussion of the new Tool window. As always, the interested reader is strongly encouraged to read the code. Next time we will learn how to save our pictures to IFF files.

LISTING #1

```
PROCEDURE SelectTool (wp: WindowPtr; gp :
GadgetPtr);
VAR
pos : CARDINAL;
BEGIN
(* Clear current tool gadget *)
IF CurrentDownGadget <> NIL THEN
pos := RemoveGadget (wp^, CurrentDownGadget^);
EXCL (CurrentDownGadget^.Flags, Selected);
pos := AddGadget (wp^, CurrentDownGadget^,
pos);
END;

(* Set up newly selected one *)
pos := RemoveGadget (wp^, gp^);
INCL (gp^.Flags, Selected);
pos := AddGadget (wp^, gp^, pos);

RefreshGList (GadgetListPtr^, wp^, NIL, -1);

CurrentDownGadget := gp;

(* Pick new tool *)
CASE CurrentDownGadget^.GadgetID OF
0: CurrentTool := Pencils.DottyPencil; |
1: CurrentTool := Pencils.NormalPencil; |
2: CurrentTool := Lines.Fan;          |
3: CurrentTool := Lines.Line;         |
4: CurrentTool := Figures.Polygon;    |
5: CurrentTool := Figures.FilledPolygon;|
6: CurrentTool := Figures.Ellipse;    |
7: CurrentTool := Figures.FilledEllipse;|
8: CurrentTool := Figures.Rectangle;  |
9: CurrentTool := Figures.FilledRectangle; |
10: CurrentTool := Fill.ColorFill;
ELSE
(* Error *)
END;
END SelectTool;

-----EOF---EOF----EOF-----
```



Next time we will learn how to save our pictures to IFF files.

continued from page 23

... this is an excellent simulation ... if you're not up to snuff on where the countries are, this program will force you to learn.

maps of the world were coded in the original version by shading the countries in different grey levels to show such things as sphere of influence, government support, level of military aid, etc. In the Amiga version, the grey levels were converted to different colors, but didn't allow for the greater detail made possible by using a color display. In fact, the history graphs for each country (an essential part of this game) weren't converted to color at all. I find the grey shading of these graphs very confusing; if they were color coded, it would make life a lot easier.

There doesn't seem to be any bugs in the program (at least I didn't come across any), but due to the color limitations mentioned before, some discrepancies appear. The most apparent one is the sphere of influence display - four levels are shown on the map (there isn't even any consideration for neutral countries), and the closeup charts for the individual countries will often disagree with these maps. Fortunately, these shortcomings are rather easy to figure out and shouldn't affect your play too much.

There is no copy protection in this version (thank goodness!) except for a rather benign request during the game to look up a word in the manual and type it in. This allows running the program from a hard disk drive, which greatly speeds up things due to the frequent disk accesses. However, there is no mention that the program expects to find volume BOP: mounted; to run from a hard disk, this must be assigned to the current directory. I got around this by changing the program icon to a project type and using ICONX. No problem for anyone familiar with CLI, but a hassle for many other users.

Closing Comments

Keep in mind this is not an action packed arcade game; if that's what you're expecting, you'll be disappointed. Instead, what you'll get is a program that requires much thought, some diplomatic savvy, and preferably some knowledge of geography. There are some things that could be improved (a modem play option would be really nice), but overall, well worth the purchase price. Just remember to show some restraint and the rest of the world will be grateful!

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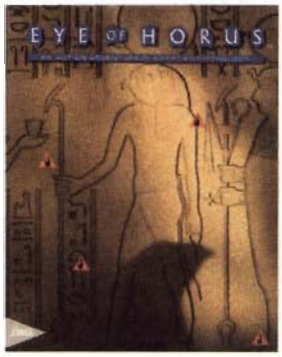
EYE OF HORUS

by: Mike Hubbartt



Egypt--a land that brings to mind pharaohs, pyramids, and sand--lots of sand. Egypt is located partially on the African continent, and partially in Asia. Recorded history for Egypt as a unified country spans over 5000 years, starting before 3000 BC! Most modern nations measure existence in decades or centuries--not millennia! A country so ancient has well-known traditions, which include the mummification of the dead and the use of pyramids as resting sites for dead rulers. Mummification and entombment in these stone monuments actually started in the IV dynasty of Egypt, around 2680 BC.

Why the brief intro on Egyptian history and traditions? How about as the introduction to a computer game called *Eye of Horus*, which uses a new theme for a change? Not a space quest or *Dungeons and Dragons* theme; *Eye of Horus* uses the mazes of a tomb as its setting and Egyptian characters/insignias for a different type of search and restore game.

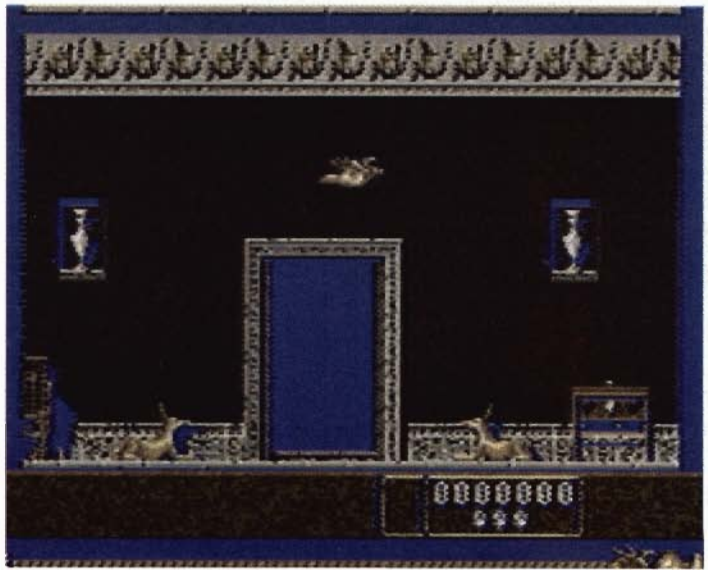
This game is based on the ancient Egyptian legend of Osiris and Horus. You play the role of Horus, son of King Osiris and Queen Isis. Isis and Anubis are two allies that come to the aid of Horus, although they won't fight Set directly. Set is the evil god--brother of Isis and half-brother to Osiris--who has brought about the demise of Osiris and has treacherously cut Osiris' body into seven parts. Everyone knows (hah!) that the dead can only rest when the entire body is lain in the sarcophagus, so you (Horus) must find all seven parts of the body and return them to the sarcophagus to let your father rest in peace.

Set, the evil god--brother of Isis and half-brother to Osiris- has treacherously cut Osiris' body into seven parts.

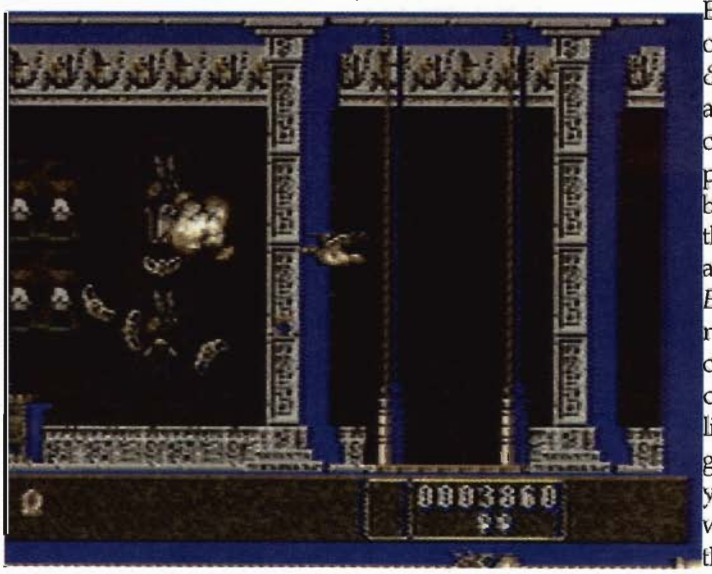
As Horus you have three lives in which to complete this task. Naturally, Set will do his best to stop you. Set hides evil objects in the tomb among the hieroglyphics with the intention of stopping Horus from helping his father. A Scarab on the bottom of the screen shows the amount of damage Horus has sustained in his travels through the maze.

Pick up any amulets; they bestow extra abilities you'll need to complete the game.

You move Horus through the maze with the joystick. You will encounter elevators, some needing a key you'll pick up in the maze (after sufficient exploration of course) and others without the requirement of any key. Some elevators only move either up or down, while others move both up and down. Set's minions won't attack you while an elevator is moving--a good tip to remember if they are overwhelming you in some parts of the maze. The joystick fire button sends missiles against the various bad guys you encounter, although you start out too weak to hurt the tougher enemies.



While you wander about, pick up any amulets (there are a total of 19) or keys (8 total) lying about. The amulets bestow extra abilities you'll need to complete the game, which culminates with the destruction of Set. One *very* important amulet you'll need is the Amulet of the Steps, which displays the areas of the maze you've already explored. Although *Eye of Horus* is a self-mapping game, you'll still need the Amulet of the Steps to take advantage of this feature. Another amulet that you must have is the Amulet of Tet, used in the reconstruction of Osiris' body.



I liked the game's graphics, because they were well drawn and scrolled smoothly during game play. The game is easy to learn, but takes quite a while to win. Horus' human form doesn't seem to be the best for roaming about the maze because he moves slowly this way. I spent a lot of time flying about in the faster (and safer) Hawk form of Horus. You can't use an elevator or pick up amulets or keys while in the hawk form, so understand that there are important reasons for using the human form.

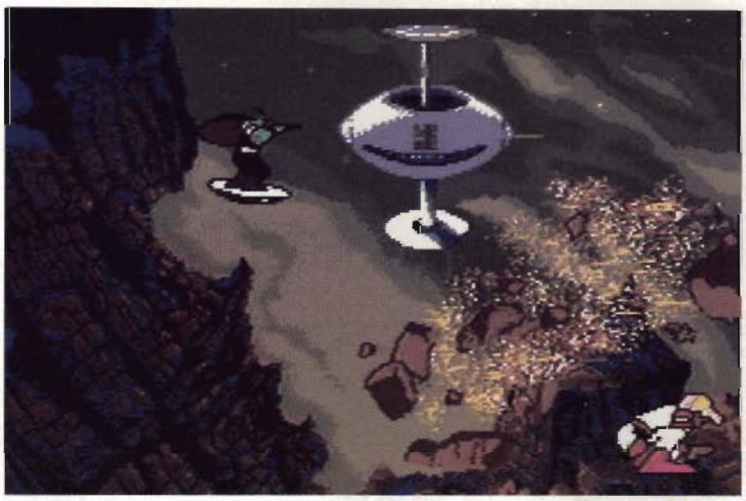
Eye of Horus comes on a single disk, and it cannot be installed on a hard drive due to Britannica's data compression techniques--not a major loss, since there is no need to store it on the hard drive since it is on a single disk anyway. The theme itself is different from any I've seen yet, Egyptian instead of the standard *D & D* theme long available to computer game players. I like the basic theme of the game and the action, although *Eye of Horus* is not as challenging conceptually as I like a computer game to be. If you like wandering through mazes searching for artifacts while dodging assorted nasties, this game may be the one you've been waiting for.

Eye of Horus
$39.95
Britannica Software
345 Fourth St
San Francisco, CA 94107
1-800-572-2272

SPACE ACE

--The Interactive Game from Ready Soft

by: Bob Stransky



Space Ace, the extremely successful interactive arcade game by Don Bluth (also of *Dragon's Lair* fame) is now available for the Amiga. This game pits Ace, the earth's greatest hero, against the hideously evil commander Borf and his dreaded Infanto ray. Can Ace save the earth? Tune in and find out!

Space Ace is unlike any other game that I've ever seen. Because it is an interactive game it is more a play along cartoon than a traditional video game. There are 33 different scenes to master, each with a particular sequence of joystick motions that are required to be executed to sucessfully complete a screen. This type of video game is one which you either love or you hate. Those arcade junkies who love to learn all the "right" moves to a video game will love it, but those who like to "wing it" through the game probably won't like it one bit.

This game is huge! There are four disks of animations, packaged with a thin and somewhat brief instruction and hint manual. Unfortunately, this game is heavily copy protected. Copies of the master disks just won't work, although they initially appear to boot up properly. I am not a fan of copy-protection, and I especially don't like it with a program that does as many disk accesses as this one. The program loads information for each scene individually, giving ample opportunity for disk damage.

Even with its large size, *Space Ace* loads very quickly. Only a matter of seconds elapsed between booting up and the appearance of the title screen. Transfer from scene to scene is also very fast. I was quite impressed at the speed with which scene information was loaded, especially considering the amount of information required for each screen. (The data compression routines used by this program must be extremely sophisticated!)

Tune in to see Ace, Earth's greatest hero, battle the hideously evil commander Borf, and his dreaded Infanto ray

In the hands of a master gamesman, this game is a blast, but in the hands of a novice, it's miserable.

Users of *Dragon's Lair* (ReadySoft's previous release of this type of game) will be quite pleased by the improved loading routines.

When the game is booted, a traditional title screen appears with some credits, and the program quickly begins to play highlights from several of the scenes. The graphical detail and animations are excellent, but the sound samples leave something to be desired. A lot of background noise can be heard in several of the samples, most noticeably in the *Space Ace* title announcement. With so much effort applied to making the game appealing, I would have expected more from the sound samples.

To start the game, just press the "fire" button on the joystick (or you can use the Amiga's keyboard instead). After a brief introduction scene, our hero, Dexter (a.k.a. Ace), is attacked by Borf. Dexter must jump out of the way of Borf's shots or he will be killed. (Each game starts with three lives, with additional lives granted for every 10,000 points.) The manual explains how to complete this scene safely so that you can get started with your adventure. There are many additional scenes to play, and the manual provides hints for the completion of each.

My only real problem with this game was that it provided no immediate feedback for my input. The animation plays along, requiring that the joystick be pushed in the correct direction for it to continue. If you push the joystick the wrong way, Dexter doesn't follow it, but soon gets killed. I found it quite difficult to determine whether I had made the proper moves at the proper time until it was much too late.

There is only one correct sequence of moves possible to complete each scene. Make just one wrong move, and you're history. At times, I became somewhat frustrated by this and the lack of feedback from the game. Ok, go right, then left, then down? No, that didn't work, but what did I do wrong? Should I have gone up, or maybe I should have waited longer!?! In several scenes, I found that I couldn't duplicate earlier successes because I couldn't figure out what I had done to get through. The manual explains, "Don't be surprised if Ace doesn't move immediately after you have made a joystick move. You must wait for the animation to finish and if you made the correct move(s) you will continue on to the next scene." This is definitely not a game for those with little or no patience!

In the hands of a master gamesman, this game is a blast, but in the hands of a novice, it's miserable. I've spent hours trying to get through just the first few levels, but I find that the going just isn't easy. How did those guys at the arcade get to be so good? How much did money did they spend to become that expert? One advantage of the Amiga version is that there is no slot to drop quarters into continuously. If I had spent a quarter to restart the game every time I used up my lives, I would have dropped a hefty amount of cash. I only wish that the game started with more than just three lives, but something more useful, like a hundred or so.

If you liked the arcade versions of *Space Ace* and *Dragon's Lair*, you'll love this game. The animations are excellent, and although the sounds aren't terrific, they are quite acceptable. The program loads quickly and transitions between animations are also very rapid. The only down side to the game is its lack of feedback during play. If you have a lot of patience and are willing to learn the proper moves to this game, I'm sure you'll enjoy it. Even though this game can be quite frustrating at times, it does possess a great deal of appeal. As for me, just remember to invite me over to watch you play after you get good. I need all the help I can get when it comes to *Space Ace*.

