Avid

THE AMIGA-VIDEO JOURNAL

SAMPLE ISSUE

Video Toaster in an A3000?

- **The NewTek Video Toaster System**
- **The Amiga 3000/Toaster Issue**
- **The Commodore "Power Up" Program**

There's one thing for sure about the Amiga-Video market: it's never boring. It is getting more and more difficult to choose a single subject on which to focus. Probably the most interesting developm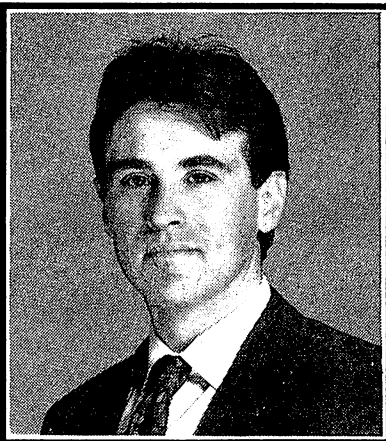ent I've come across lately is the increasing numbers of Amiga 3000 owners who are putting Video Toasters into their machines. (see "Toaster Tricks" elsewhere in this issue for more info on this subject.)

Of equal significance is the recent announcement of Commodore's "Power Up" program that offers the Amiga 3000 at ridiculously low prices. Combined with the aforementioned Toaster item, this program packs an ever greater impact.

Finally, NewTek's unveiling of the "Video Toaster System" at NAB brings up some questions that should be of interest to all AVID readers.

If you call NewTek and ask them about using the Toaster in the Amiga 3000 you'll get the standard corporate line that goes something like this, "The Video Toaster was designed to work in the Amiga 2000 series of computer." If you revise your question to

ask if the Video Toaster CAN work in an Amiga 3000, you'll get this response, "The Video Toaster was designed to work in the Amiga 2000..."

The fact of the matter is, without modification of both the 3000 AND the Toaster, the combination will not work So, how come I keep hearing about and seeing people who have installed and are using an Amiga 3000-based Video Toaster System? And, if the modifications are as minor as these people claim, how come NewTek has not yet legitimized the 3000 version of the Video Toaster?

The answer to the first question is easy: There are a lot of clever technical minds out there, and it should come as no surprise that this challenge has been taken on and, apparently, overcome. The answer to question number two is not quite so easy, but I've got a couple of ideas I'll run by you.

'There are probably several legitimate reasons why NewTek hasn't provided us with an Amiga 3000 version of the Toaster? One very good reason may be that they simply haven't had time! The folks from Kansas have been directing a lot of company resources towards exhibiting and marketing their existing product in as many new markets as possible. They've also spent a considerable amount of effort upgrading and adding new features for their existing base of Toaster owners (my best estimate is that approx. 20,000 Toasters have been sold to date.) Another possibility relates to the previously mentioned NewTek Video Toaster System. More on this later

NewTek was showing their newly announced Video Toaster System at NAB in Las Vegas last month. I mentioned this product in the last issue, describing it as an Amiga 2000HD, painted black and sporting a NewTek label in place of the Commodore-Amiga appellation. NewTek has apparently reconsidered the black paint and was showing a system at NAB that had only a NewTek sticker covering a portion of the front cover.

The Video Toaster System as described at NAB was essentially an Amiga 2000HD with a Video Toaster, 5 Megabytes of RAM and a color monitor. They were offering this package for $3995. The NewTek booth and

"The A3000-Toaster solution is more of a marketing issue than a technical one."

most of their product literature was devoid of any mention of the word Commodore and Amiga, and NewTek demonstrators avoided using the words unless specifically asked. Apparently, NewTek's marketing research has revealed that they could sell a lot more Toasters if they disassociated themselves from the word Commodore or Amiga.

This makes a considerable amount of sense for some important sales targets. The corporate, military and educational markets are full of purchasing agents who love to shoot down requests for non-standard computer platforms. The word Amiga triggers red flags like crazy with these paper pushers. Savvy corporate users, on the other hand, will have no problem pushing a Video Toaster System through. After all, it's not a new PC platform, it's a video effects generator!

Now that NewTek is marketing their own turn-key system, their incentive to offer a Toaster/3000 solution might not be that great. Several minuses come to mind. First of all, the 3000's 2.0 operating system is not yet completely stable and might open the door to a technical support nightmare. Secondly, (and this may be very important) another Toaster option in the marketplace might cause the kind of confusion that NewTek would rather avoid, especially close to the launch of their own Video Toaster System. Finally, should NewTek really care that much about the Amiga 3000 market? After all, it's no great secret that 3000 sales have been disappointing. From a numbers perspective, the 3000 doesn't have much clout.

Now Commodore has dealt a new card into the game. They've come up with a program that will significantly increase the number of 3000s sold. This new promotion, called the "Power Up" program allows any existing Commodore computer owner (this includes the VIC 20, C-64, C-128, and Amiga 500, 1000 and 2000 series) to upgrade, at substantial discount, to an Amiga 3000. The "Power Up" program is not a trade-in. All you need to qualify is the original front cover of the manual and the serial number of the computer. There are several discount levels

depending on which 3000 you want (the 3000 sports a couple of processor and hard drive options), but regardless of which 3000 you opt for, the savings are BIG!

For example, the most common 3000 version is the one that comes standard with a 25 mHz 68030, 2 Megabytes of RAM and a 50 MB hard drive. The MSRP on this system is $3499. A qualified "Power Up" buyer can purchase this system for $2249. This is below dealer cost! Suddenly, the whole Amiga 2500 vs. Amiga 3000 question gains a new perspective. (It's funny how a little thing like money can warp your thought processes.)

Let's take a look at a couple of Amiga/Toaster configurations to see how they stack up price and performance-wise against one another. Bear in mind that these prices are from a single source (my local Amiga dealer). Talk to your own dealer and plug in the appropriate numbers.

System #1:
> The NewTek Video Toaster System (not yet available)
> Amiga 2000HD/50 MB HD
> Video Toaster
> 5 MB RAM
> RGB Monitor
> $3995
> (My dealer quoted me $3950 on this system with a Commodore-Amiga label on it)

System #2:
> Amiga 2500/Toaster System
> Amiga 2500/50 MB HD
> Video Toaster
> 5 MB RAM
> RGB Monitor
> $5143

System #3:
> Amiga 3000/Toaster System *
> Amiga 3000/50 MB HD
> Video Toaster
> 6 MB RAM
> 1950 Multi-sync monitor
> $4647
> (*Amiga 3000 price quoted under the "Power Up" program.)

Here are several points that are significant when comparing these 3 systems:

1) The Video Toaster System (VTS) is an un-accelerated system. This will hamper the use of several functions of the Video Toaster, especially the paint and 3D applications. Accelerators, faster RAM and other peripherals can be added.

2) Four megabytes of RAM on the 2500 and all the memory on the 3000 system is 32-bit RAM. The VTS uses the slower 16-bit RAM.

3) The 3000/Toaster System requires unauthorized modifications to both the Toaster and the 3000. This is a major consideration. Although, this modification has been done many times without apparent ill-effect, bear in mind that with "hacks" such as this (and this is definitely a hack) there are almost always unanticipated problems. And despite the relatively minor modifications, I've heard of instances where folks have managed to fry both their Amiga and their Toaster. I wouldn't even consider doing this unless I had a good dealer who understood the modification, felt comfortable with it and, most importantly, was willing to stand behind his work.

Perhaps, the best thing that could happen is for Commodore to sell a boat load of Amiga 3000s. Maybe these new numbers might convince NewTek of the validity of allocating resources to this market. Personally, I think NewTek could easily produce a 3000 version of the Toaster. This would be a "no brainer" for the Wizards of Topeka. I believe the 3000/Toaster question is more of a marketing issue than a technical one.

Before closing, I'd like to share a most interesting discovery that came across my desk. One of the fun parts of this job is checking the mail box and opening the review copies of software and video productions that companies send for evaluation. Earlier this week I received a tape called "Animation 101" produced by Myriad Visual Adventures. D.L. Richardson is the producer and instructor on this extremely entertaining and educational video. I enjoyed the tape so much that I shared it with several people, all of whom had very positive reactions to it. The tape is about one hour long and is offered in VHS format for $35. It's definitely worth the price. Send a check to: Myriad Visual Adventures, 1219 N. 79th Street, Oklahoma City, OK 73114. They offer same-day shipping and they'll pay for postage.

Read on...

Jim Plant
Editor/Publisher

Avid Column!

Before I touch upon the central theme of this issue's main focus in this continuing series of hopefully helpful Amiga articles, allow me to briefly mention some salient points that relate to a wide variety of Amiga concerns and developments of which you should be aware.

1. If you have a chance, purchase a copy of Mindware International's Amiga animation disk set. The title is "Animation and Video techniques", and it comes packed on four disks for $19.95. No Amiga animator should be without it...plus...it's great fun. Contact: Mindware International/110 Dunlop West Box 22158/ Barre, Ontario, Canada L4M 5R3.

2. Holosoft Technologies will soon release a special version of their Graphics Workshop for HAM-E users (that's the unit from BlackBelt Systems that gives you 24 bit HAM on the Amiga screen). Price is as yet undetermined, but their address is: Holosoft Technologies/1637 E. Valley Pkwy / Suite 172 / Escondido, CA 92027 (619) 747-0663.

3. Imagine (see review in this issue) already has an upgrade in the works. Look for release around late Spring (or maybe sooner).

4. If you need clip art, check out Jay Gross's series of clip art disks by contacting: Software Designs / PO Box 25 / Lemont, IL 60439. This is nice sharp stuff for specific occasions.

5. I've been working with a late GAMMA copy of SpectraColor (OXXI/ Aegis) and it looks nice. More later, perhaps a complete review and user tutorial. OXXI-Aegis / 1339 E. 28th Street / Long Beach, CA 90806 (213) 427-1227.

6. Somewhere down the line, I will do a thorough piece for you on Lake Forest Logic's Macropaint. Till then, check it out when you get a chance. It loads and saves 24
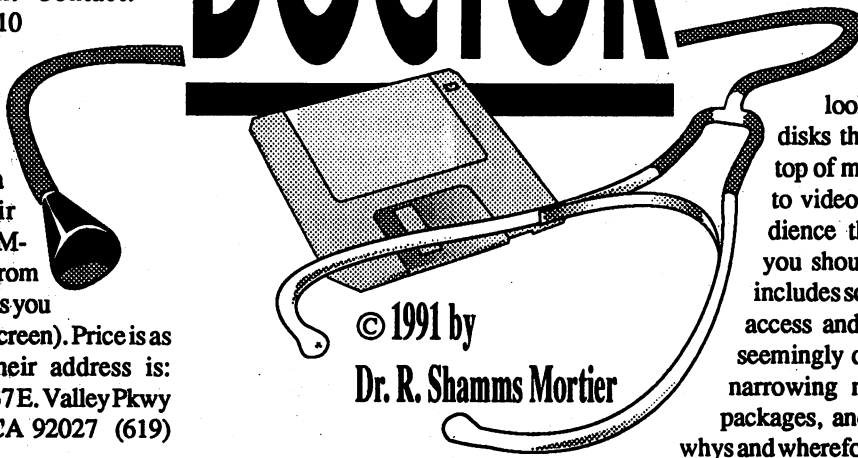
DR DOCTOR

bit color on the screen in front of you, and allows you to paint and manipulate images in 12 bit REAL TIME on any Amiga display! MacroPaint/Lake Forest Logic/28101 Ballard Road, Unit E/Lake Forest, IL 60045 (708) 816-6666.

7. Amiga video folks who need hardcopy of MIDI musical scores should investigate "Dr.T's Copyist DTP". You can get it from mail order for around $250.00, or upgrade from the PRO version for $50.00. It's well worth it. Dr.T's Software / 220 Boylston Street #306 / Boston, MA 02167 (617) 244-6954.

8. Having strange problems with your Amiga video output and unwarranted software crashes? Check the serial number on your motherboard (lower left hand corner as you face the machine with the hood off). If the last two digits are "60" (definitely!) or "61" (possibly), that could be your problem. Get a new motherboard installed from your dealer (hopefully your machine is still under warranty).

Picks of the Crop

There is a lot of Amiga software out there that an Amiga video addict and professional can purchase. There is also a smaller category of Amiga software that the same individual cannot afford to be without. I own, just as many of you do, packages that were purchased in a flurry of lustful obsession, only to have them sit expensively in my stack of disks, unloved and basically unused. I also possess a smaller number of software magic whose labels are nearly worn off from constant usage, smeared with the human fingerprints of dedicated need. My most-used items may differ somewhat from yours, but in an attempt to at least list the items I continually find myself unable to think of doing without (and to hopefully gather your responses as to your most used packages), I have looked back at 1990 and those disks that continually occupy the top of my stack. I'm going to stick to video because of the video audience that AVID addresses, but you should realize that video also includes sound track generation, data access and manipulation, and other seemingly diverse areas of work. I'm narrowing my selection to a dozen packages, and will briefly explain the whys and wherefores of my selections. Write me and tell me if I've matched your choices, or where your list might differ from mine. The reader should not necessarily take the numeric placement of the product as an indication that I value it more then others lower on the list; because I use all of the items mentioned in a multi-media mixed environment. There are some projects that require specific alternatives, and others that need many of these wares in combination.

1. Number one and still holding the championship is DPaint III from Electronic Arts. No other Amiga package I know of offers so much, is so intuitive to use, and is as economical when considered against the actual profits that it can generate. I use it to generate and touch up most of the animations (non-HAM) that I presently am called upon to do. I am anxiously awaiting to see what DPaint IV looks like, and how it will

fare against the growing competition.

2. IMAGINE. I was a dedicated Turbo-Silver user, and am even more impressed with Impulse's new IMAGINE. Though not a master as of this writing of its pathways and possibilities, I plan to devote a good deal of my time in 1991 to its magical blend of ray tracing and animation. Together with the storage capacity offered by my Syquest replaceable hard drive, I am totally awed at the look of the animations that can be produced.

