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Bars 'N' Tone

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Welcome back to another issue of AVID, The Amiga-Video Journal. This Amiga-oriented desktop video market continues to be one of the most dynamic and exciting markets to address. Every month I receive a slew of press releases, new product announcements and review copies of new

software. Over the last few months the volume of this incoming material has increased markedly. I'm not sure if this is just normal pre-holiday activity, or if this (as I believe) is the beginning of what promises to be a flood of products and services available for Amiga videographers. This is a sure sign

of the Amiga's strong grip on the desktop video market.

One aspect of this influx that I find particularly interesting is the fact that many of these new products and services are coming from directly within the ranks of AVID subscribers. As you work your way through this issue, take a mo-

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ment to study some of the advertisements for products and services, many of which have been taken out by your colleagues and peers. Maybe some of these ads will trigger your own entrepreneurial ideas.

Just a few days ago I was listening to a Bay Area talk show on the radio when, to my complete surprise, I heard an ad for the Amiga. This particular spot was very well done and focused on the new low prices for the Amiga 500, 2000 and 2000HD. At the end, the narrator gave an '800' number that a prospective buyer could call to get the name of the nearest Amiga dealer. I hope to hear more promotion of this nature. Amiga dealers could certainly use a lot more support from Commodore.

In fact, Amiga dealers could use a lot more support from Amiga users in general. I am a firm believer in supporting my local dealer. Here in the Bay Area, we are fortunate to have 4 or 5 good dealers to choose from. I know this is unusual. I get calls from people all the time that don't have a single dealer within 100 miles. These folks are forced to do most of their shopping through magazines, buying from mail order companies.

Personally, I have mixed feelings about the Amiga mail order industry. It's not by accident that you don't see many mail order advertisements in the pages of AVID. With few exceptions, I believe that the mail order industry has had a negative effect on the Amiga marketplace. Bear with me while I explain further...

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I'll spare you my pet theories on why the Amiga has never gained widespread popularity. As far as I'm concerned, that's ancient history. I'm more concerned about the Amiga's present predicament...and today the Amiga's biggest problem is the lack of a strong dealer network (I'm not ignoring the Commodore marketing issue, it just seems to be a waste of space to discuss it).

The Amiga is a unique piece of machinery. Most prospective computer buyers do not immediately understand the potential of its inherent capabilities. It often takes several good demonstrations before it all begins to sink in. Unfortunately, unless the buyer has a good friend who owns an Amiga (this is probably how most Amigas get sold) it can be difficult to find someone to provide an effective demonstration. Would you buy a computer if you had to drive 100 miles just to see one? Well, of course you would, but you're an Amiga user. Most people aren't that motivated.

I think the main reason there aren't more Amigas sold in this country is that there aren't enough places for people to learn and understand all that the Amiga is capable of doing. There aren't enough Amiga dealers around to advertise and promote and expose potential buyers to the Amiga's possibilities. Unfortunately, this seems to be getting worse. Every month I hear about a few more Amiga dealers around the country that have had to call it quits or who have sharply curtailed their Amiga promotional efforts. So not only

are we not gaining more dealers, but we seem to be losing some of the ones we used to have.

Why is this happening? Well, there are probably a lot of various factors, but I think mail order is a big reason. No, I'm not saying that mail order is the cause of all the Amiga's problem; only that it is a contributor, and more importantly, one that we as buyers can control.

The economics of the mail order industry make it easy to sell many hardware and software products at far below the average dealer's price. So what, you say? Isn't that good for the average user? Under normal circumstances I would say yes. But these are not normal circumstances. The Amiga market is not like the PC market where the sheer volume of purchases compensates for any dealer revenues lost to mail order. In the Amiga market every dollar spent on mail order is another nail in the coffin of some on-the-edge Amiga dealer. And every time an Amiga dealer goes down, another gap in the distribution network appears, and fewer people will learn about the Amiga, and fewer Amigas will be sold, and more Amiga developers will move their resources over to the Mac and PC market and...well, you get the picture.

Unfortunately, what seems to be happening more and more is that many buyers will go into an Amiga dealer and test drive the product, pick the brains of the sales staff and then go home and order the product through the mail. Or a customer will walk over to the magazine rack and open up to a mail order ad and, knowing full

well the answer, ask the dealer, "can you beat this price?"

Personally, I have never bought a single product from an Amiga mail order company. I have been fortunate to have lived close to a competent and fair Amiga dealer. I realize that not everyone has that advantage. I also understand that there are situations that arise that make mail order a viable and attractive option. For instance, as previously mentioned, you may not have a dealer within an hour's drive. Or, the dealer has no particular expertise with a product you need. Or, the dealer does not stock or will not special order a product for you. Or, the dealers price is outrageously high. Or, the dealer does not care enough about the Amiga to provide a knowledgeable and competent staff. These are all valid reasons to pick up the phone and dial an '800' number.

I don't think all mail order companies are bad. On the contrary, I sometimes see ads for firms that price responsibly and even try to provide REAL service to their customers. There is room (and need) in the Amiga market for this kind of business. If you ever see a mail order ad in AVID, you can be sure that it will have been purchased by just such a company (of course, not many will want to after reading this!).

I hope that you will consider these thoughts as you plan and make your Amiga purchases. The few extra dollars you spend with your dealer might have a direct impact on the ultimate success of

the Amiga.

As a closing thought for those of you who don't have easy access to an Amiga dealer: have you ever considered becoming one? Commodore's AGAR program makes it easier than you might think to become a dealer, and NewTek Video Sales is looking for qualified video-oriented companies to promote and sell the Video Toaster System. If you are interested in getting more information about these options feel free to give me a call at (408) 252-0508.

OOPS!

In last issue there were a couple of omissions I'd like to correct: First of all, we inadvertently cut off the last sentence of the Pixel 3D 2.0 review, and more importantly, the address and phone number for Axiom Software. For more information about the new version of Pixel 3D, see your local dealer or call: Axiom Software, 1221 East Center Street, Rochester, MN 55904. Telephone: 507-289-8677.

Also, in Kirby Carmichael's FIRST LOOK at Gold Disk's Video Director, we left out one very important fact---the price! Video Director lists for \$199.95. For a list of of authorized Gold Disk software dealers, call (416) 602-4000.

Jim Plant
Editor/Publisher



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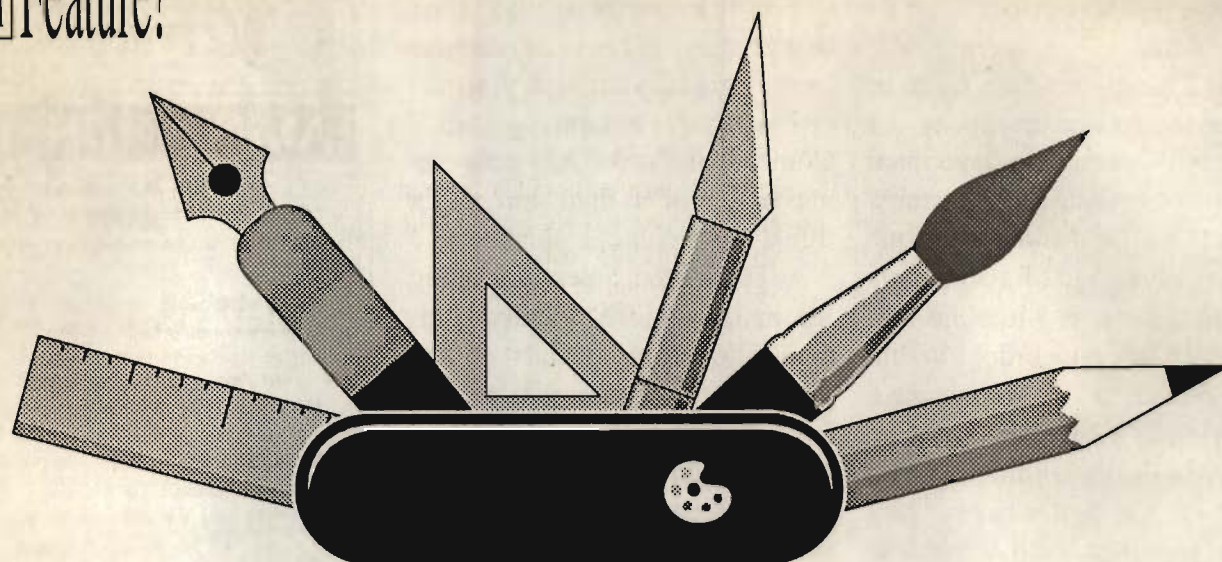
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ASDG's Art Department Professional 2.0

U P C L O S E A N D P E R S O N A L

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The Art Department Professional has often been referred to as the "Swiss Army Knife" for Amiga graphics, and that's just about as apt a description of this product as I can imagine. If you need a knife, a fork, or a can opener to squeeze the last drop of potential from your Amiga graphic files, ADPro is there to serve. I'm going to approach this article as if you haven't seen ADPro before in any of its incarnations, including the new features of 2.0. I'll also try to tell you why this or that attribute might be just the right tool for your needs.

The most basic reason that ADPro exists is that Amiga graphics can be found in many file formats, from Targa files to standard and 24-bit IFFs and more. Add to this the special needs of the growing number of Amiga display boards and external framebuffers, and you have more than a handful of diverse options for saving your Amiga graphics. Each of the programs and devices that display Amiga visuals have their own strengths and dedicated uses, so that no one format seems adequate for all professional needs.

This makes it vital that there exists a bridge or link that allows the Amiga artist and designer to transfer pictorial data among these different formats as quickly and qualitatively as possible. This was the initial need that sparked the creation of the ADPro software. But ADPro does not stop there. In addition it gives the Amiga artist a whole host of other graphics manipulation tools, and its toolbox has grown geometrically from the first release of the software. Let's investigate the tools it contains...

Loaders and Savers

Images loaded into ADPro are automatically converted to 24-bit color (16.7 million shades) or 8-bit grayscale (256 shades of gray), which are stored internally in ADPro. Given the right FrameBuffer (DCTV, FireCracker 24, HAM-E, etc.), these images can be appreciated in their full glory. ADPro itself can render out 256 colors. To do any of its magic, ADPro requires as much memory as you can feed it, and it also enjoys being resident on a hard drive. This program does not function well if decompressed and stored on a

floppy disk, though the manual says that this is possible. There's just too much stuff here, and the floppy you store it on will (and I emphasize WILL) run out of space. In fact, it will run out just in time to prevent you from incorporating the IFF saver!

LOADERS come in many flavors, and are keyed to the format of the image being loaded in. Something interesting for Workbench 2.0 users is that there are some special menus available only with WB 2.0 that allow you to scroll through the Loader/Saver options. The loaders and Savers are modular in design, meaning that ASDG may release more in the future which can be added in the mix. Loaders can be imported in four orientations: 0, 90, 180, and 270 degrees. The Loaders include:

1. BACKDROP- an empty or filled 24-bit backdrop (which may be a specific color or a gradations of colors or grays) against which images may be pasted ("composited", discussed later).

2. BACKLINE- similar to BACKDROP, but more variable in design. This

loader can be used to create startling 24-bit color gradations that appear as curved surfaces and flow from start, middle, and end colors. The manual offers a clear description of how to generate these fills, but experimentation is encouraged to gain intuitive familiarity. For experienced ADPro enthusiasts, this Loader is new with 2.0. Both backdrop and backline can be used by themselves to create beautiful 24-bit backgrounds for DCTV, the HAM-E device, and all of the Amigas other 24-bit boards.

3. BMP- a format which is used by MicroSoft Windows software. ADPro will load both compressed and uncompressed BMP files in 4 bitplane varieties (1, 4, 8, and 24). New to ADPro 2.0.

4. DPIIE- This is the Electronic Arts file format for DPaintIIE for MSDos platforms. DPIIE images contain 256 colors.

5. DV21- This is the format used by NewTek's Digi-View 3.0. Though this is only a 21-bit format, the ADPro loading operation pads it to a full 24-bits.

6. FRAMEGRABBER- If you own and use the Progressive Peripherals FrameGrabber like I do, then this optional loader will be a welcome tool. Though not new to ADPro 2.0, it is still a very valuable option. With it, you can grab a video frame right in ADP and process it on the spot before saving it out. A real time and energy saver.

7. GIF- This is the IBM and Apple image format used on Compuserve, containing from 1 to 256 colors. ASDG's research shows that the GIF format is the most widely used graphics format in use today.

8. HAM-E- BlackBelt Systems HAM-E device is an external black box that allows display of several different colorfile formats, but each appears to the Amiga as a 16 color Hi-Res file that is only appreciated when the HAM-E device is operational. ADPro sees this format in either 24-bit color or 8bit grayscale.

9. IFF (The Super IFF Loader)- All of the standard IFF formats are included here: 1 through 5 bitplanes, Extra halfBrites (64 colors), SHAM, HAM, Dynamic HAM and Hi-Res, and 12, 15,

18, 21, and 24 bitplane files. Files are separated and loaded as 8bit grayscale or 24-bit color.

10. IMPULSE (RGBN and RGB8)- always interpreted as color images.

11. IV24- for Great Valley Products IV24 24-bit FrameGrabber/Display board, which must be installed in your Amiga. This loader lets you grab images directly from an IV24 board.

12. JPEG (Joint Photographic Expert Group)- This is BIG NEWS! The JPEG file format allows for massive compression of 24-bit files, though some degradation of the image is experienced. There is a "smoothing" control which helps to offset the image degradation (for more JPEG information see accompanying sideba).

13. MACPAINT- Interprets the Macpaint black and white format, and gives it an 8 bitplane gray possibility.

14. PCX- ZSoft Corporation's PCPaintbrush file format in 1 to 256 colors, and also in 24-bit.

15. POINTER is a unique 2.0 possibility for those interested in grabbing a mouse pointer with a screen while ADPro is running. This loader can help create more realistic tutorials or documentation by including the mouse pointer in your screen grabs.

16. QRT- DKB Ray Trace and QRT Ray Tracer use this format.

17. SCREEN- This is a "Screen Grabber" utility that captures an Amiga screen that is running simultaneously with ADPro, and even the screen's menus can be captured!

18. SCULPT- This is one of the oldest Amiga 3D formats originated by Mimetics Corporation.

19. UNIVERSAL format attempts to automatically identify which format should be loaded, and if successful, does so. it first checks the file extension name and then the actual file.

20. Others...the following three formats are available on an extra disk, called the Professional Conversion Pack, which the user must purchase separately (\$90): TARGA, TIFF, and RENDITION (For Caligari owners). ASDG says that they will be adding Sun Raster and X11 image formats to the Pro Conversion Pack very

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shortly. Other modules supporting input devices like scanners are also available, and more are in the works.

"SAVERS" are formats in which ADPRO will store your data once you are finished processing it. Here are the alternatives:

1. A2410- Addresses Commodore's A2410 board directly, and ADPro allows direct control over this hardware device!

2. BMP- Can save a rendered image in 1, 4 and 8bitplanes, or a raw image in 8 (gray) or 24 (color) bitplanes.

3. DPIIE- same as the DPIIE loader description.

4. FC24- for use with the Impulse FireCracker 24 board. Allows direct control over the hardware including its ability to double buffer.

5. FRAMEBUFFER- The Mimetics FrameBuffer is supported.

6. GIF- Rendered images in 1 to 8bitplanes can be saved in this format.

7. HAM-E- Needs the HAM-E device on board to appreciate the picture.

8. HARLEQUIN- This is a very popular Amiga board in Europe. ADPro's saver supports the Harlequin's GENLOCK, Alpha Channel, and double buffering capabilities.

9. IFF- see the IFF Loader description to understand these parameters.

10. IMPULSE- Saves in RGBN and RGB8 formats.

11. IV24- The GVP IV24 board is addressed.

12. JPEG- This is one of the most important and new savers addressing the JFIF file format. This saves Raw Image data, and you are allowed to input the degree of compression sought. Beware of large compression weights, however, because severe image degradation can result. A slider is used to input variable settings, and a setting of 32 produces images compressed at about a 40:1 ratio (!). This is the setting suggested as with it the image degradation is hardly noticeable.

13. PCX- With 2.0, ADPro can save raw PCX data (24-bit planes).

14. POSTSCRIPT (!)- Yes! You read it right DTP sports fans. PostScript! Raw Image Data can be saved in this common page description language, and the format

can be either Encapsulated (EPS) or Non-Encapsulated. It can be either color, grayscale, or color separation data, and can be in Binary (for printers communicating via AppleTalk) or ASCII. Registration and Crop Marks can also be printed to file or disk.

15. PREFPRINTER- Egads! I can't stand it! This module allows you to print directly from ADPro to any printer supported in Preferences, and at a much higher quality than from any other Amiga program. This could have been marketed as a separate piece of software, and it even prints poster sized images spread over several pages!!! The manual offers detailed information on how to achieve the best results from your printer. Color printers can receive full 24-bit information and grayscale printers can print in 256 grays! This is great stuff.

16. QRT- same data as for QRT loaders.

17. SCULPT- same option as for Sculpt loader.

The Operators

You can appreciate ADPro 2.0 as a three-part process. Loaders represent the first step and Savers the last. In between are the "Operators", specific functions that transform imported data before it is saved out. It is here that ADPro proves itself as much much more than a mere file translator, and it is also here that suggestions can be offered as to how certain specific properties of ADPro can be best utilized by Amiga artists and designers.

Apply Map

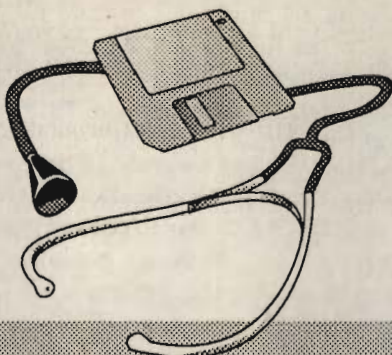
This operator works on the "color map" of the image. ADPro's color balancing controls let you alter things like brightness and contrast without actually changing the image data. The APPLY MAP operator actually "applies" the color maps to the raw data, changing it so that the balancing controls can be reset to neutral. This lets you equalize the balance settings between pictures so you can merge, perhaps, a really dark background (darkened with its own balance settings), with a bright high contrast foreground.

Blur

This operator is especially useful to Amiga users who do a lot of digitizing,

Dr. Mortier Makes a House Call

The Good Doctor Pays a Visit to ASDG



On the trip from Chicago's O'Hare airport to Madison, Wisconsin (the home of ASDG), you barely have time to close your weary eyes. After only twenty minutes in the air, you find yourself gliding effortlessly into the central Northwoods airport. I had never met (the one and only!) Perry Kivolowitz before, so I passed right by him at the exit gate. Twenty minutes later, however, after a little wandering around, we finally connected. The great AVID/ASDG adventure commenced.

I don't know what I expected to find. My mental image of what the home of ASDG would look like varied. Perhaps it would be a one room cave with strobe lights and static generators, with wizened elves scurrying this way and that...a seasonal glimpse of Santa's workshop. Or perhaps it would be a huge windowless factory, gears turning, smokestacks belching...like a reminiscent vision of Chaplin's "Modern Times". What I found at the end of a short journey through the Wisconsin countryside was neither, exactly...though there was some similarity to Santa's workshop. When we disembarked from the car, we entered a modern building whose every corner spoke of some kinetic Amiga activity. Amigas of every flavor and capacity lined the desks, while peripherals (especially scanners and printers) of every make and model sat next to them. A small group of people were busy at their tasks, and clearly involved in the spirit as well as the reality of the place. I was introduced to everyone present, and felt very comfortable from the start. It was apparent to me that this

was not only the home of one of the Amiga's most talented and respected development teams, this was also a place where people enjoyed working, and where being part of a creative team still meant something in this too-often jaded world. It is that same sense of pride that permeates the software that ASDG creates and markets.

Perry knew exactly what he wanted to do long before he entered the university. Like the other programmers on his staff, he was already launched into digital delight while in high school. Also, like the others at ASDG, he began coding for very high end systems. This makes a difference in the Amiga work that ASDG does, since the staff is well aware of what very expensive systems can and cannot do, all of which benefits their Amiga ventures.

I spent the major part of the morning being treated to a one-to-one walk-through tutorial of ADPro 2.0 by the head man himself. Perry is known for both the products his company has produced over the years and the service ASDG has provided to the Amiga community in general. At one point in the morning, he held up a plaque given to ASDG by Commodore for ASDG's developmental role in the creation of CDTV procedures. It is obvious that ADPro 2.0 also plays a role in the continued development of CDTV graphics by some of its image processing and enhancing capabilities. Perry put a CDTV title on at one point that visually demonstrated some startling 3D graphics scenes enhanced with ADPro. The visual environment was that of a walk through

adventure game, but unlike the textual way this type of game would have been addressed in the past, these scenes enabled you to get completely absorbed in the exploration of another reality, one which was at the same time fantastic and believable. It became obvious that ASDG's capacity to enhance graphics is playing an expanded role in developing new and varied CDTV titles. In a sense, ADPro may be the main developmental tool for utilizing the Amiga itself as a creative tool for exploring the instructional and educational visuals needed for new CDTV titles. At the same sitting, Perry put on a stunning videotape produced by the Anti-Gravity Workshop of Santa Monica, California. The video was soaked with Amiga 3D animations, exquisite sequences created in Imagine and LightWave, and many frames of which had been further enhanced with ADPro's image processing magic before they were single-frame recorded to tape. Looking at these animations was a demonstration of just how far the Amiga and her creative development and user community has come in these few short years.

For an obsessive Amigoid, watching a creative Amiga development team in action is more exciting than being a voyeur at a secret mud wrestling convention, and twice as memorable. During the first few hours I spent at ASDG, I watched while a minor bug was found in ADPro, tracked down, and zapped, all by a team of programmers who poured everything they had into the moment in a deliberate and dedicated fashion (the "bug" was an obscure operation performed on a TIFF file, and one which it is unlikely that any user would ever stumble upon). I also listened while Perry brought up the idea of a "Charity Ware" project. The staff would have total free reign to take it in any direction with the goal of making the results available sometime in the near future. "Charity Ware" is a term used to describe a software product whose donated payments are targeted towards a respondents favorite charity organization, and during these times of economic duress, efforts like this are much appreciated. That ASDG would stop the presses to again return a measure of their efforts

towards the wider world is a measure of both Perry (who freely donated the first Amiga recoverable RAM drive, VD0:, to the community some years ago) and the organization. The actual "charity ware" program, when completed, will be available on national BBS along with instructions on how to donate the "cost" to your favorite charity.

At one point in the day, between the tutorials and one-to-one meetings with the ASDG staff, my attention was drawn to color poster on the wall. It was a full color blowup of a Louis Markoya electronic painting. Upon closer inspection I observed that it was made up of nine separate panels carefully taped together, and that each of the panels was a letter sized printout from an HP-Paintjet printer (180 dots per inch). Folks, we're talking here about a 24bit color picture whose colors are discernible all across the spectrum, and dithered colors that flow seamlessly (and I mean seamlessly unless you're inches away from the print) from one page of the whole to the next. I also saw a printout that was done on a Shinko CHC-445 (300 DPI) that could have been used as artwork for a calendar. Both of these prints were done with the new "PrefPrinter" saver in ADPro. With

this saver, ADPro takes over the command of your Preferences printer, allowing the Amiga to output true 24-bit color as compared to its standard 12-bit constraints. Refinements are still under-way on the algorithms that helped to generate these prints. For one, ASDG is working on new scaling algorithms so that large blowups of 24bit artwork will generate better blending to decrease (and in many cases remove) ugly stairstepping. ASDG is also involved in considering the development of more dithering methods. Right now, only two are used: "Floyd-Steinberg" and "Ordered". Now all of this sounds like it should be of great interest to Amiga artists wanting to display their efforts in a gallery setting, but why should Amiga video people care about creating stunning Amiga 24bit posters? How about studio props and signs? How about bigger stills for presentational storyboarding to a larger interactive audience? How about creating 24bit backdrop posters for claymation and puppetry? Any other ideas?

A very apparent aspect of ADPro is its incorporation of so many file formats that are alien to the Amiga, allowing the Amiga to shine as a bridge between divergent and incompatible platforms.