Space Ace
$59.95
Ready Soft Inc.
30 Wertheim Court
Unit 2
Richmond Hill
Ontario, Canada
L4B 1B9
(416)731-4175

AMIGA NEWS

Accolade's latest efforts bring robots, flight simullators, golf, synergy and auto racing

Five New Games from Accolade

Coming soon are Accolade's latest efforts, *Day of the Viper, Strike Aces, European Challenge, Jack Nicklaus Presents the International Course Disk,* and *The Game of Harmony.* In *Day of the Viper*, a science fiction adventure/strategy game, you and your robot, Viper-5, are the last defense against a hostile android fleet that threatens the planet's survival. From your orbiting ship, you remotely pilot Viper-5 through the five building, twenty-five level defense installation. You collect weapons, energy crystals, keys to critical rooms, and vital circuits for your viper's circuit board. Of course, countless traps and mines obstruct your mission. You have the advantage, however, of an intelligent object management system which keeps track of every object you encounter. A built-in notepad allows you to log an item and its location by clicking on the on-screen item. Moreover, a communications system will define any item you click on, thus taking the guess-work out of identifying objects. *Day of the Viper* features a customized, multi-tasking on-screen control pad that is fully activated by a touch of a mouse or cursor keys. The selling price will be $49.95.

Strike Aces is a military flight simulation modeled after the 1984 Strategic Air Command Bombing Competition, which allows you to occupy the cockpit of six different aircraft, including the Russian MIG. The simulation features detailed replicas of 13 different aircraft and takes pilots on 16 different combat intensive missions. The simulation is unlike the actual competition, however, in that it allows jets to be shot down or crashed. *Strike Aces* will sell for $49.95.

European Challenge, an add-on accessory disk for use exclusively with *The Duel: Test Drive II*, allows you to drive through six different countries--Holland, Germany, Switzerland, Italy, France, and Spain. *European Challenge* offers you a greater selection of cars to race. New scenes include narrow roads of the Friesland countryside, windmills and tulip beds of Holland, the Autobahn, mountainous valleys of Switzerland, and more. The accessory disk will sell for $21.95.

Jack Nicklaus Presents the International Course Disk, an accessory disk for use with *Jack Nicklaus' Greatest 18 Holes of Major Championship Golf*, offers computer golfers a fantasy vacation overseas with the opportunity to play on precise simulations of three championship courses designed by Jack Nicklaus in Australia, Japan, and England. The accessory disk will sell for $21.95.

The Game of Harmony is an adult arcade game in which players must use a combination of strategy and concentration, not to annihilate objects on the screen, but to prevent objects from blowing up. Players control a single spinning sphere on a screen filled with constantly moving multi-colored orbs. The object is to create synergy by strategically maneuvering same-colored orbs together before they explode from tension. The game contains fifty progressively challenging configurations. Each configuration consists of randomly arranged orbs which glide around the screen while the player attempts to gain points by gently pushing pairs toward each other with a pointer. However, pairs may be blocked by geometric obstacles; some orbs may be joined by elastic threads that will cause all of them to ricochet if one is pushed too hard. If two orbs of differing colors are allowed to create synergy, they will create a small pod that you can gobble up for energy, but if you wait too long, the pod will grow into a new orb. *The Game of Harmony* is accompanied by a musical score generated by the computer and uniquely determined by the

random touch and actions of the objects on a given level. The game will sell for $44.95.

Accolade
550 South Winchester Boulevard, Suite 200
San Jose, CA 95128
(408) 246-0885

AmiEXPO goes international with AMIGA '90

AMIGA'90

AmiEXPO has announced AMIGA'90, scheduled for Basel, Switzerland, May 9-12 and Cologne, West Germany, November 8-11. AmiEXPO officials expect 35,000 visitors and as many as 100 exhibiting companies at each show. All North American exhibitors will be offered a standard 3 x 4 meter stand, complete with electricity, furniture, stand system, and listing in the show guide. The base rate for each stand is $2,800.

AmiEXPO
465 Columbus Avenue, Suite 285
Valhalla, NY 10595
800-32-AMIGA

Jigsaw Puzzlemania

Artworx has recently brought the fun of solving jigsaw puzzles to the Amiga. *Jigsaw Puzzlemania* features puzzles which are "cut" into jigsaw shapes. Designed for all age groups, each puzzle can be played in six different sizes ranging from 6 x 6 to 12 x 12. The game allows for solo play, competition, or team play. All puzzles are randomly generated, hence a different puzzle layout is produced each time the program is used. *Jigsaw Puzzlemania* includes 12 puzzles and will accept the user's own graphics and sound files. The suggested retail price is $29.95.

Artworx Software Company, Inc.
1844 Penfield Road
Penfield, NY 14526
(800) 828-6573

HAM-E
(Hold And Modify Expander)

What is it?

The HAM-E adds two new video modes to any model Amiga, including the A1000, the most important of which is a 262,144 color HAM mode, with 236, 24-bit accurate color registers. The Amiga has always had a 4,096 color HAM mode with 16 color registers, which has been the basis for much of the video and art work that has been done on the Amiga until now.

There are two noticeable problems with the Amiga's standard built-in HAM mode. The first is color contouring, which occurs when a color changes to the next closest shade, that is different enough that it can be detected by the unaided eye. A blue sky with "bands" of blue in it, rather than a smoothly changing "sweep" of blue tints is a good example of this.

The other problem is the "sharp edge". The Amiga's standard built-in HAM mode allows you to quickly change to any one of 16 colors by specifying a color register instead of one of the R,G or B reloads at any HAM pixel. This causes the pixel to change in all three of the R,G and B guns at one time, which provides a "sharp edge" for that color. The problem is that there are often far more than 16 areas of "sharp edge" color changes in a typical HAM image.

A Workable Solution

Although solutions to these problems have up until now been limited, the HAM-E system add-on provides a new, inexpensive solution. This product is currently anticipated to list price in the region of $300.00--a cost which most Amiga owners can afford.

Installation is trivial; unplug the Amiga monitor, plug in the HAM-E, and plug the Amiga monitor into it. Color contouring is reduced to where it is virtually unnoticeable, due to the availability of an additional 258,048 colors above and beyond the Amiga's normal 4,096 in the expanded HAM mode.

"Fast edge" problems are reduced by the availability of 236 color registers in the extended HAM mode instead of the 16 Amiga has. You can gen-

lock using one of these registers as well. The color registers are all 24 bit accurate, so you can have very high accuracy images using just color registers in critical areas of a HAM image.

In REGISTER mode, the HAM-E board provides 256, 24-bit accurate, color registers that are not HAM. That is, any register is accessible at any pixel position with no prerequisites.

Because the HAM-E utilizes the Amiga's internal chip memory for storage, it can be used with the blitter and the CPU directly on the image data; no extra load is placed upon the Amiga beyond that imposed by normal Amiga screens. This means that the DMA and CPU bandwidth are unaffected by the operation of the HAM-E.

Finally, the HAM-E is compatible with the Amiga's current screen handling; no updates to system software are required. Images formatted for the HAM-E can be shown by currently existing "show" programs such as SuperView without any modifications to the show programs, libraries, or other standard resources. This means that, with minimal effort and investment, a much higher quality image than was ever before possible is now available.

Currently, Electronic Arts, MicroIllusions,Impulse, A-Squared, ASDG, Syndesis, and many more image-oriented Amiga developers are following the progress of HAM-E. Paint, ray trace, and tilting software availability should all occur just before or shortly after the release of HAM-E.

The initial run of the product is planned to be reasonably short, so contact Black Belt Systems if you are interested in obtaining one. Although they are not actually taking orders, they will place your name on a prioritized list for a unit and contact you once the units are available.

Black Belt Systems
RR1, Box 4272
398 Johnson Road
Glasgow, MT 59230
(406) 367-5509

Bars&Pipes Add-on Series

Blue Ribbon Bakery is currently shipping two add-on packages for *Bars&Pipes*. With the *Internal Sounds Kit*, which includes the keyboard, instruments, and player, MIDI is no longer needed for composition and creation. The two-disk package includes Spare Keys (an input tool which allows the entry of notes with either the mouse or the Amiga keyboard), the ECT SampleWare IFF Sounds Collection, and the Amigophone (an output tool which allocates simultaneous internal sounds on the fly). The AmigoPhone's Control Window allows for adjustment of high fidelity, fine tuning, modulation, octave shift, pitch bend, vibrato rate, vibrato depth, emphasis, attack, release, and volume. The sounds provided by the kit include not only conventional instruments such as acoustic guitar, drum kit, and flute, but also unconventional instruments such as Falling Piano, Wacky Flower Pot, WetPokeInTheEye, and WhaackInDuhHead.

MusicBox A, the second add-on accessory for *Bars&Pipes*, contains 17 tools and one accessory. Among the tools are Glissando, Event Filter, Repeat, and Stereo Doubler. True Colors, the only accessory, is a color palette editor. Both add-on packages sell for $59.95.

Blue Ribbon Bakery, Inc.
1248 Clairmont Road, Suite 3D
Decatur, GA 30030
(404) 377-2277

Systems Marketing Group

Commodore's most recent move in a series of marketing initiatives is the establishment of a Systems Marketing Group to be headed by Paul Calkin, a former Unisys executive. The primary focus of the systems group is the release and marketing of Commodore Unix-based products.

Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100

Productivity Package

Computerall, an Amiga dealer, has just released AutoScript, the first of its series of productivity software and hardware enhancements for the Amiga. Although AutoScript is designed to be a graphics translation tool for the Amiga, it supports

Bars & Pipes no longer requires MIDI for composition and creation

THIS ISSUE

A.X. MAGAZINE ISSUE 3.2

Here is a sampling of what to look for on this issue's companion disk set.

☆DRAW

Here's the program and source code for the Modula II programming tutorial found in this issue. DRAW is a paint program by Richie Bielak.

☆DSDEMO:

Distant Suns demo. Execute the de-archiving script to use this demo.

☆MED

MED is a music editor much like SoundTracker, but more friendly to the user. A song consists of blocks. There can be 50 blocks in v1.12 of MED. You can then play the blocks in any order. The best way to learn to use the program is trying.

☆LINE ART DEMO

The line art demo Klide is Jerry Kallaus' entry to the Badge Killer Demo Contest 2. Klide uses line mode blitter code developed by the author which is capable of rendering short vectors at a rate up to 15,000 lines/second. Klide was created using JForth and assembler for the Amiga by Delta Research.

☆DRIP GAME

PacMan like game where you have to clean out a pipe maze and avoid various baddies.

☆BOLLINTRO

A graphics and sound demo. The Amiga's blitter is used here to rotate strings of balls in various ways. Press both mouse buttons at the same time to exit this demo.

☆HENNON

This program allows you to explore Hennon mappings, as well as create your own. See Richie Bielak's article on Hennon mappings in this issue for further details on using this program.

☆HAMSHARP

This Amiga program converts GIF files to IFF files (using HAM if required). It takes a while to run (typically 3 minutes) but produces HAM images with few color errors. It is also useful for showing full PAL pictures when used in conjunction with PAL-capable IFF viewers. C Source Included!

☆JUGGETTE ANIMATION

Remember Eric Graham's Juggler? See this DPaintIII adaptation.

ON DISK

The A.X. Magazine Two Disk Set

DISK INSTRUCTIONS

1. At the Workbench prompt, boot from your favorite Workbench disk. It is important that your Workbench disk be relativelycomplete.
2. After you insert the A.X. Disk, an A.X. disk icon will appear. Double click that disk icon to expose the magazine icons.
3. From here, everything is point and click. Double click the disk icons to expose more icons. Other animations and items can be started from their icons also.
4. Be sure to read any available instructions Icons before trying to start programs.

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6820 Distribution Drive
Beltsville, MD 20705

TECHNICAL SUPPORT

Technical support is being provided by NewAge computers. When you call, please say you are calling for A.X. technical support. Also please have the issue number, and any other relevant information ready.

1-301-220-1296

Multi-function expansion adaptor by GVP

many Apple application Postscript file formats for several reasons. First of all, products such as A-Max and Mac to Dos make it easy to convert the Mac disk format to the Amiga disk format. Secondly, a large number of graphic artists are working with Postscript drawing programs on the Mac and are animating on the Amiga. Finally, people spend many hours wrapped up in creating detailed libraries of Postscript imagery.

AutoScript has the capability to import highly complex and point accurate Postscript drawing files, including Bezier curve information, directly into Sculpt4D or Turbo Silver. This means that highly sophisticated drawing packages such as Adobe Illustrator 88, Aldus Freehand, or LetraStudio can be used. To use these packages, however, either A-Max file transfer software and a Macintosh disk drive, Mac to Dos and a Macintosh disk drive, or a direct modem connection between an Amiga and a Macintosh is needed. AutoScript can also be used with Amiga's own Professional Draw and ProVector PostScript files. Additionally, AutoScript allows PostScript files to be written to disk as Digi-Works 3D file information, which gives you access to the quickest possible polygon fills in the industry.

Computerall stresses that AutoScript will keep up with the evolving Amiga animation market. AutoScript is written with multi-tasking in mind and can be used on accelerated Amigas with 68010, 68020, and 68030 processors. It requires 1 meg or more of RAM. The suggested retail price is $129.95.

Computerall Services
Three North Walnut Ave.
New Hampton, IA 50659
(515) 394-3778

The Videomaker

CV Designs has recently added Volume Eight v1.0, the Videomaker, to its Video Visions line. Volume Eight consists of two disks of images, which include anniversaries, Bar Mitsvahs, weddings, honeymoons, and other ceremonial images. Volume Eight features 16-color Hi-Res and may be purchased individually for $24.95 or as part of the Wedding Set (Volumes Four and Eight), for $39.95.

CV Designs
Computer Video
61 Clewley Road
Medford, MA 02152

Dragonscape

Dragonscape, by Free Spirit Software, is a fast and smooth 64-way scrolling shoot-'em-up in which quick thinking is as important as a quick trigger finger. The plot revolves around a curse that has descended onto Tuvania. The curse may be lifted by restoring magical artifacts to their correct resting places. You and your dumb but trustworthy Dragon face many challenges and puzzles in your quest to free the lands of Tuvania.

The game features five different multi-screen levels, digitized sound effects, a full sound musical sound track, and 100 different types of opponents. The suggested retail price is $39.95.

Free Spirit Software
P.O. Box 129, 58 Noble Street
Kutztown, PA 19530
(215) 683-5609

SCSI/RAM Controller

Great Valley Products Inc.'s *Impact* A2000-SCSI/RAM (8.0) controller, a multi-function expansion adapter, provides a high-performance SCSI hard disk controller as well as a 8MB RAM expansion board on a single A2000 expansion card. *Impact's* technical specifications include an autoboot feature, an autoconfiguring feature, transfer rates of up to 4MB/SEC synchronous, and an external SCSI connector for connecting up to seven external SCSI devices. *Impact* can transfer 16-bit Direct Memory Access data to onboard 16K disk buffer, thus providing untarnished results. The package is complete with a manual and detailed installation instructions, a flat 50-pin ribbon cable for connecting internal SCSI hard drive, and a one year factory warranty; it sells for $399.00.

Great Valley Products
225 Plank Ave.
Paoli, PA 19301
(215)889-9411

PIXOUND & HYPERCHORD

Hologramophone Research has announced the release of two new products, Pixound and the Hyperchord kit. Pixound is a musical screen interpreter which uses both MIDI and Amiga internal voices. By translating the red, green, and blue con-

tent of each pixel into chords, *Pixound* converts pictures into music.

