Avid

The AMIGA® VIDEO Journal

Vol.# 2 - Issue #7
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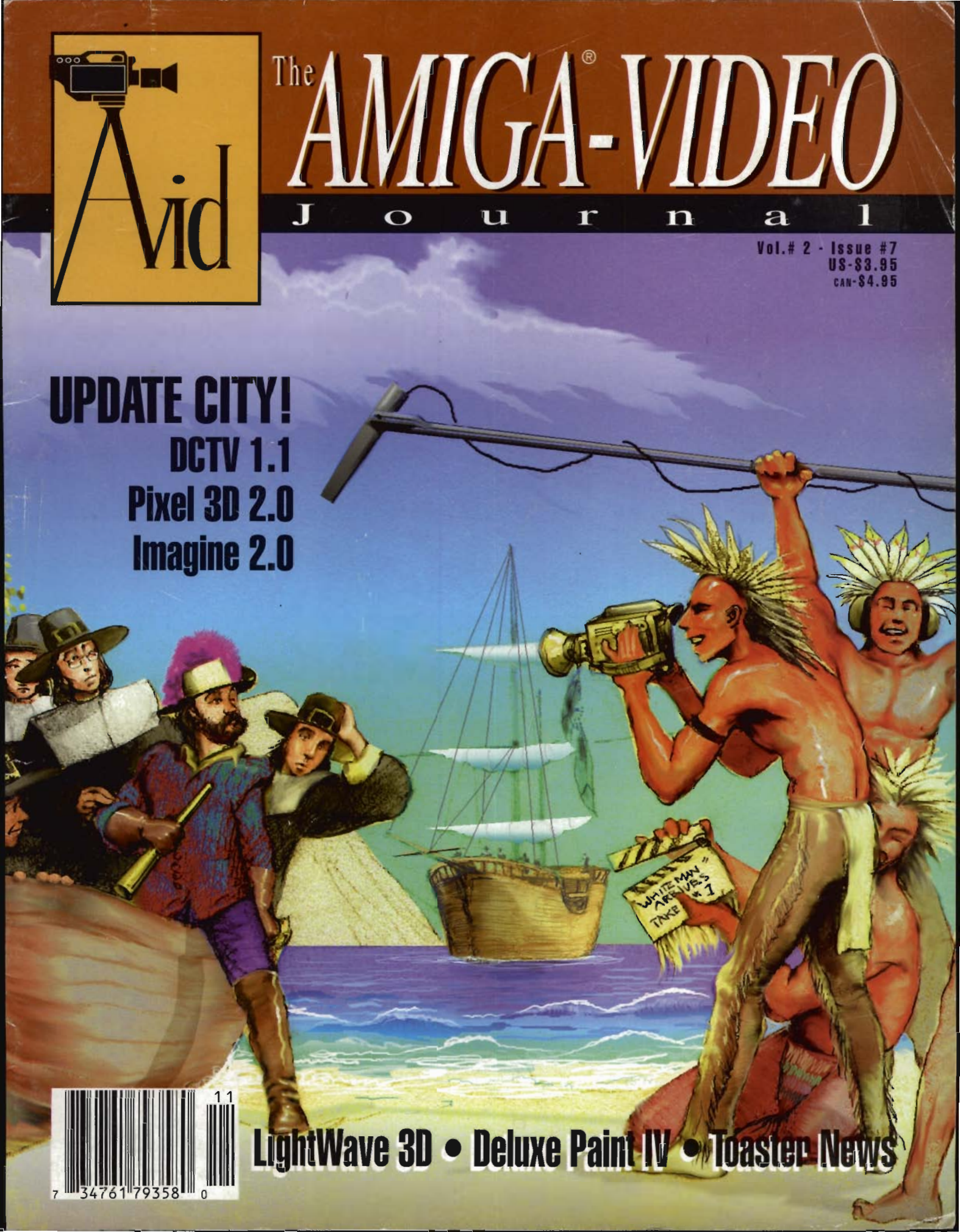
Pixel 3D 2.0
Imagine 2.0



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LightWave 3D • Deluxe Paint IV • Toaster News

WHY WE INSIST ON VIEWING OURSELVES

CONCEPT...

Some may say our perception is a bit bold. But for Amiga users, it perfectly describes where we fit in the image processing world. Directly in the center ... joining input, processing and output.

Our 24-bit image processing software, ***Art Department Professional (ADPro)***, gives you the power to import from video digitizers and color scanners. Or input and save to a wide variety of file formats including PCX™, IFF, GIF™, TIFF* and TARGA®*. You can even output to video, film recorders or PostScript® printers. And you can expand input and output capabilities as your needs grow.

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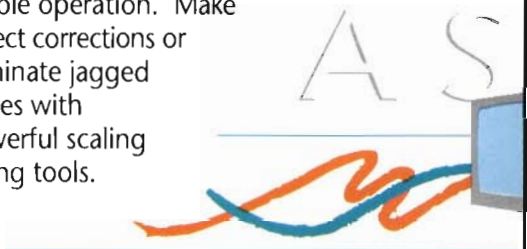
ADPro also solves many complex imaging problems which have plagued the Amiga artist. Modify dynamic range to adjust color vividness. Create professional backgrounds. Remove unwanted pixels in one simple operation. Make aspect corrections or eliminate jagged edges with powerful scaling and anti-aliasing tools.



*TIFF and TARGA support are part of the professional conversion pack. Available separately.
The following names are trademarked by the indicated companies:
Art Department Professional, The Art Department – ASDG, Inc.; Amiga – Commodore-Amiga, Inc.; PCX – ZSoft Corporation; GIF – CompuServe Information Systems; TARGA – Truevision, Inc.; and PostScript – Adobe Systems Corp.

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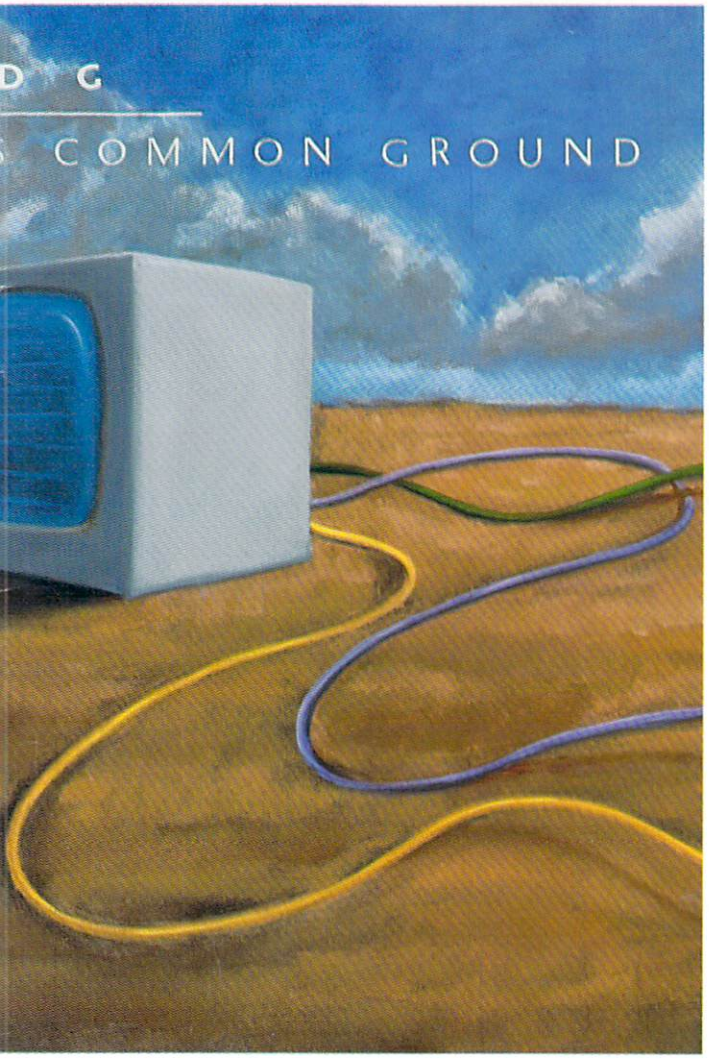


AS THE CENTER OF THE UNIVERSE.

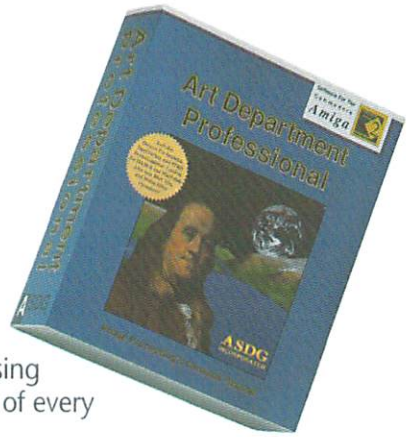
INPUT...

And merge images from different sources (in true color). *ADPro* solves these problems and more with a simple point and click.

It also supports the programming language, ARexx. So you can process hundreds of images automatically or set up your own shortcuts for often-used sequences.

RESULT.

Choose ADPro for professional uses. Or for an entry-level alternative, consider *The Art Department (TAD)*. Both place the exciting world of color processing within reach of every Amiga user.



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KARA FONTS

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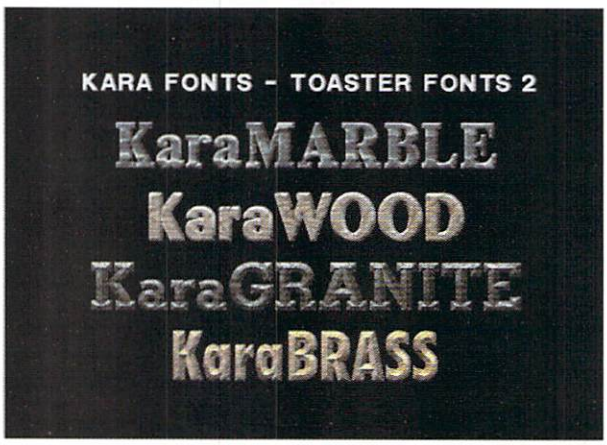
Kara Computer Graphics presents two packages of new anti-aliased 16 million color Chromafonts for NewTek's **VIDEO TOASTER CG***. These fonts will give **TOASTER** users the professional broadcast quality "look" with a wide variety of 3 dimensional looking type styles and texture treatments. Each package of six disks contains four different styles in two sizes each (average 64 & 76 pts.). All fonts include a full character set of Caps, Lower Case, numerals and special characters (plus ®, ©, £, ¢). Also includes a Hard Drive Installation utility.

TOASTER FONTS 1: Six Disk Set - Sug. Retail $ 99.95
TOASTER FONTS 2: Six Disk Set - Sug. Retail $ 99.95



*Video Toaster CG is a Registered Trademark of NewTek Inc.
TOASTER FONTS 1 requires 6.5 megs of Hard Drive storage. TOASTER FONTS 2 requires 6.1 megs of Hard Drive storage.

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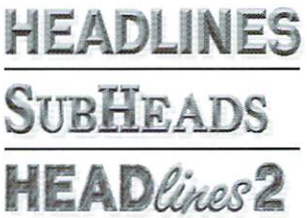
2 DISK SET - Sug. Retail $ 59.95



HEADLINES

10 Hi-res, up to 8 color, uppercase fonts in two sizes each (approx. 104 and 84). Font styles in CHROME, MARBLE, BRICK and GRANITE are dragable for added 3-dimensional effects. Other styles are CHISEL, WOOD, BEVEL, CHISELserif, CAST, and COLUMN.

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The SAME popular Hi-Res10 fonts as in HEADLINES, but in two smaller sizes each (approx. 72 and 55). Makes it possible to have Caps and Small Caps effect and use in lower resolutions at a workable size.

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AnimFonts®3*

CAPSULE is a Hi-Res. 8 color, metallic, uppercase, contemporary, rounded gothic font, which "sparkles on" from the middle revealing characters to the top & bottom. Then, an "X" sparkle highlights each letter towards the right. A separate "X" sparkle for custom effects is included. Comes in both a keyboard and AnimFont with palettes of Chrome, Gold, Metallic and Silver.

ONE DISK - Sug. Retail $ 49.95

AnimFonts®2*

BULLION is a Hi-Res, 8 color, beveled dimensional, highlighted, uppercase gothic font and comes in a keyboard and AnimFont. The AnimFont rotates unto the screen 90 degrees on the "Y" axis to the left while a glint of light goes across the face from left to right. When used as instructed, the glint travels continously across the word(s). Included are palettes of Gold, Metallic and Silver.

ONE DISK - Sug. Retail $ 49.95

AnimFonts®1*

ChromeSCRIPT is a Hi-Res, 8 color formal, sophisticated roman style script in caps and lower case and comes in a keyboard and AnimFont. Each letter of the AnimFont appears to be handwritten across the screen. A variety of treatments can be achieved with the included color palettes such as Chrome, reflective Gold, copper, bronze and other golden effects.

One Disk - Sug. Retail $ 49.95

*AnimFonts is a registered Trademark of Kara Computer Graphics. AnimFonts and STARFIELDS are compatible with DPAINT III, DVIDEO III and other programs that use the ANIM and Anim Brush format.
Requires 1 MEG (keyboard), 1.5 MEG (AnimFonts), 2 MEG (Starfields), 2 Disk Drives or HD+1 Disk Drive.

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Bars 'N' Tone

© 1991 by Jim Plant

The Amiga desktop video market was rocked recently by NewTek's announcement of a significant price hike on both the Video Toaster card and the long-awaited 2.0 software upgrade. The following is an official NewTek press release on the subject:

October 15, 1991, Topeka- Today, on the first anniversary of quantity shipments of the Toaster, NewTek announced pricing and availability for the highly anticipated next generation of Toaster software. "The original release of the Toaster offered high-end production capabilities" comments NewTek's Director of Marketing, Mark Randall, "This new release will add features to the Toaster that the high-end hasn't even thought of." Effective immediately all Toaster cards shipped will include a certificate for a free Toaster System 2.0 software set to be shipped directly to the purchaser (on December 16th) and have a new price of $2495.

The new System 2.0 Toaster software brings so many new features to the original hardware that NewTek is referring to it as a "hardware upgrade on disk". "We announced when we shipped the Toaster 1.0 software at our introductory price that many of the amazing hardware features of the Toaster had yet to be turned on by software," said Toaster designer and NewTek President Tim Jenison, "Our Alcatraz team has achieved a tremendous breakthrough in unleashing the next level of Toaster evolution in only a year. We are very proud."

Advertiser Index

Over 11,000 hours of effort was devoted to creating the new Toaster software by NewTek's elite Alcatraz development team. Work was started on the new system even before Toaster 1.0 had shipped. The 2.0 software is over twice the size of the original shipping system and contains 50% more effects. "The new grids of effects in 2.0 are not just more of the same type of effects", comments NewTek Vice-President Paul Montgomery, "We've activated whole new modes including real-time warping of live video, cube-mapping, soft-edge transitions, and organic effects like clouds, pouring liquid, fire, tearing paper, and breaking glass. Many of these effects have never been possible on any equipment, no matter what the price."

In addition to stunning new effects modes, System 2.0 brings enhancements to every part of the Toaster including a completely revised object modeler, faster rendering along with over 100 new features in LightWave, a sharper luminance key mode that eliminates the edging commonly associated with keys, positionable effects, compatibility with Workbench 2.0 and the ECS Denise, improved output specifications, new fonts, more objects, and a new alpha channel mode that will enable the frame buffers to be used for 32-bit applications. NewTek's documentation team will contribute a completely revised manual with more tutorials based on user feedback. Many other improvements are 'under the surface' such as those made to the Toaster Operating System including file compression to conserve hard drive space, faster loading times, and extended AREXX support.

The new ToasterCG features almost instant loading of text screens and more scrolling speeds. The new system also features greater integration between ToasterPaint and ToasterCG allowing them to share images in memory. A special Workbench utility will be included with Toaster 2.0 that allows the Toaster Genlock to be controlled while other software is running or even to be controlled by 3rd party applications to fade Amiga graphics without having to run the Toaster system.

Toaster users working in an environment where they need to share files with Macs, PCs and Workstations will benefit from System 2.0's amazing list of file compatibility. AutoCAD DXF release 11, 3D Studio, ParaComp's Swivel 3D, Wavefront OBJ, and even Macintoch PICT files are part of Toaster 2.0's vocabulary. 2.0 contains a modular file system that allows more file formats to be easily added at any time.

NewTek has priced Toasters with the new System 2.0 software aggressively at $2495. "We could have charged more for these new features but we are committed to keeping the Toaster's incredible price/performance edge" comments Paul Montgomery, "To show our appreciation to those customers who joined the Toaster revolution in our introductory year, we are going to upgrade them to the new Toaster System 2.0 for only $395." Toaster users should contact their local dealer or NewTek for information on upgrading to the powerful new features of System 2.0.

In the days immediately following this announcement, I was inundated by dozens of calls from AVID readers around the country who wanted to #1) see if I had heard the "news" (and could it really be true!) and, #2) solicit my comments on these new developments. In addition to the phone calls, there has been considerable discussion on the "boards" (Portal/Usenet is my favorite) concerning these price hikes and NewTek in general.

There's no question that NewTek caught everyone by surprise with the price increases. From some of the recent conversations I've had with NewTek employees, it appears that the price hikes were something that the NewTek top brass had been considering for quite some time. I had caught a whiff of it about a week prior to the announcement, but to be honest, I considered the information to be just another of the scores of Toaster rumors I hear each month. I was caught just as flat-footed as the rest of you. In retrospect (everything seems clearer in retrospect doesn't it?), I am not totally surprised that NewTek chose to make this move.

Consider this: the recent price drops on the Amiga 2000 and 2000HD made it possible to put together a system that is the equivalent of NewTek's Video Toaster System (VTS) for around $3000. This is based on an Amiga 2000HD at the new price of $1299, a Video Toaster at the street price of $1475 and a 4 meg RAM board for $300. Compare this against the street price for the VTS at around $3700 for the same configuration. That's a significant difference. How would you like to be NewTek Video Sales going around the country looking for authorized VTS dealers and trying to explain the price discrepancy. Raising the price of the Toaster board brings the total system price back into NewTek's original $4000 list price range.

The $2495 price also provides NewTek with a significant profit margin with which to fund additional software upgrades and future Toaster hardware development. I certainly don't have a problem with NewTek having more R & D money. They have a long history of using their profits to invent innovative products that are sure to benefit AVID readers in the future. Some might argue that NewTek is abandoning the Amiga market and heading for greener (Mac and PC) pastures. But I say Bull! Their Mac and PC market forays are based on the Amiga and its unique videographic capabilities. They have millions invested in the Amiga platform and I doubt they'll abandon it anytime soon. I expect to see Amiga-based Toaster development for the next couple of years and after that...well who knows? That's not to say that NewTek won't try developing the Toaster technology for some other more capable videographic platforms (like the Silicon Graphics Indigo, for example), but their mainstream development platform will most likely remain based on the Amiga.

Along with the price increase on the Video Toaster board, NewTek also announced that the 2.0 software upgrade would list for $395. I'm not really sure that this technically can be considered a price hike since I don't believe that an official 2.0 price was ever announced. Still, NewTek representatives at trade shows and exhibitions have been quoting

upgrade fees in the $100 to $150 dollar range for months. Anyway, the price is set at $395 with an official release date of December 15, 1991.

In the past several months I've attended several trade shows and caught glimpses of some of the new 2.0 features and I've been flat-out blown away by what I've seen. I've heard a lot of complaints about the high price of this upgrade, but I've got to tell you, this is way more than a typical "bug-fix and a few enhancements" upgrade that most of us are accustomed to. System 2.0 adds huge improvements to the capabilities of the Video Toaster. Think of it; we'll soon be enjoying the next generation of Video Toaster functionality without having to go out and buy a new board. And all this for only 25% of the original price of the Toaster!

Folks, the bottom line is this: If you think the price of the Video Toaster or the upgrade is too high...don't buy it! This is the American marketplace. Companies are free to develop products and charge whatever they want for them, and consumers are free to buy or reject them based on the perceived value. It's pretty simple. After what I've seen, the only good reason not to purchase the 2.0 software is if you can't afford the $400 bucks (and, if you can't afford $400 you probably shouldn't have purchased a Toaster in the first place).

That's all I have to say about the Toaster price increases, but while I'm on the NewTek subject, I'd like to comment on something that has been bothering me for several months now. Ever since NewTek decided to OEM Amigas from Commodore and sell complete Toaster systems, I've heard complaints about the fact that NewTek has gone out of its way to disassociate itself with the word Amiga. Apparently, there are a lot of people who are depending on NewTek and the Toaster to finally bring the Amiga the respect it deserves, and NewTek's de-emphasis of the system's Amiga origins is really rubbing folks the wrong way. This never ceases to amaze me. Let me just ask one question: exactly when did it become NewTek's job to promote the Amiga? NewTek's job, as far as I can tell, is to promote NewTek products. Last time I checked, it was Commodore's job to promote the Amiga.

NEWS UNRELATED TO NEWTEK

I just received the latest version of DKB's MegaChip 2000 (boy is it small!). I've talked about the MegaChip 2000 in this column many times. In my opinion, it is one of the least expensive ways to significantly enhance your Amiga. The MegaChip 2000 is a small board that plugs into your Amiga 2000 (and now the Amiga 500 too!) and allows you to use the latest 2 MB Super Fat Agnus chip. This is the chip that is standard in the Amiga 3000. Using the 2 MB Agnus chip gives your system a tremendous advantage over 1 MB Agnus equipped machines. I'm not going to waste any more space explaining what advantages the MegaChip 2000 can bring your system. Let me just say this: the MegaChip 2000 should be standard equipment in every Amiga 500 or 2000 system. Contact your local dealer or DKB software (313-960-8750) for more information.

Just as AVID was going to press, I received a press release from Commodore announcing details on the LONG-AWAITED AmigaDos 2.0 software and hardware upgrade. The same day, my local dealer confirmed that the first allocated shipments of the 2.0 upgrade kits (for Amiga 2000) had actually arrived. Here are some excerpts from the 3-page press release:

WEST CHESTER, PA — October 16,1991 — AmigaDOS (TM)

Release 2 operating system is now available for the Commodore Amiga 500, Amiga 2000 and Amiga 3000, making all current Amiga series multimedia machines operationally compatible. AmigaDOS Release 2 is very different from the OS 2.0 first shipped with the Amiga 3000. Many additional man-years of effort have been invested to create a polished, stable, compatible and fully tested operating system...Commodore reworked the look and functionality of the Workbench (TM) interface to incorporate new programmer features for configuring the system, including the ability to use a software program even while another is loading and the flexibility to cancel an operation while it's still in progress...A major new feature of the AmigaDOS Release 2 is the introduction of scalable fonts to the Amiga platform...Additional features of the new AmigaDOS release 2, in conjunction with the ECS chip set, include screen resolutions up to 1280 pixels and 400 lines...

Several upgrade programs are available to current Amiga owners in the U.S. Amiga 3000 owners who are registered for Gold Service will receive a free five-disk set and manual addendum. Non-Gold Service owners can either call Commodore Express at (800) 448-9987 and order this upgrade by using either their VISA or Mastercard credit card or send a check for $19.95 plus $3.00 shipping and handling to Commodore Business Machines, Inc., A3000 Disk Upgrade, P.O. Box 18370, Memphis, TN, 38181 to receive the five-disk set and manual addendum. The Amiga 3000 AS314 ROM upgrade kit, including a manual addendum, will be available in November through Authorized Commodore Service Centers for $45.00 MSRP plus installation.

Amiga 500 and Amiga 2000 owners can get the Amiga AS214 upgrade kit, including a manual and system ROM, for $99.00 MSRP plus installation through Authorized Commodore Service Centers.

I suspect there will be quite a backlog for upgrades and installations at your local dealer. Your dealer probably already has a waiting list going (I know mine does and I'm nowhere near the top!). I'll be very interested in seeing how the new OS affects all the standard Amiga-Video hardware and software we use; and we'll alert you in AVID or the AVID LETTER (a subscriber-only supplement) if we run into anything strange. Stay tuned!

Jim Plant
Editor

COMDEX REPORT

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Las Vegas...This is the city. Fall COMDEX 1991...This is the show. COMDEX, for those of you that don't know, is the computer industry's solution to lack of a vacation. Just about every computer related company in the business appears at these things, giving their employees long shifts of standing up telling people the same things over and over. But at Fall COMDEX, the vacation starts as the closing bells ring. This is when an entire army of techno-nerds and industry big-wigs swarm down on the casinos, restaurants, and party spots of Las Vegas. This is also when prices skyrocket ($6.00 for a sandwich!?!), but people here in Vegas don't really talk about that kind of thing. After all, it's a living!

Anyway, that cute, but pointless, opening paragraph was simply to begin what must be the fastest COMDEX news ever in the business. Authors don't usually tell you this kind of thing, but I am sitting here in my hotel room writing this on October 25th, for publication in 3 days. News just doesn't get MUCH fresher, does it? At any rate, the rest of my articles in this issue have already been written and submited, so I'm going to add upon things I mentioned in those. Follow along close, however, as it's an exciting ride filled with lots of good quotes!