During the time that I spent at ASDG, Perry elaborated upon the usefulness of addressing many of these different file formats, and future plans. For example, ADPro will import MacPaint files, but there is a PC program called "ReadMac" that saves out in both MacPaint and PC format. ADPro will not at the moment read these Mac files as "MacPaint" files, nor those created by SuperCard, HyperCard, or Aldus FreeHand, but a fix is on the way. Perry promises to redress, actually enlarge, the Mac end of the loaders in the near future. Another new addition (promised sometime next year) is the incorporation of a program called "Split and Join". This program will allow you to save out image files (in any of the formats supported by ADPro) to multiple floppy disks. That means 24-bit Amiga graphics which are too fat to fit on a single floppy can now be "split" into two or more parts and written to several floppies. Owners of the same "Split and Join" program on the other end, like a service bureau that uses PC's or Macs, can take the floppies and process the data (meaning send it to a high-end paper printer or camera)! ASDG will offer the code to all comers, and plans to finish the PC, WINDOWS, and Amiga versions. As for the Mac version, the program is there for the taking, but some studious non-ASDG hacker will have to supply the actual finishing touches. This means that Amiga PostScript files will no longer need to be pumped out over a modem, tying up your system for hours while they're downloaded on the other end to a PC controlled printer. Instead, both ends of the transaction will own a copy of the free ADPro "Split and Join" module, and disks can be carried or sent from one party to the other. Obviously, the process works in reverse just as well.

Much time was spent discussing the importance of ADPro's ability to address the ".CGM" (Computer Graphics Metafile) format. CGM is a standard way that vector graphic files are formed. It's a drawing description language, and can be compared to PostScript, which is a page description language in wide use on all platforms. There are thousands of pieces of graphic "clip art" in the CGM format, and all of it would be importable into your



The ASDG staff as pictured from left to right: Jay Johnson, Dan Esenther, Perry Kivolowitz, Aaron Avery, Linda Radloff, Dave King, Joe Porkka, Ann Zenor, Chuck Rentmeesters and Gina Cerniglia. Not pictured is Eric Bazan

Amiga for use in video and print applications. Both Lotus and WordPerfect write out CGM graphics. As a vector graphic, the larger it is made, the smoother the jaggies become on the screen. This means that you will now be able to get slides and video of PostScript quality graphics! I was shown examples of the quality of the clip art involved, and can attest to their quality. Now all we need are Amiga vector drawing programs that export the CGM format (Gold Disk.. are you listening?).

Major ASDG News! (You read it HERE FIRST Department!)

Since the release of ADPro 2.0, I have been thinking that ASDG would be the perfect company to create a program that would address animations as clearly and optionally as ADPro addresses still graphic frames. When admitting this fantasy to Perry, he confessed that ASDG is already considering the development of a related product. My suggestions were that he possibly consider creating a module in it that might address ANIMbrushes in ways that no other software (including Electronic Arts' DPaint) can manage (resizing them, and other niceties). I am sure other AVID readers could suggest their own wishes and needs, either in AVID or by contacting Perry directly at ASDG. There is no date yet set for this product, and no hint about what it may do, but once you've seen ADPro 2.0, you can't help but get excited about the prospects. Obviously, the major attraction of this fantasized product would be that it translate diverse ANIM formats between platforms, like ANIM5 on the Amiga to .FLI files on the IBM ("AutoDesk") and .PICS (from "Swivel" on the Mac). We'll have to say our prayers, wish, and wait. ASDG also admits to a comfortable relationship with NewTek and Toaster concerns. Exactly where that might lead at the moment and what might result is not yet clear. Also being considered as a part of a future ADPro release is the ability to wrap textures on simple 3D primitives right in the program.

While I was sad to leave ASDG (Perry and his wonderful staff made me feel very comfortable), I left very excited about the future of Amiga graphics,

especially if the result of their efforts are HAM oriented graphics. The BLUR operator will smooth out digitized anomalies that occur, and also help to redress the artifacting caused by HAM colorization.

Color to Gray

Color images can be turned into grayscale for DTP purposes with better grayscale quality than the color data it came from, accurate to 8 bitplanes (256 shades of gray). grayscale images can appear nearly photographic, and they print very nicely (especially on 300x300 laser printers). Output can be made to take advantage of NTSC television, DeskTop Publishing, or user defined needs.

Colorize

This tool actually colorizes a grayscale image to full color hues, either through computer randomized (but user selectable) choices or by matching a currently loaded color palette. "False" colorization is also possible. Amiga artists and designers can create an infinite number of posterization effects here, as well as specific palette "looks" like antiquing.

Convolve

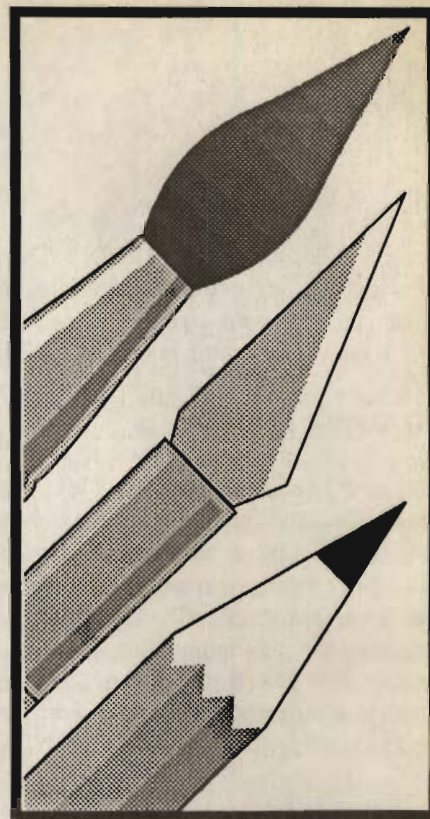
A convolution is a weighted average that moves across (and down) your picture. Setting different values for the weights can produce an infinite variety of special effects. For example, one of the supplied weights (called convolution matrices) gives ADPro users the long awaited ability to sharpen their images. Another matrix supplied with ADPro, called Deep Press, can make your picture look like it was pressed into a deep material like leather.

Crop Image

This operator does exactly as it says, and elements outside of the cropped area are disregarded.

Crop Visual

Though related to the above operator, "Crop Visual" is more complex and the operation is graphically oriented. It is new to ADPro 2.0. A visual and resizable rectangle represents the cropped area, and it can be adjusted in real time. Zooms can help to target a certain area of interest. All Amiga artists and designers that have ever had a need to crop an image



will love this tool. It also should prove a kissin' cousin to the POSTSCRIPT and PREFPRINTER Savers already described.

DCTV

If you love DCTV half as much as I do, then you will understand my elation when I heard that direct DCTV support was going to be a part of ADPro 2.0. ADPro can now generate and display the DCTV format. It only addresses the higher 16 color DCTV image file. By choosing the DCTV operator and the IFF saver, you can save the image in the DCTV format. You must have the dctv.library installed and also have a DCTV unit to see the results. According to ASDG, Digital Creations will soon enhance the dctv.library to allow programs like ADPro to read DCTV display images as well. Every DCTV owner will want this software!

Define Pixel Aspect

It is important that ADPro have an accurate impression of the pixel aspect of your image because it now contains tools which take advantage of this knowledge. For example, a supplied ARExx program

called ScaleToAspect can automatically correct pixel aspect, but it must know the picture's original aspect so it can calculate the needed changes. You may want to redefine the picture's pixel aspect so that it is a closer match for translation to another resolution. The requester associated with this tool shows both the current and desired aspect. The DPI (Dots Per Inch) values for the image can also be changed, so that the aspect is in line with DTP uses. This option is new to ADPro 2.0.

Dynamic Range

Everyone working with NTSC ("Never The Same Color") will love this item. With it, the minimum and maximum values of an image can be reconfigured. It is the high settings that cause NTSC smear in a picture, especially the reds. By calming the maximum value down to a respectable 208 (from a high of 255), the potential smear can be avoided in the NTSC display. The DYNAMIC RANGE

operator can also mute a picture to make it suitable for use as a background for presentation graphics.

Gray to Color

As the inverse of the "COLOR TO GRAY" operator, raw gray data achieves reformulation as raw color data. This operator is necessary when you desire to paste a color image on a gray background in ADPro.

Halve

New in ADPro 2.0, this operator is a quick way to scale images to half of their width and height, and operates approximately 13 times faster than its counterpart in the "scaling" option (with a 68030 machine). This operator was developed especially to aid CDTV developers who often need to halve the size of digitized art for animation purposes.

Horizontal Flip

Self explanatory for loaded images.

Line Art

Experimentation is vital here to get a

feel for the results, and I've always found it best to keep journal notes on operations like this, so I can (hopefully) repeat an effect twice. It is advised to increase the contrast setting before applying this effect for less cluttered results. Anyone working with graphic vignettes should benefit by experimenting with this operation.

Median Filter

The MEDIAN FILTER is most often used to "clean up" pictures automatically. It can actually judge how much a given pixel "fits in" with its neighbors. And, if it doesn't fit in, it can replace the pixel with a color which does fit in. Repetitive use of the MEDIAN FILTER over the same image can produce a brushed-like quality.

Negative

My most interesting experiments here were performed on DCTV graphics. It's amazing how striking a negative landscape can be, especially when composited with positive foregrounds.

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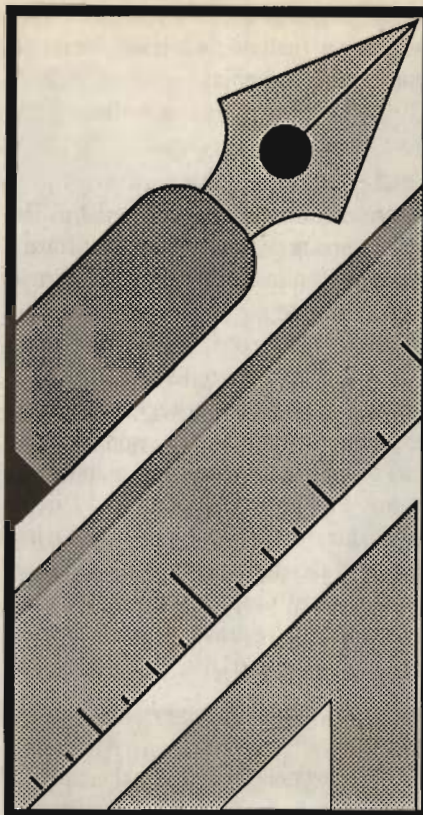
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As the name of the operator suggests, inverse color values are produced.

The New Palette Editor!!!

Though only available with WB 2.04 and Kickstart 2.0., the new ADPro palette editor is a wonder to behold. It allows you to edit all 256 colors at one time on your normal Amiga screen. Included is the ability to define color ranges through RGB and HSV space with 24-bit accuracy, and to modify a range of colors as a unit by saturation, value, and hue, or by RGB color shift. As an example, you could import a picture with 32 colors and then shift the entire palette, or just part of it, to a more muted pastel-like color range. A very important benefit of the Palette Editor is that it's still usable even if colors 0 and 1 (normally used to indicate the background and menu colors) are identical. User feedback initiated the inclusion of this possibility (and it should be emphasized here that user feedback is taken very seriously at ASDG).



Rectangle/Rectangle Visual

It's nice to have the ability to place a rectangle on your graphic for text insertion or framing, and ADPro lets you accomplish this from an interactive on-screen requester. The rectangle can either be a border or filled, and you can see what you're doing every step of the way with RECTANGLE VISUAL. If you can estimate the placement without having to see the picture itself, or are triggering ADPro from an AReXX script, then choose RECTANGLE.

RIP (Remove Isolated Pixels)

Stray pixels can ruin an image. This operator zaps them out. Though it will not work on HAM images, RIP operates well on up to 256 color modes. It works best when the image is small, like logo work.

Render to Raw

Many of the operators in ADPro work only on RAW data. After you've been working on an image for awhile,

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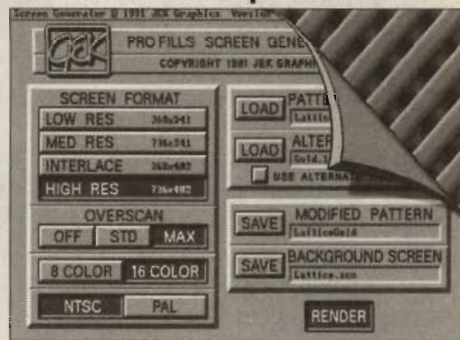
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you may need to reconstitute the Raw image data, and that's exactly what this operator does. This operator can also be used to create many posterization effects quickly.

Scaling

Images that are imported into ADPro can have their dimensions altered, and can be either reduced or enlarged. This requester displays the source size in XY pixels. There is an input area for altering that size, Percent reduction/enlargement sliders and input area, and a toggle bar that switches from "reduce" to "enlarge". There is also a readout that denotes the pixel aspect ratio involved. Both Amiga video and desktop publishing enthusiasts will enjoy the ease with which ADPro handles these operations. With the sliders, reductions are numbered down to 25%, and enlargements are allowed up to

400% in both X or Y dimension. Using the integer gadgets, however, you can type in any percentage desired. ADPro 2.0's scaling capabilities have been made more versatile and accurate.

Text Visual

As we travel along the road to the latest versions of all Amiga software packages, it seems that they all start to expand beyond the borders of their original intent. Wordprocessing software starts to look more and more like desktop publishing wares, paint packages start to incorporate animation, and spreadsheets start to call upon extensive graphics libraries and visual algorithms. This is only natural on the Amiga, because it has had all of the ingredients of a true "multimedia" platform, long before the term became a catch phrase. It is no surprise, then, to note that ADPro is expanding in

the same manner. One of the most obvious proofs of this is the way 2.0 incorporates the selectable addition of text to any imported graphic. WB 2.0 users will thrill to the fact that this also allows proportional fonts, while the rest of us will have to be satisfied with bitmapped fonts. The requester connected with this operator is intuitively designed. It writes your picture to the screen in grayscale, and adds a full featured menu that allows you to import fonts, write text, and manipulate the results. The text can be set to transparency, and the text graphic repositioned interactively on the background. Other effects include embossed, tinted, outlined, darkened/lightened, saturated by degree, and straight text...any of which can be antialiased.

Tile/Tile Visual

Though both of these operators work

JPEG Comes to the Amiga

© 1991 by Matthew Leeds

Moving images from videotape to a computer has become an integral part of multi-media today. Additionally, scanners make it easy to use imagery from prints, transparencies, still video cameras, and flat art. Non-linear video editing systems also digitize a tremendous amount of still imagery. This has created a tremendous storage problem.

A single frame of video requires about a megabyte of storage space. (A 640x480 pixel image at 24 bits of color needs 640x480x24/8, or 921,600 bytes of storage. At 30 frames per second, a few seconds of video can easily overwhelm a large hard disk. Even the storage requirements of a single frame can pose prob-

lems. It may not fit on a floppy disk, and sending it over a modem could incur a hefty phone bill. The simple answer to this problem is image compression.

There have been a variety of image compression techniques in use for some time. Some of them have been used in video teleconferencing, others in satellite telemetry, and still others in data compression on personal computers. The compression of image data poses special problems. Since most compression technology has focused on retaining all of the original data in a source, the efficiency of compression has been modest. The few compression strategies that have allowed for the loss of data are too crude, or too

slow for multi-media applications. Innovators in the industry had to look beyond existing compression methodology.

In the early 1980s, a group of leading image companies formed the Joint Photographic Experts Group (JPEG), as a subcommittee of the ISO and CCITT standards organizations, to develop and standardize an efficient method of compressing continuous tone images. Although their focus was originally on the use of photographic images in videotext systems, it was expanded to include other applications. Additional consideration was given to support for a variety of pixel resolutions, color spaces, transmission bandwidths; and special attention was given to the efficiency of implementation in both software and hardware for this evolving compression standard.

ASDG is the first to bring JPEG compression technology to the Amiga. This provides additional bridges linking the Amiga to IBM, Apple, and other platforms. The ability to save and load JPEG files will become a standard part of ASDG's Art Department Professional in release 2.0. ASDG's implementation meets the JFIF standard allowing JPEG files created on IBM, Apple, or other computers to be exchanged with those created by Art Department Professional.

well, I think it more interesting to dwell on the TILE VISUAL routines, though Arexx script authors who use ADPro will consider the normal TILE operator to be equally valuable. TILE allows you to create tiled backgrounds numerically, while TILE VISUAL allows the same results visually as well. With the visual operator, you can select an area of your picture that will represent the tile, and then proceed to fill the background with it. Tiled backgrounds can make great surfaces upon which to place text, and their ability to help you create simulated textures for 3D applications is almost infinite.

Transport Controller

This causes the software to search for a running copy of MicroIllusions Transport Controller software, so that a single frame controller may dump the

graphic to an expectant video recorder.

Vertical Flip

This operator flips the graphic vertically.

In Conclusion

ADPro 2.0 is fully ARExx compatible, and the manual is brand new and bursting with tutorial information. Most importantly, this already renowned software has been significantly enhanced by the addition of the JPEG compression routines, improve printing functions and other valuable image processing tools. Moreover, I get the feeling (see sidebar "The Doctor makes a House Call") that ASDG is just getting warmed up.

In the next issue, when we look at the best software picks of 1991, it shouldn't surprise you to see ADPro 2.0 listed prominently. If you can only afford a half dozen pieces of software in your

library, this should be one of them...especially if you are involved with graphics, visual design, or animation on your Amiga. ADPro has been so radically upgraded since it was first released that 1.0 users who don't upgrade are cheating themselves out of time and enjoyment. Don't miss this package. It's worth ten times the funds needed to purchase it, and it keeps getting better.

ADPro 2.0
ASDG Incorporated
925 Stewart Street
Madison, Wisconsin 53713
(608) 273-6585

Suggested Retail Price: \$299.00
UpDate Price: \$75.00 (includes shipping) in the U.S.
\$90.00 (includes shipping) elsewhere

ASDG's JPEG saver allows the user to specify how much compression should take place. ASDG's JPEG loader can enhance heavily compressed images by applying image processing techniques during decompression. On an A3000, an overscanned (768 x 480) 24-bit-plane image, which uncompressed consumes more than 1.1 megabytes of memory, can be reduced to less than 40K in approximately 30 seconds.

The availability of JPEG support is an important step forward as the Amiga is so heavily used in video, print, and other imaging related fields. JPEG's compression capability means that more images can be kept online in a manageable fashion or can be more easily transmitted from place to place.

The JPEG compression process can be divided into three basic stages:

- 1) The removal of data redundancy via the Discrete Cosine Transform (DCT).
- 2) The removal of data (quantization) unneeded by the human visual system.
- 3) The compacting of the remaining data via Huffman encoding.

In the first step, most JPEG implementations first convert an RGB color image to chrominance and luminance (YUV). This conversion allows for greater

compression and it also comes closest to how the human visual system sees image information. Next the image is divided into blocks of pixels, and an average value is computed for the initial block. Each subsequent blocks' value is expressed relative to the initial block. This allows for the removal of redundant color frequencies and minimizes the data required to define each block.

The second step removes the high frequency (visual frequency) data. This is done by dividing each block of pixels by a value in a quantization table. The selection of values in this table greatly affects the degree of compression, and the retention of visual detail in the final image. The magnitude of block values is reduced via this operation, and the results are rounded to the nearest integer. As a result, the data matrix contains only small integer numbers with a high occurrence of zeros.

The third and final stage is to compress the data matrix using Huffman encoding. No data is lost in this process, but considerable compaction does occur. Huffman encoding looks for runs of consecutive numbers and replaces them with a single symbol. For example, a run of 15 zeros would be replaced by the symbol 101. Instead of needing 15 symbols to

represent the run, we now need only three.

As you can see, JPEG compression requires a tremendous number of calculations. It is possible to do JPEG compression solely with software on a stock Amiga, but for the best performance or for work in a high volume production environment, a hardware enhanced implementation is better. There have been two approaches taken on other platforms so far: JPEG-specific hardware chip support and programmable Digital Signal Processor (DSP) chips. These types of hardware assisted compression have reduced the compression time on these other platforms from about 30 seconds to around 5 seconds with part of this time taken up by writing the compressed file to disk. It is only a matter of time before this type of hardware assist is available on the Amiga.

It is important to note that the dramatic compression ratios achieved with JPEG only occur with 24-bit images. Compressing a HAM image will result in much lower ratios, with about 5 to 1 starting to generate unpleasant artifacts reducing image quality.



all relevant questions will be answered, as well as possibly being printed in a coming issue of AVID, where the whole AVID community can get a chance to reflect and respond to your ideas.

I am currently working on a survey list of questions that will be mailed to a fat list of Amiga developers in January or February, and that a l s o

already been addressed), they will be given serious consideration for inclusion in the survey. The address above is the target for correspondence.

Tips

I'd like to mention three things worth considering this month about three different products. The first concerns the health of your mouse, that cord-tailed critter that sits comfortably in your hand. When your mouse pad gets full of lint and fuzz, it can clog up the mouse's rollerball. About once a week, I take a piece of masking tape and clean the pad off, keeping my rodent free flowing and happy. My second tip is for those of you who are using Bars and Pipes Professional (from Blue Ribbon Soundworks, Ltd) to create music scores for your videos. If, like me, you're addressing a sound module that allows you to access 16 or more tracks at the same time (I use the Midia Musicbox which allows 27 at-once sounds), then consider naming the tracks you're using with the exact info used to locate that sound on your module, instead of just a generic name. Lastly, some advice rather than a tip. Amiga users who already have or plan to upgrade to

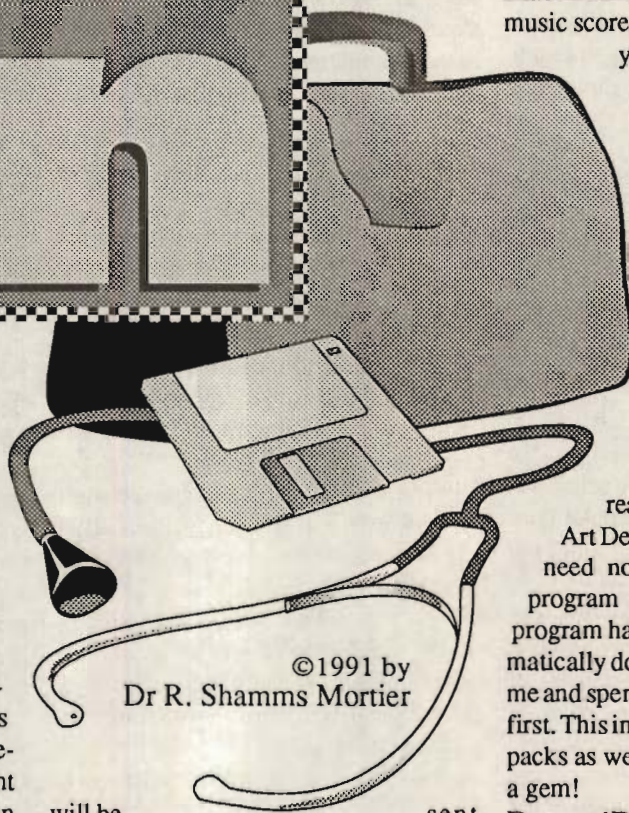
Art Department Pro 2.0 from ASDG need not manually erase the older program from their hard disk, as the program has built in modifiers that automatically do the job for you. Don't be like me and spend time deleting the older files first. This includes the add-on conversion packs as well. By the way, ADPro 2.0 is a gem!

Draw-4D Pro 1.1

I informed you in the last issue (November 1991) that D4DP from ADSPEC Programming was about to ship the 1.1 "Bug Fix" (not that there were any significant bugs in its 1.0 release). Well, it's shipped, and as is ADSPEC's nature, it contains far more than just a few minor fixes. It has more than a few new tools that were targeted for the 2.0 release next year! Here are some of them: A beautiful 2.0 interface; An "Isometric gadget"

The DOCTOR

is in



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Dr R. Shamms Mortier

As is usual this time of year, the Amiga community is a-buzz with all sorts of new and upgraded software entries, and new hardware accessories as well. This column attempts to alert you to some of the important items, especially those that might effect Amiga-video interfacing. In addition to that, it's the end of another year, and time to reflect upon our list of twelve important Amiga products. That list will appear in the next issue of AVID (January 1992). I won't pretend that my list is the last word, as you may or may not agree with my choices. Because you may not agree with my choices, please feel free to submit your favorites for consideration (and why) and write me at:

Eyeful Tower Communications
15 Rockydale
Bristol, VT 05443

As far as any missives you may send,

will be sent to all AVID subscribers along with a coming issue of AVID. The analysis of the survey will also be reported in coming issues (it may take four issues to do the survey justice). I have a list of twenty-five questions at this point, and would like to add about ten more. Are there topics that you would like to see some opinions and answers on? If so, send me your questions by December 30th (and as long as their content hasn't

which alters the 3D view from its normal fish-eye perspective; Adding points on polys with the "TAB" key; Interruption of ANIMs if need be without saving an undone frame; Frame Scripting for single-frame controller users; checking to see if an ANIM of the same name already exists before overwriting the file; Reverse ANIM saves (which is great for users that have the Elan "Performer" software as well as others); a Mirror Deforms tool; Shift-Extrude (skinning) between any two selected polys; Deform exchanging sequences. And finally, the ability to load and display (in DCTV) any 24 bit picture file as a background to your animation, and to also fade either/or the background to a color or the animation itself into the background. I spent about three days creating 24 bit pictures with DCTV paint and then loading them into D4DP as backgrounds. You've just got to see the results to believe it. You will swear you're working on a million dollar graphics workstation!

