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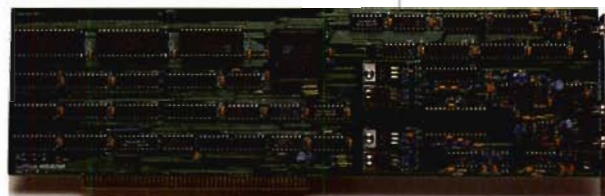
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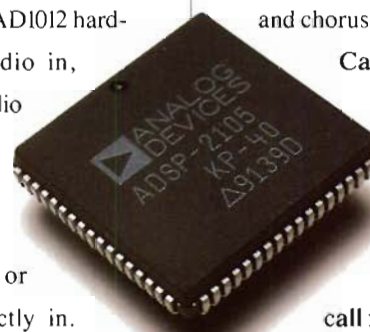
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## About the Cover

"Rough Voyage" is an Imagine rendering by Steven Worley. The sailboat was made by carefully measuring a plastic model kit and building each part in Imagine's Detail and Forms editors. The sea was made with a custom algorithmic texture that added the appearance of waves onto the surface of a bumpy plane. The sails' ribs were also made with a custom algorithmic texture. The lighthouse beam is a tube assigned a fog attribute. The picture was rendered at a resolution of 1600 by 1800 on an Amiga 3000 in about 12 hours in scanline mode. Steve is the author of the book "Understanding Imagine 2.0" and Essence, a library of algorithmic textures for Imagine.



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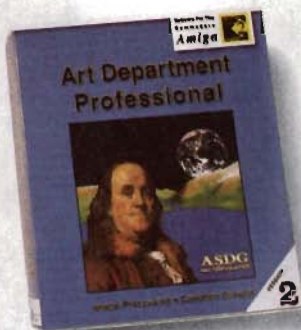
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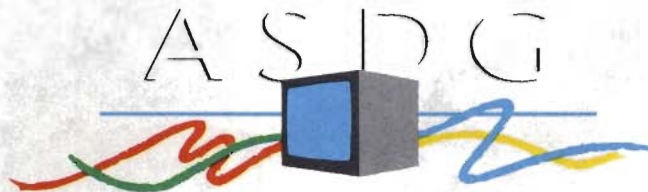
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## Bars 'N' Tone

Back in the "good old days" when AVID was much smaller, I used to be directly involved in every aspect of producing this publication. As we've grown, however, it has become necessary to expand our operation by moving out of the spare bedroom and into a commercial office building, and by hiring new people to handle the ever increasing editorial, production, circulation and advertising work. As duties and responsibilities have increased I've been forced to delegate many of the tasks I used to take care of all by myself. Growth is, of course, a very nice "problem" to have to deal with, and I haven't really minded giving up some of the more tedious tasks, but one thing I have definitely missed is writing the Bars-N-Tone column which is now handled by editor, David Duberman.

That's why I decided to ask David if he minded if I wrote the Bars-N-Tone column for this issue. When he said "no problem" I thought I was all set to go. But I should've known better. Marilyn and Walt were so busy selling ad space that when everything finally came home to roost, Marilyn informed me that I had a whopping 1/3 of a page for the Bars-N-Tone column. What, only one column!? "Well, we could cut one of the articles", she suggested. I thought about it for a moment and then, knowing you'd rather read an informative Amiga-video tutorial, I decided to take my space before she sold it out from under me.

OK, now that I've wasted most of my space with that useless explanation, I have just enough space to let you know about a positive new development from Commodore: they've decided to lower their prices! They are also planning to advertise in some non-Amiga computer magazines to help bring new Amiga users into the fold. This is definitely good news. With all the low-cost clones and Macs(!) out there, the Amiga needs desperately to be priced more competitively. Let's hope this is the beginning of a new trend.

Several prominent Amiga developers, led by DKB Software, have decided to support Commodore's efforts by lowering prices on selected items that complement some of the system specials that Commodore is offering. For instance, dealers who purchase a 2000HD/A system from Commodore are eligible to purchase DKB's 2632 memory board and CSA's Rocket Launcher at reduced prices. We understand that several other developers have joined in to support this program. We applaud their efforts (and plan to join them.) Contact your local dealer for more information. Dealers who want to participate in this program may also call DKB Software at 313-960-8750 for further details.

Well, I guess that's all I have room for. Maybe David will give me a crack at the next issue...

Jim Plant—Publisher

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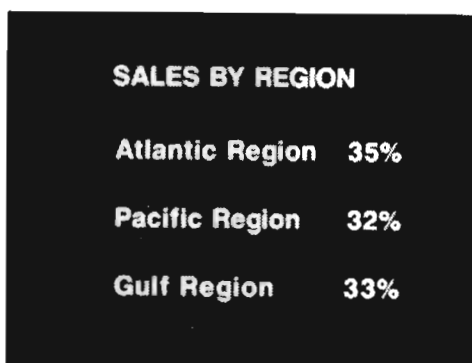
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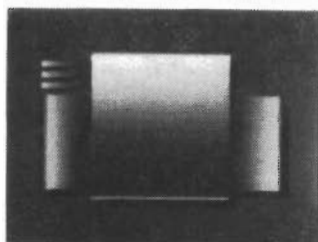
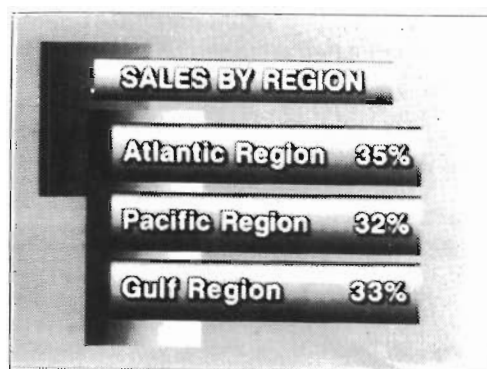