3. Digi-Paint 3.0. NewTek has given the Amiga community superlative hardware and software over the years, and the artistic control and feel of this software is at the top of my list. The variability of this software to allow an Amiga artist to achieve an actual artistic signature different from ones peers is a great asset. As part of the Digi-Paint package, I would also mention Mindware International's DigiMate III, which allows you to animate Digi-Paint screens.

4. SpectraColor is new to my list; though without its release I would have chosen PhotonPaint 2.0, its parent. In addition to all of the tools that I loved from PhotonPaint, SpectraColor adds the ability to generate, save, and load HAM ANIMbrushes. This is software on the edge of Amiga state-of-the-art

5. PageRender-3D from Mindware Int. deserves a place in my heart and on this list. The visual magic that can be accomplished with it is truly amazing. For logo creation, and for intuitive interface design, it remains one of the most superlative Amiga packages.

6. This is a late addition to my list: Draw-4D. I am attracted to this package by the way that it addresses both DTP and DTV at the same time, and by the novel approach to animation that it contains. When it is upgraded to utilize ray tracing and texture mapping in the near future, that won't hurt either.

7. The last graphics package that I would include for the moment is MacroPaint from Lake Forest Logic. In addition to the thrill of allowing me to work in real-time 12 bit visuals, I have a very specific use for it not contained in any other graphics package (yet). That is the ability to compose text screens made up of many ColorFonts at the same time.

8. Broadcast Titler 2.0. You may have another character generator that you love and use as much as I am attracted to this one, but dollar for dollar, I don't think this one can be beat. Innovision Tech's latest release

of this software fixes some irritating bugs that version 1.0 was notorious for, and in addition is a complete rewriting of the way that it handles files and does what it does. The transitions are smooth and fast, and the output is as sharp as a razor.

9. I own most every music package for the Amiga, but two stand out as my mouth watering obsessive favorites. I'll cheat here, and call one 9A and the other 9B, in order to save some room on my list.

9A. MusicX. As a compositional sequencer and track allocation unit, nothing I've seen really compares to this software, though I would understand if your favorite is something else (I probably own and use that "something else" anyway...). I love MusicX (now version 1.1) because it lets me do what I do best, compose music in an impromptu fashion. I use it in conjunction with two MIDI devices (the Midia Musicbox and a Yamaha TG-33 sound module), and it controls the MIDI tracks superbly. 9B is a newcomer to my list as of 1990. It is from Hologramophone and is called HyperChord. It allows me to achieve unusual and unexpected real-time effects with my music that is perfect for music-video work. It continues to be upgraded and fine-tuned.

10. Elan Design's Performer is one of the finest editing packages made for any computer, and I would be totally lost without its help. It allows me to piece together disparate chunks of animation and stills, and flawlessly allows me to sync them together in a unified production, without the need for additional video editing in most situations. This software has paid for itself ten times over in 1990 alone.

11. ASDG's Art Department Pro has to be included in any mention of a list of the most professionally useful Amiga software. It seems that I use this about every two or three projects to transfer an image from one format or resolution to another. The results are always satisfactory, and frequently spectacular. I can't imagine meeting my clients' needs without this software.

12. O.K. Time to cheat again, but I'll make the excuse that these four packages are all "utility" packages that can be grouped together (sneaky or what?!). 12A. is CLImate, and I've transferred more files with it then the President has disks. Its use is intuitive to the max, and allows you to see exactly what you're doing. It also has one of the most well designed interfaces that I know of, in terms of functionality and just plain beauty. 12B.

is "Project D", and I use it mainly as a disk copier, often from one format to another. It is fast and efficient, and has never made an error in its calculations. 12C. is Glacier Technologies "Icon Magic", and I use it a lot to create and assign icons (.info files) to graphics that do not automatically include them when a picture or brush is saved. I also use this package to design icons for my own (Eyeful Tower Communications) marketed software. Lastly, I'd like to mention the software called "B.A.D." which I use to crunch files. I know there are other super packages on the market that do the same thing, but this is my choice. It really frees up disk space.

Well...there you are. My choices for the past year as far as use and plain old profitability. I'm already feeling guilty that I haven't included some of the other wares that are staring me in the face, but I think I've been as honest as possible with the choices I've presented to you. What do you think? Would you have chosen other packages? Why? Write me and we'll discuss the matter in public.

Dr. R. Shamms Mortier
EYEFUL TOWER Communications
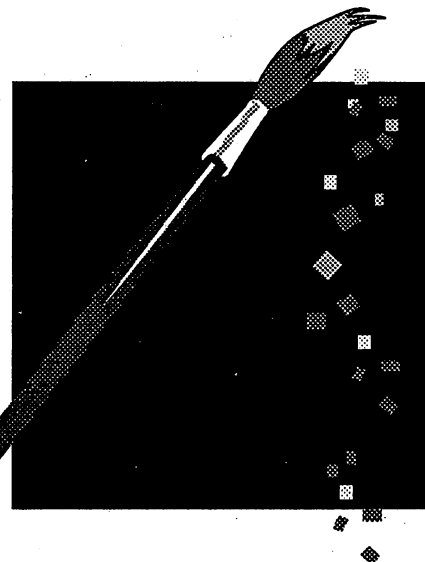15 Rockydale
Bristol, VT 05443

Aid Column! Dabbling in D-Paint

© 1991 by Ernie D. Potvin

Deluxe Paint III by Electronic Arts is by far the most popular paint software sold for the Amiga. In a survey of my Los Angeles users group, it was owned and used by more members (3 to1) than any other program. As for myself, a videographics artist, creating multi-media images and animations for a living, it has been the bread and butter program of my studio.

After 30 years of hovering over drawing boards, designing corporate logos and literature for various print media, I was born again (graphically speaking) when I bought my first Amiga. New horizons opened up. I entered the world of industrial video, multi-media presentations and cable TV. Leaving the T-square behind, I've been "dabbling in DPaint" and I am pleased that I have the opportunity to share my experiences with you within the pages of AVID. With this article, I've prepared two demo disks of pics and anims to support the material covered, which if desired, you can order separately to compare notes.

Creating Anim Fades in DPaint

As great as it is, not everything can be found in your DPaint manual. There's simply no way the author (Dan Silva) could possibly anticipate or include all the tricks or effects we users might dream up. Don't let that stifle your creativity. Between the many tools and modes, and the invaluable swap screen, there's bound to be a work-around. Think your ideas through and you'll probably come up with one or more solutions for your design problem. For example: No-

where in the index is there a reference for fade-in/fade-out effects for anims. Yet this is a commonly used technique employed by videographic designers. Let's examine several work-around ways to create those effects.

My most recent use of "anim fade" effects involved a 1950's juke box which I created to slowly emerge from a Pro Fills background, light up mid-way, and finally eject a laser disk to spin out to the foreground of the screen. I've included this anim in the samples disk set; but for the sake of simplicity, in this article we'll create simpler examples employing the same techniques.

To get started, create a simple background picture to your liking, but be sure to use one of Deluxe Paint's interlace modes if you plan to transfer to video. Next, pull down the Anim menu and select Frames/Set#... In the Set Frame requester enter 50 and click okay. You now have an animation of 50 duplicate frames which would be pretty boring if we tried to run it, so let's not.

Now we'll switch over to the spare (or swap) screen by pulling down the picture menu and selcting Spare/Swap, or better still, do the same thing by simply pressing the J key. On this screen we'll create the logo we want to fade into the animation. On the lower half of the screen create and line up a square, a circle and a triangle, each about one inch high. That will be our logo.

Save it as a brush if you like. Next, use the airbrush tool to create an airbrush pattern (that is larger than our logo area) which we will be picking up and saving as a brush to create the fade effect.

Actually, the 'airbrush-pattern' brush could be created before the logo, as long as you are sure to make it larger than the logo we wish to fade into the anim. The spray pattern should be light in texture and evenly applied over all, and not "solid" in any area. Now, from the center, grab a portion of the textured pattern which is larger than the logo below, and pulling down the Brush menu, save it as a brush. Call it Airbrush.Brush (just to be clever or redundant).

Now, clean up and remove any leftover pixels from the spray pattern. Only the logo should remain on your spare screen, which you'll notice on the menu bar is now identified as the Scratch screen (to differentiate from your anim frames residing on the other side). Now click the J key to get back to your anim. We're going to have our logo fade in at the beginning of the anim and emerge solid by frame #25. Now click on the 3 key to bring up the Go-To-Frame requester. Type in 25 and click okay. Notice at the menu bar above, you are now on frame 25 of 50. We will be starting with a fully emerged logo on this frame, and work backwards on the fade-in effect.

Go back to the Scratch screen and position the logo where you want it to appear in the anim. For added precision, you can select coordinates from the preferences menu, pick up the logo as a brush and, without stamping it down on the anim side, double check your desired position. Then, maintaining the same coordinates, stamp it down on the Scratch screen. Caution: Be sure that the background color on the Scratch screen

is transparent. It must match the background color currently selected under the tool box.

Okay, we're ready. Go back to frame 25 on the anim side and select Spare/Merge-in-Front, from the Picture pull-down menu. (Be sure not to pick Merge-in-Back, or the logo will end up behind the anim frames, instead of in front of them). The Options requester will pop up offering several choices. Select current Frame. Your full color logo will appear on top of the background you created. Now, click the 1 key and the anim will step back one frame to #24.

Exercise 1

LOGO ■●▲

Airbrush.Brush

Your logo, of course, will not be there. Click J and return to the Scratch screen. From the Brush menu, load your Airbrush.Brush file. Position the pattern over the logo and stamp it down with your RIGHT mouse button. You'll notice part of your logo beginning to disappear. Click J to return to anim frame #24 and repeat the previous steps: Pull down Picture/Spare/Merge In Front, and then select current frame from the requester. Notice how the logo in frame 24 is missing a number of pixels.

Continue the process using the 1 key to step back one frame at a time, swapping screens as you go, and stamping down the Airbrush Pattern (each time slightly off position), until the logo is completely eaten up. Play back the anim by pressing the 5 key to see your work. As you get closer to obliterating the logo in the stamping process, you may need to do multiple stamping between frames as increasing pixels in the patterns will be landing over others that already were cancelled out.

To create a fade-out effect, reverse the pattern. Start on screen 26 with a full representation of the logo, and progress forward
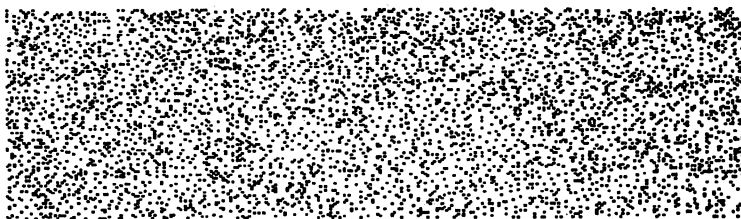
on the anim by clicking on the 2 key which advances the anim one frame at a time. Between frames use the airbrush pattern to stamp out increasing amounts of the logo on the Scratch screen till it disappears. Now, go back to frame 25, where the logo was full and add another 40 or so frames. This will create a holding effect on the full frame. Save your anim and click keyboard 5 to see it play out. Shift 1 takes you back to frame one.

Learning and using keyboard equivalents can save a lot of time in Deluxe Paint and this fade-in/fade-out process is no exception. After you have used a pull-down menu selection one time, the program will repeat that same selection the next time by simply typing a lowercase "a" (for again). This means that after once selecting Picture/Spare/Merge-In-Front from the menu bar, you'll merely have to type the letter "a" to repeat the process again and again.

Adding a Color Fade

Another variation on fade-in/fade-out utilizes a spread of colors going from the logo color to the background color. Imagine a bright green logo and a dark blue background with six steps in between. With a

Color-Fade-Out, the decreasing logo pixels follow the method above, however, with every few frames the pixel colors change, going from the bright green to the dark blue. Before starting this Color-Fade-Out exercise, be sure you've saved the previous exercise anim to disk. Now pull down the Anim menu and select Frames/Delete All to clear the previous anim. Type Shift K to clear the current screen.

With this exercise, we'll eliminate the need to swap back and forth to the Scratch screen, or use the Picture/Spare/Merge-In-Front option. Instead we'll be using a Stencil effect. The Color-Fade-Out will be created on the anim side alone. Also with this exercise, we're going to create a special palette. Type P to bring up the palette requester. For our blue background, set color #0 to Red 1, Green 4, and Blue 8. Then, set color #1, directly below it, to any light contrasting color. Now copy the background color #0 to position #8 at the top of column two. Then, at the bottom of the second column in position #15, set the green logo color at Red 3, Green 12, and Blue 1. Now create the color spread: Click the color in

position #8, click on Spread, then click the logo color in position #15 at the bottom of the column, and you have your spread. Now click okay.

Create a new, one color logo for this exercise. Recreate the AVID logo if you are feeling artistic or use symbols as in the first exercise. [EDITOR's NOTE: if you create a version of the AVID logo, please send a copy to the attention of the editor. We'd love to see the variations you might come up with.] Use color #15 for the logo and #0 for the background. Now create another Airbrush brush similar to the one in the first exercise, but plenty large enough to cover your new logo. In creating the brush, use color #0 for the background and your light color #1 for the airbrushing. Then, save this brush to disk with a new name.

To begin our anim, select a location for your logo and place it there. Next, pull down the Anim menu/Frames/Set #... and enter 10 and click okay. We now have an anim with 10 identical frames. From here on, we'll add one frame at a time, diminishing the logo image two ways as we go. The first way, by eating away at the pixels; the second, by moving the logo color closer to that of the background.

Start by picking up the new Airbrush brush, being sure that your current, active, background color is #0. Stamp the brush over the logo using the RIGHT mouse button. Then add another frame pulling down the Anim menu and selecting frames/add frame. Notice your anim now has 11 frames. Once again stamp over the logo with the RIGHT button, only this time, instead of pulling down the Anim menu, add another frame by typing the "a" key. Repeat this process four more times before changing the logo color.