Screen Maker

Last issue, we mentioned the superlative 24 bit background library of images from Digital Graphics Library called "Screen Maker". These are great for video professionals who have Amigas outfitted with some sort of 24-bit display device (internal or external). But not to leave out the non 24-bit user, a collection of 40 of these same backgrounds have now been translated into interlace HAM formats. These are great screens for slide production, whether 35mm or direct-to-video slides. Also recently released from the same source is a seven-disk package of 24-bit images directed at servicing the Amiga wedding videographer. This collection of 25 images is tailor made to act as titling and message backdrops for wedding videos, and the images are of the same high quality as the other Digital Graphics Library products. We may look forward to more categories in the future, and when they are released you'll read about it here. Contact the Digital Graphics Library, Inc. / 1382 Third Avenue, Suite 333 / New York, NY 10021, 212-978-8508, for more information and pricing.

More Digital Nuptualisms

It seems the Amiga wedding videographer is receiving more attention from Amiga developers than in the past. New from Patrik Beck of Digital Crayon Studios is Animattes: Wedding Series. These animations come on three disks and retail for \$39.95. They require a Genlock-Encoder and run directly from Workbench by simply double clicking on the icon desired. They're in standard Overscan and may be just what you need to complete a wedding video. The artwork looks professional enough to charge a fee for. By striking the numbers 1 thru 4, automatic wipes are also generated. These eleven dedicated-to-production animations would be a bargain at four times the price!

Patrik Beck
Digital Crayon Studios
3624 N. 64th Street
Milwaukee, WI 53216

EA Info

I recently received some very interesting documents from Electronic Arts PR Director, Holly Hartz. The printouts were copies of speeches given by EA Chairman Trip Hawkins and Senior VP of Marketing, Bing Gordon at Entertainment '91. The net result of their talks are, in my estimation, directly associated with advice for Commodore itself, especially in the area of marketing products and addressing the competition (a necessity when it comes to the coming battle with the Big Blue Apple). They are especially informative in discussing CD technology and the ability to market it successfully. Though much of the material seems devoted to digital gaming, it can also be read as addressing the Commodore CDTV system and beyond. If interested in getting a copy, contact Holly Hartz at EA.

Letters

There were two letters received that deserve some mention here. The first was from Mike Stehly, a Spanish teacher from California who uses the Amiga's video capacities in the classroom. Mr. Stehly, though having felt restricted when using the traditional visual aid devices (slides and overheads) reports his feeling of accomplishment after learning to use Amiga-Video to enhance his instruction.

How You Can Profit From Two Lucrative Video Markets

My name is Mitch Lang, and when I started my video production business 6 years ago - working part-time, with low-end industrial VHS gear - I had a dream: to make a good living doing what I loved, working with video. And I discovered two things which have helped me earn over \$134,000 during the past two years:

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- How to use direct mail to reach your prospects (with actual direct mail marketing pieces that work).
- How to develop realistic budgets (with examples).
- How to create effective Yellow Pages ads.
- And much more!

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(Note: the Industrial Video Package is not available in Oregon & S.W. Washington.)

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Price: \$39.50

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"I booked two weddings last week using your Phone Script. Thanks, Mitch!" Tony Galavos, Chicago IL

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He started off about five years ago with an Apple IIe, but some friends at the Orange County Amiga Users group convinced him to try the Amiga. With the Apple, he created about 50 animated instructional scenes. With the Amiga, he created 425! He has found that his students' interest and retention level has increased dramatically. Why doesn't Commodore offer more support (meaning more free machines) to creative instructors like Mr. Stehly? This year, Mr. Stehly has gone on to create interactive programs with AmigaVision, and also lists the following software as important to his efforts: DPaint, PhotonPaint, DigiPaint, DVideo, Aegis Animator, Page Flipper, Movie Setter, Comic Setter, FantaVision, and VideoScape 3D. His hardware includes DigiView, ColorSplitter, and the AmiGen Genlock-Encoder.

The second letter comes from Robert Wargolet of Milwaukee, Wisconsin. He reports an interference problem that appears on his monitor when his VCR is playing and the Amiga is also turned on... faint red diagonal banding appears on his

TV screen. I offered the following possible fixes, but if you have other suggestions, please write them out and mail them to me. I'll have them published to help both Mr. Wargolet and any other AVID readers with similar problems.

1. Investigate another Genlock-Encoder other than the brand he uses now, one with more fine tuning capabilities.
2. Use only the best and heaviest video cabling.
3. Move the VCR as far away from the Amiga as possible, and make sure each is on a separate surge protected line.
4. Investigate the possibility of using an internal TBC board because non-TBC signals tend to crawl (especially reds).
5. Make sure the VCR has clean heads.
6. Work on an RGB monitor, not on a composite TV set.

Help! Burned Toast!

Here is a problem that one or more AVID readers might be able to either solve or offer some creative alternatives on. This problem is being suffered by Gary Lambert, the master videographer at the University of Vermont's Video

Service, and concerns a six month dance with the NewTek Video Toaster. The Video Service is a full production facility with the following components: an Amiga 2000 with a GVP A2000-RAM8, 100 meg hard-drive and a GVPseries II controller, the Toaster, AB roll SP editing suite, and a Crosspoint Latch 8200C switcher with two built-in TBCs.

The terror centers around the saving of digitized images from the Toaster. The image has "strange" lines that ruin it, and the "motion-remover" will not fix the jittered image. NewTek suggested that the problem had something to do with the GVP boards and the lack of an accelerator, and sent upgraded software to redress the problem. The new software seemed to adjust the storage problem, but the jitter remains. The jitter was also observable when using DPaint and Broadcast Titler. So the Toaster was removed in order to be able to use this software, and NewTek was contacted again. They promised to send yet another version of the Toaster software.

When the new software arrived and the Toaster popped back in, the same

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problems were still evident. The "Motion Remover" doesn't remove the motion from still frames, and Broadcast Titler II has strange crawls and jitters. The Toaster CG seems to work fine, but other software has problems when the Toaster is in the system. The studio engineer thinks that another device for about \$1000 (for an internal TBC) "may" fix the problem, but education budgets being what they are, the funding is not possible now. Besides, why can't the studio's TBCs take care of it? HELP!

OK, AVID Amiga Rescue Squad, time to put on your caring caps and come to the service of this fellow peer. Either contact Gary directly, at UVM Video, 232 Rowell, University of Vermont, 05405....or contact me at the address given at the beginning of this column. To say he would appreciate your expertise would be an understatement.

Writing with a PRO

At some point in the near future, I am going to pen an AVID article dealing with producing storyboards with Pro-Write. In the meantime, you should know that Pro-

Write 3.2 has just hit the stands, and it is probably the most Amiga-perfect word processor around. It has all of the intuitive ease that lower end Amiga word processors possess, and most of the features of its higher end cousins. In addition to being close to a full desktop publishing program with the way it handles images, it also has full Postscript capabilities. Though some video obsessives might question the logic and appropriateness of giving space to a word processing program in a video magazine, experienced Amiga professionals will understand completely (See Pamela Rothman's article on ProWrite in this issue). Besides, this software has direct video applications, and can also accomplish the day to day business necessities like handling your correspondence with clients. Check it out, dudes.

There's still a load of new software sitting on my desk, throbbing with potential Amiga-Video pleasure, but it will have to wait till next month's issue of AVID. Are you a subscriber? If not, *why not?* If so, spread the word! AVID is

THE Amiga-Video Journal. Well, that's all for now. See you in ROMulan space. ENJOY!

Digital Graphics Library, Inc.
1382 Third Avenue, Suite 333
New York, NY 10021
212-978-8508

Gary Lambert
UVM Video
232 Rowell
University of Vermont, 05405

Patrik Beck
Digital Crayon Studios
3624 N. 64th Street
Milwaukee, WI 53216

Holly Hartz
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Doug's

Deluxe Paint IV

Tips #3

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Welcome back to the latest installment of Doug's DeluxePaint IV tips. Hopefully, you've been practicing and reading the DeluxePaint manual. Last issue, I explained how to add some great soft-edge shadows to your titles. This time, I've got a great way to create the titles themselves. Nice anti-aliased titles. Plus I'll show you the EASY way to make beveled edge brushes (a.k.a the 2.0 look). But first...

Bug Report

Every computer program had bugs at one time or another. DeluxePaint IV is no exception. Some of DPaint's bugs are fatal, or just very annoying. Here's a couple of bugs that are very annoying and/or fatal.

Picture this. You are in the middle of a big DPaint project, getting work done swiftly (Thanks to this column!), and you're trying to draw an anti-aliased circle with one of the new gradient fill modes, and Bam! DPaint IV won't draw the top of the circle! Well, this is a known bug and Electronic Arts gave me a brief description of the problem, as well as a solution. The problem has to do with all

this technical stuff, but the simple solution is to turn off the menu bar (Press F9). Now objects can be drawn, no problem!

Now picture this. You are creating a stencil using the Ctrl-s Stencil Paint command, when you switch to the swap page. Well, you get a system message that says "Hey! Finish all multi-tasking, cause when you press the resume button, I'm gonna crash your system!" Well, maybe it doesn't say that exactly, but you get the point. I've yet to find a way to get out of this menu without crashing, so the only workaround I know of is: don't do it!

The Perfect Polygon

Ever needed to have a equilateral triangle in your drawing? Ever need to make a seven-sided stop sign? Ever needed to make any particular geometrical shape where all the sides are the same length? So have I, so I developed this handy little trick to create equilateral polygons easily. Here's a quick guide to teach you the basics.

1. Determine how many sides you want for your polygon. I'm making mine five sided. Now, see that icon next to the grid button? That's the Symmetry button. Thought it was useless, right? Well, it was there, so I figured I'd make some use of it. Click on the gadget with

the right mouse button. The Symmetry menu should come on screen. Now select the Cyclic button. Enter the number of sides desired in the "Order" input box.

2. Determine the center of your polygon. To do this, click on the point button in the Symmetry requester. The requester disappears, and you're free to set the center of the polygon. Now click where you want the center to be, just like setting the center of a circle.

3. Draw the polygon. To draw the polygon, hop on over to the swap page by pressing "j". I'm assuming that your swap page is blank. Once there, select a color, and then select the line tool (press "v"). When you move onto the drawing area, you should see the corners of your polygon following your cursor's move. Adjust your cursor until the corners are just right, then click and release. If you need a visual cue as to where to line them up, you can "j"ump back to the swap page. Just make sure you jump back before clicking. You should see the points of color where your corners will be. Now position your cursor over one of the corners and drag a line to the next corner. You should see the rest of the polygon's edges snap into place. You have just completed the equilateral

polygon. You want it filled? Then fill it with the fill tool. Pick up the polygon as a brush, go to your image, and stamp on!

Easy Anti-Aliased Fonts

There are lots of great font disks available for the Amiga, but many of them will look blocky in lo-res (even in hi-res). Here's an easy way to anti-alias a normal Amiga font. It will work both in DeluxePaint III as well as DPaint IV.

1. Prepare your background. When anti-aliasing, the text must be drawn in the exact spot you plan to stamp it down. That's why you prepare your artwork beforehand. In a nut-shell, anti-aliasing is a process of smoothing out sharp color transitions on artwork to make the jaggies less apparent. It gives the appearance of a higher resolution. Anti-aliased graphics not only look better, they also reduce flicker on interlaced screens.

Since anti-aliasing works on the principle of smoothing, a palette with a good selection of "transition" colors works best. For example, to anti-alias white text on a black background, DPaint needs a range of greys to achieve optimum anti-aliasing. In HAM, you have all the colors you need, so you don't have to worry too much.

2. Choose a font. Pick a font that is larger than the actual size you want. Since we'll be shrinking the text down, you'll need a font larger than the size desired to begin with. One way to get large fonts is to screen grab the Compugraphic fonts from a Desktop Publishing package (Like PageStream or Professional Page). There are lots of good screen grabbers in the Public Domain. Just get the text ready to grab in your DTP package and make the screen grab. Workbench 2.04 (which is finally available!) has Compugraphic font capability built right in, so you won't need to use a screen grabber.

3. Type your text. Just choose the color and type. Remember that your text color should have good transition colors between it and the background artwork to take full advantage of anti-aliasing.

4. Anti-alias your text. To do so, grab the text with the brush tool. Grab very close to the edge of the text, because

the anti-aliasing will go much faster. Now go into Perspective mode by pressing Enter on the numeric key pad. To shrink the text, you'll need to move the brush back towards the vanishing point. Just move the brush down two, about a quarter of the way up from the bottom of the screen, and press and hold down the CTRL key. When pressing Ctrl, you have the power to move your brush through the Z dimension. Move the brush through the Z until the rectangular outline grid of the brush is the size of the finished anti-aliased text. Now, let go of the Ctrl key. Position your text exactly where you want it to be.

Turn anti-alias on to either hi or low. Hi anti-alias proves to be the smoother of the two, but low is much faster. In DeluxePaint IV, the Anti-Alias option is in the Effect menu. The keyboard shortcut for it is Alt-/. In DeluxePaint III you'll have to click on the grid icon with the right mouse button (while in perspective mode) to get to the Anti-Alias feature. The anti-alias option will appear in the middle of the Perspective menu that pops up.

Now Stamp down the brush right where you want it. You should slowly see the text appear, in the chosen color, but on the edges, there should be some of the transition colors smoothing out the jaggies.

5. Wait until it's done. You're finished!

Beveled Edge Brushes

A real popular style in video these days is the infamous beveled edge logo; otherwise known as the embossed effect. You see it all over the place, including the new AmigaDOS 2.0 operating system and the new look to the buttons on DeluxePaint IV. The idea behind the beveled edge look is simple: highlight the half of your logo and shade the other half. Most beveled edged logos have the light coming from the upper-left, causing the shadow to fall to the lower right. There are several different approaches to the beveled-edge logo, and here's the basic one.

This seems to be the fastest of all the different techniques, and it works very well. For it you need a simple two-color

logo and at least three colors to work with, although I use four. Use these simple steps:

1. Set your colors. Choose a single medium shade, like (R0, G7, B12) blue, and use it as a source to make four new colors out of it. The medium shade is always the background. To make the shadow color, copy the source color to a new register, and, by sliding the Value slider to the left, make it darker. For my Blue, I'm moving the Value down to 35. Now, to make the highlight color, copy the source shade to another register, but this time lighten it. Normally, moving the Value all the way to 100, then bringing down the Saturation slider will give a good, bright highlight color for use. I brought the Saturation down to 50 for my blue. Now, just as a nice touch, I'll create a slightly lighter color for the face of the brush. Once again, copy the source color to a new register, and lighten it up just a hair, by moving each R G and B slider up one notch. The technique I described above is just a *guideline*, I always go back and adjust the sliders until each color is perfect.

2. Create the bevel. To do so, grab the artwork as a brush, and choose the Color mode (press f2). Select the highlight color and stamp down the brush. This is the highlighted edge. Now, choose the shadow color and move two pixels right and two pixels down from the position of the highlight. Stamp down the shadow brush. Now choose the face color and move one pixel left and one pixel up. Stamp down.

Ta-da! You've made a beveled logo! Remember that you can always adjust colors afterward (with the exception of HAM mode) to your liking.

You can combine the beveled brush with the anti-alias effect to create some great looking titles. Use the bevel technique on the text before you anti-alias it, remember the transition colors, and everything should be fine.

Another column comes to an end. Is there an effect you'd like to know how to do? If there is, or if you have any other questions, drop me a line here at AVID. Until next time, keep the mouse moving, and good luck DPainting!

From the

BREAD BOX

© 1991 by Lee & Kathy Stranahan

This month's excerpt of *From the BreadBox* comes to you from beautiful Topeka, Kansas, where Lee is working on tutorials for Toaster System 2.0's new manual. (But more on that later).

We're staying at 2001 S.W. High Avenue—Tim Jenison's old house. This is the house that DigiView built. Our dog plays out in the yard, near the garage where Tim developed the Toaster and where Paul Montgomery slept when he first came to Topeka. Pretty neat to think about, and to relate to when thinking about where the Toaster is going.

But where is the Toaster now? On December 16, NewTek will start shipping what they are calling Toaster System 2.0. Here's an update on what you can expect. The upgrade will cost \$395, and boy, will it be worth every penny you pay for it. There are going to be over 20 megs of information. There have been major changes made to every part of the program; no matter what you use your Toaster for, you'll benefit from the upgrade.

The Switcher has been modified to allow effects to be used 'half way'; you then hit DISSOLVE and fade your effect in or out. Previously, you couldn't do this without two Toasters!

There's a new Chroma effect—line art. This stunning effect makes moving video look like it was drawn with a pencil, similar to what Art Department Professional can do to still images.

There are also some very interesting new effects, which have not been previously reported on. Silhouette-type wipes have been added to the currently extensive grab-bag of effects. They use recorded live action to transition from one source to another. There are a few with women (modeled after Kiki Stockhammer), and several sports wipes—golfers, baseball players, etc. There's even a new effect of a puzzle with drop shadows.

The Character Generator has gone through some major changes. You can now load ASCII text files directly into a page. If you had to use this function often, you could set up a template page, and read in new text each time, saving it out with a new name. There is also a slower scroll speed—with five speeds in all.

There are some helpful bug-fixes. Non-U.S. keyboard keystrokes have been remapped correctly, and Toaster Color Fonts greater than 64 lines tall now render correctly. Also, the Toaster no longer crashes when loading ToasterColorFonts.

LightWave has probably gone through the most changes of all. It now boasts quicker rendering. By changing the rendering order, it can be hastened by more than 100%. The new order for rendering is as follows: 1) Foreground IFF, 2) Non-transparent objects, 3) Backdrop IFF, 4) Background colors, and 5)

Transparent objects.

The foreground now has a clear color—not just black (as it was before), but in a range of colors. The idea is that you can lay down a background, lay over a foreground (with your chosen overlay color keyed to be transparent), and then you can insert graphics or video which is over the background but seen through the foreground. Kind of like blue screening...

One of the most effective changes made to LightWave is automatic texture map sizing, which is absolutely amazing. You can hit one button and it automatically sizes your texture map appropriately (no more pencils with desk-sized wood grain). Also in the LightWave upgrade is the ability to load Framestores directly into LightWave. These two features combined will mean that LOTS of people will start using Image maps (more on image maps below), instead of being scared away by them.

Lee is writing tutorials for the new manual. He's also working on three companion Toaster tapes—two of which are the tutorials recorded step-by-step onto tape. The first tutorial tape will include getting your Toaster going (use of the Switcher, Luminance keyer, Character Generator, and use with time base correctors and single frame controllers). The second tutorial tape will consist of techniques to utilize ToasterPaint and LightWave to create Toaster art. The

final tape will demonstrate how to use Art Department Professional, Deluxe Paint IV, and Pizel 3D with your Toaster to create graphics and animations. BreadBox is accepting preorders on these tapes; call us for more details.

The new manual is being heavily edited and rewritten by former AVID columnist James Hebert. It's being given a new graphic design, and should prove to be a more pleasant and effective read.

Since we're on the subject of graphic design, we feel compelled to mention Mark Porter. It's a name which may not be familiar to most; he's the genius behind all of NewTek's graphic design. Mark is responsible for the design of the entire Toaster package — boxes, amazing brochures, ads, and even convention booths. Mark is an unsung hero, except around NewTek, and we figured that it was time to start singing...

The next major convention to look for the Video Toaster is Image World in Miami, FL this month. NewTek should be showing the final version of 2.0. In addition, Lee will be giving two Toaster seminars. So, get some sun and see 2.0 up close and personal — before it hits the streets.

The Toaster was showcased recently at rock band Oingo Boingo's annual Halloween concerts. The band used three cameras, and the Toaster was used for transition effects, to play LightWave animations created by the band's Lighting Director, Charlie Unkeless, and to scroll credits at the end of the show. On hand to support the production was NewTek's Steve Hartford, and manning the Toaster controls all three nights was Toaster expert Bob Anderson.

Veteran special effects wizard and longtime Amiga user Joe Conti fought hard to get the Toaster acceptance at Apogee — and boy has it! The Toaster was highlighted in two episodes of *Unsolved Mysteries*, which aired in September and November. It's slated to be utilized for several more future episodes. Apogee will also use the Toaster for *Twin Peaks - The Movie*. It would appear that it's gaining more and more industry acceptance...

On to tips and projects. We'd like to

correct an error in last month's column. We gave a description of how to utilize a background that had been loaded into a frame buffer, but we incorrectly stated that the combined image could be saved. We should have written that the combined images could be recorded to tape. We apologize for any confusion that may have ensued.

We have a trick that will allow you to use PageStream 2.0 to create bitmaps for use in Pixel 3D 2.0. Create some text and change your printer setting to IFFIL.BM; print your document and import it into Pixel 3D. One advantage to this is that you can size and stretch text in PageStream without degrading image quality. It also gives you access to a full range of PostScript fonts. We converted Adobe fonts from a Mac format, using AMax and PageStream utilities, to make a 3D BreadBox logo.

Speaking of the Mac...Even though you're an Amiga user, you might take a serious look at the Sundance edit controller. This A/B roll edit controller lists for \$3995, and works with any Macintosh. (We see used Mac Pluses with hard drives for around \$650 all the time in southern California). The total system cost is easily under \$5000, including the Mac. What do you get for your \$5K?

Direct Toaster control (why else would I mention it?), and animation controller, 8 GPI triggers, 15 serial sources, CMX Edit list read and write, light management, and all the bells and whistles you'd expect from a high-end edit controller. One very nice bonus is QBase — a tape logging database program, available on line during the edit. No more, "Where is that shot?" Sundance Technology Group may be contacted at C307 N. O'Connor Rd., Suite 111, LB128, Irving, TX 75039, 214-869-1002

Since Lee will be in Florida, next month we should have information on the new RGB AmiLink series controllers.

We mentioned how easy texture mapping would be in 2.0. If you want a head start, there are a couple of great texture packages out there.

Leo Martin's Pro Textures is a really nice package at a very good price. Volume one has 80 images in both 24-bit and

HAM, and includes things like bricks, cobblestone, and gold. Edge matching means that the edges are seamless, which is great for downsizing an image or moving a map. Leo Martin's Pro Textures is distributed by Amazing Computers S.E., Inc., 1441 E. Fletcher Ave. #1450, Tampa, FL 33612.

Another great image package is Texture City. It is made by Texture City, and includes work by Turbo silver/Imagine guru, Victor Osaka. Texture City includes 24-bit images packaged in sets of 15-40 images in various formats, and is available for a number of different formats (including Syquest carts.). These images are gorgeous — good enough to use as backgrounds for ToasterPaint — and can save you many hours of work. On a recent job I did for Baskin Robbins (that, of course, was needed the next morning), these textures were a life saver — I could not have finished the job if I had had to grab the images I needed myself. Texture City can be contacted at 3215 Overland Ave., #6167, Los Angeles, CA 90034, 310-836-9224.

Fun for a rainy day...If you have a Toaster but don't own a TBC, there's still a way to get more interesting video into your Toaster. Hook up cable TV, either through your cable box's RCA out or through your VCR's RCA out. since cable is an electronic (not mechanical) signal, you can run it into input 1 without a TBC.

What can you do? Grab Madonna (with the framegrabber, that is). Add your own digital effects to Monday Night Football. Or for more fun, make a CG crawl page, saying "Warning — severe (weather disaster of your choice) is approaching (your home town) — take to (appropriate shelter) immediately!" Invite friends over to watch some TV (promise not to show them Revolution again), hide your Toaster in an inconspicuous location, and cue the title. When they seem relaxed, secretly run the title. Move away from the door...

I have a feeling that NewTek pals Penn and Teller (authors of the book and video tape "Cruel Tricks For Dear Friends") would approve of this.

Until next time, stay tuned...

PAYING THE BILLS



Making Money with Your Amiga!