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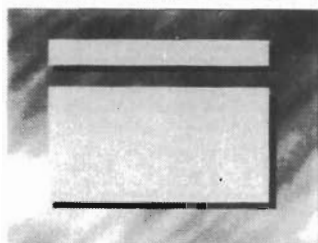
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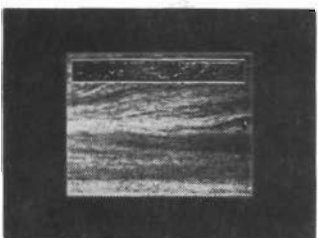
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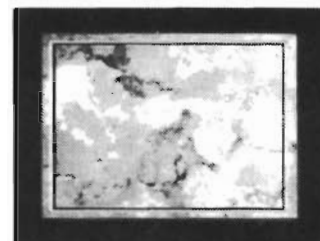
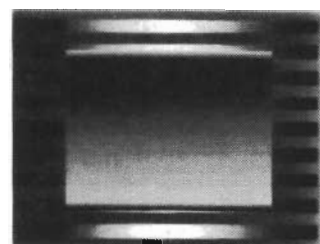


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**J**une! Get ready for the garden. As we do every June, we are giving you fair warning that the next issue will contain AVID readers' Amiga hardware configurations. I know mine has gone through some serious upgrading these past 12 months, and I'll bet yours has too. So send in a text or graphic that depicts your Amiga setup, and I'll tell you about mine. Do it now...other Amiga users will be very interested. List everything, especially those peripherals that you use when creating videos or video segments. I'll attempt to include as much info as possible in the next issue. Remember...you will be helping to inform other AVIDeo people in the process. Send all specs (preferably on disk) to:

R. Shamms Mortier  
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## Ho-Hum?

This is usually the time of year when the computer industry slows to a moderate crawl as far as sales and new items. I

know of a host of items, however, that are just a hair away from initial release or serious upgrading. Adspec's Draw-4D Pro will enter its 2.0 phase sometime in August. The new features are a secret, but let me assure you, you *will* add this software to your bag of tricks when you are made

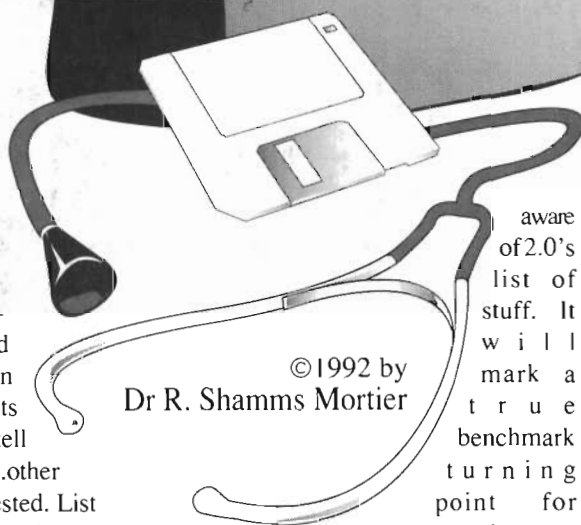
DCTV for animating. This can be done now, of course, but it's much too convoluted. Maybe NewTek will get the hint and add a DCTV crouton to the LightWave or Switcher page. It's also reported that Unili Graphics is adding their superlative fonts to the Draw-4D Pro lineup.

## Hey! What's happening with DCTV?

There are all sorts of rumors abounding. Is there more to the DCTV magic box than heretofore acknowledged...just waiting for a software upgrade? Is there an even more professional paint program and an animation program in the works? What's happening with that little RGB piece of hardware? Without a doubt, the DCTV unit as it stands is causing just as much innovative smoke on the state-of-the-art horizon as is the NewTek Toaster. When can we expect them to actually talk to each other for the benefit of the Amiga videographer and the state of computer graphics in general? Soon, I hope.

## Unili Untamed!

If you are a LightWave user and haven't yet seen the Unili 3D font packages, you are missing out on a superlative collection of professional font objects. There are three sets of nine fonts each, each set retailing for a somewhat hefty \$150.00. But don't complain about the price until you've seen these babies! If you are even thinking of using LightWave 3D fonts for titling tricks and/or logo work, you absolutely must investigate these fonts. They come compressed on three disks (each set) and come with the necessary module to decompress them and store them on a hard drive. They require about 4 megs per set of nine fonts, so make sure you have the room. I stored each font separately on a floppy after decompression to save hard disk space, using 27 floppies in the process. The fonts were designed with so many data points that they phong shade like a dream. You can fly through them with little notice of jaggedness. Each set comes in a beautiful binder with setup and usage info, and a dedicated tutorial for use with LightWave's Modeler. I also used Pixel 3D's LightWave-to-VideoScape translation to load and render these babies in Draw-4D Pro, and can



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Dr. R. Shamms Mortier

videographic users, and will send not a few shocks through the marketplace. Get ready...

Speaking of Draw-4D 2.0, it's reported that the next version of Pixel-3D will add Draw-4D Pro file conversion formats to its list, among some other magical enhancements. That will mean that Toaster 3D graphics will be automatically able to interface with stuff like

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of 2.0's  
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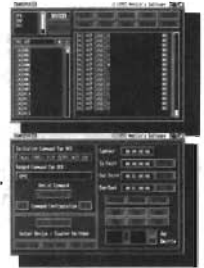
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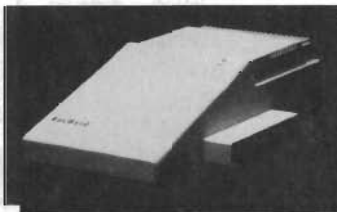
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### **News From The ASDG Front**

At a cost of \$8,750 and \$13,750, the LFR and LFR Plus film recorders from Lasergraphics, Inc. are nothing to sneeze at, providing high quality film and motion pictures of computer graphics. For a mere \$250.00 plus the cost of ASDG's ADPro software (\$299.00), you can get a module that will run these superlative cameras. Contact ASDG at 925 Stewart St., Madison, WI 53713 or call them at (714) 727-2651. Also available is a new ASDG dealer kit.