My primary purpose in coming to COMDEX was to check in with NewTek. As you might expect, they were wowing the crowd with even more new toys than I was aware of. First question HAD to be about the just-announced price hike on Video Toaster items. When asked, Donetta Colboch (NewTek marketing representative), stated that the original pricing was only introductory. She went on to say that the Toaster was underpriced to begin with (a thought I've had for quite some time, actually), and now, on the Toaster's first anniversary, it is stepped up into the appropriate price range. For those that haven't heard the news, the Toaster card now lists at $2495, up $1000 from the previous. The long-awaited upgrade will be priced at $395, up $295 from prior quotes. If you happen to buy one of the Video Toaster Workstations from NewTek, expect to pay about $4495. The best news is that NewTek has an OFFICIAL release date for 2.0! It WILL ship December 16th according to Donetta!

A lot of you may be thinking that this will destroy the Toaster. Many who were thinking of buying one have already told me that they'll pass on it at that price. There is one important point to keep in mind. The price was so low, that ANYBODY could get a Toaster and be turning out the kind of work you produce. Now, however, the market may slow a bit, which means that NewTek is giving the existing Toaster owners an advantage. As I was told by one NewTek representative, "There are so many professional studios using Toasters right now, and many buying more, that if you know how

to use the Toaster fairly well, your work is in great demand." So you might think of this as giving YOU less competition! (Honest, that's what he said!).

OK, now on to the more exciting news! I got a pretty complete demonstration of the current 2.0, and it is VERY slick! I'll start with LightWave's Modeler...

The BEND and TAPER tools are really nice! I watched as Lee Stranahan, of BreadBox fame, took a simple sphere and used the TAPER tool to stretch it out and narrow one side, then use the BEND tool to produce an extremely nice curved teardrop. It was so quick I almost missed it! Another tool, TWIST, was used to distort the infamous NewTek logo. I asked if this tool would automatically fix non-planer polygons and was shown another new goodie called TRIPLE. TRIPLE takes whatever polygons are in the selected volume and breaks them up into triangles. Bang! No more non-planers!

I saw the SKIN function demonstrated. At first I was a bit confused as Lee built up a strange collection of points and 2-point polygons. He built these rings of polygons on five different Y planes, then clicked SKIN. Voila! An enclosed object was made, with Modeler connecting up what would best be called "Rings." Lots of possibilities with the SKIN tool were going through my head! There is also a button named MORPH, which Lee didn't understand. He claimed that Allen Hastings had showed the tool at a recent show, but didn't tell anybody how to use it.

The ADD & DELETE Points/Polygons buttons are very easy to get to, and should help you to get your work done MUCH faster!

Moving on to LightWave itself, we find a few more goodies as well. The first thing you'll probably notice is that lots of things are missing on the screen. This isn't actually the case, but since LightWave is now in hi-res everything is compressed down quite a bit. You know, I always wondered where they were going to find room for new buttons on the old version, and now we know, don't we?

You may now load objects from within a scene file. This means you could have set up one scene, saved it, and started another, loading objects (and settings) from the previous scene. A new "SEQUENCE LOOP" button in the Images area lets you specify a repeating set of images for use as backgrounds or foregrounds.

Not only did the multiple morph target feature appear, but it is joined by SURFACE MORPH. Let's say you have a object set up, such as a gold coin, and wanted it to morph into a silver dolphin. This is where SURFACE MORPH comes in, changing from the gold settings to the silver. This is one of the features I am most looking forward to having!

Light source envelopes have also been included, allowing you to set up all sorts of interesting scenes. Imagine a light changing from red to green in a slow fade on a stoplight. These new envelopes let you do things like that. You can also exceed the 100 light source limit currently imposed, although I can't figure out for the life of me why you would need more lights than that!

Certain items, such as REFRACTION and OBJECT REFLECTION may not survive into the release because they aren't really sure if RAY TRACING will survive. If you absolutely want to have ray tracing in the 2.0 release, I suggest you call up NewTek and let them know where you stand. With ray tracing, the possibilities are endless.

A completely unexpected addition is the "DOUBLE SIDED POLYGONS" button within the Surfaces area. This allows you to make all of the polygons in the object double-sided without having to go back into Modeler and flip them around. This will be excellent when you wish to see what an object may look like in glass, for example.

You may also set spline controls for every key frame in your motions. This will give easy access to ease-in/ease-out effects. And, of course, we have two new modes, Super lo-res for VERY quick test renders, and print res, which is HUGE! I was told that each rendering mode multiplies time by 4 from the one before it. Hence, hi-res takes four times longer to render than lo-res, Antialias four times longer than that, and so on.

There are plenty of new effects in the Switcher, one of the slickest is also one of the newest. The Warp effects (there were actually three or four being shown) were taking the live video source and wrapping it around a spinning ball. Another effect exploded the ball after doing so, and one more even had the video on TWO rotating spheres! The video got pretty blocky, but NewTek claims that these were only preliminary tests of the new feature.

On other NewTek fronts, the Mac Toaster and PC Toaster were both being shown here at COMDEX. They look exactly like the good old Amiga Toaster, but with one big difference...they have an Amiga Toaster sitting NEXT to them! That's right, only the Switcher screen seems to run on the Mac/PC, while all the rest are done from "The Video Toaster." I think this is a great way to get all of the IBM and Mac people to buy Amigas! The PC Toaster is due out the first of the year, with the Mac expected shortly after.

Among the items shown in the booth were clips from the television series, "Unsolved Mysteries." It seems that Joe Conti, of Apogee, created an animated UFO sequence for a recent episode. Apogee has discovered that for less than the price they used to pay for one special effects shot, they can do dozens of them with the Toaster. Look for LightWave and the Toaster in future episodes of Unsolved, since he's been signed to do a few more shows. I understand one coming up is about ghosts, and you'll get to see Joe as a ghost in the final program.

Ron Thornton, of Nutopia fame, was working on a deal with one of the major studios to produce all of the special effects for an upcoming science fiction series. And how about LightWave being used to generate 3D models of the Enterprise in the new Star Trek 6 movie? Of course, if the "old crew" had it, so does the new crew. You'll notice Toaster produced graphics on the syndicated "Star Trek: The Next Generation" series. As NewTek says, "It's getting impossible for us to go anywhere without seeing the Toaster on local television." It really is a "Revolution," isn't it?

Speaking of Revolution....the new

Toaster Demo tape called "Revolution" should be making the rounds pretty well by now. NewTek claims to have given away more than 30,000 copies of this slick promotional piece, and gave away 11,000 JUST AT COMDEX!

Shifting gears a bit, I asked what the future held for a couple of previous NewTek titles, DigiView & DigiPaint. NewTek is currently marketing a combination of those two products plus Elan Performer, which they just recently acquired. Beyond that, I couldn't get any firm information as far as further development, but it doesn't look really good. According to Donetta, the major priority right now at NewTek is 2.0. When 2.0 is released, the major priority will become 3.0. (Yes, they are already working on plans for 3.0, but you have never SEEN so many zipped lips!).

That was about it on the Toaster front here at COMDEX. I went and nosed around Commodore's booth for a while and saw nothing really surprising. Commodore was placed in the Multimedia section of the show, primarily pushing CDTV, it seemed. There were stations set up for companies such as Electronic Arts (DeluxePaint IV), Gold Disk (ShowMaker) & Digital Creations (DCTV). The big items were from Progressive Peripherals & Software and GVP. PP&S was showing a graphics processor board named "Rambrandt" which is due out in about 4 months, and GVP was showing the "Impact Vision 24" which is shipping now. I am expecting to get my hands on these boards in the near future and I'll go into more detail at that time. Suffice it to say that framegrabbers and 24-bit cards are popping up EVERYWHERE! Why, I remember when we all used to complain because the Amiga could only do 4096 colors. Guess there's no reason to complain about that anymore!

Well, it's about time for me to pack up my things, cash in my blackjack chips, empty my drink and head on home. Every big show in Vegas is an adventure. If you've never been to one, try to make it next time. SIGGRAPH and COMDEX are great shows and well worth the trip.

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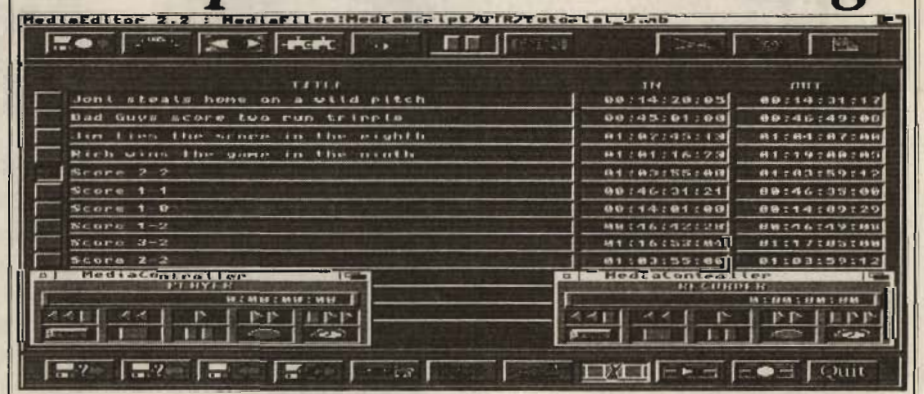

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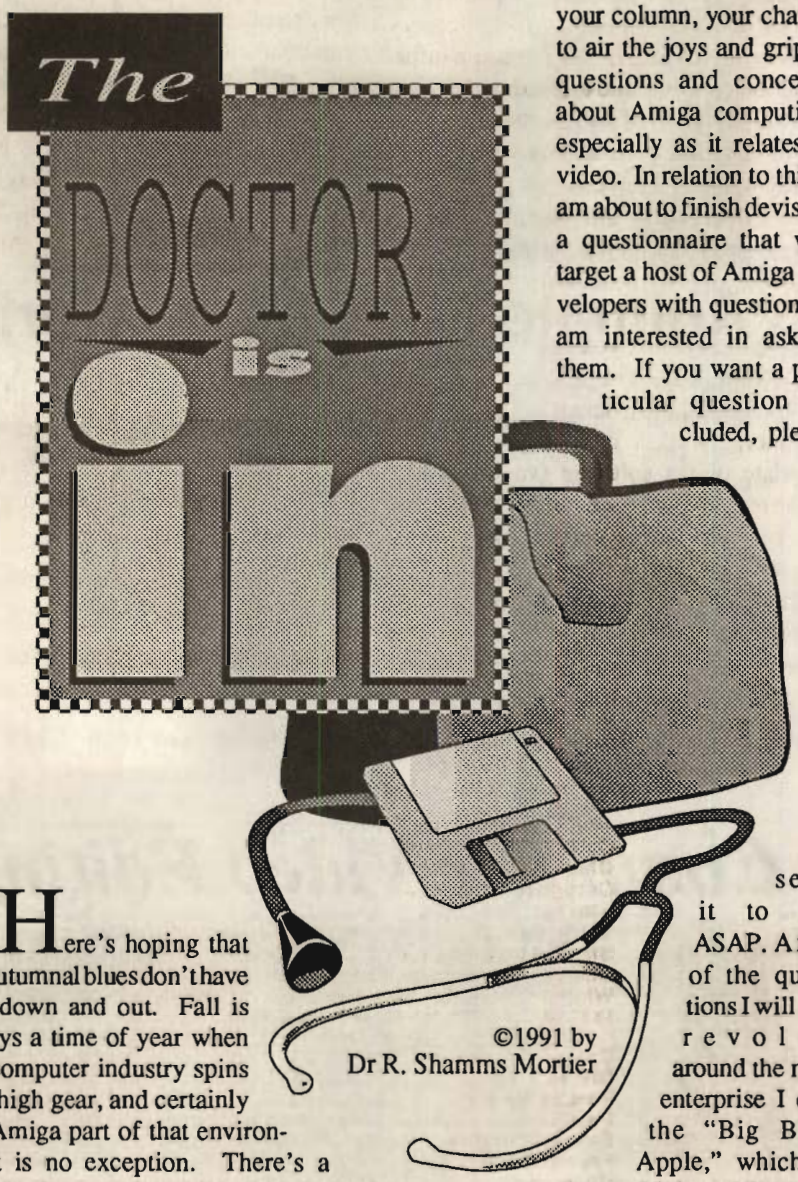

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Dr R. Shamms Mortier

Here's hoping that the autumnal blues don't have you down and out. Fall is always a time of year when the computer industry spins into high gear, and certainly the Amiga part of that environment is no exception. There's a wealth of new and exciting products and upgrades on the way, and Amiga obsessives are going to be causing their plastic money to glow in the dark in the coming months. Two of the most eagerly awaited releases are Impulse's Imagine 2.0 and the upgrade of the Toaster software, each of which promises easier and more fulfilling lives for their user community. Add to this Octree Software's release of Caligari 2.0 (an astounding upgrade of the previous "home version" of its software, which I have the privilege to BETA test), and you can begin to feel the sparks in the air.

What's it all about, Alfie?

Remember that this is your column, your chance to air the joys and gripes, questions and concerns about Amiga computing, especially as it relates to video. In relation to this, I am about to finish devising a questionnaire that will target a host of Amiga developers with questions I am interested in asking them. If you want a particular question included, please send it to me ASAP. A few of the questions I will ask revolve around the new enterprise I call the "Big Blue Apple," which is the combining of the giant corporations of IBM and Apple. I've already been asking around on how this megalith might effect Amiga computing, and I've already amassed some interesting comments. They can only get more interesting with a larger sample of the population, and the entire questionnaire will form the basis of a series of articles in a future issue of *AVID*. If you want to become a part of this historic moment, you can send your items of interest to:

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Bristol, Vt 05443
(802) 453-4293 or (802) 656-1953
For fax suited persons, the number is
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Configurations

Many moons ago, I asked *AVID* readers to send in details on their Amiga/Video configurations so that everybody could appreciate how different members of the Amiga-video community put their workshops in order. The latest example of this comes from Nathan Wahl of Emerald Video (8601 W. St. Rte. 163, Oak Harbor, OH 43449, 419-898-0535). He also sent me a copy of his published article on converting Toaster RGB files from LightWave to a standard IFF animation (if interested, users should contact him to get the details and cost of receiving this article). Nate has included comments on some of his equipment that I feel are worthy of mentioning here:

On the Panasonic AG-7750:

"The manual, although technically specific, contains very little explanation of many of the terms and functions. I just wonder if this is the accepted norm where industrial and commercial equipment is concerned."

On the AG-F700 Internal Timecode generator boards:

"(It's) on a 30- to 60-day back-order. Panasonic accessories are delayed quite a bit after product announcement. It's difficult to start a business when the equipment that you need to make your preferred product is unavailable."

On the Knox Miniburst (a blackburst generator with three composite and a Y/C output for about $250):

"The NewTek technical support person said that it works well for my level system."

A comment to Matt Strauss (the subject of our "Wizard of the Toaster" article two issues ago):

"Tell Mr. Strauss that persistence does indeed get rewarded. I kept bothering NewTek until they sent me a new Toaster, #166."

On his Amiga-Video system:

"I had a C-64 when they first hit, and got one of the first A-1000s in northwestern Ohio, and still have WB/KS 1.0 on a

disk somewhere. My system is a 25 Mhz 2500 with 40 and 105 megabyte Quantums, 7 megabytes of RAM, Toaster, Printerface, Digi-View with 1410, ECE MIDI, Casio, and Yamaha keyboards, Juki printer, Panasonic PV-420, and half of Radio Shack's catalog worth of mixers and stuff. Deluxe Paint III is my favorite software (IV is on the way), and I use about 27 megabytes worth of less useful software."

Thanks, Nate!

NewTek tapes

I own a Toaster, and have for sometime. Why then did NewTek send me a copy of its new demo tape? Not that I don't appreciate it, I do. It's a well-produced piece of promotion. But if NewTek sends it to all present Toaster owners, it'll cost the company a bundle. Then again, maybe by doing this NewTek figures even present owners will be so amazed by the possibilities that they'll forget they own one and rush out and buy another. Stranger things have happened!

Brett and Company

Brett Casebolt is the owner and head cheddar of Natural Graphics, the company that markets the amazing Scenery Animator software. We ran some information on this scene animating software in the last issue of *AVID*, and since then I've had more time to play with it. The only warning I have is that if you need more than two or three hours of sleep a night (especially if you have a DCTV unit as well), approach this software with caution. It's great for generating animated backgrounds that you can then genlock titles and credits over, and has other video uses as well, particularly in segueing scenes. Well, I just received another update of the software (version 1.02). The main difference in this version is that an accelerator is not needed, though there is an accelerated version on the disk. Personally, I think any serious Amiga professional or hobbyist would want to purchase an accelerator board as soon as possible, because the speed increase in doing any kind of rendering is tre. dous. But, if you don't want to invest i. that at the moment, at least there is a version of this software that will still give you hours of enjoyment. Here's a list of new data disks (Digital Elevation Map files) that are available from Natural Graphics: Oahu, Pikes Peak, Mt. St. Helens, Yosemite, Sequoia, King's Canyon, Los Angeles, Seattle, Mt. Shasta, Black Hills, Hell's Canyon, Grand Canyon, Devil's Tower, San Francisco, Crater Lake, Glacier National Park, Yellowstone, Grand Teton, Teddy.Roosevelt National Park, Bryce Canyon, Great Smokey Mountains, Adirondacks, Catskills, White Mountains., Acadia National Park. More data disks are being added constantly. Interested parties should contact:

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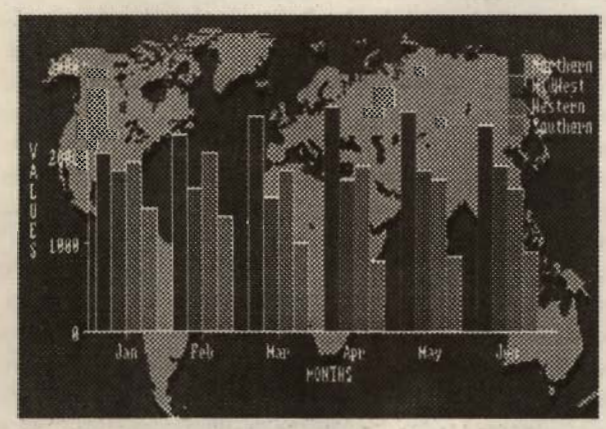

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Acting on Impulse

Speaking with Mike Halvorson is always an invigorating experience; like being tossed from your bed into a pool under a waterfall. Like the pounding sheets of clear water, it can be both beautiful and overwhelming. I am suspicious of folks who have no philosophical view to balance their marketing endeavors (my Chicago personality). Mike has a philosophy and a well-developed belief system in place. You may or may not agree with him, but before the conversation is over, you will appreciate that these waters run deep. I have found this same fact to be true concerning all of the individuals who engage in deep levels of development in the Amiga community. Their products are tied to their personal and world views concerning the meaning of it all, and also on how humanity will communicate and learn in the next century. It's obvious that Mike Halvorson believes that visual communication is going to outdistance verbal methods, and he even says this in his comments about Impulse's Imagine software and the changes he's putting it through.

Imagine 2.0 will be released in November 1991, and it will represent a major revision of this superlative Amiga software. The upgrade cost will be about $150 for current Imagine owners, and the retail cost of the package will be between $450 and $550. Mike says this revision, though massive, will seem subtle. Some of the new features will include a new editor to set up the software, which will create dynamic macro buttons on the screen detail to perform targeted tasks, leading to a more graphical interface in many applications. Real-time scalable, rotatable, and movable points will be included. There will be a "quick render" mode available at any time so you can get a fast preview of an object. Because Impulse is committed to adhering as closely as possible to the agreed upon Commodore standard, it will continue to give priority to addressing the IFF 24-bit standard in file exchanges. There will be a more powerful and option-oriented ANIM editor, including tools to address angular and linear velocity. The Cycle Editor has undergone massive upgrading as well. Mike is most excited about the changes in the Forms Editor. He was able to create a 3-D tennis shoe here, and he said that organic forms will be much easier to create and manipulate. Phong-shaded polygons now can have either hard or soft edges. Though Mike is rewriting much of the new manual himself, others will be authoring tutorials. It will be a very thick and complete manual, detailing everything in Imagine.

Though the program will be about 620K and fit on one disk, there will be three disks in the package: a Turbo disk for accelerated Amiga users, a standard non-Turbo disk, and a disk of textures and IFF wraps. It will, in his words, be very difficult to run this program without at least three megabytes of RAM and a hard disk. Mike's advice for approaching this software is to "learn how to experiment with patience." He suggests that the best way to study before doing any computer 3-D work is to "go somewhere and sit down and look deeply at the world around you." Imagine 2.0 should be quite a package.

ADSPEC update

The latest from ADSPEC Programming is that the first issue of Pro-*Master* is here (it's the newsletter ADSPEC is putting out quarterly for $36 a year, including a disk). Included are tutorials, user articles, and new information on how to get the most out of the software. The disk is super compacted, and fills three disks when unstrung. Among the items included on the disk are three new Draw-4D Pro fonts and new textures for object wraps.

Some new information about what will be included in Draw-4D Pro version 2.0 (due July '92) concerns two new "explosion" routines. One will explode a figure into its composite poygons by moving them out automatically from a selected central point. The other will not involve polygons, but instead will change an object into "particles" that will fly off in all directions—a true explosion in 3-D space! Also planned are "self luminosity" for selected polygons, which means it will be possible to make a light bulb or candle glow by calling on a "radiant spread" as a haze-like effect.

Adspec President, Greg Gorby, just returned from doing a D4D-Pro presentation for the Memphis, Tennessee, Amiga users group (MAG), and was so busy he didn't have any time for sightseeing. MAG has an excellent projection TV system, and reportedly the 50-plus users that saw the demo of D-4D Pro were awestruck (including a Commodore rep!). The demo was accomplished with the help of the DCTV unit; Draw-4D Pro is becoming a natural cousin of DCTV as far as users' perceptions are concerned. After the demo, Greg went to the MAG Video SIG meeting, which was held in his room! Due out this December will be a D-4D promo video that features the work of various D-4D artist/animators. It will be sent free to all Amiga users groups, and will cost others who request it the price of shipping and handling (about $3 or less). The tape will feature work as both DCTV and 24-bit types.

From Greg and others come a thumbs down on the new A3000 mouse. It's too cumbersome and has a way of causing the user to select the wrong menu options. Commodore engineers, take heed...if it ain't broke...

The Lullemann Connection

Peter Lullemann is a person who all Amiga video obsessives should know about because he is one of (if not *the*) most astute and knowledgeable experts on interfacing the Amiga with the somewhat confusing world of video hardware. He is the owner/operator of Philadelphia Video Labs, and has had more experience during a longer period of time with what we now call "DeskTop Video" than anyone else I know of. His workspace is filled with every imagineable device, and right in the middle sits an Amiga as the main controlling unit. He addresses most video formats up to and including 3/4" tapes, and that means SP and all the rest. His Amiga tapes are the best around. I will give details about his enterprise in a future *AVID* column, but I wanted to mention him for a different reason. Peter is about to release a series of professional background tapes that the Amiga video community can use either to genlock behind Amiga text or foreground imagery, or that can be digitized for alternate purposes. These should be available about the first of the year, and I'll keep you apprised as to the exact date. He will also be releasing a piece of software in the future that no serious Amiga professional will be able to afford being without. Because I pledged not to expose this product at this time, I can only tell you that there is absolutely nothing like it on the market, and that it will be a utility that will make your Amiga video output appear all the more professional.

Gettin' in the FLOW

Quite often a good production starts with a loose assembly of ideas randomly generated and literally pieced together on the floor or on an office wall. This is prior to the "storyboard" stage, which entails the actual scripting of the storyline. I have recently discovered a piece of Amiga software from New Horizons (P.O. Box 43167, Austin, TX 78745, 512-329-6215) called FLOW that can make this process easier, as well as keeping it all Amiga-based. FLOW is what is called an "idea processor," and it can help you to organize ideas for the pre-storyboarding process, detailing production technicalities, as well as authoring reports and even books. Idea processors are basically hierarchical word processors, allowing you to separate levels of information, and are similar in use to creating an outline structure. Good idea processors make this task easy so that inserting and deleting information as your ideas develop is intuitive, so the creation of the structure proceeds at maximum speed and with little interference in the quick-paced creative process. FLOW does just that. New Horizons is already known for its excellent word processing program PRO-WRITE, so it seems natural and expected that it should be able to move into this new arena with qualitative results.

I always test new software by diving right into the program without using the manual, and take note of how far I can get before I have to refer to the book. Doing so in FLOW got me most of the way through the program, proving that the interface design is pretty much intuitive. I even tried to import a standard ASCII document, which worked without a hitch. I then thought I'd experiment and import

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a PageStream document, and there it was, with no choking. Of course, the control characters had to be removed, but this meant that I could set up my document in any word processor or in PageStream as well, in addition to using FLOW as the generating engine. New Horizons is well aware of the power and assets of tapping into and hand-shaking with the Amiga standards. If I had this software when I struggled with the form and structure of my doctoral thesis, life would have been much more pleasant. As it is, I can visualize many uses in my Amiga business for this package, and recommend it to you if you're in the market for a way to manage the lightspeed FLOW of your ideas in a more concentrated fashion.