Because music can actually be composed and performed with *Pixound*, Hologramophone has added MIDI recording capacities for serious musicians who wish to generate melodic and harmonic sequences for use in other music programs. Designed for the novice or the professional, Pixound sells for $109.00.

The *Hyperchord* kit is a compilation of four interrelated programs, the principle one being **Hyperchord**. The other programs are *Mode Maker, Rhythm Maker*, and *Holistic Window*. The kit is designed for use in live performance, recording, and composition.

Hyperchord is a riff sequencer which can use either MIDI or Amiga's internal voices. It allows the user to create riffs of up to 40 notes, which can then be stored and manipulated in real time. *Hyperchord* incorporates two modes: Dynamic and Play. Dynamic mode allows for the use of several tools to create anything from simple scale runs to complex "riff waves." Riffs can be varied by using *Hyperchord* functions such as smear, rotate, weave, reverse, and mix. In addition, a Grab-bag feature creates 30 riffs based on a unique set of algorithms. The creations can then be stored and played back in real time in the Play mode. The Play mode allows the user to switch among any of 60 user-defined tonal modes. The user can also use the mouse and the keyboard to manipulate pitch, speed, rhythm, volume, note order, orchestration, harmonies, and trills.

Mode Maker allows the user to customize *Hyperchord's* six pre-set modes. Scales, modes, and arpeggios can be displayed as musical pipes, frets on a string, or as concentric circles. Spectral colors reflect the tonal relationships of the notes.

Rhythm Maker allows for the creation of 39 custom rhythms for Hyperchord.

Holistic Window is a three-dimensional graphic interface, which provides a visual analog for better understanding of the inner workings of sound.

The Hyperchord kit includes a manual complete with glossary, appendices, and index. The suggested retail price is $159.00.

Hologramophone Research
6225 S.W. 145 Street
Miami, FL 33158
(305)252-2661

Innovations '90

Innovations '90, the International Consumer Electronics Show (CES), will be held on June 2-5, 1990 and will feature products selected at the summer CES. Innovations '90 will display products from the following categories: audio, video, personal computers, home office products, and personal electronics. Products will be judged at the summer CES on the basis of conceptual innovation, technical execution, and distinctiveness. Only original programs produced for the consumer market are eligible; products must have been introduced since the 1989 Summer CES, or must be introduced at the 1990 Summer CES and become available at retail during 1990. The deadline to enter the summer CES is April 17, 1990. Only those products selected at the Summer CES will be displayed at Innovations '90.

Innovations '90
Design & Engineering Consumer Electronics Shows
1722 Eye Street, NW
Washington, DC 20006
(202) 457-8700

The Talking Animator! Upgrade

JMH Software has upgraded its popular educational software package, *The Talking Animator!* The version 2.0 upgrade has added features such as the ability to save and load IFF brushes and the ability to pick up any part of a screen as a brush and moved it to another page. A new UNDO feature allows recovery from the last mouse click. *The Talking Animator!* upgrade also supports endless looping and voice change options. The program requires one Meg of memory and sells for $49.95.

JMH Software of Minnesota, Inc.
7200 Hemlock Lane
Maple Grove, MN 55369
(612) 424-5464

Disk Magazine for Kids

Ready Robot Club, the first Amiga disk magazine for children, contains all original programming, graphics, and sound. Educational in nature, the

Use MIDI or Amiga internal voices with Hyperchord

Kid's disk magazine by July '90

magazine includes items such as science experiments, illustrated stories, riddles, space updates, and historical notes. In addition, the magazine offers contributor awards and official caps and stickers to encourage children to contribute reviews, pictures, and stories. Designed for children from kindergarten to sixth grade, *Ready Robot Club* membership and subscription is available for $28.00 for six months or $48.00 for one year. Those who subscribe before July 1, 1990, will receive as a bonus the two-disk *Space Photos* collection; those who subscribe before May 1, 1990, will also receive a five-disk set of 150 IFF fonts. The first issue of *Ready Robot Club* will be released in July.

Signs Etc. by D. Knox
P.O. Box 626
Carmichael, CA 95609-0628
(916)944-4282

VIVA la Fax

MichTron has announced *Fast FAX*, a hardware and software package that features attributes of a Group III fax machine. The hardware features an 8Mhz 68000 processor, 32K RAM, 64KROM, and nonvolatile configuration storage. *Fast FAX* is compatible with CCITT Group III. The telephone interfaces at RJ11C; the host communications port is RS-232C Communications Port Supporting 19.2 bps. The software features a receive and send mode, auto scheduling, IFF to Epson converter, transaction reports, and small memory resident program (90k). *Fast FAX* sells for $699.95.

Scheduled for release at about the same as this publication's release, VIVA (Visual Interfaced Video Authoring) by MichTron, is a software tool for creating, managing, and displaying information such as text, graphics, video, sound, color, and animation. VIVA is also capable of controlling video recorders, laser video disk players and a full range of visual media devices. This icon based program is designed for everyone from the student to the professional. The retail price is $199.95

VIVA Professional includes two additional function groups: record keeping databases and expert systems. VIVA Professional sells for $599.95.

MichTron
576 Telegraph
Pontiac, MI 48053
(313) 334-3553

New Deals

MicroDeal has announced *Master Sound*, an inexpensive sound sampler which allows the user to load any amplified sound and then manipulate that sound. *Master Sound* incorporates a number of commands, including cut, change speed, loop, scope, load IFF, fade out, preview, channel, and many more. The on screen display includes a 2D editor window, Scope, and Equalizer. Master Sound's sequencer allows the user to play back up to 20 samples in sequence. The demo program allows the user to play back sequenced sounds while displaying IFF picture files. The retail price is $69.95.

Another new product from MicroDeal is Bermuda Project, an arcade/adventure game. You are a passenger on a plane which crashes on an island in the Bermuda Triangle. You think that you are the sole surviver and only inhabitant of the island, but you soon realize that this is not true. Your mission is to discover a way to escape the evils of the island and rescue the other survivers. Bermuda Project sells for $39.95.

MicroDeal
576 S. Telegraph
Pontiac, MI 48053
(313) 334-8729

Omicron's Four New Genlocks

The Omicron Video OMNI-GEN 721 and 722 are multi-format video genlock systems that accept composite video, S-video, component video, and external RGB video as program video. Format outputs are simultaneously available regardless of the input selection; therefore, OMNI-GEN 721 and 722 are universal analog transcoders. A separate video Y-C process circuit through-out maintains the incoming video signal integrity. Designed for professionals, OMNI-GEN 721 is for NTSC standard while OMNI-GEN 722 is for PAL standard. The systems meet all RS170A, System I, and CCIR report 624-1 specifications. Both systems sell for $3,500.00.

Omicron Video has also recently released OMNI-GEN 711 and 712, which are S-VIDEO/composite video genlock systems. The 711 and 712 models boast most of the same specifications as the 721

continue to page 47

DR. OXIDE SLICES PRICES!

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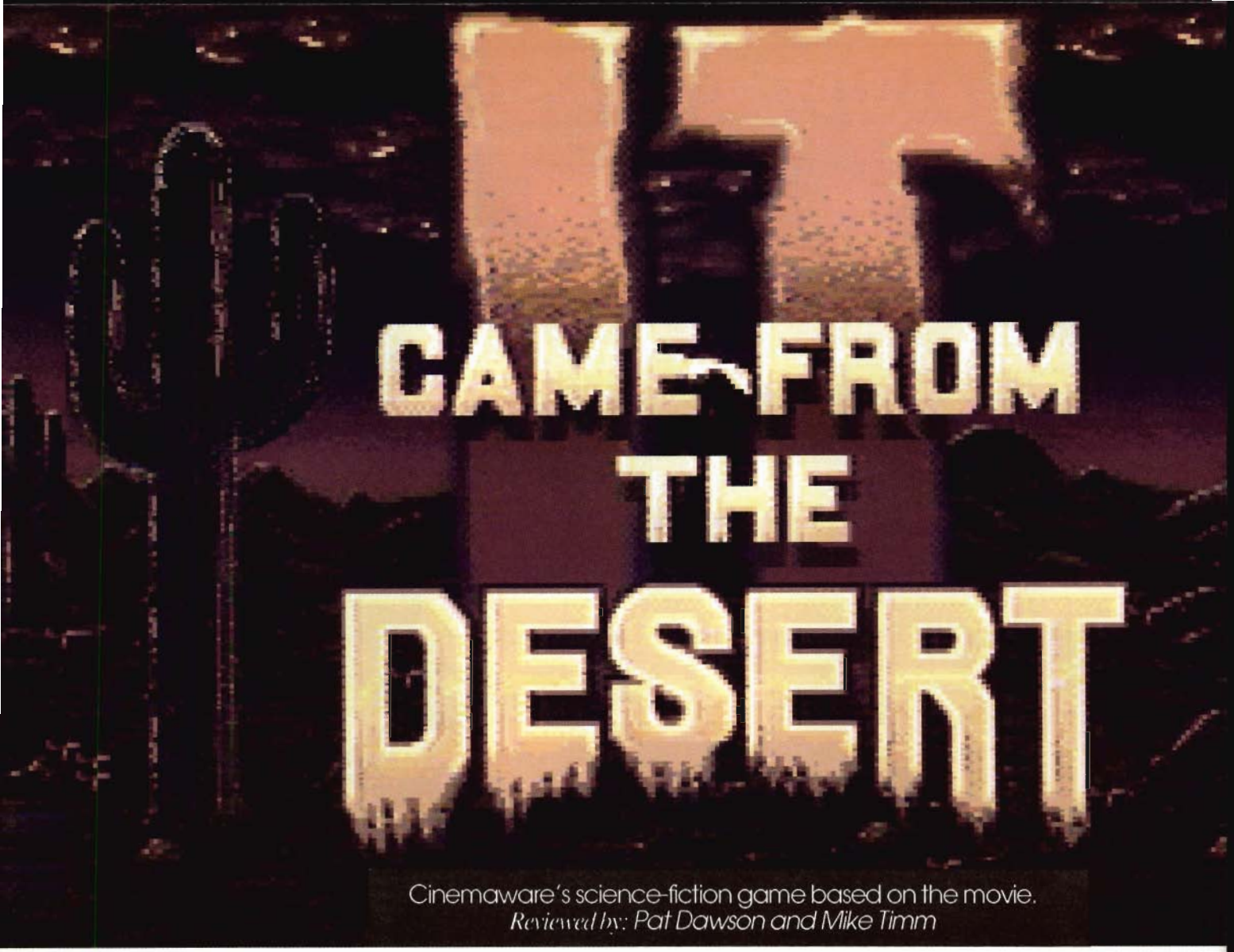


Cinemaware's science-fiction game based on the movie.

Reviewed by: Pat Dawson and Mike Timm

Peculiar events unfold and it is up to you to brave the odds and muster resistance against the on-coming threat ...

Cinemaware has made a reputation for itself in the game industry as a company that releases products that stand out above the competition. *Defender of the Crown* and *Rocket Ranger*, with stunning graphics and outstanding attention to detail, drew rave reviews from magazines and game players alike. The newest release from Cinemaware, *It Came from the Desert*, is based on the 1950s-era science fiction movie by the same name.

The premise of the game is that you are a scientist doing research in a small desert town in the 1950s; the town just happens to be near the site of a strange and dangerous meteorite crash--of course. Peculiar events unfold and it is up to you to brave the odds and muster resistance against the on-coming threat to the townsfolk and all mankind.

The opening screens of *It Came from the Desert* are simply the best either of us have seen to date in any Amiga game. The graphics and narrative promise a game certain to be exciting for many adventures to come. The player is treated to a scrolling scene of the desert with a voice in the background; at the end of the opening screen, a meteor crashes spectacularly in the background--setting the stage for the game.

You start out with your character, the good scientist, at home. A knock on the door reveals a grizzled old prospector holding samples you'd requested he bring to you. Your assistant, Biff the college student (what a winner, huh?), asks you questions and is ready to provide assistance around the lab. You might want to have Biff hand you the prospector's samples while keeping in mind that glowing rocks may be radioactive--hence dangerous to handle. Since anyone named Biff isn't going to be around our home or lab for long anyway, we let Biff hand our doctor the glowing rock once. After seeing the effects of Biff's improper handling of the dangerous materials, we decided to send the rocks to a lab for analysis the next time.

Next it was time for a trip to the local tavern where

the old prospector was prowling about, to ask him where he found the samples. After a free drink, which seemed to "jog" his memory, he answered readily. (By the way, do all grizzled old prospectors like booze?)

After getting the information from the prospector, it was time to call the hero's beautiful girlfriend (brunette and full figured, of course) at the local radio station where they play both kinds of music, Country AND Western. She filled the doc in on some strange events and rumors and we promised to meet her later for a drink.

To check out a situation, either go to a location (chosen from the map) or make a phone call. Take into consideration that it takes time to go to different locations and that the townsfolk sleep at night (you should also get your rest, you know). Also, plan your trips early in the day, so you can cover the most ground. There are many obstacles you will encounter--punks with hot cars and a desire to play "chicken" with you, and a strange cult (the Neptune Club), whose leader will try to cut you to bits in a knife fight.

Some of the townsfolk, including the Mayor, will oppose you unless you bring irrefutable evidence of trouble, so you had better gather all possible sources of evidence to present to the local professor at a laboratory for analysis. The lab is near your girlfriend's radio station, so stop by to see her for the latest rumors whenever you are in the neighborhood. You might also have a knife fight with a local rowdy or target practice with your pistol (in a dream sequence of all things).

There are a lot of places to visit--the police station, airstrip (complete with biplanes), mayor's office, bar, the Neptune Club, and the rock quarry, to name just a few. Ask questions in person or call to obtain clues. You must investigate and gather evidence to prove something's amiss, or you and the townsfolk will be in big trouble!

Since you never have just one possible course of action in *It Came from the Desert*, the possibilities are endless. At the start of the game, for instance, you can ask the prospector questions now or later at the bar. You choose whether or not to go to different sites of reported problems. When you go to a place matters as much as if you go, since time is elapsing while you are playing the game. If you go to one place, you may not be home for an important phone call or for a mystery visitor. Since there are so many different choices, the game is different every time you play--one of the nice things about *It Came from the Dessert.*

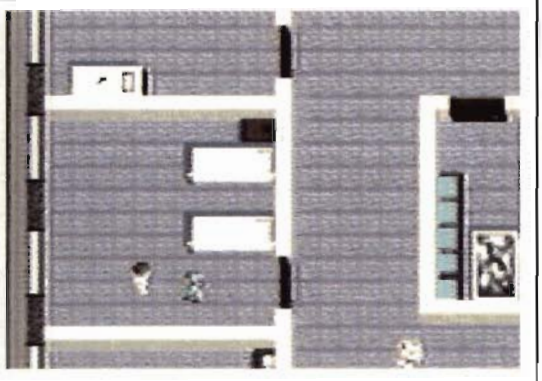
Here are some tips for playing *It Came from the Desert*. Position troops around the armory and airfield; these two sites are critical to you and must be defended at all costs! Talk with everyone you meet and glean whatever information they'll reveal. Watch the altitude your biplane flies at! If a target you are shooting at loses its means of receiving signals from the environment, then that target will no longer be a threat to you. That's it for tips--we don't want to spoil the game for you.

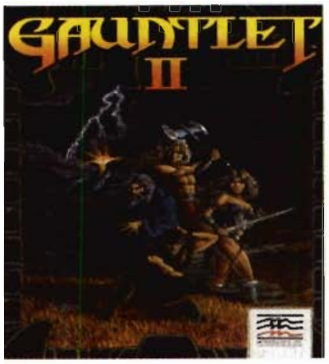
It Came from the Desert comes on three disks, requires one MEG of RAM and can be run from floppies, a hard disk, or RAM. Although it can be installed on a hard drive, this is where we ran into the most problems. More often than not, the Guru raised it's ugly spector while playing the game from a hard drive. These errors where not encountered when playing the game from floppies, so they won't affect the majority of people that buy *ICFTD*. But meeting the Guru is a major inconvenience --especially when we had nearly completed the game after three hours of serious play. I still have to say we both enjoy the game and it's up to the high standards one expects from Cinemaware.