### **Saint Peter!**

Check out the April issue of Videography magazine for dedicated Amiga news. A bunch of the articles were penned by Amiga and video whiz Peter Lullemann of Philadelphia Video Labs. Peter is a consummate professional (I know having visited his operation), and his words are very valuable. There's a great benchmark test of Amiga TBCs and other references. Videography magazine, PSN Publications, Inc. 2 Park Ave. Suite 1820, New York, NY 10016

### **Hash-Help**

If you have been reading your AVID avidly, you've seen my references in the last issues to Martin Hash's "Animation: Journeyman", as well as to other Hash products. Now there's a company (Anjon and Associates / 6433 Topanga Canyon Blvd., Suite 122 / PO Box 7956 / Canoga Park, CA 91303) that is marketing a very helpful disk/video combo for JMan owners. JMan is very powerful for character animation, and with that power comes very complex tools. The Anjon package will help you to understand the Hash

processes better. The Toaster produced video walks you through each JMan module, and references the data included on disks. I spent a lot of time with JMan before I wrote about it, and learned a lot more from the Anjon tape. It's called the Animation Journeyman Starter Kit and sells for \$59.95. Incidentally, Anjon is also currently the major distributor for Animation: Journeyman.

### **Making Book...**

More video and media help books, this time from Knowledge Industry Publications, Inc. (KIPI Bookshelf). There's an exhaustive list of titles, everything from "Audio in Media" to "Computer Graphics and Animation for Corporate Video" to "The Video User's Handbook" to "Creative Video Techniques" and more...65 titles in all. Send for a free catalog: KIPI Bookshelf / 701 Westchester Ave. / White Plains, NY 10604.

### **Charts Away!**

TRSL software has upgraded its "Charts and Graphs" for Amiga users. It now offers 9 line chart types, 8 Pie charts, 10 Bar charts, and 18 column charts. Version 2.1 has floating point axis limits, a better line drawing algorithm, X & Y scaling in Postscript, and a greatly improved user interface. Other new features have been added as well. TRSL, 3950 Koval Lane #3049 Las Vegas, NV 89109

### **Geometers Ahoy!**

If you are an Amiga artist/ animator and are in love with the Platonic solids and their varieties, don't miss this. The software is called "Polyhedra", and it's a collection of 3D solids in the Imagine format. Obviously, you can import them into Pixel-3D and save them out in other formats (I translated them to VideoScape format to view them in full rendered beauty in Draw-4D Pro and DCTV). These are awesome solids, over 30 in all, and have to be seen to be believed! When animated, they really show their true quality. I have a two-disk DCTV animation (done in D4D-Pro) that I will send you if you'd like. The cost is \$10.00 to proven AVID subscribers and \$15.00 to non-subscribers (see...it pays to subscribe!). Send to my address at the beginning of this article. Better yet, buy the software.

It's about \$30.00 from Technical Tools / 2 S 461 Cherice Drive / Warrenville, IL 60555, or call (708) 393-6350.

### **Calling All Space Cadets!...**

Digital Designs Group, whom we've mentioned previously in this column, has a nice set of galaxies and other worldly IFF's that just might be the right thing for your next titling background. I used one IFF, by the way, on the "Polyhedra" animation mentioned earlier. In addition to these sets, they also market a "Digital Displayer" utility, "Magic palettes", "Shade Me" backgrounds for DPIII, and other graphics utilities. Contact Digital Designs Group / PO Box 593 / Whiteville, NC 28472 or call (919) 642-6295.

### **Times They Are A-Changin'**

Get ready for digital video (but don't hold your breath!). High end desktop multi-media as promoted and brought to life by the Amiga, the Toaster, and other associated hardware is beginning to effect great changes in traditional video media. It'll be awhile before we can do everything at home that a multi-million dollar studio can do, but remember how fast this thing has come in just a few years. There are lots of entrepreneurs working feverishly in garages throughout the country and the world. There is also a move towards "scalable" video, meaning that HDTV may be here sooner than you think. Experiments are going on that use ordinary NTSC transmission facilities to transmit HDTV signals. Processors are necessary, but that's a minor cost next to replacing NTSC facilities entirely. A new format, AD-HDTV, is being tested that offers a 1050 line scan with a 59.94 field rate. It also uses MPEG compression. It is sent along a two-tiered transmission, a CD quality high powered carrier and a standard NTSC carrier. HDTV owners can access the full HDTV signal if they are in range of the standard carrier. This is really technical stuff, but for the soon-to-be-future, expect much higher TV picture quality motivated by what desktop video (and the Amiga) has given birth to.

That's it for now. Remember to send in your Amiga/Video configuration data for the next issue. ENJOY! See you in ROMulan space!





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# Lighten Up

## Techniques for LightWave 3D Users

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Recently, I was presented with an interesting challenge. One of my clients was producing a series of documentaries detailing the fragile water condition in Southern California and wanted some graphics. That's not unusual. One of the graphics was—I had to make it rain in sun-drenched California.

I had never attempted rain with LightWave, nor did I know of anyone else who had, so I was stuck with “evolving” yet another technique. The frustrating part of the whole thing was my awareness of particle fields, one of the newest toys offered by the “high-end” graphic systems. Particle fields are designed to do exactly this sort of thing...or fire...or rivers...or anything that has oodles and oodles of pieces that move. But LightWave doesn't have them (yet).