Some of the new attributes of FLOW 3.0 are: Sort types may be chosen from a submenu, Find and Change requesters are movable, AREXX has been implemented, a Math macro has been included, and frequently used Macros may be saved.

The Big Blue Apple-

So, what do you think about the merger of IBM and Apple, and how do you think it will affect Amiga sales and use? One thing is for sure, Commodore has got to get its shabby act together as far as marketing is concerned. I'm tired of being a one-person PR department for Commodore in my community, and I'm sure you feel the same in your area. Amiga people know what they've got, and we do our best to expose our discoveries to others. This new mega-company is expected to initiate an adventure called "Multi-Media." Multi-Media?! We've been involved in it for years, and it's time the message got out, and that it get out with deliberate and constant regularity. A one-time ad in *Life* magazine is foolish. Markets have to be targeted and immersed in a steady flow of promotional materials. Amiga-based alternatives for the schools need to be addressed. Hello. Commodore. Are you awake? Are you listening? Do you really care? Do you really know how great a product you have?

In the near future I will write an article that will focus on one of the most successful and energetic Amiga sales people around, someone who actually knows how to create with the machine, and is able to answer questions from new and experienced users alike (aren't you envious that there's no one in your area who fits this bill?). Commodore central should purchase a life-time subscription to *AVID* for everyone of its employees, and soon after that it should begin formulating and implementing a strategy for taking back what is rightfully ours—the DeskTop Video Multi-Media marketplace! This can only be done by hiring experienced Amiga users, and sending experienced Amiga users out into the field. After all, on a local scale, we all sell the machine every chance we get anyway.

DCCG

Two months ago, we ran an article concerning a reader's plea for help for her disabled child and other children involved in an organization called the Disabled Children's Computer Group (DCCG). The DCCG is an interactive center that allows adults and children to test and experiment with computer hardware and software, and is a resource for families learning to interface the technological tools with the needs of the visually, hearing, orthopedically, or developmentally impaired. We are happy to report that our faith in the *AVID* readership response to the needs of this group were confirmed. *AVID* commander Jim Plant met the reader who initiated the request for assistance at the AmiExpo-Oakland show, and she said that some of you had contacted her with offers of assistance. It's action like this that will always distinguish the Amiga community from mere cold computerists. For those of you who would like more information on this group, or who have possible ideas on how you might reach out, here's the DCCG address again:

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Well, that's all for now. ENJOY! And, oh yes, see you in ROMulan space.

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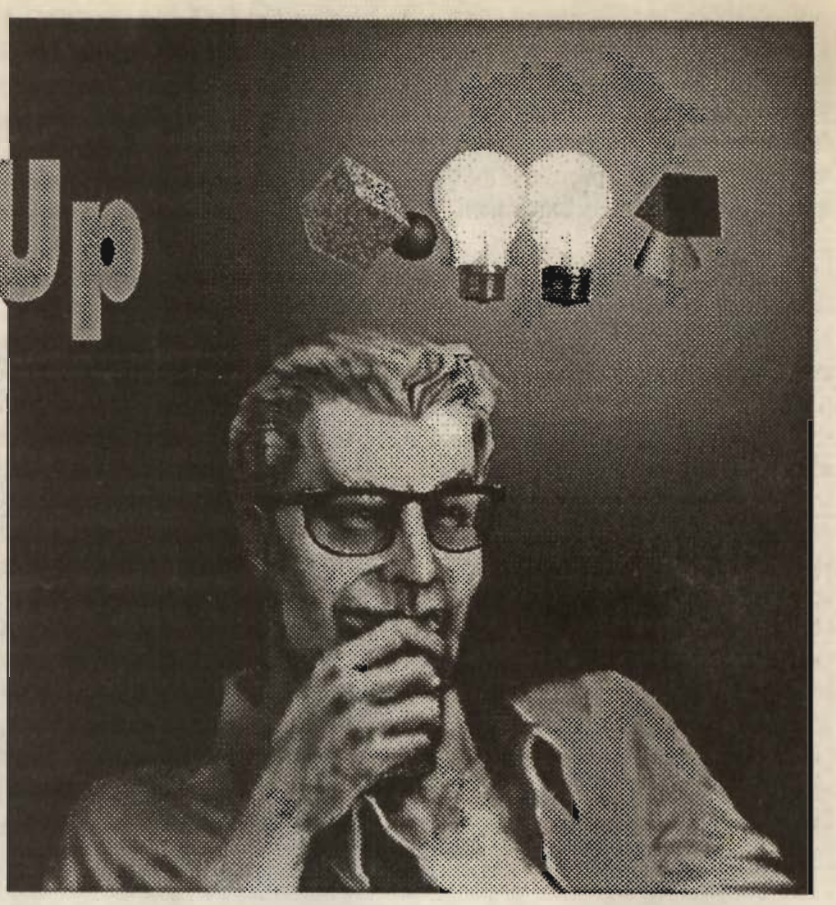
Lighten Up #3



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Well, here we are again, another scrimmage in the LightWave Wars. In this installment we'll take a look at a few techniques for saving memory, creating nice, smooth surfaces, and much more, so let's get started...

What was I going to talk about? Oh yes, memory...(sorry, bad joke...) If you are a serious LightWave user (or even if you aren't but want to be,) you've got to have a few things beyond the "basic" Toaster system. First priority should be more memory. Since the Toaster "requires" 5 megs of memory to operate functionally, I'll presume you have at least that much. 5 megs is NOTHING for 3D animation. If you can afford to, step your memory up to at least 9 megs. You can do this on the standard 2000 family machines and you won't need to get an accelerator. Which brings us to the next important item. An accelerator in your machine will really change your life if you don't have one at the moment. Any amount of acceleration is better than the standard 68000, but I suggest shooting high on this one. There are many good accelerators available now (I use GVP's 3001 boards; one at 28 Mhz and one at 50), and prices are coming down pretty quick. Check out the new 68040 based boards from companies such as CSA, RCS, and Progressive Peripherals & Software. Another advantage with accelorators is that you can upgrade memory far past 9 megs on most of them, one goes all the way up to 64 megs!

This is all well and good if you happen to be able to afford to buy these gadgets, but what if you can't? Let me take this time to explain a few tips on conserving memory while animating.

1.) Keep your objects simple.

You've got to take this tip with a grain of salt. If the object you are animating demands a great deal of detail you may not be able to cut it down too much, but there are a couple things to keep in mind. When you create a flat template and extrude or lathe it, you end up with double-sided polygons whether you want them or not. Try to avoid making polygons that will never be seen, such as those inside a solid object. Of course, if that object is to have any transparancy at all you'll probably have to have internal polygons, so stay away from clear objects, if possible.

2.) Don't keep rendering things that don't move.

Background items can often be just that — background items. If your scene centers on just one or two things moving, with a stable backdrop behind them, try rendering JUST the background stuff and saving it as an RGB image (NOT a Framestore). Load that image into the Backdrop and use it rather than rendering the backdrop objects over and over every frame. This tip only works if the camera doesn't move in the scene. If you must have one of the background

objects appear to be animated (such as a clock), render all the frames of the clock swinging in the backdrop and number them sequentially (BG.001, BG.002, etc.) You could then set the images to be loaded and displayed in order in the background of your primary animation.

3.) Use layering.

This tip is merely a step further than the previous one. If you find that you have so many objects in a scene that you don't have enough memory to render them, try doing it in multiple passes. I recently did an animation that involved watching a sign swinging in the wind in front of a glass-front store. Through one window were a number of complex objects on display, through another window you could see the rest of the room, including a waiting area with plaques on the wall. The problem was I didn't have enough memory to render it all at once. I set up JUST the rear walls, plaques, couch, table, etc., and rendered one frame, saving it as an RGB image. When that finished, I loaded it into the background and rendered the next layer (which from the camera angle was the items seen in the display window.) Now I had a store with no front walls. I loaded THAT image into the background and rendered the front walls and windows. Then I rendered the sidewalk, grass, and vending machine. Then the wood overhang above the store. Finally, I loaded that in and used it as a backdrop in a scene involving ONLY the sign and the chains holding it as it swings back and forth. Not only did this method solve my problem, but gave me a much higher level of detail. As I said earlier, however, this technique only works easily if the camera doesn't move. And if you want to use shadows it probably doesn't work out well, either (I haven't tried it with shadows).

4.) Unload Modeler.

If you have had the Modeler open before you render something that you know takes up a lot of memory, make sure to click "Unload Modeler." You'd be surprised how much memory that thing can tie up if you have many things in it's layers! Keep in mind that using "Unload Modeler" will get rid of ANYTHING you were working on in the Modeler. Make sure you have saved everything you need beforehand.

Alright. Let's move on to more general Lightwave tips...

Vanishing Settings

Have you ever created an object, taken it into LightWave and set all the surface attributes, saved the object with those attributes, gone to modify your object in Modeler and found that when you reloaded the object into Lightwave again, all the attributes you set are gone? It doesn't have to happen that way. After you save the attributes, make sure you LOAD THAT FILE into Modeler before you work on it any more. You see, if you keep a copy of the object in Modeler while you play with it in LightWave, the attributes for the Modeler copy ARE NOT AFFECTED. The only way to retain the settings is to load in the copy again AFTER you save attributes.

Another neat twist on this concept is

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that you can match surface attributes between objects! Try this experiment: Create a sphere in Modeler, give the surface a name like "Sphere," save it, and load it into LightWave. Set the surface to something interesting and save it again. Go back into Modeler and load the sphere again. Make a box on another layer. Assign the box surface name to "Sphere," and save it. If you load that box into LightWave now, it will have the same surface you had created for the sphere. Surfaces with the same names will have the same settings.

Two Polygons, One Place

Every now and then you may find that you have two polygons defined on a single surface, both facing the same way. Not only can this use up extra memory, but it may not render properly. There is an easy solution to this. Select both of those polygons, making sure that ONLY those two are selected. Go to the INFO window under the OPTIONS menu. Simply de-select either one of the polygons, leaving one active. Now go and choose CUT to get rid of the selected polygon.

Much Ado About Nothing

NEVER save an object in Modeler that has only points and no polygons (starfields don't seem to apply). The reason for this is that you will frequently find that when you reload this object into Modeler, the system goes to New Jersey. If you are trying to save a template before polygons are made, just connect all the points together to create a single polygon (it doesn't matter if the polygon "makes sense" or not), then save it. This way when you load it back in, just select the polygon and choose cut...voila!...you have your points...

Some great LightWave/Modeler tips have been passed along through The BreadBox, the official newsletter for the Upper Crust Toaster Users Group in Los Angeles. Upper Crust is believed to be the largest Toaster group around, and always has interesting news, so if you aren't a member, become one! (You'll find the contact information at the end of this column).

Tony Stutterheim at NewTek has some interesting ideas for making ocean surfaces. He's the guy behind most of the water effects you've seen on previous Toaster Demo Tapes. Tony renders water in low resolution, simply because it's much faster than the other resolutions and looks just as good. He uses as many as 16 wave sources to give a convincing "rolling" look to the surface, but claims that Allen Hastings would probably disagree with this setting as being too many. Setting a light source directly above the center of the water, pointing straight at it adds to the atmosphere. Lastly, he uses a gradient starting at a deep blue up top, medium gray in the middle, and dark blue again at the bottom. This gradient is then used as a reflection map.

Another neat publication has wandered across my desk this month. This one is called "3D World," and comes out of Michigan. It relates not only to Lightwave, but to all 3D products for the Amiga, and has quite a few slick tips.

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With credit to both Dale Myers and Jon Tindall, I'll share one with you.

If you want to make a complex object such as a chain-link fence, wicker chair, etc., try using transparency maps. Create two maps, one with just white on black (which will be used as the transparency map), and an identical map with shading on the white parts which will be used as a bump map. An example of the two map patterns is shown in Figure 1. Using this technique, whatever is white on your trans map will be visible and the black will be clear. By setting the same map with subtle shading as the bump map, you can specify how high it is raised (i.e. the lighter the color, the higher the bump).

I experimented heavily with this method and found that it has a WHOLE lot of potential. If you set the map so that it is all white with black stripes through it, you can make a pretty nice tile pattern. The best part of this is that you don't have to waste time OR memory to have detail like this. Granted, you'll use a bit setting it all up, but a 32 color image map in overscan is almost always less than 100K.

My partner and I are currently working on a new trick and this is what I have so far. What about placing the camera within a tube, facing out the sides? Set the tube surface with a transparency map and spin it. If the map you are using has sparse dots and lines on it, you have the look of an old black and white film. As I said, this is a trick in progress, and at the moment we find it takes an AWFUL long time to render such a thing, but the results are very impressive. If you have a better idea to pull this off, please let me know.

I have just received a couple of interesting new products that I plan on covering in upcoming installments of Lighten Up! These include "Lightscape", the animation conversion utility from Universal Video & Software Productions, a set of 3D objects from ViewPoint, and various other goodies. Texture City sent me the update to my Pro-30 set. The update amount is from 30 to 40, NOT 50 as was stated previously in this column. I have to say that they have really outdone themselves with one of the new textures. They have included the most beautiful sunset I have ever seen, and I'm getting a lot of use out of it. Contact Texture City for more information.

The last couple of months I've had one other new toy to play with...NewTek very generously allowed me to work with an early copy of LightWave 2.0. While all of the features for the official release are not installed in my version, there are plenty of interesting items. Check the LightWave sidebar for a rundown.

Lastly, I want to thank everyone who has been contributing suggestions and tips to this column. The question is, why haven't YOU let me know what you're up to? Give me an idea of what you use LightWave for, tricks you've discovered, or just write and say hello! In a future issue I would like to cover a few folks who are using the Toaster and LightWave in interesting or innovative ways. Who knows, you may find yourself the center of attention here in Lighten Up!

As usual, send all correspondence to:

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D.Hopkins9

Well, that's about all for this month. Check back next issue for the latest LightWave info, and may your shading always be smooth!

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LightWave 2.0

By David Hopkins

Not too long ago, NewTek sent me a preliminary version of Lightwave 2.0 to examine. After spending many sleepless nights experimenting with the new toys, I thought I'd share what it has to offer with all of you LightWave addicts. After all...everybody needs a good 3-D fix every now and then, right? So, without further ado.....

First, let me say that the things you read about in this sidebar MAY NOT REMAIN in the 2.0 release. I have, however, been led to believe that they will. Next, DON'T call Newtek trying to get a copy of this! They are extremely busy and refuse to send out pre-releases (I had to bribe an important NewTek person with a valuable Mickey Mouse pin to get it...She knows who she is...).

Now then, not all of the features that we are being told will be in the 2.0 release are hooked up in my version yet, but there are some really nice additions. For one, how about Pixel Blending? This little gem allows you to zoom in very close to a texture mapped surface without having too much of that annoying blockiness that currently appears. This is really handy, but a bit slow at the moment. Right there in the same area we find Negative Image. You should be able to guess what that one does, and it does it well...turns dark areas to light and vice versa.

A new surface called Dots has appeared. As you might expect, this one allows you to cover a surface with dots of any size and color. There are some really neat things to be done with this surface, and I'll try to give you some more info on it next issue. Another interesting item in the surface subject is that you may now use a cylindrical or spherical bump map, rather than just a flat bump map (that sounds kind of like jumbo shrimp, doesn't it?).

One of my favorite new additions is the Bounding Box Preview mode. Currently, when you make a preview animation, LightWave uses the wireframe of the complete object(s) to draw the frames. This can take a great deal of time with a complex animation. One of my recent previews in that mode took over an hour to create on my 50Mhz machine. The new Bounding Box mode will do the preview with a box the shape of each object, much as you see when you move objects around the scene. To give you an idea of the speed increase, the aforementioned preview took less than five minutes in the Bounding Box mode!

At long last you may delete ANY ONE IMAGE you have loaded, without dumping all the others you may be using. This is a wonderful thing! When you are working with four or five different textures, the last thing you want to do is have to reload ALL of them when you need to get rid of a couple...

Moving to the Modeler, we find still more toys in there. The much talked about Magnet tool is working, although I really don't think it is finished yet. You don't have a lot of control over the precise size of the area to be affected yet, but I'm sure that will be worked out before release. In the same area you will find the Stretch tool, which allows you to do some really slick things to an object. If you take a sphere, for example, specify about one third of it as the affected area, then drag it away, you get a pretty convincing light bulb. Move the area in another direction and you have a mushroom. I've just started playing with this tool, so I'll give more info as I discover it.

If you hadn't noticed, the eighth layer in the Modeler doesn't work very well. The system has an annoying habit of crashing when something is put in there. Suffice it to say that layer eight works FINE in the new release!

There is a new preview mode in Modeler, also. This one is called Solid, and will show you your 3-D object in the corner with hidden lines removed. This is very nice when working on a complex object as you don't get all of the lines mixed up. You know the situation...where you can't tell if the object is really facing to the right or the left because it just looks like a jumble of lines. No more...

Also added to the little preview is the ability to select points directly from the 3D object. This can make grabbing a certain point much easier as you can get a clearer picture of its location in the 3-D view.

Another friend of mine at NewTek, James Robinson, creator of the flying bee animation on the new demo tape, tells me of a few other goodies (he has a newer version than I do...<sniff, sniff>...) He claims that Allen Hastings has increased the rendering of shadows by as much as 75%, and that it will probably be even better by release. The ray-trace button is installed in his version, but at the time I spoke with him he hadn't had much of a chance to try it out.

Lee Stranahan at the BreadBox newsletter (a man I trust completely), has a few other interesting bits of news on the 2.0 release. According to his "Crumbs" article, 2.0 will allow you to set spline tension on each key frame. This means that ease-in/ease-out movements will be very easy to produce. How about yet another new texture? "Underwater" will give you control over specular highlights, transparency, and other things in a format much like the Ripple bump map. Other toys include non-linear fog, the ability to set amplitude for image based bump maps, and an improved wood texture.

Lee also mentions chained metamorphs, which will reportedly allow you to set as many as 16 morph target objects, and maybe even more! Soft-edged spotlights have also been improved. In the Modeler, you'll find SKIN, TAPER, SHEAR, and BEND functions, along with things like insert/delete vertices (points), and merge/split polygons. These will be nice to have, but I'd like to point out that you may delete a point from a polygon in the current version of Modeler by simply selecting it and choosing cut. You'll notice the polygon snaps to the new shape. (Sorry, wrong column...)

Last, but not least, is the bad news. Rumor has it that the 2.0 upgrade will NOT be $100 as NewTek has been claiming. They've decided to raise it up to around $400, in line with the price rise on the Toaster itself, which is going from $1595 list to $2495 list.

Well, I'm off to finish my experiments, so hang in there for the upgrade. Although it has been moved to December, and the price went up, it will be WELL worth it!

Tutorial!

Doug's Deluxe Paint IV Tips #2

© 1991 by Doug Shannon

Last issue, we discussed some handy techniques for mixing colors and doing animation. In this issue, I'll talk about some neat "hidden" features of Deluxe Paint IV and will reveal some professional techniques for soft-edge shading.

Working with "Shade"

Previously, I wrote about a problem in the set-up of ranges for the Shade mode that caused undesirable results. I have more information on this, and I'll share it with you. While writing the section for soft-edge shadows (later in this column), I discovered that the Shade mode in DPaintIV would not work at all for me. After talking with Electronic Arts about the problem, I stumbled onto the reason why I've had such bad luck with Shade mode. It turns out that, in addition to needing a continuous range set for Shade to work, the range must start in the very first bead of the Range selector. This is an inconvenience for me because I like to build my ranges from the middle out, so I can add colors to the front or back without having to move the whole range left or right.

If you run into trouble with the Shade mode not working, save your artwork right away, then re-boot. Before I knew about the problems with the Shade mode, I would crash the software regularly trying to get the Shade mode to work. It seems that when the Shade mode is used without a range that starts on the leftmost bead, it causes memory problems that won't nessessarily crash DPaint right away, but will cause a software failure after constant use.

Palette Tricks

The DeluxePaint IV palette requester (now known as the mixer) is a very powerful tool, but some find it uncomfortable to use compared to the previous DeluxePaints. Here are some general tips on how to get the most from the DPaint IV Mixer.

The Mixer always comes up on a HAM screen, even when DPaint is set to a different screen mode. Because of this, HAM fringing will distort the color of a register. But each square register shows the true color somewhere in the square. Look at the rightmost column of pixels in that register to determine the true color. Another way to tell the true color is to select it, then look at the color in the foreground/background box.

Frustrated because you can't see your palette in overscan? Turn off your toolbar and call up the Mixer and you now have your colors available to you, and you don't have to hit CTRL and the cursor keys to see them.

For those of you who are fortunate enough to be running AmigaDOS 2.0, there's a "hidden" feature included in DPaint that can allow you to see more of your picture when the Mixer (or Ranger or Arranger, for that matter) is active. If you like to paint on screen while the Mixer is active, you can view more of your painting by pulling the Mixer down. How do you do this? Under AmigaDOS 2.0, there's a section in the Preferences Program Control called Mouse Screen Drag. This allows you to set a key combination that, when pressed along with the left mouse button, causes the pointer to "grab" the current screen for dragging. Now when you move the mouse up and down, the screen moves up and down with it. As I said earlier, the Mixer is a HAM screen, so you can click on the Mixer screen and do this. Drag it as far down as you want; this lets you see more of the screen at a time. You won't need to scroll as much, and if you turn off the Mixer it remembers where it was, so when you turn it back on again, it's still set just the way you had it. Remember, in

DeluxePaint, you can't paint on a section of the painting you can't see, so the more you drop it, the more you can paint on.

When using this trick with overscan, I turn off my toolbar with F10, then I call up the Mixer and drag it down to the bottom so I can just see the color registers. This way, I can see most of my picture while still being able to select colors.

Similarly, if you're a 2.0 user and want a quick way to find your toolbar while in overscan, use this trick. Turn on the full toolbar and menubar, then grab the menubar and drag it to the far left. Your whole toolbar should be visible. Choose the tool, then drag it back. The horizontal drag works when your workbench is overscan. Use the same tip to see the leftmost side of the File Requesters.

When running DeluxePaint IV on standard speed Amigas, the redraw of the color registers in the Mixer can severely slow down your progress. But this quick tip should keep redraw time to a minimum. When you click on "OK," the Mixer disappears, clearing out everything you had mixed in the mixing area. When you bring up the mixer again, it must redraw all the colors again. But pressing "p" on the keyboard instead of clicking on "OK" will send the Mixer screen back behind the DeluxePaint screen. Hiding the Mixer this way retains the mixing area and it doesn't need to redraw the registers. Calling the mixer again will bring it to the front, but no redraw will be needed.

A hidden palette editor was added in DeluxePaint III, and as far as I know, it was never documented. The hidden palette editor is still there in DPaint IV, and here it is. The Numeric keypad, when not in perspective mode, will alter your current color.

These are the keys:

7 Red value down
8 Red value up
4 Green value down
5 Green value up
1 Blue value down
2 Blue value up

Unfortunately, this feature does not work correctly in HAM mode, where it would be most beneficial.

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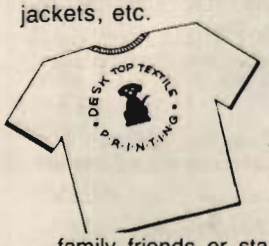

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The Soft Edge Shadow

Drop shadows can be an effective way of providing a professional look to titles and clip art. The soft-edge shadow can provide a realistic, unique look that stands out from the normal drop shadow, because it is an effect that is rarely seen. The soft-edge shadow must be cast onto Amiga graphics; this effect does not work on a genlocked image. Here's how to make a soft-edge shadow on a title. This example uses low-res 32 colors, but I'll describe how to cast the shadow in HAM as well.

1. Set up your palette. The palette range should be a section running light to dark, usually with one theme color. However, DPaint's 32 default palette colors not only give us a perfect palette for this example, but they also give us a perfect range. The range of grays, range 1 in the Range Requester, will work fine so don't change a thing.

2. Set up your background. Now, a digitized image will be a difficult thing to use if you are in 32-color mode, so try to use digitized images only in HAM. For the example we'll make a stone texture. Set your background color to a medium grey (about R:9, G:9, B:9). Don't use the second color in the color palette, use a gray that's in Range 1. Clear the screen (Shift K) so that the medium gray fills the screen. Now choose the gray that's one step lighter than the background color (you can use the "]" key to do so). Now select the Airbrush tool, select the Color Mode (F2), and select a one pixel brush (.). Turn off the tool bar (F10) so you can see the whole screen, and run the airbrush over the gray background. Try to get an even coat all the way across. Apply this repeatedly until you have the screen textured well, with about 20 to 30 percent filled with the lighter color. Now do the same thing with the color that's one shade darker than the background color (press "[" twice). Apply the darker color until you have a satisfying stone texture on screen. When you're done, you may want to save it.