Whether of not you'll like *It Came from the Desert* is easy to figure out. Do you like old SciFi movies? Do you like a challenge, either in the form of arcade-like action (with a knife or gun) or puzzle-like problems? Have you played any other Cinemaware game and found it intriguing? If you've answered yes to any of these questions, you should head down to a local Amiga dealer and ask for a demonstration of *It Came from the Desert*--you may find it fun to play by yourself or with a friend.

It Came from the Desert
$49.95
Cinemaware
4165 Thousand Oaks Blvd.
Westlake Village, CA
91362
1-805-495-6515

You never have just one possible course of action in It Came from the Desert, *the possibilities are endless.*





GAUNTLET II

Mindscape's contribution to Amiga excitement.

by: Bob Stransky

For a number of years, two of the really great arcade games have been *Gauntlet* and its sequel, *Gauntlet II*. Thor the Warrior, Thyra the Valkerye, Questor the Elf and Merlin the Wizard have made their way into the hearts (and pocketbooks) of many loyal fans throughout the world. Now Mindscape has brought the excitement of *Gauntlet II* to the Amiga. The Amiga version is quite faithful to the arcade version with one exception--it doesn't eat up rolls of quarters at a time!

Gauntlet II comes with one disk and a manual packaged inside a very attractive box. Unfortunately, the disk is heavily copy protected and cannot be backed up easily. In addition, the game forces you to type in a word from a specified page and paragraph in order to load. While I understand the need for copy protection for some programs, I also understand the importance of making backup copies of software. I feel that copy protection based on the manual would have sufficed for this program.

The title screens for the game are very similar to the arcade version. A chart explains each of the objects and monsters and also gives guidance as to what manner of attack (hand-to-hand, weapon shot or magic potion) is effective against each of the monsters. After the chart is displayed for a short while, the character selection screen appears. Here you can choose to be either Thor, Thyra, Questor or Merlin. Each class of character has specific strengths and weaknesses. My only complaint is that the two screens did not cycle between games, making it difficult for new players to learn and remember the different objects and monsters.

Up to four people can play this game at once, with two using joysticks and the other two using the keyboard. (The game manual indicates that an adapter is available to permit two additional joysticks to be plugged into the parallel port, but it was not available for me to test.) The more players that you have, the better off you will be when you face the monsters. This game requires a great deal of teamwork to be played well. An unusual feature of this game is that new players begin the game at the present location of the other players, permitting a character who had been killed to resume play without starting over in level one.

There are over 100 different levels in *Gauntlet II*. Each level has a somewhat different layout, with many assorted monsters to be dealt with. There are also force fields, traps, teleporters, monster generators moving walls and other goodies to contend with. Periodically, secret rooms appear containing treasure or other items such as potions of extra armor, magic power, shot

continued on page 63 ▶

HARD DISK SLAMMER V1.10

FROM ZAMMOTH SOFTWARE

By: Jeff Pejsa

Hard Disk Slammer is a hard disk utility program that permits the installation of AmigaDOS readable programs onto a hard drive, RAM, RAD, or virtual device. The principle use for this program is for hard drive owners. In fact, the software will not run unless you have a hard drive. Other requirements include *Workbench 1.3* and at least 1 megabyte of RAM. The program's author suggests that the program will work even better with more than 1 megabyte.

In my testing of the program, I found *Hard Disk Slammer* to work fine with 1MEG of RAM. I also found no problems while using a 1MEG Agnus chip (or without it). Lastly, *Hard Disk Slammer* showed no ill effects from using only chip memory or a combination of chip/fast memory.

INSTALLATION

The first thing the user should do with *Hard Disk Slammer* (hereafter referred to as SLAMMER) is make a backup. The program is not copy protected (except for the serialization on your disk and in your software) and copying via the CLI or workbench works fine.

The installation process is easy. Place the disk in df0 and click on the disk icon. Double-click the SLAMMER-INSTALL icon and the software is copied to your hard drive. Please note that the software is copied to dh0. No mention is made as to whether SLAMMER can be installed on a bridgeboard hard disk (Jh0) or whether it can run from dh1. Most of the software is copied to a sub-directory called "slam." The main file, slammer, is copied to your c: subdirectory.

PROGRAM OPERATION

After installing SLAMMER, you are ready to begin putting those disks onto your hard drive. The first step is to get into CLI or SHELL. Once there, just type in "SLAMMER" and away you go! You are presented with a custom screen and a set of menu options. There are a total of five menus accessed by the mouse. The first menu includes a requestor with the authors' names as well as the quit option. The second menu is for source options; options for using either df0 or df1 are available. The third menu is for target options, such as dh0, dh1, RAM, RAD, and vd0.

The fourth menu is for the various parameters needed for transferring the floppies to the target device. Included options are: number of disks to be transferred (one to 10 disks are supported per program), whether the first disk is bootable or not, if you want fastmemory disabled, if you wish to return to the hard disk after completing the program, and finally the expert option. The last menu begins the actual "slamming" process.

The expert option provides the user with the ability to customize the installation of software more so than the normal SLAMMER interface. Please note that the software's author recommends knowledge of hard disk sub-directory structure when using this option.

DOCUMENTATION

SLAMMER comes with a 10 page manual that describes the basic features of the program. The description of the various features is accurate and fairly easy to understand. The problem with the

Novices will enjoy SLAMMER because it requires little intervention after setting the initial options...

manual is that the information is in the wrong order. Instructions on how to access the program and use it are described before telling the user what the purpose of the software is and the constraints of the program. Rearranging the order of the instructions would make the manual more effective.

PUTTING SLAMMER THROUGH ITS PACES

Okay, I've discussed what SLAMMER is, how it operates, and what kind of documentation is available, but does it work? The answer is yes and no. The manual makes it clear that SLAMMER will not de-protect software. This means many of the games in the Amiga market will definitely not work with SLAMMER. Programs with key-disk protection also may or may not work. These programs work, but ask for the key-disk, which somewhat defeats the purpose of putting the program on the hard drive. (This is the intent of the software manufacturer, and not the fault of Zammoth Products.) SLAMMER also does not work with non-DOS disks, which tend to be games.

Using SLAMMER is easy. First, enter the program as discussed previously. Next, choose the appropriate options. Generally, this means selecting the source floppy drive (either df0 or df1), the target device (usually your hard drive--dh0), the number of disks you want transferred, whether the program is bootable or not, and whether you want the program to return to the workbench environment or not after completion.

After selecting the above options, the last menu has the "slam floppy" option which begins the actual transferring of software. Once selected, SLAMMER will put up a requestor asking the user to insert the first disk. Then SLAMMER clears the CLI/SHELL and begins copying the files to a subdirectory on your hard drive. The main subdirectory is named the same as the first floppy disk and an icon is made automatically for it. After a few minutes the files are copied to that main directory (and any subdirectories beneath it, as appropriate) and SLAMMER finishes up by creating any other needed icons and assignments.

In testing SLAMMER, I decided to try a variety of software. My first batch of software included mostly games. Games that multitask and/or were not copy protected tended to work best. Public Domain games worked very well. However, as the manual indicates, games that are copy protected did not transfer to the hard drive properly. All-in-all, SLAMMER is not successful with most games since the majority are commercial and copy protected. However, if you have Public Domain or non-copy protected programs, SLAMMER generally can set it up on your hard drive.

Productivity, educational, and utility programs generally transferred well with SLAMMER. The only point to make here is that a good number of the programs I tested already had hard drive installation scripts available. In most cases, it is better to use the software installation scripts since they are individually designed and eliminate the copying of the c, l, libs, dev subdirectories, et cetera, that your hard drive already has. However, I did find SLAMMER to be very easy to use. Novices will enjoy SLAMMER because it requires little intervention after setting the initial options, and in some cases, provides better organiza-

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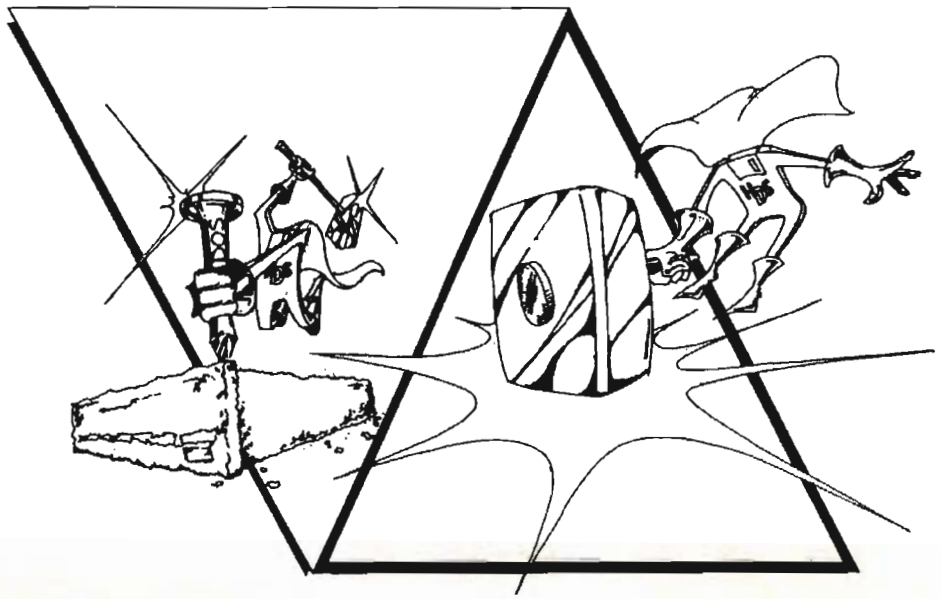

continued from page 47

and 722 and are designed for professional and broadcast applications, but their ease of operation and reasonable cost will also meet the demands of high- end desktop video applications. Both systems sell for $2,495.00.

Omicron Video
21822 Lassen Street, Unit L
Chatsworth, CA 91311-3680
(818)700-0742

Synthia and the Other Guys

Scheduled for release in April, *Synthia II* by The Other Guys is a digital sound synthesizer and processing studio. *Synthia II* can create single and multi-sample instruments for use with nearly all Amiga music programs, can modify instruments created by other programs, and can save the new instrument in a variety of formats including IFF, Sonix, and Mimetics.

Synthia II allows traditional harmonic additive synthesis as well as simple layering. The program can simulate plucked strings, bells, and almost any other harmonic percussive instrument. *Synthia II* also features interpolative synthesis and two drum synthesizers. The special effects feature allows a single waveform to be modified by filtering, phasing, reverberating, echoing, pitch shifting, distorting, and other manipulations.

Synthia II uses a special window to set up a loop to suppors crossfading and reversal, as well as other types of looping. The program allows the user to draw, cut, paste, et cetera, with the sound displayed as it is being modified. *Synthia II* works with Deluxe Music, Soundscape, Sonix, Instant Music, Dynamic Studio, and most other music programs. The suggested retail price is $124.95.

The Other Guys
55 North Main Street
Suite 301-D, P.O. Box H
Logan, UT 84321
(800)942-9402

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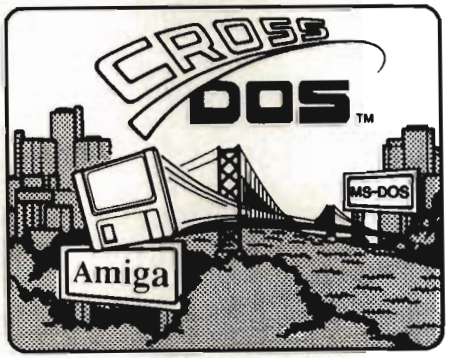

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Despite the bad press the BASIC programming language has often received, it is unquestionably the easiest language to learn and use. Amiga BASIC (which can be found on the Extras Disk that came with your Amiga) was developed by Microsoft, and for the most part, fully utilizes the unique capabilities of the Amiga computer. With its ability to reach outside itself, Amiga BASIC can interface with and utilize other routines to perform functions it doesn't inherently support. *Extend 1.3* is a compilation of 72 such routines that can be invoked from within the Amiga BASIC program. Among other things, *Extend* enables the BASIC programmer to display standard IFF format pictures, play IFF digitized sounds, use standardized file requesters, and display and detect the selection of gadgets.

A product review

E X T E N D

By: Steve King

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Before describing the features of *Extend*, it is important to understand precisely how Amiga BASIC uses external routines. All of the *Extend* commands are actually a series of small machine language programs bound together in a disk file called a library. The Amiga operating system uses many libraries, most of which are permanently stored in its Kickstart ROM. For example, the Amiga graphics library includes a routine called DrawCircle which, as its name implies, draws a circle on the screen. But for the program to do its job, it must know where you want the center of the circle to be and what its radius is to be. The program must "pass" these values to the library routine by storing them in specific locations in the Amiga's central processing unit chip. Moreover, the BASIC program must also know where in the library the specific routine is located in order to "call" it. This information is found in a Bmap file which is unique to each library and tells Amiga BASIC what routines are in that library, the location of the routines, what information is needed, and where in the CPU to store it. Many Bmaps are supplied on the Extras Disk; a program, FD-CONVERT, is also provided to make Bmaps from standard library Fd files.

To use any library in Amiga BASIC (including the *Extend* library), you must first open it so Amiga BASIC will search for and recognize the names of the library routines when you use them. This is accomplished by use of the statement: LIBRARY "name of library.library". After this command is executed, you use the library commands and functions simply by typing the library routine followed by the required parameters in parentheses. Using my previous example, you can draw a circle with a radius of ten pixels at screen location 100,60 using the following commands:

LIBRARY "graphic.library"
CALL DrawCircle (Window (8),100,60,10)

Of course you must have the documentation for the libraries to know what parameters to pass and in what order to pass them.

Extend is not a program but rather a library, an associated Bmap file, and a series of subroutines in ASCII format that can be merged into your Amiga BASIC program. When called, these subroutines will access the *Extend* library and perform their functions. To initialize the library, all you have to do is add the following two statements to the beginning of your Amiga BASIC program:

LIBRARY "extend.library"
SetWindow Window(7)

Space doesn't permit describing all of the routines and functions you can use after initialization, so I will cover what I think are the most unique and valuable.

IFF Graphic Routines

There are a number of routines provided with *Extend* that deal with loading, saving, and displaying graphic images in the standard IFF format. The most basic of these is the LoadIFF routine which, when called, quickly loads and displays IFF IL

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ANIMATION

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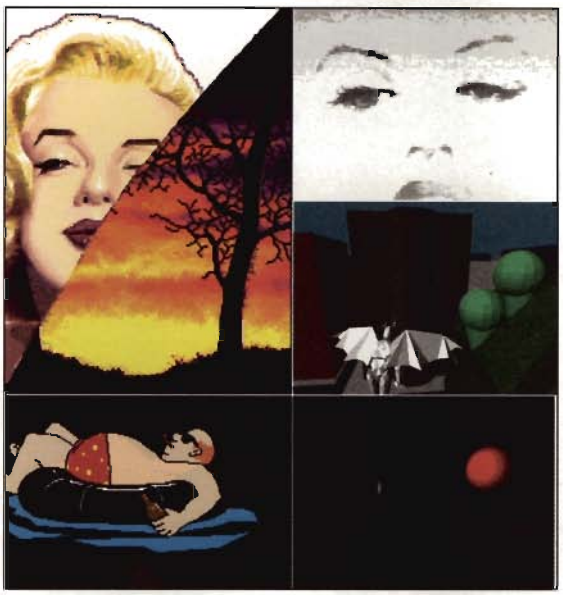

Animation Program Included so you can try your hand at animation!