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By the time you read this most of the sticker shock of NewTek's recent Toaster price increase will have worn off and be replaced by eager anticipation of the Toaster 2.0 software. I mention this now because it has real bearing on the focus of this article, namely "making money" using your Amiga/Toaster. I don't intend to "leave out" those of you who are doing professional work with your Amiga without using the Toaster. In a future article I hope to spend a bit more time sharing my own experience marketing my Amiga Video services for nearly 3 years before the Toaster; but this article is intended for those of you who are current or possible new Toaster owners who are wondering just how you are going to be able to justify the still hefty investment in the Toaster and related accessories. I thought it best for those new to the business side of videography and post production to explain some of the lingo associated with the "biz" as it can help you to better understand how to position the pricing of your services. I'll also discuss just what a bargain you'll be able to offer your clients compared to what they would have to pay elsewhere at even the most basic post production facility.

Cuts Only

This term is used to describe edits which are performed from a single source player/recorder to an editing VTR. Typi-

cally the kind of edits you would see used in a news story or documentary style industrial production.

A/B Roll

Two video sources are used, an "A" source which is then blended with a "B" source to the editing VTR. This type of editing is mostly associated with commercials and other types of presentation that require effects such as dissolve or "DVE" (Digital Video Effects) at the transition point between the "A" source and the "B" source.

Time Code

As the name implies, time information is "coded" to the videotape for frame accurate editing in the post production process. This is usually done with an external device (Time Code Generator), either during the recording of the original footage or at the Post Production Facility. Time Code is either recorded on the vertical blanking interval or on one of the audio tracks. SMPTE Time Code is the recognized standard used by the broadcast industry. Two subsets exist within the standard, Drop Frame, and Non-Drop Frame. Drop Frame is used more often by field production people; Non-Drop Frame is more often used by animators or those working with film to video transfers. Don't confuse "Control Track" with SMPTE time code. Both methods can be used in editing, but only SMPTE time code can be used to build a decision list

for multi-source post production. There are many portable TC generators on the market as well as a few internal A2000 cards that will generate your time code after the fact, but a time code "insertter" is required to make the appropriate "Window Dub" used in "Off Line" editing.

Window Dub

Refers to the working copy of the original footage which is transferred with the time code information displayed in a small window on the screen.

"Off Line" Editing

Refers to the process of editing a "rough cut" of your footage from your working window dub(s). This process is used to compile the "edit decision list" which shows your in and out points in SMPTE time code. This information when completed can be used in the final "On Line" edit session. Since "On Line" time is usually much more expensive in a post production facility, "Off Lining" gives you the flexibility to try different versions of the edit sequence before booking the "On Line" edit suite. Typically all the edits in this version of your project will be "Cuts Only". Any dissolves, graphics or effects will be done in "On Line".

"On Line" Editing

This is when all of the various elements of your production are brought together for the "Final Cut". The "On Line" suite contains the expensive technology required to do the fancy effects associated with A/B Roll.

Let's Talk Money

Generally speaking, most of the projects I work with fall into two categories, Broadcast Commercials, and Industrials. Although local market prices may vary on Broadcast production, Industrials tend to be about the same in most parts of the country. Assuming that you are to act as the "Producer", that is to say that you will be responsible for coordinating all aspects of the production (acquiring footage, talent, copy, music) through your company, a "Cuts Only" production is usually bid on a cost per finished minute basis. In other words, if the final project is to be 5 minutes long, then your budget would be set at about \$1000 per finished minute, equaling

\$5000. This is typical for a simple narration over footage style production with music background throughout. The same project done with "A/B Roll" would be roughly double the cost, or \$10,000. Adding items such as computer graphics or titles can vary widely on complexity, and would be billed separately on a time and materials basis. You would pay for all of the required elements out of the final budget, with the remaining portion to be your payment for overseeing the project. Copywriting, Music license fees, Narrators, On Camera Talent, Location Videography, and other associated costs can add up quickly so it's best to have a good idea of what these services will cost you before submitting a final bid. Broadcast projects are generally more expensive relative to the cost per minute, because there is as much if not more work associated with a 30 second commercial as there would be in a 3 to 5 minute industrial. Broadcast projects almost always utilize "A/B Roll" and digital effects as well as heavy use of fonts (titles) and graphics. The VoiceOver or On Camera Talent usually costs more as well. I find that most broadcast projects are more deadline related, demanding rush service

on almost every aspect of the production; this adds significantly to the cost and I bid accordingly.

Enter the Amiga/Toaster

I know we've all read NewTek's ballyhoo about \$50k worth of production effects for a fraction of the cost etc., but in all honesty I must say that inspite of the "hype" style in which that message is delivered, there happens to be a lot of truth to it. Until the Toaster entered my life, I had to go off-site for everything except the most basic productions, costing me up to 50% of my overall budget on outside post services for my higher budget projects. After all was said and done, I was actually making much less per project when going off-site. I guess it was some kind of penalty for my acquiring more sophisticated clients (work harder, make less money). Acquiring the Toaster and using it to replace those services meant that I also had other associated expenses, TBC's, Time code reader/generator, Accelerator/RAM, larger hard disk, broadcast quality 3/4" SP and MII VTRs, A/B roll edit controller, in short, a big pile o'money. I got that pile o'money by using the Toaster to add high end graphics to my work reels that I would

then take into other post facilities, cutting way down on the final "On Line" time, giving me more of my precious budget back in my pocket. The Toaster also gave me the tools to put "speculation" presentations together that would make my competitor's bids look like they didn't have the resources to do the job with the client's specific needs in mind. A subtle but none-the-less valuable marketing advantage. Even with the most basic Toaster system you can put together a knock out presentation in short order. All the expensive toys Toaster emulates or replaces cost high bucks in the "On line" suite. No matter what your opinion concerning the "Cool" folks at NewTek, there's one thing you gotta know, you can make money with this thing!

In future articles I hope to give you some ideas on marketing your services. There are plenty of opportunities out there such as art gallery music videos, accident re-creations for court evidence, home brew "how-to", and others. If you have some ideas that are working for you, write me care of AVID and we'll help spread the word.

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Spectracolor

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Spectracolor, from Oxixi, is a new HAM paint program that combines powerful drawing features with animation. Borrowing from its predecessor Photon Paint, Spectracolor retains some of the earlier program's better features such as the ability to wrap custom brushes around cubes, balls, cones, etc and offers some very useful animation features as well. Intuitive, well-designed and fast, Spectracolor is probably the best HAM-only paint program currently available.

Because Spectracolor combines HAM painting with animation, it is inevitable that comparisons will be made with Deluxe Paint IV (it doesn't help that both programs were released at approximately the same time). However, Spectracolor has some paint and animation features not found with DPaint IV or not as easily implemented. While I am a big fan and user of DPaint, I began to appreciate the strengths of the program after spending some time with Spectracolor. DPaint IV does have some features that I would like to see included with Spectracolor (such as DPaint's move requester for doing brush animations), but Spectracolor is an excellent program for creating HAM images and animations.

Upon loading the program, the user is presented with the tool kit. Included are a host of standard drawing tools, including eight different round and square brush tips, various freehand, straight and curved line tools, paint bucket and variable airbrush, and filled and unfilled polygonal, rectangular and elliptical shaped tools. Completing the list is the text tool, magnify tool, scissors tool (for cutting out

custom brushes) and undo and clear buttons. Underneath the toolkit is the palette paint box. While these are certainly standard tools, not all HAM paint programs have them. For instance, Digi-Paint 3 has no straight line tool.

Two of Spectracolor's outstanding features are found within the tool kit. The magnify window and palette paint box are both done exceptionally well. The magnify window can be moved to any part of the screen. Plus and minus tools allow quick zooming in and out from the magnified area. The magnification size of the window can be easily changed from maximum to minimum, or the default halfway setting. The area to be viewed can easily be scrolled around as well. Finally, the size of the window can be adjusted to show more or less area simply by clicking on the lower right corner of the window and dragging the mouse.

Directly beneath the toolkit, the paint box palette displays 64 colors that can be selected at any time. An extended color palette can be displayed underneath the standard paint box with all 4096 colors in three spectrum boxes to choose from. Because it can be difficult to select the exact shade of color needed from three small boxes displaying so many colors, a fourth box called the color zoom area is available. The color zoom area shows a magnified view of only a few colors at a time. When you move the cursor anywhere inside one of the three spectrum boxes, you see the color being selected and the surrounding shades inside the color zoom area. Once the exact shade

has been found, simply click on the mouse and it becomes the new foreground color. Colors can be modified using either traditional RGB or HSV sliders.

Spectracolor works well with fonts. A load command will access fonts from any source. Color fonts are supported. Text can be plain, italic, bold, underlined, outlined or reversed.

One of the strengths of Spectracolor is its ability to manipulate brushes in a multitude of ways. Custom brushes can be quickly and easily wrapped onto shapes such as a cone, ball, tube or three-sided cube. For example, perhaps you want to exaggerate a person's face by wrapping it across a ball. Simply cut a brush of the person's face and activate the wrap-around-ball command. The program will automatically wrap the brush around the ball or any of the other shapes provided. The size of the ball can be defined as well so that the size of the wrapped brush may be larger or smaller than the original brush. Contour wrapping is a sophisticated technique for wrapping brushes onto a user-defined three-dimensional surface. Any shaded area of the screen can be used to define the contour. After the area has been selected, a wireframe representation or contour grid will be calculated. The grid can be rotated in all three planes. After defining the perspective for the grid, the custom brush is wrapped around the countour map. The results can be amazing.

Custom brushes can also be bent, stretched or twisted into new shapes. The tilt command will move a brush through the X, Y, and Z planes. And finally, and

perhaps the most powerful of all the brush manipulation tools available, is the luminosity command. Luminosity allows the user to set the direction and intensity of the light source falling on a brush, as well as control the amount of dithering and contrast, as the brush is wrapped onto a ball, tube or other three-dimensional surface (the free wrap tool can be used to perform luminosity functions without affecting the shape or size of the brush). By using the luminosity function, the edges of brushes can be softened and sharp detail lost. The light source can be directly in front of or behind the object or moved off to the side. By being able to modify brushes in this manner, interesting effects such as back-lit brushes can be achieved.

Spectracolor has another set of controls that affect the way filled areas and brushes are pasted on-screen. Found under the foreground and background menu columns, they include blend, lighten, darken, hue and saturation, and the three logical color combinations AND, OR, and XOR. All are very useful and powerful, but the blend mode is particularly good. Simply put, blend will combine a brush, filled area or text with whatever is behind it. Blend allows the user to add delicate shade and shape to an object, or blur the edges and blend the object onto the screen. A special control window allows the user to easily change the settings. Among other things, gradient fills can be defined with blend. An example of using the blend function would be stamping a red ball as the sun against an evening sky. Blending would make the red ball appear to be part of the sky instead of just a solid red ball stamped on the screen. Blend is comparable to the translucency mode found with DPaint IV.

The other modes found with Spectracolor are very useful but describing each of them would take too long. Suffice it to say that the hue mode of Spectracolor is comparable to the hue mode of DPaint IV, and the hue and saturation mode comparable to the tint mode of DPaint IV.

The final major topic to be discussed is animation. Before Spectracolor (and Deluxe Paint IV), HAM animation was

limited or difficult at best. Spectracolor allows for either linear (straight line) or freehand (curved) motion paths of both brushes and anim brushes. Linear motion paths are defined by setting the first and last frame positions on your computer screen and having Spectracolor calculate the frames in between. This is called "tweening", where the user defines the beginning and end points of the animation and the computer does the rest. Freehand motion paths are done in a similar manner except that the motion path between the beginning and end points is defined by the user drawing any kind of path, straight and curved, for the brush to follow. Any kind of brush movement can be defined simply by drawing on the screen, even paths that loop around themselves. A wireframe preview mode is available that shows what the animation will look like before rendering.

Once the animation has been rendered, a set of controls much like that found on a VCR will play the animation at normal speed, advance the animation forward or backward one frame at a time, or quickly go to the first or last frame of the animation. A sixth control defines the rate of speed that the animation is played at, the range of frames to be played back, and the ability to ping pong or have the animation repeatedly move forward then backward.

It is very easy to incorporate resizing, rotating and the wrapping of brushes onto balls, cubes, etc., while animating the brush. A good example of this is one of the tutorials included with the program. A ball bounces down a flight of stairs and becomes larger as it approaches the front of the screen. By using the resize command to make the ball larger for the final frame of the animation (when the ball reaches the bottom of the stairs) than the first frame of the animation (when the ball just begins to move), it is very easy to create such an effect.

While the above information describes some of the more interesting features of the program, there is a lot more to Spectracolor. A few other noteworthy features are a severe overscan interlace mode of 384 x 560 pixels, color cycling, the ability to automatically add shadows

to brushes and filled shapes, the ability to recenter the screen from the program using the screen offset function, and a video mode that hides the tool kit and pointer when recording to videotape. The manual is very informative and well done, with plenty of useful examples and illustrations.

Spectracolor is an excellent HAM paint and animation program that is as good as its competition or better. While Digi-Paint 3 has similar blending modes, it doesn't provide animation. Deluxe Paint IV, in addition to offering non-HAM painting, does a better job of handling linear animations via the move requester and also does a better job of doing perspective. But Spectracolor offers freehand non-linear animations, powerful blending of images, brush luminosity and brush wrapping around shapes that DPaint doesn't offer or doesn't do as well.

Spectracolor
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Review

Imagemaster

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If you like programs with zillions of functions, you'll love Imagemaster. For about \$150 street price you get more image processing goodies than you likely will ever have time to fully explore. Imagemaster is not, however, a substitute for ASDG's Art Department Professional (ADPro). While the programs share some functions, they're largely mutually exclusive, with the latter excelling particularly in its support of many Amiga and non-Amiga image standards, as well as scanning hardware. Imagemaster, on the other hand, supports IFF, DCTV, GIF, HAM-E, and that's about it. But there's literally no limit to what it can do with images in these formats.

Imagemaster is the any-Amiga version of Image Professional, the software that comes with HAM-E, the enhanced display device from Black Belt Systems. And let's not forget Imagemaster-F/c, a special version for Impulse, Inc.'s Firecracker 24-bit display adapter. Included with all three versions is a powerful integrated 24-bit paint program.

All image processing is done using 24-bit accuracy as well. Unfortunately, without HAM-E or Firecracker, the program employs only the standard Amiga graphics modes with or without interlace (but without overscan), including Extra HalfBrite, to display the results. All images are scaled to fit the current resolution when loaded, which results in reduction or enlargement, depending on the image's original size. HAM offers

the most colors, of course, but you're limited to low horizontal resolution. There are two HAM modes; Quality HAM in which the palette is calculated based on the colors present in the current image, and Fast HAM which uses a preset palette. The program seems to sacrifice quality for speed in either case; displayed images suffer even in the quality mode, displaying a marked spotty appearance. A close comparison between the same GIF image loaded into both Imagemaster and ASDG's Art Department Professional (ADPro) prove that the latter does a smoother job of rendering in HAM. Of course, since you can save images in 24-bit format, you can use most Amiga display enhancers to see modified images in all their glory.

Imagemaster and DCTV

Speaking of display enhancers, Imagemaster supports the DCTV file format, but only via the library file `dctv.library` distributed by Digital Creations, but unfortunately not included either with DCTV or Imagemaster. If you load a DCTV image, it's automatically converted to 24-bits. You can render (save) an image to a DCTV-format file and the image is shown briefly (don't use overscan) during the conversion process, immediately after which the Workbench screen pops to the front with a file requester.

However (hot tip coming!), the DCTV screen is still available via the Amiga's multi-tasking operating system.

There's no front/back gadget on the screen, so you must be able to put all other screens behind it, or use the keyboard. I use and highly recommend a public-domain utility called Flip, available on the Fred Fish disks, that lets you flip consecutively through all available screens with Left Amiga-N, and through all windows on the current screen with Left Amiga-M. In fact, while Imagemaster multi-tasks nicely, its interface lacks front/back gadgets, so you must use keyboard controls to switch to other screens.

Once you're done looking at the DCTV image, flip back to the Workbench screen and click on Cancel (or save the image if you like) to return to processing or painting. Of course, when you're actually working with an image you're stuck with viewing it in the Amiga graphics mode of your choice.

In speaking recently with Barry Chalmers, one of the program's developers, I asked about possible direct support, that is image processing in the DCTV display mode. Apparently there are no plans for such a version at this time, although I suppose they might change their minds if enough of you DCTV owners out there buy the program and write in.

Getting the Big Picture

Before we get down to describing the sumptuous array of features, here are a few more vital statistics. Imagemaster can handle images of up to 32,767 x 32,767 pixels, within memory constraints

of course. By the way, for a picture of that size all you need is a measly 5 gigabytes. There's an optional Undo, and full ARexx support. Included is an ARexx script and support programs to load and save 24-bit images in a lossless compressed format developed by Black Belt called PMBC. In my limited experiments I found PMBC to save about 10% more space than standard IFF.

The manual gives required memory sizes for other size images, and tells you how to calculate the requirement for any size file. It also gives a rule of thumb for memory consumption: use your thumb to peel off \$\$\$, give unto your local memory vendor, and make sure you get memory in return. And to that I add, if you're not adding that memory to a 68030 or 68040 accelerator card, you're throwing the \$\$\$ away. Some operations take a while even on my 68040-equipped 2000.

Unlike ADPro you can have many different pictures loaded simultaneously and perform operations between up to three at any time. Specifically, a third

picture can be defined as a blend control buffer, from which its luminance is used to determine how two other images are to be blended together. There's a whole buffer control section which lets you do everything except copy one buffer to another. There is a quick workaround, as described in the manual; just clip the entire image to a new buffer.

In the default display mode, called Entire Image, the loaded image is scaled to fit the current display mode. The alternate mode, Exact Image, shows the image at full size, letting you use the arrow keys to pan around if larger than the current screen size. When I tried this, the area panned into wasn't displayed correctly. I called Black Belt about this and was assured that this was fixed in Version 1.4, which is available as a free upgrade.

The Interface

Imagemaster doesn't use any drop-down menus—just buttons. The Main Control Panel consists of a row of nine rectangular buttons covering the the bot-

tom fifth of the screen; Exit Imagemaster, File Input/Output, Compose Panel, Paint Panel, Display Panel, Buffer Panel, Macro Panel, and Setup Panel. Some buttons aren't enabled until certain conditions are met. For example, the Compose Panel, used for mixing images, is ghosted until you load at least two images and specify a secondary buffer to be mixed with the primary or visible buffer.

The Macro Panel lets you load and save macro sets, edit short individual macros, invoke an external text editor to modify longer macros, and run macros. You can edit and invoke macros any time with Control-Function Key and Function Key respectively.

The heart of the program is the Process Panel, which contains a full 72 buttons. From left to right and top to bottom they are: Contrast, Brightness, Gamma, Dynamic Range, Histogram Equalization, Sharpen I, Sharpen II, Low Pass Filter, High Pass Filter, Smear, Decontour, Contour, Remove Pixel, Remove Streak, Remove Chunk, Remove Feature, Make

ANY BUDGET, QUANTITY



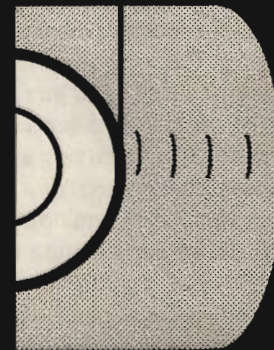
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The Process Panel's F/X Panel button brings up another array of 29 special effects, including Bas-relief, Wave Distort, Dome, Random Tile, Make Shine, and on and on. The Analysis Panel offers eight image analysis functions, including Histogram Evaluation, Set Scale, and Measure Area and Distance. Its useful Color Count function not only tells you exactly how many different colors are in your picture, but it also calculates the percentage of the available color space used based on the number of pixels in the image.

All processing effects and analytical functions can be performed on the entire image, or on an arbitrary rectangular or elliptical region specified with the mouse, or on a centered rectangular area, or on polygonal or freehand areas you specify interactively. Black Belt has even invented a new way of specifying a region, called Polyarc, that consists of a ring of spline segments; sort of a spline polygon. There are buttons for selecting the last region used.

After an initial period of experimentation, you'll probably end up using a few of the processing functions constantly, while hardly touching the rest. In any case, it's nice to know they're all there. Here's a brief look at some of the more useful and/or interesting effects.

Contrast, Brightness, and Gamma

(brightens or darkens middle colors without affecting the extremes) all work similarly to the same functions in ADPro, except that they use a scale of -100% to +100% instead of -50% to +50%, and to increase Gamma you reduce the percentage. Curiously, while ADPro's manual emphasizes Gamma's brightening capability, Imagemaster's stresses the contrast-affecting properties.

Convolution is the method of using matrices of numbers to perform sophisticated image processing functions, chief among which is the emphasis of obscured detail in fuzzy images. Imagemaster uses convolution for its Sharpen I and Sharpen II functions, and lets you create your own convolution setups in a 3 x 3 matrix.

Remove Pixel, Streak, and Chunk are fine for smoothing out image irregularities, but their cousin, Remove Feature, works spectacularly well by letting you specify a region whose interior is to be defined by and blended in with its immediate surroundings. I used it to quickly remove my glasses from a digitized self-portrait, and with a bit of touching up, the results in 24-bits were convincing. This process will no doubt be popular among videographers with vain clients.

There are a number of processes that work by smearing pixels using an averaging effect, including the unique Spiral Blur, Smear, which is non-direction, and its directional cousin Motion Blur. The latter works fine for short distances, but the blur intensity doesn't fall off quickly enough for longer distances.

I could go on and on—the list of effects sometimes seems endless. You really need to spend time experimenting to get a feel for most of them. Fortunately, one of the region choices is Previous Region, so combined with Undo you can easily use the same area to repeatedly test variations of an effect. The manual illustrates some of the more bizarre effects, using the same large picture of Charles Darwin. If he could have seen what would become of his portrait, he might have dropped his theory of evolution in favor of one of de-evolution.

Compositing Images

Imagemaster gives you a tremendous range of ways mixing pictures to-

gether. Not only are these techniques applicable to combining images, but also to the way processes affect their target areas. There are two basic methods; merging, in which the entire secondary image is scaled to fit into the area you specify for the merge, and rub-through, in which only the part of the secondary image in the applicable area is merged. There are 12 variations on these two, plus normal and absolute add and subtract, exclusive or, emboss and punch, brush warp, and more.

The Set Blend screen is a powerful tool for individually controlling how the top, bottom, and left and right sides of the secondary image blend into the first. It consists of four line graphs which you can draw in directly, flip vertically and horizontally, lock, and copy to any or all of the other graphs. There are five blend presets for commonly used graph setups, and you can save and load custom setups. And as mentioned, you can use a third image's luminance to control how the primary and secondary images are combined.

Painting With Imagemaster

This is a full-featured paint program, not just a few drawing functions tacked on as an afterthought. You can use any buffer or pick up any shape from the current image as a custom brush, or paint with a standard rectangular or elliptical brush. Line drawing functions include the usual geometric shapes and freehand, and modes include solid, tint, antialias, use range, brightness, and sharpen. Transparency brush modes are additive, absolute, and fade out, which eventually becomes completely transparent. There's also fade thru, which fades in, then out. Not to mention the various modes that let you rub through to another image. One of the few design flaws is that when drawing with a solid color you have to switch to a different panel to change the color.

For area fills including geometric shapes, freehand, and flood fills, as well as line drawing, you can set ten ranges each containing up to 256 colors. Ranges are easy to set by selecting the endpoints from the palette cube, then using either the RGB, the RGB mirror or the Hue spread gadget. Range fills can be hori-

zontal, vertical, any angle, or radial, warp horizontal and vertical, and can be used to outline any shape. Brush fills can be tile, brick tile, warp, and warp tile. The Smooth Range option automatically creates a smooth gradient from a range consisting of as few as two colors—a great shortcut if you use gradient fills often. Fill transparency can be controlled via the Compositing controls mentioned above. Last but not least, you can add text using standard Amiga fonts, Workbench 2.0 Outline fonts, and color fonts.

ARexx Support

As mentioned above, the program fully supports external control as well as enhanced interactive control via ARexx. You can assign up to ten ARexx scripts or commands to the function keys, loading and saving them in sets. And if you set things up right, which doesn't take much, you can use your favorite text editor from within Imagemaster to modify scripts assigned to function keys with a few mouse clicks or keystrokes. All program commands are available from ARexx scripts. Incidentally, if you have Workbench 2.0, you have ARexx.

Customer Support

Support from the manufacturer is important with a complex product like Imagemaster. I encountered a number of more-or-less serious bugs while researching this review, and was somewhat dismayed to find in the manual that customer support takes place only between the hours of 2 and 4 PM Mountain Time. The first day I encountered nothing but busy signals, redialing constantly over a 15-minute period with no luck. The second day I got through after about ten tries, and was courteously and informatively assisted by one of the program's developers. He explained that all the bugs I found had been stomped in version 1.4, which he promised to mail to me right away. So Black Belt does provide good customer support if you can get through, which can be difficult given such a limited window of availability.