3. Prepare your image. For this example, we're using a title, so let's create one. I like to use a large font, about 60 pixels in length for lo-res, with a thick edge, maybe bold. I create my titles on the swap page (the "j" key on the keyboard). If you have no large fonts, type out your text on the swap page, using a high-contrast color, about four letters, and use Shift H to double each letter three times, so it's 56 pixels high. To get large fonts use a screen-grabber on a program with scalable fonts, like PageStream or Professional Page. There will be more on that next time, though. Pick up the whole title as a brush.

4. Fix your background. This step is not needed and may be skipped if you don't have the memory, but I recommend saving the texture to disk if you're skipping this. To fix the background go back to your texture screen and select Background > Fix from the Effect menu. A capital B will appear in the menu bar to show that the background is fixed. When Fixed Background is on, instead of having a background color, you have a background image. Clearing the screen will not delete the fixed background.

5. Select the Shade Mode (F5). This is where all the shading knowledge comes in handy. Remember, the range should run light to dark. Range1 in the Ranger is

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all set up to use shade correctly for our example, though. If you want more information on the Shade Mode under DeluxePaintIV, check the paragraph above, as well as this column from last month's issue (a limited supply of back issues of AVID are available).

6. Position your image where you want the shadow to land. This can be difficult, since the image is usually centered, and the shadow would be offset quite a bit. Soft-edge shadows look best when the text is "far away" from the background. I normally use a 20 x 20 pixel offset, so the shadow will look like the light is coming in from the upper left. It's entirely up to you though. Stamp the image down by clicking the left mouse button. If everything's set up correctly, the background should have a slightly darkened image of your text on it. If not, go back and double check all the above steps, because all the settings must be correct for this to work.

7. Shade it. To get the soft-edge effect, you must repeatedly stamp down the image on top of the original shadow, with random offsets. For our example, stamp down the brush again, but this time move your brush two pixels to the right and two pixels down. Do this one or two more times, again moving two over, two down. The results should give you a soft-edge effect. The trick to soft-edge shadows is not to make them too dark. The amount of stamps you should do depends on the size of the range and the variance of color the range covers. Normally, I'll keep stamping until it looks too dark, then Undo (the "u" key) the last stamp. The more stamps you do, the more random the placement you'll need. Don't keep stamping two over and two down, rather, stamp randomly in a general area. It takes time to develop an eye for it, so keep practicing. If you mess up and can't Undo, just clear the screen and start over. The background is fixed, so you need not worry about the texture.

8. Stamp down the original by selecting Matte (F1), then stamp. For our example, stamp it down with about a -20 x 20 pixel offset (use the Coords option if nessasary), so it is above and to the left of the shadow. You now have a completed soft-edge shadow. Turn off the background using the Background > Free option from the Effect menu. This soft-edge shadow works well with a beveled brush effect, too. I'll cover the beveled brush effect in a future issue.

Here's how to do the soft-edge shadow in HAM. Repeat steps 2 through 6, but instead of using shade (which is not available in HAM) select the Color Mode (F2), choose color black (probably register 0), and turn on transparency (CTRL t) at about 90 percent. Now do the same stamping as described above. The HAM process is slow, but the results can be promising. With some experimentation you'll get some great effects.

Well, I hope this issue gave you lots of great ideas. There are so many combinations of tricks you can do that it boggles the mind to think about it. Look for the next installment of Doug's DeluxePaint IV Tips. Any questions or comments? Write me in care of *AVID* magazine. Good luck DPainting!

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Avid Column!

From the BREAD BOX

© 1991 by Lee Stranahan

Welcome to the column. If you haven't heard of us, *BreadBox* is a monthly newsmagazine dedicated to Video Toaster users. We bring you hot tips and tricks for getting the most out of your Toaster, as well as the latest breaking news in the Video Toaster world.

In *BreadBox*, we devote 20 or more pages per month to keep you informed. In our column here, we'll show you up-to-the-minute techniques to make your Toaster work more effectively for you.

The hottest news about the Toaster is the price change. The first misconception to clear up is that the price *does* include the 2.0 upgrade. While 2.0 isn't out yet, its announced ship date is December 16, 1991. People buying the Toaster will get a card with their registration card inviting them to receive the upgrade. Current Toaster owners will only be paying $395, for almost twice the software that they originally purchased when they received their Toaster.

What's included in 2.0? More than 100 individual changes to LightWave have been made. Included in these changes is the Bounding Box Preview, which lets you create a preview much faster than the Wire Frame mode. The resulting Preview animation doesn't have the detail of the Wire Frame, but is great for quick motion checks. It will also have a new surface, Dots, and added options for Image Mapping, such as Tiling, Negative Image, and Pixel Blending. The modeler will have hidden line removal, a magnet, and the ability to pick points and polygons from the preview window.

There are two new banks of effects: E and F. Aside from many new organic wipes that have been added — Breaking Glass, Falling Sheep, Liquid Fill, Clouds, and Smoke, to name a few. There is a whole new category of effects: warping. These are really live DVE effects. You can wrap live video onto a sphere or cube, and when it explodes, each individual shard has the same piece of live video wrapped onto it, spinning off into infinity.

I'm writing this article from my hotel room in Las Vegas at this year's COMDEX show, and reaction to the Video Toaster has been phenomenal. Kiki's been swamped with people, sometimes 100 deep and blocking several aisles at a time. NewTek has given out more than 11,000 copies of its tape "Revolution" (the company also won an award for the Best Computer Marketing Video), and NewTek is showing Video Toaster connectivity to the Macintosh and IBM PS/2. Aside from allowing the computers to control the Toaster, one of the coolest features is that you can automatically send files that the Toaster is capable of reading and utilizing. Graphics file formats include TIFF, PICT 2, Harvard Graphics CGM, Windows BMP, Auto CADD DXF, Targa, and PostScript. Three-dimensional objects formats include Swivel 3D, 3D Studio, Sculpt 3/4D, and WaveFront.OBJ.

Tips and Tricks

Here's a helpful trick that allows you to create a 2-D animation in real time. Create your background in ToasterPaint, using the 24-bit imaging capability of TPaint. You may just want to do a gradient fill. Save your background, and exit the Toaster with the picture still genlocked on your program monitor. You can then create your 2-D animation in Deluxe Paint, thus giving yourself a complete palette that is independent from your background palette (even 16 colors in hi-res can be effective if you haven't had to dedicate some of them to your background). When you save your 2-D animation, the TPaint created background becomes a part of it.

To quickly grab a whole screen in ToasterPaint, hit the "b" key (to select a

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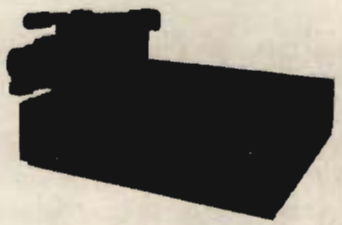

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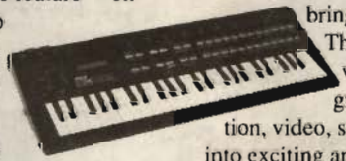

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brush) and the "w" key (for whole screen). If you have the memory, this will grab everything.

In our latest issue of *BreadBox*, Issue 2, there's an article by talented San Diego animator Tim Doherty about a shareware program called Rend 24, which allows you to convert 24-bit pictures into standard Amiga animations, with previews of features that cannot be viewed in the layout's wire frame mode. It is fast (10 seconds to convert a low-res overscan 24-bit image into low-res HAM on an accelerated machine), versatile (19 options such as image scaling, dithering, and NTSC limitations), and it multitasks flawlessly with other programs. The software author, Thomas Krehbiel, has said that future upgrades will include improved dithering methods, along with arbitrary scaling and increases in speed. Thomas requests $20 for private use, and $50 for business use. He can be reached via mail at 10747 Surry Road, Chester, VA 23831.

Speaking of multitasking, the Toaster will do just that. From the switcher screen, hit the "Ctrl" key twice and then the "Alt" key on the left hand side of your keyboard twice. This brings you to Workbench. Another way to do this is to have a shell window open on Workbench, and then use the "LeftAmiga N" key combo.

Another interesting piece of Toaster interactive software is a 3-D set of trains by LightWave artist Daniel Bice. With more than 49 objects included, $36 per set seems unbelievably low-priced—and the objects are well done. All in all, it's an outstanding value. Dan can be reached at 1280 Elizabeth St., Mt. Morris, MI 48458.

TRexx is a public domain program (soon to be commercial) that lets you write your own ARexx scripts just by pointing and clicking your mouse. Not only is it time-saving for those who know how to program, it gives those who don't independence and versatility.

Editor's Note: Lee Stranahan has become what Tim Jenison and Paul Montgomery have coined The Toaster Evangelist. He edits and publishes BreadBox, *The Desktop Video-Video Toaster Newsmagazine, and started and runs the Los Angeles Video Toaster users group, Upper Crust. Lee has been heard on national radio, talking about desktop video and the Video Toaster. He trains Toaster users both privately and in intensive seminars, and can be seen at every convention NewTek and the Toaster are at, doing product demonstrations and spreading the desktop video word.*

BreadBox *will be offering two Toaster tutorials by none other than Lee himself. The subject matter for each tape will cover general information and Toaster art, respectively. They will contain tips and tricks for using the 2.0 upgrade. The tapes are slated for sale in early January, costing $35 each, but* BreadBox *is accepting pre-orders on these tapes. Call (818) 505-1464 for more information.*

Avid Review!

FIRST LOOK at *imagine 2.0*

©1991 by Steven Worley

The Amiga 3D arena is more active now than it has ever been in the past. The Amiga 3000 and cheap 68030 boards have made more "powerusers" than ever, allowing more people able to use math-intensive 3D software. For years the two major 3D programs for the Amiga were Byte by Byte's Sculpt-Animate and Impulse's Turbo Silver, but today there are at least six professional programs to design and render three dimensional images.

The competition between all of the 3D products has been nothing but good for the software users, as it has forced the software publishers to continually update and upgrade their software. The current leaders(at least in popularity) in the Amiga 3D market are Impulse's Imagine and NewTek's Lightwave 3D. Both programs have been on the market for just over a year, and both are releasing new upgrades of their software in the next few months. I was able to get a late beta copy of the new version of Imagine in order to present AVID readers with an exclusive first look at Imagine 2.0.

Imagine 1.0 was released in November of 1990 as a replacement for Turbo Silver. Sharing only the general program style and object formats, Imagine was a complete rewrite of Turbo Silver, and was far superior in nearly every way. Imagine offered a complete set of editors that allowed the user to create and edit 3D objects, animate them, lay them out in a scene or animation, and render the final images. It organized itself by "Editors," each of which performed a specific task; Detail and Forms editors for object creation, Cycle editor for animating figures; Stage editor for scene layout, and the Project Editor for rendering the final images. Imagine 2.0 has enhanced each of these editors (some significantly), and has also added two new ones.

Some of the changes in the new version of Imagine aren't new menu items or editors, but are transparent enhancements of the tools that already exist. The rendering engine has not been speeded up significantly, but the quality of its output is considerably sharper than before, especially since a major bug in its altitude mapping algorithm has been fixed. Another bug that required the user to escape from viewing a picture by using the ESC key and not a mouse button has been addressed as well.

Some operations, like the "slice" command, look and work the same and seem unchanged but are generally more robust and efficient. The program has the same organization as its predecessor, with the same menus in the same places, though all of the gadgets and screens have been updated to reflect an AmigaDos 2.0 3D graphics style. Still, the changes are not obvious at first.

Perhaps the most noticeable change in the program is the addition of a new editor called "Preferences." Through this editor, the configuration file that defines various program parameters can be changed, allowing the user to easily set values ranging from the amount of anti-aliasing performed on an image to the default colors used in each of the editors. Changing the values from this editor is significantly easier than with Imagine 1.0 in which users had to use a text editor to modify the settings.

The Preferences Editor is also used to set up one of the best new features in Imagine 2.0. Users can define their own gadgets that are displayed at the bottom of the screen in each editor; when clicked, these gadgets perform a definable command such as "Set mode to pickobject" or "Add a primitive object in the form of a cone." These user-defined gadgets are a terrific addition; I often switch between two methods of selecting objects called click and lasso. I now have two small gadgets at the bottom of the screen that I can click to switch between the methods, as opposed to having to hunt through pulldown menus. These gadgets even accurately reflect the state of a parameter; they stay depressed if they indicate a change of mode as opposed to a one time action. Gadgets can be any size the user wants to, as small as just one character, allowing up to perhaps 50 gadgets in this one small area at the bottom of the screen. Each editor has its own independent set of gadgets, and each editor's configuration is independently definable. The function keys can still be mapped to functions as they are in 1.0 allowing quick custom keyboard shortcuts. Overall, the user-configurability of this program is now without peer, though the addition of AREXX would make the versatility complete.

Imagine's strength lies in its object creation tools, and this update has enhanced its abilities even more. One new ability in the Detail editor is the ability to interactively manipulate points. A set of points in an object can be selected and moved, rotated, or scaled interactively in real time, allowing for powerful twisting and bending manipulations. To make complex shapes, the ability to extrude an outline along an arbitrary path has been completely rewritten and now uses spline paths instead of the set of line segments used previously. These spline paths are the same ones that are used in the Stage editor and are now completely editable in the Detail editor as well. In fact,the spline paths can be used to conform an object's shape much like the previous ability to conform an object to a sphere or cylinder.

Some extra control of object attributes are added. The addition of a new concept called a "subgroup" allows defining certain faces of an object to be a separate named subsection that can be manipulated independently. A brushmap or texture can be applied specifically to a particular subgroup, and attributes can be

independently assigned even though the subgroup is still an integral part of the original object. This makes individual face coloring of an object very easy, and allows much more control on the object's appearance.

In addition to being able to apply a brushmap to a specific subgroup, some additional wrapping control is added. Brushes may now be used in inverse video mode or keyed as a genlock. A new default positioning of brushmap axes makes initial setup of cylindrical and spherical brushmaps considerably easier, though the difficult arrangement of using the Y axis of the brush map to simultaneously control altitude depth and the brush map extent in flat altitude mapping is still present.

Also new is the ability to give an object a fog attribute. This attribute actually turns the object into a light-absorbing volume; light traveling though the object will be attenuated an amount proportional to the distance it travels through the object. Clouds are trivial to design, and visible spotlights are also a snap. This ability goes far beyond the "transparent edges" effect that is used in Lightwave 3D, and allows very subtle control of the light absorption. Both the color of the fog and its density can be controlled. There is also a provision for global fog in the Action editor; this fog is applied throughout an entire scene and can even have specific altitudes over which the world spanning fog is applied. One quick animation I made was of an airplane climbing through a cloud layer to break out into bright sunlight. A scene like this is easy with the fog's altitude control.

A few more features allow still more control of objects in the Detail editor. Phong shading is now completely selectable for edges; an object can make every edge smooth or faceted, independent of all other edges.

Another new command called "Cycle Transforms" allows another method for positioning grouped objects for import into the Cycle editor. This mode allows rotating objects around the END of their axis as opposed to their center, making certain movements much easier to setup.

Imagine 1.0 allowed saving sets of attributes to define surface appearances. Imagine 2.0 fully supports loading and saving these attributes, but also allows inclusion of brush maps and textures with the attribute settings. Making an object look like it is made of mahogony is a simple one step load command, instead of the tedious entry of parameters into the algorithmic wood texture that was required before.

The Forms editor used to allow the definition of an object by its horizontal (top view) cross section, and four radial (side views) cross sections. This ability is still present in Imagine 2.0, but a major addition to the editor's philosophy allows even more control of an object's structure. Forms now allows for any number of horizontal cross sections to be defined, so that the top of an object might have one shape and the bottom have another. The cross sections between these key slices are interpolated to change smoothly from one shape to another. As many of these cross sections may be made as you like,giving an enormous amount of control over the object's shape.

These cross sections are easy to define; there are "key" cross sections that are highlighted and can be clicked on to edit. Any cross section can become an independent key by a menu command, and keys can be dropped by yet another option. This ability is similar to the Detail editor's "skin" command that allows making objects by defining a set of outline cross sections. "Skin" is still present in Imagine 2.0, but is now completely outclassed by the new abilities of the Forms editor.

To reduce the complexity of the editor, a couple of new options are available in Forms involving the way the object is displayed. One viewing method, called "spacer," allows the horizontal cross sections to be edited with a view showing only the spacing of the horizontal cross sections, foregoing the radial views. This is much like an interactive "skin" since points may be edited and cross sections moved in real time. I was able to use this mode to digitize a model of a boat hull very easily by cutting a physical mold of the boat hull model with a hacksaw, tracing the cross sections on graph paper, and entering the shapes into the Forms editor. I was able to see where slight errors made out of place bumps on the model, and I could manually edit these areas in real time to make a final sleek model that was still very accurate. With a simple "skin," I would still be able to enter the cross

Imagine and the Firecracker 24

By Steven Worley

All Amiga 3-D programs can output full 24-bit images. Within the past year, the number of display boards that can display these images (with all of their colors) has increased dramatically. The Toaster's framebuffer, the GVP Impact Vision 24, and the ColorBurst are all examples of this class of high end display devices. Even devices like DCTV and HAM-E can use the 24-bit image information to make excellent displays.

Any 24-bit board can be used with Imagine to display the rendered images. The Amiga's standard IFF24 (24-bitplane IFF) can be output by Imagine, and is supported as a standard by all of these devices. However, one board works particularly well with Imagine: the FireCracker 24 by Impulse. Much as Lightwave and the Toaster work together and the IV24 and one version of Caligari are partnered, Imagine and the FireCracker 24 complement and support each other.

The FireCracker 24 (FC24) is a full 24-bit frame buffer with interlaced RGB output, and a list price of $1000. The output can be viewed on a standard 1084 or 1950 monitor, though on the 1950 the image will still still be interlaced. The FC24's maximum resolution is 1024 by 482, which is over 25% higher resolution than any other 24-bit board currently on the market. It can also display at other resolutions, including 768, 512, and 384 pixels wide. In the lower two resolutions, the FireCracker can store two images simultaneously and switch between them at will. The board plugs into any Amiga 2000 or 3000 slot; it does NOT need to use the video slot. In fact, one machine may have two or more FireCrackers installed simultaneously and software can switch between them at will. Since it does require a slot, the board will not work on an Amiga 1000 or 500.

The FireCracker and Imagine work with each other in several different ways. Imagine has predefined rendering sizes that are already matched to the Firecracker resolutions. When a picture is rendered, Imagine can automatically use the board to display the rendering without a conversion or separate loading step. This ability makes viewing images in full 24-bit quick and convenient. Imagine 2.0 also offers similar support for DCTV displays.

The FireCracker also supports Imagine in another unique method by allowing hand editing of the 24-bit output. The Firecracker comes with several utility programs to load and display 24-bit images on the board, as well as a full 24-bit paint program called Light24. This program is a real time image paintbox, which uses the Firecracker's display directly for editing, unlike the HAM display in ToasterPaint. Light24 is fully featured with a full set of drawing tools from simple freehand drawing to primitives like ovals. It has modes from tinting and fading to smearing and sponging. All operations are performed in full 24-bit, including brush manipulation. Light 24 also allows zooming, stencils, and all of the standard paint tools that one would expect from a professional paintbox.

Light24 does have two very unique features. Owners of an Epson 300C flatbed scanner can directly control the scanner from Light24, and allow digitizing of a certain area just by dragging a box around the desired region. The software allows for adjusting the color for different output methods such as screen display, inkjet printers, or thermal wax printers. ASDG also offers an optional Epson 300C software driver for its excellent program ADPro, but owners of a Firecracker might prefer just to use Light24's scanner control.

Light24's other unique ability is truly amazing. When editing pictures, one useful ability is to add new elements to the image, usually by loading a brushmap and stamping a copy onto the scene. Light24 actually has a small 3D renderer built into it that can build these brushes! Light24 can load in Imagine objects and manipulate a wireframe representation on top of the image on the Firecracker. After interactively setting position, scale, rotation, and perspective, Light24 will actually render a fully colored and shaded brushmap of the object using the same algorithm that produces Imagine's scanline renderings. The possibilities of this are incredible! I scanned a picture of myself standing on a chair with my arms above my head. Using the stencil mode of Light 24, I removed the chair and put a cloudy background behind me. I loaded a 3-D object of a detailed 1915 triplane, and manipulated it such that it looked like the plane was flying just above my head. After the brushmap rendered (in about 3 minutes), I positioned it so that my hands were just on top of the landing gear's axle. A total of about 15 minutes of work, and I had a terrific image of myself hanging onto a plane in mid-flight! "Clipart" takes on a whole new dimension. Literally.

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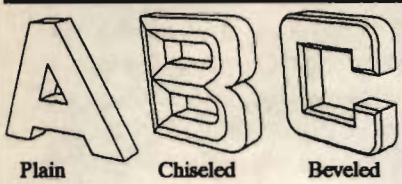


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sections and get an accurate model, but it would be difficult to edit out the small errors and I'd end up with a sloppy object.

Other modes in the new Forms editor allow a complex two "form" view like the original Forms setup, or a one "form" view which is of intermediate complexity. For involved models, this new ability to generate objects is truly exceptional and provides an enormous amount of flexibility while still giving the user complete control. Some other new options in Forms are not as revolutionary, but do allow better control over an object's construction. The forms can automatically seal the top and bottom of the object to prevent every object from being a hollow tube. The horizontal cross sections also have symmetry built in much like the radial symmetry that was in 1.0.

The Stage and Action editors have seen the least amount of change, but some useful features have been added. The Action Editor has been made a separate editor from Stage, making the setup of animations and global object control easier. Small changes, such as the ability to quickdraw objects (replace them with a bounding box that updates very quickly) has been added so this doesn't have to be done on an object by object basis from the Detail editor. The camera can now be told to track on any object without having to edit its alignment from the Action Editor. Infinite planes are now visible in the preview window, which greatly eases placing objects on grounds and determining what is visible above and below the ground.

A feature now available in all of the editors is "quick render" which can make a high speed rendering of whatever is currently shown in the preview window. In the Stage, to get an idea of what the scene will look like when shaded, a "quick render" will produce a scanline version of a scene without having to set up camera angles and lights, save the project, and render the scene from the Project Editor. This ability is also invaluable in object design to quickly see how a brushmap looks, or whether a texture is applied correctly without having to leave the Detail editor.

The Action Editor has some additional control, mostly in its global parameters. The world brush map that is used for reflections can now be animated from frame to frame, leading to advanced effects. A background image can also be included which allows for rendering objects on top of a still (or animated) backdrop. The global fog discussed earlier is controlled from the Action editor. The ability to sort and reorder the objects in the Action editor can also save a lot of time in complex scenes where finding a particular actor can be difficult.

F/X are special effects (like "explode") that can be applied to objects in the Action editor. Imagine has been updated to include multiple F/X on a single object simultaneously, and several new F/X are planned.

Some new features were not in the late beta copy of the software that I tested. Some additional abilities that should be in the final version of the software include direct DCTV output, re-inclusion of stereo support for true 3-D viewing, and the ability to edit a single object's information line (usually edited from the Action editor) while still in the Stage editor. Another promising feature that should be included is a way to have a set of objects follow a path while staying in the same relative position to one another without having a separate path for each object.

Perhaps the most significant change that should accompany the release of Imagine 2.0 is an all new manual written by Mike Halvorson. Imagine 1.0 had serious problems with the brevity of its manual, and Mr. Halvorson has responded by writing a full length manual. I was not able to get a copy of the new text, but it is encouraging to hear that Impulse understands the need for complete documentation on a program as complex as a 3-D renderer.

Imagine 2.0 will be released in November of 1991 with a new list price of $450. Current owners of Imagine will get a newsletter upon the release of Imagine 2.0, and will be able to upgrade directly from Impulse at that time for a fee of $100.