Covered This Issue

- *Deluxe Paint III*
- *Videoscape-3D*
- *Turbo Silver*
- *Framegrabber*
- *Fantavision*
- *Sculpt/Elan*
- *Zoetrope*
- *Interfonts and more.*

About This Special Issue
What you get, and how to get more information about the products mentioned.

Taking a Good Look at Amiga Animation
by Jay Gross
Overview of Amiga Animation Software, Hardware, techniques and expectations for the future. News about new developments and new products and improvements to come.

MakeAnim Program
Get in on the act, and make your own animations, even if you don't have one of the commercial animation programs, yet. Here is MakeAnim, a freely distributable program for putting your own ANIM format files together from pictures. Complete and working, on the disk, along with a how-to file to tell you how to use it.

Product Review: Zoëtrope
by Mike Hubbartt
Here's a look at one of the newer Amiga animation products on the market, Zoëtrope. It has serious limitations for serious video enthusiasts, but if you just want to make things move for the fun of it, it fills the bill.

ZoeAx2.RIF Animation
This neat animation gives you some idea about what you can do with Zoetrope in the way of moving titles around on the Amiga screen. Animation by Mike Hubbartt.

Frogmovie Animation
First thing you notice about this neat tree frog is his eyes. Then his lunch flies into the picture and kerpop! Yummy.

DeluxePaint III: The Next Generation
by Mike Hubbartt
Electronic Arts' new upgrade to DeluxePaint adds animation to the world of Amiga paint programs. DeluxePaint III makes it easy by keeping track of the frames for you.

Example Animation: DeluxePaint III
by Mike Hubbartt
This is an example of what you can do quickly and easily with DeluxePaint III and a little poring through the manual to see how it works.

AX Animation
The car on the cover of Ami Exchange Magazine Issue 2.2 springs to life, and a few other rather startling things occur, as well. This animation was created with DeluxePaint III from digitized images (and a little tinkering here and there) by Shamms Mortier.

Product Review: Fantavision
by Brian Roberts
Brian explains a little about what was involved in creating the NCR Fantavision animations.

Marilyn - Fantavision Style
A colorized Marilyn Monroe animation done with Fantavision.

Objects
This is a whole subdirectory of objects for your animating and raytracing pleasure. The first batch goes with the Videoscape tutorial. Next is an object for raytracing in Sculpt-3D. It is: HangGlider.scene

3D Font
Some of the most difficult to make objects in raytracing packages are alphabet characters. They're complicated and time-consuming. Here for your raytracing pleasure is a set of capitals in a 3-D font named AX.Bold. It's in Turbo Silver 3.0 format.

Turbo Silver: Animation Made Simple
by Clyde R. Wallace
A walk-through tutorial on how to do an animation with Turbo Silver 3.0 (and the new "SV" update) from Impulse, Inc. What to watch out for, and how to get the most out of the time you invest.

Spacial FlyBy: A Turbo Silver Animation
by Clyde R. Wallace
The animation, *Spacial FlyBy* depicts a planetary system in 3-D space, through which the viewer (that's you!) moves, taking in the sights as you go. This is the tutorial's demonstration animation.

Marilyn
By Clyde R. Wallace
This is an explaination of how the Marilyn animation was created. This was not just your average frame grabbed animation. Several consideration were kept in mind when creating the animation. For instance, the animation was designed to have many frames that would create a long running animation in a short amount of memory.

Marilyn The Animation
By Clyde R. Wallace
This is the accompanying animation from the *Marilyn* article. Clearly, Norma Jean and the Amiga belong together.

Where to Get More Information
This is a list of company names, addresses, and telephone numbers for the products mentioned in this issue.

Selling Your Animations
by Jay Gross
After you get all the hardware and all the software you need, and after you gain all the experience and skills you need to do animation on the Amiga, what then? You don't have to sell your animations, of course, but if you want to, here are some suggestions for marketing your work, your services, or your animated features.

Get Set for MovieSetter
by Chris Bailey
Gold Disk's animation entry on the Amiga scene is MovieSetter, one of the so-called sprite-based animation products. Here's an article on the program, including a discussion of how the demostration animation was produced.

MovieSetter Animation: AX Movie
by Chris Bailey
This MovieSetter animation shows off the smoothness of MovieSetter's animations. In only about 60 kilobytes of disk space, and within the memory constraints of a standard, 512-K Amiga, it produces an animation lasting a full 42 seconds. The program supports sampled sounds, too, but they couldn't fit into a 512-K Amiga on top of this slick animation, so the sounds have been omitted from this demonstration.

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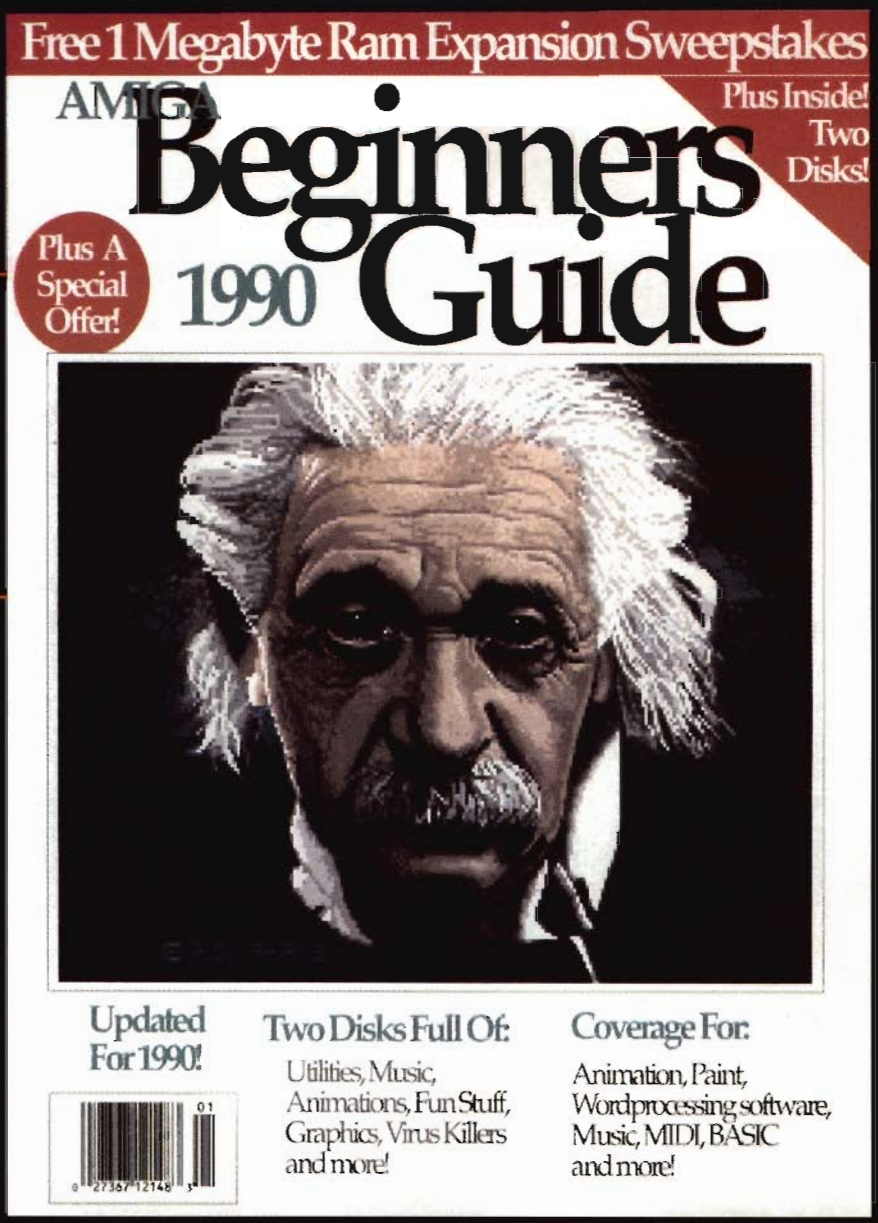

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BM images such as those created with popular paint programs and video digitizers. The following line of BASIC code is all that is required:

LoadIff SADD("filename"+CHR$(0))

Similarly, you can load and view a HAM image as follows:

ViewHam SADD("filename"+CHR$(0))

Finally, you can save any active window in your program as an IFF file by using the following line of code:

SaveIff SADD("filename"+CHR$(0))

For the technically inquisitive, "SADD("filename"+CHR$(0))" is the address in memory of the name of the file you are loading or saving to, terminated by a 00 character (a system convention used to designate the end of the string of characters). It is this memory location value rather than the file name itself which is passed to the appropriate routine in the *Extend* library.

Digitized Sound Routines

Extend provides a number of routines which quickly let you load and play a digitized sound. The simplest is ExtendedSound which is invoked with the following command:

ExtendedSound SADD ("filename"+CHR$(0))

There are a number of other routines which let you play the sound on any of the four internal Amiga channels, as well as set the rate and volume. Unfortunately, none of these routines automatically stop the sound, so you must do it manually with the command SoundOff. This, of course, requires you to calculate the length of each sound and use a delay command if you want it to play it a specific number of times.

Gadgets

In Amiga parlance, a gadget is a multipurpose input device such as a switch, scroll bar, or button. The operating system uses many gadgets in its environment. The most familiar are the gadgets located on the periphery of screens and windows which let you move the screens to the front and back, resize, and close them. *Extend* supplies a number of commands which let you render rectangular gadgets on the screen and then tell you which one has been clicked on by the user. *Extend* supports three types of gadgets. The first is Boolean which recognizes two states--*on* or *off* and can be used to obtain true/false and yes/no type responses from users. The second type of gadget is String, which obtains text from the user. The third is Proportional; it is self explanatory. The most familiar types of proportional gadgets are sliders such as those used to set sound volume or to adjust the screen colors.

The Gadget command is the most basic as it establishes the characteristics of each gadget and displays it. For each gadget, you assign a unique identification number and define its attributes (type, dimensions, screen placement and interior text

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The Big Top O'Fun is a great game. It's not too hard to play, although it's not exactly easy either.

don't get into your poses quickly enough, Freddy will turn the fan on you and push you off course to certain death. Each successive jump becomes harder while the target shrinks (it shrivels from a barrel to a bucket to some other things that I won't tell you about), and Freddy appears more quickly to fly over and force you off course.

The next feat of skill is juggling. You are now Jeffy-Joe the Juggler and your task is to keep as many items as possible in the air for 30 seconds. If you drop five items, you'll get yanked out of the ring. Freddy is sneaking around periodically throwing bombs and missiles at you in order to end your act with a bang. Drop one of these babies and it's all over! I found this to be one of the more difficult parts of the game.

Now it's time for some real daring--the trapeze. I'd like to direct your attention to the lovely Finola of the Flying Fuller Family as she attempts to jump from bar to bar through flaming hoops and paper targets. But beware! Freddy is flying around the Big Top with a great big pair of scissors trying to cut her act short! As before, there are several levels of play, with each level slightly more difficult than the last.

What circus would be complete without knife throwing? Your well endowed assistant, Knancy Knife, is blindfolded and tied to a spinning wheel surrounded by a number of balloons. Your objective is to pop all of the balloons without hitting Knancy. (If you hit her, Knancy will let you know about it and you will be penalized.) You have a fixed number of knives and must complete your act within a specified time limit. What's Freddy up to during this act? Well, I'm glad you asked that question. From time to time Freddy pops in, throws a smoke bomb, and runs away. As if precision knife throwing wasn't difficult enough already! If you are able to complete this feat of skill (or even if you aren't), then you are ready for the next act.

The fifth act, and in my opinion the hardest, is the tightrope. Now you're Tony Tiptoe up on the high wire with your balancing pole. The game uses a "tilt-o-meter" to tell you how far Tony is leaning. If Tony leans too far for too long, he loses his balance and falls (this part is really funny to watch). Also, if he takes too long, Freddy (remember him?) breaks out his cannon and shoots poor Tony off of the wire. As if that's not enough, in the more difficult levels, Freddy flies around throwing saw blades at Tony trying to push him off the wire.

Now for the grand finale! Of course, I mean the human cannonball. You are now Fernando the Human Cannonball assisted by the lovely Lisa (what a knockout!), as they position Fernando's trampoline target. You must decide where to place the target depending on how much power Lisa puts into the cannon. Watch out for Freddy, because if you take too long to decide, he'll put a great big cork into the cannon. After the target is placed, you must decide what angle to fire the cannon from; aim wrong and Fernando either hits one of the tent poles or digs himself a hole in the ground.

If you've earned the $10,000 by this time, you win and you'll get to see some really neat screens. If you haven't earned enough, you'll be like me and get to see the Big Top O'Fun get leveled. No matter how hard I tried, I was never able to collect more than a few thousand bucks. I guess I'll just have to keep working at it!

The Big Top O'Fun is a great game. It's not too hard to play, although it's not exactly easy either. The music reminds me of stuff I used to hear when I went to the carnival and the sound effects are quite amusing. The graphics are definitely first rate and the pace of the game seems to be right on. I don't want to give too much away, but the "distinguished panel of judges" is hilarious! It alone is almost worth the price of the game. For great arcade-style entertainment with a plot (albeit a small one), this game has it all.

Fiendish Freddy's Big Top O'Fun
Mindscape, Inc
3444 Dundee Road
Northbrook, IL 60062
(312)480-0496

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placement) in an array. Other commands determine the color of the text displayed in the gadget as well as the background color. The SetImage command even lets you display a graphic image as a gadget both on the screen and in a menu item.

Once you have displayed all of your gadgets on the screen in your program, you use the function Check to determine which of them the user has selected. For example, in the following line of code, the variable *x* would contain the identification number of the gadget the user selected:

WHILE *x*=0 *x*=Check(1,4) WEND

The numbers in parentheses, 1 and 4, tell *Extend* to check the gadgets numbered one through four only. If no selection was made, the variable *x* would equal zero, so in the above example the program will continue to poll the gadgets until one of them is selected.

Similarly, the function GetString returns, in the form of a string variable, the characters the user types into a string gadget; the function PropRead returns the *x,y* pixel coordinates of the proportional gadget setting.

Fonts

There are scores of fonts available for the Amiga and *Extend* provides two simple commands to let you display your text in any of them. If, for example, you wanted to print text using a fifteen point diamond font, you would type the following line in your program:

Font SADD("diamond.font"+CHR$(0)),15

After this line is executed, everything printed to the screen using the PRINT command would be in Diamond 15. Another command, SetStyle, easily lets you print in bold, underlined and italics (or any combination of the above).

Miscellaneous Commands

There are several other commands worth mentioning which do not fall into the areas already covered. The BinLoad command lets you load a binary file (such as a digitized sound or a data file) into a specific area of memory you have allocated using *Extend*'s Memory command. Conversely, a specific area of memory can be saved to disk using the BinSave Command. For example, if you want to load a sound which is 16000 bytes long into memory, you would first allocate an area of chip memory 16000 bytes long and then load the file. If the name of the file is "DF0:sound", your program lines would appear as follows:

memoryaddress&=Memory&(16000,1)
bytes=BinLoad
(SADD("DF0:sound"+CHR$(0)) ,memoryaddress)

In the first line, the variable *memoryaddress&* contains the address of the beginning of the memory area allocated. This variable is important and will be used by other functions and commands which need to know where the file or data is located. The numeral *1* at the end of that line tells *Extend* that you want chip memory. In the second line, the variable *bytes* will contain the actual number of bytes loaded into the area of memory you allocated. When you are finished using that memory, the command FreeMem will de-allocate that segment of memory so it can be used again.