Imagemaster can (and should) be installed on a hard disk, and uses the manual method of copy protection. When you run the program for the first time, it asks you for word 4 from line 2 in para-

graph 3 on page 140, for example. If you answer correctly, it creates a file called "xconfig.xconfig" in the Workbench S: directory. For the next few days you don't get the question. After a while, however, the program asks you again to make sure you still have the manual, and if you answer correctly, the xconfig.xconfig file is updated. In my opinion, the only type of software that should be copy-protected (if any) is games, and it's especially irksome with programs such as this one that have the potential to be everyday tools. You won't get very far with Imagemaster without the manual in any case. And the other major Amiga image-processing program, ADPro, seems to be doing fine without any copy-protection at all. Black Belt, you're cutting off your nose to spite your face!

The 200-page spiral-bound manual on the whole is quite good, describing functions concisely, with more-or-less elaborate explanations where necessary in most case. There's a good table of contents, and a better but incomplete index. A few commands are omitted, which isn't surprising considering the massive quantity of program functions.

Black Belt is to be congratulated on the addition of such a useful and feature-laden program to the pantheon of Amiga graphics programs. There's no other image-processing program that comes close to offering the wealth of power contained in Imagemaster. Although when you use the program you're seeing HAM mode, you're actually working in 24-bits, and the final results are as high in quality as you'd expect with the availability of millions of colors. And if Imagemaster doesn't get me to start programming in ARexx in order to animate some of those effects, nothing will!

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SCRIPT WRITING WITH PROWRITE 3.2

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You say you love tinkering with your Toaster, but dread writing the video script? Maybe you just don't look forward to hassling with margins and the special formatting involved in writing scripts.

Fortunately, there is a solution, and it's in a word processor you may already own. ProWrite 3.2 from New Horizons Software is a great program; fast, versatile, and easy-to-use. That's a bonus. What makes ProWrite perfect for video scripting and storyboarding are two elements you won't find combined in another Amiga word processor—side-by-side columns and picture support.

ProWrite meets any scripting need with up to five columns. You can edit, reformat, put in page breaks, and change fonts, all without disturbing the relationship of the video description or pictures associated with the text! ProWrite makes writing and editing your video script as easy as writing and editing a letter.

Setting Up For Scripting

Load ProWrite from the CLI or by clicking on its icon. When the program finishes loading, you will have a new, blank document named Untitled #1.

To set up this document for video scripting only two settings need to be changed from the factory presets. Go to the DOCUMENT menu and choose LAYOUT.

Click once on the up arrow of the Columns Number gadget, changing NUMBER OF COLUMNS from 1 to 2.

Then click on the RIGHT-HAND Columns Type gadget. This is for side-by-side columns. Click on OK and you're ready to start creating.

You can save different configurations under different names. To save your Video Script preferences at any time, go to the PROJECT menu and choose SETTINGS and the submenu SAVE AS. If you save under the name "ProWrite Defaults" ProWrite will default to this configuration every time you start the program. Save under another name to load your script settings only at the times you want to work on new scripts. I suggest you save under a name such as "Scripting Defaults" so the file can be recognized as a ProWrite Defaults file while doing disk housekeeping.

Basics Of Using Two Column Setup

Back at the document screen, you'll see the cursor is in the upper left part of the screen. You are in the video column on the left, so start typing a typical description. As you type you will see word wrap taking place around the middle of the screen, not at the usual right margin.

When you have completed your video text, and you need to get to the second column on the right, simply hit RETURN, as though starting a new paragraph in a letter. You will see the cursor, and subsequent text, appear in the audio column. Type in the narration that accompanies the video text you have put in the left column.

Once you have a video/audio section completed, start a new video/audio section with a SHIFTED ENTER combination. The cursor appears on the left side again, on the next line beneath both sections. To create a space between two sections, use SHIFTED ENTER again before typing in a new section.

To illustrate how this works in an actual script, you can see how I wrote this passage from a recent script on ecology for children. Starting with the cursor on the left, I write the video side:

CHILD FEEDING FISH IN TANK

I typed this normally, "child feeding fish in tank", and then made the phrase all uppercase by selecting the phrase with the mouse and choosing the option CHANGE CASE: UPPER CASE from the EDIT menu.

Then I hit RETURN to move to the second column and I typed the narration:

You might think fish don't take care of the place where they live. If you have fish in a tank at home, you know you have to give them food and clean the glass.

As you can see, the narration takes up more space than the video. ProWrite word wraps and moves the text down automatically. A new video/audio section will start at a point under both of the previous sections, keeping audio and video connected without any confusion.

Making Small Format Changes

You can use soft returns to format within the column. A soft return is the SHIFTED RETURN key combination. By putting a soft return between the two sentences of my narration, they can form two different paragraphs while still remaining connected to the video portion of your script.

You might think fish don't take care of the place where they live.

If you have fish in a tank at home, you know you have to give them food and clean the glass.

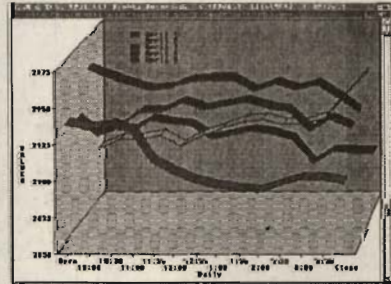
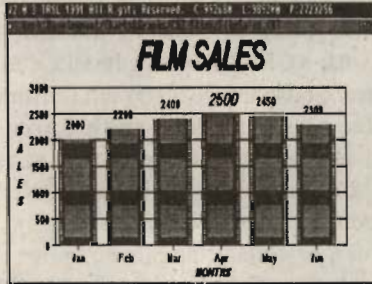
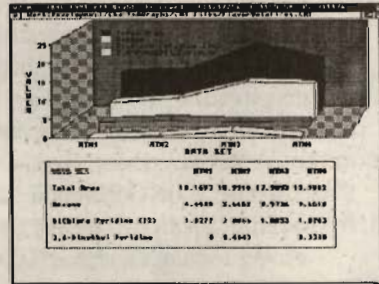
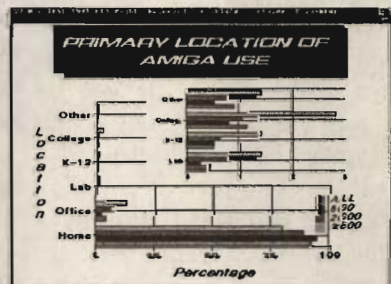
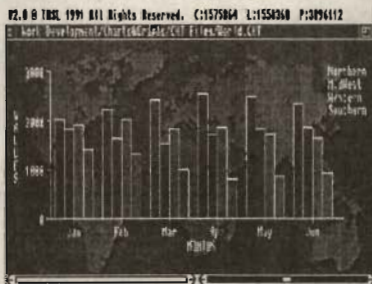
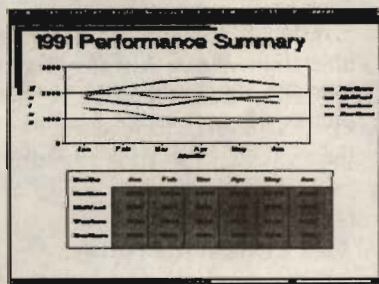
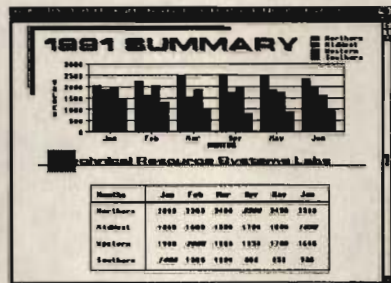
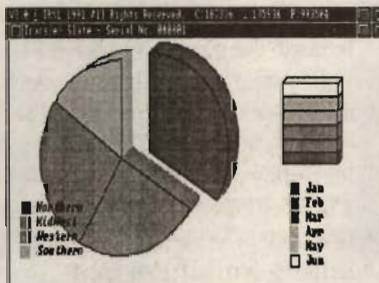
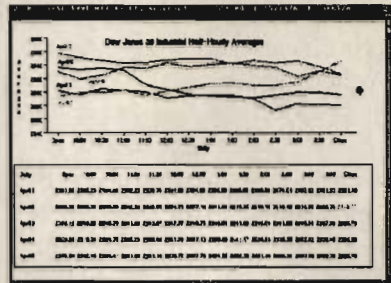
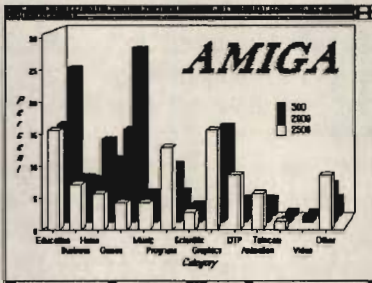
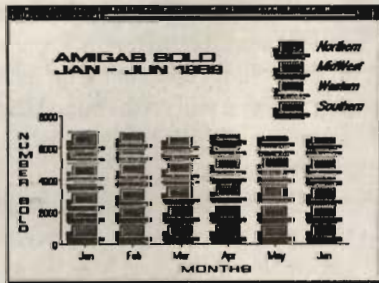
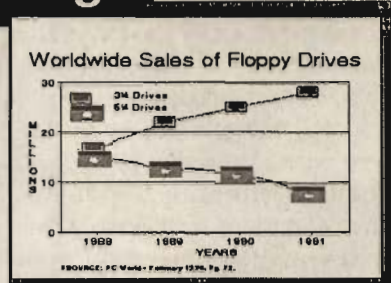
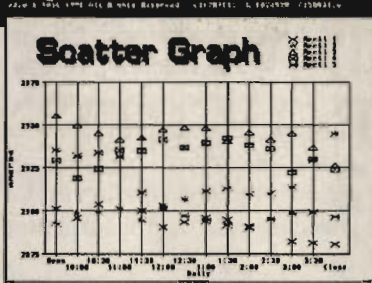
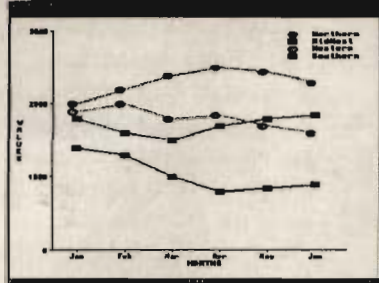
A soft return can be used to modify or comment the video section as well.

CHILD FEEDING FISH IN TANK
(LIVE ACTION SEQUENCE)

To begin editing, first highlight what you wish to edit. Double clicking on a word selects it, triple clicking selects a

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sentence. Holding down the ALT key and double clicking selects a paragraph. To select the whole document, you can use ALT and triple clicking, or choose the command SELECT ALL under the EDIT menu.

Using the CUT, COPY, and PASTE commands under the EDIT menu lets you make changes to the document. Select and cut or copy a section. Put the cursor where you want the section to go and paste it to a different part of the document. Column relationships will always be maintained.

New or Moved Sections

If you want to add a new video/audio section, put the cursor at the beginning of the left column and use SHIFTED ENTER to open a new section. Move the cursor left one space to get back to the beginning of the new section, and type in the video and audio as usual. The rest of the script will move down to make room.

Keep in mind the invisible format indicators in the document, such as returns, soft returns, and shifted enter commands, when you cut and paste. If something isn't working the way you think it should, you may be putting the cursor on the wrong side of the invisible format indicators. To make these indicators visible, choose the SHOW INVISIBLES command under the VIEW menu.

To move one video/audio section, be sure to select the entire section. By this I mean both columns including the end of paragraph marker. This way you are making sure the columns will remain hooked together in the same relationship they held before they were cut or copied.

Making Big Format Changes

Individual sections can be formatted independently. When the cursor is in a particular paragraph, any formatting changes made to the ruler at the top of the document will change that paragraph.

If the ruler is not already showing, you can see it by choosing SHOW RULER in the VIEW menu. The ruler will appear at the top of the document, with measurements and formatting guides. By clicking and holding the top part of the left margin marker, you can move the marker and indent the paragraph by any

number of spaces. Click, hold, and move either margin marker to change the margins for the paragraph which contains the cursor.

To make ruler adjustments over larger areas, first select the portions you wish to change by clicking and dragging the mouse. When you click and drag the mouse at the beginning of a section, the highlighting will continue to the second part of the column before it jumps to the next section. This indicates how ProWrite has joined the video and audio in the two columns.

Once the highlighting has covered all the paragraphs you wish to change, make your adjustments to the ruler. The changes will apply to all paragraphs selected, even those that are partially highlighted.

Another way to reformat large areas is to copy and paste the ruler settings. When the cursor is in the paragraph whose formatting you wish to copy, choose the menu option RETAIN FORMAT under the EDIT menu. Move the cursor to another paragraph, or select several paragraphs, and paste the settings down with the command APPLY FORMAT under the EDIT menu.

To set wider margins for the entire document, choose the menu option SELECT ALL under the EDIT menu. Now any adjustments made to the ruler settings, or an APPLY FORMAT command, will apply to the entire work. The LAYOUT option in the DOCUMENT menu lets you change the amount of space between the columns.

Storyboarding

For storyboarding with pictures the basic technique is the same. There are two additional steps; bringing in the picture, and making room for the picture in the column.

To bring in a picture, choose the command GET PICT... in the PROJECT menu. Choose the desired picture from a menu, set the shading, and the picture will appear with its upper left corner fitted into the upper left corner of the screen.

To reposition the picture, move the I-beam pointer over the picture and the pointer changes to an arrow. Click and

hold to drag the picture into position anywhere in the document. Let go of the mouse button to drop the picture into place. You can also highlight the picture with a single click and use cut and paste to move it somewhere else.

Do not use pictures that are wider than the column you have set up to hold them, or the picture will overlap the text in the next column. To further fit the picture into your format, you can use the grab boxes on the right side, bottom and corner of the picture to resize.

The second additional step needed to bring pictures into a multi-column script is using the SHIFTED RETURN key combination, or soft return, to create space in the column containing the picture. In this way you will set the boundaries of the picture, so ProWrite knows where to put text beneath it.

Once you have the picture in position, place the cursor at the beginning of the column the picture is in. Now use soft (shifted) returns to get to the bottom of the picture. When the cursor is visible beneath the picture, press RETURN, and your cursor will go to the second column and you can start typing your text.

When you are finished typing your text, choose SHIFTED ENTER to create a new column. It will begin on the next line under the picture, under the area you defined with soft returns.

If you are cutting or copying a section which contains a picture, the picture must be cut or copied separately from the text, but the space you created for the picture will not change. Moving or copying columns with pictures is thus a two stage operation, but all other techniques remain the same.

The Finished Product

Once you have written, re-written, and polished your script, you will naturally want it to look its best when printed. ProWrite is a WYSIWYG word processor, so you can easily evaluate any format changes. Use the ENTER key instead of the RETURN key to force page breaks, thus keeping your video/audio sections from splitting onto two pages.

ProWrite comes with a 100,000 word dictionary for spell checking. You can add specialized or technical terms it

doesn't already know, to the unlimited, editable, User Dictionary. ProWrite also has a thesaurus with 300,000 cross-references, to make finding the right word a little easier. You can simplify complicated processes with ARexx macros, which let you automate any sequence of ProWrite procedures with an easily written text file, and you can write an unlimited number of ARexx macros.

The DOCUMENT INFO... option under the DOCUMENT menu tells you the number of words, characters, lines, sentences, paragraphs, pages, and pictures. It also tells you the average word and sentence length along with a grade level of readability rating for the document. When writing for younger children it's important to make sure the narration isn't getting over your audience's heads. This article, being more technically oriented, is rated at grade level 9.0.

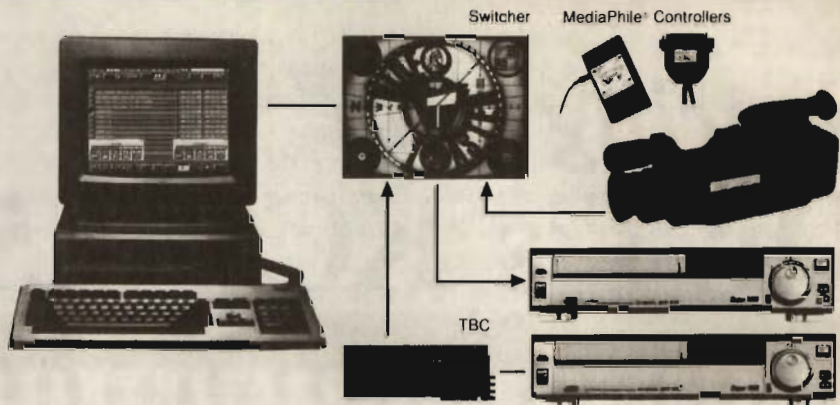
You can add headers, footers, and automatic page numbers to your scripts. In the LAYOUT section you can choose the title page option which allows the first page to be a regular document page without columns. When printing storyboards on a dot matrix printer, ProWrite can print pictures and NLQ text on a single pass. ProWrite has PostScript capability built in.

ProWrite gives you further flexibility by allowing different colors, attributes, or fonts within the same document. You can use two different colors to signal the transition from one narrator to another, or differentiate between animated and live action video by using bold type for one and italics for the other. Stage directions could be in a different, smaller font.

In conclusion, I can't see how any scriptwriter can pass up the power and simplicity of ProWrite. Not only is it one of the best word processor available for the Amiga, it's the only one that supports video scripting in such depth.

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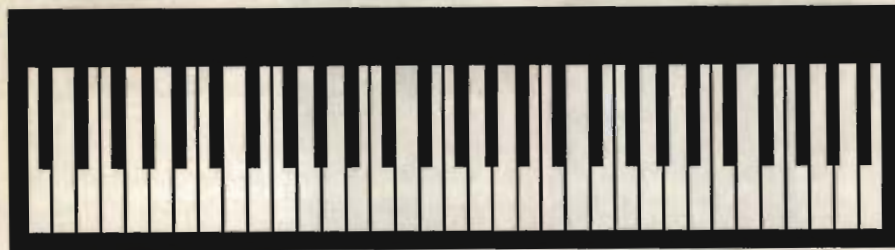
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From my first introduction to a friend's Amiga 1000 computer, it seemed obvious to me that THIS machine represented the future of video and music production. Immediately, my Apple II+ computer with MIDI interface and 8-track sequencer went up for sale, so that I could acquire one of these Sight and Sound wonders.

Soon I was the proud owner of a new Amiga 1000, complete with a Mimetics Sound Sampler, MIDI interface, and Pro MIDI Studio (version 1.0.) For months afterwards I proceeded to experiment, sampling, sequencing and recording the resulting compositions between Guru Meditation Sessions. Unfortunately, for all it's promise, the machine and software seemed entirely too unstable (at least in my hands!) for use in performance or in studio situations. Alas, in frustration I traded my 1000 for a Macintosh 512E with a harddrive and Opcode MIDI interface and sequencing software. The Mac was at least stable enough to use on a day-to-day basis without my having a nervous breakdown.

After my first few video scoring

projects, two cassette releases, and numerous live performances and studio sessions with a MIDI-assisted synthesizer system, I was convinced of the potential of these new tools in real-world situations. I was contacted by the Amiga dealer who had originally sold me the 1000, and asked to perform at a Commodore Users' Group Convention in Texas. For the show he provided a new Amiga 500 and a few software packages including Texture and Dr. T's Keyboard Controlled Sequencer (version 1.6.) Texture, with its unmodified IBM manual, proved to be completely unusable to me; Dr. T's KCS 1.6, while difficult to learn was the primary software chosen for the performance. And even today, Dr. T's KCS is still my first choice whenever precision synchronization with video is required.

In my years of composing electronic music for video and multi-media applications, I've used (and continue to use) a wide variety of music software packages for my Amiga-music studio. And, inevitably, the program to which I repeatedly return for it's flexibility and editing precision is Dr. T's Keyboard Controlled

Sequencer. First written for the Apple II and Commodore 64, the latest release of this program for the Amiga is KCS 3.5. The KCS program has gone through numerous revisions including Level II, a tremendously powerful editing tool. While originally a bit obtuse to operate and understand, the best of the Level II program's functions have been mostly absorbed into KCS' new pull-down menus. But after years of re-releases and upgrades, the program has settled into a form which is very dependable, with rock-solid timing. In it's latest incarnation, it looks and feels like a well-written and well-tested Amiga program.

KCS 3.5 is divided into three different modes. Track mode, which functions much like a 48-track tape recorder contains many special functions not available in conventional tape recorders. (The track mode is structured exactly like Dr. T's MIDI Recording Studio, an eight track version of the KCS.) Open mode offers 128 locations for sequences which may be made up of either single or multiple tracks. Special sequences called control sequences can be used to start and stop other sequences as well as control their volume, tempo and number of repeats. Using what Dr. T's calls "loop-back" recording; sequences may be assembled using control sequences, and the resulting MIDI output can be re-routed to the MIDI input. The sequence can then be re-recorded as a single continuous sequence. Song mode can be used to chain sequences in drum machine fashion.

Each of the three modes has a different form and function, allowing different approaches to be used, depending on the inclinations of individual composer, as well as the requirements of the piece. Each uses a similar edit screen which allows the selective editing of notes and MIDI events within the structure of a serial list. This event list type of editing allows precise placement of "hits" to correspond with visual cues.

KCS 3.5 offers greater timing resolution, direct control of Dr. T's phantom MIDI/SMPTE interface, pull-down menus and a number of other improvements over previous releases. Now, editing notes and data is simply a matter of

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marking the segment to be modified by highlighting it in the event list and pulling down the appropriate menu and selecting the desired change. KCS 3.5 is not copy protected, allowing harddisk installation and operation without the need for a key disk. Unlike earlier releases of KCS, the program now imports standard MIDI files without the need for first converting them to Dr. T's own file format.

KCS 3.5 comes bundled with three additional interactive programs. Tiger, (The Interactive Graphic EditoR), was previously sold as a separate stand-alone program which offers graphic editing of note and controller information. AutoMix, a real-time MIDI data mixer can be used like a programable multi-channel mixing board to adjust in real-time any assignable continuous controller including volume, aftertouch, pan, etc. Quickscore is an excellent rudimentary music notation printing program.

The programs all operate under Dr. T's Multi Program Environment allowing the easy sharing of data between programs without the need of first transferring the information to RAM disk. For example, a song can be recorded in the track mode of KCS along with the controlling movements of AutoMix, then edited using Tiger's graphic environment, and finally printed in manuscript form with Quickscore. The same song is automatically available in all of the different programs without the need of transfer the file between the different modules. Programs which operate under the Multi Program Environment are "connected" through software. Switching between any of the programs initiated under MPE (or the Workbench) is a simple matter of selecting it's name from the pull-down menu.

KCS treats MIDI data in much the same way that your word processor handles text; sequences, notes or, phrases can be cut, copied, and pasted between tracks and sequences. This allows tremendous editing and compositional flexibility. MIDI data such as note information, velocity, pitch bend, aftertouch, or other continuous controller or system exclusive messages can be recorded and then transferred, split, filtered, or merged

into tracks or sequences. KCS also allows control of the Amiga's internal sounds and will save voice configurations as a part of the song's environment file. Up to 16 IFF 8SVX sounds may be loaded at once. Although the Amiga's sound chip is only capable of producing four sounds simultaneously, these voices will be dynamically allocated as they are called upon by the sequence. This feature allows music and sound effects to be produced even without the use of external MIDI equipment. Sounds sampled or created with any Amiga sound editing program which saves in the IFF 8SVX format, such as Sunrize Industries' Audition 4 or The Other Guy's Synthia II software may be used.

Real World Audio for Video

Earlier this year, I was contracted by a video producer to compose music and special effects for a series of three seasonal television spots for a shopping mall. Each piece needed to have an identifiable signature through some similarity while being somewhat different from each other, while maintaining the season's basic theme. The producer provided a copy of the edited video spots with a SMPTE window burn for exact reference and coordination of sound and images.

I first composed a very energetic, upbeat rhythm by using the track mode's multi-track play/record screen with my Alesis HR-16 drum machine. In this mode the tracks will loop repeatedly. (The length of this loop is determined by the length of the first track.) The drum track was written in segments beginning with a two bar drumroll intro written in the track edit screen's step mode. These segments were transferred to the open mode as individual sequences and frequently saved them under easily identifiable sequential names, i.e., Intro, MallDrums1, MallDrums2, etc. Open mode accommodates the use of a process often referred to as sequence calling. A control sequence is assembled which instructs the program to play specified sequences in a given order, with the possibility of transposing the pitch and volume of the sequences. The segments were linked together in this way to construct the complete drum part.