The animation itself consisted of the following: As storm clouds loom overhead, a heavy rain begins to fall, the water being soaked rapidly into the parched soil. The camera moves beneath the ground to examine the underground water stores, back up to the surface where we watch a tree grow, then examine how the water is actually being “evaporated” from the ground, tree, etc., back into the atmosphere.

When the director first told me about this concept, my mind started reeling! This was one of those few and far be-

tween projects. The possibilities were endless, and called for lots of really spectacular effects. I quickly agreed to produce a proof-of-concept animation, then set out to solve a myriad of fun 3D puzzles. I'll show you the techniques I came up with, but if you have others, please write and let us all know, ok? Ok!

### In the Beginning...

The first item of business was whipping up a suitable ground and sky. The ground was the easy part. After loading the Ground object included with LightWave, I bump mapped the Mud texture from Texture City onto it. This took a fair amount of time to get the correct texture size and color, but paid off well. It provided me with a perfect “cracked earth” appearance.

To create the sky, I loaded the ground object into Modeler. Going to the next layer, with the ground visible as a background, I created a sphere that covered most of the ground. Next, I deleted the part of the sphere which would be underground, flipped the polygons of the remaining half, named them “Sky”, and saved it.

Listen close, because here is a *fantastic* formula for rain clouds:

Now, some of you may be asking why I used a half-dome for my sky. Those of you asking may not have thought about it very hard. The reason is that a

half dome allows you to turn the camera any which way you wish and still have perfect clouds (provided you stay inside the dome, that is).

Alright, now we have ground, we have clouds, it's time for the rain. This was probably the most time consuming portion of the puzzle. Before we go on, let me tell you about a very old (in computer time) program that is very important. It's called EGG, for Easy Geometry Generator, and was included with the old Aegis VideoScape package. This handy dandy little utility lets you create fractal patches, checkered surfaces, starfields, and more, simply by entering some dimensions and answering a few questions. If you have VideoScape somewhere in your archives, dig it out! If not, well...I'm afraid the only legal way you're going to get it is by purchasing VideoScape from Oxxi. It would probably be a wonderful PR move for Oxxi to release this utility into the public domain, but I doubt they're much concerned about such things. Who knows though, you might call and ask them in a very sweet voice...

Anyway, my first thought was to use EGG to generate a random starfield with an insane number of points, then trim it into a square patch with Modeler and have that descend from the clouds with motion blur turned on. Hey, it seemed like a good idea at the time! When this turned into a major ordeal, I began looking for another solution. Allen Hastings, author of LightWave, suggested making a series of images in DeluxePaint, then using them as a foreground key. I was hardly looking forward to drawing rain. In the same conversation we got talking about his lightning strike in the Blade Runner sequence for Revolution, the NewTek promotional video for the Toaster. He explained that it was actually a DeluxePaint image of a lightning bolt mapped on a little wall using transparency. I made plans to incorporate the same sort of thing in this animation.

Shortly after we got off the phone, it all clicked. I pulled up the trusty EGG program and created a spherical starfield with stars only along the outer edge of the sphere. Lots of stars. Next, I loaded that into LightWave and set the background

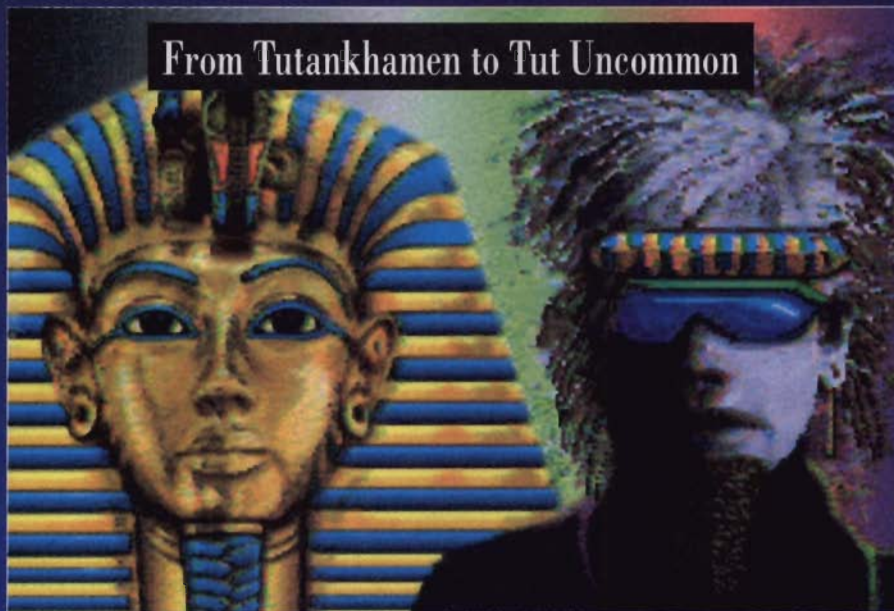


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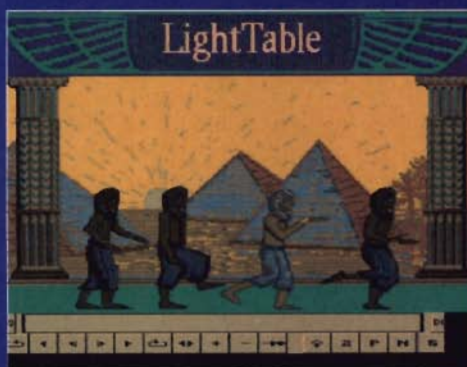
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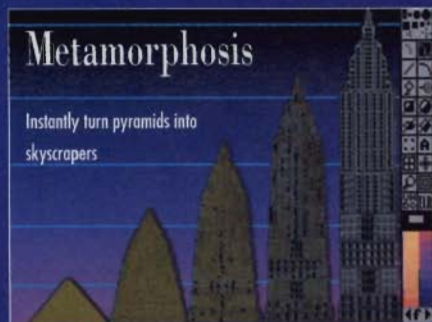
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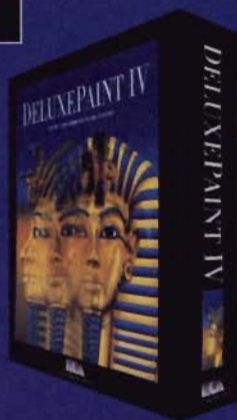


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to pure black. The stars were then set to a pale blue-gray color. I moved the camera so that it was right next to the edge of the sphere, facing out, and turned on motion blur at 50%. Have you figured it out yet? I set the last frame to 180, then told the sphere to rotate one time (360°) in Pitch, and recorded it to my hard drive in Lo-Res Overscan. (The Maxtor Panther 1.2 Gigabyte hard drive is a beautiful thing!)