Another command, Busy, changes your mouse pointer to read "WAIT"; PTime will add a user-defined time delay to your program. Also, several menu commands let you utilize submenu items. Finally, *Extend* gives you access to a file requester, but you must have the arp.library in your libs: directory.

The manual is not much more than an alphabetical listing of all of the commands with printed examples of how to use them. While the program disk contains files for each example so you can easily merge them into your Amiga BASIC program, it does take a bit of studying and a fairly good understanding of Amiga BASIC to make full use of the routines. According to SunSmile, *Extend* will work with both the Absoft Compiler and HiSoft BASIC. For those GFA BASIC fans, *Extend* provides a utility and an example of how to interface it with GFA BASIC.

Many of the operations *Extend* performs can be achieved by utilizing the standard Amiga library routines. *Extend* provides, however, a much simpler and easier method of achieving the same results. For those serious BASIC programmers, *Extend* is undoubtedly a handy, productive utility that is certainly worth owning.

Extend 1.3
SunSmile Software
533 Fargo Ave.
Buffalo, NY 14213
(716)885-1781

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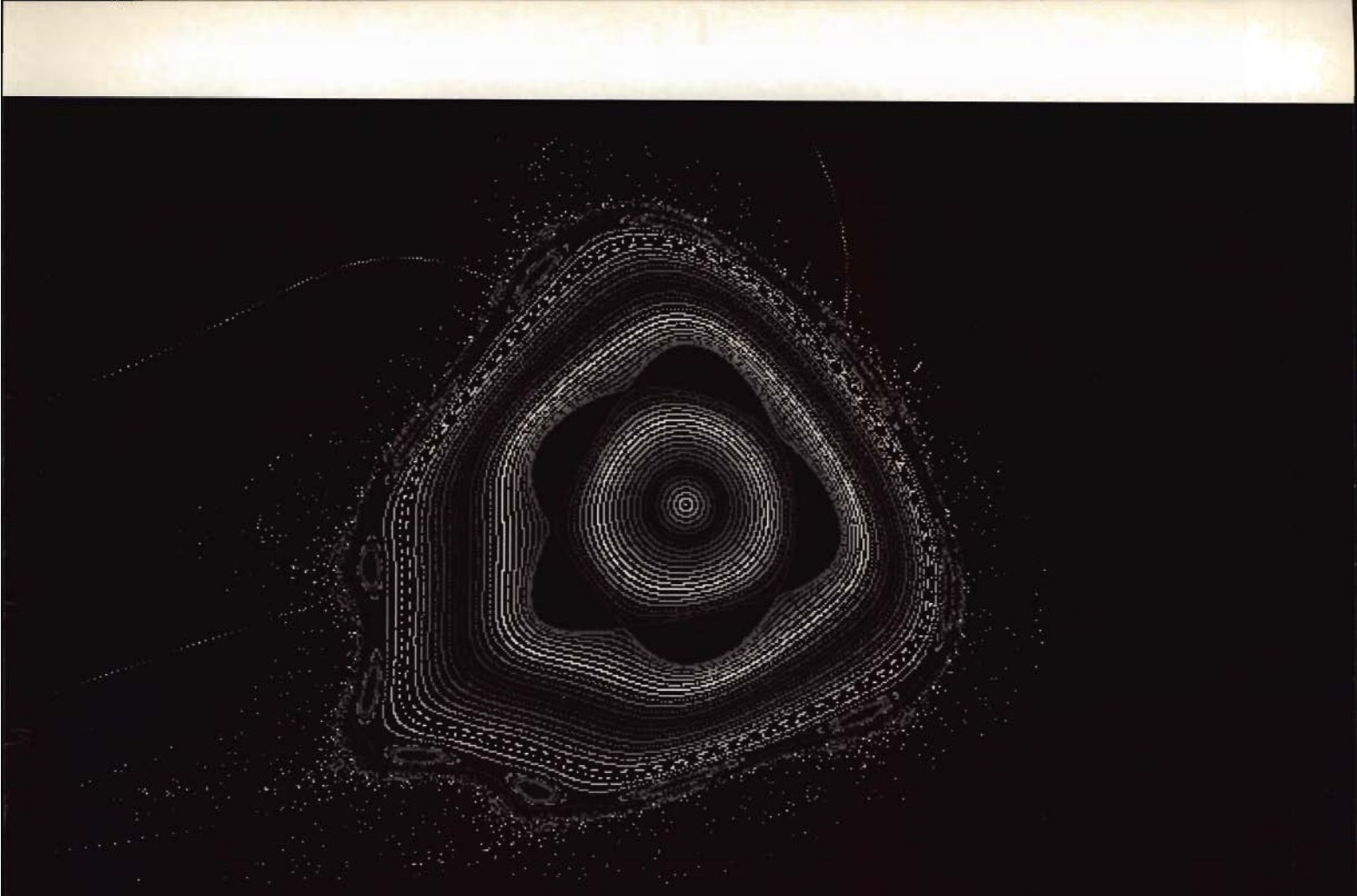


HENNON MAPPING

BY: RICHIE BIELAK

In the past 30 years, a revolution has taken place in the study of non-linear dynamic systems. A non-linear dynamic systems is a set of equations, usually used to model physical phenomena such as the weather or the motion of planets. In a dynamic non-linear system, *dynamic* simply means changing and *non-linear* describes the type of equations used.

The event that started this revolution was the discovery that deterministic systems can exhibit unpredictable behavior; the tool that made this discovery possible was the digital computer. Before

Until the arrival of computers, most scientists used linear equations to solve problems.

we can understand how computers played such an important role, we must first examine in more detail the differences between linear and non-linear equations.

LINEAR VS. NON-LINEAR

In a linear equation the unknown variable is never raised to a power or multiplied by another unknown. For example, the equation $y=2x+3$ is a simple linear function since neither variable, x nor y, is raised to a higher power, and the unknowns are multiplied only by constants. On the other hand $y=x(x)+2x+1$ is non-linear, since x is raised to the second power.

Until the arrival of computers, most scientists used linear equations to solve problems. Even in cases where a problem could be better described by a non-linear function, linear approximations were used because linear equations are easy to solve. The solution can often be derived as a formula that works in all cases, so that the fewest numerical calculations have to be done in order to obtain useful information.

Futhermore, linear solutions are always well-behaved. That is, if the starting condition is changed slightly, the result will change slightly as well. This seems to make perfect sense, if you push a ball a little harder you expect it to go a little further.

On the other hand, non-linear equations are almost always difficult to solve. In many cases an analytical solution is impossible--no formula that describes the solution can ever be derived. Only numerical methods can be used to get partial solutions to such problems. Since useful solutions of non-linear equations often require millions of computations, it is easy to see why they were not studied in any depth until the arrival of the computer. The surprising result of the study of non-linear equations was that their solutions often are not "well-behaved." A minuscule change in the input can result in wildly different and unexpected output. It is as though when you push a ball a little harder the ball flies into orbit!

One of the first scientists to discover this phenomenon was Edward Lorenz. In 1963 Lorenz described a non-linear system of equations which exhibited such ill-behavior. As Lorenz's equations described a greatly simplified model of the weather, the result showed that for all practical purposes, long range weather prediction is impossible. Even a minuscule condition of the atmosphere that is not accounted for by the mathemal model will cause a divergence between the actual and predicted weather. This has sometimes been called the Butterfly Effect because the fluttering of a butterfly wing can cause the formation of an unpredicted hurricane!

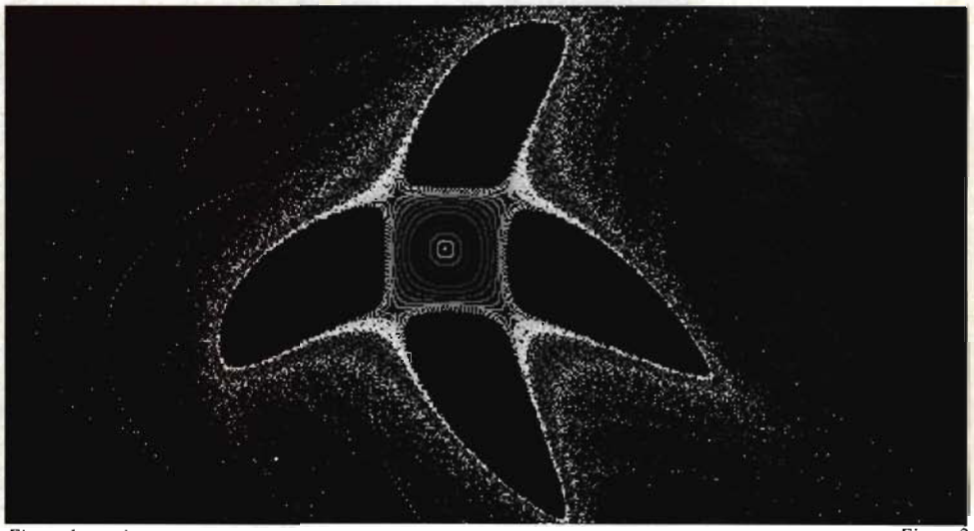


Figure 1, previous page

Figure 2

DIFFERENTIAL EQUATIONS, ATTRACTORS AND STRANGE ATTRACTORS

Many physical systems are described by specific equations called differential equations. Differential equations describe relationships between rates of change of various quantities. For example, the motion of a car can be described by relating the acceleration of the car to its velocity. Acceleration is simply the rate at which the velocity changes. When this equation is solved, we obtain the function that describes the velocity of the car at each point in time.

By changing the starting condition, the initial

velocity of the car, we obtain a collection of functions which describe the car's velocity at some time in the future. These functions form a family of solutions to the original differential equation.

In many problems, no matter how you alter the variables, the different solutions eventually approach a particular function. In the case of the car, no matter what initial velocity the car had, it will eventually run out of gas and stop. The function that is approached by other solutions is called an attractor, as it attracts all the other functions. The solutions to a differential equation can be drawn as curves in the so called *phase space*. Graphically, an attractor appears as a curve or a point, approached by the curves representing other solutions. In our car example, the solution functions will spiral into a single point attractor that represents the car at rest.

For linear differential equations, the attractors turn out to be either single points or loops (i.e. constant or periodic functions). However, for non-linear differential equations another type of attractor, called the strange attractor, was discovered. The strange attractor is not a single point and is not periodic, but is an infinite length curve contained within a finite volume of space.

Solutions that are approached by such an attractor exhibit the "ill-behavior" of non-linear systems. A slight change in initial conditions, such as the flutter of a butterfly wing, can result in outrageously different results, such as a hurricane instead of a sunny day.

An interesting connection exists between strange attractors and fractals. Fractals are defined as geometric figures of fractional dimension (it is beyond the scope of this article to discuss the definitions of dimension precisely). A fractal curve whose dimension is bigger than 1 but less than 2, can be embedded in a finite volume, yet have infinite length. Strange attractors are examples of such curves. Therefore, all strange attractors are fractals.

HENNON'S MAP

A few hundred years ago Sir Isaac Newton solved the problem of figuring out the paths taken by two planets attracted by gravity.

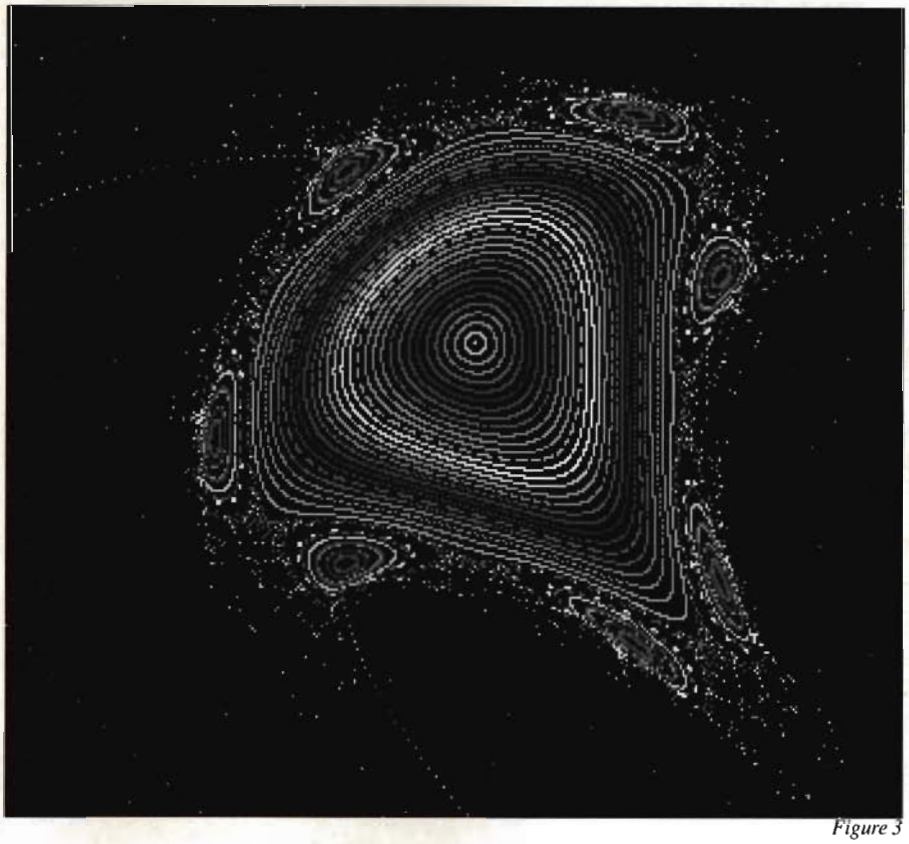
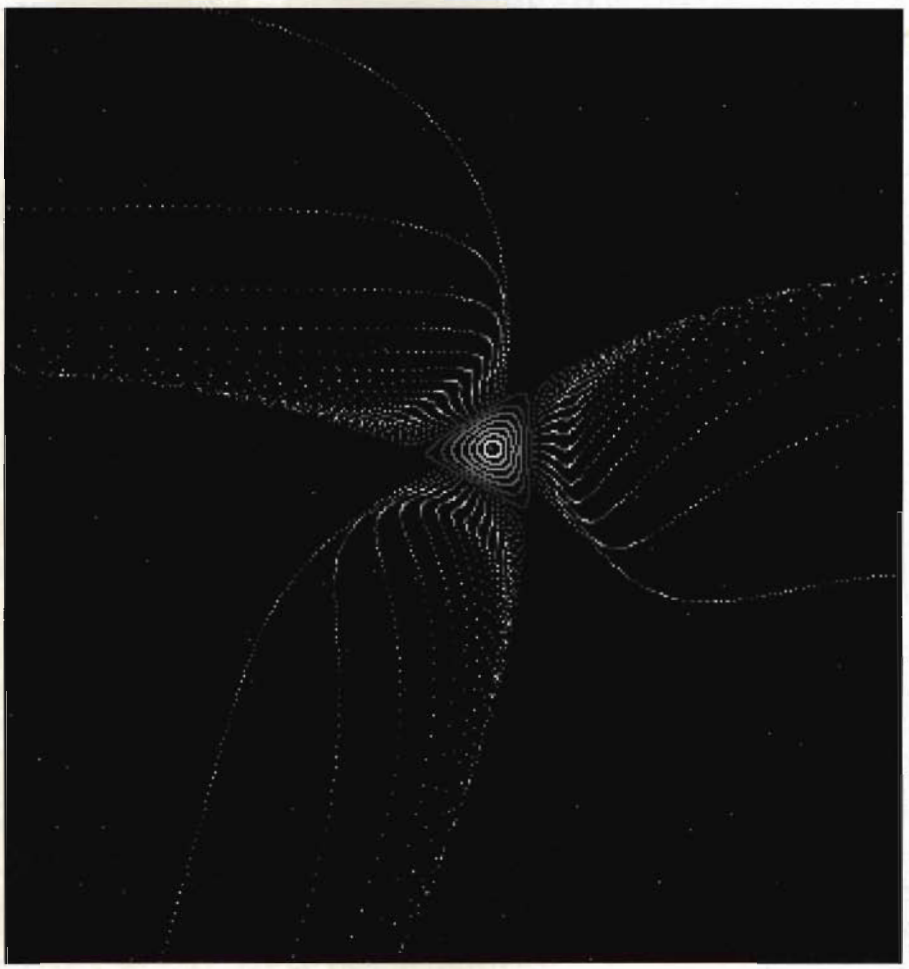


Figure 3

Figure 4



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The two bodies follow elliptical orbits around their center of gravity.