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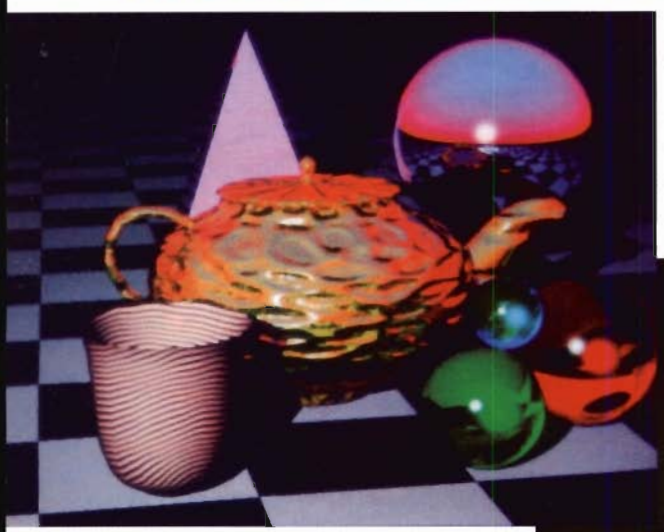

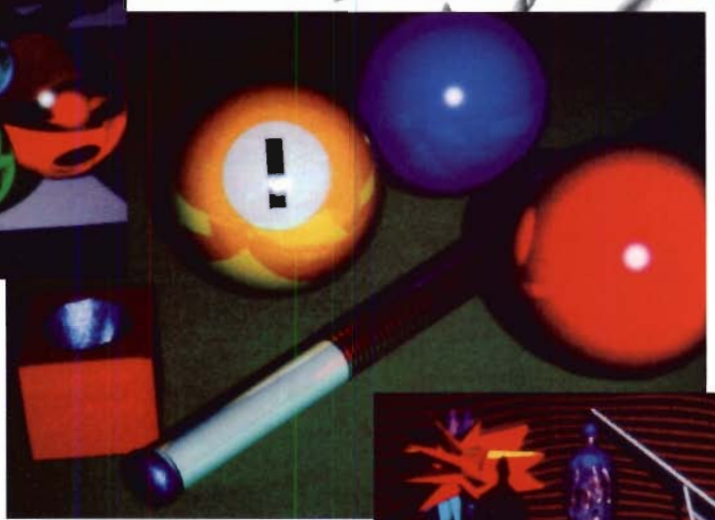

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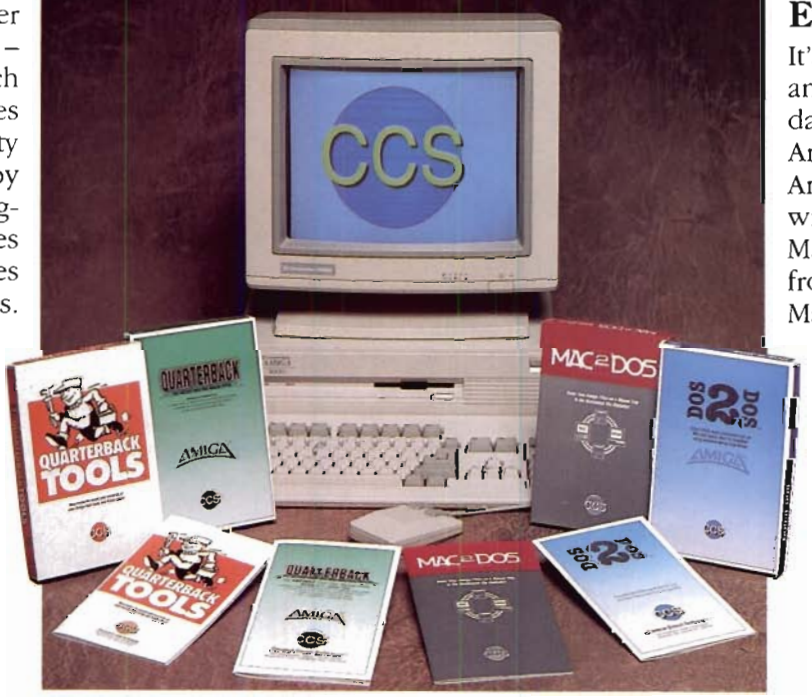

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Tutorial!

Fall Foliage

A Draw 4D Pro Tutorial

© 1991 by Greg Gorby

Let's suppose you have the opportunity to do an aerial view animation of a house for a local architect or realtor. He shows you the floor plans and some watercolor renderings he has had done. If you have a little experience with Draw4D-Pro, you know you can easily create and animate a very convincing reproduction of the house using textures for the roof tiles and bricks, and using genlock textures for the windows. But the watercolor has some beautiful trees in the surrounding landscape.

In fact, about half of the appeal of the watercolor is in the trees!

If you take them away, the sales message of the rendering will be severely lessened, and he will not be pleased with the animation.

In Draw4D-Pro, you could just digitize the trees, then clean up the image so that only the tree and the background color (color 0) were present. This image could then be texture-mapped onto a polygon using the genlock texture and the result would be very good when viewed so that the plane is flat to the viewer. During the animation, however, as the plane the tree was mapped to changed to an edge-on view, the tree would, too! This would not be acceptable. To get this job, you have to be able to make a tree that holds up when viewed at any angle.

The trunk of the tree will not present much of a problem. An extrusion of the cross-section shape, with a taper, will do fine. Similar extrusions will work for the main and secondary branches, and a tree-bark texture mapped to the face of each polygon will give an excellent tree structure. But what about the leaves? Since Draw4D-Pro uses polygons of any number of points, you could actually draw a single leaf, then clone and rotate it into a group of leaves all at various angles and positions, then clone and rotate the group repeatedly until you have dressed the tree. This not only would work, but would give precisely the effect you are after. There is, however, an easier, faster and less memory-intensive way that will be explored in the rest of this article.

The method I'm going to suggest (and have used quite successfully!), uses Draw4D-Pro's ability to genlock textures. Let me explain this a little. There is a switch in the alter texture requester that tells the program how to treat the texture. Among the possiblites is a "gen-lock." If this is selected, Draw4D-Pro will remove any part of a polygon that is mapped with the first color in the picture (color 0). If we map a texture that consists of just dots of color on a background of color 0, the only thing that will appear in the drawing are these dots. Now let's use this to make the trees. I am assuming that you know the basic operation of Draw4D-Pro's interface. Incidentally, all of the line drawings used for illustration here are PDraw clips, saved directly out of Draw4D-Pro.

First, make a template polygon similar to the one shown here, drawn flat in the x-y plane. Make it with a long dimension of about 3000 units and 12 or 14 points. This is meant to be the cross section of the tree trunk that will be extruded and can be a plain circle if desired. Center the polygon to the origin and set the attachpoint to the origin. Set the extrude defaults to -4000 z, (0 x and y), 8 segments, a power of 1.5 and near. Use an x and y percent of 10 and extrude the template. You will have the shape shown. Move the screen down so that you can see all of the tree. Now set the attachpoint at the bottom of the trunk, select the top point of the trunk, pull it (the top point) to the left a little and apply the stretch tool, with a power of about 3.5 and the magnetism off. This will bend the trunk to a suitable shape. This is the main trunk. Let's use the top part of it for the secondary branch structure. Use the multiple select tool to select the top four segments of the trunk and clone them about 5000 units on the x. Now mirror them on the x and move them to the approximate position shown. Use the same method to select the top two or three segments of the original extrude and clone them two or three times. Now go to the z active axis and rotate the new branches a little to make the tree fill out the 3-D space and position them at random as shown using the snap tool. There is no need to overdo the branch structure because you want most of the tree to be leaves. When you are finished, you will have around 200 polygons in the trunk and branches. Now tap the 1 or 3 key on the number pad. Since the editor of Draw4d-Pro is actually a double-buffered animation environment, you will see the tree slowly begin to rotate. Sit back and watch as the tree rotates, checking for any misalignment of the branches. When you are satisfied, select all the polygons and group them.

Now let's do the leaves. If you are experienced with Draw4D-Pro, you may want to create a new space to work in. Flat view in the y active axis, and draw a simple triangle similar to the one shown, about 4000 units in size. Position the triangle at about the position shown. Select the triangle, and selecting the x, y and z active axes alternately, rotate the triangle to random angles. Now clone the triangle five or six times and rotate the new ones also at random angles on all axes. Keep the triangles relatively flat to the direction that the texture will wrap, represented by the arrows. Hide the branches, flat view in the z axis, and move the triangles into a random pattern. Now set the attachpoint to the origin. Select all the triangles and sweep them with the solid off, six segments and 360 degrees. You will now have a pattern of rather random triangles like that shown,

about 36 triangles. Set the clone to -8000 units on the z. Select the new triangles and group them with the original ones, so that all triangles are one group. Clone them twice. Select the upper group and with the z axis active, hold the ALT key and re-size them a little smaller than the other two groups. Now set the clone defaults to 0,0,0, select all three groups and clone them. Set the new polygons then one at a time, select the new groups, and with the z axis active, rotate them to random angles. You now have 216 triangles organized freely in space around the tree branches. You may want to select a few of the triangles and clone them, moving them to areas that, in your opinion, need them. The more triangles you make, the fuller the final tree will be. Try to remember that the leaf patterns of a tree are not perfect. Purposely allow some areas to remain sparse and others relatively full. Rotate the view to inspect the distribution of the triangles.

If you render the tree as it is, you will, of course, see just a bunch of triangles around the branch structure. Let's turn the triangles into "leaves." Start up your favorite paint program—I use DPaint. Set the screen size to 640 x 400 and eight colors. Make the palette colors an assorted imitation of fall colors—dark green, light green, orange, reddish orange, yellow and brown. Now re-size your airbrush tool to about two inches in diameter. Select the second size brush, the one just slightly larger than a single point. Using each color alternately, airbrush the entire screen (make sure you get rid of the menu and toolbox). Don't make the patterns even, because a little variety will make the tree more interesting and unpredictable. Make sure that you leave about half of the picture as color 0. Save this "picture" in your textures drawer as leaves.pic. Return to Draw4D-Pro and load the texture. Alter the texture, setting its strength to 255, color level to 255, map type to wrapping, axis to z and turn on the genlock. Select all the triangles and set their transparency to a value of 1. Now set their texture to the leaves you just loaded. As a final step, select the branch structure and set its color to a medium brown and shade the branches using Gouraud.

You're ready to look at the first render. Zoom in until the tree fills the screen top to bottom. Get the fill defaults and set them to a 320 x 200 HAM screen. Turn on the fill, lights, Gouraud and transparency, then show filled. On an Amiga 3000, with all this transparency, it will take about 20 seconds to complete the render. A 2500 with an 020 will take about 50 seconds. You may want to adjust the light's position or color. Note the leaf patterns. If the triangle nature of the groups is very obvious, you do not have enough color 0 in the texture. If the leaf pattern is too sparse, you can either increase the amount of color in the bitmap, or increase the number of triangles, or both. Smaller triangles result in sparser leaves and larger ones make the leaves denser, but also make the triangles more obvious. Experiment to find the results that please you most. If you see some horizontal streaking in the leaf patterns, those triangles are too "edge on" to the texture wrap. You can rotate them a little so that they face the center of the tree more, than re-apply the texture. Also try using the texture antialiasing. It will make the leaves more dense. Remember that the darker areas are caused by the triangles actually showing their unlit sides. A local light placed in the tree, or beside it, can create some really wonderful effects. Notice also how you can see the branch structure of the tree periodically through the leaves, just as you can in a real tree. If you are lucky enough to own a DCTV unit, change the display mode to DCTV and render. You may want to use the DCTV filter for this image. The increased color resolution will make the tree even more real. A full 16-million color (24-bit) picture also can be made and seen in any frame buffer.

You can add to the realism of the tree by adding a texture to the trunk and branches. The most obvious is to digitize an actual picture of tree bark, then "tile" it onto the face of each polygon in the structure. I've done this using a white birch with extremely convincing results. A rope swing, or a kite stuck in the tree, also can be very nice. You can change the appearance of the leaves by setting their reflectivity higher, or setting their color to maybe a pale green and setting the texture strength lower so that it blends with this base color. If you have an IFF picture of a landscape, you also can load it as a background to give the tree a place to rest. Alternatively, you can create a ground grid and texture it with a grass texture.

After you have the tree made, try an animation rotating it around the z axis, in 60 or 120 frames. (A 60-frame rotation of the tree alone on a 3000 will take about 12 minutes for a 320 X 200 screen). You also can save the animation directly in DCTV mode if desired. During the animation, the tree will show its true nature as a full 3-D object. The results are quite startling and convincing. You could even add to the realism of the animation by using the deform modes of Draw4D-Pro and the stretch tool to create the illusion of wind lightly swaying the tree! For a final effect, you could have a few of the leaves fall from the tree during the animation.

I hope this ability to create truly realistic 3-D trees will help with your landscape projects. The same technique can be used to create wonderful hedges and shrubs to place in your architectural illustration and animations. Of course, once you have a tree that you like, you can save it, then use it in any of your drawings. The same tree can be cloned and altered slightly by re-sizing, stretching, changing color, etc. to make enough varied trees for any drawing. All of your trees and hedges should be placed along with the buildings on a ground grid that has been textured with a grass texture.

This tree and other examples are included on the disk of the October issue of the Draw4D-Pro support newsletter, 4DPro-Master. (The issue also includes several other examples and animation techniques, a couple of new fonts and two utilities that turn Draw4D drawings into Videoscape .geo drawings and Videoscape drawings into Draw4D drawings!) If you would like to subscribe to the newsletter, call Adspec Programming for details at (216) 337-3325. You also can call us for more information on Draw4D-Pro, or see your local retailer.

Review

Charts & Graphs

©1991 by R. Shamms Mortier, PhD.

If you are in business with your trusty Amiga and a room full of video gear, and your clients are among the average beings who look for video graphics, then charts and graphs probably account for about 30% to 50% of your work. Most graphic designers aspire to become great illustrators, who are able to survive on this type of work alone. In fact, graphic designers create illustrations only about 10% to 25% of the time (true for traditional and computer-based professionals). The majority of their billing, the "bread and butter work," is for text-based graphics and charts and graphs. This being the case, it's not surprising that an Amiga program named "Charts and Graphs" is a surefire bet to excite some interest in the Amiga video community.

For all of the wealth of software available on the Amiga that helps us create wonderful sound and graphics, astounding video animations, and razor-sharp desktop publishing output, the Amiga lags rather far behind other platforms in addressing the normal business needs of the computing community. The IFF standard laid the groundwork a long time ago for someone to create a chart and graph package that could be manipulated with ease, and whose output could be shunted to either IFF painting/animation utilities and to desktop publishing alternatives. There have been attempts; I know because I've tried them all. Most of my university business involves the production of text and chart-graph slides and video. Most of the packages that I have used in this pursuit have been less than satisfactory. Either their interfaces were extremely confusing, and their ability to save in suitable formats was either missing or too complicated to be worth the effort. Consequently, I have often opted for more time-consuming but familiar means, like doing charts and graphs by hand in a paint program. I think this new program from Technical Resource Systems Laboratory (TRSL) is going to have an impact on the way that I work and will help me to alter my evil ways.

The program's creator, Tyrone R. Smith (who just happens to have the same initials as the first three letters of his company), is to be lauded for attempting to tread where all too few have ventured before. Smith is attempting to support the Amiga's ability to compete with the other platforms in generating real business graphics, while at the same time allowing the Amiga to function best as a multitasking graphics engine. On the first page of the first chapter in the manual, a statement to this effect makes it clear that this is not a ragged port from another platform, but a real Amiga environment. The manual, by the way, is first rate and includes both a complete index of terms and processes and macro-key alternatives up front in the table of contents. A good manual is the first sign that there is a potential for great things in the software.

The program operates in two standard resolutions: medium resolution (640 x 200) and high resolution (640 x 400). Both resolutions offer 16 colors, which is more than enough for 99% of the charts and graphs that you could ever need to produce. IFF backgrounds and brushes may be imported any time to add to the distinct Amiga flavor of your work, and this process is quite easy to do and clearly explained. One of my favorite attributes of the program is its ability to resize any chart or graph and to move it to any part of a screen, where it can be copied to a "transfer slate" to be combined with other graphic elements and charts. You can also interrupt your graphics at any time and have a specific chart revised so that it takes on the shape of another chart style. For instance, a bar chart can appear in seconds as a 3-D pie chart, with the same information involved! All of these alternatives can then be resized and moved to the transfer slate for a very involved composition.

In addition to saving your work as an IFF standard graphic, this program also allows you to save it in the PostScript format. Most of the video work that I do has to be accompanied by a paper reprint, which is used for handouts in the classroom. Postscript is a perfect application for this purpose, since my HP-III printer has an Adobe Postscript cartridge that gives me razor-sharp output. But there is another reason for applauding the ability of Charts & Graphs to save in this format, and it has to do with 35mm slides. The new standard for generating slides is to create them from PostScript files, a technique offered by a few of the best

slide services. This gives you the same slide quality that is available from a Postscript printer, and it has been conspicuously absent up to now in Amiga graphics ware. Now one must take care if saving Postscript files to a disk, because they can easily take more room than a standard floppy has to offer. The best bet is to get a high-density disk drive and disks, or to save to a replaceable media hard drive (like a Syquest drive with a 42-megabyte cartridge). Postscript output is first rate. For desktop publishing purposes, the program saves in either color or grayscale Postscript. You could even import IFF medium and high resolution paintings and turn them into Postscript files with this software.

The first screen that opens in the program is a data screen, where the numeric parameters are typed in or imported from a file. If imported (with the extension of ".dat" on the file), the data can be generated in an ordinary word processing program, as long as that program saves the data in ASCII format. This can make your life a lot easier, because it allows you to prepare the data with software you're already familiar with. There are a number of other file extensions that this package uses to save certain specific information: *.cht* for chart data to be read by this program only, *.pat* for graphic patterns to fill graphic areas, *.pic* for IFF saves, and *.ps* for Postscript data.

Once your data is placed on the screen, the data window is closed. Unless the data is changed or revised, it remains resident and is the basis of all graphics to follow. The process is so easy and intuitive compared to other Amiga attempts in this area that you will want to hug the developer (or send him some roses). When the data screen is closed, you are placed in the graphic environment. From there, choosing a chart style will automatically draw it on the screen; the process is very fast. If you don't like what you see, the graphic can be reconfigured to another chart type (again, very quickly). This is necessary because some information is more clearly related in specific chart types, but many times it has to be seen before certain alternatives are chosen. There are nine line chart types, eight pie charts, 10 bar charts, and 18 column charts. A legend (key) can also be created, resized, and placed anywhere on the screen. Colors for the background legend box and the type can also be chosen from palette alternatives. Titles and graphic brushes can be placed on screen in the same way.

Another magic part of this software is its ability to allow you to create your graphic data with either solid colors, patterns, or IFF brushes! Yes, that's right, if your data is supposed to represent nuclear power plants, the actual points or bars can be made of that exact graphic! All you have to do is to create it in a paint program beforehand, and save it as an IFF brush. There is a specific menu in the program that then allows you to apply that brush to a named column of data. This is an extremely sophisticated attribute which both fits the needs of graphic designers while at the same time maximizing the way the Amiga works. Libraries of specific icons could be created to address all needed symbols for a particular institution or configuration, and then used freely when needed.

As a confessed lover of pie charts, the program has attributes that enhance my attractions. Pie charts can be created as either 2-D or 3-D graphics, with or without numerical callouts. But the best is yet to come. By simply placing your mouse over a slice and click-holding the left button, that slice can be moved in real-time anywhere on the screen. How many times have you desired an easy way to do this? It makes sense to work in this fashion, and it makes Amiga sense—but nobody has addressed this before.

There is a simple drawing options menu that is used to add boxes (filled and bordered), lines (many types and weights), and directional arrowed lines to the chart. More specific and optional touch-up can be added in an IFF paint program. Grids and frames can also be added to the chart. Numerical and positional options can alter the axis, including numerical and logarithmic scaling, major and minor ticks (inside or outside of the axis), prefixes and suffixes, and integer, floating point, scientific, or dollar formats. The color requester lacks a "pick" option that allows you to click on a screen color, but substitutes boxes for various chart attribute color changes instead. Value tables can be added, colorized, resized, and moved. There is a fancy pattern requester that allows you to design, assign, and alter graphic patterns dedicated to data columns, pie slices, and lines. There is also a separate text requester for generating movable text lines to either a chart or a text graphic.

Almost perfect-The only item on my wish list for this software is that there should be a path capability in the font requester. Right now, fonts have to be assigned from the CLI or disks renamed "FONTS." That's old hat. You should be able to redirect the font path from within the program on the fly. Other than that (which is a small fix for some future upgrade), I have been waiting for this software for many years. There is no other package that even comes close to it for ease of use and intuitive design, that allows you to create unique chart graphics that take advantage of any and all of the Amiga options you'd expect. To test its IFF graphic compatibility, I developed a quick graphic in DPaint IV and imported it as a background upon which I placed a chart. The whole process took about 15 minutes. Because of its ease of use and speed, I intend to generate a fair amount of income with this software. Given the state of the economy, what more can be said? If you need chart generating software, buy this package. You won't regret it.

Charts & Graphs
TRSL
P.O. Box 94263
Las Vegas, NV 89193-4263
Suggested List Price: $99 U.S.

Vid Review!

FIRST LOOK at DCTV 1.1

©1991 by Dennis Hayes
Marketing Director, Digital Creations

DCTV 1.0 was released on January 17th, 1991. There were features that Digital Creations wanted to implement in that first version of DCTV that didn't make it in. There were many features users wanted to have in the next version of the software. And they told us. And told us. And told us. And we listened and included as many of these features as we could in the newest version of DCTV. Here are some of the highlights of DCTV version 1.1.

UNDO

Undo - probably the most asked for feature in version 1.1 - is here! But because of the tremendous amount of overhead required to have an UNDO buffer, many DCTV owners may have to sacifice a swap screen for undo. While a one megabyte version of 1.1 is included, low memory Amiga users will be limited in their choice of functions. Currently RAM is very affordable so we recommend increasing your Amiga's memory to a minimum of 5 MB or more.

TEXT

DCTV 1.0 only handled text by using a combination of making a stencil and then filling the unprotected area of the stencil. This is probably the most powerful and creative way to do text Users could fill the text with gradients, patterns, or hand paint the text to produce some magnificent lettering. Many people found this technique too cumbersome in spite of the power of the tool. While DCTV 1.1 continues to support text through the use of stencils it now handles text through a much friendlier interface as well.

DCTV 1.1 now creates text as a clip. Once you choose your font and enter the line of text, you simply click on a gadget market" -> Clip" to make that text into a clip. The text uses the current color and can be manipulated or distorted like any other clip.

To go along with the new text operation is an automatic drop shadow function. Just click on the SHADOW button on the clip panel. You may adjust the distance, angle, and opacity of the shadow as well as the color of the shadow. The shadow not only works with text as a clip but will work with any clip.

ColorText is now supported in DCTV 1.1. Since color text is supported automatically under the Amiga OS 2.0 all the user has to do is choose a color font in the text panel. Users working under Amiga OS 1.3 will need to run the ColorText wedge first. The wedge is available with commercial packages of color fonts or with Deluxe Paint III.

FILLS

There are some new fills with this release of DCTV Paint.

MIRRORTILE will make a fill pattern using the current clip. The pattern will be a repetitious grouping of left and right as well as up and down reflections.

In the gradient mode there are two new fills - spiral and remap.

SPIRAL is probably one of the most fun features of 1.1 After chosing a gradient the user creates an object to fill, chooses the center point for this spiral, chooses the starting angle, and puts as many "twists" into it as desired. Instant lollipop!

REMAP is both powerful and a little hard to describe. Basically it allows the replacement of colors on the screen based on the gradient preview bar in relationship to the corresponding luminance level. Remap is great for changing part of a screen to a negative image or creating a pseudo-colored image.

Interface

DCTV 1.1's user interface has been modified slightly to make it more efficient and to allow the addition of new features.

There is now a status bar that gives feedback to the user regarding brush size, modes, etc. A coordinate system is now in place to allow users to accurately place their clips, objects, and cursors.

There are two new sub panels - WELLS and FILE. WELLS is another set of color wells that may be used when a panel like the Clip Panel is preventing the normal color wells from being accessed. WELLS includes color wells for the stencil color and the shadow color. FILE is a sub-panel that handles your Saving and Loading functions from inside of DCTV Paint. Users may choose to save or load Pictures, Clips, Stencils, or Palettes from here. Deluxe Paint brushes may now be loaded as clips through the FILES sub panel.

Experienced DCTV artists will appreciate the improved layout of certain operations and the DCTV beginner will find the new layout much more intuitive.

Upgrade

While there are many other features and improvements in DCTV version 1.1, these are probably the most dramatic.

By the time you read this, Digital Creations should have upgrade notices mailed out to registered users. The upgrade, which will include 4 disks (including new sample pictures, tutorial, and animation), a new manual, and shipping, will cost $15.

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Vid Review!

FIRST LOOK at Gold Disk's Video Editor

©1991 by Kirby Carmichael

Video Director, due out from Gold Disk mid- to late-November, is an Amiga software edit controller which brings the consumer videographer point-and-click control of both source (player) and record deck videotape machines, allowing the assembly edit of video in either manual or automatic mode. I've checked it out on an A3000 with WorkBench 2.0, and on an Amiga 500 with WorkBench 1.3. It worked fine on both machines. It should also work with CDTV, given an external disk drive, and I'll check this out in the future.

The main screen for the program is divided top and bottom, and the top part is split down the middle. The top left portion of the screen is where tapes are named and requested, and editing events or 'clips' are defined. Clips are defined by scanning through a tape to the first frame of a shot to be edited. Click the left mouse button when the cursor is on SET, and the edit-in point is automatically entered in a time or frame counter box to the left. Scan to the end of the clip, pause the camcorder, and click on the edit-out SET box to enter that time and frame count in a box to its left. Vertically between the two SET boxes is a time counter which automatically displays the exact length of the newly-defined clip. Click on ADD to add the clip to the Edit Decision List (EDL), or click on SAVE to save the clip information to the Tape Library, where it will reside on disk waiting for your final editing session.

