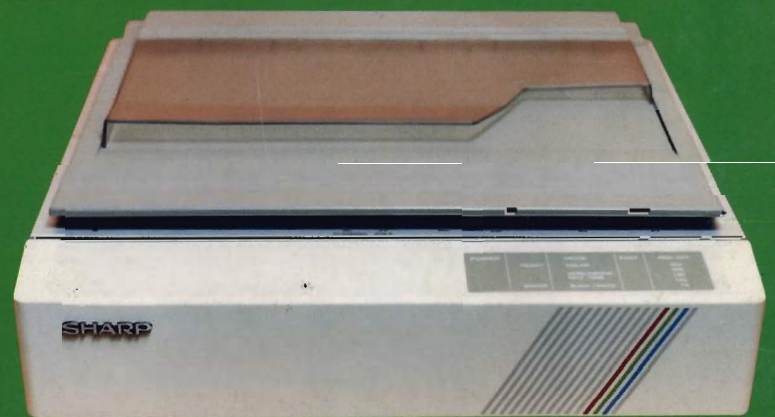


THE AMIGAtm SENTRY[®]

THE AMIGA[®] NEWS MAGAZINE

OCT. 88
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FROM: Color Hardcopy
TO: The Amiga



ASDG's *SpectraScan*
system and the
Sharp JX 450
300 dpi color scanner



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On Point

Notes from Editor, Tom Bucklin

It is a fact that what are known as "third party" developers can make or break a computer system. This becomes especially pertinent when you are talking about a computer that has an operating system that is unique to one specific hardware configuration, as in the case of the Amiga. Without the many developers that have supported this machine, it may not have survived its A1000 era.

It's no secret that there was a time when Commodore wondered about the fate of the Amiga as a truly profitable part of the product line. The A1000 design was expensive to manufacture and required availability on more parts than the new, slimmed down, A500 motherboards. No right thinking company continually throws money out the window on a product that performs below their profit expectations without some serious consideration. Somewhere in their considerations, Commodore must have been impressed with the innovative work being carried out by the continually growing, dedicated group of developers; enough to make them go on to add two new models of Amiga.

In an organization like Apple computer, there is an aggressive attitude towards the support of developers who create products for the Apple line. Their interest in the developers, particularly in the desktop publishing/MacIntosh arena, has contributed to the Mac's success in becoming a standard in these markets. Although companies well known in other computer markets have come to support the Amiga, this process was started by many grass roots organizations who cared more about realizing the potential of the machine, than they did about the almighty dollar.

Perhaps that is the thing that makes the Amiga most unique. Many of the people it attracts, both users and developers, are creatively motivated. As a matter of fact, much of the applications most popular on the Amiga seem to be wrapped up in the creative process. You'd be hard pressed to make a statement like that concerning the IBM compatible market.

It's easy for a company to categorize developer support in terms of an ongoing maintenance operation. In reality, they are the life-blood of the company. Hopefully, Commodore is continually mindful of where all of these innovative Amiga products come from (like the 300 dpi scanner system from ASDG featured in this issue), and recognizes these achievements in terms of support that is on a par with that given by the other computer manufacturers.

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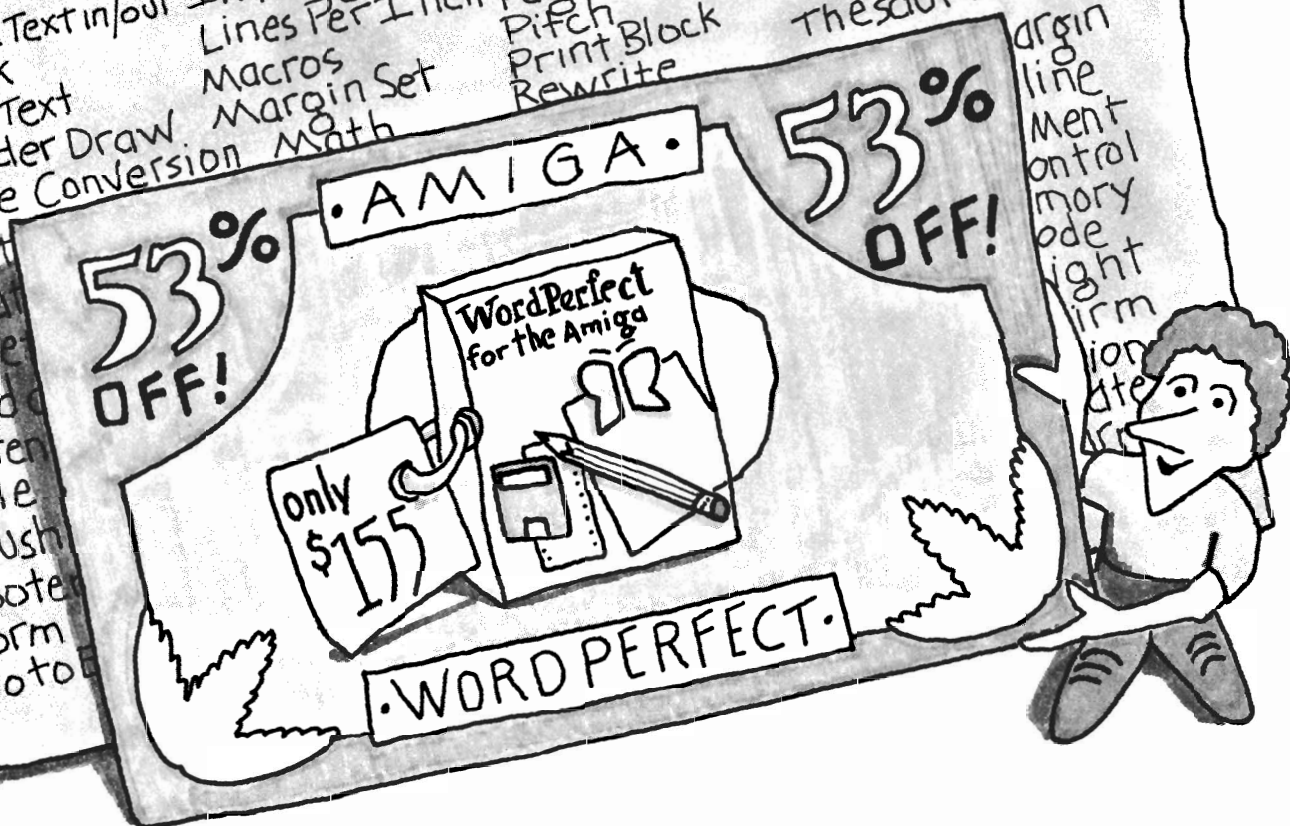
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SPECTRA SCAN

300 DPI color scanning from ASDG and Sharp Electronics

by Steve Dock

For more than two years, thousands of Amiga owners have transferred printed images into their computers using DigiView. With the advent of quality desktop publishing software, these images have made their way into newsletters, correspondence, and flyers. Amiga animators have also benefited from the pro-

cess of scanning images. As successful as these applications are, business applications for digital image scanning require higher quality than video signal based technology can provide. The maximum resolution of which our camera based systems are capable is about 740 by 440 dots. There are many professional level applications that require at least 300 DPI quality.

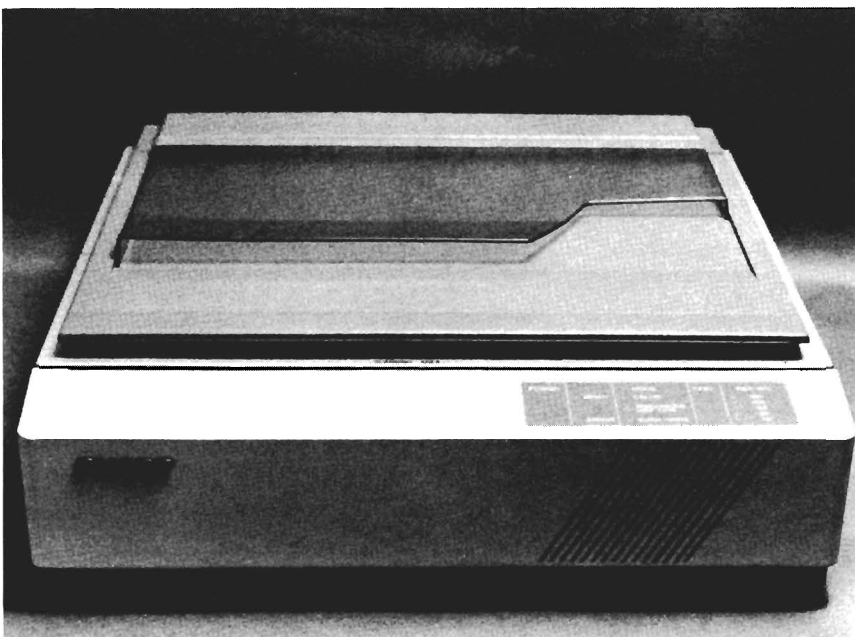
Enter SpectraScan from ASDG. This high-quality image scan-

ning and processing system will transfer up to 11" by 17" images into your Amiga at 300 dots per inch. The image can be scanned in monochrome or 24 bit plane color! With Professional Page running in the background, you can scan and produce PostScript color separations in one continuous operation. If color hardcopy is your requirement, SpectraScan images produce exceptional quality printouts on the HP Laserjet, Xerox 4020, etc.

There are four components to the system provided by ASDG. First is the Sharp JX450 color scanner. It sends a mass of digital data through an IEEE 488 bus into your Amiga. This data is processed by the SpectraScan software. "Hmmm, my Amiga doesn't have an IEEE bus," you say. True, but ASDG provides one as a module on their Twin-X expansion board for the A2000. Lets discuss each component in turn.

The JX450 has been on the market for some time and sells for \$6995. It is obviously designed and engineered for business and professional applications. It will take up 22 by 20 inches on a sturdy tabletop. The JX450 is a flatbed scanner which uses three colored lights

The JX 450 is the first in a line of Sharp's 300 DPI color scanners



and a CCD to produce digital pulses from the image. It can scan in increments of .04 of an inch and offers resolutions of 75, 100, 150, 200 and 300 Dots Per Inch. You can use hardcopy, or even scan transparencies and slide film using a special mirror. The scanner can code its data as 1 bit-plane monochrome, 4 or eight bit grey scale, and 3 or 24 bit color bit data. In 24 bit color mode the scanner discriminates 8 bits of data in red, green, and blue for each dot it scans. These performance characteristics are augmented by built-in programs, which can zoom in on a subset of the image, provide three types of color correction, produce negative images, and perform four levels of edge detection.

To connect all this functionality to your Amiga, you must install an ASDG Twin-X board. The Twin-X is a standard Zorro form factor expansion card for the A2000. Each Twin-X board contains circuitry which connects the Amiga data and timing signals to two IEEE 959 edge connectors. This IEEE standard was originally defined by Intel as their Multi-bus specification, and has found wide acceptance in process control, industrial, and scientific applications. The result of this history is a large catalog of ready-made modules which can be snapped onto the Twin-X card. When a module is added to the Twin-X card, it will autoconfigure and have access to Amiga DMA channels and I/O func-

tions. A 10 Mhz clock signal is included on the board to aid in these functions.

The Twin-X by itself is an empty card. It must have one or two modules added. The SpectraScan package includes one IEEE 488 module and the necessary cable to connect to the JX450. The package we received had the IEEE module already attached with dip switches and jumpers preset. This made installation a breeze. Installation involves removing the screws from the A2000 case and one slot cover. The Twin-X with its IEEE module firmly connected, is then inserted into an open expansion slot. A ribbon cable runs from the top of the IEEE

(continued on next page)

What's an IEEE-488?

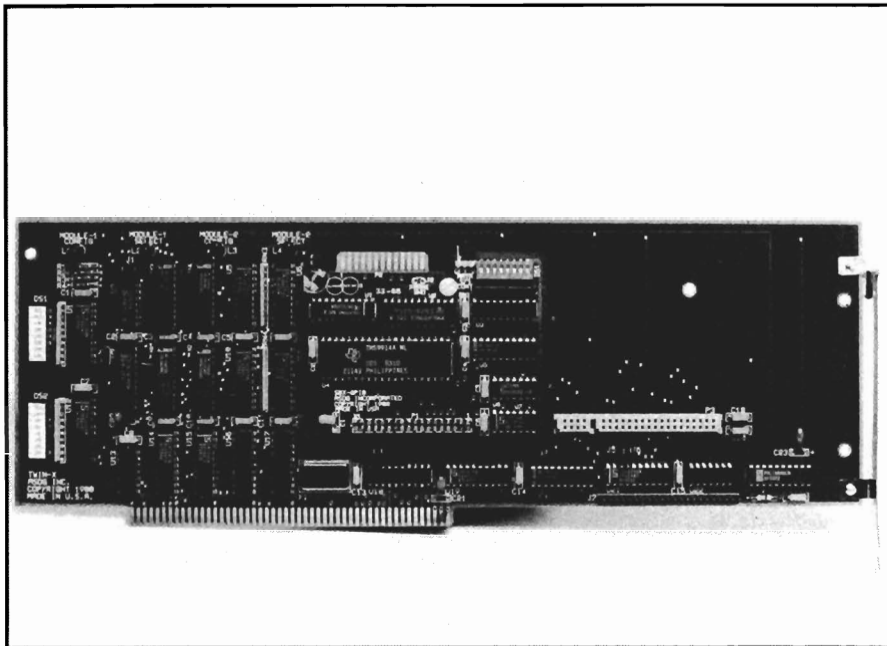
The Institute of Electrical and Electronic Engineers is an organization that includes engineers from all branches of industrial, commercial, and academic facilities. Since it is such an all encompassing group, it has become an organization which develops standards that span the electronics field. One of these is the IEEE-488 programmable interface bus. The rather weighty tome that defines the interface is complex in scope, but the results are fairly understandable. The original idea for this bus was to allow programmable instruments to interact and report to a central computer. Like the more familiar RS-232C interface supplied on the Amiga, the IEEE-488 enables devices from different manufactures to communicate together. It uses a 24 wire, square connector to link the devices together in a daisy chain.

The 24 wire connector has 16 "active" lines, or lines that carry information and electrical connections. The lines are grouped into data, handshake, and control which handle information, responses to information received, and bus arbitration respectively. The data and handshaking are essentially the same in function as those in the RS-232C interface. The control is close to the autoconfigure hardware and routines used by the Amiga to recognize expansion devices. The net result of this standard is that hundreds of measuring devices, real-time samplers, and scanners can connect to and share information using a IEEE 488 bus.

There are three basic types of devices that will connect to the IEEE-488 bus. The most important type is the controller which handles action of the other devices on the bus and does the configuring of the bus. More than one controller can be connected to the bus, but only one will act on the bus at a time. Another type of device is the "talker," which collects information and then places it on the bus. The information is available to any instrument connected in the daisy chain that may need it. Since information is placed on the bus by the talker, typically only one talker can use the bus at a time. Talkers are usually measuring instruments or digitizers that take information from the real world and put it into a machine understandable form.

The device that reads the information from the bus and interacts with the real world is the listener. Since it is more passive, any number of listeners can obtain information that the talker or controller puts on the bus. The actual mechanics of the correctly functioning IEEE-488 interface resembles a symposium with a moderator (controller), attendees (listeners), active participants (both talkers and listeners), and some that never listen (talkers). Contrast the richness of this structure to the simplicity of RS232 serial and Centronics parallel connections. Some of the specific applications for the IEEE-488 bus on the Amiga are multiple RS-232C interfaces, SCSI interfaces, programmable controllers, and a wide variety of measuring devices. With ASDG's Twin-X and IEEE adapter, the Amiga has a versatile, new interface.

SpectraScan (continued from previous page)



ASDG's Twin-X board, shown with the IEEE module mounted atop

488 module to a female IEEE connector, which extends out the back of the 2000. Connect one end of the special cable to the scanner, and one to the Amiga, and the hardware is set.

The final component is, of course, the software. ASDG provides two programs which must work together. First copy the ASDG-IEEE.library program into the LIBS directory of your boot disk (this can be a floppy or harddrive). Now insert the program disk and either Click on the SpectraScan icon, or "Run SpectraScan" from a CLI. ASDG is justifiably proud of this software. It is fast, flexible, and provides the user with a view of his image on screen at all times.

Note: The Twin-X and IEEE 488 modules we were provided are the finished production models. However, ASDG will be ad-

ding additional functions to the software prior to its general release. All the functions we describe below work now and work very well indeed.

SpectraScan opens with a lo-res custom screen covering the lower third of the display. This Trial control panel is full of "clickable" gadgets and numeric displays. The idea is to conduct several trial scans in monochrome until you have the proper image, then switch to the "Final" panel for color scans. Behind this control panel is a blank lo-res window where your scanned image will appear. The control panel can be dragged around the screen in the usual way, and pressing Left-Amiga N will return you to the Workbench window, or whatever other task you are running. If you have already powered up the Sharp scanner, simply click on the SCAN gadget. The JX450

will slide its top carriage across the strobing lights and instantly the Amiga screen will begin to fill with a 100 DPI grey-scale representation of the image you have placed on the glass. In about 30 seconds an entire 8.5 by 11 inch image is scanned. The first time I operated SpectraScan, I was equally fascinated by the science-fiction hum and whirr of the scanner, and the smoothly scrolling image revealing itself on screen. The image itself is stunning. Amiga owners are used to seeing and making digitized images, but the sharpness and 100% fidelity of these images is something new altogether.

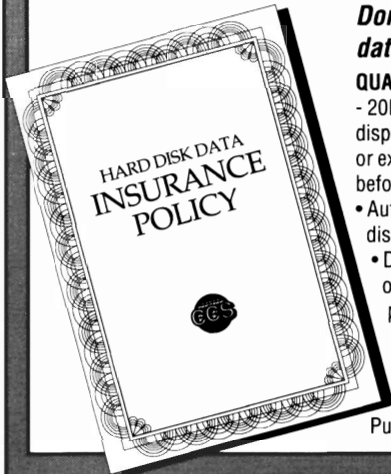
A very unique thing happens as soon as you click on SCAN. The SpectraScan control window becomes transparent so that you can see the entire image as it fills up the screen. I have checked with people who use scanners on other computers (Mac and MacII), and seeing your scan as it happens is unique. It seems that all other scanning software must complete the scanning process before displaying the result. This can be a waste of productive time if your image is tilted or otherwise mis-aligned. At any time you may click on ABORT to stop the scan and make adjustments.

Even at 100 DPI an 8.5 by 11 inch image produces a bitmap of 850 by 1100, which is much larger than any Amiga screen resolution. ASDG provides a scrolling super-bitmap to capture every dot which your memory configuration can support (a monochrome image of this size and resolution will fit in a system with 1.5 Meg). To scroll around

(continued on page 8)

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SpectraScan (continued from page 6)

your image, click on the four large directional arrows. Once you have completed a trial scan to verify placement of your image, you may want to adjust it or zoom in on a portion of the image. With the trial scan on-screen at all times you can outline an area and have the software automatically set the necessary parameters to rescan just that portion of the original. Simply slide your mouse pointer outside the control panel and over the scanned image. Now click with the left button and hold. A normal selection box will extend out as you move around. The image will also scroll below and to the right as you reach the edges of the display. (Remember that our 850 by 1100 image extends well beyond a single Amiga lo-res screen.) The scrolling action is smooth and quick and continues below the transparent control panel.

Let's say you scanned a cover page from the Sentry, which includes text and a photo. If you only want the photo, you use this selection process to outline just the photo and return to the control panel. This implementation of on-image zooming is also unique to SpectraScan. Our poor MAC cousins must make do with a representation of the flatbed scanner with grid lines. On the control panel are four string gadgets which show X Offset, Y Offset, X Length, and Y Length. These begin with default values which scan a letter size page. A second column of numbers repeat the same values initially. Now that we have outlined a

"subrange," this second column will contain measurements taken from the indicated area of the scanned image. If our photo is 4 inches down and 7 inches to the left, the X and Y offset will reflect this. If the photo is 2.25 by



A screen shot of a scanned image on the Amiga's monitor

2.25 inches, the X and Y length will state this. You can fine tune your subrange several times and read the resulting measurements for confirmation. When you are satisfied, click on the "Accept Subrange" gadget and the second column of numbers will be copied to the actual registers which control the scan. Now click on SCAN and watch as the scanner top moves down the page prior to beginning its scan and scans just long enough to cover the subrange you specified. This subset of your image now fills up the entire screen like magic. However, one little detail has changed in this scan. SpectraScan automatically increased the resolution to 300 DPI since we are using such a small area.

Once again, the results are outstanding, and have to be seen to be believed. In addition to sub-

range adjustments, you have other tuning tools available on the trial screen as well. Many color images benefit from clicking on MED or LIGHT to improve their range. This control panel also includes one pull down menu to set the size of the initial scan. The current sizes include most standard paper sizes, and will be augmented by standard photo sizes in the near future.

After several trial scans, you'll be ready to click on the FINAL gadget to move on. A new interlaced control panel will appear, which only covers about a fifth of the now blank screen. Many of the same gadgets appear here but there are several significant additions. Press your right mouse button and read the new control menus. You can select Scan Format, Resolution, Display, and Standard Screen. The Scan Format menu lets you select monochrome (1 Bit Plane), 8 bit-plane Grey Scale, 3 bit-plane color, or 24 bit plane color. As you increase the number of bit-planes, you increase the memory required. Note that this is not dependent on CHIP memory. ASDG stores the scanned image in FAST RAM and quickly scrolls it to CHIP RAM as needed for on-screen display. Let's go all the way and select 24 bit plane color. Remember that we will be scanning the subrange selected in the trial screen and at 300 DPI.