Surprisingly, the problem of gravitational interaction among three or more bodies is not solvable! That is, one cannot derive a formula that will describe the orbit of each body. However, approximate numerical solutions are possible.

Michael Hennon, an astronomer, was studying the effects of Jupiter's gravity on the motion of asteroids. Since exact solutions to this problem are not possible, Hennon used computer models to draw the orbits of the asteroids.

Hennon derived a iteration formula (now called the Hennon map) that shows the position of the asteroid in its orbit after a fixed amount of time. By first selecting the strength of the "perturbing" force (i.e. the strength of Jupiter's influence) and then choosing a starting point for the asteroid, one can draw a picture of that asteroid's orbit. By changing the starting position while keeping Jupiter's influence fixed, a family of orbits is obtained.

One such family of orbits is shown in figure one. Notice that some of the orbits are not circular or elliptical at all. In fact, some appear to be completely chaotic. Also note the empty regions of space where asteroids do not seem to go at all. These are due to resonance occurring when the orbit of the asteroid and Jupiter have periods with particularly simple ratios (some scientists postulated that this property of the model actually explains the observed gaps in the asteroid belt).
Now each orbit in figure one was drawn by going through 1000 iterations of Hennon's formula. It is easy to see why a computer is essential in such a study. To draw 150 orbits requires 1000 times 150 iterations; each iteration requires six multiplications and four additions. Therefore, the entire picture was computed in 900,000 multiplications and 600,000 additions! On the Amiga this takes about 10 minutes, but this computations is, for all practical purposes, impossible to do by hand.

THE PROGRAM

The program HENNON can be used to explore the Hennon mapping in order to obtain more interesting pictures. The parameters that control displayed pictures are entered via the control panel (see "Action" menu). Below is a short description of each parameter:

"A" coefficient--this is the "phase angle" used by Hennon's iteration formula. Its value determines the shape of the picture. "A" should range from zero to about seven.

"X inc" and "Y inc"--the starting point for the first orbit of every picture is (0.001,0.001). Each following orbit will start with a point (0.01 + x_inc, 0.01 + y_inc). These parameters determine how close the orbits are to each other. The two increments need not be the same.

Iter/Orbit--number of iterations per orbit. For faster computation, pick a smaller number; for more details, pick a larger number.

Orbits--number of orbits to be drawn.

Colors--number that specifies the total number of colors that will be used; each orbit is drawn in a different color. The highest value is 15.

Zoom Factor--this number can be used to magnify or shrink the entire picture. For example, setting this number to 2.0 makes the picture twice as large. Note that Zoom Factor could be a fraction (i.e. 1.5).

Figures 2, 3, and 4 show some other possible pictures that were obtained with the HENNON program. All the figures were done using high-res Amiga screens with 1000 iterations per each orbit.

Hennon used computer models to draw the orbits of the asteroids.

REFERENCES

Below is a list of books and articles that will provide the interested reader with more information about Hennon mapping, dynamic systems, and fractals:

Dewdney, A.K. "Computer Recreations: Probing the Strange Attractions of Chaos." *Scientific American* (July, 1987).

Becker, K. and M. Dorfler. *Dynamical Systems and Fractals.* Cambridge University Press, 1989.

Mandelbrot, B.B. *The Fractal Geometry of Nature.* Freeman, 1983.

Peitgen, H. and D. Saupe (editors). *The Science of Fractal Images.* Springer-Verlag, 1988.

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Mandlebrot Variations

Seven Seas Software now makes a library disk, *Mandlebrot Variations*, which utilizes the powerful graphics and mathematical capabilities of *Doug's Math Aquarium* to zoom in and zoom out of Mandlebrot sets and fractal objects. The disk, designed for exploration, contains 19 pictures, 23 commented DMA formulas, and several graded text files for nearly every level of expertise.

Mandlebrot Variations also allows many of the more profound ways of viewing the Mandlebrot sets, including the binary expansion technique (two color), the continuous potential method (smoothed Mandlebrots), and the scaled continuous potential method (height adjustable). The program also allows for angle and radius differentiation. Written by Otto Smith and Doug Houck, *Mandlebrot Variations* sells for $24.95.

Seven Seas Software
P.O. Box 1451
Port Townsend, WA 98368
(206)385-1956

Rings of Medusa

In Rings of Medusa, the latest adventure game from Star Games, a once prosperous kingdom becomes plagued by an evil force. The evil goddess, Medusa, is attempting to win the subjects into her power. You, the young prince, must reunite the kingdom. Your mission is to find five hidden rings in the kingdom and place them together in the temple of the Athenians, hence calling Medusa to battle.

The game features 3500 KBYTE of data compressed onto two disks, hard disk support, and the option of saving and loading of status at any time. The game boasts a huge world with 33 cities, 13 castles, 3 islands, and 20 goods for trade. Upon completion of the game, a new and different adventure begins. Released in February, *Rings of Medusa* sells for $49.95.

Star Games
708 W. Buffalo Ave., Suite 200
Tampa, FL 33603
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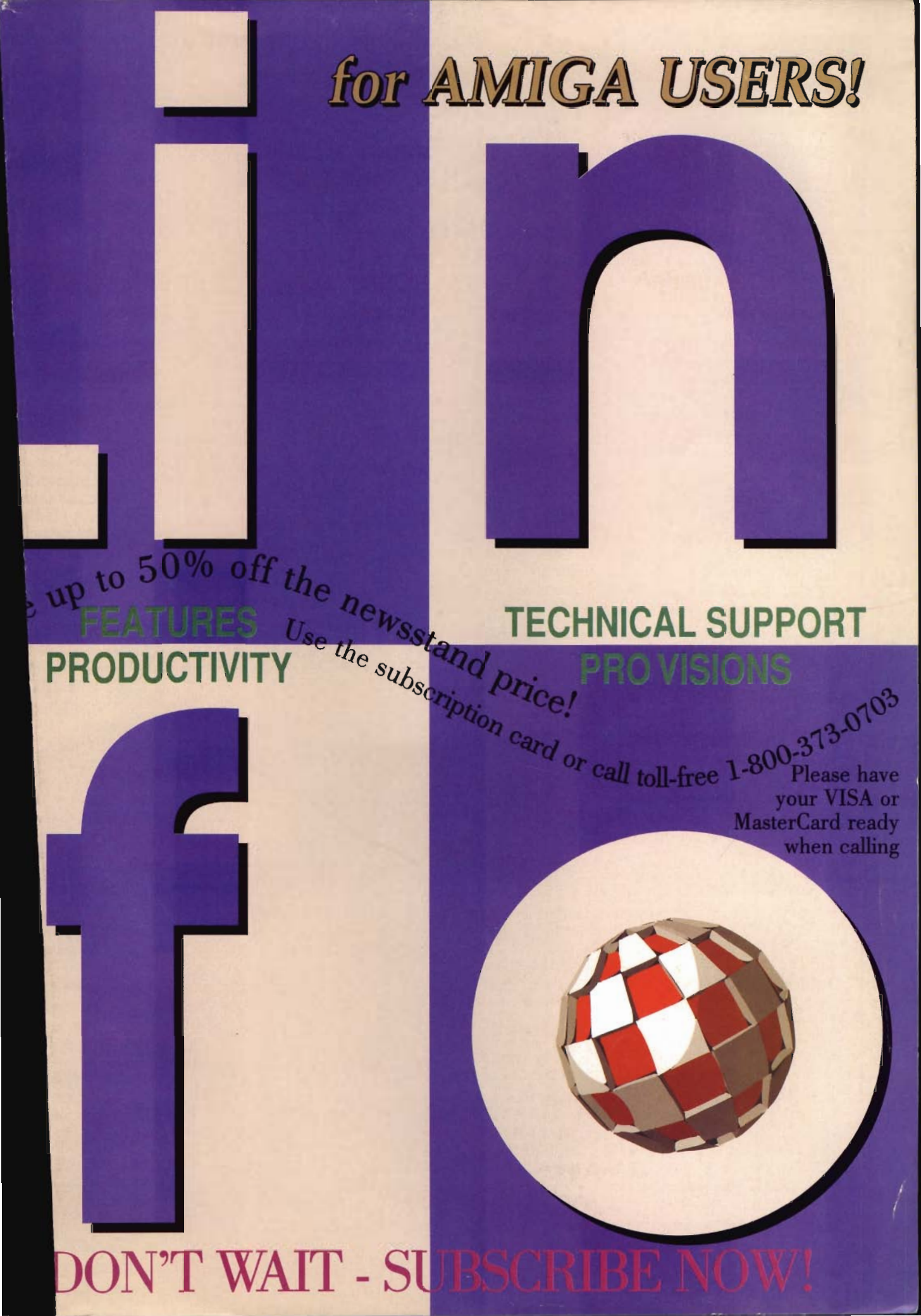
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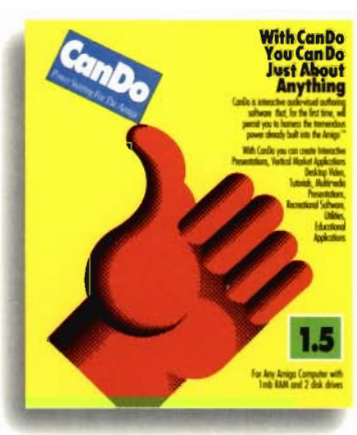

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Hard Disk Slammer is a hard disk utility program that permits the installation of AmigaDOS readable programs onto a hard drive, RAM, RAD, or virtual device. The principle use for this program is for hard drive owners. In fact, the software will not run unless you have a hard drive. Other requirements include *Workbench 1.3* and at least 1 megabyte of RAM. The program's author suggests that the program will work even better with more than 1 megabyte.

In my testing of the program, I found *Hard Disk Slammer* to work fine with 1MEG of RAM. I also found no problems while using a 1MEG Agnus chip (or without it). Lastly, *Hard Disk Slammer* showed no ill effects from using only chip memory or a combination of chip/fast memory.

INSTALLATION

The first thing the user should do with *Hard Disk Slammer* (hereafter referred to as SLAMMER) is make a backup. The program is not copy protected (except for the serialization on your disk and in your software) and copying via the CLI or workbench works fine.

The installation process is easy. Place the disk in df0 and click on the disk icon. Double-click the SLAMMER-INSTALL icon and the software is copied to your hard drive. Please note that the software is copied to dh0. No mention is made as to whether SLAMMER can be installed on a bridgeboard hard disk (Jh0) or whether it can run from dh1. Most of the software is copied to a sub-directory called "slam." The main file, slammer, is copied to your c: subdirectory.

PROGRAM OPERATION

After installing SLAMMER, you are ready to begin putting those disks onto your hard drive. The first step is to get into CLI or SHELL. Once there, just type in "SLAMMER" and away you go! You are presented with a custom screen and a set of menu options. There are a total of five menus accessed by the mouse. The first menu includes a requestor with the authors' names as well as the quit option. The second menu is for source options; options for using either df0 or df1 are available. The third menu is for target options, such as dh0, dh1, RAM, RAD, and vd0.

The fourth menu is for the various parameters needed for transferring the floppies to the target device. Included options are: number of disks to

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speed or power, or extra fight power; these things are needed for greater character strength. I made it all the way to level 31 before my character was toasted by a dragon.

On the screen to the right of the maze are each player's statistics, including score and health points. Each player begins the game with 2000 health points. Health points are lost by being hit by a monster or his weapon, having a run-in with Death, stepping into a force field or eating poisoned food. Health points can be gained back by eating food placed throughout the mazes. If a player's health points drop to zero, then the character dies.

The different types of monsters found in this game are ghosts, grunts, demons, lobbers, sorcerers, super sorcerers, Death, acid puddles, dragons, thieves, muggers, "It" and "That". Each of these monsters requires a different tactic to be dealt with. For example, ghosts must be shot to be killed, while grunts can be fought hand-to-hand. Dragons are by far the most dangerous creatures that you will encounter in the game. They breathe fire and must be shot many times to be killed. You could easily go through several players trying to kill just one dragon. Also on the hard-to-destroy list is Death. Only magic potions are effective against this dangerous creature.

The sound and graphics in *Gauntlet II* are excellent! As in the arcade version, a digitized voice announces important information such as the approach of Death and or when a player has done something dumb, like shot and destroyed some food. The background sound effects are entertaining but not overwhelming during play. The graphics scroll smoothly from one part of the maze to the next and the response of each character is immediate, even with four players going at it simultaneously. If you are a fan of the arcade version of this game, I encourage you to purchase the home version. If you have never tried the arcade version of Gauntlet or *Gauntlet II*, you will still enjoy the fast paced action and teamwork of this game. With excellent sound and graphics, this program is downright addictive!

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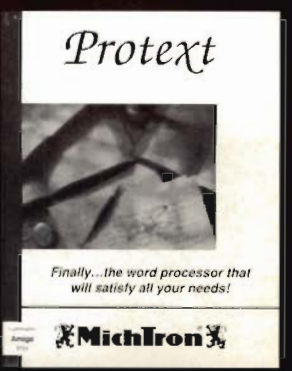

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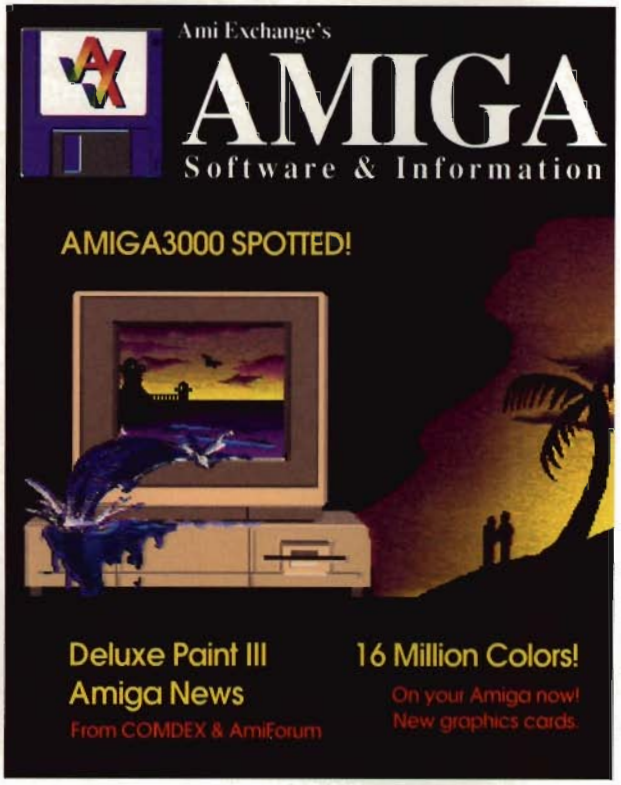

Amiga News and New Products
Amiga news from COMDEX in Chicago, the National Computer Graphics Association show in Philadelphia, and incredible new Amiga graphics boards. Article by Jay Gross

The Gossip Fence
A little bit of knowledge can be a dangerous thing. Total Fiction by Jay Gross

Stop The Presses
The latest news. Paper articles have lag times, but disks don't. Here is the latest on a new Amiga computer and more.