The first of these 30-second spots

was the summer commercial. A detailed list was made of the particular sound cues which would be needed, including the sounds of camera shutters, chimes, bubbles, "surf guitar", and a slide whistle. The appropriate sounds were assembled on my Korg DSS-1 from the photographer's 35mm camera, water and a straw, old guitar samples, and my trusty toy box. (These sounds could have been just as easily sampled and reproduced on my Amiga, but my Korg was used in this instance for speed, sound fidelity and the convenience of editing the sounds while operating KCS.)

The producer and I watched the spot in slow motion a number of times, taking very accurate note of the exact order and placement of the "hit points" for the visual cues. After the required sounds were sampled and edited, several rough takes were made in which I manually placed the sounds by playing and recording the MIDI note information in the track mode. Each individual sound may be recorded on a separate track. Using the "hit list," the precise positioning of these sampled sounds was easily accomplished in the track edit mode by adjusting their placement in their individual tracks. (Just in case forty-eight tracks is not enough, the tracks may be combined or merged to open additional space at any time.)

These multi-track sequences were then transferred to the open mode for storage on disk and comparison for the best possible synchronization. When the best take was determined, the sequence was again transferred to the track mode, where a few sparse tracks were added for variety and emphasis.

After some minor adjustments to the volume and placement of the sounds and effects, a number of versions of the piece were recorded to digital tape. Relative volume, reverb and delay settings, and instrumentation was changed and repeatedly recorded to give the producer the opportunity to try a number of different mixes. In order to retain a large degree of similarity in the three commercials, we decided to use the same drum rhythm on all three spots. It was a simple matter of selecting a variety of different drum sets and trying them within the same rhyth-

mic structures. So for the second spot, the Back-to-School commercial, the original rhythm was again used with a slightly different array of percussion sounds.

Again, the producer and I made a detailed list of the sound cues. The commercial faded in from static, a slate is shown, again the camera flashes. A computer is shown, followed by watches, golf clubs and jewelry. Finally the model is spun around by a large dog on a leash and the picture fades again to snow.

Appropriate sounds are sampled and synthesized to represent and heighten the visual cues. A bank of samples is assembled on the Korg and sounds are selected on the synthesizers which enhance the images' ability to catch the attention of the viewer. Since the basic form had already been built for the summer commercial, it was a relatively simple job to add the additional tracks to control the new samples and sound cues.

The same process was repeated

for the final "Christmas" commercial (my personal favorite of the three spots.) This time to lighten up the feel of the rhythm, we substituted detuned triangles and bells in place of many of the original drum tones. We had fun sampling a toy robot for the sound of a wind-up train and putting together a bank of samples that sounded like a toy store full of children. Again, it was a simple matter to edit the sound cues to fit the visuals.

After all, I guess what really mattered in the long run was this: the client was happy because the commercials looked good, the producer was happy because the project came out on schedule, and I was happy because the project was done in record time and everybody else was pleased. Any tool which can help you be on time and under budget and can actually help in the creative process deserves praise. And, Dr. T's KCS 3.5 certainly fits that description.

For anyone using the Amiga in an audio or video studio setting, I strongly suggest you look at Dr. T's Keyboard Controlled Sequencer 3.5. It is a serious

tool, ideal for composing music or editing sound for video.

Audition 4 is from Sunrize Industries, 2939 S. Winchester Blvd., Suite 204, Campbell, CA, 95008. 408-374-4962

KCS 3.5 and the Phantom MIDI/SMPTE interface are distributed by Dr. T's Music Software, 100 Crescent Rd., Needham, MA 02194. 617-455-1454

Synthia II is by The Other Guys Software, 55 North Main, Suite 301, Logan, UT, 84321. 801-753-7620

Jaxon Crow is available for questions, comments, or consultation at: Neon Tetra Productions, P.O. Box 876, Hot Springs National Park, AR 71902. Please call or write for a free catalog of our audio and video tapes.

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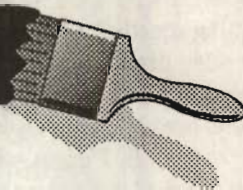
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Using Deluxe Paint as a Character Generator



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Amiga videographers are indeed fortunate to have so many excellent options when it comes time to add text to our video creations. Hardware add-ons, like the Toaster and DCTV, and software like, Pro Video and TV*Text, offer us tremendous CG bang for our bucks. But one tool we shouldn't overlook is good old, tried and true DPaint, especially in its 4th incarnation.

According to AVID's recent survey, 97% of all Amiga videographers use DPaint. So since it's right there in your toolbox anyway, let's look at some reasons why you might want to give it a crack at your next titling task:

- Money.** Some of you may not want (or be able) to shell out for a dedicated titling system (let alone a Toaster) when good old DPaint will more than get you by.

- Time.** This is my main reason for preferring DPaint. I've found that it's usually quicker to figure out how to make DPaint do something than it is to tackle the learning curve on another program.

- New Look.** I've exchanged so many tapes with my fellow DTVers that now I can spot a Pro Video title a mile away. The excellent Shereff Systems programs are victims of their own success. Everyone uses them, and the screens they produce tend to have a sameness anyway. CGII will help fix that problem. DPaint's flexibility and plethora of features make it able to do lots of really unique things.

- Resources.** When you choose DPaint for your titling, you'll have lots of help in your corner. No other Amiga tool (though the Toaster may be gaining fast) has so many fonts, backgrounds, tutorials, and generally helpful products designed to be used with it for video purposes. There are so many, in fact, that a comprehensive survey of them is far beyond the scope of this article. I will touch on some though: the tried and true must-haves, some new upgrades, and some products you may not have heard of.

We'll cover lots of ground, starting with the simple and moving on to the complex. If you're an experienced DPainter, skim over the surface until you find something that looks like unfamiliar waters and jump in. Since we'll be discussing DPaint IV's new capabilities and looking at some brand new products, there'll be something informative to even the most experienced DPaint titlers.

Minimalist Titles

The simplest possible title is one-color text typed onto a blank screen. Viewing TV for any length of time provides substantial evidence of how effective these simple text screens can be. Numerous big budget type commercials and programs have used stark black and white block text to create dramatic titles. Don't confuse technological capability with quality. Just because your gadget can make a title fly onto the screen going

through more gyrations than a Romanian gymnast doesn't mean you that's what you *should* do.

So let's start by creating a simple screen. The DPaint manual and various tutorial tapes can provide detailed instructions for what we're going to do. I'll give you the general steps and a few tips to boost over a couple of tricky hurdles.

First, load DPaint and specify hi-res, overscan, two colors. Using the minimum number of colors makes DPaint more responsive and requires less RAM and disk space. It is easy to move your pictures to a higher number of colors later, but reducing down to fewer colors may be more difficult.

Now load a good mono-color font. For video work you'll need something considerably larger than the 18-20 pts available in the standard fonts. The Zuma Group fonts (each typeface is available in several different sizes), the original Masterpiece Fonts from AROCK (over 100 typefaces in the set), and many good quality PD fonts are large enough to fill the bill. Premier Software has corralled several PD fonts, 48 pts and larger, into one collection intended for video use.

To get the Font Requester, click on the text icon with the right mouse button. This requester has some little quirks which can be very frustrating, especially to beginners. One is that, after typing a name in the "Drawer" box, YOU MUST PRESS ENTER WHILE THE CURSOR'S STILL IN THE BOX. If you don't, DPaint won't look where you told it to. Another nasty little habit DPaint has is that if you have too many fonts in a directory (and to DPaint, any more than 200 is too many), it simply won't let you see all of them.

Now stamp down the text cursor, type a few characters and we have a title. But now that we have something we want to tape, we need to get rid of some things we don't. Esc gets us out of text mode, F10 takes away the menu bar, icons, etc., and Del gets the cursor off the screen. Esc; F10; Del. The last two of these disappearing acts cannot be accomplished from menus or icons, so remember these keys!

Multi-Page Titles

Now let's say we need a second page of text in our production. We could press pause while we clear the screen and start typing again, but we all know that unnecessary pausing puts strain on the VTR's heads and stretches the tape. And here it really would be unnecessary because we can easily do both pages before we start taping by using the spare page. Then, after taping a couple of seconds of our first page, we just press 'j' and the second page is displayed.

Now what if we have a sequence of more than two pages of titles? We create an animation where the number of frames equals the number of pages we'll need. The number of "spare" pages you can have this way is limited only by your Amiga's RAM. Using an anim as a succession of spare pages, even in compressed animation format, probably won't save us any memory because there's too much difference one page to the next, but stepping through them by pressing the '2' key sure is a simple way to handle long titling sequences.

Color Fonts

For DPaint to properly display color fonts, you'll need to run the program ColorText before starting DPaint. (NOTE: ColorText expects to be run from the Workbench. When I run it from a CLI shell, it doesn't return me to the current shell. Then, later, it will sometimes crash my system after several font loads.)

There are lots of good color fonts out there. First on the list have to be Kara Fonts. And there's good news from that quarter for DPainters. Kara Fonts is releasing this month, "HEADlines3," including their most popular Toaster fonts re-done for use in DPaint: CHROMEserif; GOLDExtrude; GRANITEchisel; MARBLEbevel. All in approximately 75, 100 and 125 points. This is great not only because these are terrific fonts, but because they (along with her new animfont, see below) are proof of Kara's continuing support of titling in the Amiga's built-in resolutions. With tools like Kara Fonts, you don't have to have a zillion colors to make beautiful titles.

And there are several good programs for creating your own fonts which you

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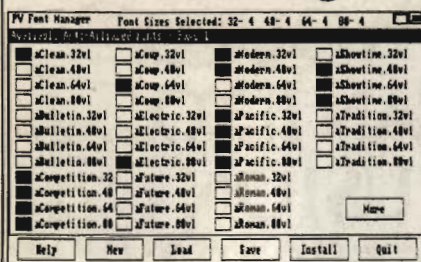
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can use in DPaint. Again, one of the first, Calligrapher from InterActive Softworks, is still quite adequate for creating standard or color fonts up to 160 points high.

Ugly Edges

(Alias, The Jaggies)

Pixels are rectangular. So when we draw anything that has edges other than exactly vertical or horizontal, the result is that undesirable stair-step effect: the jaggies. We can't get rid of them, but we can fool the viewer's eye into not seeing them by blending the color of our letters more gradually into the color of our background.

Go to the palette requester and create a spread of five colors. The color at one end of the spread should be dark, and the lightest color should be at the opposite end. Use Spread to make the intervening colors into a gradient bridge between the dark and light colors. Finally, use Range to make those colors your range.

Now you're ready to anti-alias your title. The simplest and quickest way is to let DPaint do it for you. Turn on anti-aliasing by clicking on the effects menu or by holding down Alt and pressing slash to step through the choices (High/Low/None). Now pick up your title as a brush. Let's say we want to resize it small and anti-alias it at the same time. Press numeric keypad Enter to turn on Perspective. Now hold down control while moving your mouse backward and forward. The size of the perspective box will change indicating the size of your brush. Now stamp it down and, when it's finished drawing (high anti-aliasing may take quite some time for a large brush) it should be both smaller and smoother. But not the smoothest.

The most tedious way, but the one which produces the best results, is to anti-alias by hand. The keys you'll need most are 'M' (magnify), and the right and left brackets (which let you move up and down in the range of colors without having to click on a new color every time you need to change colors). With practice, you'll quickly learn what works best. But no matter how good you get at it, hand anti-aliasing is slow. You'll probably only want to use it when you need a title to look really perfect.

More Ways To Edge Out The Jaggies

A third, method (which sort of falls between the two previously discussed) of softening the jagged edges of your text is to use Outline. Pick up your text as a brush and select the nearest-to-foreground color in your anti-alias range. Now press 'O.' Your text will be outlined in the color you chose. Select the next color in the range (using the '[' and ']' keys will move you up or down one color), and press 'O' again. The edges will soften, eventually into a glow-like effect. To undo changes you don't like, don't use Undo. That won't work. Instead, press upper case 'B.' That always restores your original brush.

This method offers an extra advantage if your title will be genlocked over live video. Remember, to anti-alias, DPaint creates a sort of color bridge to smooth the transition from the color of the text to the color of the background. If you're working on a "blank" screen, that's your current background color. But if the ultimate destination for your title is over video, in some places those color bridges may be inappropriate. Let's say your text is black, was anti-aliased onto a white background and will be genlocked over a blue sky with clouds. The text will probably look perfect over the white clouds, but crummy over the blue part of the sky. Or maybe you're doing a commercial where the name of a car dealer is to be genlocked over a picture of the dealer's showroom. Some places the anti-aliasing looks good. Others lousy. Uniformly outlining your text in successively darker or lighter color (i.e. away from your text color) will look pretty good everywhere.

We've faced both real-world situations recently and found Outline to be a client-pleasing solution to genlock related jaggies.

Smooth Edges For Sale

Actually, the simplest way of all to have anti-aliased titles in DPaint is to buy them. The anti-aliased fonts used in Pro Video titling systems are also available separately in a DPaint usable form from Shereff Systems as "Video Fonts II."

Recently AROCK Computer Software brought out its Masterpiece Font Collection in anti-aliased form. Each of the 110 typefaces has also been resized into smaller versions so that they now total a whopping 586 fonts (in typography, each different size of a typeface is properly referred to as a separate font). This collection is intended solely for video work and is extremely useful. It comes PowerPacked onto eight disks and includes a helpful fold-out "poster" showing all the fonts together. I sometimes do titling in interlace (320 x 400) resolution for one reason or another and the tall, narrow fonts in the Masterpiece Collection are especially useful here.

The fonts aren't hand anti-aliased, but they do look quite good, especially on a TV, which has its own way of smoothing out jaggies. You may still want to tweak an 'O' here or a 'C' there for the best possible results, but most of the anti-aliasing and resizing work will have been done for you.

The documentation of the Masterpiece Fonts is quite informative, and in fact includes a discussion of something I've always wondered about in DPaint titling. Little groups of pixels sometimes appear at the top of hi-res titles, apparently randomly. Masterpiece's documentation solves the mystery, if not the problem. "Electronic Arts is aware of the problem and may correct it at some future time." All we can do for now is erase the little pests by picking them up as a brush with the right mouse button.

A Little Background Information

One time you may well need to do some anti-aliasing by hand is if you stamp your title onto a background picture. A great range of these are available from many different sources. A few of the more interesting (if less well known) are:

- Robert Young - beautiful HAM marble backgrounds.

- WJ Kronemyer Associates - interesting collection of all kinds of backgrounds for video (excellent demo tape available for \$11.00).

- Digital Visions - digitized scenes of lakes, castles, flowers, etc.

VidGen (recently upgraded by

Microft Software) is a program which creates backgrounds intended for video use which can then be loaded into DPaint. But, for us DPaint-can-do purists who wouldn't dream of using a different program to create pictures, but would still like a little help, there's ProFills from JEK Graphics. Pro-Fills are patterns and textures which can be loaded as Interlace or Hi-Res brushes and used, with features like fill and tile, to create our own broadcast-ready backgrounds.

And to add animation to your titles, you may not have to animate the text. It might be more impressive to animate the background. Scenery Animator (Natural Graphics) creates "bird's-eye-view" animations of fractal or real-world landscapes which make great backgrounds because it can output standard IFF anims, loadable right into DPaint. (For more on this terrific program's capabilities see my review and Dr. Mortier's comments in the November '91 AVID).

Cool Shadows

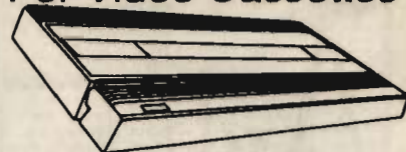
A simple shadow can be done very quickly using F2 (press F2, click on a color darker than your text and stamp it on your background a little lower and to the side of where your text will go). A bit more complicated, but much neater on a varied background is the F5 shadow. Stamping down a brush while in F5 mode changes each pixel under the brush to the next lower (or higher if you press the right mouse button) color. If your colors are spread out in a smooth gradient (or you create a smoothly graded range in the range requester) the result should be very realistic looking shadows.

I demonstrated this technique in my first tutorial tape on DPaint (MBZ Products). For a print how-to (including shadows on a HAM background in DPAIV) I'll once again refer you to the November issue of AVID and Doug Shannon's excellent, in-depth tutorial.

Put A Gleam In Your "T"

What's the opposite of a shadow? A gleam. If you grasped the idea of the shadow, the concept here is obvious. Instead of repainting the shadowed area in darker colors, you "shade" it in brighter colors. To do this while still in Shade mode, simply stamp down the brush with

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the right mouse button instead of the left. The area under the brush will be lightened. To watch a brilliant realization of the gleam in action, try one of Kara Fonts' Bullion characters. You'll see a diagonal bar of light pass across the gleaming, metallic face of the letters.

Brushing Up On Animated Titles

We mentioned Kara Font's Bullion as an example of a gleam effect, but it also provides us with a segue into the moving topic of animated titles.

Kara's "AnimFonts" aren't really fonts in the way Diamond and Emerald are, but rather collections of animbrushes, each of which forms a letter. Like Kara's color fonts, the AnimFonts are graphic testimony of how good something can be made to look on an Amiga using only eight colors. And a whole new set, AnimFonts 4, is due for release this month. Its ChromeChiselSCRIPT has been totally re-rendered to create a more realistic reflective look. Another change, prompted by users' requests, is that the size of the lower case characters will be larger relative to that of the caps (115 points).

All The Right Moves

If you want to make your titles dance to your own tune, you'll need to master the Move Requester. All manner of twists, turns, barrel rolls, shatter effects, etc. can be accomplished with it, then neatly picked up as an animbrush. You can even animate multiple flat, 2-D surfaces in coordination with each other to simulate 3-D objects. After all, a pair of tumbling dice or a book flying off a book shelf and the pages opening are only accumulations of moving flat surfaces. But going into detail about the XYZ's of the way the Move requester works is way beyond the scope of this article. To learn it, study your manual or watch one of the better DPaint tutorial tapes. It will be well worth your effort.

If you're going to move a title over a background, that may mean a moving shadow, too. And you can accomplish that using the same F5/Shade effect as described above. Shading or "gleaming" with the title brush and then calling the Move requester to shade all the frames of

your animation works the same as shading the current screen, with one exception. Pressing the right mouse button doesn't produce a reverse shade, but rather the opposite. In DPIII, we would have had to remap the whole animation to reverse the direction of the light/dark spread in the palette. But in DPIV, all we have to do is go to the range requester and click on reverse.

One tip about the Move requester before we move on: For smoothest moves, correlate the number of frames in the move and the number of pixels you're going to move the title brush. For instance, if your title is going to move 100 along the X axis (with no Ease-in or Ease-out), then 50 frames would mean a smooth, 2 pixel per frame move. 25 frames = 4 pixels per frame, and 200 frames would mean a one pixel move every other frame. Whereas an odd number of frames would mean that your object would move more pixels in some frames than in others.

You can also use the Move requester to make rows of text crawl into the distance, like the opening of Star Wars. (Hint: make each line of text a separate brush, and be sure you've set perspective center properly.)

Morphing Magic

One new DPIV feature that cries out to be used in titles is Morphing. Here, one brush (a title, for our purposes) is transmogrified right before our very eyes into another one. To do this, DPaint creates an animbrush where each frame is a step in a gradual transition from the brush which is the start frame to the different brush which is the last frame. A bride's maiden name could become her married one. Or lines of credits could morph from one to the next.

One warning, morphing is so easy and so neat that it's bound to be overused. So do your morphed titles soon, before everyone else wears the effect out.

Dedicated Animations for Titling

I've seen several animations sold on disk to be loaded into DPaint, played, perhaps altered, then taped. Not only do you have the option of altering the titles used in this way, but you save a genera-

tion over buying ready-made titles on tape. Most are intended for use in wedding videography, and a particularly interesting group of 2-D cartoon style animations, called "Transitions," is available from InSync Digital Corp..

Another sort of titling animation which uses animbrushes in a different way is one where the characters in a sense become characters. These are 2-D cartoon style animations where each letter is an animbrush which is itself a representation of a real world thing. For instance, fireworks may explode, and each pyrotechnic form a letter, and the letters spell words. Or the rollover numbers of a pinball or slot machines become words. Letters can be sprayed on the screen, graffiti style, by an animated spray can. Letters can burn to the ground, or be shot from a toy cannon by an animated clown. At MBZ, we've developed animated fonts of all of the above, most with accompanying digitized sound effects.

So, we've gone from static titles to moving titles to morphing to full scale, cartoon-style animations. And I feel like I've barely scratched the surface. DPaint continues to yield new ways to wow viewers with terrific titling effects. I hope Electronic Arts is at work now on DPaint V, but whatever the case, the DPaint tools currently available to us have lots more, "Gosh, how'd you do that?" left in them yet to be discovered by inventive DPainters.

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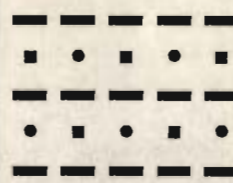
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SAMPLING SOUNDS



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The creaks and cracks that you hear are not accidental. They were painstakingly installed by a highly skilled person with state-of-the-art computer hardware and software. The effect, of course, is mind-boggling, which is the intent. Now, turn off the sound, and see if the sound effects aren't absolutely essential to the production. There. Told you so. Sound effects - an art and a science, merged into one.

So, where do you get all these nice sounds, and how do you get them into this state-of-the-art computer process called "video production?"

First, The Digitizer

Sound is analog. That means it's not broken up into convenient bits like everything a computer does. Analog sound has no discernible "levels" of loudness or quietness from totally off (zero volume) to totally on (maximum volume). Digital sound means that the analog sound has been converted into a stream of numbers - yep, plain old numbers - that the Amiga can understand. And edit. And recompute. And pump back out to internal electronic contraptions that re-create the sound as analog voltages, the better to drive loudspeakers with.

To work with sound in a computer, you have to digitize it. To put it back out as sound, you have to analog-ize it. However, as a computer user, you only have to worry about the digitizing part on the

intake. The output is handled transparently to you by the computer's sound "channels." The Amiga has four of these sound channels, cozily divided as two on the left, two on the right. That means, stereo sound, each channel of which can have two components or two "voices." There are new music software products on the market that do some fancy tricks in order to permit more than four (up to sixteen, actually) internal "voices" at one time. These in essence do the same thing you can do with sampled sounds. They "sum" the waveforms of several voices into one, and put that composited waveform out to the available sound channels. You'd have to put in extra hardware to get more than two sound channels (stereo), no matter what; however, what the native channels play can sound like a bazillion "voices," if you work at it hard enough, either with the new music software or with digital sound sampling techniques.

Sound digitizing hardware is plentiful for the Amiga. There are a number of well-known digitizers, including PerfectSound, Aegis' new SoundMaster, and a bunch of others.

PerfectSound is a mature product. It's been around since the early days of the Amiga, and it's been through three updating processes, with additional capabilities, quality, and features added at every generation. It's an eight-bit digitizer, as are the others just mentioned.

Digitizing in more than eight bits of resolution is possible on the Amiga, but it's not inexpensive. Generally, you'd need to spend the considerable extra bucks to do more bits of resolution only if you were doing professional music applications. Digitizing skillfully at fairly substantial speeds with eight bits of resolution, (and applying the tricks of the editing process to the results) will generally provide plenty of quality for video purposes - though of course, the higher-end stuff is even better.

SoundMaster

Aegis' SoundMaster is a deal. It comes with a built-in microphone which is on a par with the ones nestled into telephone answering machines for recording your outgoing message. The microphone is highly susceptible to background noise, and should be used only if it's all you have. The unit also provides inputs for stereo microphones, however, and here's where you can help overcome the background noise problem with good microphones. If you do your narration sitting at your computer desk, you're likely to get considerable background hum from the fans and harddrives in your computer, as well as the occasional click-click from a mousebutton or keyboard. A simple solution is to build a desktop "booth" for your narration with a large cardboard box, lining it with the thickest foam or felt you can find. The

eggcrate-looking foam that manufacturers pack electronic parts in is ALMOST as sound-savvy as genuine Sonex for this purpose. Fluffy carpet chunks make good sound soaker-uppers, too.

In addition to the microphones, you can plug any stereo sound source into these digitizers, and digitize away. Digitizing wants a "mic level" signal, not one of multi-hundred watts intended for routing to loudspeakers. Attenuation sliders or knobs on the digitizers permit adjusting the input to the digitizer, so you won't overdrive it.

In use, the SoundMaster digitizer does what it's supposed to, and well. The slider's a nice touch, but the software appears to be doing considerable work let you get away with over or under driving the unit.