Click SCAN and watch the image appear. Now the JX450 behaves differently. It will pause for a few seconds while the soft-

ware sends instructions, then the three colored bulbs will flash rapidly as the sliding carriage moves. The hum becomes a buzz and at once the image begins to appear. This time it doesn't just fill the screen and scroll. Separate segments fill up the display and then are wiped by the next segment. The entire process takes about one minute. Use the scroll arrows to slide around the image (at 300 DPI our photo uses a 675 by 675 superbitmap). The faithfulness of the colors is startling. Hold the original next to the on-screen image and simply marvel (ASDG is not as impressed with their work. They are rewriting HAM on the fly algorithms to improve the result even more). Let's detour in our explorations to discuss this image. Obviously, the Amiga cannot display 24 bit

planes of color but it can use HAM mode (the full 24 bits of color information are maintained in memory for saving and manipulation). ASDG creates HAM images on the fly for all color scans! If you realize the computations involved in Amiga HAM mode, this is quite an accomplishment. Now remember that a letter-size color scan produces a 3300 by 2550 bitmap, and that you can smoothly scroll horizontally and vertically around this image. All this, with other applications running in the background! (Can't your MAC II do this?)

If you are completely satisfied with your scan, select Save-to-File from the Display menu and type a valid AmigaDos file name in the text gadget. Now select

Scan, and your disk or RAM: device will soon contain three files labeled to indicate which contains the Red, Green and Blue bit-planes. In the present software, this is the only save format available. The final version will create IFF format files, let you scale and subset the saved data, reduce colors and perform many color adjustments. For now, you need to use PixMate from Progressive Peripherals to merge the three files into a standard IFF image. This is a simple process which requires one menu selection, and clicking on one file name. The resulting file can be loaded into Deluxe Photolab, Professional Page, Shakespeare, or any other application which can use ultra high quality color images. I expect that producing PostScript

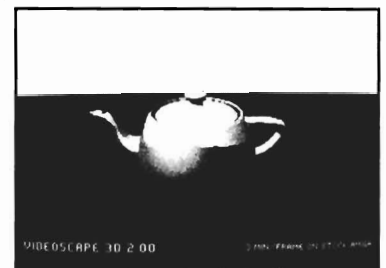
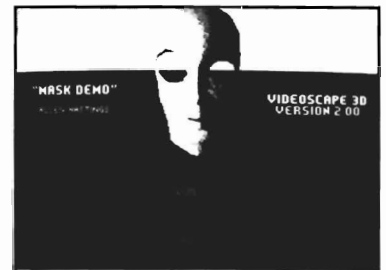
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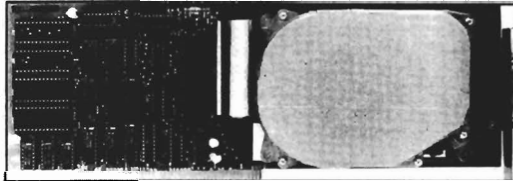
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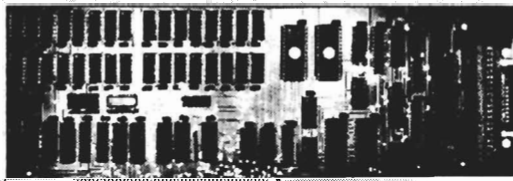


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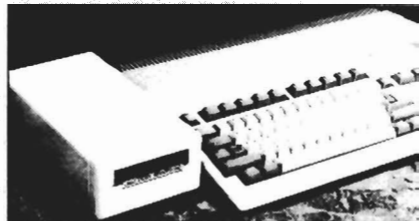


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SpectraScan

(continued from previous page)

full color separations using SpectraScan and Amiga software will become a growth industry.

Let's resume our tour of the control panel. You may not need to use 300 DPI for many applications. The second menu lets you choose 75, 100, 150, 200, or 300 DPI. A final selection is "Custom," which opens a small window where you type a specific resolution, which can be different in the X and Y dimensions. You can use Custom to produce tall and skinny or wide distortions of your original. The Display menu gives you several interesting choices. You can keep the default mode showing the image as it is scanned, or select Show after Scan. You may also choose not to display the image but save it to a file. The final menu is labeled Standard Screens. If you select 640 by 400 for instance and begin a scan, the scanner will be instructed to use a custom resolution which fits the largest dimension of the image within the selected bitmap. This means that I could easily fit my children's snapshots on a single screen. These custom resolution scans take up to four times longer than the standard scans, but they will be quite useful in commercial applications.

To get the most from every original, you may want to use one of three color correction algorithms provided. These are small boxes with diagonal lines running in different directions. Click on the G with a line for a standard Gamma correction, and the scanner will boost the low and high end of the color wavelength to provide better contrast. The other two corrections vary in the portion of the spectrum they effect. It is worth three scans to see which, if any, provide a better result. Another color manipulation feature is active only when using the three bitplane color scan format.

Three gadgets at the extreme right of the control panel all contain the number 128. These are the color thresholds the scanner uses to determine if a Red, Green or Blue bit will be set. You can override the defaults by typing 90 or 100 in, for example, the green box. The next scan will contain more shades of green, which may not have been picked up otherwise. You can even produce a negative image with a single click if this is desired. Another useful adjustment is the edge detection gadget. Using image processing techniques, the

(continued on page 62)

Rocket Ranger

Out of this World Entertainment from Cinemaware

By Ken McNeill

Shhh! Take your seats, the show is about to start. This feature is brought to you by Cinemaware, and the critics loved it - at least this one did. This film is full of excitement and suspense, action and adventure, and yes, just a pinch of romance. Our hero engages in daring aerial combat, challenges ruthless villains in fist fights, and uses his sharp wits to save democracy. Look, the lights are dimming now, so relax and enjoy the movie!

Rocket Ranger is the newest Cinemaware adventure game, which places you in the star role of the Rocket Ranger who attempts to save the world from Nazi fascism and brutality. For you, it's 1940, the beginning of a world war, and people from the year 2040 have sent through time a book, a rocket pack, a supply of fuel, a radium pistol, and a computerized wristwatch. The rocket pack fits on your back with a harness and enables you fly all over the world at in-

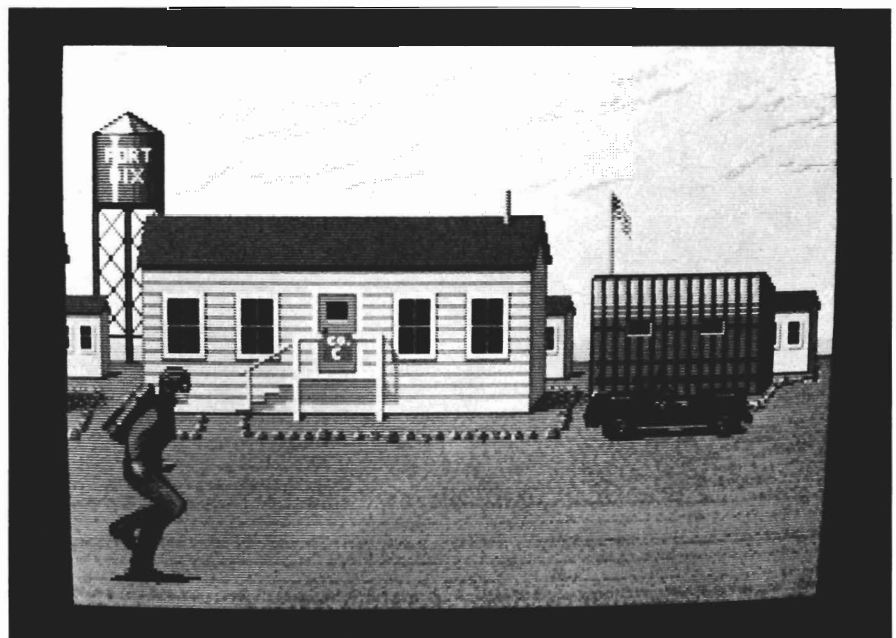
credible speeds. The book explains the plight of these futuristic people, and it's a grim one. In their history books, the Nazis won World War II and gained control of the globe. And now in the year 2040, they live under a cruel domination with no freedom or hope. A small group of these people managed to construct a time machine behind the Nazi's backs and send the objects back through time to 1940. Since humans cannot endure

time travel, they have sent the rocket pack and the other devices through time to you, so that you can change history in 1940 and defeat the Third Reich.

In the Game's scenario, The Germans had, unbeknownst to other countries in 1940, made an incredible leap in technology and were soon planning to surprise the world with their strength. They traveled to the moon and

(continued on next page)

Our hero, as he prepares to learn the "hard knocks" of flying a rocket backpack



Rocket Ranger (continued from previous page)

mined a substance called "lunarium". Lunarium is a potent resource. Rocket Ranger's rocket pack also uses lunarium. So your objective is to fly around the globe and hamper the Nazis while stealing rocket parts in order to build a rocket that will reach the moon. Once on the moon, you must destroy the moon base, thus rendering the Germans vulnerable. While doing this you should make time to rescue the beautiful damsel who has been kidnapped. As you can see, a lot is expected of you, but somebody's got to do it!

In my telling, the plot may sound a little confusing, but the manual presents it in the form of a believable novel that brings you emotionally into the story. So make sure a joystick is in port 2, and let's get on with the action!

After the delightful cinematic introduction and credit screens, the game sends you directly to Fort Dix, New Jersey, your home base in 1940. Throughout your worldly travels, you will return here periodically to monitor the status of the world, pursue strategy, and refuel your rocket pack.

A menu appears on top of a picturesque view of Fort Dix prompting you to choose one of four options. Your choices are: War Room, Rocket Lab, Fuel Depot, and Takeoff. The first order of business is to proceed to the War Room. In the war room, is a map of the world with a number of icons. From here you get the latest news on German activity and plan strategy.

The countries under Nazi domination are shown in brown and the locations of major bases and strongholds are also shown. The locations and status of U.S. agents under your command are indicated on this screen as well. The options available at this screen all deal with your agents. The agents themselves appear as figures placed in different countries. If a figure is flashing, this means that agent has urgent news or new developments relating to the country in which he is situated. Clicking the agent with the joystick-controlled pointer causes another menu to present itself. At the top of this menu, information concerning the region's status is given. This status may tell you that the region has not been infiltrated by your agent yet, or if has, what role the country is playing in the war. The "report" option causes a "hot-off-the-press" type bulletin to be scrolled across the middle of the screen. You may also opt to re-assign any agent to a different country, or change an agent's orders and cover tactics.

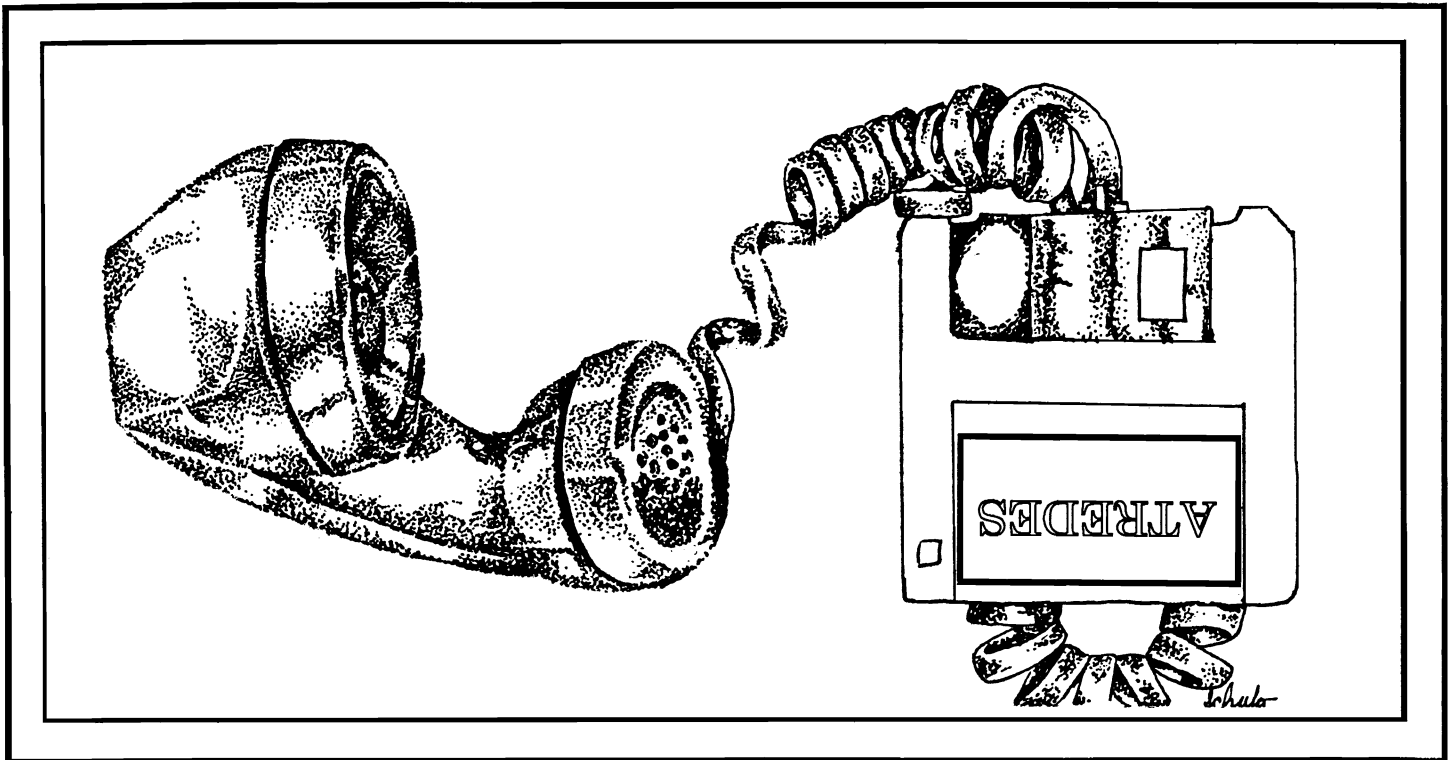
All agents can pursue one of two orders: infiltrate or organize resistance. By infiltrating, an agent continues to procure valuable information and report it to you, so that you know where and when to strike. By attempting to organize a resistance, the Nazi war effort will be thwarted greatly, and if a resistance is very successful, the resistance may gain control of a strategic location. Cover tactics deal with the manner in which the agent con-

ducts himself within a country. You may order an agent to proceed with a low profile or a high profile. Agents operating under a low profile are much less at risk of being exposed and killed, but take longer to do their job than high profile agents. I often received a nasty message from the Nazis saying that they shot one of my "careless" agents after I ordered a high profile cover to speed progress.

After obtaining all of the available information, you return to Fort Dix's main menu. The "rocket lab" option takes you to an interestingly graphic screen depicting a laboratory where the rocket ship is built from the pieces that you must obtain elsewhere. In the beginning, you have none of the needed pieces, but you return here to monitor the progress of its construction, because the ultimate goal of the game is to reach the moon for the final conflict. Before taking off into the open sky, you must fuel your rocket pack. Clicking the fuel depot option allows you to transfer Lunarium from the scant 500 units in storage to your rocket pack, or to the rocket ship once it is completed. Finally, after you have fastened the safety straps on the rocket pack, choose "takeoff" and hit the skies!

Before you takeoff, you must choose your destination from a world map, similar the one used in the war room. A little double "R" icon shows your location on the map. Choosing a destination

(continued on page 14)



Incognito, the newest player in the Amiga software field, is introducing a full line of Amiga hardware and software. This line will include utilities, games, programming languages and a full complement of very affordable hardware for your Amiga 500, 1000 and 2000 computers.

The first of the new software is the Atredes line of telecommunications software. This will include a full Bulletin Board System as well as a well integrated Terminal package. The Atredes system features a fully rewritten serial interface for fast and efficient communications.

The Atredes Terminal package will of course feature an Intuition type phone directory, which will include signon scripts and terminal descriptions. Atredes will support all popular upload/download protocols such as X,Y,Z modem, Kermit, Sealink and windowed protocols as well. Atredes will also feature a "Multi-Link" protocol to allow parallel transfers and access to the host system. This Incognito developed protocol will be released into the public domain. As per the wishes of the authors and Publisher, our Atredes products will be accessible to the

public for customization as desired. We at Incognito feel that our products are only made better by user interaction and modification. That is why the Atredes system is modifiable by our users.

The Atredes Bulletin Board system is the star of bulletin boards. Boasting numerous security levels as well as a full remote sysop access system. Of course the Atredes BBS supports all of the popular transfer protocols as well as our "Multi-Link" protocol to allow the user and the sysop the maximum flexibility a BBS can offer. The BBS terminal library will be available to users to allow expansion of the system for any purpose. Extensions to the system will be available to users through Incognito as well as through other companies. Incognito will announce these products as they become available. Call us for the details on the Atredes way of communications.

Games?

Incognito likes entertainment as well. Introducing the Real Life series of games that are as close to life as you would like them to be. We will be introducing several titles among which include: Dr. Morbid, Of the Flesh, Warlock and California Highway.

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Rocket Ranger (continued from page 12)

is mixed in with the coded copy-protection of the game. Included with the Rocket Ranger game is a decoder wheel like one that might be found in a cereal box. The country in which Rocket Ranger is presently located must be dialed on the wheel, while down the sides of the wheel are listed all the destination countries used in the game. At the intersection of your present country and the country to which you wish to travel is a number. This number is the number of units of Lunarium required in the combustion chamber of the rocket for that particular trip. The game can be played without the wheel, but the player will never know where he is going, and might therefore get wasted by flying unwittingly over the middle of the ocean and running out of fuel. After you have entered the correct amount of lunarium into the pack, the ac-

tual takeoff screen is loaded. The rows of barracks at Fort Dix appear along with you, the Rocket Ranger. You are decked out in your authentic flying suit with your rocket mounted on your back. The graphics on this screen are wonderfully real. As the takeoff screen is loading from disk, a brief set of instructions comes up to read. The player must press the button with every footstep to gain running speed, and then, when the built in speedometer on the rocket pack beeps, the joystick must be pressed forward for Rocket Ranger to become airborne. On my first attempt, I was determined and confident. As I gained running speed, I kept my button presses in perfect synchronization with my footsteps. The scenery scrolled smoothly by me. I had attained launch speed, so I pushed up on my joystick

and...Crash! I got up about ten feet in the air, then came falling down with my arms and legs flailing. Oh well, after another attempt, I shot like a missile into the blue yonder. If you fail more than three times per try, the game will tell you, "No one said this hero gig was going to be easy!" and send you automatically airborne with a few hints for next time and a time penalty (you didn't think you had forever to save the world did you?).

Many things happen to you in other countries, but there are three main situations that Rocket Ranger will encounter. All three are visually delightful and accompanied by outstanding sound effects. If you run into German planes in flight, you must use your radium pistol to defend yourself. This view shows you from behind cruising by the clouds with your pistol raised as you fire on the German warplanes. You can change altitude and move left and right to avoid their gunfire. If you are hit too many times, you will plunge downward and, if you're lucky, you may be saved by your parachute. Hand to hand combat is my favorite. This takes place when you have entered a Nazi base. The lights are dim and the room is musty. A German guard comes forth to knock your lights out. Using a Joystick, you must block, jab, uppercut, and right cross your way to a knockout against your opponent. The sound effects are so real that I found myself yelling "ouch" when my opponent's blows con-

After finally mastering your takeoff, a map shows your progress between the continents



nected to my face. I wish there were a boxing game this good for the Amiga!

The last type of combat that Rocket Ranger encounters during his daring travels is ground gunfight. Pushing the fire button fires the radium pistol. You must dodge enemy fire by using all of the joystick directions and employing your swift reflexes. Again, the graphics are at that top-notch level that Amiga users expect from their entertainment software.

After traveling to a few different countries and enduring the adventures that you encounter, you will run low on Lunarium and be forced to use your computer wristwatch to signal an S.O.S. and be taken home via U.S. submarine. You will periodically receive information and visual footage of events and happenings through your wristwatch as well (sounds better than a Rolex to me). If you are skillful enough to locate and steal all of the rocket ship parts, as well as the 500 units of Lunarium needed for the final journey to the moon, you'll be ready to triumph over the evil Nazis and save the world. Sometimes though, you may be content just to be able to get off the ground and soar through the sky.

The folks at Cinemaware have achieved their biggest success yet with Rocket Ranger. I have but two small related complaints that I want to get out of the way, so that I can applaud the game with-

out interruption. The screen transitions at several points are relatively slow, detracting from the continuity of game play. Now this is somewhat understandable, considering the intricate graphics, sound and action contained within. However, the game cannot be loaded into RAM. For those of us with the extra memory, this is disappointing. If my criticism doesn't sound too forceful, that's because Rocket Ranger is such a terrific piece of programming. The graphics and sound are excellent, and the plot is creative and engrossing. The manual

comes in two parts: the how to play part, and a scenario book straight from the year 2040. Both are well-written and the latter is amusing.

Rocket Ranger is one of those games that I wanted to play it forever. So buy some popcorn and get Rocket Ranger from Cinemaware. It's a four-star production!

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Video Effects-3D

Smooth Animations at up to 60 Frames Per Second

by Art Warsell

Video Effects 3-D animates titles, logos and IFF objects through three dimensional space at 60 Frames Per Second. Extruded objects look like ray tracings as they tilt, roll, flip and tumble through routines that are as graceful and smooth as anything you've seen on network

TV. The program is based on new algorithms that render perspective 10 times faster than Deluxe Paint II, and compression techniques that let you store up to 20 seconds of jitterfree, professional quality animation on a single floppy disk. Video Effects 3-D (Videfx) is a major breakthrough in video production on the Amiga!