When that was finished, I loaded the scene which had my ground and clouds already in place, then used the Load Sequence option under Images to specify my rain files. I jumped into Modeler and made a single panel, large enough to fill my camera view. When that was loaded into LightWave, it was a simple matter of specifying the rainfall image sequence as a planar transparency map on the panel and placing said panel directly between my camera and my action. Perfect! I tell you, it is perfect! I love LightWave!

Next came the growing tree...yikes! Rather than going through the insanity of trying to create a tree object, I decided to use the fantastic one provided by NewTek (I'm dumb, not stupid!). The first step was loading the tree into Modeler. I really didn't want to have my tree grow with leaves and all already aboard, so I had to do some surgery. I went into the Polygon Info screen, let it select all of the objects operating under the name "Foliage", and cut them to another layer. Then I went back and did the same thing with those named "Branches." Each of these items were saved with their appropriate names, individually.

I went back to the layer containing the trunk of the tree. After clicking on Scale, I specified a scaling factor of X=1, Y=0, Z=1. This squashed my trunk down perfectly flat. I saved it as Squashed Trunk and advanced to the branches. These I attacked viciously with the Taper tool which resulted in the branches being more or less folded up. The end result had the vague appearance of a spear. Then I saved it.

I loaded the Squashed Trunk into LightWave, then the regular trunk. A simple morph gave the illusion of the trunk growing up out of the ground. The

result is not the same as using the whole trunk in the first place and actually having it rise up out of the ground, but gives a really slick feeling of stop motion photography. At the frame where the trunk was fully formed, I began the morph from my folded branches to my normal branches. Prior to the beginning of their morph, the branches were held under the spell of dissolve. Once the branches were done morphing, I faded in the foliage which had been dissolved all this time as well. The end result is an awesome display of nature in action via the wonders of computer animation.

The client was exceedingly impressed, and we met for lunch the next day to discuss the entire project. For those of you that are interested, the animation outlined above caused this client to hand me more than 15 major animation jobs.

### In the "Interesting News" Department:

NewTek and the Video Toaster were featured on the NBC Nightly News, the network's national broadcast, on June 11th.

QVFN, one of those 24-hour shopping channels, has been using KiKiFX from time to time when selling women's clothing. This should come as quite a shock to InfoWorld, who recently dismissed those same effects as being suitable for adult video producers only...

While wandering through a Home Depot recently I noticed something out of the corner of my eye as I walked past one of their video "training" displays. After rewinding I discovered that it wasn't my imagination... LightWave 3D was used to create some animations of assembling kitchen cabinets. Don't ask me how I can tell, I just can...

The Video Toaster won the "Best Desktop Animation System" award from Post Magazine in their recent awards. Post, for those of you that aren't familiar with it, is an excellent magazine devoted to important developments in the post-production world. Now, if they would just offer an article concerning a post house using the Toaster...If any of Post's editors are reading, drop me a letter!

I've just received pre-release versions of Synthesis' Interchange Plus and

Axiom's Pixel 3D Professional. Both of these products are very powerful and I'll be covering each of them in upcoming issues. Stay tuned folks, the object and bitmap conversion wars are about to rage again!

Lastly, a bit of personal news...I'm pleased to announce the birth of my second daughter, Ashleigh Morgan Hopkins, on June 6th. My first daughter, 1-and-a-half year old Devin Lynn, is having a wonderful time in her new role as "Big Sister"...

That's about it for this month. Let me make my usual request...If you have wandered across any really cool (or even fairly cool) LightWave or Modeler tips & tricks, pass them along. If you have questions, comments, or suggestions for future articles, pass them along, too! You can write to me at:

Mach Universe

625 The City Drive, Fourth Floor  
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Also, if you've completed a major project using LightWave, let me know. I'm tired of reading announcements. "HighCostGraphics has just completed production of a :30-second commercial for SuperMegaCorp using a Wavefront graphic system"...let's show people how much of what they see is actually produced with LightWave! Send a press release, and a FrameStore if possible, to me at the above address. It's an amazing way to build company recognition for all you up-and-comers...

Before I actually go away, however, I have to take a minute to relieve the stress this article may have caused some readers. In the course of the month I have received requests for exploration of subjects ranging from splines to procedural textures with lots of stops in between. Don't worry! I've already slated these (because of the letters) for installments in the very near future, so hang in there.

I'd also like to wish a speedy recovery to one of my favorite NewTekians, Christina Knighton, who suffered an amazingly dramatic injury in the course of her duties on a trampoline. I guess there really are ways to hurt yourself in Topeka after all!

See ya, folks!



© 1992 by Doug Shannon

show how reversing the highlight/shadow works. Now that the concept's been explained, let's paint!

1. Make sure you have your palette from the Perspective Depth Grid (last issue—AVID Vol #3 Issue #5) loaded in, because the colors we use now have to match the ones we used in part one. You can load a palette right out of a picture by using the Color/Palette/Load... menu option. Just choose your saved image; the new palette should load perfectly.