Now, The Software

When you produce video, you record analog sound onto the videotape, along with the picture. In the editing and post production processes, you usually want to sweeten up these sounds, getting rid of problems, perhaps choosing the best sections from among several takes of the same scene, and mixing in sound effects, narration, music, and the like. Video, too, usually has stereo sound, especially the newer stuff. So, what you need is a way of mixing all these things together. You also need a way to do editing operations on the sound mix, especially the duration, pitch, timbre, and timing of the sampled sounds.

A sound digitizer is nearly useless without software to edit and manipulate the sound after it's digitized. No matter how nice the digitizer, there are always things you'll need (or want) to do to enhance the effects. One of the most important of these is to MIX sounds together. Mixing sound in the digitizing process can free you from the expense of a sound mixing board in the video editing process, or help the mixer out by combining several sources into one before the sound is routed to the sound switcher. In many ways, you get much more control over the nuances of the sound with sound editing software than you'd get with a mixing board, anyway.

Audition 4

PerfectSound's current software package for this purpose is Audition 4, a pure-Assembly-language program of joyous speed and capability. Even on an unaccelerated Amiga, Audition 4 makes short work of editing and manipulating large samples, and permits realtime testing of effects before committing to the process. The program will sample directly to disk, even directly to a floppy, and will play sounds back from disk, as well. Even floppies. It also makes rich use of the Amiga's multi-tasking abilities to allow looping a sound while changing the parameters on its special sound editing features. That means you can hear what the sound's going to do before you apply the effect to the data in memory - saves a lot of work by eliminating the necessity of repeatedly saving the sample to disk, in case what you do to it doesn't pan out.

Audition 4 also has a number of editing features that distinguish it from the pack. These include superb support for stereo samples, while still permitting editing, pasting, and effects application to the individual channels. This is software with which you can work as easily as with a sound mixer board, and it's all in the Amiga where the samples originate.

The software offers the usual things, too. Convert any sampled sound to an 8SVX instrument file for either regular Amiga music programs (DeluxeMusic Construction Set, etc.), or to the specialized instrument format required by Aegis' Sonix program. These can be in one, three, or five octaves, too, and sounds that you have sampled at speeds different from the music programs' requirements (8363 Hz for 8SVX, 10,000 Hz for Sonix) can be "re-tuned" to meet those specifications. Instrument sound files which are sampled at different frequencies will still play, but you won't get a "C" pitch when you put a "C" on the programs' staves. Audition 4's resampling is blindingly fast. Let's hear it for Assembly language programming.

Other normal sound manipulations include FLANGE, ECHO, and RAMP.

FLANGE mixes a second sample with the first (in either or both stereo

channels) in accordance with the users fondest desires. The user can fondly desire that the sound be 50 percent quieter, mixed down to 30 percent, or whatever. It's easier to do than it is to explain in words. Anyway, "FLANGING" a sound can give it depth and voluminousness (as opposed to raw volume), or introduce oddities for a spacey, other-worldly effect. Musicians use flange on amplified guitar sounds, among others, to achieve JUST that right effect. So, if you want to duplicate that effect with a digitized sound of your own. . . "FLANGE" it.

ECHO is, well, echo...echo...echo.



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RAMP is volume adjustment over time. If you want to just slide into a sound slowly, Ramp the volume up from zero to 100 percent at the beginning. If you want it to fade away, do the reverse at the end of the sample.

Filters

Most sound sampling software offers a lowpass filter, and most of it takes half of forever to apply the filter to a large sample on an unaccelerated Amiga. Audition 4 goes the extra nine miles, offering blinding speed at applying the filter, as well as more than just one choice of filter. The low pass filter's there, too, of course, and it works fine and FAST. Low pass means "pass everything that's low frequency and seriously attenuate or remove the high frequencies." If you have a sample where there's tape hiss, record surface noise, scratches, ambient noise, or whatever, low pass filtration will help control it (at the expense of some of the harmonics of the sound, especially if it's a recorded musical instrument). With eight-bit sampling at low frequencies, the low pass filter should see a lot of use, as low frequency sampling muddies the high frequencies anyway, and you might as well remove them.

The High pass filter does the opposite of the Low pass one. You would use this mostly to get rid of a droning noise, or to make a sound more "tinny," as though coming from a Victrola or transmitted through time. Great for flashbacks, or simulated telephone conversations. The Band pass filter does both of these at once, carving out the middle frequencies and attenuating or eliminating the rest.

The program's excellent documentation provides technical information on these filters' effects, along with the specifics on the frequencies that are affected or removed. A little experimentation will have you Low passing and Band passing with the best of 'em in no time.

In addition to the filtering, the program permits you to boost "treble" or "bass," almost as you would by turning a knob on a stereo receiver.

PerfectSound

The PerfectSound software, the precursor to Audition 4, comes with the PerfectSound digitizer. It offers much the same collection of features, plus the ability to hold several sound samples in memory at one time. These can be mixed into left or right channels for stereo, or they can have other features applied to them to create instrument sound files. PerfectSound's instrument creation process offers more control than the other products, especially if you want to make up one of those "special" instrument files like InstantMusic's "Drumkit," which contains various samples for each of the instruments octaves. PerfectSound's instrument creation requires some poring through the manual, however. The process isn't particularly simple if you go beyond the "make instrument" level that it and the other software packages offer.

SoundMaster Software

For software, SoundMaster comes with AudioMaster III, the current stand alone incarnation of which is (brace yourself) AudioMaster IV. AudioMaster III is a highly capable program for sample manipulation, and there isn't much difference between it and its newer version. AudioMaster IV operates faster, has a few extra options, and permits applying some of its options to both entire samples and user-selected ranges within the sample. One of these is the retuning process, which makes for some very interesting possibilities. For example, to save memory, you can resample a sound at a low rate during parts of the sound where there's only low frequencies to worry about. When the high pitches come in, you can leave the sampling at the higher rate.

Another nice addition to the soft-

ware is a duration adjustment, so you can stretch or squeeze a sound as needed. This feature is quite similar to changing the pitch and sampling rate of the sound's data, but it's geared more toward adjusting the time the sample takes to play. Nice.

AudioMaster IV also offers a much improved filtering facility. This one is fairly complicated to operate, but has near-infinite adjustment possibilities among the possibilities for filtering, including pass, cut and boost.

Both of the AudioMaster programs offer the ability to sequence sounds. If you're recording from the Amiga, this is a good way to get a lot of coordinated sound effects, music, etc., played in precisely the right order at precisely timed intervals. You can also put together musical scores by repeating chunks of a sample. Particularly effective for rhythm tracks, as with the examples included with the program.

All Of The Above

As for user interfaces, there isn't much difference between PerfectSound, Audition 4, and AudioMaster III or IV. They're all Amiga-ized programs from the get-go, complete with pulldown menus, proportional slider gadgets, and the usual stuff. All of them are intuitive and easy to figure out. Things do what they look like they'll do, and the programs are all very forgiving of user errors. You can crash them, but it's difficult to do - as it should be with all software. You can abort most operations without waiting for them to complete, too, in case you've set something going that takes forever. Most of the time, aborting the process will kill the sample in memory, but if you've been a good paranoiac and saved and re-saved it constantly during your work session, you can just reload and pick up where you left off.

Which One To Pick

For features, speed (blinding speed, in fact), and advanced sound mixing capabilities, Audition 4 gets the nod, and it works with SunRize's PerfectSound digitizer hardware, as well as Aegis/Oxxi's SoundMaster hardware - although it doesn't honor the SoundMaster's internal microphone as well as AudioMaster

(whichever numeral). For general, all-round sound sampling, the SoundMaster hardware gets the nod - among the ones under discussion here, at least - especially if you update its software to the Number IV product. These "nods" are pure personal preference, however. Except for the superior Audition 4 software, the differences among these products are small. They're all capable of the job, and you won't go wrong with any of them.

Problems

The one flaw in Audition 4 is a rather annoying one. The program has a hard time setting its edit pointers to the ending byte or three of a sound sample. When you sample a sound, the last thing that happens is that you turn off the sampling process. Often this is after the sound you want is played, and something else is getting started. So, you need to trim the ending chunk of a sample, in order to whittle out what you want to keep. Audition 4 insists on pulling that one or two bytes forward as the end of the sample. Even the samples provided with the program exhibit this problem. The simple workaround is to use the program's range-keep function to perform the cut, instead of trying to trim it from the right side, which it refuses to do. It's a simple thing to fix, but it shouldn't have to be fixed.

AudioMaster software (either one) comes with a neat CD-player program that plays sounds from disk, cueing them up in an elaborately realistic CD-player fashion (it even blinks lights on the graphic control panel). The new version of the program comes with updates of this and other programs that are included in the package. Some of the utilities require use of the Amiga command line interface, which isn't very friendly. These utilities do things that the program should do from pull down menu selections.

PerfectSound? Well... It isn't perfect, either. Nothing is. However, nothing specific suggests itself.

Wish List

All these programs still leave some wishes unfulfilled. For example, there are still many manipulations that would be nice to be able to perform on sounds, digitally. For one thing, a power user would want more and more elaborate noise reduction and control algorithms. Sure, these things take a lot of computing power, but the alternative is some extremely expensive audio gear, and vast computing power is cheap. If you already have an Amiga.

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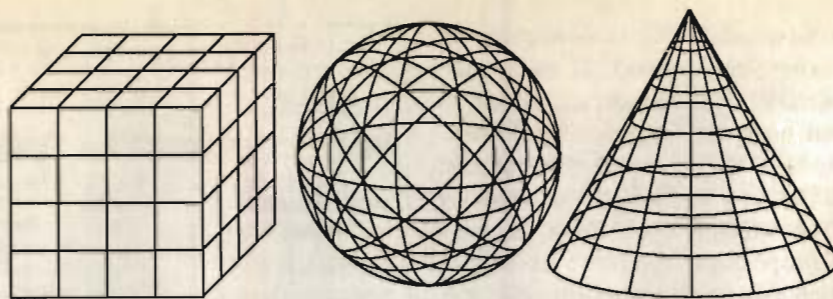
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OBJECT • LESSONS

3D Modeling Concepts

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All 3-D renderers need objects to display, and finding or building just the right objects for your project can be a difficult task. This problem is especially acute when you want to display a custom logo or object that nobody else has ever built; you'll never find it in LightWave's "Phonebook" of objects, or in a set of public domain models. This article is the first in a short three part series that discusses where models can be found, how to modify them for your custom applications, and even build them from scratch. These articles are not a tutorial in any particular modeling program, but instead discuss general techniques that can be used in all of them. This first article will discuss how to approach model construction and certain sources of models you can tap. A following article will talk about some of the strategies you can use for converting complex and unique shapes into accurate 3-D computer representations. A final article will talk about another aspect of modeling, brush maps and how to best use them.

Modeling Strategy

Many times you need a certain, very specific, model for your renderer. The rendering might be a flying logo animation or an office scene that needs just the right kind of desk chair to make it complete. Sometimes the lack of objects in the public domain or your personal library just aren't sufficient. In these cases, you have to accept the fact you'll have to

build it yourself. Some custom objects are very easy to build. A company name can be digitized, and a program like Pixel 3D or Imagine can convert the brushmap into a 3-D object. But what if you have a client who wants a model of their cafe? Or you need to render a specific brand of car? It is the complex models that take considerable thought into how you can input their shape into your modeler.

When you decide to build an object, odds are you'll sit down and boot up LightWave, Imagine, or whatever program you use to design 3-D objects. But this is often the worst thing you can do! Once I was producing an ocean scene, and I had a vision of a dolphin leaping out of the waves. I built a stretched and bent teardrop shape, added a blunt nose, some flat, triangular fins, and colored the final object with a nice "dolphin grey." I was careful, and the final dolphin shape was very clean and detailed. But I was still dissatisfied with the results. After hours of tweeking, I still wasn't able to get a reasonable form.

This is when I learned perhaps the most important rule of object design. Never, if you can possibly help it, just sit down, boot your Amiga, and try to build the object you need. Why? Well, it turns out there were several problems with my dolphin, which I finally realized when I saw a T-shirt with the picture of a dolphin on it. My model was based on my skewed idea of what a dolphin's shape was, and

had a good many discrepancies with the shape of a REAL dolphin. The "beak" was much larger than my mental model, the coloring actually was much more complex than I knew, and I was even missing the top fin. I learned that I could never trust myself to accurately remember the form and coloring of such a complex object; my memory just wasn't accurate enough. It wasn't a lack of skill with the modeler, it was just the fact that my model was NOT the same shape as a dolphin, which is why it never looked "right" to me.

So what do I do now? Well, there are several strategies I follow, depending on the type of object I need to build. They all revolve around the fact that I have a reference to follow; a guide that helps me visualize what the object SHOULD look like. If I were building a dolphin today, I would first go to a library and find a picture of a dolphin. It could be a blurry photocopy, but having that image helps me in several ways. First, I can actually study the image in detail. Gross mistakes, like missing fins, would quickly reveal themselves. Also, since I now have looked at the image with the idea of modeling it, I notice new features I would have never noted before. When I see a dolphin show at an aquarium, I don't notice the fact that the body width is about one fifth of the body length, I just say "Oooo! Cool dolphin!" When I try to build the "cool dolphin" from memory, I could (and did!)

build the dolphin stretched out to twice the length it was supposed to be. Studying the image with the idea of modeling it will help revise your mental image of exactly what you want to produce.

What if I want to build a UFO or a 7-11 slurpee machine, something which I can't find a good picture of? I use perhaps the most powerful tool available on any computer platform; a pencil and paper. I am a truly horrible artist when dealing with drawing figures by hand, but sketching a basic shape can help my final object quality enormously! Changing a detail with a pencil is considerably easier than having to scrap a 3-D model and starting over. The key is I have a firm idea of what the object should look like in mind when I actually sit down to build it.

Notice that I'm not talking about how producing these models actually takes place, I'm just emphasizing the fact that no matter how skillful you are with your modeling program, you'll never get satisfactory results unless you plan in advance exactly what you want to produce.

Model Breakdown And Planning

Once you have an idea in mind, and you're sure of the shape you want to produce, what is the best strategy for inputting it to your modeler? No matter what program you're using, there are a few useful methods for building your object from scratch. Perhaps the most important is the idea that any object, no matter how complex, can be broken down into simpler parts. Building a model of a car is difficult, but how about a spoke in the wheel? The hubcap? A headlight? An object is made of its parts, and if you build each part separately then finally assemble them together, you'll save a lot of work for yourself. Some modelers like LightWave and Imagine support and encourage building objects from simpler parts, then assembling them together into a complex shape. Some others like keeping objects without complex hierarchies of sub-parts and sub-sub-parts, but the techniques of building objects a piece at a time still apply.

One method of hand-digitizing your model is to take each plastic part in turn, model it, then save the part. When all of the parts are finished, you take the assembly instructions that came with the kit, and follow them by moving the parts you've built around on the computer. If you have a complex model, you can entertain yourself for hours with this three dimensional jigsaw puzzle. Obviously, this method leaves a lot to be desired; the model makers never expected their directions would be followed in a virtual world. I've found that the best way to build models is by starting with the fundamental, base piece, and then attaching the little doodads and ornaments. As you build each little part, you can immediately place it on your "final" object, and see how it fits in with the other parts of the model. If you wanted to build a bicycle, build the frame first. As each new piece is added, you'll see immediately if something is missized or broken in some other way. You'll also have a convenient way of storing your object in progress, since all of the parts are logically grouped together. How do you save just a headlight, a rear bumper, and a steering wheel together in one file?

One last advantage of modular modeling is the ability to replace the parts easily. If you are building a car, you might want a quick and dirty set of wheels so you use some for other uses. But what if you want to improve the model later? You can just pick the old sub-objects and selectively replace them with new, more detailed versions. Conversely, sometimes to save space or to speed up rendering you might want to simplify a model, and again, you can selectively replace a sub-object to change the quality. One last point: Be careful how detailed you make every object. A classic mistake is to say "Oh, I want a super high quality beer bottle!" so you design your object with a bottlecap with 5,000 polygons. Sure, your cap is very smooth, but you can easily increase rendering times if you don't try to keep detail levels constant. Perhaps you would want that much detail if you were making an animation which zoomed in on a logo on the cap, but use common

Modelling and rendering images on your Amiga is a wonderful experience. Imagine, by Impulse, is one of the most powerful and versatile rendering programs available. Unfortunately, most users never use anywhere near all of the features Imagine offers. The sheer complexity of the program can make new users abandon the program in frustration, and even experienced users ignore functions whose purpose is a mystery. A solution for this problem is finally here.

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sense to determine the object's complexity when you can. Over sampling like this is a habit I constantly fall into, where I specify much more detail than will ever show up when rendered. It not only wastes RAM and rendering speed, but also time I spend in modeling.

Once you get used to building small, simple objects, you'll be surprised how fast and easy it is to assemble them into large complete models!

Real World Model Sources

When you want to build a 767 in your modeler, a picture or sketch of the jet's shape is a great place to start. But for some objects like the 767, there is an incredibly rich source of information that can guide you in making very detailed and completely accurate models. That source is your local hobby shop, where they sell plastic model kits! If you think about holding a miniature airplane wing that you can study and even measure, you can see how ideal they are for producing

an accurate computer model of the same shape. As a bonus, the model kits come with decals, which can be digitized and placed on your computer model as brushmaps! In order to accurately copy most of these plastic parts, you'll need a few simple tools. A ruler, though useful, is actually not the best measurement device. By far, the best tool to use is a "caliper gauge." This tool consists of a long piece of metal or plastic with rules marked on it, and a piece that slides along the rule. The object to be measured is placed between the "fingers" of the gauge, and a mark on the sliding piece indicates the width the fingers are spread apart. Measurement is quick and accurate; I use a cheap \$8 gauge that has an accuracy of one twentieth of a millimeter, far more than I need. The problem with a ruler is that it is difficult to measure small distances accurately and measuring something like the thickness of an airplane wing at a certain location is impossible.

One important convention when measuring real objects is to ALWAYS keep your units consistent. There has to be a conversion between the size you measure on your model and the units you use in your modeler. In Imagine, I arbitrarily set one millimeter measured from a plastic model to be one unit in the Detail editor. As long as I don't suddenly start using one centimeter to one Imagine unit, every part I digitize will stay in scale and I'll have no problem. In modelers like LightWave that already have a fixed unit scheme, I suggest NOT trying to follow the built in units; go ahead and enter one meter into LightWave every time you measure one millimeter on your model. Since most model parts are from 1 to 50 millimeters in size, it's a lot easier to type "1" instead of ".001". After your model is complete, you can scale it to the proper size. Also remember that model kits generally have a scale rating to them, such as "1/24" which tells you exactly what con-

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version between your model size will give you the proper final scale.

Mixing inches and centimeters will cause a headache. I recommend trying to get all metric measuring tools; it's a lot easier to make the conversions, and most programs don't like it when you try to input 13/32 of an inch as a unit. You don't REALLY want to use a calculator every time you enter a number!

A surprising number of the plastic model parts can be input to your modeling program very quickly and easily just by measuring a couple of dimensions and using a built in primitive. A mainmast of a sailboat is just a tube in the proper dimensions. Different types of tires can be made from a torus or a cylinder in the proper shapes. As long as you can just measure the simple object parts accurately, assembling most of the primitive shapes is easy. The one problem that can occur is when dealing with cylinders; remember that you are usually using the

calipers to measure the cylinder's width, which is along a diameter of the object. If you use this number as the RADIUS of the computer version of the object, you'll get a cylinder that is twice as big as you expected!

The second most useful tool is simple graph paper. Flat shapes can be placed directly on the paper and traced, so the location of key boundary points can be quickly determined. For an airplane wing, I traced the outline of the wing on graph paper. I drew about 20 parallel "ribs" from the base of the wing to the tip, and used the graph paper to note the length of each rib (the wing tapers near the tip) as well as the position of that rib. I used the calipers to measure the maximum thickness of the wing along each of those ribs. Armed with this list of rib sizes, I created a 2-D outline of an airfoil shape. I copied this single outline for each of the ribs, then scaled the outline at each rib to be the same height and length I measured on the

model. A solid model of the wing could be made in LightWave 2.0 or Imagine 1.1 by using the "skin" command to connect the outlines. Imagine 2.0's cross section editor would give even more control and allow you to interactively correct small mistakes in the shape and placement of the ribs. Try to find scientific graph paper, which is usually made of fine millimeter grids, with medium lines every five millimeters and heavy lines every 10 millimeters.

With these two tools, you can digitize 90% of all of the model parts you come across. In the next article, Part 2 in this series, we'll address the tough parts, like digitizing a solid boat hull, or how to accurately measure the divots on the saucer section of a spaceship. This is one of the few times that using a computer program can call for mixing plaster or pouring liquid Styrofoam into a mold. Until then, go to your hobby shop and pick up some fun models!



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What kind of video recorder is best for capturing computer graphics? There are two answers to this question: the right answer and the affordable answer. First, we will study the right answers and their cost, have a good laugh, and then study the affordable answers.

D1 is the ultimate video recording machine. It records the individual colors separately, then digitizes them into ones and zeros (a process called component digital). Just as electronic art can be created in layers, the D1 recorder is perfect for capturing and sandwiching layers upon layers without picture degradation. For this reason, D1 machines are used primarily by animators and computer graphics shops. It's like owning a computer with 1000 hard drives that can play an image in real time. Instead of hard drives, the tape plays from a special D1 videocassette. If you can afford one at \$160,000+, you are probably not using an Amiga. Sony is tinkering in their workshops with a less expensive component digital format called D4, using Betacam SP recorders. Expect it to cost \$70,000.

One step down from deep outer space are the D2 and D3 formats. They also record the picture and sound digitally, but record the combined color signals (composite) rather than separate color signals (component). Like the D1 recorder, the D2 and D3 machines can make copies of copies twenty generations down without

any degradation of the image. Because the colors are combined, Composite Digital Recorders, as they are called, make pictures with colors not as sharp as their component D1 brothers, making the machines less appropriate for animation and graphics. Still, they record and play-back pictures and sound of stellar quality. All this for a mere \$75,000 or so.

The D2 format, introduced by Sony, uses a modified 1" Type-C reel-to-reel video recorder to store the images. The D3 format, from Panasonic, uses a modified MII VCR to record the data.

Stepping lower into the stratosphere we come to 1" Type-C video tape recorders. They are big, use one-inch wide tape on open reels, and cost \$36,000+. Unlike D1, 2, and 3, Type-C is ANALOG, but like D2 and D3 it records a composite signal. When you are finished rendering data and wish to record the resulting image (and don't intend to go back to modify or layer more onto the recorded image), the Type-C machine will do a fine job. Unlike common VTRs that must backspace and pre-roll in order to record one frame, a process involving a lot of wear and tear on the machinery, many 1" VTRs will simply record one frame on the tape, then advance the tape a minute amount and be ready to record the next frame. Thus 1" VTRs are well suited for animation recording. One two-hour reel of tape will hold 200,000

frames—try to imagine how many hard disks you would use to store that many pictures.

A small step below 1" is Betacam SP, costing \$15,000+. Betacam SP is the dominant format in the broadcast industry, recording excellent quality component (separate colors) analog video signals. The advantage of component signals is that the colors are recorded separately from the luminance, leaving them sharper and cleaner than if they were combined into a single composite signal. The cassettes are easy to handle and the machines are small and lightweight, making them popular as camcorders for commercial news teams.

Betacam SP is an improved version of the standard Betacam VCR that does most of the same things. The SP (Superior Performance) yields a sharper picture, hi-fi sound, and improved signal-to-noise ratio (less grainy pictures).

A half-step below Betacam brings us to MII, costing about \$10,000+. At this price the rarified air is almost breathable. MII recorders produce excellent pictures, similar to Betacam SP. Also, like Betacam SP, MII VCRs record component signals.

The serious desktop videographer will probably have to set his/her altimeter on one of the three more affordable VCR formats: 3/4U-SP, SVHS, and Hi8. All three formats have several things in common. Their pictures are not as sharp and smooth as their more expensive brothers. Nor do they record true component colors like the Betacams and MII. Instead they record a "color under" signal, which is a much fuzzier degraded form of color. The color looks pretty good to our eyes, but doesn't stand up well to multi-generation editing and copying. The three formats do an excellent job of recording "live" video images, but have a hard time handling the high detail found in video graphics. None of them do a good job with thin colored lines, requiring you to create simpler and bolder images if you want them to record well.

In order to preserve the color they do record, SVHS and Hi8 use Y/C or S connectors, carrying the color information on a wire separate from the luminance information. This keeps the colors

purser than they would be if standard composite signals were used, but remember the color-under process of recording the colors clobbered them quite a bit right in the beginning.