If you follow the well-written manual, within an hour after

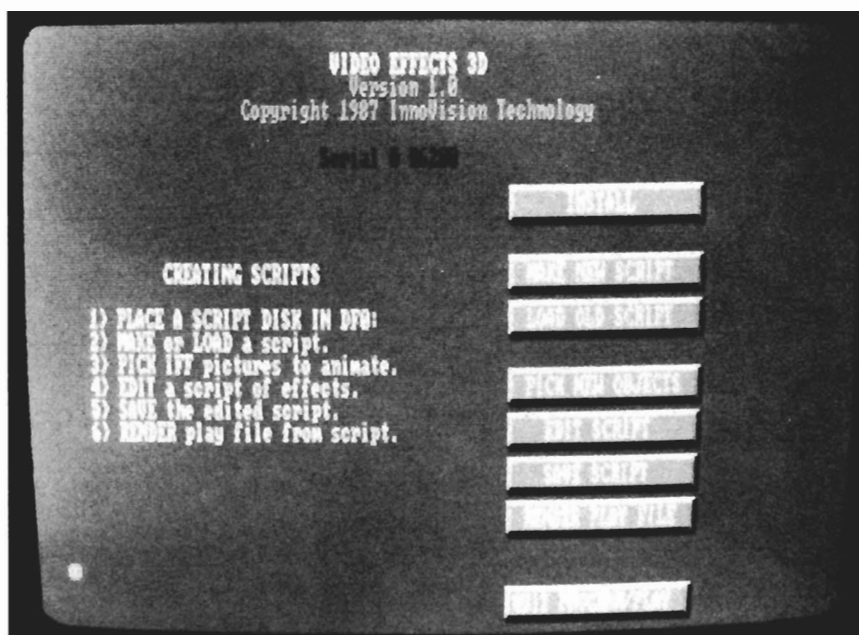
opening the package you will have completed your first script.

The program is complex and there is much to learn from experimentation. But clarity of presentation, in the documentation and user interface, allows you to use both intuitive and logical faculties from the very beginning.

Unless you have a very strong trigonometry background, you will appreciate the constant visual feedback throughout the script editing process. As you move an object through the X, Y and Z coordinates, degrees of tilt, percentages of zoom or whatever, what you see is almost as good as what you get. More about that later.

Videfx is also easy to learn and use because it is fast! In 20 seconds it can draw an object in perspective that would have taken 3 1/2 minutes in DPaint II. Final rendering to Playfiles is accomplished at the rate of about two minutes per frame. In other words, it will render hundreds of frames in little more time than ray tracing programs require to produce one complex picture.

Video Effects 3D is a script-driven animation creation program



And once you've created a spectacular animated effect, you can use the script with other objects. Placing a new object in an old script takes less than two minutes.

System Requirements

Video Effects 3-D requires two disk drives and 1 Meg of RAM, with 1 1/2 Megs recommended. The additional 512 K will speed up rendering by one third, make for smoother animations, let you store longer animations on one disk, and allow objects to be extruded into 3-D with four color shading on the sides. If you have an accelerator board and 32 bit static RAM, that will improve speed performance by about 400%. Videfx is not copy protected.

Starting Up

The first of many pleasant surprises after booting up is the MAIN MENU. The background is rose-colored and your cursor has become a golden ball. Apart from being nice looking, the menus throughout Videfx are intelligently interactive to an extraordinary degree. Text on the left side of the MAIN MENU, for example, outlines the six step sequence to creating scripts. On the right are eight control bars with labels such as "Make New Script," "Open Old Script", "Pick New Objects", "Edit Script", "Save Script" and "Render Play File". Pass your cursor ball over a control bar and the text side of the screen chang-

es to a clear and concise explanation of that bar's function, its place in the order of things, and how to use it.

Replace the program disk with an empty formatted "script" disk", select "Make New Script" and you're on your way. Soon you will have been guided through a series of menus that made it easy to import IFF files, start a track, outline an object to animate, and set a center of rotation. At each stage, not only have you received clear instructions about what to do, but a general orientation as to why. You are now ready to define the movements of your animation.

The Edit Keyframe Menu

The upper right quadrant of the screen is a window containing a wireframe representation of your object. The friendly text in the upper left quadrant explains that you are to "Adjust the position, zoom, tilt, shadow, thickness and timing for this object", and offers helpful instructions.

The bottom half of the screen contains an array of control bars and buttons. Clicking the mouse on the left side of any control bar increases its numbers, whether percent, degrees, or frames. The right side of the bar diminishes the numbers. As the digits increase or decrease, whenever it is appropriate, the wireframe rectangle will instantly display the effect you've chosen. For example, directly below the viewing window are three rows of control

gadgets: TUMBLE, TURN and SPIN. TUMBLE is an X-axis rotation, similar to an object rolling down a hill. TURN rotates an object on the Y-axis, like turning a page in a book. SPIN gives you a Z-axis rotation, like a record spinning on a turntable. Click once on the left side of the TUMBLE Bar for 1 full tumble rotation of 360 degrees.

Now, click twice for two rotations, or five times for five full tumbles. Reduce the number by clicking the right side of the bar. Next to the TUMBLE Bar is a button with an arrow on it. Select this button. The arrow (and the tumble) changes directions. Next to the DIRECTION Button is a TILT Bar. As you increase or decrease the number of degrees of X-axis tilt with this bar, the wireframe turns accordingly.

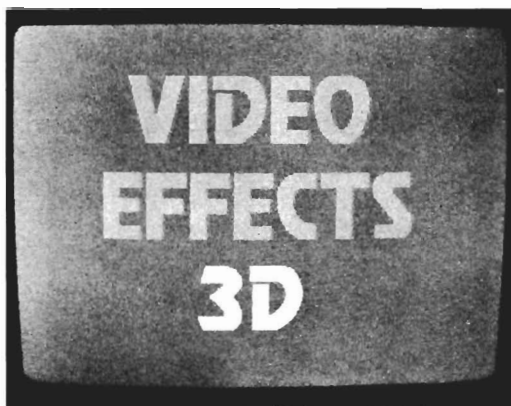
Do you want a better view? Click the DRAW FRAME Box, and in a couple of seconds the wireframe is replaced by a full color, quarter-size rendering of your object at approximately the selected angle. But because of the quick draw calculations used, the angle may not be exact. For a precise view of placement, choose the FRAME CHECK Box. This takes longer, but gives you an exact full screen, one field image of the frame.

What you are selecting on the Edit Keyframe Menu is the final frame of a transformation that began with the previous keyframe. A FRAME Bar shows how

(continued on next page)

Video Effects-3D (continued from previous page)

many seconds into the animation you will be when the current keyframe occurs. A DURATION Bar allows you to select the number of seconds (or



frames) the current effect will take. A one second full TURN is dramatic and abrupt. A four second full TURN is like a ballet movement.

To preview the animation, select the LAST MOTION Bar. In a few seconds, the wireframe outline will perform the motion in real time. The preview repeats itself in a loop until you click the left mouse button. (To preview the actual object in motion, render a playfile at 10 frames per second.)

Still More

I've chosen to describe a single Menu to give you an idea of the power and ease of Video Effects 3-D. And I've only scratched the surface of even this one Menu. For example, you can combine all of the effects I've mentioned so far into a single tumbling, turning and spinning

motion that reverse zooms till your object is a speck disappearing on the horizon of another moving object. There are a number of other major control gadgets in the EDIT KEYFRAME Menu, some of which are:

EFFECTS Bar - A variety of horizontal, vertical and diagonal off and on Wipes.

SHADOW/DEPTH Bar - Assigns a free or fixed shadow to follow a moving object and establishes



the shadow's position relative to the object.

LOGO DEPTH/COLORS Bar - Allows you to extrude a two dimensional drawing or font into 3-D, complete with thickness control, hidden surface removal and one to four colors of shading on the sides.

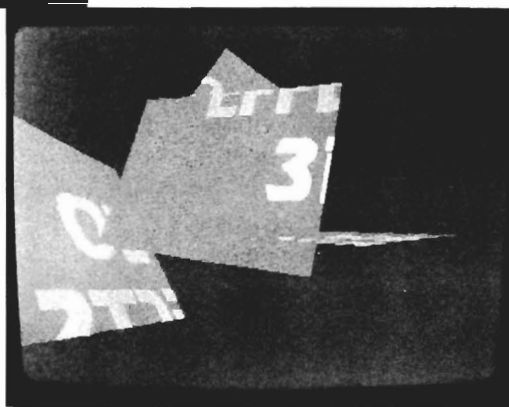
PERSP Bar - Sets the degree of Perspectivity from greatly diminished to greatly exaggerated. If you adjust this setting to the maximum for a 3-D object per-

forming a full turn, the object will appear to leap out of the screen at you (no special glasses required for this effect, just pure Amiga).

Comments

The movements of a single object through a series of Keyframes constitutes a Track. Each Track can have it's own palette and object, but Tracks must share a common palette to overlap in time. You may include up to 96 Tracks in a single script.

To achieve Videfx's smoothness of playback and ultra-high compression rate, InnoVision Technology has developed compression routines that do not conform to the Anim standard. Few who use this program will criticize the developers on that account. Comparing the sophisticated performance of this package to anything else on the



market, will cause most to feel that a new standard has arrived. In an effort to qualify my enthusiasm for this product, and thus present a balanced review, I have considered deeply the possible

drawbacks and side-effects to the use of Video Effects 3-D. They are:

1. It is addictive. Between creating scripts and rendering playfiles, you'll go through blank disks like popcorn.
2. Although Videfx only takes two minutes to render a frame, there are 60 frames per second to render. Every night you will go to bed with the Amiga churning out playfiles. And every morning you will have to fight the urge to stay home and use what you have learned from the night before on your next script.
3. The purchase of Videfx is the beginning of a spending spiral. Soon you'll begin craving more memory, a genlock, then a better genlock, a Super VHS VCR or two, accelerator board, frame buffers...

Conclusions

Do I recommend Video Effects 3-D? If you are already involved in Desktop Video, it is a must. If you are considering getting into video, the comments I made in jest contain a large element of truth. Once you've had a taste of Videfx, you won't be able to quit.

Video Effects 3-D
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In this competitive world there is only one winner.

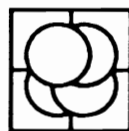
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PageFlipper Plus F/X

A New Generation of Video Production Arrives for the Amiga

by Tom Reed

PageFlipper Plus (PFX) is a two dimensional animation program designed primarily for desktop video applications. PFX creates scripts for the animation of standard IFF images and includes many standard video transitions. PFX is NOT designed as a brush-animation program, a

text or titling program, nor is it a three-dimensional ray-tracing package. However, brush movement animations are possible. You *can* animate text and do titling, and you can do three dimensional animations. These applications require special knowledge and preparation (which the manual covers).

The real power of PFX comes from its creative use of bit planes used with backgrounds, fore-

grounds, multiple full-screen animations, and special effects. As an example, in low resolution, you could be running one four-color two bit plane animation on planes zero and one, while at the same time, run a four-color, two-bit-plane animation in planes two and three. Also, bit plane four could run a special effect such as a fade, dissolve or a custom transition. The PFX disk comes with 76 built-in effects which can be used in any animation, any resolution, any mode. These effects include such standards as vertical and horizontal blinds, diagonal and square wipes, and fades. PFX lets you develop animations on separate bit planes and have these animations creatively interact.

Full screen animations, along with any special effects connected with them, can be run concurrently or consecutively. The PFX program uses special nomenclature to describe these events. Animations which run parallel to each other on separate bit planes are called "Slaves." They can also be strung together. These animations can be run consecutively, or one animation

After using the mouse to call out the various parameters of your animation, the program automatically generates the necessary script file



can be "called" from the middle of another animation. These animation segments are called "Intermezzos" by PFX. Intermezzos are used if you want to have different format animations within your total animation program. The use of Intermezzos allows you to conserve on RAM usage by using extra color (up to 4096), or overscan only when necessary. As an example, you may want to open an animation containing a high-resolution credit screen, followed by 2, two bit plane, animations running simultaneously, and then go to a HAM 4096 color closing sequence. Intermezzos would be used to connect these consecutive animations together. To coordinate these "Slaves" and "Intermezzos," the concept of "Master" comes into being. A Master defines the Slaves and Intermezzos, and invokes them at the appropriate time.

Animations are achieved by "double buffering." This means that there are two separate CHIP RAM memory areas for two separate images. While one is displayed on the screen, the other is being loaded. The two buffers must use the same file structure, ie. resolution, number of planes, mode. The amount of CHIP RAM necessary for double buffering is dependant on the resolution, number of colors, mode, and whether or not the image will require an overscan display.

The PFX program makes extensive use of bit planes in running your animations. Therefore,

your understanding of the relationships between the colors you use bit planes will enable you to maximize the use of PFX. This knowledge about bit plane structure is desirable in the planning stages of your animation, or when you are creating your IFF picture files. Of course, PIXmate, or a similar image processing program, could be used to adjust images for optimum use with PFX. The first chapter in the manual covers the necessary information about bit planes, their structure, and how they relate to your overall animation.

PFX comes with two disks: a non-copy protected program, and a tutorial disk, as well as a 150 page manual. The spiral bound 8 1/2" by 5 1/2" manual is indexed. This size manual is very convenient to work with, especially while learning. The program requires a 512K Amiga 500/1000/2000 with at least one, but preferably two, 3.5 in. drives, and AmigaDOS 1.2 operating system.

I found the manual to be well written and easy to follow. The tutorials are logical and detailed. If this wasn't the case, you could get lost in the many features. They are all explained, and if you do need to review, it is easy to go back and pick up the necessary information.

One thing that the tutorials do which I like (you may not be so enthralled) is to deliberately include some common mistakes, and then explain why you are

likely to make this error, explain what the Error Message means and guide you through a step by step correction of the situation. This is done to reinforce the correct procedures that are necessary with PFX.

The process of creating animations is as easy as (1) clicking on the IFF pictures you wish to use, (2) choosing additional effects from within the PFX program or adjusting the timing of your animation, and (3) playing your animation back. That sounds easy, and, basically, it is a simple process.

Once you invoke the PFX program from its icon or from CLI, you are presented with a menu on the left hand side of the screen. The program does not use drop-down menus or fancy gadgets. This is done to conserve Chip RAM for display of animations. PFX contains a built-in context-sensitive script editor. Changes are made to the animation script by clicking on one of the three script tools in the main menu (ADD, CHG, or DEL), and then clicking on the section of the script or statement to be altered. Usually, another screen will appear with appropriate selections to choose from for that particular level or section of the program. Click on the change, addition, or deletion you wish to make, and PFX will enter your command into the script.

I decided to test PFX by developing a short animation for my

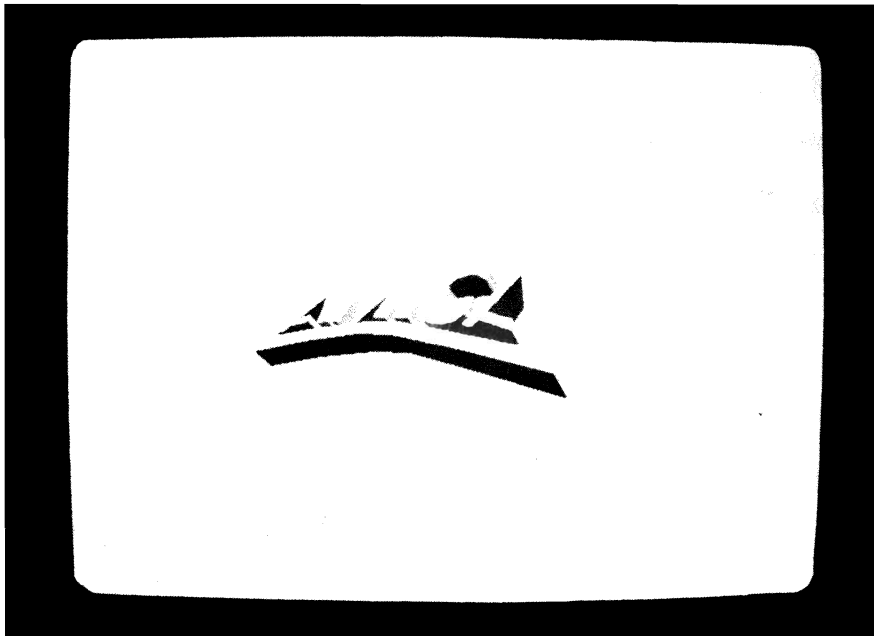
(continued on next page)

Pageflipper Plus F/X (continued from previous page)

company, TGR Studio. The decision was made to have a TGR Studio graphic "zoom" from the upper right corner of the frame toward the center of the screen. A telephone number would then move on screen, as some of the studio services would be flashed onto the bottom of the screen. I wanted highlights, small stars, to glint off some of the letters. This highlighting would be run as a parallel animation (slave) while the TGR Studio animation was running. These two animations would be done in low resolution using no more than 8 colors. When these animations finished running, I wanted to chain in a HAM graphic of "TGR Studio." Within the two concurrent animations, TGR Studio and the highlights, I would use one of the built in effects which PFX supplies.

You may wonder, "How am I supposed to know what effect I want to use?" Well, PFX has made it very easy to preview each of the effects: simply double click the Effects drawer, double click on the drawer containing the effect you wish to preview, then double click the icon representing the effect to be previewed, and finally, then click once on the

blank screen. The effect will now be demonstrated for you. Proceed with this process until you find the right effect for your animation. After viewing several of the effects in this manner, I decided to use the Horizontal-BlindsBottom - 18 effect. This causes the screen to blank with a venetian blind pattern, starting from the bottom of each section.



The Amiga logo, as it tumbles toward the viewer, in an animation of the same name

The trailing number (18) indicates the number of frames necessary to complete the effect.

Next, you create the individual IFF files which will be used in the various sections of the animation. DeluxePaint II was used to make the frames for my animation. The individual frames were numbered as they were finished and saved. To keep me organized, the picture file names

started with a number followed by the designation TGR Studio to denote the order and the animation they are being created for. Frames 00 to 06 comprised the opening sequence, frames 10 to 18 brought up the phone number, frames in the 20's contained the screens which had TGR Studio services, frames in the 30's had the phone number, and frames in

the 40's were used in the concurrent highlight animation. Organized in this manner, I was able to identify the sections of the animation listed in the script by noting the number in the file name as I scanned the animation script listings. So, when I saw the listing "18 TGR Studio" in the script which PFX had developed, I knew that the frame

was in the section which made my telephone number travel onto the screen. In fact, I knew that this was the last frame in that section.

To assemble your animation, first load and access the PFX program. When PFX is loaded, a "Project" menu appears on-screen down the left hand side. Click on "New." A directory re-

(continued on page 24)

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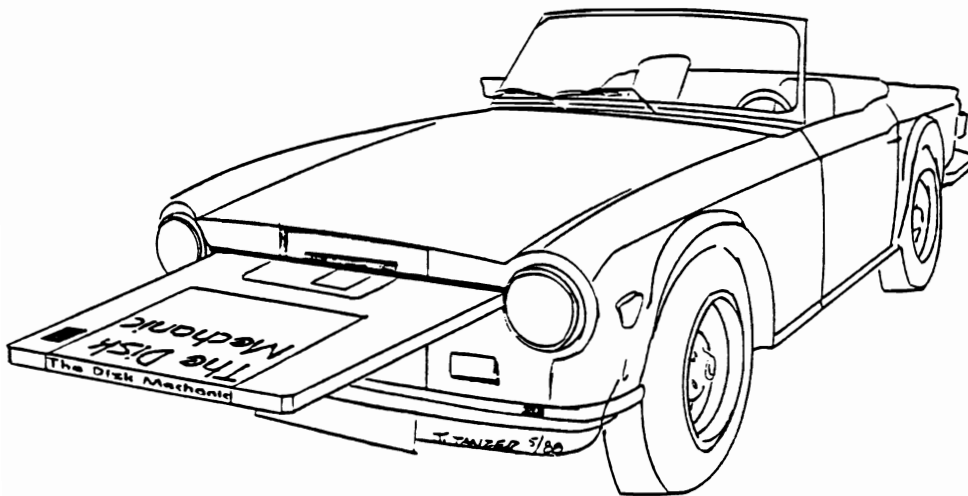
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Pageflipper Plus F/X (continued from page 22)

questor will be presented for the proper volume to be accessed to list your IFF picture files. The IFF picture files you created will be listed on the right hand portion of the screen. Click on the picture files in the order which they will appear in your animation. When you are finished indicating the individual picture files, click on load. Your script will be written for you and shown on the page containing the project menu. If all of your files are sequentially numbered, and in one drawer, you have the option of clicking "All," which causes PFX to list and write the script using all of the files in that drawer.

Next, click on "MAKE," which tells PFX to compile the animation, and this process makes a single animation file out of all the individual IFF files. The PFX screen drops down to about half way, and you can watch the separate images as they are brought forth to the screen, and the differences between the frames noted by PFX as it compiles your animation. That's it! Click on PLAY, and sit back and enjoy!

Adjustments to the animation are easily accomplished by utilizing the script manipulation tools ADD, CHG (change), and DEL (delete) on the project menu. This is where the fun begins. Remember those 76 effects mentioned earlier. They are only a few clicks away from being incorporated into your animation script. Slowing down or speeding up sections of the animation

is no problem. Adding a background or foreground is simple, as well. You can activate color cycling when needed with only a few clicks of the mouse button. When all of these decisions have been made and entered into the animation, your next step is to click on MAKE again. As before, this tool will compile your animation. Note - every time you change the script, you must click on MAKE to re-compile your animation.

While working with the program, I encountered a number of error messages (remember, the tutorials deliberately acquaint you with some of them). These messages contain a number, followed by a brief message. The number allows you to check the manual for more detailed information on what went wrong. The error message itself contains helpful information about the problem. This is one of the few programs that I have found that actually has something constructive to say in its error messages.

One change that I would like to see involves these error messages. At times, this information will go beyond the viewing area allocated. There is no way, that I have found, to see the entire message.

I found a similar situation when clicking on the IFF picture files to be entered into the script.

The listings for these frames often go beyond the screen area with no apparent way to look at the entire listing. PFX produces

animations which are not in the popular "ANIM" format. Mindware International's position is that the ANIM format is an emerging standard. By using a unique compression process, PFX gets very fast playback (up to 60 frames per second). However, there is a potential drawback to this unique format. Your PFX animations cannot be played with the existing player programs. You must use the Mindware animation player program, which is included for distribution with your creations.

PFX is very easy to use, but, because it is so feature rich, it does require some knowledge on your part as to how best to utilize the programs capabilities. The manual does an admirable job of imparting the necessary information to get the most from PFX. And, because the program behaves so well and can be adjusted so easily, it encourages you to experiment and play with the various possibilities the program has to offer. The animations produced with PFX are smooth and fast. The features are many and well documented. The creative possibilities in using the program seem to have a great deal of depth and potential, and are highly dependent on the skill of the user.