Draw your rock. To do this, pick the largest circular brush from the toolbar, and press Shift-H three times. Each time you press the Shift-H combination, your current brush doubles in size. Shift-H works on all brushes, even custom ones. Choose the Dotted Freehand drawing tool, (keyboard "s"), and the color black. Draw a nice looking rock on a clear screen. My rock's dimensions are about 450 x 270. I made my rock the shape of a stone tablet, with rounded but rough edges (Figure 2).

Try not to make the upper-right and lower-left edges too rounded. These corners are where the highlight and the shadow meet, and if the corners are too rounded, then the shadows cancel out the highlights and leave a normal middle tone. You can see in Figure 1 that even with slightly pointed corners, the highlight and shadow gets thinner and thin-

**W**elcome, friends, to another issue of Doug's DeluxePaintIV Tips. Last issue, I started a three-part tutorial, taking you step by step through the creation of "The Stone Reflection" (see Figure 1). In part one, I went through the steps involved in making the checkerboard background. This time we'll learn how to make the slab of rock, complete with

with most of the drawing tools before trying part two. Remember, This entire tutorial is done in Hi-Res, 16 colors, and I'm pretty sure you'll need at least a one megabyte (Fatter) Agnus for this.

### Part Two: The Chiseled Rock

The Chiseled Rock is a great example to demonstrate the highlight/shadow concept that's lately been popularized by the release of AmigaDos 2.0, with all the buttons and windows being rendered this way. Even if you don't have AmigaDos 2.0, DeluxePaintIV renders all of its buttons in the highlight/shadow (beveled) look. Here, we'll be applying the highlight/shadow concept to a slab of rock to make it look as though letters have been chiseled into it.

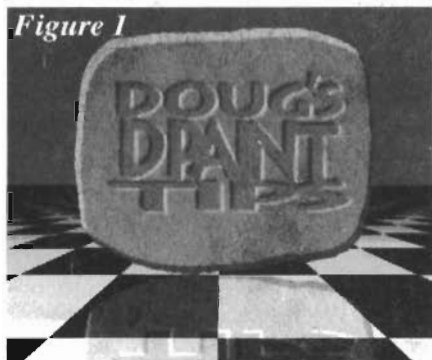
The highlight/shadow concept works from a simple premise: that light falls from the upper left corner of the screen. This would highlight buttons, windows, and in our case, rocks, on their upper and left sides. Therefore, a shadow would be cast on the objects lower and right sides. When something drawn in this manner, it appears to be pushed out, as the buttons in DeluxePaint IV do. But, if you reverse the highlight/shadow, you get an engraved look. The chiseled letters in Figure 1

Figure 2



ner, until where they meet, they're invisible. After you're satisfied, save your image. Pick up your rock as a brush.

2. Texture the rock. If you are not currently holding your rock, press Shift-B to bring up the last brush you clipped. Using your rock brush, press F2 to change into Color mode. Choose the Color R:9 G:9 B:9, it should be register 5 (remem-



engraved lettering. Let's start.

This is part two of a three part series of tutorials to create one, complete picture. If you haven't read part one, do so before you attempt part two. Back issues are available from AVID. These tutorials assume you are an average user of DeluxePaint. You should be familiar



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ber, color registers are numbered 0 - 15, not 1 - 16). Your rock brush magically turns to the color you selected. Whenever you're in Color mode (F2), your entire brush becomes the currently selected color. Stamp your rock brush down on a clear screen (Shift K to clear).

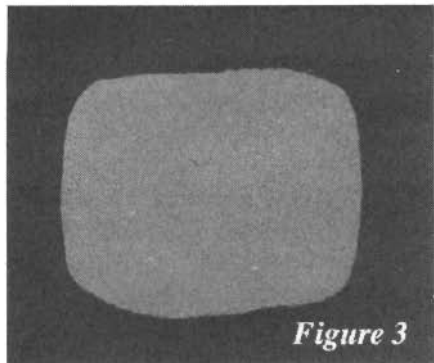


Figure 3

Select The Effect/Stencil/Make.. menu option to open the Make Stencil window. Click on the color swatch of the R:9 G:9 B:9 color to flag it. If you can't tell which of the greys it is, click on the rock you stamped down on the screen. The Stencil window allows you to choose colors directly from the picture. After you flagged it, click on the Invert button. The Invert button switches all the flagged colors with non-flagged colors. Now, we have the whole palette flagged except for the grey of our rock. The Stencil effect lets us paint only on the colors that are not flagged. Any color that is flagged on the stencil chart will be "locked", so you can't paint on it. Any color not flagged will act just like normal. For more information on stencil, I strongly recommend the DeluxePaint IV manual, as the full concept of the Stencil effect is too difficult to describe here. When you have all the colors except the rock grey flagged, click on Make. If the menu bar is on (press F10 to toggle), a capital S appears to show you the Stencil effect is on.

Now choose the grey one step darker than the rock grey on your palette (R:8 G:8 B:8). Select the airbrush tool with the right mouse button. When you move the pointer onto the drawing area, it changes to a SIZE pointer. Click with the left mouse button and drag; the circle on screen will change in size. You are changing the flow size of your airbrush. Make it about as large as the circular brush you

used to draw the rock. When you're done, release the mouse button, and choose a one-pixel brush (press "."). Now airbrush that R:8 G:8 B:8 grey on your rock. If the stencil was made correctly, your airbrush will only paint on your rock, and not the background. Airbrush only with R:8 G:8 B:8, and get a generous coating on it. Once you feel you have some texture on your rock, choose the next darkest grey (R:6 G:6 B:6). Apply this color lightly. Make quick Drags across your rock. Now, choose a lighter grey (R:10 G:10 B:10), and apply it generously to the rock, as before. Finally, apply R:12 G:12 B:12 very lightly, like you did with R:6 G:6 B:6. When you feel happy with your texture, (Figure 3), turn off Stencil by pressing the "~" key (to the left of the "1" key), and save your picture.