To change the current logo color from #15 to #14, we'll need to use the stencil effect to lock the background color. To do this, select Stencil/Make from the Effects menu, or Shift on the keyboard. (The key is an on/off toggle for the stencil effect). In the stencil requester, lock the current background color by selecting it and clicking okay. You can now change the logo color by clicking with the left mouse button on the next color in the spread (#14). With this new foreground color, you can wipe over the logo with the filled rectangle tool (Shift R). The 'locked' background color will not be

effected and you're ready to continue stamping away with the airbrush pattern. To retrieve your stamping brush, click the right mouse button on the brush tool in the toolbox, or type Shift B. It should reappear.

Add four more diminishing logo frames with color #14, then repeat the procedure above for color #13, #12, etc. Space it out so that your last few frames are stamped down with color #9. Now play back your anim and see how the logo fades away two ways, by pixel numbers and by pixel colors. View your dissolves at different speeds by using the left and right arrow keys while running it, or by pulling down the Anim menu and Control/Set Rate to enter your desired frames per second.

Anti-aliasing on logos and type can slow an animation down and is often not missed during fades or moves about the screen. When you want to reduce the jaggies with anti-aliasing, wait until the logotype comes to a stop. The spread of colors used in color fades are perfectly suited for this job.

For samples of these exercises on disk, plus the Jukebox/Laser Disk.Anim (2 disk set): Send a $10 check to the author, Ernie Potvin, 125 Aristotle St., Simi Valley, CA 93065.

Avid Column!

More Toaster Tricks

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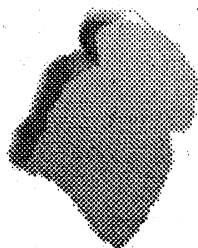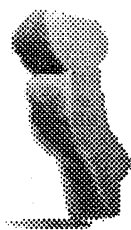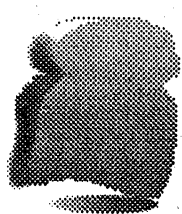
Before we plunge into the new stuff, I'd like to clear up a couple of inaccuracies that crept into the April 1991 "Toaster Tricks" column.

For the record, tapping the CTRL key twice followed by the Left-ALT key twice will jump you from the Video Toaster Switcher interface to the WorkBench (if your Amiga boots the Toaster from a WorkBench icon; if not, you will only return to a "open" CLI window). I inaccurately stated that you should use the left Amiga key.

For those of you who have tapped, banged, and slammed the left Amiga key into oblivion in an attempt to reach the WorkBench, you have my apology.

Second, our tip for altering your startup-sequence to "run switcher" was only a partial solution to having an open Workbench following Toaster startup. The command "run switcher" does not seem to free up the CLI window from which it is invoked. Replace "run" with the late Rob Peck's in-

valuable "runback" command (available in the Fred Fish or most any other Public Domain collection) and you will have more success. Using "runback", replace "Switcher" or "Run Switcher" in your startup sequence with "Runback Switcher".

Finally, you can use the Left-Amiga-N and Left-Amiga-M key combinations to jump to and from the WorkBench ONLY if you have an open application or window on your WorkBench. Running a small utility such as VirusX, or just opening a Shell is sufficient. Once one of these windows is active, you can invoke Left-Amiga-N and M to jump out of any of Lightwave's or ToasterPaint's screen, to and from the WorkBench. (Since the Alt Key has an assigned function in Toaster CG, this combination will not work.)

Sheryl Jarvis of Shereff Systems informed me that our tip for successfully using Pro Video Gold or Post on a Toaster system was incomplete. Many Amiga users will open a number of windows in the process of gaining access to their Toaster icon, Shell

icon, and Pro Video icon. Leaving these windows open ties up valuable chip memory - the very thing you are trying to conserve!

Close them as soon as you have finished using them, or you may still see the dreaded "Insufficient Memory" message. As an alternative, you may open these windows, then drag the necessary icons out onto the open Workbench area. Afterward, close the windows and continue working with the icons as you would normally. This is a safe maneuver, and you need not worry about "returning" these icons to their windows as the Amiga "remembers" where they came from.

John Cooksey of Elite Video Productions recently sent AVID a review copy of his new videotape focusing on the uses of the Panasonic digital video mixers, MX-10, MX-12, and AVE-5. If you use one of these in your work, give this tape a look. John has some nifty ideas for creative effects utilizing these devices. Of special interest to Toaster owners: John shows how to use one of these

devices to send 2 distinct video signals to the Video Toaster for A/B Roll editing! (This single 5-minute segment is worth the entire price of the tape.) John's solution is below the cost of most time-base correctors alone, and involves no "warranty-voiding". procedures. For more information about this tape call Elite Video at 203-661-1312.

Mail Call

Tom Valens, of Tamalpais Productions in California, says that although he loves the Video Toaster, he laments the fact that "there are too many things that Pro Video can do that the Toaster can't (yet)."

Tom writes:

"I too found out about opening a Shell prior to opening and then exiting the Toaster in order to run Pro Video Post and output it to the Toaster genlock. And yes, it works on my machine in the sense that I can get a video output out of the Pro Video program.

But the problem is: it's a terrible video signal! I'm not just talking about the difference between the RGB monitor and the NTSC monitor - I've done a lot of work using Pro Video (first Plus, then Gold, now Post), and I am very familiar with that difference.

But I could get decent titles out of the Pro Video programs using the SuperGen genlock, which I would super onto my 3/4" video master. Out of the Toaster genlock the same titles look really lousy - even 80vl is very blurry. Now the Toaster CG letters themselves look fine, and the Toaster output to NTSC is fine, but outputting other programs (including Deluxe Paint III) looks terrible.

Any idea why, or suggestions as to possible fixes?"

Although one of the Toaster's designers once confided to me that the Toaster as an overlay genlock was "not very good", I have not had the opportunity to investigate Tom's claim. Two other producers I spoke with about his letter have not noticed the difference in quality he refers to, and both work with 3/4" as well. However, just as the Amiga varies in its operations from one machine to the next, so can the Toaster. Not all are created equally.

We would appreciate your input on this issue. Do you work entirely within the Toaster's software world, or do you also use an Amiga character generation package such as Pro Video Post or Broadcast Titler II for greater versatility and control over your graphics? Do you see a difference? Let us know if you've had similar experiences.

In a similar vein, one Toaster user I recently met with pointed out a noticeable difference in the pedestal levels of the two Toaster Frame buffers. He loaded two random still frames, one to each buffer, and initiated a "zoom" DVE from Bank A. Just at the end of the transition, almost at the moment it finished, the sync source changed from the one buffer to the other, and with it the darker black levels of the image shifted to a somewhat lighter shade.

Granted, this seems a minor shift, but it was highly visible to someone paying attention to the monitor. Customers of this producer have noted the change, and some have objected, being familiar with his normally higher-end quality. These levels of video coming from the two frame buffers should remain constant, and it's disturbing that such things occur. Hopefully, NewTek has received word from others about this, and will pursue its correction.

Let's face it: if the Toaster weren't as incredible as it is, we wouldn't be so critical when some aspect of its operations aren't quite right. I hope NewTek can maintain that point of view when working with so many professional and non-professional owners of the Video Toaster.

Speaking of differences, what would you like to see added to the Video Toaster? What would you like removed, fixed, altered, reworked, or gutted? Have you contacted NewTek with your ideas? Their staff meets daily (so we are told) to discuss your ideas. Make certain you let them know what your ideas are.

Here are some of my own favorite ideas. Write, call, or fax these ideas to NewTek if you like them, and don't forget to add your own....

• Work with Shereff Systems and get Pro Video ported over to the Video Toaster. Shereff clearly has the superior CG in terms of versatility, image manipulation, transition control, sequencing, and response. They've shown great integrity with their support over the years, as well as the improvements they have implemented each step of the way. I urge you to write NewTek and request a more sophisticated CG for the Video Toaster!

• Rework Toaster Paint. The biggest item on my mind: can NewTek achieve a realtime display of what I am doing? Manipulation at the pixel level is relatively impossible, and working on the 1/4 screen interface makes full-page design extremely

difficult. I keep turning to DCTV for most of my work.

[Note: A plea to both Digital Creations and NewTek - Now that we've got 16 million colors, can you program a few in for anti-aliased font generation? I can create gorgeous backgrounds and panels and charts with both DCTV and Toaster Paint, but the text importation of each is horrendous. In DCTV it's like loading a lo-res font onto a hi-res screen. Each character is bold and blocky, badly betraying its bitmapped origin. In ToasterPaint, text brushes of a certain size get cut off, and the italic function is unreliable. Working with text is downright sloppy in both programs.]

• Someone once described to me a conversation with a NewTek technician that suggested some fascinating possiblities. Apparently, it is possible to re-write the code that handles the Digital Video Effects's to achieve a form of anti-aliasing that would be superior to that which the Toaster currently employs. Also, it was suggested that the Toaster's RAM daughterboard may be upgradable to allow for more memory to be used by the Toaster for just such a possibility. These are not rumors, so don't pass them along. They are only suggestions to consider, and ideas to open your minds to future Toaster possibilities.

Moving On

NAB News Item #1 - NewTek was showing Version 2.0 software for the Toaster, sporting an extra two DVE Banks for effects. Features that were mentioned included CG and Paint interaction for greater versatility in mixing fonts and images, a fix to the "zipper" on transitions, plus a Switcher alteration that may allow dissolves as well as cuts beneath keyed graphics. Let's hope this includes DVE's.

NAB News Item #2 - Digital Creations showed the Kitchen SYNC (no, I will not spell out the acronym), a dual TBC on a single card that supports SVHS as well as composite. It appears to be somewhat configurable, meaning you get some SVHS and some composite signals, but not a lot of both, depending on how you set it up. You do have basic proc amp controls, but apparently not dropout compensation, which I understand is not difficult to include once you've got everything else in there. One odd statement in their flyer spoke about a "genlock option." It appears the unit requires an add-on module if you wish to time it into an existing video system, such as one with

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house sync. Otherwise, it generates its own and ignores any external sync.

(It'd be nice to get some of these video hardware folks to license Faroudja Labs' NTSC color processing technology, which is stupendous for composite and component signals. My guess is that the Amiga market is too small for such high-end folks. Too bad. Time to write yet ANOTHER letter...)

STOP THE PRESS!

The Amiga 3000 is alive and well - and hosting the Video Toaster! THIS IS NO RUMOR. The fact is that the Amiga 3000 can run the Video Toaster with very little modification. There are only two obstacles to overcome:

First, the ECS (Enhanced Chip Set) Denise Chip for the 3000 must be replaced with the older Denise Chip (the one used in 500s and 2000s), since the Toaster does not get along with the ECS Denise.

Secondly, the slot that the Video Toaster's six BNC connectors should protrude through is not wide enough on one end to accomdate one of the BNC connectors. The way the slots are positioned blocks one BNC on one end, yet leaves extra space on the other end.

The simplest and most elegant solution to this dilemna is shown in the accompanying photographs, courtesy of Tim Azzaria of B Street Video in California (415) 342-7424. Tim unscrewed the back plate from the Toaster's BNC connectors, then shifted the plate downward by one notch and re-attached the plate. The free-standing BNC was desoldered from the Toaster board, and re-attached to the other end of the plate (where the open hole ended up after the shift). Finally, he soldered a 4-inch cable from that connector's original position to its new position.

Photo 1 shows a comparison of the modified Toaster below a normal, stock Toaster. You can see that although the two Toasters are being held side by side in align-
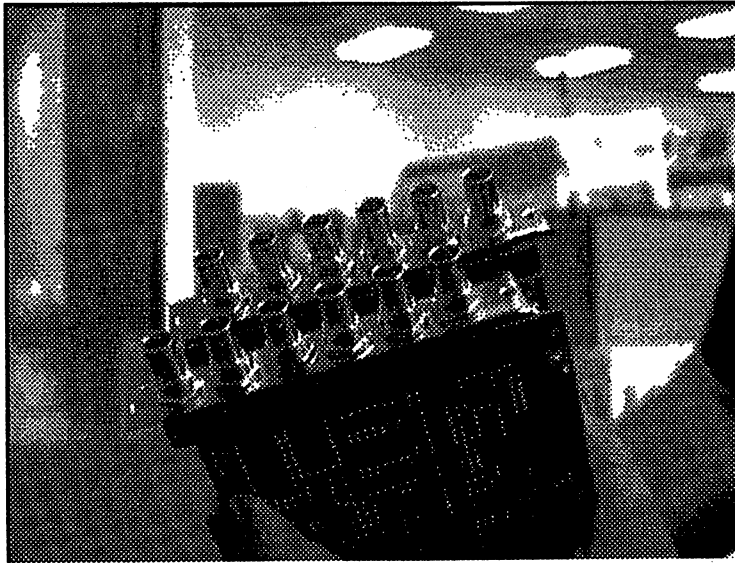

Photo #1

ment with one another, the mounting plate and BNC's are shifted downward on the bottom unit.
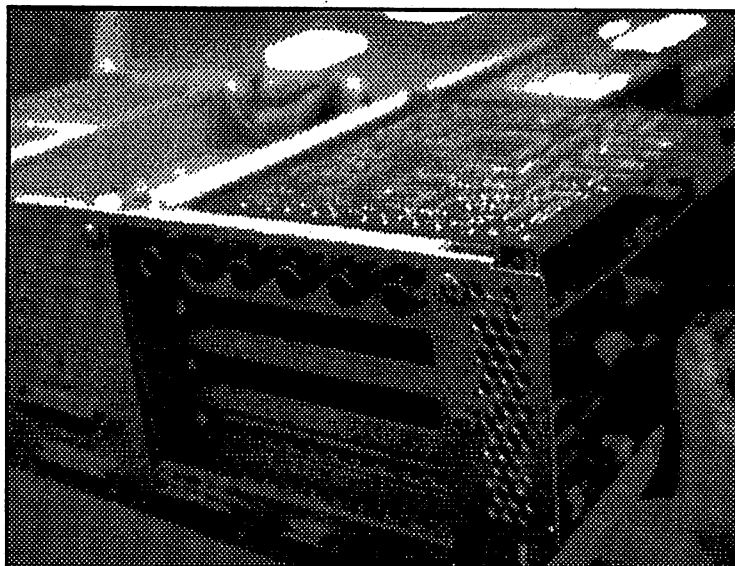
Photo 2 shows the modified Video

Photo #2

Toaster installed in an Amiga 3000 (with its cover removed). The Toaster fits snugly inside, without being forced. Tim recommends placing a plastic overlay on the top of the Toaster, to reduce the possibility of shorting the pins on that side.