PageFlipper Plus/FX

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Fantavision

Two Dimensional Animation that can Integrate with Live!

by Paul Shaffer

FantaVision, a popular Apple II animation program, has arrived for the Amiga. Its powerful "tweening" capability, ease of use, and amazing sound and color should make it as big a hit on the Amiga as it's been for the Apple II. In this offering, Broderbund has started with a proven program, and added some

new features which take advantage of unique Amiga capabilities.

Although Fantavision provides many of the same tools as your favorite painting program, there is a big difference. FantaVision is object-oriented. Shapes are made up of points connected by lines. For example, a circle is made from 16 points, all connected by short lines. These objects can be made to move, twist, turn, and change size and

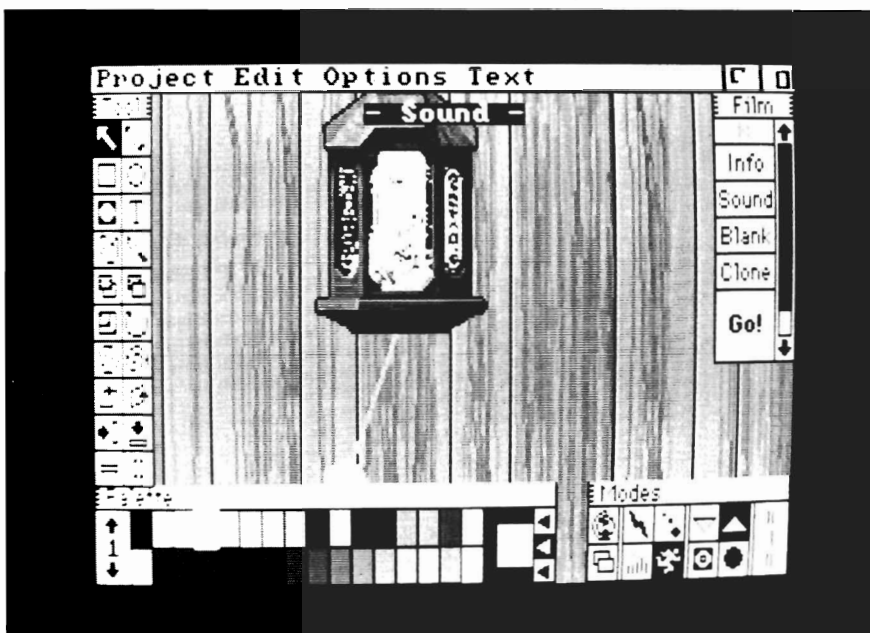
color, all with a flick of the mouse. The palette features 32 colors, as well as dozens of patterns made by combining one or more of the solid colors.

On the left side of the screen are the tools used to create and modify the shapes. Most of the tools are recognizable. There are rectangle and circle tools, but there are some unique tools as well. Two of the selections control the priority of the objects, allowing the user to send an object to the back or bring it up to the front, thus overlapping all other objects in the picture. There are also tools for changing the size and rotation of objects. Not only can FantaVision rotate an object in the plane of the screen, but it can rotate it about its vertical or horizontal axis, allowing for amazing foreshortening effects. Objects can also be leaned, squashed, stretched or flipped.

The top menu bar contains many familiar drop-down menus. The project menu allows for opening, saving and clearing of movies and backgrounds. The editing menu has the com-

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Within the program's main screen lie all controls for the creation and animation of your production



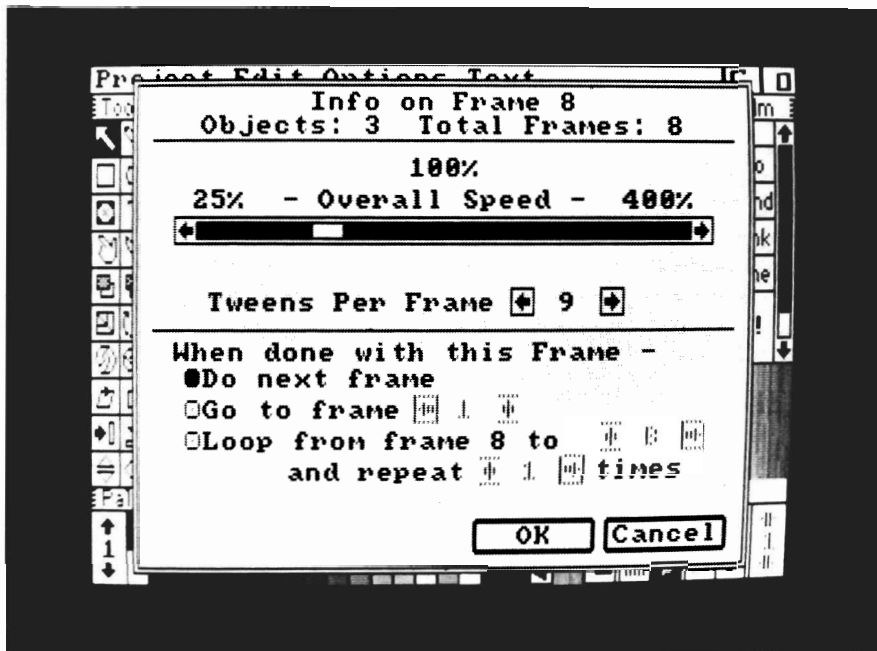
Fantavision (continued from previous page)

mon edit commands (i.e. cut, paste, clear), as well as some unique choices: select all (chooses all objects in the frame for editing), duplicate object, and undo. The text menu lets the user choose a font and its attributes, such as bold, italic or underline. The other menus on the screen control the movie aspect of FantaVision. The film menu

ment. For my first movie, I decided to animate the motion of a model rocket in flight. The rocket would start in the lower left, pointing toward the upper right and away from the "camera." It would then travel up to the top of the screen, all the while getting progressively smaller, and slowly tilting. When it reached the top of the screen, it would be

the circle tool, which would be the base of the rocket's body. This yellow circle is referred to by the program as object #1. I started another object (#2), this time a green side-of-rocket shape. Using the draw tool, I drew a line from the top of the circle out a few inches, then around the rounded top, and back down to the bottom edge of the circle. I continued around the side of the circle, and when I got back to the starting point, the entire side of the rocket filled in with green, and I had finished creating object #2. Next, I made four tan fins (objects 3, 4, 5 and 6) and moved them up to the body of the rocket. The left fin needed to be behind the body and base of the rocket, but a quick press of the "send-to-back" tool, and the fin obediently took its place on the far side of the rocket. Last was object #7, the red nose cone. With my rocket completed, I was ready to begin animating.

Choosing "clone" from the film menu makes a copy of the current frame. I was now working on frame #2, an exact copy of frame #1. My plan called for me to move the rocket up and to the right, shrink it a little, along with some rotation clockwise. First, I had to move it to a new position. I selected the grab tool from the toolbox and grabbed the green body of the rocket. I had expected the whole rocket to follow the mouse around, but instead, only the body moved. By the time I realized what was happening, the body of the rocket was completely separated from the nose cone



Frames and sounds are manipulated through controls in pop-up windows

is used to clone a frame, insert a blank frame, or start the movie with the GO choice. The modes menu controls the animation style and the dimension of the objects (solid, lines, or dots).

The actual process of making a movie with FantaVision is lots of fun. First, it's good to imagine the movie in your mind, as a guide to the creation of the objects, background, and move-

pointed directly to the right. Then the rocket should start its descent, pointing its nose down toward the bottom-right corner of the screen. As it moved, it should continue to get smaller and smaller, and keep rotating, until it was pointed directly at the lower right corner. With this image in mind, I began to construct my movie. The first step was to build the rocket on frame #1. I first drew a yellow circle, using

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and tail fins. Fortunately, the programmers at Broderbund had anticipated this sort of thing. They have provided an "undo object change" option in the edit menu. With my rocket restored to its original condition, I chose the "select all" option from the edit menu. From then on, all seven rocket parts acted in unison. I moved my rocket to a new position; then using the "zoom" tool I shrank it a little. Next I used the "rotate" tool to pitch the rocket over toward horizontal. I wanted to see if the program would animate these first two frames, so I pushed the "GO" selector.

Sure enough, the magic of FantaVision took over, and produced

16 intermediate frames between my frame #1 and frame #2. The effect when the movie played was a smooth transition from the first position, size and direction to the second position, size and direction. Such a movie would have taken hours to produce on some other animation packages, but FantaVision had done it in a matter of minutes.

From there, I continued to repeat the above steps: clone the frame, move the rocket, shrink it a little, rotate it a little, then repeat. By the fourth frame, the rocket was up at the top-center of the screen, half its original size, and pointing straight to the right. In the following frames, I made the rocket move down, rotate

down, and shrink even farther. I stopped after eight frames, when the rocket was just a small dot in the bottom right corner of the screen. When played, the movie was just great - the rocket seemed to fly up to the top of the screen, pitch over and descend to the bottom, way off in the distance. The whole movie had taken about one hour to make from start to finish, but the results looked like it had taken weeks of animation and iteration.

One feature of FantaVision I didn't use in this movie was the background. Of course, you can draw a background using the FantaVision program, but there are some much better ways to get

(continued on next page)

Fantavision (continued from previous page)

the scenery for your movie. One way is to import an IFF picture from Deluxe Paint or some other paint program. Using a painting program, you can create much finer detail and content for a background than would be possible with just FantaVision alone. Fantavision will import any resolution IFF image, including HAM and overscan. (Switch to

and the results were amazing. The Fantavision menus surround a moving, pulsing, real-time video source. At the press of a key, a screen full of your favorite comedy, news, or science show, can be captured in black & white or in color. There are also controls to adjust the color levels of the incoming signal. With images from live TV or video as back-

animation. You can attach a sound effect to any frame with the click of a mouse. These are standard 8SVX sounds created by many sound digitizers. A set of sliders lets you tune any sound, specify which channel it will use, and even preview your modifications. Fantavision gives you a 32 color palette in lo-res, and 16 colors in high-res, but also provides 1184 additional "colors" in 37 palettes of cross-hatched and dithered patterns. These make filled objects much more interesting. A stand-alone player program is also provided, so you can share your work with friends. The tools provided for manipulating objects are fast and numerous. You can cut, paste, clone, flip, turn, rotate, zoom, lean, squash and edit any point of an object. Another unique feature comes into play once you have finished moving an object. To conserve memory and speed up the remaining action, you can turn any object into a "BitMap." After an object has been turned into a bitmap, it is placed anywhere in the background, but no other modifications can be made. Since it is object oriented, Fantavision can do wonders with text. All the shape changing and movement tools can be applied to a phrase or logo with excellent results.

Compared to other animation programs I've tried, FantaVision is by far the easiest. Its "tweening" goes a long way toward taking the drudgery out of animation. However, sometimes

(continued on page 63)



An animated "Bird" flies off into the sunset in this demo included with the Fantavision package

hi-res and the character of your efforts takes on a much more professional look.)

The second, and even more impressive way to get a background is to grab a video image using the LIVE! digitizer. If you have LIVE! then you can make a modification to the FantaVision disk to add another menu option to the projects menu: capture a LIVE! screen. I tried it with my LIVE!

grounds, you can use the object tools to trace the outline of some object, and send it spinning or moving in other frames. This combination gives Amiga owners the first real-time digitized animation capability in the personal computer market. I am impressed that Broderbund has included this option for owners of the LIVE! digitizer. Broderbund has packed this package with features new to Amiga two dimensional

Impossible Mission

Hunting for Elvin Atombender

by Anthony Bevivino

Agent Bravo 29, you are Cobra Blue's last hope. All of our top agents have been eliminated, and now we realize our grave error in under-estimating the enemy. As you know, Cobra Blue is the world's foremost counter-terrorist operation and for decades we have thwarted the diabolical plots of the major terrorist organizations. This time, for the sake of the entire world, we must succeed.

Professor Elvin Atombender, a genius and a psychotic (what a combination!) is close to breaking the security codes to all major military installations in the world. You, Agent Bravo 29, must stop him. Should Atombender get these codes, all nuclear missiles on the planet will be under his total control. He will rule this planet... or destroy it. Bravo 29, your mission is to search the eight towered complex of Professor Atombender, and find the code needed to penetrate his personal tower. You will have to face the evil robot

guardians the Professor uses for security. Once inside, you must find the Professor and do whatever is necessary to prevent him from using those codes. Good luck, Agent Bravo 29, the fate of the world is in your hands.

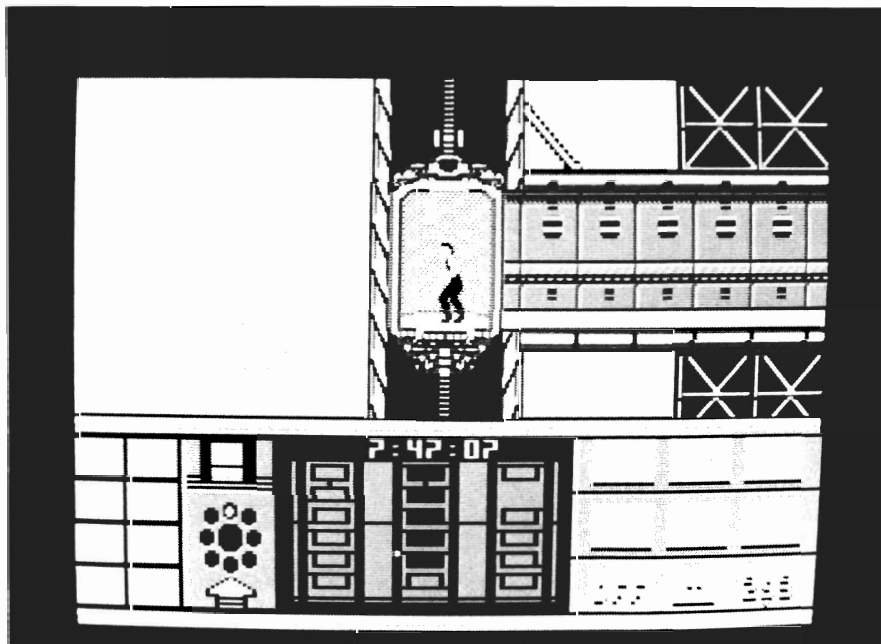
Impossible Mission II is an arcade-style game where, as Agent Bravo 29, you must find the mad scientist, Elvin Atombender, and stop him from controlling the world's missile sys-

tems. When you boot-up the disk, a very nice title screen appears. After a few seconds, and eerie voice says "Another visitor... stay a while... stay FOREVER!!" This is a great beginning, and sets high expectations for game play, sound and graphics.

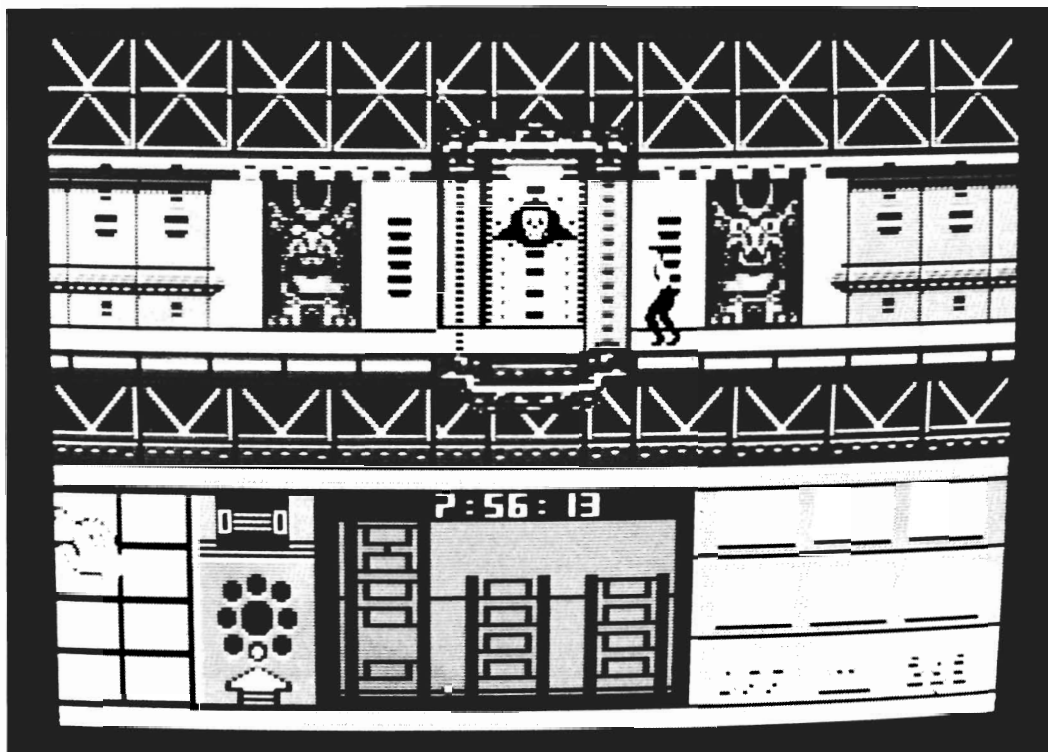
Your movement is joystick controlled with jumps and leaps a necessity. Your search will in-

(continued on next page)

*Through a system of elevators and exits,
Agent 29 pursues the illusive Professor Atombender*



Impossible Mission II (continued from previous page)



You'll need to be demonstrating your physical prowess to navigate through this host of nasties

clude up to sixty-four rooms of each of the eight towers of the evil Professor Elvin Atombender. You must somersault or use the elevators and lifts to reach every item in which a piece of information may be hiding. That potted plant you skipped over may hold a critical piece of the puzzle you have to solve, **SEARCH EVERYTHING**. Standing in your way are the robot sentries of the Professor.

There are six types of robots, each one more deadly than the last, and you must get past them to find the information you need. Once you get all the information, you must use your pocket computer to make sense of it. Numeric codes and a musical se-

quence are very big obstacles in your quest to stop Atombender. Can even Agent Bravo 29 succeed and save the world??

Impossible Mission II has some outstanding features which are worth discussion. One is the challenge of searching out the rooms. It is very difficult to find the right combination of elevators, jumping, and timing that lets you get to every item in the rooms. There were many times when I found myself stumped and only through trial and error could I succeed. It was enjoyable to be presented with such stiff challenges and to finally succeed. I found the robots in the game to be very intriguing. There are six types of robots,

ranging from the basic SentryBot (armed with a plasma gun), to a MineBot (drops explosives), to the dreaded SuicideBot (grabs you and leaps to its death, taking you with it). Learning how to deal with these robots added a lot to the game. A SentryBot in the right place made all the difference in the world when it came to planning jumps. Each robot has its own way kill your character, and each robot made strategy that much harder to think up.

Another detail I appreciated very much was the good story behind the game. After reading the mission presented to Agent Bravo 29, and the history of Prof. Elvin Atombender, I couldn't wait to play the game. It was an enjoyable story to read and made the game almost believable. I also was impressed with the manual, which was clearly printed, easy to read, and made every aspect of the game understandable. It was nice to find documentation that didn't leave me in the dark about half of the game.

Now for the downside. One of the most important criteria in any arcade-action game is the graphics. In other words, how does the game look? In Impossible Mission II, the graphics are a major disappointment. It seems

the potential of the Amiga's graphic capabilities were not put to use. Nothing is clear and sharp, there are very few colors used, and the colors are not pleasing to the eye. Long play-time can be a headache (literally!). Your figure, the robot security, and especially the rooms and hallways, are simplistic. Everything seems almost too crude to be a modern Amiga program.

Another strike against Impossible Mission II is the poor animation. I found none of the movement smooth and fluid. The running and somersaulting of your character seemed awkward and slightly out of step. The movement of the various robots

was better than that of your character, but still inadequate. The poor animation, combined with worse graphics really made for a visually disappointing game.

The sound in Impossible Mission II is both good and bad. All of the digitized sound I heard was very good. The voice in the opening, and a few other phrases used in the game, were very well done. The main voice, however, is assumed to be that of the Professor, and it most certainly does not sound like 62 year old psychotic genius to me. The regular, non-digitized sounds used were only average, but they did serve its purpose. All in all, I feel that the sound used neither added, nor subtracted from the game in

any way. Even the screen layout needs improvement. To use your pocket computer, you must be in a hallway, with the controls located in the bottom third of the screen. I saw no reason why the computer should not be accessible in a room with the touch of the spacebar or mouse button. Since the pocket computer is of such importance in the game, I also felt that it could have used the entire screen when activated. It would have made control of this vital component all the easier.

Another let-down was the poor control over your character. I use a good quality joystick, and yet my character's actions were unre-

(continued on next page)

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Impossible Mission II (continued from previous page)

sponsive and quirky. Sometimes the slightest tap would send my figure into a run, and other times a deliberate movement would have a few seconds hesitation before being carried out.

I was also surprised that the mouse was never used, not for partial use in setting options, let alone for movement. Use of the mouse should have at least been optional. In a game where one step in the wrong direction is the difference between life and death, precision movement should be the standard, not the exception.

It's my guess that in converting Impossible Mission II for the Amiga, Epyx faced a choice, either quality or quantity. They

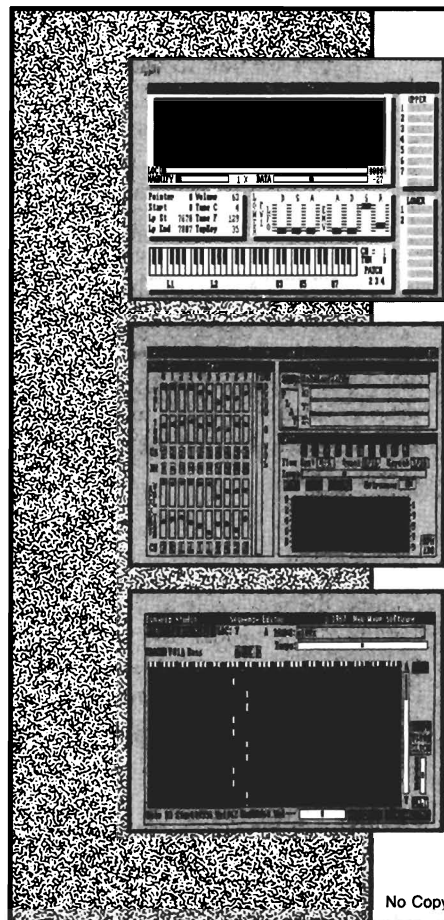
chose quantity and made, in my opinion, the wrong choice. There are eight towers in this game, each with its own maze of rooms, and fair share of challenges. If there were four, or even two, towers with higher levels of graphics, sound, animation, and movement, then this would have been a great game. By opting for the larger play area, rather than a higher quality, Epyx wound up with a game that is mediocre at best.