3. Now we'll bevel the rock. To do

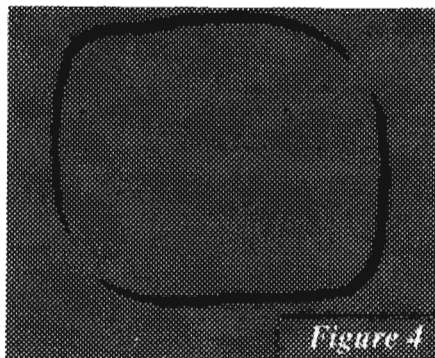


Figure 4

this, we'll need to create some specially shaped brushes (Figure 4). Pick up the rock as a brush, leaving a copy of it on the screen. Press F2 (Color mode), and select your background color. (I'm using register 0 - blue as a background). Now move your rock brush down and to the right of the on-screen rock. What you should see on the screen is a sliver of rock, shaped suspiciously like the highlight you'll be adding to your rock. The sliver should not be too thick. If it is, move your brush up and to the left a little bit. If it's too thin, move the other way. When you have a good looking sliver on screen, stamp down your brush. Now Press F1 (Matte Mode), and your brush will appear normal again. Press the "j" key to jump to the spare screen. Stamp down your rock. Jump back to the other screen ("j" again). Now, press Alt-b. This switches between swap

brushes. If you have no swap brush, it will copy your current brush to the swap brush buffer. You should now have a copy of your brush in memory. If you don't have enough memory to do that, save your rock brush to disk instead. Now pick up the the sliver as a brush, then Jump to the spare screen again.

If you did part one (last issue) correctly, your palette will have the back-to-white weighted range. Well, you'll need your range to be continuous, so, open up the Ranger (Ctrl-r), and make sure your black-to-white range starts with black on the left and continues without gaps, to white. Close the Ranger by pressing on the OK button, and Press F5. F5 sets DPaint to Shade mode. The Shade mode will lighten or darken the current area, depending on which mouse button you push (and how your range is set up). Change the current color to white, for high contrast. Position your sliver brush exactly over the rock, where the highlight will be, and press the left mouse button. The area below your sliver brush will lighten. Press the button again without moving, and it will lighten some more. Move the brush out of the way, and take a look. If the highlight looks right to you, save this picture, Otherwise, press ALT-b (or load in your brush again if you didn't have memory), and try again, correcting for thickness, or positioning etc. You'll have to experiment to find the best highlight.

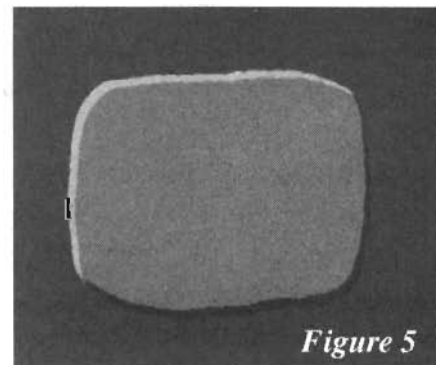


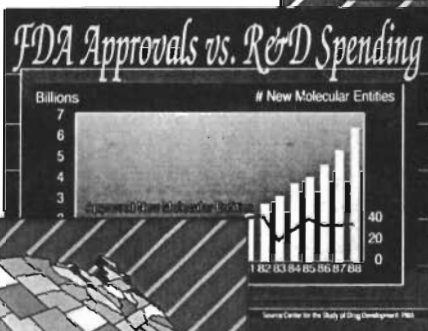
Figure 5

Now, for the shadow. Create the second sliver like you did the first one, but position your brush up and to the left, instead of down and right. When you go into shade mode, press the right mouse button twice instead of the left button, and Shade Mode will shade the shadow



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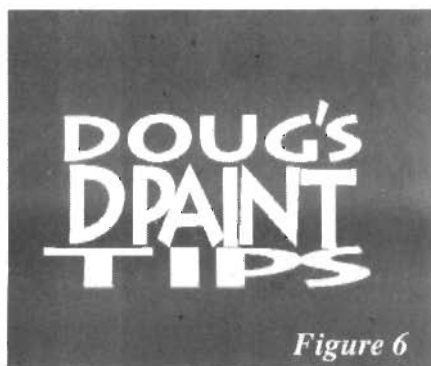


Figure 6

darker instead of lighter. When you're done, it should look like Figure 5.

4. Create your text. I'll leave the method up to you. I typed out my text on the swap screen, in several point sizes, then I composited them together, spacing DOUG'S to be the same length of the larger DPAIN, kerning the Pin DPAIN to almost touch the A, and, using the Brush/Size/Stretch menu option (press Shift Z), I resized TIPS From a huge font size down to look squashed. Pick up your

text as a brush, and save it (Figure 6),

After creating your text, and picking it up as a brush, jump back to your swap page, where your bevelled rock awaits. Now, if your text is too big to fit on the face of the rock, press Shift-Z. (Stretch Brush) and shrink to fit. The highlight/Shadow will be a little bigger than your brush, so keep that in mind when shrinking. After you have the proper size, you're ready to go on.

5. Chisel your text. To do so, first position your text brush over the rock. Select F5 (Shade mode again), and position the brush so that its lower right edge almost touches the shadow in the lower right corner of the rock. Press the left mouse button once. Move one or two pixels up and left and stamp with the left again. Moving the brush between the two clicks creates a soft edge style look, which looks more realistic. Move the brush up and to the left about four pixels, and click with the right mouse button. Move one or

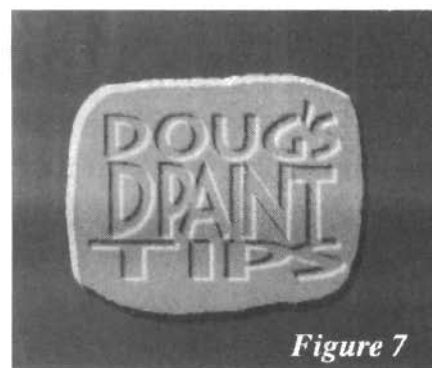


Figure 7

two pixels up and left and click with the right once more. Voila! You have your chiseled text (Figure 7)!