Tim claims his scope indicates 2-4db less 60-cycle hum interference when compared to a 2000 or 2500, probably due to the proximity of the power supply in those computers. Unknown for the moment is the possibility of interference to the Video Toaster in a 3000 when other add-on cards are installed beside it. This concern was voiced early on, and has not yet been tested to my knowledge. I know too few individuals with 3000s and Toasters to gather sufficient information.[EDITOR'S NOTE: This modification is not endorsed by Commodore, NewTek or AVID Publications. It will definitely void your warranty from both manufacturers! Anyone attempting this modification does so at the risk of severely damaging the Video Toaster, the Amiga or both.]

The fact remains that installing a Video Toaster inside an Amiga 3000 is really No Big Deal. It can be done, and numerous people have done it. What really surprises me is the fact the Commodore and NewTek haven't been able to get together to solve this apparently trivial engineering task. Considering that the Toaster has been around since December 1990, and that the basic hardware configuration was probably set for months prior to that, I can see a period of at least 6-8 months during which Commodore and NewTek might have worked out possible solutions to this minor problem. Both of these companies have overcome far greater engineering challenges.

The Toaster And Art Department Professional

The Art Department Professional is clearly the image processing and format conversion tool of choice for Toaster users who plan to work with other computer graphics formats, or require more sophisticated image processing tools than those provided in Toaster

cont>

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Paint. I couldn't get by without it. [EDITOR'S NOTE: see review of ADPro elsewhere in this issue of AVID]

Doing graphics for over-the-shoulder display? Need to shrink that full screen image to 1/4 screen? Complete the artwork (or just the background) in Toaster Paint. Save it as an RGB image. Load it into ADPro and scale it to 50% in both height and width. Save it as a 24-bit image. Go back to ToasterPaint and there it is, perfectly sized and in the corner.

ADPro also has the ability to create gradated backgrounds much more quickly than the Toaster. You can specify a horizontal, vertical, or diagonal gradation by choosing colors from a four-cornered selector panel. Each corner can be any of 16 million, and ADPro will create and save the 24-bit background with ease.

ADPro also offers several terrific tools for processing images - such as blur, colorize, line art, negative, and more. No other image processor is as exact or as versatile. I find that my arsenal of picture-perfect graphics tools includes Toaster, DCTV, ADPro, Pro Video Post, and the venerable Deluxe Paint III. In addition, I recommend a disk utility:

DiskMaster if you are new, and SID if you are a serious computer user. SID will soon be released into the commercial domain, and it looks to be most powerful directory tool the Amiga has ever seen.

Final Thoughts

You can render Lightwave's 24-bit images to your hard drive, provided you have the room for storage. Once the images are rendered, convert them to any Amiga format, a frame at a time, and compile them into an animation. Owners of DCTV can convert them into DCTV "display" format and enjoy quite realistic playback.

To direct Lightwave to render to your hard drive:
- - Design the animation
- Select the Record Button from LW3D's main screen
- Select the Save Images Button
- - Select the Drive/Partition, and enter a name for the frames
- Select the Recording Button
- Select Render Button
- Select the Automatic Button

The Toaster will render each image and write them one at a time to the hard drive.

You'd be surprised how little memory an image takes up in 24-bits, particularly when your scenes are not complex.

I am currently in the process of compiling a compendium of Tips, Tricks, and resources for the Video Toaster User, to be included in a book tentatively titled, THE VIDEO TOASTER BIBLE. My goal is to create an extensive and thorough resource guide to the Toaster's operations through useful tutorials and informal information. An up-to-date source listing for Toaster support products will be included in the book.

I welcome your suggestions, ideas, questions, and tips for inclusion. The "Bible" is scheduled for a mid-September publication date. (Naturally, AVID readers will get a special discount.) If you are not an AVID subscriber but would like to receive more information about the book, send your name and address to:
Toaster Bible,
415-112 N. Mary Ave. #207,
Sunnyvale, CA 94086.

AVID subscribers will receive additional information in the AVID LETTER (a subscriber-only supplement.)
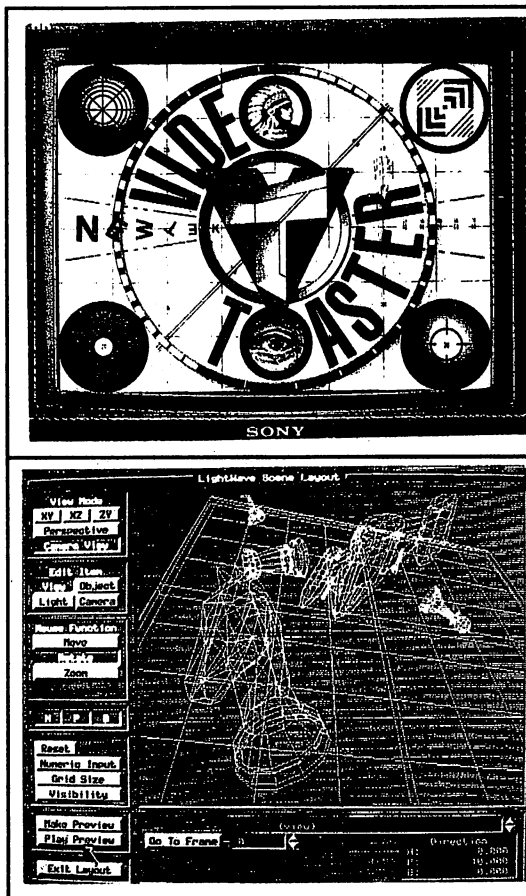
imagine revealed

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Turbo Silver, Impulse Inc's superlative software for ray traced animation on the Amiga, reached its maximum potential with the release of version 3.0. In a sense, it was all dressed up with no place to go. As far as I'm concerned, it set the pace for all of the other ray tracing programs, and those that pretended to the crown, to follow. But that was in the "old days", you know...a couple of months ago. Microcomputing does not stand still. Like time, it waits for no developer. Mike Halvorson and company (otherwise known as Impulse), being in the business long enough to see the digital writing on the wall, wanted to upgrade Silver to incorporate all of the ideas that they've had for years, but knew that Silver itself was not the platform from which to launch their radically

new vision. So, in the secret caves and recesses of Mike Halvorson's mind, the realization grew that Silver had to be more then upgraded; it had to be superseded. That was not an easy decision, because Silver had made Impulse a very successful player in Amiga circles, and the returns realized from it gave Mr. Halvorson a steady supply of pocket change. But, like all of the best developers, Mr. Halvorson is first an artist, which means "risk taker", and so for the past two years "Imagine" has taken the major portion of Impulse's development juices.

Imagine is unique, so it cannot really be compared to other Amiga 3D software rendering/animation engines. Imagine is a child of Turbo Silver, so some comparisons horizontally with that product might be useful.

In this review, I am approaching the subject from two main areas of investigation:

1. In what ways is Imagine like and unlike Turbo Silver?

2. How well does Imagine do the stuff it was designed to do?

First, before even approaching the two questions above, it is necessary to point out that Imagine is a model of the art of packed programming. It does so much, as we will see, yet the single disk it resides on is only about 3/4 full (taking up only 1321 of 1758 blocks, leaving lots of room for more tools and capabilities in future upgrades).

The size of the program is astounding, considering that Imagine sets out to provide the following in one package: complete design of 3D objects; surface attribute assign-
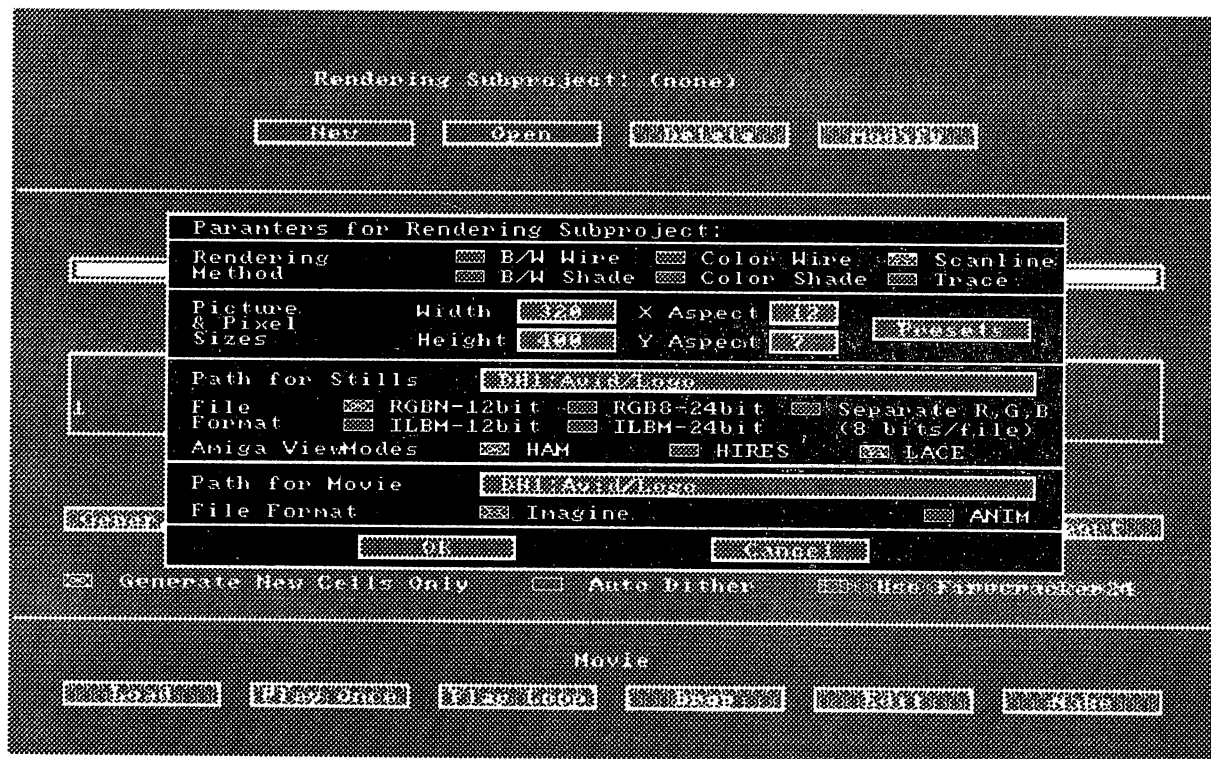
cont▶

Figure #1

ments (refraction indexing, specularity, shininess, etc.); addressing 24 bit graphics (with Impulse's "Firecracker 24" board); real-time movement of 3D elements in the design process; full choreographed animation, with preview capabilities (ANIMs saved in either Impulse format and/or the standard ANIM format).

Imagine does all of this by accessing five prioritized screens: Project, Forms, Detail, Cycle, and Stage.

Project

The Project screen is the beginning of this IMAGINary journey. See Figure 1 to take note of the extensive rendering requester associated with possible rendering modes. You can choose rendering methods from six options, input pixel sizes and aspect ratios, determine save/load paths, and delegate either the Imagine or ANIM formats for your animation. Stills (pictures) can be written in 12 or 24 bit format, or as color separated RGB files (8 bits per file). Beneath the rendering requester sits the full project rendering screen. It is here that one begins by choosing either to OPEN a previous project or to begin a NEW one. At the finish, it is also here that one can generate stills from any selection of frames, make a "movie" (in

either IMAGINE or ANIM format), and address the FireCracker-24 (if you have one). A word of advice: do not attempt to generate stills of all of your frames...it takes far too much time and memory, not to mention storage space. If you want stills of an entire movie for editing purposes, better to render it as a movie and take or manipulate the stills after you've dumped the movie to a show program like PhotonPaint 2.0. It takes about 1/100 of the time and space to operate in this fashion.

Forms

Obviously, your movie needs actors, and the Forms screen is a good place to design the elements that will either represent the total actor or an element in its design. For instance, you could design the parts of a complicated moving form here piece-by-piece, and later choreograph their combined movements. This is all real-time stuff, or as close to it as you would want. By adding and manipulating 3D forms in one or all of the three viewscreens, your results are displayed in true perspective on a side screen (called, naturally, the Perspective Screen). In addition to that, the Perspective Screen boasts two sliders that allow you to twist and place the object in a variety of rotations, letting

you clearly see the underside and top angles of your latest creations. Slick! Though you save the results of each sculpting session, these saves are only steps in the final object saves, as they have no attributes as yet and are only raw forms. Data points abound on each created object, and these can be pulled, stretched, deleted, and added to with ease. Everything is mouse interactive, and very little data entry is required to achieve very detailed results. This was Turbo Silver's weakness in some respects, because it had too many verbal commands, some of which were quite esoteric. Imagine, on the other hand, keeps verbiage to a minimum, relying on visually appreciable movements for its operation.