In any arcade-style action game, to which Impossible Mission II could be compared, the graphics, sound, and movement must be impressive. These days, even the quality of the text-graphic adventures have come quite far.

Although the game is a successful blast from the past on the C64, the comparatively sophisticated Amiga audience's appetite for quality gaming graphics and sound may go hungry with Impossible Mission II.

Impossible Mission II
\$ 49.95

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Sound Oasis

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\$199⁹⁵

The internal sound capabilities of the Amiga are better than that of any other personal computer. These capabilities mean nothing though, without quality digital sounds, which up till now have been scarce. Sound Oasis gives Amiga owners access to a large library of studio-tested digital samples, by using the Amiga's built in disk drive to read disks made for the Mirage Digital Sampling Keyboard. Sounds can then be played from a MIDI keyboard, the computer keyboard, or saved as an IFF standard file. Mirage is a trademark of Ensoniq Inc.

Transform your Amiga into a professional-quality drum machine with this software package. Easier to use than hardware-based drum machines because everything is displayed graphically on screen. Enter drum patterns quickly and easily in real time with visual feedback and editing. Create realistic drum tracks with any of the 100 drum and percussion samples that are included or use your own unique IFF one-shot samples. Dynamic Drums also has full MIDI implementation and even becomes velocity sensitive when triggered from a MIDI keyboard.

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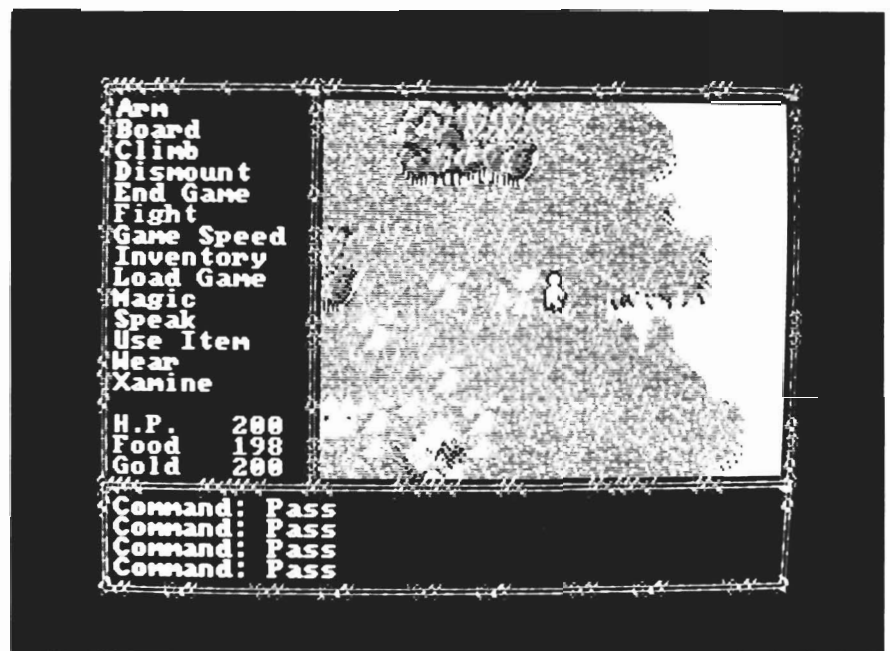
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Questron II

Magic and Mad Sorcerers

by Anthony Bevivino

You have succeeded!! After years of adventuring, thousands of miles and thousands of vanquished foes, you have won. The King's own Bard sings of your mighty deeds and how you defeated the powerful Wizard Mantor and took the Evil Book of Magic. Peace is returned to the land, and now you may retire a hero and a happy man. Or, so you thought. When the great Wizard Mesron summoned you once again to his chambers, you knew something was wrong. You listened in shock as Mesron told you even he could not destroy the Evil Book of Magic. Only the slayer of Mantor could destroy the source of his power. Mesron would use his power to send you back in time, back before the creation of the vile book. By preventing the tome from ever being created, you could assure the safety of your world. Once again, you are called upon to fight the forces of evil, only this time, brave adventurer, can even you succeed? In Questron II,



On route to your goal in Questron II

you continue where you left off in the "classic" Questron. When you are sent back in time, you lose almost all of the powers you acquired defeating Mantor and retain only a dagger, rawhide armor, the royal Gold Key, and the Evil Book of Magic itself. Armed with only these few items, you must build your strength, conquer a new land, and prevent the Book from ever being made. You must find the lairs of the Six Mad Sorcerers

and stop them before they can act with Mantor and create the Book. All new towns, castles, monsters and dungeons await you in this sequel.

During the adventure, it is literally you against the world. Your only true ally is Mesron, and he is separated from you by about 6000 years. There is no party of fellow adventurers to gather, like in The Bard's Tale I
(continued on next page)

Questron II (continued from previous page)

and II, and thus your strategy and game-plan should revolve around your survival. Since it is you alone who must fight against multiple enemies, running from fights is both common and wise.

I found the basic screen configuration to be top-notch. The command menu and your character's basic stats are located vertically on the left quarter of the screen. All game information, i.e., what you see, how much damage you do, is listed horizontally in the bottom quarter of the screen. The remainder of the screen is reserved for the view. You have an overhead view of your character and his surroundings. This general setup made gameplay both well organized and very clear. Since Questron II is a graphics adventure, picture quality is of the utmost impor-

tance. You'll find no disappointment here. I found the outdoor graphics extremely simple, but very effective. There are only basic terrain icons, building icons, monsters, and your character figure. While this may sound simple, the size of the outdoors, and the quality of graphics, make the outdoors a fun place to adventure. The graphics used in the cities and castles are much more detailed. There are dozens of terrain graphics with small details, like flower bushes and ponds, make the cities a pleasant place to explore.

The graphics in the dungeons are, in a word, awesome. This is where the programmers showed what they could do. The screen configuration is different in the dungeons. The view portion of the screen is more detailed and monsters are visible before they

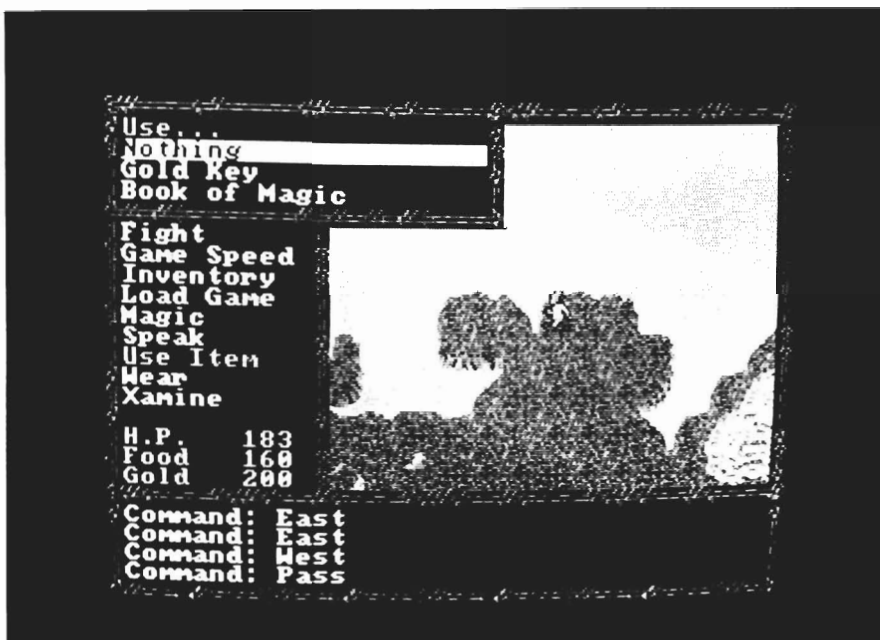
can attack and missile weapons can come into play. The level of graphic detail and color used in the dungeons were a cut or two above those used in the rest of the game. I was very happy to see emphasis placed on the dungeon graphics, because the dungeons are by far the most challenging and enjoyable portions of this adventure.

There is very little sound used in Questron II. While many people may feel that sound is a must in an adventure game, in this case I feel it is not needed. Sound and graphics at the same time could have slowed the game. There is no way I know of to use high quality sound without creating disk space problems. In this case, no sound is good sound.

Controlling your characters actions is very simple in this Questron. Either the mouse or the keyboard may be used. With the mouse, all you do is click on the menu option you wish to use. Movement is accomplished by moving the pointer and holding the left mouse button. Your figure will then follow the arrow. While the movement is not as fast and smooth as Ultima III, it does work well. I found after a few hours of game-play, the keyboard was easier and faster to use.

All menu options needed only the first letter pushed to activate them, and movement was easily accomplished with the cursor keys. Whichever you prefer, mouse or keyboard, both work

(continued on page 36)



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Questron II (continued from page 34)

out very well. One of the most important facets of any adventure game is the combat scenes. Questron II opted for an extremely simple method. How simple?? A monster will appear in front of your figure and attack. You may then either move away and escape, or fight. Fighting monsters involves pressing the 'F' key and doing damage with whatever weapon you are wielding until either you or the monster is dead. This is not the intricate combat method used in The Bard's Tale II, but it is very fast. One trick to combat is learning which monsters are vulnerable to which weapons. Certain monsters can only be seriously wounded with a specific type of weapon. Unfortunately, the only way to learn what weapon to use is through trial and error combat. You should also listen to the rumors found throughout the land.

The magic system in Questron II is much like the combat system, simple and fast. There are four spells you can purchase: Magic Missile, Fireball, Sonic Whine, and Time Sap. There are also a few spells, like Destruction, which are contained in the Evil Book of Magic. You can use these at the cost of hit points. The magic system in this game is simple compared to the variety of spells in The Bard's Tale, but it is easy to use and quick to learn.

After destroying a certain amount of monsters and acquiring selected items, you will be promoted. You must journey to the Hall of Visions and speak with

Mesron. He will give you new information and promote you to a higher level, with greater powers and abilities to face the stiffer challenges that await you. Every adventurer must learn to visit the Hall of Visions often, or pay the price.

One aspect of the game that many people may overlook is

“Certain monsters can only be seriously wounded with a specific type of weapon. Unfortunately, the only way to learn what weapon to use is through trial and error in combat”

conversing with the people. Conversation is very simple in this game. Simply get next to a person and use the 'Speak' option. The person will then deliver a short, set message. This is in contrast with Ultima III, where you must type in what you wish to say. This system makes conversing much faster, but not as challenging.

I was very happy to see that Questron II is NOT copy protected. There are no strange noises as the game boots, and loading time and disk access is done quickly and efficiently. There is a very simple title screen and intro-

duction to this program, which tells me that the emphasis was placed on the game itself, and not a few flashy screens to look good on the box.

My one real complaint with Questron II is that it utilizes only one drive. A game disk and a character disk are required in this game. So it was annoying to have to swap disks every time I wanted to save or re-load a game. Since all veteran adventure gamers save frequently, I think the use of one drive is a fairly serious oversight. Let's hope future versions will correct this flaw.

Questron II is a great adventure game. It gives the player a challenging quest, a good story, lots of neat graphics, and exceptional gameplay. It does not have the complex puzzles of Ultima III, or the involved combat and magic of The Bard's Tale I and II, but overall balance makes it an excellent adventure game. It is a perfect place for a beginning adventurer, and it offers a welcome change for us veterans. I strongly recommend Questron II as an all-around quality adventure game for beginners and experts alike.

Questron II \$49.95

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Omega Stereo Sampler

A New Sound Sampler from Starvison International

by Walter Steuber

Scientific examination of sounds has been going on for years, but, until now, it has required equipment of such cost and complexity that only a few people have been up to it. A scattering of professors with university laboratories have done most of the work, using elaborate apparatus to record and study human voices and the vocalizations of birds, frogs, whales and other creatures that send out easy-to-hear, but hard to understand sounds. A great change has recently occurred in this arcane field of study, however.

Suddenly, Amiga owners have, at their fingertips, equipment that is substantially more powerful than yesterday's audio instruments. The whole field of in-

vestigating natural sounds has become easy to enter, opening the possibility that it will be an Amigan, and not a college professor, who makes the big break-through in communicating with our friends in other species. Digital technique is the big new element in the game. The com-

phisticated, and expensive, equipment available. The Amiga computer, in particular, makes it relatively easy even for a neophyte, to capture a sound, analyze it in exquisite detail, and generate new sounds with exactly controlled characteristics. Musical innovation has been the

main use for this tremendous tool, but it's the sound that birds make that interests me. But how does one get an owl's whoo-o-o, or a girl's ooh-o-o, into the Amiga?

Attaching an audio digitizer is the first step. A digitizer is a small piece of hardware that simply plugs into a port on the computer and transforms the analog sound

waves into digital samples. There are several digitizers currently being advertised for the Amiga, and the newest is the

(continued on next page)



The Omega Stereo Sampler plugs simultaneously into the parallel and serial ports

puter can do things with digitized sound that were completely beyond the abilities of skilled audio technicians a few years ago, even when they had the most so-

Omega Sound Sampler (continued from previous page)

Omega Stereo Sampler. Omega is produced in Denmark and imported into the US by Starvision.

The Omega sampler is rare in that it supports stereo sampling. The four by three inch black box has two inputs--familiar, ordinary, RCA phono plugs. These inputs act independently, so two separate microphones can be capturing sound at the same time. Or, if you want, the Omega Sampler will operate just as well on a single channel. The Sampler plugs directly into the parallel port and also has a short cable that must be plugged into the serial port. StarVision claims that the quality of the sound is improved by drawing the necessary power thorough the serial port, while passing sampling data into the parallel port. That may be true, but this arrangement ties up two ports and makes it inconvenient to switch from sampling to other tasks. The location in the rear of your Amiga is also inconvenient when adjusting its knobs or changing input cables. When playing around with a digitizer, things go better if an auxiliary sound system is used instead of Amy's internal speaker. A stereo system is needed, naturally, to listen to the two channels generated by the Omega Sampler.

The Omega Sampler needs a stronger signal than microphones put out so that when microphones are used as the sound source, a pre-amplifier must be used (Radio Shack sells a stereo pre-amp for \$20). A stereo tape

deck or a compact disk player, on the other hand, supplies plenty of signal to operate the Sampler. The Sampler digitizes its two inputs quite properly. It puts out the desired digital signals and it's up to the software to take it from there.

A key feature of any sound digitizing system is the maximum

“Making the transition from analog to digital sound is easily accomplished, as you can see, and is becoming an everyday event, but it is still quite amazing”

number of samples that can be read per second, and the computer itself is the limitation here. The Amiga can digest about 21,000 samples a second through its parallel port and Omega Sampler supplies data as least this fast. There's nothing much else a digitizer can do when it has to feed its signals into one of the small ports. More elaborate (and much more expensive) digitizers are available that connect to the main buss, but that's really a different ballgame.

The Omega Sampler comes bundled with PerfectSound 2.0, a public domain program. Be-

sides a provision to read output from the digitizer and store it in Chip RAM, PerfectSound has several nice clickable features for playing the sound, storing it on disk, or editing it. PerfectSound lets you play the sound through two independent speakers, add or subtract passages, and modify it in several ways. Once the sound files have been stored on disk, they can be further manipulated by other software programs. Capturing the original sound turns out to take very little time, but subsequently, massaging the sound file can go on for hours.

Starvision sent along a disk of stereo sounds sampled with the Omega sampler. These include all too real car-crash, explosion, jet plane takeoff, etc. Fortunately, they have also included the sound of a summer afternoon. Chirping crickets, rustling leaves, and a cool breeze offer a refreshing change. The stereo effect is especially well used as a buzzing bee flies about your workspace.

Given a functioning digitizer, the next step in digital sampling is software. The software's first task is to read the digitizer's output and store it in a file. Other routines will let the user listen to the sound file, examine, and modify it. While some software programs come bundled with a digitizer, many come from other places and are the key ingredient of digitized sound. In fact, this is a very active field. Programs keep appearing that enable us to manipulate sound files in ever

(continued on page 40)

You're just over half way through this magazine, and you already knew 30 pages ago that there was something fresh, something different, about 'The Amiga' Sentry'. You were probably surprised to see how fast we report on new products that are of interest to you. That's what we do, and we do it best. Isn't it nice to know that you only need *one* magazine to be sure that you are always at the forefront of what's happening in the Amiga' marketplace?

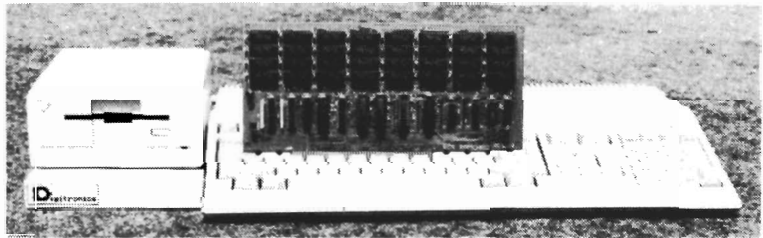
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As every new Amiga owner quickly discovers, memory is the key to unleashing the full power of their machine. AmigaDos' multitasking operating system needs room to flex its muscles in order to run today's more sophisticated larger programs. Consequently, memory is usually first on every Amiga owner's shopping list. So, what is the best path for upgrading?

For the A2000, a 2 meg board may seem the cheapest way to add memory, but it's too quickly maxed out. The sticker shock of an 8 meg board populated with its minimum configuration of 2 megs makes this route unappealing as well. The Digitronics RC4 Ramcard solves these problems.

For the A500, the same RC4 Ramcard designed to plug into the A2000 can be plugged into the expansion slot on the side of the A500 when installed in our adapter box. This means that if you should ever upgrade to an A2000, your RAM board can go along.

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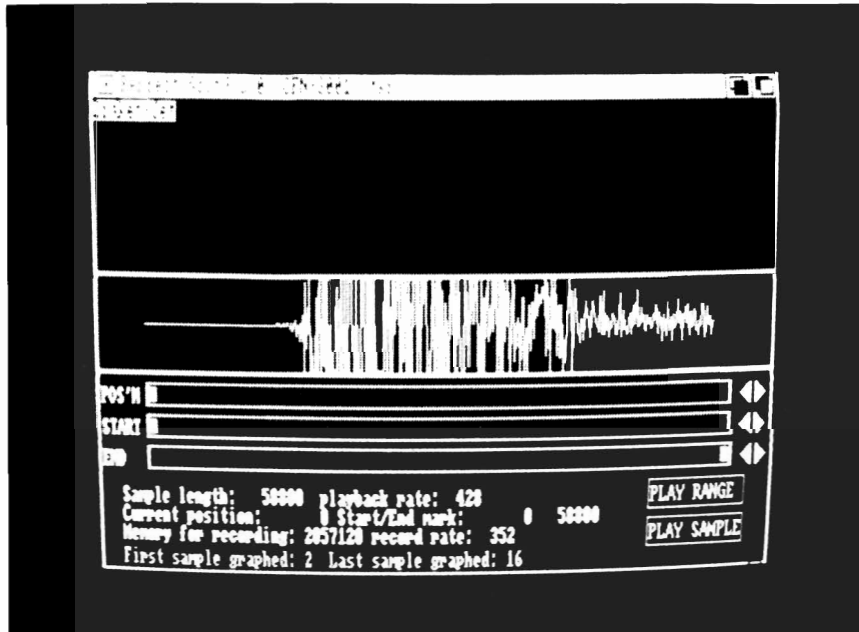
Omega Sound Sampler (continued from page 38)

new and fascinating ways.

The final component is a sound source. It can be a microphone, radio, or audio tape player. Use of a tape player or CD is often the most convenient, but circumstances can make some other source of sound signals the preferred one. About the only thing to worry about in using a digitizer is being sure the input signal has a proper strength. It must be strong enough that its fluctuations cover a reasonable portion of the working range, but not so strong as to frequently exceed it. Being too strong is no problem, because digitizers are equipped with adjustment knobs that will cut down an overly robust input signal. A puny input signal, however, has to be bolstered with a pre-amplifier .

These three components of digitized sound--source, digitizer and software--depend on each other and interact to some degree, but much confusion can be avoided by thinking of them as independent and separate entities.

From the digitizer's standpoint, it does not matter where the analog input is coming from or what is happening to its digitized output. It just sits there, continually



Perfect Sounds' sampling software is used to manage and edit attributes of your sounds

measuring voltage on its input terminals and putting a corresponding 8-bit digital value on its output lines. As input voltage rises, the output value rises, but only to a maximum of 127. (A further rise in input voltage makes no change in output.)

Making the transition from analog to digital sound is easily accomplished, as you can see, and is becoming an everyday event, but it is still quite amazing. The sound from the tape recorder is characterized as "analog" to indicate that its loudness rises and falls in a smooth, continuous manner. It may change very rapidly, but it never has a discontinuous jump in value. The information that goes to the computer, on the other hand, is expressed in 8-bit bytes to make it suitable for storage in memory. When its

value changes, it necessarily makes a discontinuous jump from one integer to another, an action that drastically changes the nature of the record. As the sound rises and falls in a complicated way characteristic of its source, it is sampled only at certain equally-spaced times, and is ignored between these samplings. If the sound undergoes some important

fluctuations between readings, information is lost. If, on the other hand, the readings are made so frequently that there is very little change from one reading to the next, nothing of importance gets missed. In any case, what was a complex, continuous sound is now a string of byte-size integers in the computer memory. Or, put another way, what started out as complicated information is now in a form that the computer can analyze and revise.