The bottom of the screen is an edit decision list, including edit-in and edit-out points, which is automatically generated when SAVE is selected after defining a clip. Within this list can be defined Genlock events, which will allow the overlay of IFF graphics and titles over sequential clips. Tools for copying clips, deleting them or reordering them exist; and comments may be added at any place in the list.

The Tape Library, by the way, allows the compilation of a videotape database encompassing not only all your camcorder edits, but all your recorded movies and other material. By opening the Tape Library window, choosing a clip and selecting "VIEW", you will be prompted to insert a specific tape. The software then scans the tape until it gets to the chosen clip and pauses, waiting for you to press pause to view the clip, or movie. Finally, a database that will find (on videotape) all those second movies I recorded in EP mode!

The upper right quadrant of the screen contains the software transport controls for both the source and record decks. Here resides the tape library and tools for calibrating the tape so that it will maintain accuracy from one editing session to the next. The transport controls themselves consist of two lines of gadgets. The top line is Rewind, Stop, Pause, Play and Fast Forward. The line of controls below this is for taking advantage of slow motion and hi-speed forward and reverse scans which your machine might use. Below that are two gadgets - one used to select the source deck, and one to select the record deck.

The software to control the camcorder and VCR videotape transports are called 'drivers', and is configured for your particular equipment with a program called "InstallDrivers". Simply double-click on the program's icon to open it, and you are presented with a list of all the transport control drivers. They include LANC1, AG1960, NEC_PC-VCR, IR_NEC_911C, IR_SONY_F55, Infra-red, various drivers for manual editing and several drivers for Sony V-BOX-equipped equipment. Click on, for example, LANC1, then click on a button titled "INSTALL AS SOURCE DECK DRIVER". To install the driver for the record deck, pick a selection then click on the button titled "INSTALL AS RECORD DECK DRIVER". Simple and to the point. The driver selections are saved automatically, and will stay with the software until different drivers are installed.

Software drivers for deck transport control of the source deck currently exist for LANC- or Control L-equipped camcorders and VCRs which exist on many Sony machines and on some Ricoh, Kyocera and Canon camcorders. The software supports use of the NEC PC-VCR serial port consumer videotape deck, the Selectra AG-1960RS VCR, as well as the Panasonic AG-1960 when used with the Selectra VuPort serial interface. Gold Disk supplies its own LANC interface which plugs into the serial port of your Amiga and the Control L port of your camcorder or selected Sony VCR. Sony's V-BOX technology, when it appears, will also be compatible with the Video Direc-

tor software.

Sony's Control L (LANC) edit control protocol is shared by a large number of camcorders and VCRs. Unfortunately, there are two Control L connectors available, and the Gold Disk LANC interface bears only one of them. The 3/32" 3-connector sub-mini pin on the interface is used for most Sony consumer equipment. However, the Sony V-9 camcorder, the EV-S800 and EV-S850PS videotape decks, as well as various Beta-format VCRs, use a miniature 5-pin connector. Although Sony manufactures and sells a cable that changes the sub-mini into a 5-pin connector, it is not compatible with the Gold Disk LANC interface, so don't buy it. When I made Gold Disk aware of my need for a 5-pin adapter for their interface, they immediately made arrangements with a third-party to design, manufacture and ship me a prototype, which I subsequently tested and modified. Gold Disk will either supply the modified adapter with Video Director, or (depending upon its cost for each piece) offer the adapter as an option directly from them or the source.

The record deck can be one of many VCRs which use an infrared remote control device. Gold Disk supplies an infrared remote interface which plugs into the Amiga's joystick port. The business end of the cable carries an infrared window for communication with the recording VCR. Training the software to recognize the record deck's remote command set was no harder than double-clicking on the icon for a program called "TrainRemote", and then holding the remote up to the infrared window and pushing the 'play' button after selecting "TRAIN", then testing it by selecting "TEST" - the same for 'stop', 'pause', 'rewind', 'fast forward' and 'record'. I tested the infrared interface on two infrared remote VCRs and one camcorder with an infrared remote, and the software performed flawlessly each time.

When Video Director is placed in Seek or Assembly mode and forwards the tape to a particular clip, it does so in 'scan' mode, so you see the video at high speed on your monitor. This is done to assure editing accuracy not possible using fast forward and rewind. Scanning search speed is about seven or eight times faster than play speed when "Search Mode" is set at FINE.

Of course, as with any automatic assembly editor, the accuracy of the edits with Video Director will increase if your shots are laid out on tape sequentially, so that the source deck scans backward a minimum amount.

To edit particularly valuable tapes or for those editing jobs that promise to be long and grueling affairs of much winding, rewinding and abuse, make an exact copy of your original tapes on which to define clips and test the assembly of the master tape. Every time a tape is viewed, its quality degrades: dropouts accrue, the tape stretches, etc. Keep this to a minimum by using a copy. Video Director will remember all the clip information defined with the copy, and you can use your raw footage for the final assembly edit.

If you wonder about the accuracy of defining clips from a copy of a tape and then assembling the tape using the original tape and not the copy, there is a simple trick to keep the two tapes synchronized. Video Director lets you 'calibrate' a tape or clips. Calibrating the tape and its copy will assure that all edit clip information is identical from one tape to the next. To calibrate a clip, simply click on Tape Calibrate. A requester appears which says to advance or rewind the tape to the beginning of the tape (that is, the frame you have selected as the beginning of the tape), and then click 'OK'. If every time you put a new tape in your camcorder you let it record for a few seconds and then display the time or date, you can use the first frame of the time or date display as the beginning (calibration) point for the tape. I tried this on a project which demanded critical edit accuracy, and it works.

It is absolutely essential to determine the amount of time the source deck has backed up so that it can get a running start before the pause on the record deck is released. While the software makes entering the pre-roll time easy, in terms of seconds and frames, it is not so easy to determine the number to enter. The best

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way to do it is to shoot perhaps five minutes of the frame count window while it is running a tape. This will give you a digital readout of 1/30th of a second. Put this tape into your source deck and define several clips that begin exactly on a multiple of ten seconds. Assemble the tape and view it one frame at a time near those edit points. If the edit points occur before the ten-second mark, you know that the default 2.0 second pre-roll is too long. If after the mark, you'll have to add frames to the default. I counted the number of frames off for each edit and averaged them (remember to divide the second number by two, the third by three, etc.) and got pretty close (5 frames) to an accurate pre-roll the first time I set it. After assembling another short tape, I hit the pre-roll exactly at 1 second and 18 frames; and from then on out, accurate editing was a snap!

The manual discusses using an automatic fade-in and fade-out of genlock events, as well as support for the software dissolves of the SuperGen genlock. I did not have time to check these out, but it looks as though I'll be able to save a generation of videotape with this function.

The manual states that the most effective setup for video editing with VE is to use a LANC or serially controllable source deck, and an infrared remote-controllable record deck. While I did not in the brief time I used this product (before this article's deadline) try the LANC-infrared combination, I did use my Panasonic AG-1960 connected to the serial port via Selectra's VuPort as a source deck, and an infrared-remote camcorder as a record deck. They worked very fine together indeed.

Two aspects of the software made this combination very accurate: the ability to easily set the pre-roll time of the source deck, and the ability to use any edit event (shot) as a calibration point for forward or backward adjustment of frames.

The manual is wrong, though. An even more easy, accurate and effective setup for video editing is to use Video Director with two Panasonic AG-1960's (one source, the other record) and one Selectra VuPort.

I've owned a single Panasonic AG-1960 for over two years. The AG-1960 packs more editing power for the price than any machine I know of. It has truly professional capabilities and have long wanted to be able to control its editing functions from my computer. FutureVideo, of course, makes an elegant little box that accurately controls the 1960, but it's a stand-alone box. I wanted to be able to use more versatile Amiga software when it became available for editing. The Tape Library of Video Director, for example, is a function not possible with a stand-alone box.

I was very pleased a year ago when I saw that a small Bay Area company called Selectra had introduced a 1960 modified with the addition of a serial port. Called the Selectra AG-1960RS VCR, here at last was a means by which to connect a 1960 to my Amiga. Trouble was, I would have to buy the whole unit to replace the 1960 I already had. I cringed when I saw all the hype for the consumer-level NEC PC-VCR serial port VCR, knowing full well that Selectra had a superior machine (but nobody knew about it). I didn't want to scrap my stock 1960, though, so the AG-1960RS was fine for someone selecting new equipment (priced, as it was, almost identical to the NEC machine), but I would have to wait for another solution.

The other solution is here, it's a box called the VuPort, and Selectra is the company responsible for it.

The VuPort is a beige-colored box 4-78 cm wide by 7-1/8 cm long by 1-1/2 cm deep. A small red power light sits on the front, below which is a white Data light which flashes to inform you that the VuPort is communication with the AG-1960's.

Two serial ports are on the back, one labeled "IN" and the other labeled "OUT", so that two or more VuPorts can be daisy-chained. There are two Panasonic 5-pin Control M cables out the back which connect to the two AG-1960's - one as the source, the other as the record deck.

VUPORT is a multi-platform device and is connected to a computer, (Amiga, MacIntosh or pc-clone), by a standard serial cable. Install the Control M cord

connections into the back of the 1960's and you're ready to edit.

The prototype VuPort I used had obviously been around the block. Scuffed case and crimped cable, loose serial port falling out the back - the only thing it lacked was a case full of stickers from each video convention at which it had been demonstrated.

I installed the driver for the VuPort/AG-1960 linked combination in Video Director immediately after Gold Disk modem'ed it to me. I stayed up all night that night editing stuff I'd been wanting done for months, but which demanded such frame-accuracy that I just hadn't been able to face the tedium. Using the VuPort with two AG-1960's was fun. Not tedious, trying, teary, terrible, but titillating, harmonious, gleeful and euphoric! It's a one-function box, and I won't make any jokes about the fun you can have with a one-function box, but the single thing the VuPort does it does extremely well. It turns the Panasonic AG-1960 into the machine we all knew it could be. This device is so beautifully implemented that its success is assured.

According to my source, the rumors of the VuPort's capabilities have led to a drastic increase in sales of the AG-1960. I called several mail order houses to check this out. Prices are creeping up past a grand, and the waits for delivery are getting longer. It won't be long before Panasonic takes notice and has to make a decision about serial control for an updated 1960.

How accurate is the combination of Video Director, VuPort and two AG-1960's? I edited an animated lap dissolve in between two cuts from which I had digitized the starting and ending frames of the animation. The requirements for accuracy were plus and minus four frames. I used automatic assemble mode and got it right the first time! I've been told that another Gold Disk product, Showmaker, also works with the VuPort; and I'll report on that when I get the chance to try it out.

If you have two Panasonic AG-1960's and you need Toaster control and/or A-B roll capabilities (with three 1960's & two VuPorts), RGB Computer & Video is marketing a package of a cuts-only version of their professional edit control software AMILINK CI along with a VuPort for $995. An A-B roll package lists at $1595, and a full-switcher control Toaster module is $150. These should be shipping by the time you read this, and we've been promised some product for a full review in the near future. Future products may include a software front-end for the FutureVideo cuts-only box. Contact them at: RGB Computer & Video; 4152 West Blue Heron Blvd.; Suite 118; Riveria Beach, Florida 33404. Phone (407) 844-3348

Selectra's VuPort can be purchased separately for $795. Contact Selectra at (510) 283-1670, or write them at 3746 Mt. Diablo Blvd., Lafayette, California.

Gold Disk products are available at any Amiga dealer, and for an updated list of Gold Disk Authorized Software Centers, call Gold Disk at (416) 602-4000.

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Avid Feature!

Tape Formats & Single Frame Animation

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At a recent user's group meeting, the NewTek demo tape "Revolution" was shown by Alan Hastings just prior to it being given out to the legions of spectators at AmiExpo in Oakland. Immediately following the showing of the tape, an onslaught of questions came from the audience, one of those questions was "Which tape format do you recommend?" to which he replied, "I guess it depends on what you can afford."

I have been asked that questions a number of times myself since I began using the Amiga in a wide variety of professional and semi-professional video projects harking back to the first A1000 units sold in my area. I thought it might be of benefit to *AVID* readers to pass on some interesting observations regarding "Format Wars" as it applies to the new so-called "Pro-Sumer" category of users, or what one of the television trade publications referred to as the "Attack of the Toasterpeople."

As a general rule, when selecting a tape format for use with the Toaster the main consideration has been which format will be going into the switcher module as opposed to which type of format should be used with animation. I know there are several of you reading this right now saying, "What about A/B Roll? You know—EDITING!" Although editing formats are a major consideration in the overall purchase decisions when outfitting a post-production facility there are many more people just getting starting who can only afford to have one master deck to which to record their simple video project or finished animations. Those looking to eventually build onto their system one piece at a time should keep in mind some important facts that can help them avoid making very expensive mistakes when adding to their existing systems.

The first mistake many people make is purchasing a "Mega-Consumer" unit with the thought that it will eventually be the heart of a professional system. We often see newspaper ads from department or TV/stereo stores that refer to these units as "professional quality." They usually have a long model number with lots of zeros and a "U" at the end or the demarcation "Pro" somewhere on the face of the unit. These units are not intended to be integrated into professional studio systems and in general provide little more value than their much less expensive standard consumer units. The general rule of thumb is, if you can buy it at any place that sells Nintendo, don't. Some consumer video magazines will have reviews of these units claiming lab reports and fancy scope photos but here again try to understand that these units generally cannot be interfaced with professional edit equipment. The only recent units I have seen that will have any possibility of interface are the so-called smart VCRs that have serial ports such as the NEC PC-VCR and Sony V-machine. With serial port control you may have access to frame-accurate control which is, a must when using professional gear at any level. There are a couple of companies that have created very good software for controlling consumer decks, such as Interactive MicroSystems' Mediaphile, but frame-accuracy limitations are still a problem because of the consumer VTR hardware. Obviously, manufacturers see a new market for the semi-pro user and hopefully will act quickly to fill the void with time code compatability or more likely some new form of proprietary time code standard for "pro-sumer" units.

My only caveat about this emerging marketplace is the same caveat I have always had about video technology in the consumer arena: planned obsolescence. In the professional area, there are similar occurrences but not nearly at the blistering pace of the consumer end of the scale where parts for the unit you purchased last year are now no longer available for repair. Manufacturers have abandoned service policies on consumer units with the thought that you will probably upgrade long before you wear something out. In the industrial and professional marketplace, manufacturers tend to support parts availability and qualified service facilities for a much longer period. The difference in price from the "Mega-consumer" deck and a used industrial machine is surprisingly low, and definitely worth looking into.

Acquisition Formats

First, let's discuss the consumer and industrial S-VHS and Hi-8 formats. both Hi-8 and S-VHS offer generally the same output quality with respect to lines of resolution in color, although in my opinion Hi-8 seems to handle the color shift problem a little better. As acquisition formats go (acquisition of field or location video), both Hi-8 and S-VHS have their niche: Hi-8 for compact size, S-VHS for total tape time. S-VHS "C" gives you compact size but takes away

tape time in the bargain. Surprisingly, at first glance there is very little difference in the output quality of consumer camcorders between their semi-professional (industrial) counterparts. The major differences in the industrial uints usually have to do with professional interfaces for audio and time code. The construction of industrial grade camcorders also differs with regard to how many of the internal parts are made from easily worn materials which is a definite factor when you consider that time base error increases almost geometically as parts in these internal workings fall out of alignment from wear. Working with any tape format and Toaster requires the use of a time base corrector, and although TBCs will correct the video signal enough to be stable for Toaster, all TBCs have limitations with regard to wide error swings on multi-generation tapes and improperly recorded source material.

Is 3/4" Dead?

JVC stopped production of 3/4" equipment last year to devote its resources to the Professional "S" market. The reports by many at that time were almost all favoring "S" as the replacement format for 3/4". Sony, however, has continued manufacture and sales of its 3/4" line with more emphasis on the "SP" models. ""SP" increases 3/4" color resolution to approximately 360 lines from the original 260 lines. The general consenus now that more than a year of comparision usage has taken place, is that "S" is the future but don't discount the 3/4" just yet. Because of the physical characteristics of 1/2" tape, there are significantly higher dropouts after three passes in even the best of tape stocks. That's not to say that 3/4" tape doesn't suffer dropouts, just many less over time. When doing any editing or animation, you would be well advised to consider making a safety copy as soon as you finish (no matter which format you master to and never try to re-use tape stock except for practice purposes). The good news for those who might want to invest in 3/4" equipment is that prices have dropped significantly and you can now have a standard 3/4" machine upgraded to an "SP" machine for under $1,000. My personal usage (local TV spots and industrials) is served best by 3/4" SP, although I have a JVC Professional "S" source deck for clients who do acquisition on that format.

Transcoding

One of the major complaints I hear from people who are considering purchasing Toaster is, "What about S-VHS?" (or Hi-8), in other words "Toaster is a composite-only device." Without trying to second guess NewTek's design motives (I understand they are already designing a "digital" interface for D-2 & D-3), let's address how to deal with what some people view as a limitation of Toaster. Separate color and detail information in video signals is nothing new; 3/4" industrial decks had "dub" connectors that performed the same function (bypassing the NTSC encoding) several years before Toaster was even a glint in Tim Jenison's eye. With the advent of S-VHS and Hi-8, a slightly different (and less expensive) approach to separating the color and detail signals was developed. The way to maintain the highest level of detail and color information when using the Toaster is to "Transcode" the separated signals into a new composite output. Don't confuse transcoding and encoding; they are similar but with one important difference. Encoding also uses a separate step called decoding, (think of it as another generation loss with respect to signal processing). Transcoding still uses part of the encode process, but saves a significant amount of resolution by virtue of the bandwidth of the signal it passes without the extra decode process. Generally speaking, Toaster outputs about 400 to 460 lines of color resolution. Transcoded S-VHS or Hi-8 resolution is nearly 460 lines of color resolution depending on the TBC you use. Although Toaster degrades the signal somewhat (as does any device you place in the signal path) it still passes more than enough signal bandwidth to maintain close to the orignal rated resolution of the TBC that feeds it. Most of the signal degradation you can detect with the naked eye shows up on the second or third generation from your original tape using the transcoding TBC process. If you were to feed the composite output of your Hi-8 or S-VHS into the

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TBC and then in to Toaster, you would notice significant loss in detail because your effective resolution, even before it goes through the TBC, is only 240 lines of color resolution. The moral to the story is, make sure that your TBC will transcode, and that it doesn't just "pass through" the luminance (detail signal) at the back panel. Some of the less expensive units will claim "format transfer ability" or "multiformat compatible" but don't actually transcode.

I want my DCTV!

With recent cost-cutting developments on the animation side of the equation, such as DCTV conversions, more people are starting to use Toaster for animation and consequently are thinking of upgrading their equipment later. My advice for those only "thinking" of doing this is to rent the equipment before buying, or use a service bureau to render your final work to your final format. DCTV's output, although quite good, is still not as good as frames rendered to the Toaster. I must confess, however, that DCTV's paint program has many features that I would like to see in ToasterPaint.

So which do I buy?

If you are going to do animation exclusively, I'd put my money on a single-frame optical disk recorder. The Pansonic units have recently dropped in price and cannot be beaten for picture quality by analog tape formats. If you can't afford the optical disk format, or you are planning to eventually use your animation deck as a mastering edit deck for A/B Roll type edit work, I would strongly suggest the 3/4" SP instead of "S"." The likelihood of getting parts or quality service for the current generation of "S:" offerings in another two years is sketchy at best. After the marketplace stabilizes things will probably change in favor of "S". At least with the 3/4" platform there is a large enough installed base to insure that you can get your deck fixed in a timely manner for at least the next couple of years. Edit controllers available on the used market also widely support 3/4" but many require expensive cabling or software upgrades to support current "S" offerings. For field acquisition, I would think seriously about using professional or industrial Hi-8 or "S" and then "bumping" to 3/4" SP; the results are excellent using the Toaster with a Transcoding TBC.

In Conclusion

As Yogi said, "It ain't over, 'til it's over." By the time you read this there could be any number of changes in the video scene Sony could buy CBM and or NewTek, Digital Hi-8 might be a reality for under a grand; there might even be an "S" version of the Toaster (then we woke up). It doesn't pay to make your purchase decisions on what "might" be. If you can make money using the Toaster the way it's configured now, why worry about what's around the bend; go with what you know will work best for you right now. If at all possible, try to get in line to buy another facility's cast-offs when they make a format change. Save bucks, make it fun to watch, keep it short, and don't fall in love with the zoom!

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Avid Feature!

THE SIGNIFICANCE OF AUDIO for VIDEO

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It's always been a source of amazement to me just how important the effect of sound and music can be in successful video production. What's equally amazing is that the dynamic potential of audio is often overlooked or considered less important in the overall context of video projects. Music and sound, when used effectively, can greatly enhance the impact of visual imagery—it may heighten the emotional perception of drama or suspense, give punch to scenes involving action and excitement, or add dazzle to graphics and special effects. The effective use of echo, reverberation, and other audio processing devices can lend a sense of size and space to settings.

As in video production, advances in integrated circuit technology and software applications have brought the price of high-quality "professional" audio equipment to a fraction of what it cost five years ago. Devices such as the new generation of digital special effects generators, processors, and recorders are no longer exclusively in the hands of multimillion-dollar sound studios. As the cost of digital audio equipment continues to drop, this arsenal of new production tools becomes more and more accessible to modern, independent video producers, even those on a limited studio budget.

Among these new sound tools available to audio and video producers, one of the machines that holds perhaps the greatest promise is the computer of choice for independent video professionals—the Commodore Amiga. With its multitasking environment and internal sound capabilities (as well as its current popularity because of DCTV, Pro Video Post, and the Video Toaster), it is the logical first choice for many modern video studios. With the addition of peripherals such as MIDI and SMPTE interfaces, samplers, and new sound cards, the Amiga can be the center of a powerful audio production system. Many popular software packages are also available for composition, scoring, and sound editing; algorithmic composition programs such as Bars & Pipes, M, and Music Mouse allow even novices to produce some truly amazing music from the very first try. (There is, of course, no substitute for hours of practice and experimentation in the consistent production of quality work!)

Digital audio may not be as far removed from the realm of mainstream video as one might expect. Many of the new camcorders on the market today use PCM (Pulse Code Modulation) circuitry to achieve high-quality digital sound recording. PCM is the technique in which audible sound waves are encoded at a high rate of speed as a series of zeros and ones that describe the shape and amplitude of that waveform. These binary words may vary from 8 to 16 bits in length and are sampled at rates ranging between a few thousand to up to 48,000 or more times per second. This digital information is then recorded on tape by the camcorder's spinning video head. On playback this digital data is reconverted to an exact duplicate of the original analog soundwave. This is the same process used in DAT (Digital Audio Tape) recorders. This spinning head system is also used in hi-fi stereo VHS and S-VHS recorders because of the very fast relative tape speed—30 inches per second compared with the true tape speed of only 3 3/4 inches per second.

For those AVID readers who are unfamiliar with digital sound sampling, it is the process by which analog sounds are converted to digital information, which can then be stored, edited, or otherwise manipulated for eventual reproduction. The Amiga, with its built-in four-voice sound synthesis capability, can be used for sampling with the simple addition of an Analog-to-Digital sound sampler interface, such as Sunrize Industries' Perfect Sound 3. Typically, these units plug into the parallel, serial, or joystick port of the Amiga and sell for about $100 or less. After installation of the interface device, the audio source, such as a VCR, CD player, or microphone, is plugged into the input and sound is recorded or sampled to the Amiga's memory. These internal sounds are 8-bit, and the length of these

sounds is determined by the amount of RAM available as well as the sampling rate used in the recording process. (The higher the sampling rate, the greater the resolution and fidelity of the sample, but the shorter the time available.)

A number of software packages, including Audition 4, Synthia II, and Audio Master III, are also available for the manipulation of these audio samples within the Amiga's RAM. A variety of editing tools are available with different software packages, allowing audio processing such as filtering, compression, reversal or doubling; echoes or reverberation may also be added. The sound or dialogue may be cut and pasted in much the same way as conventional reel-to-reel tape without ever touching a razor blade or splicing block. Short sound samples may be looped giving the impression of long sustained sounds or repeated phrases. These samples may be saved to disk in standard IFF 8SVX format for importation into other Amiga music and multimedia applications, or in formats that are unique to various programs. Several volumes of these prerecorded IFF samples are also available. Using the Amiga's internal sound synthesis, as many as four sounds may be produced simultaneously.

An application of this type of digital sampling and editing recently occurred in a project in which I was scoring a 29-minute documentary for Amnesty International. In this particular instance, the producer had in mind a very clear picture of the aural atmosphere he wished to use. The general feel of the program was very serious and intense, and he wanted to reinforce that with dark, sustained tones in the introduction behind some of the opening dialogue. The central portion of the tape focused on a march (in the rain) and a number of rallies, which needed to be accompanied by music that reflected a build in tempo and energy. Using Dr. T's Keyboard Controlled Sequencer (version 3.5) and M, I composed the rough cuts of the original music tracks without concern for exact synchronization with the video. This was submitted for approval and I was given specific direction for how to proceed with the sound score.