Detail

This is the part of Imagine that most strongly reflects its Turbo Silver origins. Many of the tools will be familiar to the experienced Silver artist, though they have been streamlined and revised. This is good, because experienced Silver users have spent light years of study learning how to best use these tools, and by incorporating them in Imagine, Impulse has unconsciously given respect to the time spent. (See Figure 2) The Attributes Requester is where various mate-
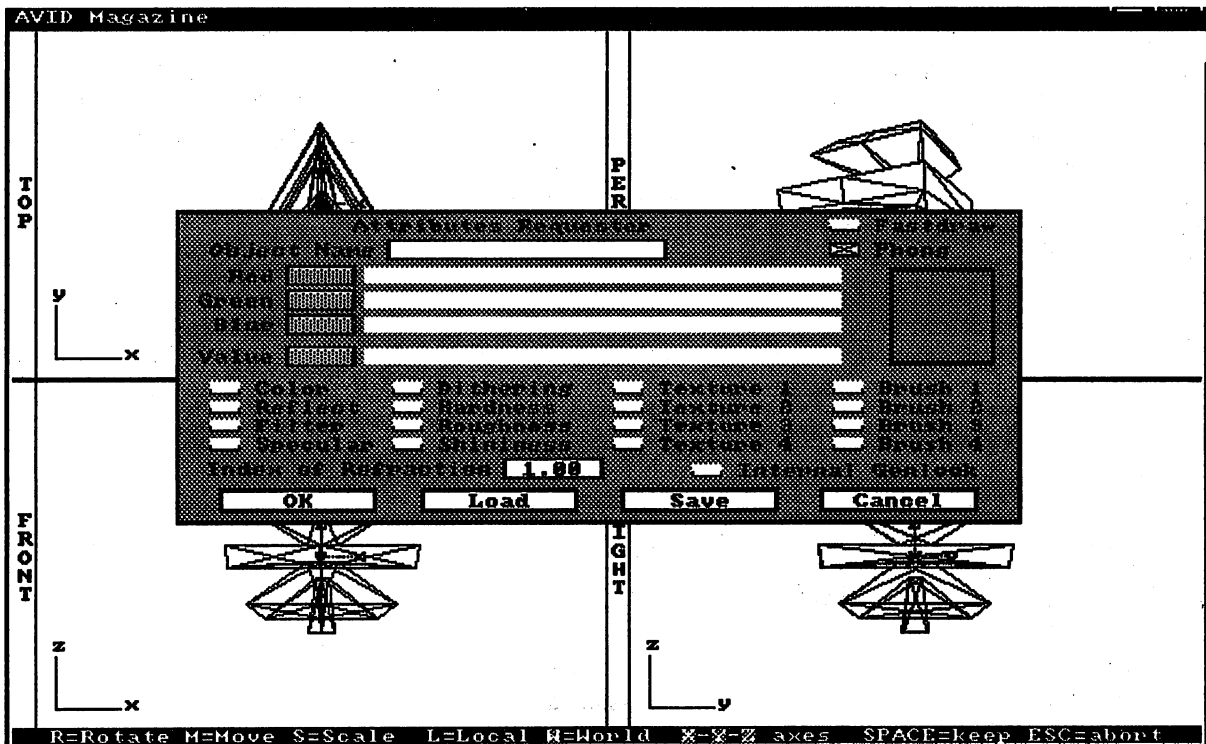
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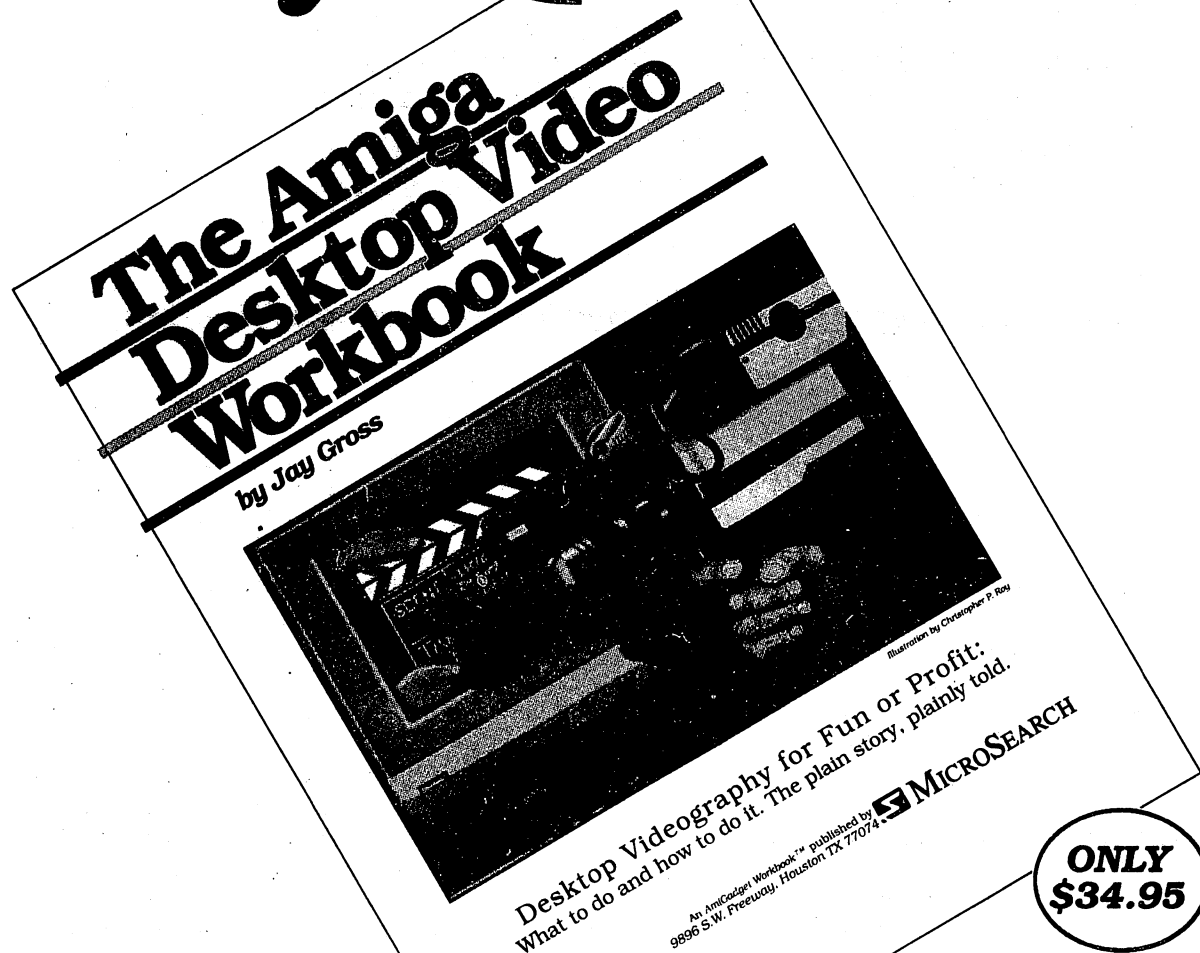
Figure #2

rial and textural qualities are chosen for your objects, as well as their ability to reflect and absorb light. On the Detail Screen, either a form already designed in the Form screen is imported for more assigned attributes, or one can start sculpting anew. Flat forms can be extruded, pushed, pulled, wrapped with an IFF brush, spun on a lathe, twisted on a plane, and much more. One of the newest and most unique tools is the Boolean operator. This allows you to combine a faceted plane with an object, thereby automatically adding the necessary polygonal "faces" of the 3D image. It takes a little while to get used to because it's such a new possibility, but it's a great time saver. We can expect other Boolean operators in future upgrades of Imagine. There's also a "Magnetism" tool that can be used to generate smooth curves, a blessing for those of us tired of inorganic looking 3D forms.

Cycle

Character animation is the dream of every computer animator, and there are very few friendly products that allow you to even approach its possibility, especially in 3D. This is what can be accomplished in the Cycle editing screen; the creation of a series or library of "cycles" (connected animated dances) that can be "taught" to the actors in

your movie. This is actually the throbbing heart of Imagine, and it is also Halvorson's dream fulfillment par excellence. It is really for this capacity that Imagine was created, and this is what distances it more then anything else from all of its competitors as well as from Turbo Silver. There is a complete tutorial in the manual dedicated to generating a walk cycle, and others as well, including a walking robot. The actual objects that will be addressed and set in motion by the cycle must have been created first in either or both the form and detail screens. Hash Enterprises "Animator: Apprentice" is the only other program I know of that makes an attempt at character animation, and it is quite a complicated matter. Interestingly, both Martin Hash and Michael Halvorson have told me about their childhood fascination with Disneyesque animation, and their lust to be a part of the creative animation process since childhood.

By carefully following this tutorial and experimenting on your own, you will be able to produce very organically moving forms. Once the choreography is complete as far as the initial segmenting of the designs are concerned, you can assign any of the objects in your library to the each segment, and watch as a figure takes shape in front of your

eyes. By determining which positions in a movement are to be the major focal points (keyframes), all the the intervening movements (in-betweens) can be automatically calculated. In a sense, the cycle screen allows you to design choreographed ANIMbrushes that can be placed in motion in the movie you create. There is no other Amiga animation program that I am aware of (nor one on any other microcomputer) that allows you anything even close to this capability. This screen's functions are worth the price of the software all by themselves. Even if you are not interested in animating anthropomorhic images, Cycle allows you to create very complex movements for any object or set of objects.

Stage

This is what it says, a global environment upon which you place your 3D actors. The most difficult time that I had here (the one that needs the most experimentation and practice) was in the "Action" script, a very detailed menu that determines frame count, movements, lighting effects, and other boundaries. This might do with a little more information in the manual, but then again, perhaps I'm just asking for a way around the necessary learning curve. Taken as a whole, the Stage screen is very intuitively put to-

gether. You can select keyframe movements, and have the computer generate the in-betweens, or you can tweak each frame as you go. All of the movements you make are responded to in real-time. Once completed, selecting "Make" under the animation menu creates a previewable wireframe of the animation, which can be played back in loop fashion or in stop-motion. The last step here is to save the completed and choreographed image data.

Then, to complete your animation in blazing color with whatever parameters you set initially (though you can also modify those parameters once or many times), you return to the project screen and "Make "the movie. This saves the completed animation in either ANIM or Imagine format (it might be nice to save both if you have the storage space). From there, it's just a matter of waiting till the images and frames are rendered, and then sitting back and enjoying the astounding results. So, to answer our initial two questions. As to the first point, Imagine has some of the familiar flavors of Turbo Silver, but it is ten times as easy to manipulate and master. I confess that I never mastered the animation capabilities of Silver in any of its generations (even after years of making the frustrating attempt), but have already created some hypnotizing animations with just a few sessions of Imagine. As far as I can tell, in answer to the second question, it lives up to all of its promotion and then some.

My wish list for an "Imagined" future-

Except by experimentation, there is really no way to tell if you have your scene lighted correctly. I'm wondering if there isn't some way to preview the lighting, perhaps with a simple still of the intensities involved (though it is possible to do in a somewhat complicated fashion by generating a still before making a movie). It might be nice to have a default lighting setting that guarantees certain ambient conditions (in general, I have found that an ambient light setting of about 60 works well in most situations). These could always be varied once the parameters were understood. Since movement is underway to provide support for HAM ANIMbrushes in other software, would it be possible to generate HAM ANIMbrushes directly (sans background) in an upgraded Imagine? The Imagine HAM ANIMations export very nicely to Photon Paint 2.0 for playback (as I suspect they will in Spectracolor from OXXI-AEGIS), yet ANIM format movies won't play back in

Imagine. Could this attribute be added? Imagine does not store "info" data with the work saved, so there are no icons to manipulate. This can always be done with a commercial icon maker (I use "Icon Magic" from Glacier Technologies), but I would prefer it if Imagine had a toggle that allowed me to choose whether to have icons or not. I also enjoyed being able to set an object as a light source in Silver, though I suppose the same thing can be accomplished in Imagine by making an object transparent enough so that a light source can be placed inside it. My final wish is that there was a "target" incorporated for the camera to zero in on, akin to Turbo Silver, making it much easier and less time consuming to center a view. At least this option should be added in addition to the moves on the XYZ planes now possible.

In Conclusion

I must tell you that I am quite taken with this software, (and I'm still learning to use its infinite options) and its prospective professional applications; but also realize that in these delicate economic times you may flinch a bit at the investment required for its purchase. Here's what I would suggest you do. See if your dealer would be willing to demo it for you, or if a friend who owns it can show you its attributes. I am confident that once you see what it does, especially if you have any experience as an Amiga artist and animator, you will sell the family jewels to possess it. There is nothing else like it on the market, and it may set the pace for Amiga 3D software for years to come. Whatever you do,..Enjoy! See you in ROMulan space.

IMAGINE
Suggested List Price: $350.00
($150 to registered
Turbo Silver owners)

Contact:
IMPULSE, INCORPORATED
6870 Shingle Spring Parkway
Suite 112
Minneapolis, MN 55430
(612) 566-0221

May 1991

Great Graphic Backgrounds

Understanding the Fundamentals

©1991 by
Bill Kronemyer

The main ideas in this article pertain to graphic backgrounds, but may also stray into related areas of interest. The terms "graphics" and "graphic backgrounds" refer here to visual creations which are used as backdrops for titling and other images.