A single digital sample is limited to a small range of whole numbers, those from -127 to +127. Any sound, no matter how complicated it may seem to the ear, is reduced, at a given instant, to one of these 255 numbers. (Some digital sound devices allow a bigger range, but not

the Amiga equipment we are describing here.) Each sound sample is a measure of how loud the original sound is at a particular instant. A sample taken at random might be, for instance, the value 16. This single number says nothing about pitch, overtones, flanging, attack, or any of the other characteristics an audio teckie looks for; only loudness. However, when the Amiga reproduces the loudness of this sample, along with others like it, at a rate of 20,000 samples per second, an astonishing richness of sound is somehow perceived by the ear, and there is no sensation whatever of listening to something jumping from one integer value to another. It is similar to a movie in which one is

presented with a static picture for a moment, then a period of blankness, then another static picture, etc. The viewer perceives smoothly moving objects, even though he knows he is looking at a series of pictures that are not moving. Digital sound fools the ear in much the same way movies fool the eye.

In digitizing a sound, the user is immediately faced with choosing how many samples are to be read per second. High sampling rates give good fidelity, while consuming prodigious amounts of memory, whereas low rates lose details in the sound. Voices and music are easily recognized when sampled 5000 times a second, but they sound more realis-

tic at 10,000 and are still better, but far from perfect, at the Amiga's maximum of about 20,000. Everything from here on will be discussed on the assumption that the maximum sampling rate is being used. Fidelity of reproduction is, naturally, a central concern. It just dribbles off as the pitch of a sound rises. High notes are recognizable, but lose their character. There is no sharp cut-off, so the point at which fidelity becomes unacceptable is kind of vague, but for most uses it is adequate up to about 4000 Hz. A sound recorded at our rate will pile up a file of 100,000 sound samples in just five seconds, and thus occupy about 100 kbytes of memory for each chan-

(continued on next page)

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Omega Sound Sampler (continued from previous page)

nel. Almost any sound can be used to illustrate the use of a digitizer. The sound can be screams, car-crashes, or anything else of short duration. To be specific, let's take an owl's familiar nighttime whoo-o-o, as found on an audio cassette tape sold by the Cornell Ornithological Institute. A tape player equipped with a phono-jack output, as most of them are, was connected to the digitizer and everything was ready for a digitizing session.

Like most birds, this owl emitted a variety of sounds, lasting about twenty seconds. The whole call would make too big a file to handle conveniently and, besides, it mostly consisted of repetitions of a simple whoo-oo. Consequently, the first of much editing occurs when a single whoo-oo is selected to be digitized. (PerfectSound allows you to listen to the tape, up to the moment when you press a button to start the digitizing process.) Only a single channel was used and only for a small part of the whole call, but even so, the file contained about 24000 pieces of data!

PerfectSound will plot the data so that you can get a feeling for the rise and fall of the sound, and its general nature. Usually, it is interesting to look only at small sections at a time, and PerfectSound has sliders on the screen that make it easy to do that. Frequency and amplitude of the whoo-o-o can be calculated directly from the display (this would not be true of all sounds,

but bird sounds are especially simple).

The sound-generating system of a typical bird is a windpipe with up to six vocal cords near its inner end. It can only be conjectured how these tiny muscles work in detail, but the anatomy makes it reasonable to expect a birdcall will be a mixture of a few unrelated frequencies, and indeed, that is what the owl's call turns out to be when examined with PerfectSound. This differs drastically from a musical instrument, in which a note will be a mixture of frequencies that are closely related to one other.

The pitch of the main component of the whoo-o-o is found to slide from 1150 down to 820 Hz over its one-second course (another difference from the behavior of most musical instruments). A whoo-o-o has often been observed scaring the bejeebers out of little birds like the finches. Is it the sliding pitch, the presence of other frequencies, its characteristic rise and fall in amplitude, or what? The Amiga can generate whoo-o-o's with variations in all these elements and store them in an audio cassette for playing in the field.

My use of the Omega sampler has been satisfying and trouble free. The inconvenience of reaching around the machine for adjustments is compensated by provision for two sound sources. I have enjoyed studying the bird sounds and synthesizing them. With a quality digitizer like the

Omega Stereo Sampler, and various public domain or commercial programs, you too, can study sounds and create the perfect accompaniment to your other Amiga efforts.

For those who have a special interest in bird sounds, I have assembled several useful programs on a disk and will gladly send a copy to anyone who sends me a blank disk with a SASE care of the Sentry.

Omega Sampler \$ 125.00

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SupraDrive 2000

Supra Creates a Hard Card for the Amiga 2000

by George Rapp

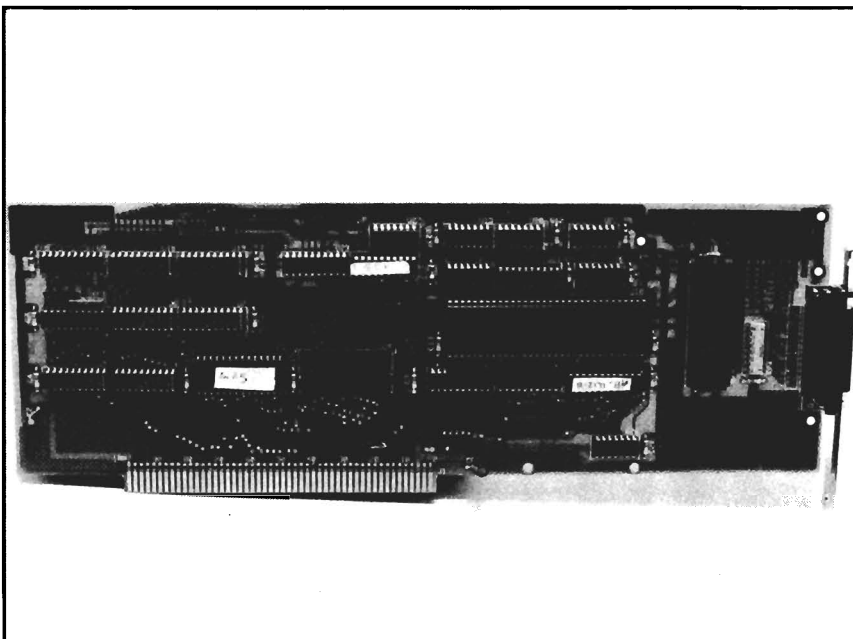
Supra is not a new name to most Amiga users. Supra made one of the first hard disk drives and controllers for the Amiga 1000. They have been slower in producing a controller for the Amiga 2000. The Supra Amiga 2000 controller is a DMA autobooting controller that supports up to seven

drives from the one card. The unit we received incorporated a 30 Meg hard drive, divided into four partitions.

Installation of the card is fairly standard. It plugs into any of the A2000 slots, but the rightmost one is the best for speed. The hard drive is a half height, three and one half inch drive that will fit in the drive bay next to the floppy drive or, with an adaptor supplied, in the large bay. The

installation software handles formatting and partitioning the drive, and sets up the assigns to transfer control to the hard disk. The version I received also included a small file to create a boot partition on the disk that would allow the computer to boot from the hard disk instead of the floppy. The changes to make the drive bootable also make the drive unusable under Kickstart 1.2, so I ran most of the tests on the drive under 1.2 and the old file system.

Supra's SupraDrive 2000 board



The Supra hard drive controller uses the same Motorola chip that the Pacific Peripherals board uses. As a result, I was expecting similar performance from the two boards. I did not get the same values at all. Supra does not use the standard combination of the Workbench Binddrivers with an entry for each partition in the Mountlist. Instead, Supra uses its own SupraMount command, which they claim boosts performance. I did measure a large jump in performance over that of my Amiga 1000 20 Meg SupraDrive using this setup. The disk Supra supplied was a Seagate 138N 30 Meg SCSI drive.

(continued on next page)

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Supra 2000 (continued from previous page)

After the Miniscribe, Conner, and Quantum drives that I have been using, this seemed very slow and small. Using Amiga-DOS 1.2 limited the throughput of the drive, so data transfer rates were the same for all the drives. But the time it took to read and write changes to the directories was high. The Supra uses several small partitions to limit the length of the directories it needs to read, and increase the total number of buffers available to the drive. My results decayed even further when I set up the drive as one large disk.

The Supra software is one of the easiest to use when changing the partition size and file system from 1.2 to 1.3 fast file system. The format command used is interactive and mouse controlled from pull down menus and click on gadgets. Many common drive types are supported, and unsupported drives can be formatted by entering specific values through the gadgets. Options are included for quickly blanking a partition and for mapping out any bad blocks.

The card itself did not show as much advanced planning or care to the design. The board had several jumpers on both sides, and the traces were much longer than necessary. I could not decide why Supra made this a full length board with the relatively low chip count. The C-Ltd board had fewer chips than this, but had mountings for a hard disk. The layout of the components of the Supra was impressive, but

they took up more room. There are two sockets on the Supra-Drive 2000 board, but only one is used. With the popularity of hard cards, and the potential for some big boards in the CPU slot, I would prefer to see some half length boards (any hardware manufactures out there listening?).

I had some problems with the system under 1.3 as well. To make the change to an autobooting controller is difficult on the Supra controller, and even worse on the Amiga. A good IC extractor is all that is required to pry up one well labeled chip on the Supra Controller. Placing the Kickstart 1.3 chip on the Amiga motherboard is a major problem. The chip is located under the power supply, which is held in place by a varying quantity of screws, dependent on the particular version of the motherboard.

The installation of the drive in the Amiga 2000 was much better documented. The manual was one of the better ones that I have gone through. The writing is good, but not always clear. Fortunately, it uses a series of pictures to illustrate the installation of the drive in either of the bays. It would seem that the manual was done well in advance of the drive hardware. Two configurations are mentioned in the manual that Supra's hardware set up may not use. The hardware that you receive will determine which set of instructions you should follow. There is absolutely no mention of the conversion to an auto-

booting hard drive in the manual in its present form.

My instructions came as a friendly note on a disk, and a small program to create the boot partition. I followed the instructions to the letter and found that the drive did not boot. A phone call to Supra gave me some basic information that the instructions I had were not quite complete, but the person who could help me would not be in until after our publishing deadline. So far, I have been able to create the partition, but not transfer the needed files to it. The formatting utility did not recognize the drive configuration after the conversion program was run, which made things even more complicated.

We were planning to have an exciting report about an autobooting controller available *now*. To be fair, Commodore has yet to release an official Kickstart 1.3. But Supra does seem to have some definite communication problems, though. Our first request for a drive got us an Atari ST drive, and a big delay. That delay, in turn, kept us from talking to the person with the answers at Supra concerning the autoboot issue. I also have some questions about the reliability of the Supra Drives. I have an Amiga 1000 Supradrive that I purchased last year from Supra. The first drive I received did not work, and its replacement failed during my last batch of hard disk drive tests. Even when it was working, I had problems with the drive and controller hanging the

computer up while running under 1.3 unless the line MaxTransfer was put in the mountlist, limiting the throughput of the drive. This problem was attributed to difficulties with the device driver. Newer versions were made available through the commercial services (ala CompuServe). At this time, the SupraDrive is still not autobooting, awaiting the missing information from Supra.

Supra did mention that they are working on a standard with Commodore to make the autoboot information on the drive so that they might be interchangeable.

We hope that Commodore is putting a full-max effort to bring to an end the autoboot menagerie. IBM PC's and Mac's have had autobooting capability for years now, and the lack of such an essential capability in the Amiga has contributed to keeping it from penetrating some business markets the way it should have.

If you are considering purchasing an autobooting SupraDrive 2000, I would suggest you contact Supra for an exact status on readiness for this capability.

Supra Corporation can be reached at:

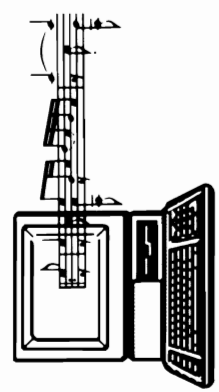
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A 40, 100, or 200 Megabyte Hard Card

by George Rapp

Expert Services is a new value added retailer for Amiga products based in the Cincinnati area. One of their first efforts is a combination hard disk controller and hard disk drive on one expansion board. Expert Services does not manufacture any of the parts used. Instead, they rely

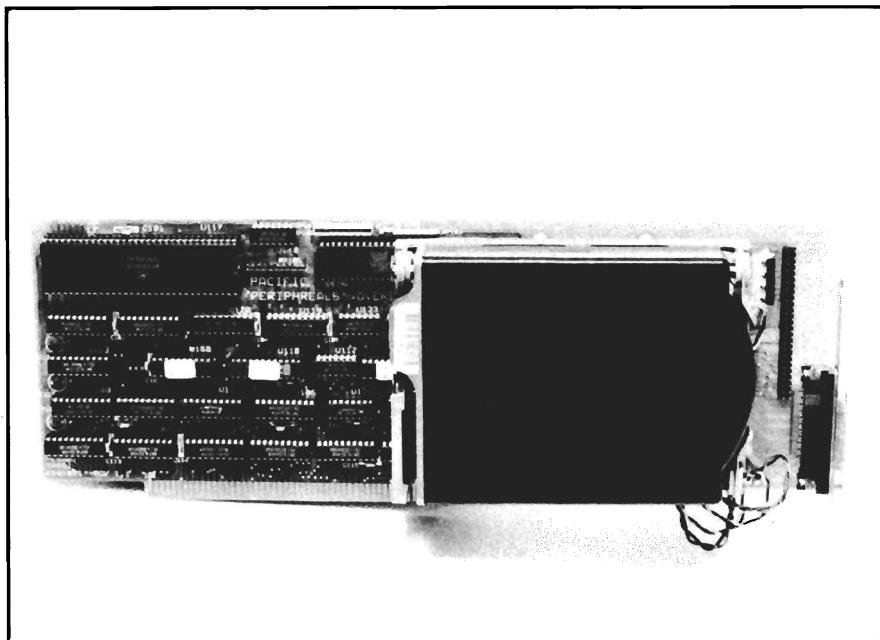
upon Pacific Peripherals for the controller board and software, and they add either a 40 or 100 megabyte Conner Peripherals hard disk.

The combination is a fairly powerful one. I was given the 100 megabyte version for evaluation. My first sample did not work well because of damage to the board in shipping. The replacement board functioned without any problems. Installa-

tion is slightly more involved than with the GVP board evaluated in the August Sentry.

With this product you have the choice of mounting the drive either on the controller card as a hard card or in the drive bay as a conventional hard drive. Mounting on the card is slightly tedious because the small, plastic standoffs must be aligned under the drive. It is even more difficult to mount the drive in the drive bay because of the disassembly required to get the drive in position. Either job of mounting is easier with a set of forceps to hold the standoffs in place. Cabling is included for a drive mounted in the bay or on the card. The short cable for mounting the drive on the card includes a socket for cabling up another drive to fit in the drive bay.

Our review unit was equipped with a Coner 100 megabyte hard drive



The installation software is not quite as versatile as the hardware. Expert supplies the drive already partitioned and formatted, and with a modification to the installation software to support the Conner drives. Any changes in the format or partitioning are done through a program called ODUtills. ODUtills

will make the modifications to the disk, but it is very buggy. You select the drive type by clicking once on the drive from the list in the program. Double clicking or clicking two different drives before the highlight bar stops flashing, sends you to the Guru. The low level format portion of the ODUtils could use some work as well. Low level formatting should remove bad portions of the disk from use, and substitute spare tracks from the inner portion of the drive. In practice, the software failed to recover from a surface error on the drive. Similarly, the software for marking out bad blocks on the drive did not always work, requiring repetition to flag out all the blocks.

The hardware portion of the hard card is a bit better than the software. The circuit board is free from jumpers or extraneous traces, with most chips mounted in sockets. The board layout is simple, and uses a Motorola chip for the SCSI controller. The Pacific Peripherals board is a DMA board, which means that it uses the custom chips to take over the machine, and transfer the data directly from the drive to the memory of the computer. This is generally a good strategy, but does have some drawbacks. During disk reads or writes, the 68000 chip is inactive and no processing occurs. This is not a bad situation, since the custom chips can move the data faster than the 68000 can. The problem is that the custom chips are restricted to

the lower portion of memory or chip RAM, and tasks often will need data in the high portion or fast RAM. The takeover of the bus is also less desirable while multitasking. In the normal boot up from a floppy disk, there is some bus contention as the hard disk and floppy disk try to use the bus at the same time. This is evidenced by some flickering of the drive lights, and some horrible sounds from the floppy drive.

Other activities can produce conflicts with the hard disk as well. Programs that use the overscan mode can conflict with the hard drive function. Overscan allows the Amiga to draw an image all the way to the edges of the screen, and is used effectively by programs like Deluxe PhotoLab, Digiview 3.0, Online! 2.0, and an ever increasing number of others. Overscan uses the same DMA functions to move the additional data to fill out the screen, as the hard drive controller uses to move the data from the drive to the system memory.

The net result of the DMA use is a fast drive for a single task that slows under heavy use of the DMA channels and high number of tasks. Under our tests of drive speed, the Expert Services 100 Meg rates a 13, which means that most operations will be 13 times faster on the hard drive using the 1.3 FastFileSystem than the same functions on the floppy disk. This is the same rating as the GVP 80 Meg hard card, but subjectively, the GVP is slightly

faster. Most noticeable was opening a window if other tasks were running. The icons appeared significantly slower on the Expert Services combo. It was interesting to note that the GVP and the Expert Services hard cards could coexist peacefully in the same Amiga. Both drives functioned smoothly, but the DMA access of the Expert card blocked the access to the bus of the GVP because the DMA functions take over the bus. The slowing of the GVP was slight, since the GVP board has a cache which continues to function while the bus in the Amiga is busy. The only real slowing came from exceptionally large files on the GVP and Expert at the same time.

In sustained use, the GVP board and Quantum drive faired better than the Pacific Peripherals board and Conner drive. Just through normal use, files are spread out over the disk, making for slower access. The buffering on the GVP board and the Quantum drive in addition to the AmigaDOS buffers probably was the reason for the better performance. The Quantum drive on the Pacific Peripherals improved the performance slightly, but not significantly. AmigaDOS is still the limiting factor in the speed of these drives. The Expert Services combination and the GVP board are the two best performers in disk speed so far.

Speed is not the only consideration in purchasing a drive and controller. The design and com-

(continued on next page)



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(continued from previous page)

patibility are also important, especially in the face of the growing number of expansion devices. The Pacific Peripherals board could be better in layout. There are no jumpers on the board, but the layout makes it impossible for a drive to be mounted flush against the surface of the board. A few chips in sockets fall underneath the drive, requiring standoffs. If the card is placed in the rightmost slot, the Conner Drive is in a line with the CPU slot. A large board in the CPU slot would be close to or touching the hard drive. This would limit further expansion or require the loss of a slot by moving the card over one to the left. The Pacific board does not have sockets for the autoboot ROMS under 1.3 version of Kickstart. Instead, a daughter board has to mount in the place of a couple chips on the surface of the card. Pacific will make the board and chips available at cost. Expect to spend \$50 to make the drive autobooting. Again, the additional height of the daughter board could pose problems with CPU cards. We were unable to obtain a daughter board to test out the autobooting feature.

While I was happy with the performance of the drive, I did not like the design of the card or the installation software. The only redeeming part was the outstanding support from Expert Services. I posed a few questions to both Pacific and Expert Services while I was having some small problems initially. I never received a response from Pacific,

but Expert Services responded promptly and knowledgeably. They show a high degree of professionalism and dedication to their customers. Expert Services has not been idle either. In the last of my conversations with Terry Timko, he told me of an impressive list of projects that they have planned for improving the Amiga speed and performance, including more for the hard card.

If you are planning to purchase a hard drive controller, I would suggest either the GVP or the Expert Services boards. I have a preference for the GVP, but performance on the two is extremely close, usually within three to five percent in my tests. The GVP also wins on expandability because of its slightly lower profile and autoboot sockets on the board. The Expert board has the advantage of a slightly larger hard drive and some more versatility in installation. Few dealers exhibit the dedication that Expert Services has. For some, that could be a deciding factor. Since Expert Services is a dealer, they can offer a wider range of products and services than most manufacturers. I am very glad to see such a group of people entering the Amiga market, especially with a competitive product like the hard card.

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Midi Recording Studio

Dr. T's MIDI Recording Studio for the Amiga

By Tom Bucklin

The baby brother of the famed Dr. T's KCS, the Midi Recording Studio for the Amiga is just what the doctor ordered for those with sequenceritis (fear of sequencers). It is a slimmed down (and consequently less expensive) product that manages to still offer features rivaling other programs. Although MRS is a stand alone product, Dr. T's has tried to make it as painless as possible to eventually get you up to their granddaddy of the product line, KCS. With this intent, the sequence files produced with MRS are compatible with KCS. Most attractive is the upgrade offer, which allows you to trade in your original MRS disk at any time for KCS, and pay the difference in list price between the two products.

MRS comes on a single, copy protected (via the key system) disk, and is packaged with an indexed, 80 page manual (14 pages of which are devoted to a walk-through style tutorial). A single backup disk is available

from the company by sending in your warranty card and \$15.00.