The original video footage was shot on Hi-8 at various locations from Texas to Washington, D.C., and was then edited on D2. The producer then furnished me with a VHS copy of the finished video (complete with dialogue and narration) with an SMPTE timecode window burn and a list of the specific lengths and "hit" points for transitions and sound effects.

In the closing segment of the video, the producer wanted to re-state the opening musical theme with the sounds of the crowd chanting from one of the outdoor rallies gradually fading in, then repeating throughout the closing credits. By simply taking the audio output from the VHS tape and connecting it to the Perfect Sound 3 sound sampler on my Amiga, I was able to sample a segment of the chant from an earlier section of the program. After editing the sound with the Audition 4 software, the chant was looped and saved as an IFF instrument. As with most popular Amiga sequencing software, Dr. T's KCS 3.5 allows the importation of IFF sound samples for use along with external MIDI devices in sequencing. Watching the SMPTE timecode information, the exact placement of the sample was achieved, and by manually editing the sequence a smooth fade of the crowd sound was added to the music. Similarly, the sounds of jets, thunder, and rain were also sampled or synthesized successfully and integrated into the sound mix.

In another example of the use of sampling in the manipulation of dialogue in video production, I was recently called upon to correct a mistake in the narration track of a promotional video for the city of Nashville, Tennessee. After the completion of the entire project, the producer of the video discovered that the voice talent had inadvertently said "Interstate sixty-five" when in fact the script had said "Interstate sixty." I located another spot in the narration that said "loop two-sixty," which I then sampled and edited the word "sixty" out of that phrase. (I selected this occurrence of the correct word since both words came at the end of a sentence, therefore the voice had a similar tone and inflection.) The original sentence containing the incorrect passage was also sampled and it was then a simple matter to replace the mistake with the correct word. The entire sentence was then replaced in the dialogue track.

Recent announcements by Sunrize Industries and Beta Unlimited promise 12- and 16-bit sampling and hard-disk recording for the Amiga. These new sound cards will offer 44.1 kHz sampling rates for true CD-quality sound production, as well as SMPTE timecode synchronization and MIDI control of playback. Digital input and output will also be available for recording from compact disks and digital audio tape, and will offer the ability to master entire CD's and film/video soundtracks with software control. In hard-disk recording systems, music, sound effects, or dialogue are encoded into digital information and recorded directly onto the Amiga's hard drive. The length of recording time available is dependent on the capacity of the disk. Sounds can then be edited, effects may be added, and they may be synchronized exactly to video via SMPTE timecode with frame-accurate control.

Many prominent new hardware and software products allow access to the Amiga's multitasking environment through AREXX, offering tremendous potential for video and audio applications. The list of programs that support the AREXX language grows steadily; many offer control and timing of the Video Toaster. Peripherals such as Dr. T's Phantom MIDI/SMPTE interface give the Amiga control over external musical instruments, sound processors, and recorders. This SMPTE timecode is addressed by a number of software packages produced by various manufacturers, allowing precise synchronization of music and sound effects.

As we venture further and further into the digital age, it is crucial that we learn to use the tools we have at our disposal to their greatest potential. As video producers, it is important to understand the relationship between what we see and what we hear. Sound adds the element of reality to visuals, though if the truth were known, almost none of what you see and hear on television or in film is real. Voices are dubbed or replaced by more acceptable ones; sound effects are created with samples and synthesizers.

(When asked if they are familiar with electronic music, I'm frequently told that they've never heard electronic music. Nothing could be further from the truth. Almost all of the music we hear is electronic.)

Subtle manipulation of sonic elements can dramatically impact a "visual" presentation. Music and sound can make worlds of difference in a successful production. But don't just take my word for it—the next time you're watching "Star Trek" turn down the sound and see how effective the special effects and overall environments are without the reinforcement of dynamic audio. Do you hear what I'm saying?

Editor's Note: Jaxon Crow is a veteran independent producer of electronic music and video. He currently lives and works in Hot Springs National Park, Arkansas. His band, Gone Tomorrow, has just released its first video entitled "Planetarium" on the Neon Tetra Label. He has released six solo and collaborative cassettes and has scored numerous video and multimedia productions. His most recent projects include a series of instructional videotapes on music and the Amiga.

Audition 4 and Perfect Sound 3 are from:
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Bars and Pipes is a product of:
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M, Music Mouse, KCS 3.5 and the Phantom MIDI/SMPTE interface are distributed by:
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Synthia II is by:
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Review

Scenery Animator

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How would you like to take your camcorder up into the air, 10,000 feet above the Grand Canyon, point it down at the river, then drop it? Let it fall until it was about 100 feet above the surface of the water, then pull up and fly along, following the Colorado River for a mile or so, doing a couple of barrel rolls along the way, then zoom up and perch on top of a cliff. Then you could pick it up the next morning and have a look at the tape while you drank your coffee.

How would you like that? Well, with your Amiga and a program called Scenery Animator from Natural Graphics, you can do that, or the next best thing—or the next *better* thing. You couldn't load your videotape into a program like The Art Department, as you can an IFF picture, and change the palette to turn day to night, or load it into DPaint and add to it anything you can draw or digitize, from stars in the sky to the Swedish Bikini Team floating down the river.

But you can with animations created by Scenery Animator, the offspring of Scene Generator, a program which used fractal mathematics to render IFF pictures of imaginary landscapes. Scene Generator was good, but to paraphrase the commercial, things got a little better when they added animation—and even better when they added real landscapes.

But before we get into all the features of this remarkable program, let's try get an overview of it. In other words: what is it, and what *good* is it? What it is is a program that paints landscapes. It can be told where to apply its paint by either the aforementioned fractal mathematics or Digital Elevation Model Data. It can paint either one landscape or a series of them, from a succession of slightly varying viewpoints, to create an animation.

Not only could this software also be useful in producing videos, but video production experience will be useful in learning to use the software. That's because your main control of the program, and the quality of your results will be determined by your manipulation of a metaphorical camera.

POV

You'll choose what section of the landscape is to be painted and from what distance and angle by positioning an imaginary camera and selecting its focal length (from "wide angle" to "telephoto"). The positioning is done by panning, zooming, and tilting the camera along X,Y, and Z axes. It is also accomplished by increasing or decreasing its altitude (equivalent to raising or lowering a tripod, although this tripod can be thousands of feet high and the camera can be lowered into the ground).

While the concepts and terminology are helpful to most of us, getting exactly the right view of the landscape is a tricky business and will require some practice. It may be made trickier if you're used to DPaint and most other programs where moving on the Y axis means moving vertically and moving along the Z axis means moving in depth, i.e. forward and backward. In Scenery Animator, the Y and Z axes seem to operate in the reverse of what one might expect.

Unreal Estate

Before you can position your camera, you'll have to take it on location. Scenery Animator gives you two general types of locations from which to choose. The first, fractal landscapes, will, as mentioned above, be familiar to users of Scene Generator and similar programs. You can choose, or have chosen for you "randomly," a seed, from 65,535 possible seeds, from which is drawn a rough picture of a landscape. If you like the landscape, you can position your camera, either by using the "motion square" and its X,Y, and Z axes, or, more interestingly, by moving the camera around on a topographical map.

At this point you can make adjustments to the terrain: height of rocks; altitude of the snow on the mountains, and the treeline (actually the vegetation line—all growing things are simply "veg" to Scenery Animator); sea level; and on and on. You can adjust the colors in the palette, the thickness of the cloud cover, the angle of the sunlight, and click in a lake anywhere you want. The possibilities seem endless.

After fine-tuning your landscape, you're ready to render your picture. First, though, choose a screen resolution and type. Low, interlace and high resolutions, in varying degrees of overscan (video people, rejoice!), are all supported. (Sorry, no HAM.) Next, you can choose a format from among IFF, IFF 24, or DCTV.

Now click on render—and wait. As with all programs that draw by crunching numbers, these things take time. Even with an accelerator (and your disk will contain two versions: one for the 68000 and one for 680+0 with floating point chip), even a picture in low resolution, non-overscan will take minutes to be painted. A high-resolution severe overscan screen could take the better part of half an hour.

So, figuring 16 minutes per landscape, to view all 65,535 possible fractal landscapes in high resolution (with clouds) will require, without taking time for lunch, two years. But you may want to do it, because the pictures are fantastic. They are better than Scene Generator. The clouds are almost photographically realistic. I find myself saving all the pictures I render, even those done while just experimenting, because they're too pretty not to keep—giving them names like "late_spring_snow_in_foothills.hi." If you have DCTV, the people who see your pictures on video may not believe they were computer generated. You'll half expect to see hikers climbing over the crest of a hill.

Strangers in a Strange Landscape

Adding roads, people, and buildings is as easy as loading your picture into a paint program and starting to draw. Imagine cutting a chunk out of the Grand Canyon, genlocking it over a starry night, and having spaceships fly in to land on it, like a Terran spaceship carrier. Or how about making a flying saucer cruise over Yosemite, with a realistic looking shadow moving beneath it.

All the techniques I describe in my VidZeen tutorial tapes for working with Scene Generator pictures in DPaint will apply to Scenery Animator images. Indeed, you may have to do some palette remapping to achieve really good looking shadows in your Scenery Animator animations and to free up a few extra colors for your own objects, since the program uses all 32 available colors in low and interlace resolutions.

Digitally Correct Landscapes

Yosemite? The Grand Canyon? Hardly places that exist only in the esoteric world of Mandelbrot mathematics. But Scenery Animator can also use "real" data to create its pictures. These landscapes can be up to 240 square miles per disk, and can be appended to others, like pieces in a vast jigsaw puzzle. Expect Natural Graphics to continue to make more landscapes available in the future. If you live in the 40% of the U.S. that's been digitally mapped by the United States Geological Survey, you may eventually be able to do the camcorder-sky-dive animation above the landscape where your house is located.

Land Rush

If all Scenery Animator did was what I've described so far, it would be a useful, fun program, well worth its modest price. But, of course, the best part of all is the animation. You can create one quite simply, by using the Key Frame method. Just position the camera where the animation will start and enter the number of frames. The subsequent places you position the camera, up to and including the place where your camera will "stop" (i.e., the end frame), will be key frames, through which the camera will pass, curving smoothly if necessary, as the animation progresses. Basically, that's all there is to it.

What do the results look like? The animations have a look you'll instantly recognize from similar things done on large computers and used in expensive commercials, video demonstrations in theme parks and so on. The ground seems to rush up beneath you, almost in a blur. There is something unreal about the motion, but sort of ultra-realistic, too. In short, they're neat.

Despite everything else, Scenery Animator's animation capabilities are its most impressive feature. You can even animate cloud movement, simulating time-lapse photography.

It's About Time; It's About Space

After it's finished, your animation can be saved as a succession of IFF, IFF 24, or DCTV frames, or compressed in the popular ANIM5 or DCTV ANIM5 formats, ready to be loaded into a paint program or played by an animation player (one is included with Scenery Animator). That's one of the big advantages of Scenery Animator over its competition, which uses a proprietary file format. However, just because the animations can be saved in the compressed ANIM5 format, don't expect rendering times to be compressed. Each frame still has to be painted individually, and that takes time, and disk space is eaten up pretty fast, too. An animation only a couple seconds in length will probably be too large to fit on one diskette. So even though you can have lots of fun with Scenery Animator on a floppy based system (you do need at least 2 megabytes of RAM though), you may want something a little roomier for storing animations.

The manual is 40 pages long, with concise, to-the-point instructions. It lacks an index, but includes tutorials of Scenery Animator's main functions and is illustrated by pictures of the appropriate screens and gadgets.

Since this is such a terrific program, I don't mind being a little nitpicking about its few shortcomings:

•Clicking on "Quit" doesn't give you a "Are you sure?" second chance. Your Amiga could spend hours rendering an animation, only to have you lose it all with one errant click of the left mouse button.

•The lack of keyboard equivalents for the on-screen buttons slows things down. It would be nice if, for instance, instead of having to move the cursor out of the "motion square" (where you change the camera distance), you could just press the "X" key to change to moving along the X axis.

Not really flaws are a couple of things that I'd like to have seen included (maybe they'll be in version 2?):

•Ease-in and ease-out. Some programs that create animations let you gradually bring the motion from a dead stop up to speed and, conversely, gradually slow it down before a stop. It would be nice if Scenery Animator did too.

•A way to enlarge fractal landscapes, append one to another and so on. This would probably be much more difficult and maybe even impossible, but it sure would be neat.

One final note, on the positive side: though both the 68000 and 68020/68030/68040 versions of the program I used were early ones, and though I've pretty much put it through its paces, Scenery Animator has been bug free. It has yet to lock itself up, crash the system, or do anything that wasn't intended. This is a good piece of programming.

Animation Anticipation

To sum up, I love this progam. I used to be that the last things I did when leaving my office in the evening were turn off my Amiga and lock the door on my way out. Now the last things I do are start a Scenery Animator animation rendering and lock the door on my way out. I always have something to look forward to when I turn my monitor back on the next morning.

Scenery Animator
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Avid Feature!

Avid INTERVIEW with Len Kellog

Northwoods Videographer

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One of the nicest side benefits of writing for AVID Magazine is speaking with wonderful and creative people all over the globe. This gives me a chance to write articles from time to time that act as a conduit, drawing forth the type of information that I know is both interesting and useful to other Amiga video people (all of whom are hopefully subscribers to AVID!). The individual who is the subject of this article was introduced to me because of his request for a disk based on an earlier article I penned for AVID many months ago on the DPaint "Move Requester." In communicating with him further by phone, I discovered that he was exactly the type of Amiga video user who would make an interesting subject for an article. What initially sparked my interest was that he is located way up in the Canadian north woods, about 300 miles from any citified settlement. The fact that he is able to use his Amiga video pursuits to make a living so far out in the bush has to be at least interesting if not motivational to other AVID readers.

The other thing that I found fascinating was that despite our culture's accentuation of youth as the time to engage in state-of-the-art vocations, here was a man into his "retirement years" who has successfully embarked on an Amiga-enhanced video career. In 1939, a year before I waddled onto the planet, he was a management consultant in training in New York City. He served in the U.S. Navy as an electronics repair person for three years during World War II (Pacific Theater). I find his present vocational involvement to be very personally inspiring, given the fact that many of us think it's too late to start a new life when we're only about 50. I hope you are able to gain some light from his fire as well. His name is Len Kellogg, and if you want to drop him a line (which I think he'd appreciate) because of this article, you can do so by addressing your correspondence to:

Len Kellogg
RR#1, Camp #23 / 100 Mile House
British Columbia V0K 2E0
CANADA

AVID: Len, can you tell the readers something about your experience in computer-based video, and maybe include something about computer experience in general?

Len: I do not know how to program and may never learn. Most of my time has been spent, when not producing, in learning how to apply and

adapt the many programs I own to my needs (such as DPaint). Training courses are not readily available to me where I live in the middle of British Columbia. I also find that most courses are too general and take too long to complete. I learn what I can from manuals, ask questions and occasionally pay someone to give me personal instruction in specific areas of need. My plans are to do this with the Toaster, for example. Programs like AmigaVision and CanDo seem to be gradually eliminating some of the need-to-know detailed programming on the Amiga if you are in a field such as mine.

AVID: Have you had any formal artistic training?

Len: I am a reasonably good draftsman, but a lousy freehand artist. This is frustrating at times when I'd like to develop my own cartoons. In safety programs, for example, I will never film someone doing a job in an unsafe manner. Instead, I will use a cartoon illustrating the dramatic consequences of not doing the job safely. I then film the actual task as it is being performed correctly.

AVID: Do you have a special formula for choosing the products that you work with?

Len: For years I have been working "at the edge of the state-of-the-art" and one of the most difficult and frustrating things I have had to contend with has been finding an in-between ground between consumer and professional products. As a result, some of my techniques are the result of necessity being the mother of invention. My test is: do they work? If so, I'll forego the bells and whistles that add to the cost but not to the real worth of the final product. Quality of production is not sacrificed, however, since I always have to remember that the viewers are accustomed to watching TV and will subconsciously downgrade my work if technical deficiencies are obvious. For instance, I completed two instructional programs for the Eskimos in the Arctic last year, and the same is true for them as in the "lower 48," since they get excellent TV reception.

AVID: How about software? How do you select it?

Len: I have an extensive library of software, particularly in graphics and to a lesser extent in sound. I have worked as a professional musician on the side most of my life. There is no Amiga user group in the area where I live, so I have a limited opportunity to evaluate the real worth to me of new software programs. I read all the reviews I can find in the trade magazines, but often end up purchasing the program to check it out myself. This is expensive and not very satisfactory. As you know, the documentation of many good programs is very poor. The best user instructions I have seen to date are those which came with the purchase of my Steadycam JR device. I have read everything I could lay my hands on regarding desktop video and related subjects. I figure a book has paid for itself if there are a few practical ideas in it that I can apply. I think the *AVID* publication is a good idea, and I look forward to receiving future issues. I recently subscribed to *AVID* and ordered all of the back issues.

AVID: Can you give the readers an idea of the Amiga software you use the most for your video productions?

Len: The software used most frequently includes DPaint III, Pro-Video Post, CAD Plus, Excellence, Analyze and Superbase. The next category I would call "occasional," and it includes Photon Paint 2.0, DigiPaint 3.0, ANIMagic, Scene Generator, Elan Performer, Broadcast Titler 1.2, Pro-Draw, Pro-Page, Deluxe Print II, DMusic, M 1.1a and Dynamic Studio. Other software that I own but use seldomly includes PageFlipper, Lights-Camera-Action, 3D Text Animator, Credit Text Scroller, Draw 2000, Hyperchord, AudioMaster III, AmigaVision and CanDo.

AVID: Len, say something about doing industrial videos, as opposed to other kinds of video work.

Len: The production of industrial training programs in video form is quite different than producing for public consumption by transmitted TV. The objective is to train rather than to entertain. The message is more important than the medium. Training can be made more palatable for the trainee, however, if some of the techniques of modern TV production can be included to help gain and keep attention. Recent advances in the techniques of desktop video production make this possible. It is now feasible for an industrial trainer to produce a high percentage of the product "in-house" economically. My objective has been (and still is) to be able to produce a video program with 80% to 90% of the quality of a major production facility at 20% of the cost. So far, I've had little difficulty in doing this, and it opens up a market that isn't being addressed in any other way. My work, however, is not confined to operator training programs. I have done quite a few documentaries and other things that have paid well.

AVID: Speaking about payment, what is your charge system like?

Len: I have been using a flat rate per hour, no matter what I'm doing. The only exception is travel time, which in this part of the world cannot be ignored. For instance, in the coming weeks I will be driving for eight hours to get to the filming location. I only charge $15 an hour for this time, but bill out-of-pocket costs for all living and associated expenses. I also charge a flat rate for car mileage. I double this rate when I'm required to travel on logging roads in a four-wheel-drive vehicle under some rather primitive conditions. I have driven up Mount Washington in the past, but that road is pretty tame compared to some of the logging roads in the Northern Rockies.

AVID: As far as your video-training program work goes, can you run through a general way that you approach a task?

Len: Basically, I follow a seven-step process:

1. Scripting. I compose a rough draft of scripts on an Amiga 2000 using a word-processing program. The computer's multitasking capability allows me to produce a shooting script and a graphics requirements list as by-products.

2. Filming. I film in high resolution using Super VHS and Hi-8 formats. I also use a Steadycam JR with my Sony Hi-8 camera to provide "dolly" shots which would otherwise be impossible and to eliminate vibrations inherent in industrial locations. I document every

shot filmed on a "Film Shot Record" for later use in editing. I then make a working copy imprinted with a timecode (hour, minute, second and frame number) from the field tapes.

3. Graphics. I am equipped to digitize pictures or drawings into my Amiga for further manipulation. I also use a Sumagraphics tablet when greater selectivity is required than can be obtained with the digitizing technique. I have an extensive collection of Amiga graphics software for use as required, particularly for producing simple animation effects. I can readily see why Amiga computers are used in professional broadcasting applications because of their extensive graphics productions and display capacities, as well as their flexibility and versatility in use.

4. Genlock. I use a Scanlock VSL-1 to overlay the output of my computer onto filmed sequences in S-VHS format. This is especially useful when relating drawings to actual pictures of equipment or to draw attention with arrows and/or other devices to specific points being made covered by the narration.

5. VCRs. I use two VCRs, both in S-VHS and VHS formats, for preliminary editing and for dubbing VHS copies from S-VHS masters.

6. Sound. I use music in industrial video programs to introduce and close the programs. The "wild" sound recorded when filming is used as background when mixed with the narration in the post-production process. I use music produced either by my synthesizer, or from copyright-free commercial segments. In some situations where appropriate, I use a professional narrator to record scripted text. I use a cordless mike while filming and the narration of an in-plant person instead of the professional narrator.

7. Editing. The marrying of filmed shots, graphics, narration and music is laid out on a special paper edit form to the nearest second. Edit points for filmed shots, however, are made to the nearest frame. I then use a professional post-production studio for the assembly of all program elements to a finished master in S-VHS format. In this way, with careful preparation, it is possible to complete the final editing of 40 to 60 minutes of finished program in one working day.

AVID: What about Amiga animation options?

Len: Sophisticated 3-D animations are very impressive, and I'd love to be able to do them and justify their use in my programs. Most of the time, however, I'm looking for "quick and dirty" solutions ("poor man's animations") that will get the message across clearly and quickly. For example, in a "guided tour" through a high-tech sawmill, I put my camera on an artist's 3-D drawing of the mill (found in the manager's office). Later, I used DPaint to show animated logs and boards progressing through the mill from beginning to end. This program is shown to all visitors before they go through the mill to acquaint them ahead of time with what they will see. It's too noisy and confusing in the mill for conversation, and without some advanced idea of what they are looking at, it would be very confusing for them.

AVID: Your comments should help to familiarize AVID *readers with ways they can approach their own work. I know I've learned a lot in this interview. Any last thoughts, Len?*

Len: I try to keep my work in perspective and my priorities straight, and am interested in the bigger picture as well. In the middle of our interchanges, I rode my horse for half a day in the back country and played 18 holes of golf in the afternoon. No one type of media is necessarily suitable for all types of training situations. I have run into a number of occasions where a video application wouldn't have made sense, since there was very little to film. The training of operators for new systems or processes being installed, or for a particular machine that hasn't been installed, are good examples of this. Multimedia seems to be a step in the right direction. I've been using this approach for years, but didn't formalize it with a name. Use what's best for each situation, and don't force high-tech solutions into areas that don't justify them, especially when a simpler technique will do as good or a better job.

AVID: Thanks, Len.

Aid Feature!

Simulated A/B Roll

with Amiga Graphics

(Fake A/Bear Roll and Lap Dog)

© 1991 by Kirby Carmichael

Go ahead. Max out your credit cards and mortgage your house. For a small investment, relatively speaking (relative to the national debt), you, too, can have A/B roll capability, complete with time base correctors, switcher hardware and SMPTE timecode edit control frame accurate equipment. Incur the wrath of your wife and the enmity of your kids because you're too busy paying for your equipment to spend any time with the family. You'll discover, soon after making your first payment on all that equipment, that you're overusing your fancy transitional devices in an attempt to justify their cost, both economic and emotional. I've seen it happen. I know a videographer who regularly creates lap dissolves between jump cuts. Shudder. Remember this: A transitional device that calls attention to itself detracts from the story. Not that lap dissolves (my son Kyle calls them 'lap dogs') can't be used effectively. Lap dissolves, a dissolve from the end of one shot onto the beginning of another, can be quite effective when used appropriately. A lap dissolve implies a very strong relationship between two shots. The passage of time between a shot of a young man and that man twenty years later can be implied with a lap dissolve. Or a closeup of an old woman arthritically shuffle-dancing can be dissolved onto footage of a dancing ballerina to imply something about the fantasy of dance and an old woman's dream. I have a simple rule for my videos that has kept both my equipment expense and artistic overindulgence to a minimum: Use cuts only editing unless there is a specific need for a different transitional device between shots. That's my own personal rule. You, of course, are free to distract your audience from the story with boring overindulgence

anytime you wish. And if you haven't got an A/B roll setup, I'm going to show you how to do it by giving you three ways to fake an A/B roll lap dissolve (Kyle: "fake a bear roll and lap dog"). There are some specific equipment needs, however. You'll need a camcorder or VCR with a rock-solid still frame from which you can digitize frames. You'll need a digitizer or frame grabber. Your record deck must have the capability to be put in Play/Pause and then changed to Record/Pause. For this article, I've used a Sony CCD-V9 8mm camcorder and a Panasonic AG-1960 deck. DCTV performed admirably as my digitizer. And, oh yes, an Amiga 3000 or something equally speedy is quite handy in limiting the time you spend on the project, although unaccelerated Amigas can be used. At least three different fake lap dissolves are possible with the following software:

1) DCTV, Art Department Professional, Deluxe Paint III; 2) Art Department Professional, Deluxe Paint IV, and DigiView; 3) Deluxe Paint IV and PixMate or another piece of software capable of harmonizing HAM palettes, and DigiView.