Virus Warning
A purported newer version of VirusX3.3 is really a virus. Important information

WORKING DEMO: Font-Works ICON
Load an Amiga font, add a drop shadow, color, and a lot of other things. The demo does everything but save. You MUST use the icon! Included are some tips on how to make the best use of the demo version included in this issue. Have fun.

ABOUT the Font-Works Demo
PLEASE read this first, before running the Font-Works demo. The guru will haunt you if you don't!

FONTS: To Add To Your Own Workbench
Whether you are using a paint program, or wordprocessor that supports different fonts, you are probably tired of your typical, same old fonts. Here are some more fonts to add to your collection. Complete with an ICON utility to install them on your own disk.

UTILITY: Workbench Toggle
This icon driven utility will let you switch between your normal Workbench, and a HIRES Workbench screen without going to preferences, and without rebooting.

ICONS: For Your Workbench
If you are tired of looking at those same old Workbench icons, here are a few more to spruce up your Workbench screens. Simply "drag" them over to your own Workbench disk.

What's New
From the latest in hardware add-ons, a new mouse, Word Perfect's Amiga policy, software, a new president at Commodore, and more.

UTILITY: FreeSpace Indicator
This convenient icon driven utility will display in a small window exactly how much space you have free on your disk drives, memory and virtual RAM DISK (if you have one). When ever you are copying things, or just looking for a disk with a little extra space, this is the just the ticket. Program by R. L. Stockton.

DeluxePaint III: Even More "Deluxe"
Dan Silva's third generation of the king of paint programs is now shipping! Article by R. Shamms Mortier, PhD.

What's Up With Caligari?
The $2,000 3D art program readies a scaled-down version for normal humans! Article by R. Shamms Mortier, PhD.

Image Processing Overview
An overview of what Image Processing is, and exactly what it can do. Take a look at this article for a general understanding before diving into the separate articles.

The 80286 Amiga Bridgecard
All the information worth knowing about the latest in Bridgecard technology: 80286.

PageStream: New DTP On The Block
Soft-Logik's PageStream is a new desktop publishing program for the Amiga. Article with screenshot illustrations by Shamms Mortier

PageStream: A Second Opinion
Some like it, some like it not. This is a another view of PageStream. Review by Hap Azziz

SPREADSHEET: Template - Expenses
This template will help you keep track of expenses on a business trip. To use this, you need Analyze! or some other 123 compatible spreadsheet program. You can use this application as is, or adapt it to your own needs.

Professional Page Template: Business Stationary
This version 1.2 template, creates business cards, letterheads, and business # 10 envelopes on your Amiga. Requires Professional Page 1.2

HARDWARE NEWS: SubSystem 500
Adding A2000 cards to an A500 with the SubSystem 500 by Pacific Peripherals Article by Jonathan Hardy

Draw Routines in Modula-II
The adventure continues continuing. More neat features to the program. Article, program, and Modula-II source by Rich Bielak

SOURCE CODE: Modula-II Draw
The .MOD and .DEF source files for the demonstration program Draw are on disk # 3 in the DRAW directory.

PROGRAM: Draw
This is the compiled, working program so far. Program by Rich Bielak

Object Oriented Programming
First of a series on C++ and object oriented programming on the Amiga. Article by John E. Ramspott

Introduction X Window System
X-Windows on the Amiga. What is it? Who needs it? How does it Work? Article by John E. Ramspott

Using Lint
Lint is a program for helping you program in C by finding those errors. Article by Mike Hubbartt

DMCS Printouts: The Complete Story
The full story on how to get good-looking music scores out of DMCS. PART 1 Article by John Thompson

"M" - Let Your Amiga Do The Walking
This new algorithmic composer for the Amiga gets overviewed by our resident musician, Glen Deskin. He takes a look at what M is, and what it can do for you musically.

DMCS Printouts: The Story Continues
More tips and tricks for getting good-looking scores out of DMCS. PART 2 Article by John Thompson - continued from part 1

A New Standard MIDI File Format
It is about time. Now you can move sequences back and forth between different MIDI programs easily, get sequences from other computers and convert them for the Amiga and more. By Glen Deskin.

Getting Started With Amiga Music
A beginner's guide to Amiga music software. What does what, and how well. Article by Sally Ann Hubbard

Music Sampler Library
Here's how you can get disks of A.X.'s music columnist's creations. PD and shareware disk library by Sally Ann Hubbard

MUSIC: Rockin' Bach
The music you hear is the A.X. Theme Song for this issue, Rockin' Bach. Original Sonix music composition by John Thompson

MUSIC: Tropical Treats
This is music from the land of eternal summertime. Original Sonix music composition by John Thompson

BBS Spotlight
Taking a closer look at a couple of Amigo BBS's around the country. Column by Chris Bailey

Protocols Continued Again
Everything you never even wanted to know about good ol' Xmodem.

You're Cordially NOT Invited...
Mindscape's Uninvited puts you in the drivers seat. Then the fun starts... Review by Kevin C. Rohrer

Blast! ... From the Past
Incognito's Footman and Demonware's Evil Garden. Arcades revisited. Article and reviews by John E. Ramspott

Falcon vs FA/18
The latest solvos in the Amiga Flight Simulation wars. Review by Mike Hubbartt

How 'Bout Them Hobbits!
Looking around Tolkein's fantasy world with War in Middle Earth. Review by Mike Hubbartt

Three New Ones From Sega
Alien Syndrome, Outrun and Space Harrier - new Amiga arcade-style games. Article and reviews by John E. Ramspott

PROGRAM: DrawPoker ICON!
Get your odds charts and your rabbit's foot out. This is the REAL THING! Program by NEEDTHIS - run this from ICON ONLY!!!

The Meanest Streets
Double Dragon and Techno Cop, gorey games for the action-oriented. Article and reviews by John E. Ramspott

Painting Pictures Under Duress
PowerStyx: Like playing with Deluxe Paint's polygon fill option. Review by John E. Ramspott

The Ami Exchange Social Register
Here's where and how to send what and to whom at A.X. Magazine.

Artists, Get Published!
An engraved invitation to artists to submit work for use in A.X. Magazine.

The Just For Fun Department
Bud and Sally take a turn at Battle Chest. Er, Chesssssss. Humor by Everitt Mickey

All of this and more appeared in Issue 2.3 of A.X. Magazine.
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the Kristal

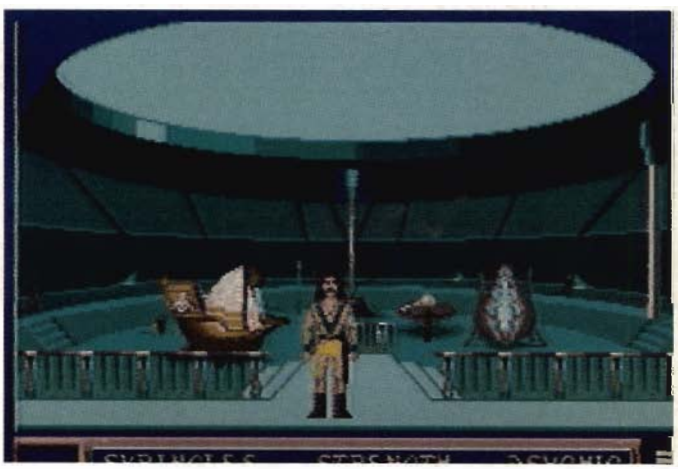
by: Pat Dawson

BUY FOOD! You are human, and need to eat or you will tire and eventually die.

The Kristal is a new interactive movie-game by Cinemaware and distributed by Electronic Arts. This game is similar in concept to the other games Cinemaware previously produced for the Amiga and Commodore 64. It was only a matter of time before Cinemaware released a game where you play the role of a space rogue similar to Han Solo of the Star Wars saga. Your mission in this game is to find and return the missing Kristal of Konos--lost after it was stolen by a villain who was caught in a magnetic storm on the way to his master.

At the bottom of the screen is the status window, which shows your money (skringles), strength, and psychic ability. The status window also has a disk prompt box, which informs you when its time to put a different disk in a drive. Another box flashes if a hidden object is nearby. To pick up a hidden object press the F2 key.

Another important window in *The Kristal* is the inventory window. This window displays pictures of items you have found on your journeys. A function key selects this window, while a different function key will give a description of an item in your possession. The other important window in the game is the communications window, which shows the dialogue between you and those you encounter on your trips. You can type in short or complete sentences, but cannot initiate a conversation with people you encounter.



Your role in the game is that of Dancis Frake, a space pirate who wakes up on a strange planet with no memory of how or why he is there. You need to look around by walking north, south, east, or west. You speak with local people as you explore to find out how you got to this planet. You don't even remember that your space ship is sitting in orbit awaiting your return. While wandering around this first planet, BUY FOOD! You are human, and need to eat or you will tire and eventually die.

Yes, you have a space ship--what self-respecting space pirate doesn't? Select a destination from the navigational chart; the computer moves you through space at light speed, but leaves moving through space at sublight speeds up to you. Flying the ship is simple enough; use the joystick to change directions and accelerate or decelerate. Your ship also has cannons, which are highly useful since you may not

be the most popular man in space! A hint for new players of *The Kristal*: get into the planet's orbit as quickly as possible; the planetary defenses may be launching drones to knock you out of the sky. I accelerate as soon as I hit real space, then decelerate to fight, then accelerate again; this way I'm approaching in short but safe steps. You have shields for defence, and indicators for destination distance and current speed.

As with Star Trek, you beam down to a planet surface since your vessel is not designed for planetary landings. Talk with the locals, but don't insult anyone unless you are ready to fight. Your weapon is the sword--befitting a pirate. You are reputed to be quite good, so this may get you into trouble with locals out to prove themselves. You can chop or block with the sword, the action is controlled by a joystick.

After getting this game, I fired it up and went exploring. In the first game I found out about needing to eat, since I lacked strength. Piloting to a destination is simple, but it took a few attempts before I found the trick of accelerating and decelerating to safely arrive at a planet. Moving around and asking questions of locals and people that seemed to know me, even though I didn't remember them, provided me with important clues.

After playing awhile, I resorted to the back of the manual, where hints are provided for novice adventurers. Unfortunately, I had passed the point where direct hints would help, so I had to continue on unassisted. This game is fun and has kept me entertained for longer than most I've seen on either the Amiga or Commodore 64. I haven't solved all of it yet, but I'll give a few tips that I found helpful to reach the point where I am now.

One of the manual's hints suggests making a map of where you go, to help if you have to start over. The universe is a big place, really big (quote attributed to Douglas Adams of Earth), and you will encounter situations where Dancis meets his maker while planet-side. A good map can save you a lot of time when you start anew, so I strongly recommend you keep one; it really does help. Another hint is to remember to eat in order to keep your strength up. Although you can't always avoid a fight, try not to be too insulting until you learn the best way to use your sword. Ask questions of anyone that talks to you, since you need all the clues you can get to find the Kristal. Save the game often, so it can be restored if you get into a nasty situation.

This game comes as a four disk set. It cannot be installed on a hard disk, although it does support two floppy drives. You have to format a blank disk to save a mission, and can only save one mission per disk--two negatives for this game in my opinion! The graphic quality is typical of Cinemaware products, good to say the least. The arcade like sequences of flying the ship and sword fighting were fun and not too difficult to learn. To sum up my appraisal, I like this one. I would like to save more than one game per disk. I've spent a lot of time on this game and think I'll solve it in the near future; has anyone out there already finished it? Write us here at A.X. and let us know if you've completed it and how long it took to find *The Kristal*.

The Kristal

Cinemaware
Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
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Asking questions of locals ... provided me with important clues.

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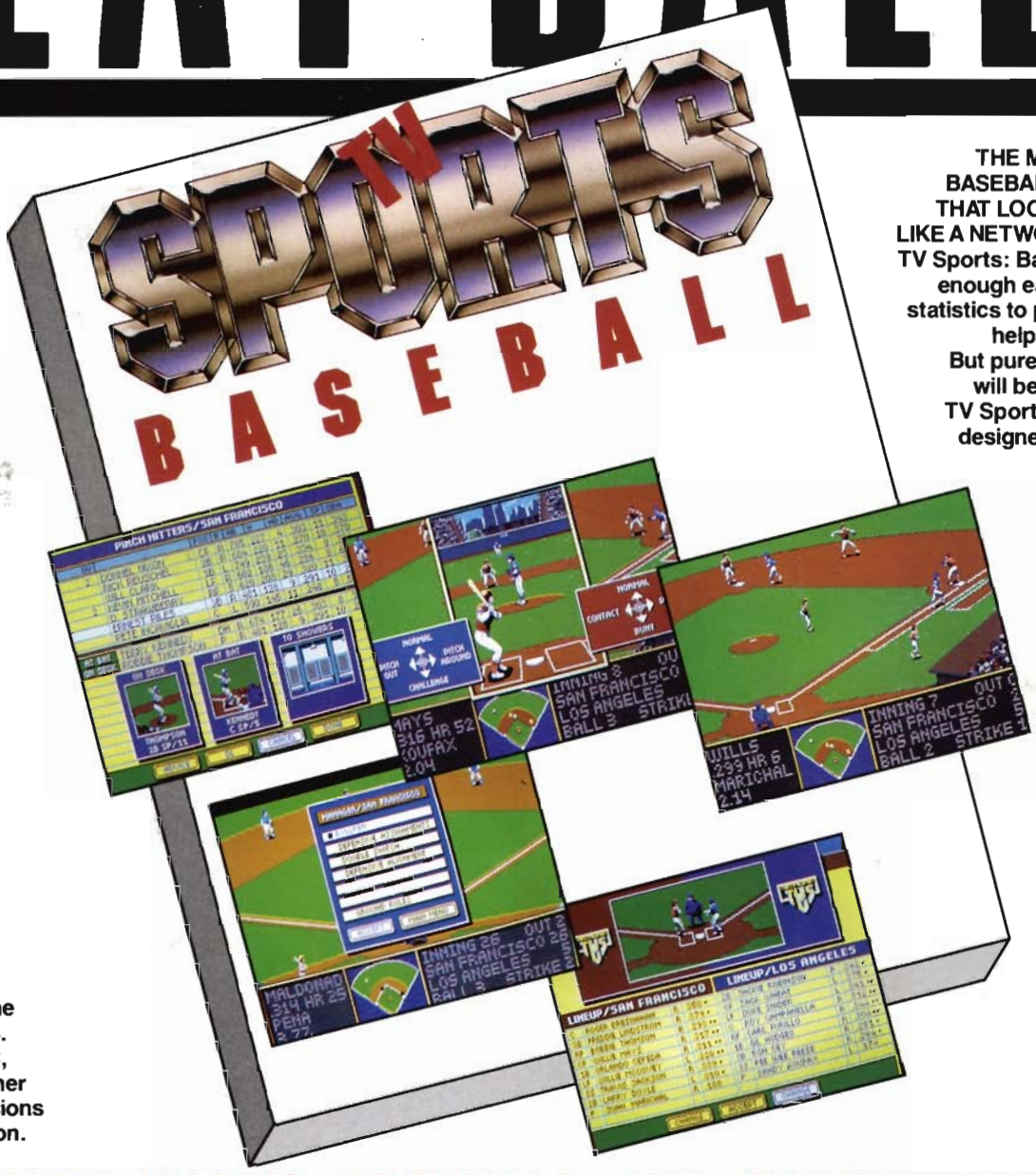

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