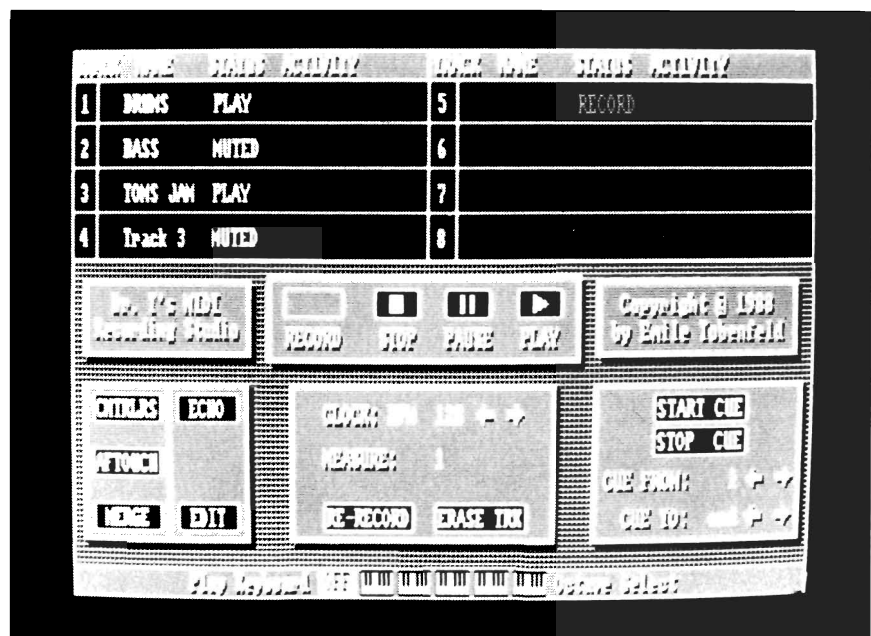
After choosing the memory allocation dedicated to MRS (expressed in MIDI events), the program defaults into the Play/Record screen (in KCS, this would be equivalent to the Track mode). This is your basic control panel with familiar tape transport style controls. The most obvious tradeoff in the struggle between power and

price in MRS is the limitation of 8 tracks. Many a MIDI track-hog may find this prospect revolting. However, 16 tracks may have been a more reasonable compromise between this product, and KCS's powerhouse, 48 track, capabilities.

Also notably missing is the ability to perform some advanced functions like punch-in, punch-out, step time recording,

(continued on next page)

The opening screen in MRS where you manage your Playback and Record functions



and track merge. It's unfortunate that this last capability was not incorporated in MRS, as nowhere do you need a track merge feature more than when working with a limited amount of tracks.

Within the Play screen, the aftertouch and controller buttons allow or inhibit the recording of their respective MIDI data. The Merge option mixes the data from the interface's MIDI IN with the data from the sequencer, and sends both out to the MIDI out port. This feature is most used when sending MIDI data from a master keyboard to control your outboard tone generators. The ECHO feature is used to rechannel the incoming MIDI data to the channel of your choice. Shortcuts are provided for Merge/Echo by the semicolon and backspace keys, respectively.

The range of a sequence can be effectively cropped by use of the START CUE and STOP CUE gadgets. With these controls set, the cropped sequence will loop between these two sequence margins. Provisions for changing the positioning of the settings along the sequence are evoked by either clicking on the adjacent left/right arrows, or by use of the keyboard's cursor keys. Selection of your echo channel is by using the left/right arrows below. The upper half of the screen is used to display the name, status, and activity of the tracks. Each of the eight tracks may be muted by clicking on the track display, or by pressing number keys 1

through 8, corresponding to the appropriate track. Both the numeric keypad and the digits above the qwerty row are active for this operation.

The multi-sectioned piano keyboard and the on/off gadget at the bottom of the play screen allow MIDI note input from the Amiga's keyboard. Four rows of keys are active when this option is turned on, and the piano section highlighted determines the octave that these keys will play. Although this operation transmits data on MIDI channel 1 only, you can use the Merge/Echo functions to reroute to any channel. The main tempo is set by left/right arrows beside the CLOCK indicator. The tempo may be governed by the internal clock, or by an external MIDI clock signal.

The choice for this function (and a host of others) is determined by the "Set Options" menu, which is available from within the EDIT screen. You can reach the EDIT screen by either clicking on the EDIT gadget, or by using the F1 toggle between the two main screens. The first place to go to explore the potential of MRS is to the Load/Save selection, where an example file called MRS.DEMO has been provided on the disk. This will allow you to tour the facility to get a feel for how the MRS displays and manages MIDI data.

To load in and play back this demo file through your Amiga, you will need to access the

MRSdemo.ALL and MRSdemo.SND files. MRS stores and accesses three distinct types of files bearing the suffixes, .ALL, .MRS, and .SND. The .ALL files contain data for all eight tracks, and are the ones that are compatible with KCS. Files with a .MRS extension contain a record of the settings from the Set Options screen (more on that later). Generally, they also act as "environment" files which contain a complete MRS recording setup. The program uses a startup environment file named DEFAULT.MRS to load your default setup. By saving your own settings under a .MRS file with the same name, you may customize this startup.

The .SND files are involved with the Amiga's internally playable instrument sounds. Sounds may also be loaded from within the Sound screen, accessed by clicking on "Sounds" in the EDIT screen. Up to 16 different IFF compatible instrument sounds may be loaded at once. Each sound can be individually set for MIDI channel, keyboard range, transposition (settable in semitones), and MIDI volume. There are options to load individual, as well as whole banks of sounds. "Swap 2 Instruments" will relocate two pre-chosen instrument sounds, swapping their position within the window. A nice touch in the Sounds window is the inclusion of an on-line help screen which offers useful, but brief, information on the sound control functions. The "Save Instrument Bank" option has a name that I



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find misleading. What this operation actually does is save the current Sound screen setup with the names of the instruments and where to find them. It does not, however, save the actual bank of sounds. The manual suggests organizing your sounds onto one disk to simplify the loading operation for large numbers of sounds. The problem is, you should have been able to use MRS to achieve this function. You can go out to a variety of different disks and collect individual sounds into your sound bank, but saving will only store the record of a variety of paths to access them. The Change Path(s) option does allow you to redefine the path names for given instruments, so as to retrieve

sound from a single disk, but you cannot store those sounds on that single disk from within the program. This is a tragic waste, since you have just taken the time to bring these instruments from their various points of origin into a single, computer resident, sound bank.

Actual operation of the Change Path(s) process can be a nuisance as well. You should be able to click and hold on a given sound name and drag the mouse over other instrument names to select multiple sounds for this operation (as is implemented in the EDIT screen). Instead, you must individually click on each and every name in the list to redefine their path. Furthermore, once a

sound has been chosen for a path change, the subsequent requestor gives you no clue as to where the sound originally came from. What should have (at least) been incorporated here is a conventional requestor like that used in the Load/Save option, so that the contents of your sound disk(s) could be displayed. This way, you could make intelligent choices about which sounds might be grouped together, on what disk, and so on.

Also, it would have been nice if a DEFAULT.SND file had been incorporated within the program that would load up with the environment file upon startup. Sixteen internal instrument sounds

(continued on next page)

MRS (continued from previous page)

would have been a generous quantity, providing you with your most commonly used Amiga sounds, pre-loaded upon booting.

THE SET OPTION SCREEN:

Making this selection allows you set up some of the main control parameters of the program. The *MIDI Merge* option under the MIDI block routes all incoming data to the computer's MIDI out port. This duplicate of the Merge function in the Play/Record screen may also be toggled on/off by use of the semicolon.

Start is 1st Clock will allow the program to respond to a MIDI start signal or monitor for MIDI clocks. Like any good sequencer, the MIDI Clock Out option can provide a means of syncing your MRS tracks to external tempo responsive devices, such as drum machines (or another sequencer for that matter).

The *MIDI Slow* option is a standard implementation (with the addition of a variable transmission rate setting) of an all important function in addressing some types of popular synthesizers (you know who you are).

The manual offers advice concerning synths needing this option for successful communication, as well as suggesting some possible symptom/remedy situations in which MIDI data handling can REAK HAVOC. Notably missing from MRS, but included in KCS are the "No

TIMING:

Under this category, you can set up the specifics governing timing operations such as the clock source, *Steps per Measure*, and the overall resolution of the sequencer. Two choices are available in MRS for the clock source. The *Internal Clock*, as the name implies, takes its timing standard from an internal source, and is expressed in beats per minute. The BPM rate is adjustable from both this and the Play/Record screens. Choosing the *MIDI Clock* source will allow tempo control by an external MIDI clock signal. This option also sets up the program to wait for

a MIDI start or continue message before starting your tracks or sequences.

The Steps/Measure is adjustable through a range of 8 to 999 steps per measure divisions. This setting will affect the play and edit screens, as well as the event list. Steps/Beat is an important timing function affecting the resolution of the sequencer. It is similarly adjustable from 1 to 384 steps per beat, offering a potentially high resolution for this sequencer.

The screenshot shows the EDIT screen with a MIDI event list on the left and a menu of power functions on the right. The event list has columns for track, step, event type, time, channel, type, note, velocity, and duration. The menu includes options like Backup, Transpose/Auto, Insert Adjust, Cut, Copy, Paste, Delete, Erase, Get Backup, Print, Undo, Quit, Drag Bar, Copy Track to Track, Delete Track, Split, Clear all Tracks, Play/Record, Load/Save, Set Options, Sounds, Colors, NewCLI, WorkBench, and Quit.

TRK	ST	EWY	TIME	CH	TP	NOTE	VEL	DUR
8	1-	1	1	0	3 ON	F 4	53	6
1-	7	2	6	3 ON	F 4	44	6	
1-	19	3	12	3 ON	F 4	71	7	
1-	31	4	12	3 ON	F 4	53	4	
1-	37	5	6	3 ON	D 4	62	8	
1-	49	6	12	3 ON	A 3	71	45	
2-	1	7	48	3 ON	F 4	53	8	
2-	7	8	6	3 ON	F 4	44	7	
2-	19	9	12	3 ON	F 4	71	6	
2-	31	10	12	3 ON	F 4	53	5	
2-	37	11	6	3 ON	D 4	44	12	
2-	49	12	12	3 ON	A 3	53	41	
3-	1	13	48	3 ON	F 4	62	7	
3-	7	14	6	3 ON	F 4	53	7	
3-	19	15	12	3 ON	F 4	71	6	
3-	31	16	12	3 ON	F 4	53	5	
3-	37	17	6	3 ON	D 4	62	12	
3-	49	18	12	3 ON	A 3	80	43	
4-	1	19	48	3 ON	A 3	71	6	
4-	7	20	6	3 ON	F 4	53	7	
4-	19	21	12	3 ON	F 4	71	6	

The EDIT screen, along with its accompanying MIDI event listing, comprises the power functions behind MRS

MIDI Start" and "Running Status" options.

RECORDING:

Aftertouch, Controller, and ECHO switches are duplicated under this heading so that they may be stored with the environment file. With the ECHO control status, you can also store the MIDI channel to echo to. Sys-Ex recording and real time quantization are notably missing from this heading.

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er. Last under the timing heading is the *Steps/MIDI Clk*, which sets the number of sequencer steps between each MIDI clock signal.

METRONOME:

MRS, to its credit, can implement both an audible and/or visual metronome standard. The visual is displayed on the Play/Record screen in the form of flashing notes counting out the beats during play, record, and count in operations. Sound is added by clicking on the Audible Metronome gadget, and highlights the first beat of each measure with a louder click. Unfortunately, there are no provisions for adjusting the metronome

sound volume level. Consequently, the metronome clicks can be easily drowned out while playing other tracks, particularly those playing the Amiga's internal sounds.

The combination of all of the Set Options parameters form the basis for your environment files. You may save these settings by exiting the Set Options window and choosing save .MRS from the Load/Save window. If you would like these settings loaded upon startup make sure to name this file DEFAULT.MRS.

The settings of the COLORS tool in the EDIT screen, which determines the background, text, and highlight colors, are also

saved as part of your MRS environment file.

THE EDIT SCREEN:

The edit screen is the meat and potatoes of any sequencer, and weighs heavily on the evaluation of a product. MRS has a slimmed down version of the KCS edit screen, with the most conspicuous absence being that of graphic editing capabilities. Instead, editing from the event listing is your only interface to MIDI data manipulations.

The event list breaks down each event in terms of Measure/Step, Event number, Time (as measured in step of the clock

(continued on next page)

source), the MIDI channel of the event, the type of event, the note value and octave, the key velocity (for data sent by those keyboards having this capability), and the note on duration of a given note. All of these fields are editable except the Measure/Step and the Event number.

Getting around throughout the range of event lists is achieved by a series of diamond shaped gadgets along the left side of the listing. There are controls for single advancing to the end or beginning of a list, as well as others for incremental or continuous scrolling. As is typical with all other functions in the MRS (and a by-product of Dr. T's in general), clicking on a control produces immediate and rapid results, which will make many an impatient power user out there happy. Once located, you can either edit a particular event by clicking directly over it, or you can use the cursor keys to scroll your way to it.

The *PRINT* command allows for hardcopy of the currently selected track's event list. A starting and ending range may be selected for the printout, with the first and last event numbers of the track ready-installed as default. MRS does not, however, allow for other kinds of printouts. It would have been nice to implement a printout capability for other screens as well. The resultant information from hardcopies of all your various MRS screens would allow you to plan and execute your recordings

more efficiently; once again, most important when working with a fewer number of tracks as in the case of MRS.

Whole ranges of events are selected for editing by using the click, hold, and drag method, which creates an inverse video highlighting of the range. A nice feature in MRS is the ability to play just the highlighted section of the event list. I did, however, feel that a scrolling cursor would have greatly enhanced this area of the program for the entry level MIDI enthusiast in terms of knowing where they are in the event list during playback.

With a range selected, you may perform basic maintenance tasks such as cutting, copying, and pasting. The paste command has several variations, such as Insert, Replace and Merge that affect the way in which the pasted data relates to the existing data on the track. These choices are made from the Paste window, which pops up when this operation is selected from the main EDIT screen. On line help defining the nature of the various Paste operations is available from this window as well.

The placement for your pasted data can be designated in two ways. Choosing a location based on Event Number will place the contents of the paste buffer just before the event specified. You may also choose the Meas/Step option, for pasting at a location not coinciding with that of an events. A useful tool in MRS for

creating extended repeating passages (such as drum sequences) is *TIMES TO PASTE*. This option, also located in the Paste Options window, allows you to specify the amount of times to paste down the buffers contents sequentially.

SPLIT is another EDIT tool that gives you the potential for some powerful post-recording processing. In its simplest form, *SPLIT* allows for what could be compared to a multi-instrument keyboard split based on note range. However, specifying 0 as the split point allows you to effectively separate all note data on a given track from all other events, such as controller activity. In some sequencers, these operations would come under the heading of MIDI data filtering, and they represent an advanced capability in an entry level program like MRS.

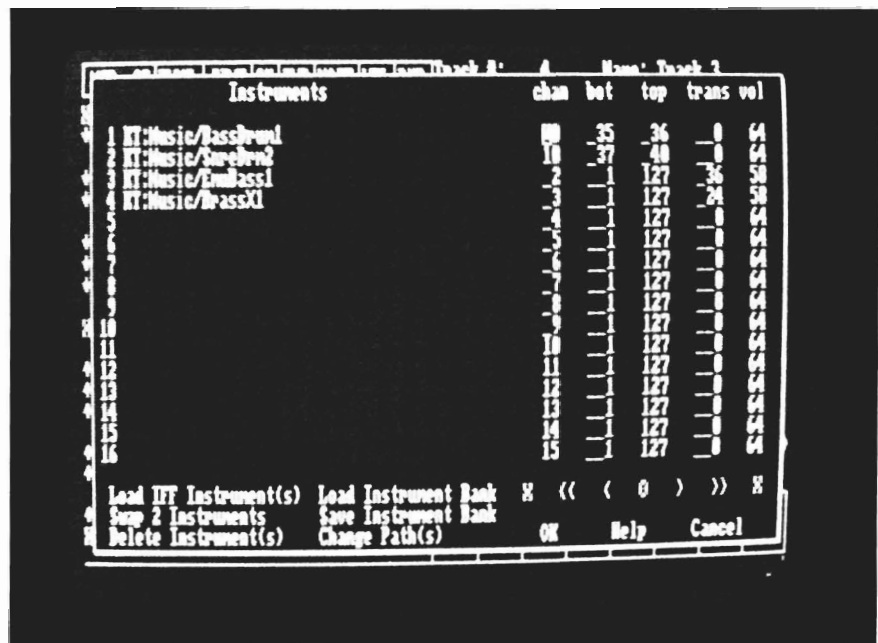
A number of interesting editing capabilities for Pitch, Velocity, and Duration events have been provided in MRS through the support of transposition and inversion functions. Each option works on a selected range of events, and functions independent of one another. To use this function, you first choose the type of event (Pitch, Velocity, or Duration) to process. Next, it's time to specify whether this will be a transpose or invert operation. In the case of transposition, you enter a value that corresponds to a transposition range of between -63 to +63. A setting of positive 10 in this requestor

would, raise all selected pitches by 10 half-steps, quicken all MIDI velocities by 10 points, or lengthen note-on durations by time time steps, depending on the type of event processed.

The Invert option also affect Pitch, Velocity, or Duration. It differs from Transposition in that it causes the respective high values to become low, and low values to become high. A value is set between 1 and 127 to determine a relative inversion point. As with any editing operation, it is a particularly good idea to make backups of all your important MIDI data. Both Transpose and Invert can effectively destroy your masterpiece with unpredictable results if care and planning is not taken.

In consideration of the Amiga's multitasking abilities, a *New Cli* may be opened from within the EDIT screen. You may also toggle the Workbench as well (do you think they want you running their Caged Artist editors at the same time as MRS?).

Not surprisingly, this product was created by the author of KCS himself, Emile Tobenfeld (aka, Dr.T). It is clearly Dr. T's effort to reach the "other" MIDI users who are, for one reason or the other, not KCS-able. Users falling into this category might be budget minded, new to sequencing, or just overwhelmed by the extensive options of KCS. However, it would be a mistake to see MRS as a training program of some kind. On one hand, it has



The Sounds screen can hold up to sixteen different internal instrument sounds, each with a different set of attributes

too many powerful editing capabilities for a trainer. On the other hand, there are no pull down menus here with explanations of the options, the way a true learning program would have. Closer to the truth, it is better to think of MRS as simply a slimmed down KCS.

Did the program hit its mark? Yes and No. Yes, the simplicity, and some of the power, of KCS is there. But there seems to be some decisions in the slim down process that were based on the desire to avoid getting too close to KCS. The missing track merge function would fall into this category, in my opinion.

On the up side, the features that MRS does possess are well implemented and responsive. Also, the Amiga's special capabilities

have not been overlooked. The manual is well laid out and legible, and the index is a welcome addition. An added bonus to consider with anything in the KCS format is the compatibility with Dr. T's "Copyist" musical notation program.

I feel comfortable recommending MRS for the average MIDI user, especially in view of the inexpensive price. All of the power house features are not there, but, if you don't find the eight tracks constraining, there are a lot of creative possibilities to explore with MRS editing capabilities.

Midi Recording Studio
\$ 69.95

Dr. T's Music Software
220 Boylston St., Suite 206
Chestnut Hill, MA 02167
(617) 244-6954

Rockford

BolderDash rides again

by Steve Ushoida

“This arcade game has been brought to the Amiga faithfully, while adding new challenges to all levels of “dashing” ability”

You are Rockford, the mining hero from the classic game, Boulder Dash. After living happily for many years on the success of both the home computer and the arcade versions of your game (the first game to go from home to arcade status), you now face a new challenge. Named after yourself, it is the latest attempt to recreate and improve your favorite pastime, collecting treasures and dashing boulders.

For those gamers that are already familiar with Boulder Dash, look to the next paragraph for all of the enhancements that Rockford from Arcadia offers over its predecessor. For others that haven't experienced the fun (and frustration) of the original game, I'll explain the basics:

The object is to collect as many coins as possible while not being crushed by falling rocks. The screen shows a 2-dimensional side view of the playing area with a graphic occupying each of the small squares that make up the screen. There are blocks of

earth, coins, boulders, walls, empty spaces, and one in the middle with you, Rockford, occupying it. While earth and wall squares can “stay up” even if the section under them is empty, rocks and coins in this situation will fall and smash whatever is under them. The challenge of the game lies in retrieving treasures that are placed under piles of rocks without digging away any crucial “key” pieces of earth that directly or indirectly hold up the tons of granite. When a certain number of treasures are recovered, a portal to the next level opens, and you can continue on your adventure.

Rockford adds quite a few improvements, enhancements, and even some new twists to the original Boulder Dash. First of all, there are five different scenarios in which Rockford can adventure. These consist of the jungle, the restaurant, the wild west, space, and Dr. Frankenstein's laboratory. Each scenario has boulders, treasures, Rockfords, and varying obstacles to fit the situation (the space scenario has suns as treasures, and planets as boulders).

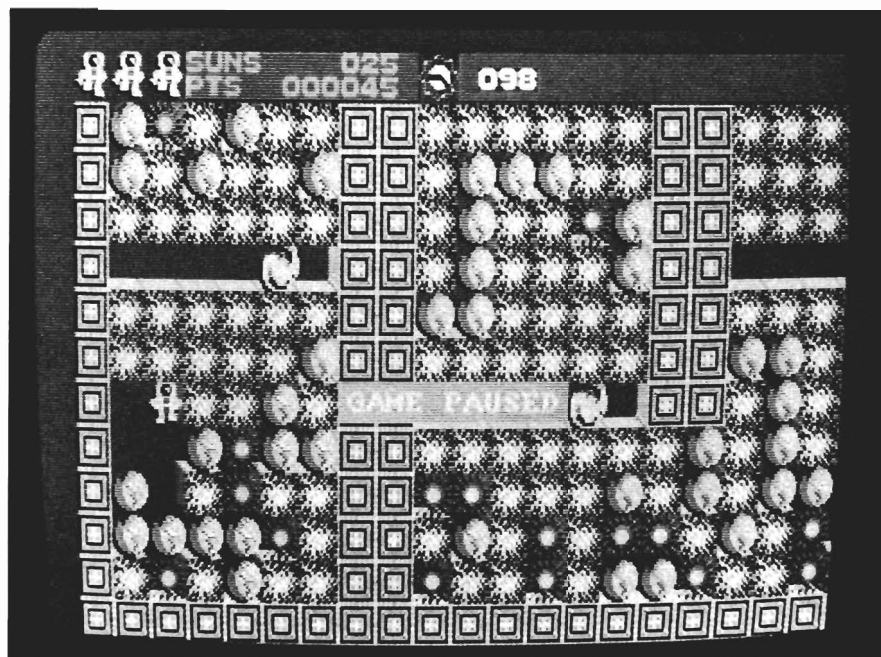
The graphics and sound are also improved, as is to be expected with an Amiga version. One of the best added challenges to the game involves turning on two separate faucets, and getting their contents to flow together. When the two liquids touch one another, they explode, destroying everything within three squares of them (including you if you don't move away in time).