DCTV allows the video artist to paint directly to the composite monitor without the need to tediously 'render' an RGB HAM screen to the composite monitor. DCTV is a slow-scan digitizer. This means that, in order to digitize from videotape, you must be able to display a still frame with little or no noise in it. Both my Sony CCD-V9 and Panasonic AG-1960 have clean still frame displays, so digitizing with DCTV is no problem. If you do not have clean still frame capability, you'll have to use a frame grabber such as the FRAME GRABBER or the frame grabbing capability of the Toaster. The ability to fake a lap dissolve depends on your equipments' capability of cleanly digitizing the last frame of the first shot and the first frame of the shot to be dissolved to, the second shot.

I'll first walk us through creation of a DCTV-animated fake lap dissolve so authentic you'll no longer miss having the real thing. For this exercise, you'll need DCTV, Deluxe Paint III or IV, and ASDG's Art Department Professional. After you have selected the two shots which you want to link with a lap dissolve, use DCTV digitize and digitize the edit out point frame (call it "OUT") of the first shot and the edit in point frame (call it "IN") of the second shot. Save both of them as IFF-24 files. Decide how long you want the dissolve to last. I have found that a playback rate of 10 frames per second is quite adequate for a fake lap dissolve. The transition between one frame and the next is so small that there is no apparent jitter or jumpiness in the animation even at this relatively slow speed. If you want a two-second lap dissolve, you'll therefore want 20 frames of animation. Making it 21 frames will simplify the process. "OUT" will constitute the first frame of the animation and "IN" will be the last frame. That leaves 19 transition frames from OUT to IN. Expressed in percentages from OUT (0%) to IN (100%), each frame will represent a 5% step in the lap dissolve transition.

Open Art Department Professional (AdPro) and load the digitized frame you named "OUT". Save it as 24-bit plane data and name it "01". Select the REPLC button which is to the left of LOAD. This will change the REPLC button into COMP, so that you can begin creating the transitional frames as composites of "OUT" and "IN". Select LOAD and load the frame you have named "IN". When you click on "OK", a menu called "Composition Control" will appear on screen. Enter "5" (for 5%) in the MIX box and click on "OK". After the data has been loaded, it will have been composited with the first frame you loaded at a ratio of 95/5. Now select SAVE as 24-bit plane data and save it with the name "02" to the same directory to which you saved "01".

Click the COMP button (to the left of LOAD) in order to change it into REPLC. Again load the digitized frame you named "OUT". Click on REPLC to change it into COMP and LOAD "IN" again, changing the Composition Control/Mix setting to "10". Save the composite frame as "03". Continue this process of LOAD/REPLC the frame "OUT", compositing it with "IN" at 5% increments, and saving the composited frames in numerical order. After you have saved frame "20", which is the 95% composite, LOAD/REPLC "IN" and save it (as 24-bit plane data) as "21".

You now have the basic frames for an animation which dissolves the last frame of the first shot into the first frame of the second shot. Load each frame into DCTV and save it back to disk as a 3-bitplane, non-interlaced, DCTV display-format image. This cuts down the size of the files considerably, by a factor of five at least. Create a 21-frame, med-res animation by sequentially loading the frames into DPaint III or IV. Press F10 to turn off the menu and tool bar, and you should see the first frame of the animation on the composite monitor attached to DCTV. If you don't, adjust the display by holding down the control key and pressing your keyboard's UP arrow key a few times, then do the same with the left arrow key. Pull down the ANIM/Control/SetRate menu and set the animation rate to 10 frames per second. Press the "6" key to view the animation running back and forth, and if it looks good save it to disk.

Edit the animation onto videotape between the two subject shots matching the head of the animation to the tail of the first shot and the tail of the animation to the head of the second shot. Voila! You have successfully faked a lap dissolve. Of course, like all written instructions on editing, it's a lot easier to write about than to do the first time. There are several things you must keep in mind, or else you'll abandon the technique as too sloppy and inaccurate. First, consider your edit points. Since the only motion in the lap dissolve animation is the dissolve itself, try to end your first shot and begin the second shot with very little, if any movement - either of the subject or the camera. Second, when you record the resultant DCTV animation on videotape, be sure that the DCTV display is as far to the left and as far toward the top as it can be. You can check this, if you are using DPaint to assemble the animation, by pressing CNTRL (Down Arrow) until the picture on the composite monitor disappears. Back off one pixel and you're there. Press CNTRL (left arrow) until the picture loses its color. Then back off one pixel and

you've got it. The reason for this is, of course, if you don't do it, your lap dissolve animation will begin lower and to the right of the first shot. Bad form. A third thing to keep in mind is color processing. Although the movement of the animation and the compositing of the digitized images hides much of the color discrepancies between DCTV output and videtape, try and get them as close as you can. It is, after all, like shooting two shots in different environments with different cameras. The color may need to be aligned. A video color processor of some sort would be good for this. If you are going to go all the way and attempt to fake the lap dissolve so your audience won't know the difference, then you're just going to have to do it right.

By the way, thank you SelectraVision for the loan of the VuPort and the Panasonic AG-1960 with which I edited this project; and thank you Gold Disk for the beta version of your consumer edit control software Video Director with which I controlled the VuPort and the two AG-1960's.

When done with a light touch, the faked DCTV lap dissolve can be very effective. And when mastered, it can save you a whole lot of money and, at the same time, teach you to use lap dissolves only when they are appropriate, avoiding the economic temptation to overindulge in their use in order to justify a large equipment and software cost.

The following two methods aren't so critical, and, in fact, are even more effective than a poorly done DCTV lap dissolve.

1. If you don't own DCTV, you can use the Amiga's HAM mode to create a similar animation with AdPro and DeluxePaint IV. Use either a frame grabber or a slow scan digitizer such as DigiView in combination with MicroSearch's electronic color splitter to digitize the two critical still frames. Sequentially combine the two frames using AdPro as outlined above, and load the twenty-one frames into DPaint IV for animating. Since it will be clear to your audience that the HAM animation is not an electronic lap dissolve, 'set up' your audience for it instead of simply inserting the animation between the two shots.

2. If you've got a SuperGen, take advantage of the dissolve function. Simply record more of the first shot than you need. Back the record deck up to the last frame of the first shot and pause the deck. Put the deck into record/pause mode. Place the source deck on still-frame at the last frame of the first shot. Take the record deck off pause and record a couple of seconds of the still frame, and then cross-dissolve to the first frame of the animation before cuing the animation to play. This sets the audience up for the HAM transition which looks very much like a lap dissolve and functions exactly the same. Let the animation run past its length, then back the record deck up to cue the last frame of the animation with the first frame of the second shot. That's all there is to it. If you don't have a copy of Art Department Professional, use the "Translucency" function in Deluxe Paint IV to combine the two critical digitized frames into a sequence of twenty-one frames. You must be careful, however, to digitize the two critical frames using the same HAM palette. Most digitizing software has a capability of 'locking' the palette so that subsequently digitized frames will share the same palette as the first.

Load the first frame into DPaint IV, switch to the spare page by pressing the "j" key, then load the second digitized frame. Pick up the entire spare page as a brush. Use the ALT/X & Y keys to move the 'handle' of the brush by a corner. Pull down the EFFECTS/TRANSLUCENCY menu and use it the same as the AdPro LOAD/COMP function. That is, the setting for the first composited frame should be 5(%), the second 10(%), the third 15(%), etc. Press "j" to switch to the main screen and stamp the full-page brush down, being careful to stamp it only after you have dragged the brush as far as you can into the corner of the page which corresponds to the corner by which you are holding the brush. Save the composited frame and repeat the process eighteen more times. Assemble the animation and edit it as outlined above.

The DPaint IV translucency function is slow; but it works well, and the job looks very similar to the same thing done with AdPro. We're talking lap dissolves on the cheap. I've found that once this animated transition device is introduced into a video, the audience accepts it from there on out; and, in fact, the animated lap dissolve seems to pique audience interest. It's slightly different from anything they've seen, yet still appropriate. Once you have mastered this technique, and it's a technique that demands practice to master, you'll find that it can be applied to an unlimited variety of wipes and mixes. Your editing skills will sharpen as you learn frame-accurate editing, and the meticulous eye developed by the task of matching digitized frames to their videotape counterparts will give you an appreciation for detail that every good editor has.

Remember, it's not the money that creates a watchable video - it's the story, plus the imagination that goes into the use of accepted conventions. Plus a touch of something unique.

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See page 59 for details

Review

Pixel 3D 2.0

© 1991 by David Duberman

This could be my shortest review yet for *AVID*. If you work in 3-D on the Amiga, get Pixel 3D 2.0. That's all. Oh! Ok, Jim, quit twisting my ear—I'll elaborate. If ever a program deserves a new name instead of just a higher revision, this is it. Pixel 3D 1.0 performed mainly one function, which was to convert IFF bitmaps to structured 3-D objects with optional simple extrusion, and it performed it well. The new program does this and much more, and with the new 2.0-look interface they should at least have called it Super Pixel 3D. I would have picked a more adventurous name like Bitmap Surfer.

Pixel 3D 2.0 (P3D2) does that better then ever, but gives lots of options for the extrude. Not only that, it does a superb job of converting objects between these popular 3-D formats: VideoScape/Modeler, LightWave, Turbo Silver, Imagine, and Sculpt 3D. You can load objects in any supported format and save in any other, with optional point and face reduction. The program can also save objects in the AutoCad 3D DXF format.

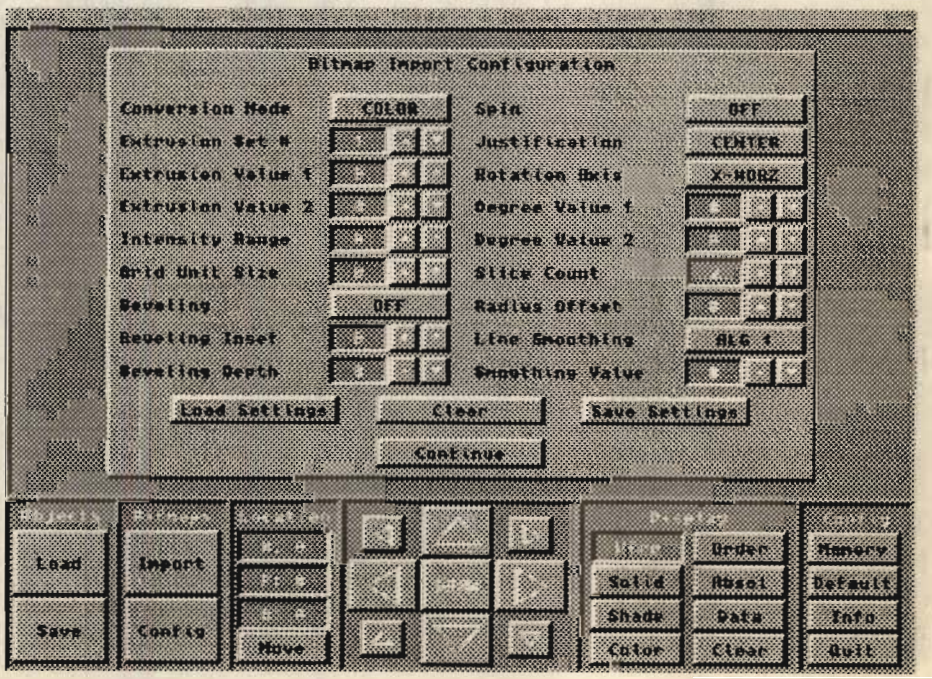
If you're converting objects from a program that supports polygons with more than three sides, such as LightWave, to a triangle-based program like Imagine, the big polygons are automatically split upon saving. On the other hand, if you convert the opposite way, there are provisions for creating big polygons out of coplanar triangles as well as flipping all polygons so they face "out." As a test, I loaded a building object I had built in Imagine that contained 5,288 triangular polygons. P3D2 reduced the polygon count to 3,426, with the largest polygon containing 14 sides. Unfortunately, the program doesn't convert the objects' surface attributes.

Extrusion a la Mode

P3D2 can load any standard Amiga format IFF picture of a reasonable size with up to 32 colors or five bitplanes. Before you load the picture though, you must tell the program how to convert it to a 3-D object. Using the default settings results in a flat object colored like the original 2-D image. The program creates faces as large as possible within any solid-colored areas. The more patterning or dithering the image contains, the more polygons are created. The manual contains helpful information on importing pictures with more than 32 colors.

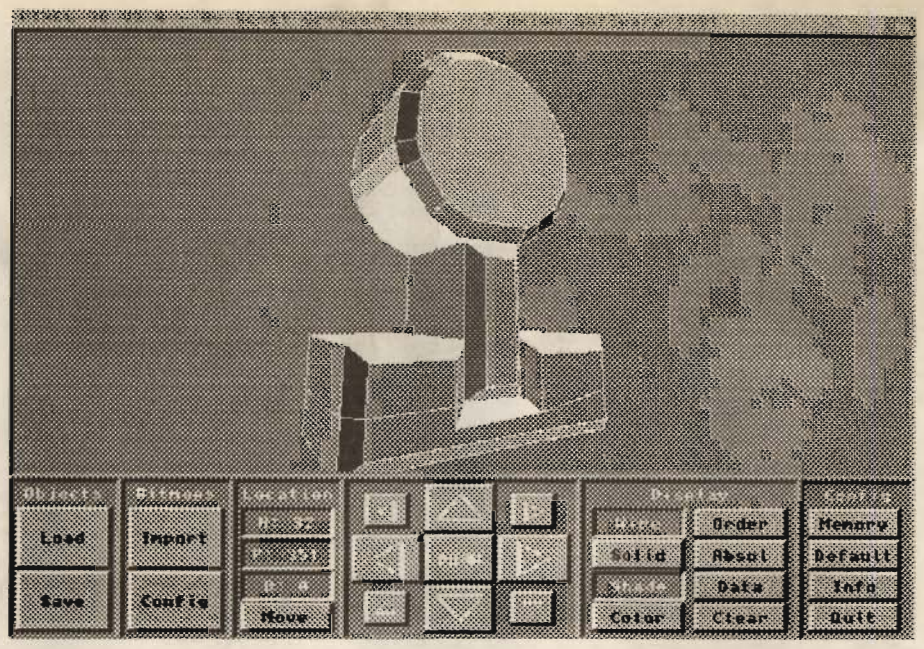
If you want to extrude all colors the same, all you have to do is specify start and end distances along the Z axis for the extrusion. The Mono option causes the program to regard all bitmap colors other than 0 (the background) as foreground.

If, on the other hand, you want to extrude different amounts based on the picture's brightness at any locations, you have two different methods available to you. In Color Defined Extrusions 1, the image is extruded based on the value of



each pixel, with the darkest areas extruded 0 units and the brightest areas extruded to a maximum distance set by you. All other areas are extruded various distances between the two extremes depending on how bright they are. With large or complex images this can result in unwieldy objects containing many polygons.

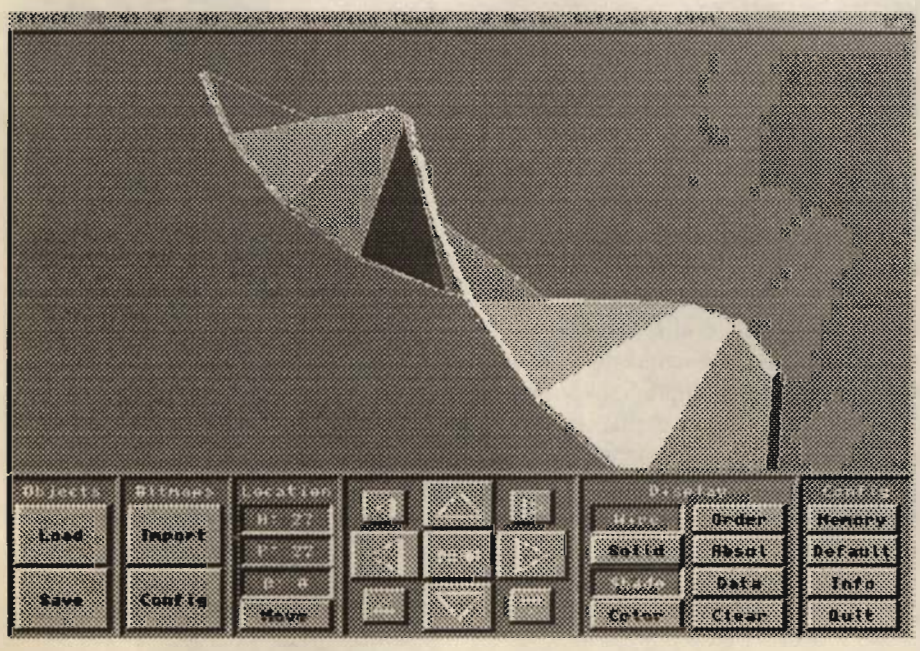
Color Defined Extrusions 2 lets you set a resizable imaginary grid over the imported picture, giving you control over the complexity of the resulting object. Extrusion is based on the average color intensity at each grid intersection. This is more efficient for converting larger images without first having to reduce their size with an image processing program. For those who require utmost customization, the Manual Defined Extrusions mode should fit the bill. You can specify an extrusion amount for each color in the imported bitmap.



Beveling and Spinning

Although many Amiga 3-D programs allow you to extrude outlines, none has offered automatic beveled edges, which can give your logos and other extruded objects a professional look. You can specify different values for the bevel inset and depth. When extruding in color, each area of color is beveled separately. Of course, this works best with large simple shapes, since beveling of complex images could greatly increase the polygon count.

Spinning in P3D2 isn't like lathing in other 3-D programs. Objects can be spun about an axis while being extruded. You can specify the start and end angles as well as the number of "slices" for the extrusion. The more slices you use the more polygons are created, but the object will look smoother. The Radius Offset setting lets you create special effects.



The Viewer

After importing or extruding an object you can view it in three dimensions using P3D2's terrific viewer, which is built into the program's main display. You can grab the object and rotate any angle, move the view laterally, and zoom in or out. Objects can be viewed in any combination of wire frame, shaded, and color.

In Conclusion

Pixel 3D 2.0 is a slick, sleek program that packs a lot of punch and seems utterly bug-free. For about $100 street price you'll find it takes the place of several other utilities and works more

Review

Caligari 2

Octree's Consumer Version 3-D Modeling & Animation Software

© 1991 by Matt Drabick

Caligari 2 is an advanced 3-D modeling and animation program from Octree Software. Not to be confused with Caligari Broadcast, Caligari 2 offers the same rendering and animation capabilities as the more powerful and expensive version with the exception of 24-bit rendering and slower operating speed. With essentially the same capabilities and substantially lower price, however, the loss of true-color rendering and lightning-fast speed probably won't be missed. The following review is based on using a beta version of the program and having worked with Caligari Broadcast.

As with the high-end version, Caligari 2 has the same incredibly friendly user interface. Instead of working with a tri-view, Caligari uses a perspective plane for the creation of its objects and scenes. Imagine looking down on a flat open space that stretches far off into the distance. Imagine being able to move that flat open space closer or farther away, up and down, or to either side. Objects are created from a library of primitive shapes or created from scratch using an extrude function. Once created, those objects can be quickly moved, rotated, and changed in shape or size anywhere within the work space. Objects can be copied, sliced, or glued together to create new shapes. All of these functions are controlled using the Amiga's mouse and occur in real-time. Imagine all of this and you begin to understand just how powerful and easy it is to use Caligari for the creation of 3-D objects.

Caligari has four modules to work with: object design, scene design, animation design, and frame-buffer rendering. Objects are created with the object design module, where its shape and size and basic color attributes using one light source are defined. With the scene design module objects are assembled within the work space with multiple light sources. The animation module defines the various motion paths objects may take, and finally, full-screen images can be sent to the frame buffer for high-quality rendering.

Instead of plotting points to define an object, Caligari provides a ready-made primitives library with simple wireframe shapes that can be copied, mirrored, or glued together to create more complex shapes. Objects can also be produced using the extrude feature, where a 2-D outline of any shape can be created using polygons or line segments. Once the outline has been created, it can be readily swept through space into a 3-D shape. Fonts can easily be created as well using this technique. Finally, shapes can be imported from any objects library that uses the Videoscape file format.

Once an object has been placed in the workspace it can then easily be moved, rotated, or have its size and shape changed using the mouse. Because Caligari creates and manipulates all objects within the object design module as wireframes, response to input from the mouse is in real-time. By simply clicking on the desired command (rotate, move, etc.) from the tool box at the bottom of the screen and then moving the mouse, the user immediately sees the program respond. If an object becomes very complex in design or very large in size, that object will then

become represented by a "bounding box," an approximation of the object's shape and size in the form of a rectangle, while the object is being moved or rotated on screen. Once the object is no longer being manipulated, then the wireframe appearance returns. This is done to preserve the real-time response of the program and allow immediate feedback to any user input.

Objects can also be modified on a hierarchical basis. If the mainsail of a new sailboat design needs to be changed, with the mouse simply point the cursor to the area to be reworked and click. For the precise alignment of objects on the workspace grid, Caligari also has traditional top, side, and bottom viewpoints to aid in the accurate placement of objects. Once a wireframe object has been placed onto the workspace grid, it can be quick-rendered using one diffuse light source in either high resolution and 16 colors or low resolution and 32 colors.

Once an object has been saved as a solid instead of just a wireframe outline, it can be reloaded into the scene module and placed anywhere on the workspace. Objects can now have highlights and be lit from multiple light sources. Light sources can be either point, planar, or ambient in nature. Depending on the number of objects and their complexity, rendering times are very acceptable, measured in minutes instead of hours.

For flying logos and other animations, Caligari uses key frames to denote the beginning and end of a motion path and then calculates the intermediate frames with linear or spline-based interpolation. Motion paths can be saved and used to fly different objects through space without having to recalculate the same motion path again. Understand that animations are not rendered in real-time because of the time involved to calculate each frame of animation. Instead you will need a frame-accurate VCR and a transport controller to capture each frame of the animation. Alternatively, use a laser videodisc recorder such as the Sony LVR-5000 to record each frame of animation. Better yet, with the introduction of hard drives that have very fast access times and using an Amiga 3000, it should be possible to record and then play back smooth animations from one of these drives.

Flat, metal, gourand, phong, and environment shaders are provided. Metal includes bronze, copper, gold, nickel, and stainless steel, while environment includes chrome and glass. Along with the various shaders, Caligari 2 provides reflectance mapping, shadows, degrees of anti-aliasing, and texture mapping to provide complex and realistic-looking images. Because Caligari is not a ray tracer, rendering times are very reasonable.

For the best quality output, you will want to render your images using a frame buffer. Caligari 2 supports both DCTV from Digital Creations and the HAM-E from Black Belt Systems, as well as outputing in standard HAM (4,096 colors) mode. This is one of the major differences between Caligari 2 and Caligari Broadcast. While Caligari Broadcast supports standard PC frame buffers such as Targa and Vista from Truevision and Amiga frame buffers such as the Impact Vision 24 from GVP, the Firecracker 24 from Impulse, the Mimetics FrameBuffer and DCTV and HAM-E, Caligari 2 only supports DCTV and HAM-E. Knowing that DCTV sends out approximately two million colors and that HAM-E outputs as many as 262,000 colors, more than enough colors for industrial and low-end video production, you will have to decide if you really need the better but more expensive output provided by one of the other frame buffers that Caligari Broadcast supports.

Choosing which program to buy can be difficult. To be fair, Caligari Broadcast is designed to run on either an Amiga 2500 or 3000, or a 2000 with an accelerator card and offers faster rendering time, especially with complex images. Of course, the output from a Firecracker 24 will look better than the output from either DCTV or HAM-E. If you have a lot of money available to spend on software and hardware, need the fastest rendering possible with full 24-bit color and 16.8 million colors, then buy the Broadcast version. Otherwise, consider buying the consumer version instead. The consumer version has all of the same features of the more expensive version and will leave you with plenty of money left to buy other products. Finally, as an alternative to buying either the consumer or broadcast versions of Caligari, you may want to consider buying the new Impact Vision 24 frame buffer. In addition to being a fine 24-bit frame buffer, multi-format genlock and framegrabber, the IV24 includes a slimmed-down version of Caligari Broadcast as well as the 24-bit paint program MacroPaint and the character generator program Scala.

Once an image has been rendered by either of the two frame buffers available, you can use their resident paint programs to do any touch-up work to the final image. An interesting use for DCTV as the frame buffer is for animation. Because DCTV is capable of playing back its images in near real-time using any Amiga animation program that supports the required overscan mode, it may be easier to do animations using DCTV instead of Caligari 2. Digital Creations has also promised a dedicated animation program for DCTV that should help make designing animations even easier.

Caligari 2 is designed to work with either an Amiga 500 or Amiga 2000 and doesn't require an accelerated machine. Two, maybe 2 1/2 megabytes of RAM is the minimum amount of memory required to run the program, but you will definitely want more memory to do animations and complex still images. The expected release date is approximately the first week of November. For anyone needing to produce complex animations and stunning 3-D graphics who doesn't want to spend the next six months trying to learn the program before generating their first image, this is the program to buy.

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