Three quarter U-SP (and its lower quality 3/4U brother) record only composite video signals. although this recording process is a little rougher on colors, editing 3/4U and 3/4U-SP machines have a redeeming feature: they have special dub cables used for editing and copying. These cables carry the color signals on separate wires from the luminance, a process similar to their SVHS and Hi8 cousins. Thus, the 3/4U family can edit and copy tapes with degradation similar to SVHS and Hi8.

Another difference between the 3/4U family and the SVHS and Hi8 machines is that 3/4U and 3/4U-SP machines record audio on two medium fidelity linear audio tracks. SVHS and Hi8 can record hi-fi stereo sound as well as medium fidelity sound on separate audio

tracks.

When doing precise editing, such as one frame at a time, it is necessary for the editing recorder to precisely locate a specific place on the tape. Professionals and professional machines do this by first recording a tape of black, along with SMPTE time code, a stream of data identifying each picture frame on the tape. Thus the machines can record a picture on frame 00:00:01:01 (0 hours, 0 minutes, 1st second, frame 1), then locate position 00:00:01:02 to record the next picture on the following frame. In order to do this, the recorder must be capable of frame accurate editing, use SMPTE (or some other) time code to precisely designate each frame, and have a special track set aside to record the SMPTE time code information. The Betacams, MII, 1", D1, D2, and D3 formats all have separate time code channels for this data. Professional model 3/4U and 3/4U-SP VCRs also have an extra track for time code. This makes all of these machines

well suited for precise SMPTE time code editing. You can use time code on SVHS and Hi8 machines, but have to sacrifice one of the audio tracks. For instance, you could record SMPTE time code on one (or both) of the linear audio tracks of an SVHS machine or on one of the PCM (hi-fi digital) tracks of the Hi8 recorder.

Another technique for recording SMPTE time code is to code it invisibly between the pictures. This is called VITC (vertical interval time code), often pronounced "vitcee". VITC time code has the advantage of not using an audio track. One disadvantage, however, is that if you erase a video picture from a VITC encoded tape, you are likely to erase the time code with it. Special time code reader/generators are available that can insert a replacement time code number when a new video frame is inserted, but the process is complicated. The simplest solution may be to forget about sound, recording only the picture, and allowing the time code to fill the linear audio channel. When fin-

Digital Video Recorders

by Peter Utz

One problem with common analog video recorders is that electrical vibrations are never recorded perfectly. When you play them back, tiny distortions and "noise" become part of your signal. When a tape is copied, more noise and distortion becomes part of the signal. Many generations later, the picture displays grievous graininess, smeared colors, and fuzzy edges.

Digital VCRs get around this problem by recording ones and zeros rather than analog electrical vibrations. When you play the signal back, the ones and zeroes may be "fuzzy" but are still ones and zeros. It is a simple matter for another circuit in the VCR to regenerate sharp new ones and zeroes to replace the fuzzy old ones. This permits "perfect" copies to be made from digital video-

tapes; the fuzzy ones and zeros get cleaned up before they are copied onto another tape. When that copy is played, its fuzzy ones and zeros get sharpened up again before they are recorded on the third generation. Each generation ends up with the exact same sequence of ones and zeros as the original, making each copy a "perfect" duplicate of the original.

If you feed a digital VCR an analog video signal (i.e. from a camera), it will slice the signal into tiny samples, converting them to digital ones and zeroes. If you have a digital source, such as a computer (which makes its own ones and zeroes), or another digital VCR, you can feed these signals directly into the digital VCR.

Digital VCRs aren't perfect. When an analog video signal is digitized, some of the information may get lost in the conversion. You've probably seen this yourself when scanning images into your computer; depending upon the quality of the scanning equipment and the ability of your computer to "grab" large amounts of picture data, you will see some degradation in the final image. A second

weakness of digital recorders involves the high amounts of data that have to be recorded quickly. Unlike a home computer that takes a few moments to swallow a detailed color image, the digital VCR must process 30 such pictures every second, and do so with the highest quality. A third problem involves error correction. Every mechanical device introduces some errors. Special circuits in the digital recorder watch for these errors and cover them up (using "spare" data, or an adjacent piece of picture) when found. All of these "fixes" demand from the digital VTR tight mechanical and electrical tolerances explaining much of the high cost of these monsters.

With the help of a few technological breakthroughs, such as data compression, it may be possible to see digital video cassette recorders some day come down to prices within reach of the desktop videographer. One of the biggest problems facing electronic graphic artists, animators, and video/computer users is the storage and motion playback of image data. Digital VCRs are likely to be the solution to this problem.

First Wedding Videographer's Convention Draws Sell-Out Crowd

by Kelly Thompson

"It's about time this event happened," said hundreds of professional wedding videographers, who, last August, made industry history when they traveled to Washington, D.C. to attend the world's first convention, seminar, and trade show produced entirely for professional wedding videographers.

The intense, information-packed 3-day event, held at greater Washington's Hyatt Regency-Crystal City hotel, was organized and sponsored by *Wedding Videography Today*, the two-year old trade journal that has become the leading resource on news, information, marketing, and creative techniques for professional wedding videographers nationwide and in six different countries.

Wedding Video Expo '91 provided videographers with a long overdue opportunity for cross-country networking and the chance to attend state-of-the-art seminars on the latest wedding video creativity, marketing, and equipment developments.

At the close of **Wedding Video Expo '91**, 10 wedding videographers were named as the top award winners in *Wedding Videography Today's* 1st annual **Creative Excellence Competition**, which honors outstanding achievement nationwide in four different wedding categories.

"**Wedding Video Expo '91** definitely showed that as a separate industry, we as professional wedding videographers finally have momentum on our side," said *Wedding Videography Today* editor, Roy Chapman, adding that he expects the second annual convention for wedding video professionals, planned for 1992, to be twice as large as the first.

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ished, go back and dub new sound over the time code (erasing it—but it may no longer be needed), making the tape complete.

Frame accurate editing is impossible with bottom-of-the-line VCRs, regardless of format. You will probably have to spend \$5,000 or more for frame accurate machines. Below that price, you can get editors accurate to play + or - two frames, which may be good enough for rough animations and productions where the animation is played out of your computer in real time.

Back to color for a moment: High end SVHS editors (costing \$5,000+) have special color processing circuits in them to "sharpen" the color beyond what was actually recorded. This helps to make up for some of the faults of the color-under formats, making computer graphics and text much less smeary, and allowing you to edit or copy down two to three generations before seriously losing quality.

At the bottom of the troposphere we find VHS and 8mm formats. Neither format holds up well to editing and multi-generational dubbing. Neither handles the color signals separate from the luminance signals in an attempt to salvage the colors. Neither is a format worthy of a professional or even a prosumer. Regular 3/4U fits in the same category, but slightly above VHS and 8mm in quality. 3/4U's image is a little sharper, the colors a little purer, and the graininess a little less. Where VHS and 8mm go to pieces after two generations, 3/4U can make it to three.

In short, the three affordable formats for recording computer graphics, animation, and for general prosumer use are Hi8, SVHS, and 3/4U-SP. SVHS presently has a greater variety of edit decks and peripherals available. The 3/4U and 3/4U-SP formats have been around for a long time, and are revered by industrial users. They stand up very well to the rigors of backspace editing. Professional decks costing \$20,000 can perform backspace edits all day and all night for days on end without breaking down.

If you are doing true professional work, you may wish to rent a Betacam SP

or MII editor. If you are doing a lot of professional single frame recording, you may need to jump to the 1" Type-C format.

List prices for edit-capable studio VTRs:

FORMAT	PRICE RANGE (\$)
S VHS	1,300 - 6,100
Hi 8	2,500 - 5,500
3/4U-SP	4,000 - 21,000
MII	10,000 - 35,000
Betacam-SP	15,000 - 40,000
1" Type C	36,000 - 55,000
D2, D3	60,000 - 87,000
D1	160,000 +

If you are inclined to wait on the sidelines before jumping into buying a video recorder, there's a possibility optical disc recorders may become available in the near future. These machines will use a laser in combination with a magnetic record head to record an image on a spiral track of a laser disc the size of a CD. Such machines may cost several thousand dollars, but won't need to tear themselves apart backspacing and pre-rolling as they record each frame of an animation. The laser will simply move over to the next track and record it while the disc spins much like the hard drive on your computer. Once you've made an animation with this device, you can play back a high quality image in real time to be recorded on a VCR using whatever format you choose. When finished, the disc may be erased and reused.

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A World of Difference

A PSA Project

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One of the most creative and just plain fun projects that an Amiga video person can get involved in is the design and production of a "PSA", a Public Service Announcement. PSA's are used to promote events in a local or regional community, and quite often allow the designer/ animator artistic freedoms not common in other video ventures. All of this makes the PSA a perfect seedbed for Amiga work. The PSA that I am going to describe was accomplished with the aid of a dynamic Amiga duo...Draw-4D Pro software from ADSPEC Programming and the DCTV unit from Digital Creations. Together, these two Amiga wonders are just the ticket to make a PSA project doable with class in a short turnaround time. Oh yes, I should also mention that historically, PSA's don't pay a lot of money to create; very often the organization involved doesn't have the funding to meet a producer's standards. However, there are compensations. Besides the ability to really stretch your creative wings, a PSA project very often makes a wonderful addition to your video portfolio, as well as the opportunity to make contacts for future "paying" projects.

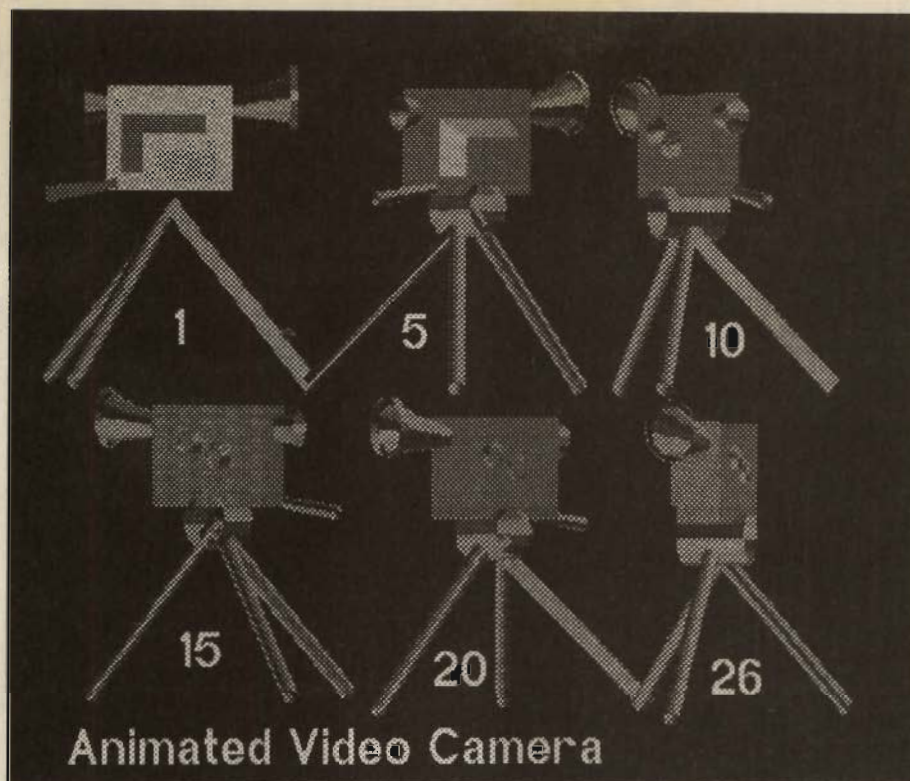
The Client And The Need

The Client for this project was the Vermont Library Association, a compendium of State multi-media libraries. The contact person was Ms. Martha Day, the manager of the University of Vermont's Media Library. The need was centered upon a 30 second promotional piece that could visually communicate date of the VLA's upcoming conference with a little pizzazz, and within the framework of a theme dealing with multi-media applications in a world-wide network. My best advice (based upon experience) to young designers wanting to know how to best approach the near infinite options of a project like this is to "trust the force, Luke". This means that the first visual ideas that you have when hearing the theme for the first time are probably very close to a course that is worth suggesting and pursuing. Now, I don't know what visuals pop into your head when you ponder the theme I've mentioned, but mine were very clear and animated. I saw a spinning globe around which orbited a collection of media hardware. Another aspect of client relations worth mentioning here is that the chances are good that an idea you are obviously excited about is

one that will be contagious in a meeting with the client. This is more true when working on a PSA then when confronted by the threatened ego of ad agency execs. The latter often "shoot down" creative ideas as a proof of their own power. Luckily, local PSAs are seldom handled through agencies, because the monetary return for the work is limited. The client in this case liked the general format of the suggested animation very much, though it was suggested that it include some text to accentuate the voice-over. So it was time to begin the actual work.

Gettin' Down To Business

Though I have mentioned two of the Amiga players in my design project, there was another piece of software as well. This was DPaint IV from Electronic Arts. I use DPaint so often that it seems like my right arm rather than a piece of software, and there are few design projects on the Amiga that I could manage without it. My first task was to use DPaint to generate a nice 2D world map which I could later wrap on a spinning globe in Draw-4D Pro. I used a Canon black and white scanner to digitize a world map outline from a book. In DPaint, I then erased all of the details except for the outline, and



the DCTV unit in a proficient manner, and I wanted to have the animation in the DCTV format because of the more professional look involved. The second, and equally important reason, had to do with the spinning world globe itself. I didn't want to spend frustrated extra hours trying to wrap my map on the sphere, delving into secret and convoluted procedures never fully explained. I wanted what I wanted as fast as possible, and the wrapping functions of Draw-4D Pro are easy, intuitive, and instantly previewable in the DCTV format. The only caveat is that the sphere must be built from sections divisible by four (i.e., 24, 36, 48, etc.) or there will be an observable "zipper" where the wrap is pieced together in the animation. Other than that, wrapping any 3D surface with IFF brushes and pictures is extremely easy in Draw-4D Pro. So I created the sphere, wrapped it with my IFF hi-res map, and set it spinning in a 360 degree loop on the Z axis. I set my animation frames to 120 (4 seconds of animation at 30 frames per second).

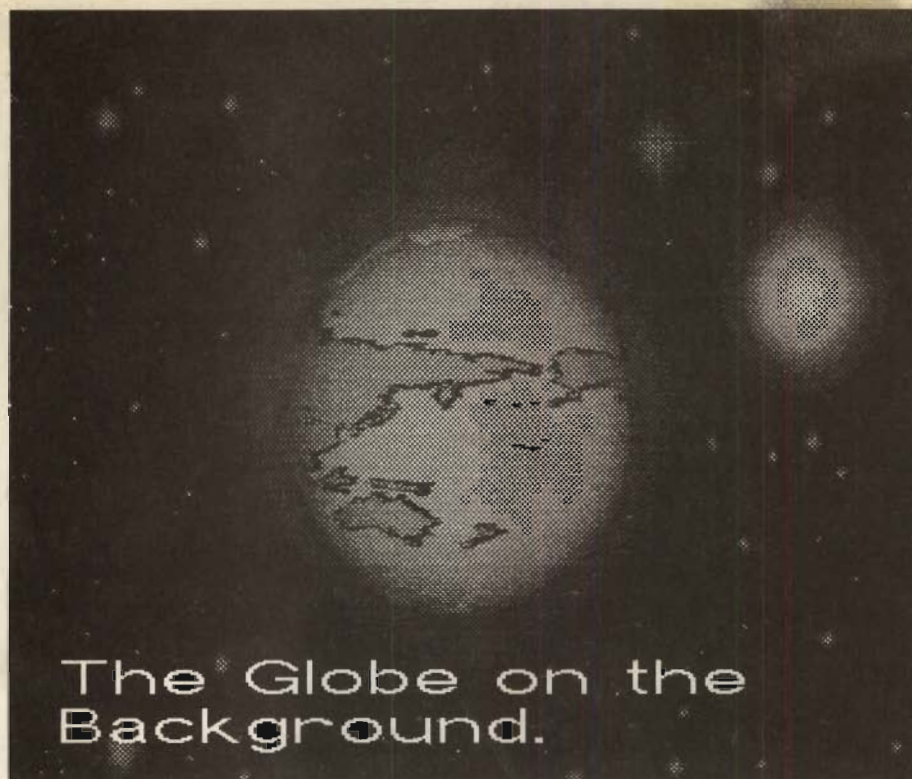
Next, I set about designing the various 3-D artifacts in 3-D: a video cam-

The 3D Design

There were two main reasons why I chose Draw-4D Pro as the software engine to handle this project on my Amiga. The first was that this software addresses



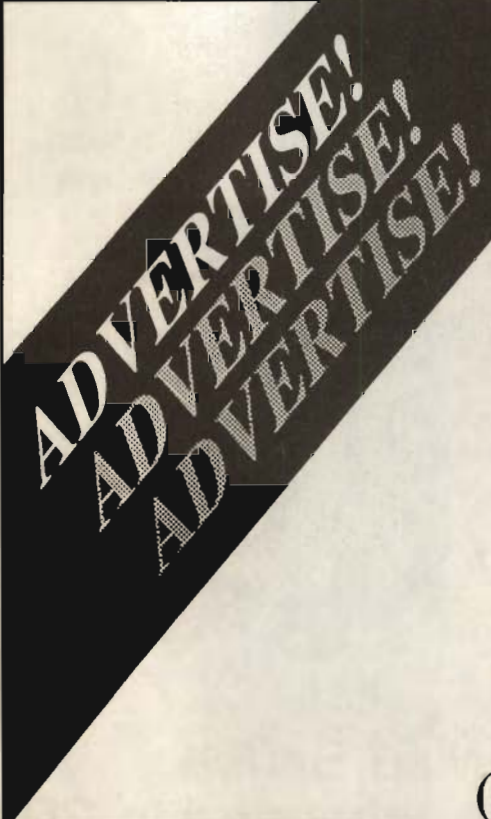
colored in my own rough 3D-like details with the help of DPaint's fill routines. I then colored the oceans turquoise and the poles white. I picked up the map as a rectangular brush, and saved it to disk. Then I used some Kara Fonts to create the text message. My first idea was to have the text circling the globe like the old Universal Studios logo used to do, but then I changed my mind. To have everything orbiting the globe (the multi-media objects and the text) would be too predictable, and animations (no matter how short) should not be predictable or the intended audience will quickly lose interest. The change was to be that the text would fly up from the globe as a brush, and this animation within an animation was created in DPaint before the 3D part was started. Later, the text was to be placed on the 3D animation with the use of my SuperGen (Digital Creations) genlock-encoder. I used the DPaint "Move Requester" to make the text brush fly up from the distant background (the "Z" distance parameters), did the animation, and saved it as an ANIMbrush. I didn't save it as an animation outright because I wanted to place it exactly where I wanted it later.




it wasn't necessary to spend too much time detailing these forms. The audience's eye would never be able to appreciate too much detail anyway. Besides, extra detailing for no reason slows down the drawing time of an animation frame as well as increasing the disk storage room needed. The important consideration in designing and animating a simple object is that the object should be recognizable as a silhouette in at least part of the animation, and/or should be intuitively identified by its association with an identifiable neighbor. Take a cassette tape for instance. If it is seen by itself it looks like a simple 3-D box, and much observable detail would be necessary to help the viewer discern its nature. Placed close to other more identifiable shapes, however (like a video camera on a tripod) the video tape can be more correctly and quickly identified by association. On each of these objects, I set the reflectance and hardness levels fairly high, so that they would catch the light as they orbited the globe. I also set their colors to be fairly close to primary colors so they wouldn't get caught hiding against a dark background. Each was made to spin on its own

era on a tripod, a 35mm slide frame, a book, a video tape cassette, and a computer monitor. Each was made of a com-

bination of simple shapes...mostly various sized rectangles glued together. Since all would be moving through 3-D space,





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axis as well as orbiting the globe. This added visual interest to a looping animation.

I finished this project before the latest revision of Draw-4D Pro was available. In this most recent release, D4DP allows for the importation of a 24-bit IFF picture as a background (!), which is viewable in blazing color with the DCTV unit. If this were available at the time I was working on this project, I would have used DCTV Paint to create a background. DCTV Paint is, in my humble estimation, the finest paint program available for Amiga designers, and results can be saved out as true IFF 24-bit files. This not being available, I used Digi-Paint 3.0, a HAM painting program from NewTek, to create a interlace-HAM starfield backdrop, and imported it as a background for my D4DP animation. Digi-Paint has great smoothing algorithms for creating anti-aliased globular star bursts. The next step I did was to adjust the "lights" by altering the default light settings and adding a new light between the viewer and the globe, which added a "hot spot" on the

colorful spinning globe. As a last touch, I placed another slightly larger 3-D globe around the first, and set it to high "transparency" and "genlock". On this second globe I placed some cloud wraps I had designed in DPaint, and set the rotation in the opposite direction to that of the original globe. Now I had clouds rotating around my Earth, adding more interest and revealing the continents a part at a time.

Conclusion

This animation played successfully on regional TV and allowed the client the needed exposure for their event. Before going to the final on it, I produced a HAM animation (without the "clouds") as a "pencil test" of the final piece. It was a bit rough in some spots, but gave me a chance to preview some of the final ingredients. That HAM test of this animation is available on disk. AVID subscribers may send \$7.00 (non-subscribers \$15.00) to: HAMglobe ANIM offer, Eyeful Tower Communications, 15 Rockdale, Bristol, VT 05443. Meanwhile, enjoy! And, Oh Yes...see you in ROMulan space.

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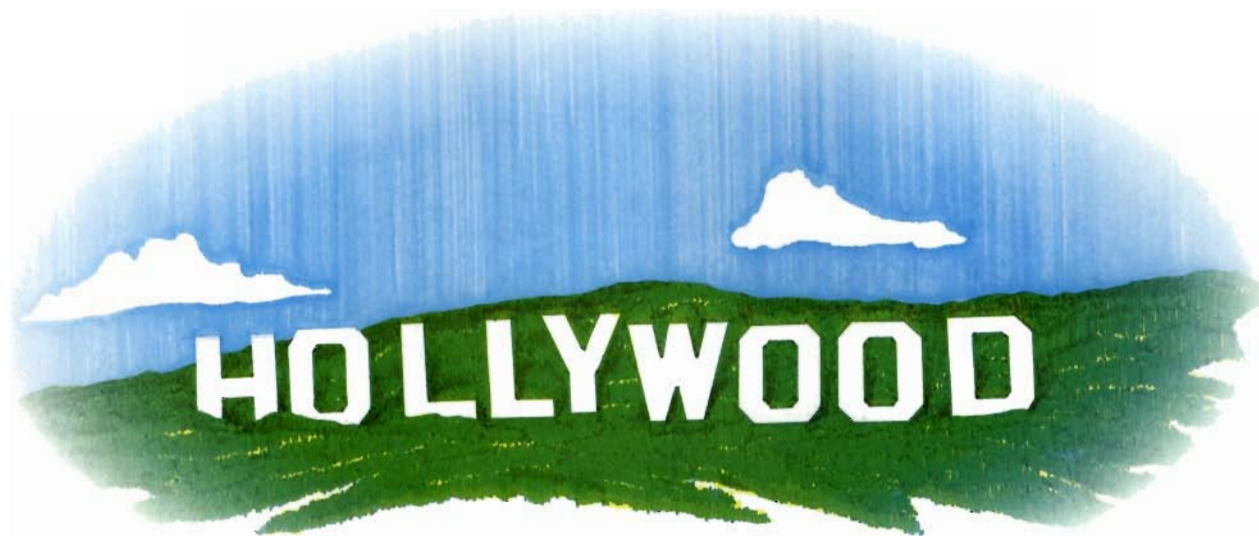
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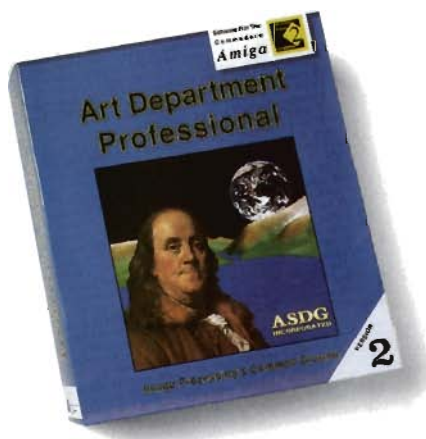
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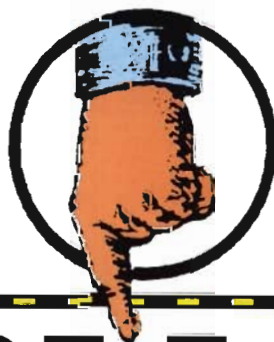
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