Some boards have portions that can only be accessed by blowing holes in existing walls using this method. While there are many other minor additions to the game, no one makes a significant change in playability.

The mechanics of play are simple. Insert the heavily copy protected disk in df0: and boot your Amiga (Rockford will not start any other way, so forget playing Rockford as a background task). An impressive title screen has the Rockford character juggling large diamonds, accompanied by snappy music.

From there, you press a mouse button to get to the selection screens. You can use either the mouse or a joystick to play. The joystick is more fluid and natural, but once mastered a mouse can be a very precise tool in the tricky screens.

Use the space bar to highlight your choice, and go on to the next selection. Here you see five windows which open one at a time to reveal Rockford in co-



Rockford, as he hastens to avoid the falling debris

stones appropriate for each scenario. Press fire when you see the scene you want to play. In a very short time, you'll be at work rolling boulders, moving earth and searching for treasures. You can press P to pause, and ESC to crush yourself if trapped in a level.

This arcade game has been brought to the Amiga faithfully, while adding new challenge to all levels of "dashing" ability required to play the game. You'll find no profound statements here. As a matter of fact, one might argue that Rockford is mindless fun. But when compared to a game like "PacMan", there is no doubt that Rockford offers a higher degree of challenge because you must have a strategy to avoid, as it were, the

laws of physics to keep from becoming narrow minded (i.e. flattened).

Overall, Rockford has succeeded in maintaining the fast-action spirit of its predecessor. There are plenty of obstacles, puzzles to solve and fast responsive action. The music which plays during scene changes is snappy, and you are surrounded with sounds which enhance the playability.

Rockford \$ 34.99

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San Mateo, CA. 94404

(800) 245-4525

Tanglewood

Staking your Claim for Uncle Arthur

by Bernie Spraker

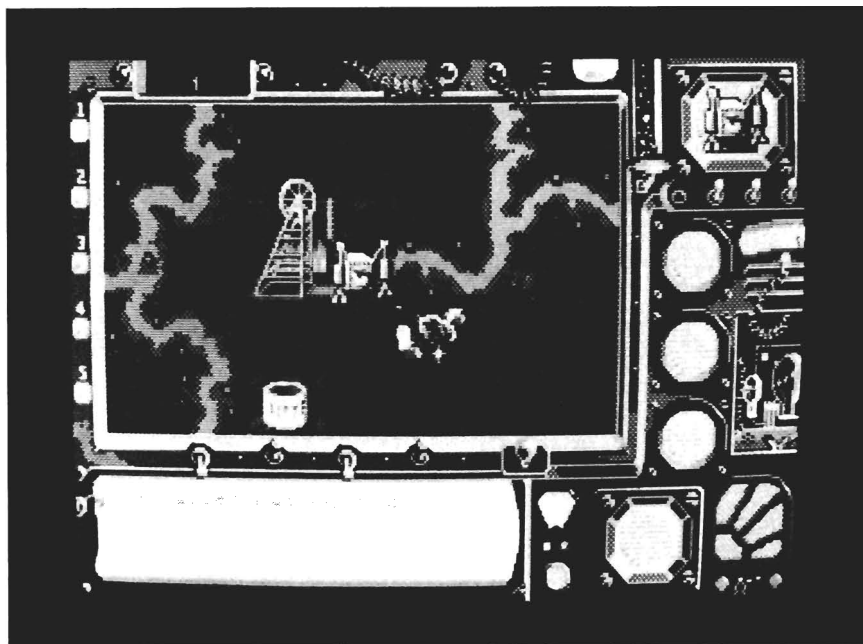
Five minutes, that's all I ask, just five minutes to strangle that uncle of mine. Family or not to leave me here on this ancient rock with these out-dated pieces of junk he calls transportation ...heck not one of them has a complete data bank and...Heh, what's this? A rechargeable bat-

tery, not a bad find but mobile 5 will have more use for it so I can move a little farther tonight. What with mobile 1 blown away and 4 still missing its receiver aerial there's not much more hope for Uncle Arthur to find the mining rights to this place. There goes that blasted phone again and Arthur says that I'm supposed to answer it, some sort of tradition or something but I never know what to say and they just hang up. I don't know any-

more, I just can't take it I... I know! I'm gonna find that old coot and tell him where he can park this piece of junk! Yea, I'll... UH-OH, the detector is going crazy... IT'S A COMPANY DISRUPTER !!! If that thing catches me in this heap I'm through, great now it's locked on...just wait till I find you Unc...

TangleWood is a game for the intermediate to advanced player. You start out at various locations on the planet T'ngl-y-wd with four out of five mobiles that have different abilities and functions you use to get through the game. The whole object of the game is to find the mining rights your Uncle Arthur has lost before "Them no good claim-jumpers", the mining monopolies, can bring the case to the Inter-Galactic Court in just 10 days. Ok, this doesn't sound too difficult, but along the way your blocked by terrain, fuel shortage, lack of equipment, data losses, faulty equipment and other problems that starts the blood pounding in your temples and teeth grinding. Your public relations with the inhabitants is the next step, T'nglians are a

The mining world of Tanglewood



only way to be accepted and trusted is to follow the only thing they hold dear to them...their tradition. Hey, no problem, I'm a great P.R. man, a born diplomat, I said. But then I realized that being from different sides of the galaxy is one serious communication gap. The answer...use the communicator program, if you can find it. These are just a few of the problems you will face, but the biggest is getting into the mining company's main complex through the Disruptors and a force field that will disable your mobile if it is touched. The Disruptors are basically stupid and run out of fuel quickly but most of your mobiles have little in the way of defence against them so the best advice I can give is run. I mean haul as fast as you can because they can home in on you and unless you outmaneuver them, you're terminated. Never run into a dead end or your chances are slim you'll make it out. "No problem" you still say? Well, perform the above and map the mines, grab the shuttles to the three moons, use your dog crystals and ice-emeralds (wonder what they are?), explore the lakes depths, the maze of TangleWood itself and infiltrate the main office to find the stolen claim, it's easy-street, right? Wrong... did you forget? I said only TEN days.

The graphics setup for TangleWood when on an overview mode is fairly good quality. You sit in the cockpit of your mobile with various knobs, switches, buttons and color level sensors

you read. The screen of the mobile is your window to the world and while still in your basic overview everything is detailed enough so you can probably realize what it is without investigating it. When in an exploring mode the graphics change from an overview to a front view and the quality vastly improves giving a bit more credit to the Amiga.

Sound in the game, however, leaves something to be desired. All you have are the most basic sounds that would compare to games on the old Vic 20.

Documentation about the game is of the utmost importance and I can't stress enough that if you do not read the entire booklet carefully you will miss out on a lot of necessary clues to help you through the game. The information given is quite clear and not so boring to make you toss it aside and jump into the game. The set up of your controls is basic keyboard with mouse or joystick-mouse optional setup. I would recommend the joystick-mouse controls because with mouse alone the mobile and player options can not be used as easily or smoothly, which could bring a quick end to your game. Movement is the norm up, down, north, east, etc., but you may not move diagonally which is, I find, another minus to the game when you are struggling with your joystick to move your vehicles around. Playability of the game is relatively simple, once you discover the extent of

the abilities you are given, at the start of the game. The picture you get when playing is that the creators are trying to make everyone happy when they made the game. They throw in a little action, add different puzzles, place a few nice pictures here and there, skimp on the sound, and add some text and you get a sort of shallow feeling because you always think that it could have been touched up a bit more to make it more enjoyable. You have a pretty big world, and a couple of moons to discover, so you do have more than enough to keep yourself occupied. Mapping the various caverns, mines, city, and the forest of TangleWood is very helpful, so don't slouch. You don't have very much time. Almost all things are set and very little is random so unfortunately, once you beat the game the big thrill is gone. The game is fairly challenging, but as with all puzzle solving games, you can get frustrated or bored at times, so don't get disgusted.

In closing, I think that with a little more work, TangleWood could have been a moderately successful game. Graphics are good, but without at least average sound you lose that feeling of quality.

***Tanglewood* \$ 39.95**

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

SCRABBLE

The famous word game gets Amiga-tized

by Nancy Dock

If you've ever felt the urge for a challenging game of Scrabble, but had no one to play with, Leisure Genius' computer edition of Scrabble may be the answer. Computer Scrabble is a highly sophisticated program which can provide you with up to 3 opponents in any one game. Those opponents can be human and/or computer. Each matching player can be assigned one of 8 skill levels, ranging from a plodding 1, which plays somewhat like a young middle-schooler, to a killer 8, which plays words like RAJES and NAIFS.

To play, you insert the game disk at the Workbench prompt. Computer SCRABBLE will load and run automatically. Once started, pulling down the FILE menu gives you the options to start a new game, resume game, or shutdown. You may resume a previously saved game by inserting the disk holding the saved game. Just type the name of your saved game to pick up where you left off. To start a

new game, first enter the number of players by clicking an icon for two, three or four players. You will be asked for each player's name, which can be up to eight characters each. Take this opportunity to give your computer opponents nasty names; they will be oblivious to your choices. Each name entry is followed by a request for play level. For human players, you click on human, and each player can work at his own skill level. For computer player, choose a level from 1 - 8. The game documentation explains that the Scrabble program is tuned to achieve average scores (in a 2-player game) of 150 points at level 1, and over 300 points at level 8. Skill levels 1-4 access a subsection of the program dictionary, while levels 5-8 access all acceptable 2, 3, and 4 letter words and extensions. Many of these words are obscure and unusual!

Next, you may choose to set a time limit for each turn. You can select time limits from 30 seconds to five minutes. If the clock is enabled, as soon as the last ten seconds of a turn are reached, the clock flashes. The player must then enter a word or lose a

turn. If you enter a word in the last ten seconds, you are given as long as you like to place it on the board, but you cannot cancel the word and start again. This reviewer found the tension of timed play a bit too intense and chose to click on clock OFF after the first experience.

Two other interesting options are offered on this screen. You can choose to "See the Computer Thinking" and/or "See the Racks." The latter option will display all the players racks in the right hand section of the screen. Otherwise, only the main rack will be displayed at the bottom left of the screen. "See the Computer Thinking" is a lot of fun at the higher skill levels. During its turn, the computer player will assemble words, temporarily place them on the board, and evaluate its score. This process will repeat several times until the computer chooses its best play. A human opponent can learn from watching this process.

Once your selections are finished the game begins. Each player will be prompted in turn. Your rack of tiles will appear on

the lower left of the screen below a full color reproduction of the Scrabble board. Study the tiles and simply type your word in full, including any letters which may be already placed on the board. After the word is typed, press RETURN. There is a special entry procedure for blank tiles (these can be used as any letter). Press the space bar, then type the letter you want in that position. That letter will be colored differently from the rest of your tiles.

Now use the mouse to position the word on the board, clicking at the starting square of your choice. The computer will ask in which direction you want the word to go - across or down. Of course, you will want to use double and triple score squares if possible. After displaying the word and calculating the score, you will be given an opportunity to change your mind and, time permitting, to try another word.

If you choose to stick with that word, the computer will check it against its own vocabulary and challenge the validity of any

word it fails to recognize. Here the game gets extra interesting. If you accept the challenge as valid (i.e. the word was indeed wrong), then you lose both your turn and the points you would have scored. However, as marvelous as the program's vocabulary is, it is finite. Recognizing this, Computer Scrabble lets you override its challenge at the ARE YOU SURE? prompt by selecting YES. The computer will then accept your play.

Some may be tempted to use this feature to beat back the challenge of a skillful computer opponent. After all, ZQUX may be in some dictionary. The options menu contains several useful fea-

tures. If you are stuck, you can request a hint. If possible, Scrabble will show you one playable word by looking at your rack and the board. The proposed word will be displayed in the suggested location. You may choose to pass if no words occur to you. You may also have the computer JUGGLE the tiles in your rack, often uncovering a play you missed. If you wish, you may exchange 1 to 7 tiles from your rack, but as in the real game, this counts as your turn.

Other options display the distribution of the full set of tiles, the premium squares with their values and positions on the board,
(continued on next page)



Scrabble

(continued from previous page)

and the tile values. A running log of the number of tiles left is displayed in the lower right of the screen. You may FORCE the computer to hurry-up with its turn. It will then play the word it is currently thinking of, change its tiles, or pass. You may also use the save game option at any time.

The on screen scores are updated after each play and the tiles that were used are replaced. Play continues until all the tiles are used up and each player passes, or one player uses all her tiles. At this point, the computer presents a final screen announcing the winner.

Computer Scrabble seems like an excellent tool for the dedicated Scrabble player to use in honing word-forming skills. At higher levels, the computer makes some shrewd choices, sacrificing points in order to avoid opening a high scoring opportunity for its opponents. There is no way for human players to challenge the computer, so keep your dictionary handy to reassure yourself that the computer is staying honest. While it is a faithful reproduction of the board game, and offers several clever features, my feeling is that most Scrabble play will continue to occur around a table with friends.

Computer Scrabble \$39.95

Distributed by: Electronic Arts
1820 Gateway Drive
San Mateo, CA. 94404
(800) 245-4525

SpectraScan

(continued from page 10)

scanner can provide medium, weak, strong, or no edge detection. Medium edge detection can be used with black and white images to constrain the image to just the bold lines in a drawing. When used with color images, edge detection can bring out parts of the picture which are buried in their surroundings.

Future enhancements to the SpectraScan software will concentrate on the FILE options. In addition to those mentioned above, you will be able to send your scanned image directly to a future release of Professional Page using an AREXX port, which will be added to both packages. Finally, ASDG is implementing a harddisk-based paging technique, which will use a harddisk partition for storing and retrieval of the superbitmaps. This technique is widely used in high-performance mainframe and workstation systems, and will be another first on the Amiga. With a 20 Meg harddrive partition you could scan an image 250 by 11 inches in 24 bit planes!

While we are impressed with the performance of SpectraScan, we must remind you of the financial and system resources required to make full use of it. The SpectraScan package from ASDG sells for \$995. This includes the Twin-X board, IEEE 488 module, IEEE 488 cable (a \$100 item by itself) and the software.

The JX450 can also be purchased from ASDG for \$6995 (a new model scanner the JX300 can be substituted for only \$4995. This is a smaller scanner limited to 8.5 by 11 inches and

without the mirror function for transparencies and film). Finally, you will need an A2000 with lots of memory. Count on at least 3 Megabytes for even small color work. If you are considering commercial applications you will want a full 9 megabytes of memory. This clearly puts SpectraScan out of the range of most Amiga owners, but this is a system with wide commercial application. It's not unusual for even small businesses to spend 10 to 15 thousand dollars setting up for desktop publishing without scanning. For its intended market, SpectraScan is competitively priced.

Our experience with SpectraScan has been very positive. From unpacking to scanning was about one-half hour. The software is as well behaved as it is innovative. The only problem we experienced was when our cabling to the scanner was loose. The software can get "hung" if the IEEE bus is improperly connected. Even then, the other applications active in our system continued to run. As with other ASDG products, you can count on lifetime support and high value. If your publishing, medical, research, or video applications can benefit from high quality digital scanning, reserve your SpectraScan package.

SpectraScan \$995

ASDG
925 Stewart Street
Madison, WI 53713
(608) 273-6585

Sharp JX450 Scanner
suggested list price \$6995

Fantavision (continued from page 28)

that same special "tweening" can produce unexpected results. In some cases, images can be seen to twist, invert, and deform in ways you wouldn't have expected. Also, when inserting a point on an object, sometimes the program gets confused and tries to twist the inside and outside of the object around in strange ways. You will want to monitor each movement using the frame slider to ensure that no unwanted changes remain in the finished product.

The best aspect about FantaVision is its ease of use. The program allows the user to get big results fast, thanks to the magic of "tweening." There are lots of colors and sound effects to add

sensation to your movies. The manual is well presented and very useful, and there is no copy protection. I also like the clever use of LIVE! On the down side, it is hard to make some kinds of pictures (and therefore movies), and tweening can create some unwanted results. Compared to Aegis Animator and Deluxe Video, Fantavision is a winner. Its user interface is superior and it offers a depth of features which will satisfy the home or school animator for a long time.

FantaVision is a real "Gee-Whiz" piece of software. It would make a great first animation package for the novice producer of computerized movies. The quick results are often very

impressive and much like the special-effects seen on MTV. Speaking of MTV, why not take a FantaVision movie and your favorite rock song, and put them together? Simply hook the tape (or CD or record) player up to the audio input of your VCR, and the composite output from your Amiga up to the video input and press RECORD. It's an instant music video!

FantaVision \$59.95

Broderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903-2101
(415) 492-3200

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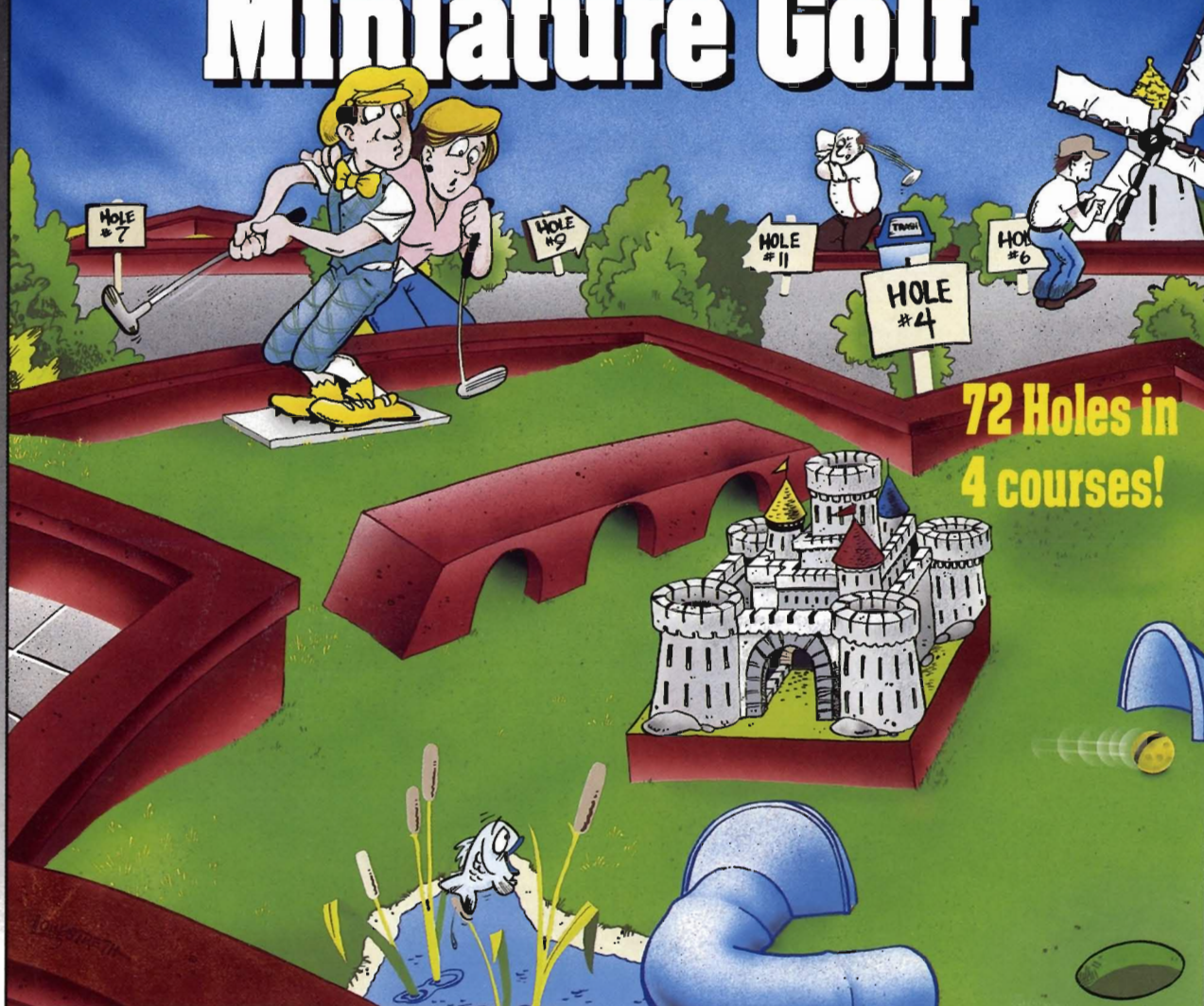
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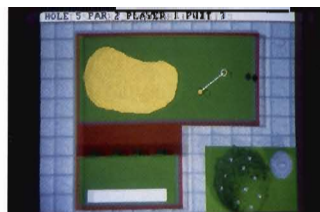
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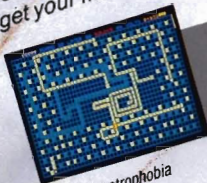
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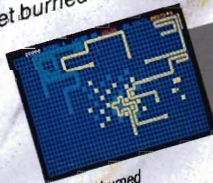


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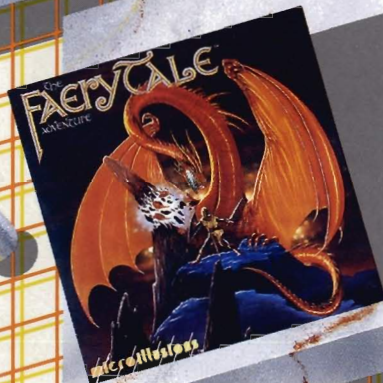
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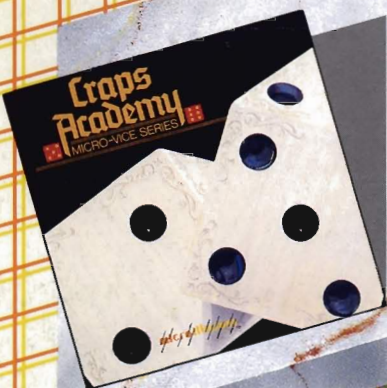
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