Backgrounds can be of many different types . . . granite, marble, stucco, textured surfaces, abstract art, and graphic patterns. You are limited only by your imagination and your good taste! They can be subtle or bold, abstract or concrete, glitzy or elegant, patterned or random. The color palette may be influenced by the style of the background, how the pixels are grouped, your client's preferences, your genlock, your video format, and the strengths and weaknesses of the NTSC standard.
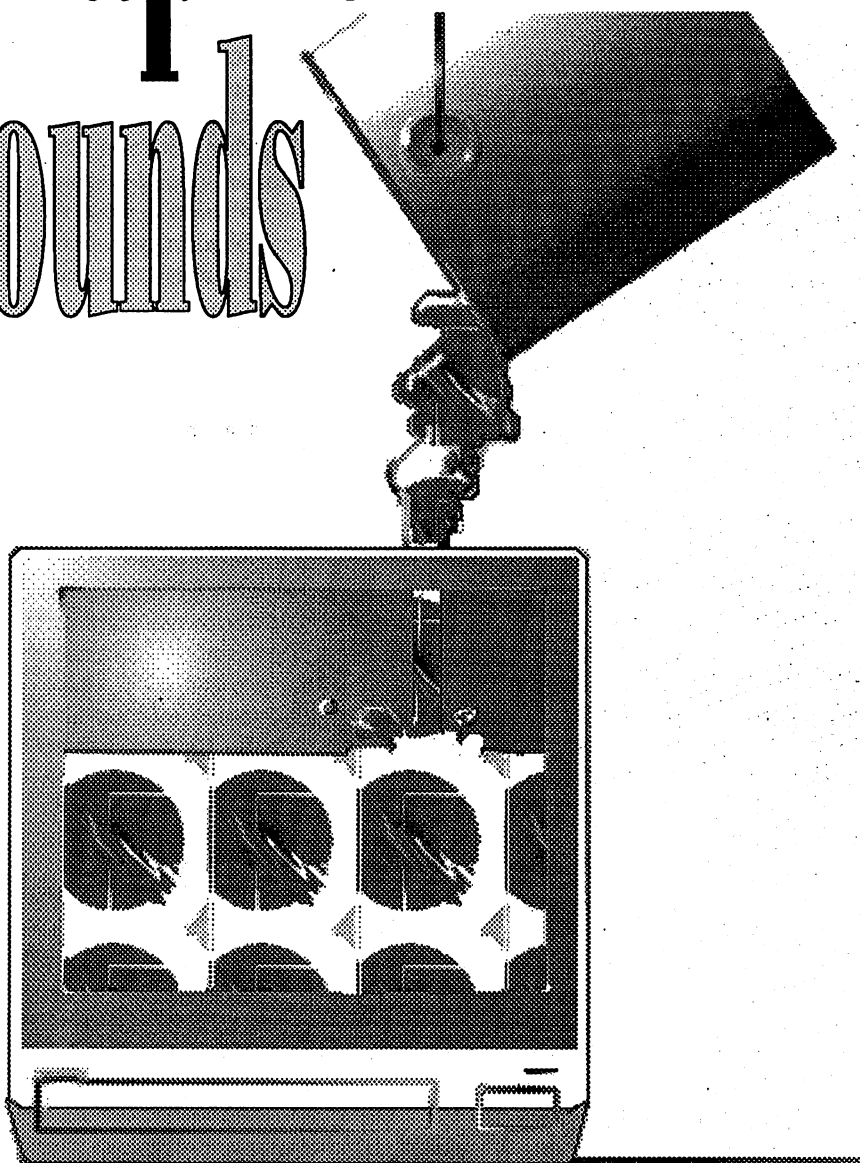
Remember, backgrounds are not needed nor desired for every titling application. Sometimes a title over a live, frozen, or solarized video image is more effective. Graphic backgrounds are most effective when you use large fonts and several lines of information. If you have only a few small words on the screen, you may not need a full screen background. For one or two lines of titles, you can add a little "pizazz" by taking a section of a background (grabbing it as a rectangular brush) and putting it behind the titling.

Before we explore the graphics background, let's consider the use of a plain background. A plain background can be black, white, or any color which works well

in the standard "color-under" NTSC video that most Amiga owners work in.

Advantages to using a plain backgound

1. It's simple, it's quick, and it's cheap. You only need a titling program. Use color position zero if your titling is not being used with video images. If titling is used with video images, use a color position other than zero. If you own Pro Video Gold/Post, you can create a quick plain background for use over live video by using the Shift F4 function for the specific steps, consult the manual (page #Ref-19 Pro Video Gold, page #Ref-34 Pro Video Post).

TIP: To minimize multi-generation degradation with a plain background, the best choice is to use a white background (12, 12, 12), with black (1, 1, 1) letters. Your next best choice is a black background (1, 1, 1) with light gray (8, 8, 8) or white (11, 11, 11) letters. You will notice more "ringing" with the latter choice. This type of ringing is noticeable in the first video generation. You have all seen this, even on network TV or your video rentals. The white letters smear to the right, creating sort of a pseudo-shadow. There is less ringing with the best S-VHS (like JVC 11 series), or the Sony 3/4 SP equipment. And, of course, the component and direct color formats exhibit even less of this.

2. You can use most of the Pro-Video Gold/Post transitions over them. Using graphic backgrounds limits the transitions you can use effectively (mainly bangs and wipes). There is a way to use most of the transitions with a graphics background, but this requires extra equipment.

Disadvantages of a Plain Background

1. There is nothing special or distinguishing about them. Even your Uncle Charlie with his home videocam character generator can use plain backgrounds of the 8 primary and secondary video colors.

2. Where backgrounds are plain and ordinary, they call attention to the quality of the characters on them. Since standard quality on the Amiga (70 Nanoseconds) is only "passable" (as far as diagonal "jaggies") by most industrial video standards, you don't want to have your titling exposed to too much scrutiny.

Why Use Graphic Backgrounds ?

1. The best ones look sensational — very elegant, very much like network TV

and high-end video.

2. You can create a very powerful, positive impression of your video production. If the other elements of your video production are at least above average, you can take advantage of this formula: Good video fundamentals + great graphics = a pleased audience.

3. Some backgrounds can tie-in and reinforce a theme — this is often done with little symbols embossed on the page, or initials, sometimes slanted. This usage is sort of a legitimate subliminal message!

4. Many graphics backgrounds hold up well to multi-generation editing. Some pixel arrays and color combinations seem to exhibit little NTSC deterioration. In some cases, a little ringing and smearing may actually improve the graphic and look good to your viewers.

5. Graphic backgrounds give you more page design options. For example, some backgrounds with asymetrical designs allow titles to be placed in off-center locations with pleasing results.

6. You can offer your clients a choice of backgrounds as a way of letting them participate in your video production. And by offering these greater production values you can, rightfully, charge more for your work.

If you are "sold" on the value of graphic backgrounds and want to grow in your knowledge of them, you can take the next step and begin training your eyes. Why? Let me build my case by giving two analogies. In video, our absolute reference for quality is "real life" (what our eyes see) and to a lesser degree, color slides; to an even lesser degree, motion pictures, HDTV, high-end video and TV. In music, the absolute reference is "live music" in an ideal acoustical setting. In the world of high-end audio and their publications, they actually compare and evaluate equipment demos in comparison to live music. In graphics, I am going to suggest four reference groups for you:

1. Television
2. Medium to higher budget industrial/corporate videos
3. Print Media Graphics
4. Feature Motion Pictures

The idealists and purists should note that unlike the "absolute" references for video and sound, the graphics references are "relative". This makes our job easier! It's also comforting to know that we are exposed to the same ads, commercials, and video rentals as our clients and viewers are. They

see the same trashy graphics on cable TV as well as the latest animated network logos with 30 layers of D-1 graphics!

Those who wish to train their eyes in video graphics will want to study and analyze these reference groups. You see, fortunately for us, we don't need to be the actual originators or pioneers of new visual styles and trends.

We need merely learn to convert these techniques within the graphic boundaries of the Amiga.

I (along with other Amiga graphics artists) find it very exciting to push the leading edge within the limitations of high res/16 colors and try to emulate graphics found in the aforementioned reference areas.

Here Are My Observations

1A. Local and regional TV: You will see some good graphics, with some of the local stuff done on Amigas, and most regional graphics on medium to higher level Dubners, Chyrons, etc. TIP: Make a note of what's good and record it on your VCR. Start assembling a collection—your personal library of what professional graphic artists are turning out.

1B. As you watch national shows and commercials, particularly higher budget ones, pay attention to the graphics backgrounds. TIP: Set your sights here! Opening graphics seen on the "Tonight Show" and "America's Most Wanted" can be emulated on the Amiga.

1C. On local cable TV, you will often see graphics, but some of it is the video equivalent of a polyester jump suit — poor taste! TIP: Watch it occasionally to develop your own sense of what looks good and what to avoid!

2A. If you look at the lower-priced industrial videos ($2-10K), some have graphic backgrounds and some do not. TIP: The graphics aren't usually that good. If you are producing a video in this price range and have something nice to offer, you will distinguish yourself.

2B. If you look at most of the medium-to-higher priced industrial videos ($12-30K) you will often see use of graphics. Some of these can be created and used with Amigas; others have graphics from the higher priced Dubner, Chyron, etc. systems. There are some exceptions. I recently saw a $50,000 budget video (Betacam to 1 inch, 9 minute length) produced for a fortune 500-type company that utilized no graphics.

TIP: Make an effort to watch as many

of these as you can. Many of these can be created on the Amiga. I realize there are Amiga limitations like pixel size, grey scale, colors, and limited software tools which influence picture quality, but it is amazing how close the Amiga can get with the proper techniques.

3. Print Media: Commercial graphic artists and printers work with inks which are much more life-like and smaller pixel (dot-per-inch) than NTSC video. There are many print media graphic artists who meet the demand for brochures, business logos, magazine ads and dozens of other areas. They often start many of the trends that end up on network television, although probably unaware of it. (And I suppose they have their own reference groups that they can steal from.) TIP: Keep a constant look-out for these graphic trends, particularly ads from well-known companies in the major magazines. Cut them out and save them.

4. Feature Films: In the world of feature films — there are few graphics, except for the studio logo in the beginning. You will often see one fly onto a marble background (CBS/Fox, for example). When you rent that same film on video cassette, you'll also see the logo for the video distribution company and the FBI warning. TIP: The fact that you only see graphics in the opening logo is actually good news! Feature films are an important reference for video/cinemagraphic excellence. Just as you try and emulate some of these camera and editing techniques — try emulating the usage of the graphics. TIP: Forgo all graphics except opening logo and closing credits. By the way, the devil's advocate might say, "If film is your reference, why don't you use opening credits?" My answer: Lengthy opening credits are only appropriate for films and network shows. Think about it and you'll see why. Again, you only need to have a great logo/graphics in the beginning of your videos to pay homage to this exalted reference standard.

In conclusion, let's begin to train our eyes by studying our 4 reference groups and create the best we possibly can, whether with 2 colors or 16.7 million! Good luck, enjoy your journey, and don't watch too much TV!

PROFESSIONAL TECHNIQUES WITH PRO FILLS

© 1991 by Joseph E. Kagerer

[EDITOR'S NOTE: About 10 months ago I received a review copy of something called Pro Fills. The modest packaging did little to entice me and I did not open it for several days. When I finally did get around to loading it up, I was instantly aware of the value of this video background utility. I was so impressed by this inexpensive offering that I ran a free full-page advertisement for Pro Fills in the very next issue of AVID. I wanted everyone to know about it.

Every time I demonstrated the Amiga, I found the opportunity to use Pro Fills to quickly create backgounds in Deluxe Paint III. People were amazed at how easy it was to get professional results. Several months ago I approached Pro Fills author, Joe Kagerer, and asked him to share his unique insight and techniques for using Pro Fills. The following is his reply.]

Since the release of Pro Fills, I have received many questions regarding some of the Deluxe Paint techniques that were used in the included sample pictures. Even with three years of DPaint experience, I can't say I have mastered the program, but I have found some quick methods to achieve professional results.

Pro Fills were designed to be a tool for creating complex backgrounds and area fills. They can be used "right out of the box" with excellent results, but the original intent was for them to be a starting point for more complex backgrounds. For space saving purposes, Pro Fills were created as small as possible to get the desired effect. The problem then arises when a texture is used to fill a large area. If the texture is not broken up with text or graphic elements, it is sometimes possible to see the repeating pattern. This is why Pro Fills does not have a marble (the most requested) texture. Marble requires the entire screen to be designed as one piece.

For demonstrations I often create a three dimensional bar graph. Inlaid Tile makes a good bar graph background grid. Create a window for the graph title by removing some of the dividers and turning several tiles into one large tile. For the bars of the graph, use one of the finer textures and the filled rectangle tool. The texture for the bars will have to have its colors Remapped to the lower section of the palette. Using Dpaint's Grid function makes it easy to draw uniform bars. Once the bars are in place, use the stencil to lock the background colors and pick up the set of bars as a brush. Make a color cycle range with the colors used in the bars, and add a beveled edge as described below. Now remove the stencil and with the same brush, stamp down a quick drop shadow. The drop shadow will make the bars pop off the screen.

Customizing a Background

Pro Fills all use the same palette color registers for ease of customizing a full background. Use a pattern such as brick or tiles where the inside surface of the pattern is a solid color. Fill the screen with the pattern and then use a texture to fill each brick or tile individually. This will give the background a whole new look. You may also fill a single tile and use that as the fill pattern, but this will result in every tile having the same surface.

Creating a Bevel

I like to add depth to large rectangular areas by adding a beveled look to the edges. Beveled edges are easy to create with DPaint and Pro Fills. The key to achieving a three dimensional look is maintaining a consistent light source. For a conventional light source in the upper left, we need to have the top and left edges lighter than the right and bottom edges.

The two tools for creating fast beveled edges are the GRID tool and the Polygon Brush Selector. First select a Pro Fills texture of small pattern for the area. This technique works the best with the Speckle or Stucco textures.

The GRID tool constrains your pointer to a user definable grid. I generally use the default grid which is set at eight pixels in both directions. The Polygon Brush selector allows you to pick up a brush in the shape of any polygon (irregularly shaped area with multiple straight edges).

1) Load the pattern into the FILL tool and click once on the GRID icon.

2) Draw a large filled rectangle. The rectangle should be filled with the texture and the edges will be constrained to the eight pixel grid.

3) Now select the Polygon Brush tool by clicking twice on the brush selector.

4) The object is to pick up an "L" shaped brush that is matched perfectly to the top and left side of the rectangle. The ends of the "L" must also have a 45 degree bevel. Start at the upper right corner of the rectangle with the polygon brush tool and click once (snap to GRID will keep your pointer in perfect alignment). Follow the parameter of the rectangle around to the left, clicking once on both the upper left and lower left corners. Now to finish the "L", move up and to the right (into the rectangle) 16 pixels in each direction, creating the 45 degree end. Follow on the inside around to the upper right corner and finish that end with a 45 degree bevel. When you return to the starting position, the "L" will be picked up ready to use as a custom brush.

5) From the palette select one of the colors in the Pro Fills range. Now select SHADE from the MODE menu. The "L" brush will turn to the solid selected color.

6) For the light highlight, move the brush so that it matches the top and left side (the brushes original location). Stamp the brush down with the RIGHT mouse button. In SHADE mode, this will lighten every pixel in the range.

7) For the bottom and right darkened edges, flip the brush in both the X and Y directions (x and y keys respectively). Align the brush with the bottom and right edges of the rectangle. Stamp the brush down with the LEFT mouse button. In SHADE mode, the left button darkens every pixel in the range by one level.

The bevel should be complete. If the contrast isn't high enough, you may repeat steps 6 and 7 to increase the highlight or shading. Repeated stamping will eventually cause all the pixels to be either the lightest or darkest shades.

A simple method to create a bevel on a smaller rectangle is to pick up the entire rectangle as a brush. Select Shade mode and lighten (right button) all but the right and bottom edges. Now darken (left button) all but the left and top edges. The center area will return to the original shade and the rectangle will appear beveled. The problem with this method is that the upper right and lower left corners of the rectangle are not beveled. They will have a square of the original shade, instead of a 45 degree angle of light and dark. On small rectangles this may be acceptable and a very big time saver.

Centering a Pattern

With symmetrical patterns DPaint will not always lay the pattern in the position you prefer. If you are using a pattern that needs to be centered or aligned with another object, first stamp the pattern down in the desired position and then pick it up again using the brush tool. DPaint will then fill using the new position as a reference, and the pattern will match the desired position.

As you use Pro Fills, you will come up with your own style and techniques for creating custom screens. Use Pro Fills with Turbo Silver or Imagine as the ground surface or surface mapping. There are unlimited possibilities. If you have an interesting technique or suggestion, please write. Pro Fills Volume 2 is in the development stages now. Many of the comments that I have received from registered owners will be incorporated. Such as an expanded manual with printed examples. The release date has not been set; look for them in mid 1991. Registered owners of Volume 1 will receive a letter announcing the release along with a special offer. I hope with these tips and some practice you will continue to tap the power of the Amiga.

How It Works:
Video Tape Recorders

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L et's begin by learning how an audio tape recorder works. Sound goes in a microphone, gets amplified, and the signal is sent to a recording head, a tiny electromagnet. For every sound vibration picked up by the microphone, there is a corresponding electrical vibration in the recording head causing it to magnetize. A 440 Hz tone (middle A on the piano) would result in 440 magnetizations/demagnetizations of the recording head.

Audio tape is a thin ribbon of plastic covered with iron or a similar magnetizable powder. The recorder slides the tape over the head, the head magnetizes the tape, the tape moves a little more, the head magne-

tizes an adjacent space on the tape, the tape moves a little further, and the process goes on. If the tape moved 1" in a second and a 440 Hz tone was being recorded, there would be 440 magnetic vibrations recorded on that inch of tape.

When the tape is played back, everything works in reverse. The tape, covered with magnetic vibrations, slides over the playback head, which is another (or the same) electromagnet. This time, instead of the head magnetizing the tape, the tape magnetizes the head, and in the process generates a weak electrical signal in the coil of wire comprising the playback head. This signal is amplified and the electrical vibrations are sent to a speaker. Voila, music.

Video tape recorders also have stationary magnetic heads that work much the same way. Audio heads in the VCR record the sound vibrations on narrow tracks at the edge of the video tape as it slides through the mechanism. Another head, at the opposite edge of the tape, records what are called tracking pulses, something like magnetic spocket holes to tell the machine how fast the tape is moving through. When recordings are made, every sync pulse triggers the recorder to lay down a tracking pulse marking the end of each picture. When the tape is played back, servo motors in the VCR assure that these pulses maintain a smooth and steady stream at exactly the right frequency.

Now for the complicated part of the story. You cannot record video signals on an audio tape recorder. Why? Because the video frequencies are too high. Audiocassette recorders, for instance, operate at 1-7/8" per second and can generally record frequencies up to 15 KHz. That means 15,000 magnetic vibrations need to be packed into about 2" of tape. Professional tape recorders speed the tape up allowing more vibrations per second to be recorded, but still there are only so many vibrations you can crowd into a single inch of tape. Video signals, you may remember, go up to about 4.2 MHz. You cannot fit 4 million magnetic vibrations onto an inch of tape, or even ten inches, or even a hundred inches. You'd need a tape recorder that ran over 200 inches per second to record the high video frequencies on the tape (actually the first video tape recorders invented worked this way).

Instead of running the tape very fast, VCRs move the tape slowly but slide the video heads across the tape at a high speed. They do this by placing a pair of heads (or 4 or more) on a spinning drum tilted diagonally so that each head takes a diagonal swipe across the tape, the tape moves a little, and the next head takes the next swipe across the tape. Thus a videocassette recorder may lay 60 magnetic paths diagonally across the tape in one second, while the tape moves only a couple of inches. In short, the video vibrations are laid down diagonally by the spinning video heads, while the audio and sync signals are recorded linearly along the edge of the tape.

When the tape is played back, the process is reversed. The spinning video heads follow the paths recorded earlier, sensing the video vibrations, while the audio and control track heads play back their vibrations. One more note about the control track: If the spinning video heads do not exactly follow the magnetic traces set down by their predecessors, they end up "reading between the lines" where there isn't any signal. This is what you see on the screen when your VCR's "tracking" control gets misadjusted. That band of grainy picture and snow is the result of the VCR playing the space between the tracks. It is the control track's job to keep everything synchronized.

If the audio heads get dirty, the sound will become muddy or muffled. If the video heads get dirty, the picture becomes grainy or snowy (sound may remain okay). If the control head gets dirty, the tracking fouls up

and the speed of your machine may waver as it hunts for the right diagonal magnetic tracks. Your picture may flagwave or collapse.

VCRs don't record the video signal directly; in other words, each video vibration does not create a magnetic vibration. Instead, the VCR creates a very high frequency inside it, and uses the video vibrations to vary that frequency lower or higher. Think of it as a siren going up and down with each video vibration causing the siren to raise and lower its pitch.

The higher the frequency that the VCR can record, the sharper the picture. Professional recorders spin their heads and move the tape very quickly, allowing more vibrations per second to be recorded on the tape. Home VCRs, especially at the slower speeds, are limited in how many vibrations they can pack into an inch, so picture sharpness suffers. So does audio fidelity.

One exception to the above: Recent hi fi VCRs can record the audio coded as part of the picture. The fast moving video heads have no trouble finding room to place all the vibrations for the sound. When the tape is played back, the sound is spearated from the video and sent to the speaker. One disadvantage of this system, however, is that if you edit your tape, inserting new video, you replace the audio at the same time. Conversely, you cannot remove the audio without damaging the picture. The manufacturers solved this problem by placing the hi fi audio in with the video, but also recording low fidelity audio on the linear audio tracks of the tape. These tracks can be separately erased and dubbed with new sound. Similarly, the video can be replaced without touching the linear audio tracks. The result is the edited picture that you wanted, but with low fidelity sound.

Home and industrial VCRs have trouble recording the high color frequencies. You may recall from a few months ago that color is embedded in a 3.58 MHz frequency piggybacked onto the luminance of the picture. When home VCRs get a composite video signal, they divide the signal into separate luminance and the chrominance signals. The luminance signal is modulated to that high frequency I mentioned earlier, which varies up and down and is recorded directly by the video heads. The chrominance signal is converted downward (in a process called color under) to a lower frequency (629 KHz for VHS), and is then recorded on the tape by the spinning video heads.

When the tape is played back, the low color frequency is sensed and multiplied back up to 3.58 MHz, and mixed with the luminance and then passes to the composite video output. This process makes for rather sharp luminance pictures, but very fuzzy color. Remember, this is not a big problem; your eye doesn't notice fuzzy color with the same discrimination that it uses on luminance.

Putting together what you've learned about color encoders, color- under VCRs, and RF, watch what happens to our picture from beginning to end: A TV camera makes the picture, mixing together sharp R, G, and B signals to make slightly fuzzy composite video signals. The composite video goes to the VCR which separates the luminance from the chrominance and then downconverts the color to a frequency it can handle. When the VCR plays back the signal, it upconverts the color (but can never regain the sharpness lost in the downconversion) rejoining it with the luminance to create a composite video signal again. If your TV set is only a receiver, then it requires an RF signal. The VCR will mix the audio and video signals together with a modulator creating channel 3 (or 4). This RF signal goes to your TV whose tuner demodulates it. Once the RF signal is separated into audio and vido, the video signal is further separated into chrominance and luminance, which tell the TV's electron guns when and how much to shoot. In this process we have encoded, decoded, reduced in frequency, boosted in frequency, encoded, modulated, demodulated, and decoded the signal so many times that it is a surprise that there is any viewable picture left. If you have understood any of this, then you must truly appreciate the magic of television.

Ah, but there is more. It is wise to find ways to avoid unnecessary encoding and decoding of the color, especially when editing or copying tapes. It is crazy to encode an RGB signal from a camera, then decode it in the VCR, then encode it when the tape is played back. It is doubly crazy when copying that tape to feed the encoded signal into the second VCR, decode it there, then encode it when that tape plays back.

Many of these steps can be bypassed. Professional TV cameras and camcorders make direct RGB signals. You would send, for instance, RGB from a color camera to your computer to record the sharpest image. Although there are VCRs that can record direct RGB, it is cheaper and simpler to

record a very similar signal called Y, R-Y, B-Y. Y stands for the pure luminance signal. R-Y stands for the red signal with the luminance subtracted from it. B-Y stands for the blue signal with the luminance subtracted from it. Since R plus G plus B equals Y (the sum of the three colors equal all of the information in the monochrome picture), it is just a matter of algebra to convert RGB into the three signals Y, R-Y, B-Y. This all may seem unnecessarily complicated, but just think of these three signals as being your three color signals; but with one big improvement: The VCR can put a lot of its resources into recording the Y signal perfectly with very high resolution, while cutting corners a bit on the two less important color signals. In the end; the VCR records these three signals separately, not combining them, not encoding them. If you have two such VCRs, the three signals travel from one to the next on separate wires, again avoiding the combination/decoding process. When the three signals reach their final destination, they are then converted into RBG or composite video without suffering the indignities of multiple conversions.

Other VCR formats use similar methods of recording component colors. One way is called Y, I, Q, where Y stands for luminance, I stands for one color, and Q stands for another. Whatever the method used, it takes three colors to make all the colors, and each of the systems uses three signals to create all the colors even though one of those signals may be a monochrome luminance signal.

Industrial VCRs use something called a "dub" cable when copying tapes. Although these VCRs have composite video in- and outputs, when sending signals back and forth between each other, it would be nice to avoid the encoding/decoding process. The dub inputs and outputs do this by sending the color and luminance signals over separate wires without processing them. In this way, a VHS' 629 KHz color signal feeds directly to the place on the recording VCR that records that part of the signal.

A similar thing happens with SVHS and Hi 8. The S connector (or Y/C connector, as it is sometimes called) carries the luminance (Y) separate from the chrominance (C). The only difference here is that the chrominance is converted up from the 629 KHz frequency to the 3.58 MHz frequency before it passes through the wire, and in the recorder, it is converted back down again to 629 KHz. Although it seems as though some processing

is going on, this is a fairly simple step, causing very litle damage to the color signal.

The lesson here is, when duplicating or editing tapes, use the dub cable between industrial VCRs or the S cable between Super VHS and/or Hi 8 VCRs. Use the separate RGB or Y, R-Y, B-Y, or Y, I, Q signals with professional VCRs to avoid unnecessary decoding and encoding.

Real World Applications

Sometimes understanding the science behind something explains why we do things a certain way, or how we troubleshoot problems. Do any of these actions make more sense to you now?

1. Audio and video tape recorders using wider tape or faster speeds have an easier time recording their signals. Professional recorders all use wider tape and/or faster speeds than home gear.

2. Damage the edge of a tape and you'll ruin either the sound (unless it's hi fi sound tracks), or the control track (affecting picture stability). To keep tape edges from getting frayed, store cassettes upright on any narrow edge, not flat.

3. Symptoms of a control track problem such as dirty control head, creased, wrinkled, or scratched control track on the tape, or misthreaded tape:

a) Tape plays at wrong or wavering speed.

b) Band of snow or grain in picture can't be removed by adjusting tracking.

c) Picture rolls, jitters, and waves back and forth.

Cures:

a) Clean the VCR heads. Head-cleaning cassettes are easiest.

b) Check for damaged tape inside the cassette by opening the cassette's trapdoor. If the tape is creased or scratched, you're out of luck.

c) Try another VCR; yours may need repair. If the tape plays on another machine, your first VCR is probably at fault.

4. Symptoms of stretched tape (maybe the tape or VCR is too hot, cold, or damp), or tape tension problems (VCR is old, belts worn, clutches out of adjustment, or VCR is cold or damp):

a) Tape machine won't run — dew lamp lights up.

b) Tape plays, but stalls, shudders, or wavers, perhaps playing off speed (you can tell mostly by the wavering sound track.

c) Picture flagwaves, perhaps bending over sideways, collapsing into diagonal lines.

d) Picture jitters, jiggles, or is unstable.

Cures:

a) If using a cold VCR in a warm or humid room, turn it off, cover it with a plastic bag and let it warm up. If the VCR's dew light is on, let everything sit until the dampness evaporates. If you're in a big hurry, remove the cassette, hold the VCR's "mouth" open, and, using a blow dryer set to "warm" (not hot), dry out the VCR's inside.

b) Adjust your TV's horizontal hold; maybe it will "lock-on" to the errant sync.

c) Rewind and wind the tape once, relaxing (destretching) it.

d) Fix your VCR.

e) Never leave a cassette on your car dashboard in the sun, or any other hot place. The cassette warps easily.

5. Super VHS and Hi 8 VCRs use special, finer grain tape, and can record higher frequencies per inch of tape, yielding sharper pictures.

6. When you switch your VCR to pause, the tape stops moving while the heads keep spinning over the same picture. Thus, the picture remains on the screen but the sound is gone.

7. If you want to make the best recording, do it at the 2-hour (for VHS) or SP

(standard play) or fastest speed. This gives the machine lots of room to lay down those magnetic vibrations.

8. Home VCRs do a lousy job of recording fine color detail. If recording text, make it white or pastel to take advantage of the VCR's high luminance resolution. Don't rely on the chrominance resolution for much of anything.

9. When copying a tape, use your VCR's dub terminals or the S connectors if they have them. If they don't, use the video inputs. Use RF only as a last resort.

10. When you switch a VCR to pause, notice that the picture loses sharpness (compared to when the tape is moving). In fact, it's 1/2 as sharp. VCRs lay down 60 magnetic paths per second. TV pictures consist of 30 pictures (frames) per second. Each magnetic path consists of only 1/2 of the whole picture. This 1/2 picture (called a field) consists of every other scanning line in the TV picture. When the tape is running, you see first the odd lines, then the even, then odd lines of the next picture, then the even in rapid succession. But in pause, you may only see the odd lines repeated over and over again, missing the even ones that "fill in" to make the picture sharper. Avoid taking pictures of, or capturing with computer, paused pictures. Use moving pictures with their full detail.

11. Component VCRs make very sharp pictures. They copy well too.

12. If using component VCRs, process the images with component gear, switch with component switchers, and time base correct with component TBCs to maintain the high component quality. Encode the signal to NTSC composite only at the last stage for distribution.

13. SVHS and Hi 8, although some call them component, are not true component formats. Separating color from luminance as they do is nice, but true 3 component signals (RGB, or Y, R-Y, B-Y, or Y, I, Q) is better; less signal processing has taken place.

14. If using SVHS, Hi 8, or ED-beta, (all formats with separate Y/C signals), try to route the signals through Y/C switchers, Y/C TBCs, and other Y/C gear to preserve the separation and clarity of the two signals. You don't have to, but it's better to.

The ART Department Professional Review

© **1991 by David Duberman**

In the June, 1990 (vol. 1, issue #3) issue of AVID I reviewed ASDG, Inc.'s 24-bit (16.7-million-color) image processing program, The Art Department (TAD). Recently, ASDG released Art Department Professional (ADPro), which represents the next generation of such software. While 24-bit image processing is obviously of importance to desktop publishers, it has a broad range of applications in the video field as well, especially with the wider availability today of high-quality video-compatible 24- bit dis-
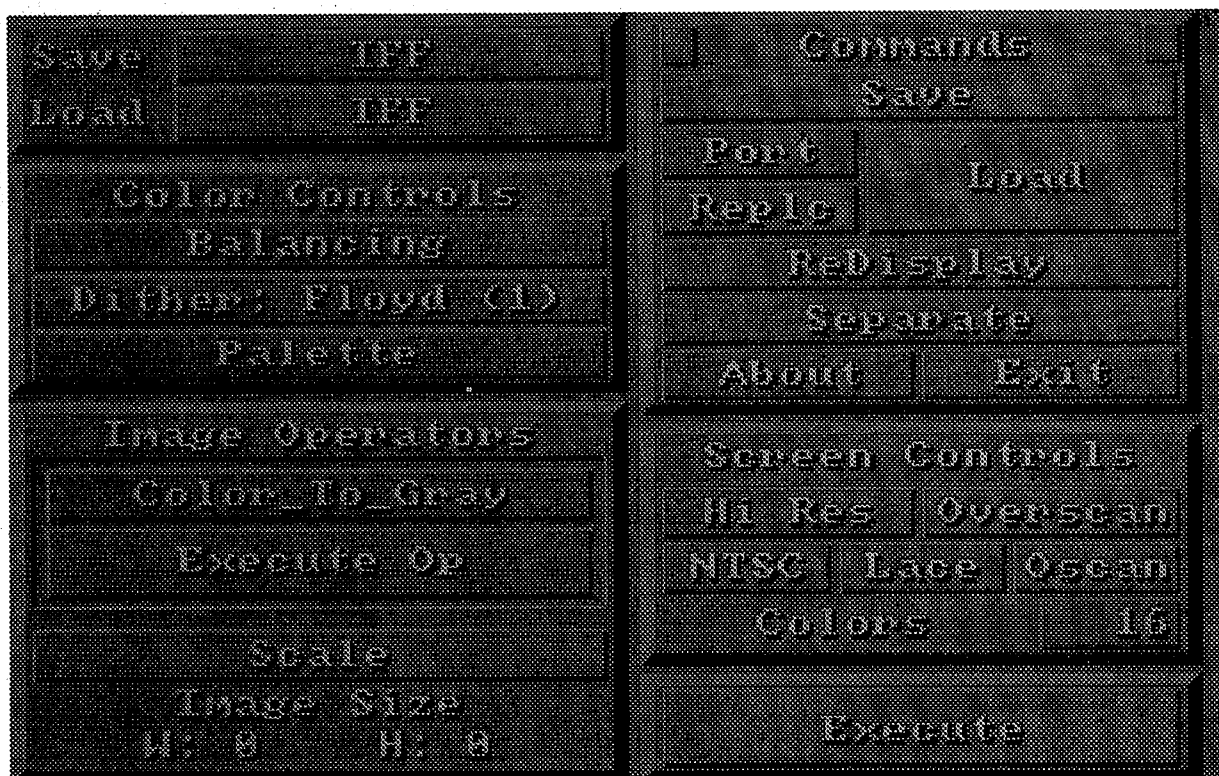
play devices for the Amiga, such as NewTek's Video Toaster, Impulse's Firecracker, and Digital Creations' DCTV.

The New Stuff

ADPro's most significant new feature is the ability to convert images TO as well as from any of the supported image formats. Included are quite a few additional Loaders and Savers (see below). Also, ADPro furthers TAD's modularity by allowing Operators as well as Loaders and Savers to be loaded at run-time, rather than being hard-wired into the software. Operators are ADPro's image-processing functions such as Color to Gray and Remove Isolated Pixels.

Another powerful new feature is true image compositing, or the combination of two or more images by variable blending or superimposition using an optional "transparent background" genlock-type effect. Also, ADPro now supports ARexx so that you hackers out there can run batch-processing jobs. There's a new enhanced palette mode for converting images for use with displays with greater color resolution than the unenhanced Amiga, such as VGA.

ADPro excels at a number of types of image processing, including format conversion, both between the various Amiga formats (including Dynamic HAM and Dy-

namic Hi-Res) as well as between non-native formats such as GIF and TIFF. The program supports PAL video resolutions (used in Europe) as well as NTSC. It uses six different dithering algorithms for various operations, and with many images this can simulate a remarkable range of colors in the Amiga's 16-color high resolution mode.

The program does such a good job because all image processing is done using 24 bits of color information. Even if an image uses less than 24 bit-planes, it's converted to 24-bits upon loading (images containing no color information are converted to 256-level gray-scale). This allows for greater color accuracy during, for instance, image size reduction. As a consequence, though, ADPro requires a great deal of memory. Consider four megabytes of Fast memory a minimum requirement in order to take full advantage of the program's capabilities.

ADPro resembles TAD with the single-screen menuless push-button interface, which instead of blue is an easy-on-the-eyes shade of gray. The layout is slightly different, but is so straightforward that even those without previous experience with TAD should feel immediately at home with it.

Loaders and Savers

All multiple-choice buttons allow you to range forward or backward through the list of choices by clicking on one side or the other. The Loaders included with ADPro are IFF, DV21 (DigiView 21-bit), GIF, Deluxe Paint IIE, Impulse (Turbo Silver and Imagine native 12-bit and 24-bit formats), PCX, and Sculpt (separate files for red, green, and blue data). Two special loaders are Backdrop, which lets you create solid and gradated-color backgrounds, and Screen, which lets you grab another program's screen (with menus down!) from the Amiga multitasking environment.

Standard Savers include DPIIE, GIF, IFF, PCX, Impulse, and Sculpt. The special Framebuffer Saver lets you send a 24-bit file directly to Mimetics' frame buffer if one is installed. And the PostScript Saver, which alone merits over eight manual pages of description, gives you a great deal of control over how your image is set up for typesetting. For example, you can save an image in Encapsulated or Non-Encapsulated PostScript, as grayscale, color, or color-separated data.

Available separately from ASDG is the

Professional Conversion Pack, a useful add-on to ADPro for multi-format computer graphics professionals. The Targa modules load and save the various formats available from TrueVision. The Rendition modules support that format, used in the Amiga program Caligari from Octree as well as programs on other platforms. And the TIFF loader and saver gives ADPro compatibility with the bitmap standard widely used on Apple and MS-DOS computers. The TIFF 5.0 standard is fully supported.

Below the Save/Load format selector buttons is the Color Controls section, which retains largely the same functionality of TAD's. The Balancing panel lets you adjust Brightness, Contrast, Gamma, as well Red, Green, and Blue values. Below this is the button that lets you set one of the six different dithering modes (e.g. Floyd, Jarvis, or Random). Finally, clicking on the Palette button brings up the Palette Control requester, which lets you edit sort, save and load the palette. Using the Normal mode selects new palette colors (when necessary) from the Amiga's standard 4096 colors, while Enhanced mode chooses from a wider palette for images destined for higher-fidelity dis-

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plays such as VGA or Commodore's Hi-Res graphics card.

The Operators

Next comes the Image Operators section. The Apply Map Operator lets you apply the current color balance settings to the raw image data, so that, for example, you can extend the range of color controls by repetitively applying color control changes. Color To Gray converts a 24-bit color image to an eight-bit grayscale image. Cropping lets you eliminate all parts of an image outside of a rectangular section. Dynamic Range is useful to videographers; using it you can, for example, restrict an image to color components of 13 or less, thus reducing NTSC smear from intense colors. Or by expanding the dynamic range you can enhance the vividness of drab images.

The Gray To Color Operator performs the opposite of the Color To Gray, by converting a grayscale image to 24-bits. This is useful, for example, when compositing a color foreground image over a black-and-white background. The Horizontal and Vertical Flip Operators are handy for users of screen and heat-transfer printers, such as those used in custom T-shirt operations. Line Art reduces a grayscale image to its most prominent edges for dramatic results. Other useful Operators include Negative, Rectangle (draw outline and solid rectangles for borders or drop shadows), Remove Isolated Pixels (for cleaning up scanned images) and Transport Controller for recording a sequence of images with a single-frame video recorder under ARexx control.

Have you ever digitized an image, then tried to use it in a video and found that it appeared vertically stretched? ADPro's manual explains this phenomenon and gives you a solution, which is to reduce the image's height to about 86 percent. You can scale images larger or smaller, setting an absolute pixel size or a relative percentage, using keyboard or mouse sliders for the latter. If your image file contains pixel aspect ratio information, it's shown and adjusted during scaling operations.

ADPro's ARexx interface lets you control just about all of its functions via a script file so that you can run a series of transformations without having to wait for each to be done before inputting data for the next — indeed, without even having to be anywhere near the computer. In addition, you can set up as many as fifty ARexx macros, or sequences of instructions, to be executed interactively with ADPro at the press of a function key, either alone or with Shift, Alt, Control, or Amiga. The manual devotes 55 pages to documenting the ARexx interface.

There's a good deal more to ADPro, including its versatile color separation capability and superlative file selector, but I would be remiss in not praising the expanded manual. At 216 pages in a 3-ring binder, complete with illustrations, table of contents and index, you should have no questions whatever about ADPro's operation or principles after reading the clear, straightforward text. There are explanations of everything, plus sixteen tips and tricks, including advice for successful compositing and creation of solarized images and drop shadows.

The Latest Update

As I was wrapping up this review, I received an advance copy of ADPro 1.0.3. If you're a registered owner of ADPro you'll get the upgrade software free. There are three new Loaders, one new Saver, and several new Operators. The new Framegrabber Loader lets you digitize directly into ADPro, with Progressive Peripherals & Software's FrameGrabber. There are also loaders for Black Belt's HAM-E hardware's special formats, and for MacPaint images.

The new Saver, FC24, gives extensive interactive control over Impulse, Inc.'s FireCracker 24 display board. This should be a welcome addition to software-starved owners of that particular peripheral.

The new Operators are Blur, Median Filter, Tile, Set Pixel Aspect, and Colorize, which is so new it didn't even make it into the revised manual (it's described in a text file on the disk). Blur does what its name suggests, and Median Filter removes small irregularities known as "noise". Both employ a user-adjustable parameter called Threshold, which determines how different from its neighbor a pixel must be for an adjustment to be made. The Set Pixel Aspect Operator lets you adjust this setting, and includes presets for the four basic Amiga graphics modes. Tile lets you repeat any rectangular section of the image across the entire image for a wallpaper effect. Unfortunately, you can't select the section interactively, but must specify pixel coordinates in a requester.

ADPro's new Colorize Operator lets you add color to grayscale images in many different ways for a variety of interesting and unusual effects. Also, you can now use Gamma to decrease as well as increase image brightness without affecting the brightest and darkest colors. There are also a couple of enhancements to the AREXX interface.

If you use Newtek's Video Toaster as well as other Amiga software such as Deluxe Paint or Pro Video Gold/Post, you'll probably find daily use for ADPro. The same goes if you're creating software for different PC platforms, including MS-DOS and Amiga. It's top-notch professional software that lives up to the name.

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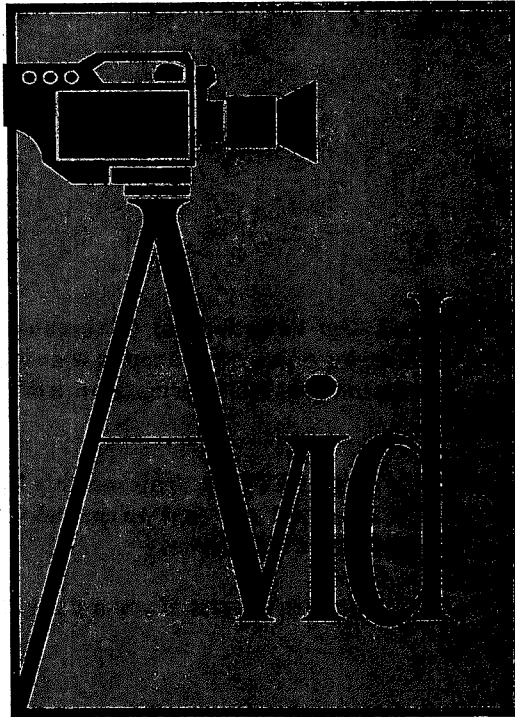
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