Can you Figure out how I did the reflection? There are actually many ways to do it, and I'll tell you how I did it in the next issue of AVID. If any of the instructions confused you, try reading up about the related topics in the DPaint manual, which comes with DPaint.

Until next time, good luck DPainting!

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**T**his month we're back to the usual potpourri of new products and information. We've got textures and objects galore, so let's get started. But first, some news. Did you notice that one of the prizes in the AmigaWorld animation contest is Will Vinton's 3D Animation from Cineplay? Well, in a previous incarnation, that was... Animation:Journeyman! I learned this from from Jon Desvaux of Anjon Enterprises, new distributor of HashEnterprises' Animation:Journeyman 3D software for the Amiga, who recently visited me at the lavish AVID office suite. While the program was reviewed recently in AVID, you may have noticed it's not available at your local retailer.

Jon's mission is to change J-Man's undeserved status as buried treasure in the Amiga archipelago, and one way he helped was by giving me a solid introduction to the program, as well as review copies of both J-Man and Anjon's first product, Animation Journeyman Starter Kit 1.1. The latter consists of three disks full of IFF image maps, 3D objects, character action files, plus a one-hour instructional videotape of tricks and tips for using the program.

So I'll be giving Animation: Journeyman more coverage in future columns, although I don't have enough experience with it to comment yet. I can say from the videotape that Jon showed me that J-Man's spline-based modeling and animation, found nowhere else in Amiga 3D software but commonly among high-end graphics workstations (e.g. Silicon Graphics), can help you perform convincing character animation apparently with a great deal of ease. The biggest drawback is that due to the increased computation required by the spline models, rendering is somewhat but not terribly slower than other software you may be used to. However, I understand Martin Hash is burning the midnight oil in order to speed up the program. And other changes are coming, including an interface redesign to match the PC and Mac versions. You'll be hearing a lot about this software; now's the time to get in on the ground floor.

Also in the news is the about-to-be-released InterChange Plus from Synthesis. ICP does one job, which is converting between different 3D object file formats, and it does it well. Supported formats

include LightWave objects and scenes, VideoScape binary and text objects, Imagine and Turbo Silver 2.0 and 3.0 objects, PageRender, Atari ST CAD-3D, Vista DEM, and the list goes on and on. The high-end converters like AutoCAD DXF will continue to be a pricey add-on, but the basic package lists for a mere \$99.95.

Other new features include enhanced surface conversion (no bitmaps or procedural textures), floating-point support, and virtual removal of object size limits. Of particular interest to followers of this column is the ability to convert hierarchical objects between Imagine object and LightWave scene file formats. Pixel 3D doesn't do that—yet!

ICP should be available by the time you read this. If you're already an InterChange user, contact Synthesis for upgrade information.

### Bisclips

Special effects are great, but when they're used all the time they become something less than special. That's why it's important to remember that most of the time, in video, simple is best. Watch commercial television—most of the transitions are straight cuts, with perhaps an

occasional fast dissolve. Robert Cohen has taken this lesson to heart with *Bisclips*, his first product for LightWave users. The two-disk set is primarily a collection of 3D "clip objects" useful for production animations, with some texture maps added as a bonus. Disk One starts out with *Building Blocks*, an assortment of building and other parts for the secret architect or tinkerer inside you. Then there's *Household Objects*, including a clock in parts, a table with nicely modeled tablecloth, and a red rose. There are Roman Numerals, actually the letters C, D, I, L, M, V, and X (if he'd thrown in an A I could have modeled AVID). And *Religious Objects* contains church parts, wedding parts (rings and morphing bells), and the most complex object in the set, the *Marble Gazebo* weighing in at over 11,000 polygons. The Hebrew subdirectory contains some traditional Jewish phrases as Hebrew objects, as well as a Torah and Star of David.

Disk Two contains the "Flyby" objects; three-dimensional arrays of simple geometric shapes for use as backgrounds or any other purpose in logo animations. There are a number of frames, which are small holes in geometric shapes cut out from the center of large planar objects. By moving these toward the camera during an animation you can slowly reveal the subject; the heart shape is great for wedding videos, but could have used a few more vertices. If you're into morphing you get to play with a flickering candle flame, a bulging TV, a pennant, and more. Interestingly, the brief on-disk documentation warns you to load morph objects in the reverse order of morphing, although I've never had any problems loading objects in morphing order. Finally on disk Two there are the aforementioned texture maps in 32-color Lo-Res format; my favorite is *Slate*, a convincing-looking bumpmap in 2D! The price is right, so if you use LightWave and especially if you do weddings and other religious ceremonies, consider adding *Bisclips* to your collection of software tools.

### The Ultimate Wood Collection

Would you like some wood? Bearded Wonder Graphics has just released "The Ultimate Wood Collection", a 16-disk set

containing 116 digitized and image-processed pictures of all kinds of wood. There are 48 basic wood textures, divided into three categories: Plain, Plank, and Parquet. Some of these come in three styles: Plain, or as is; Rough, which adds an embossed look; and Polished, which smooths the image and adds a highlight. All pictures are in 320x400 HAM format, are designed for seamless tiling and wrapping, and none contain any color 0 so that they can be reliably used as video masks in genlock applications. What's more, the software includes indexes of the images for use with ImageFinder, the eminently useful image meta-database from Zardoz Software.

The Ultimate Wood Collection takes the form of a slim three-ring binder containing documentation and the disks in special envelope pages, which makes it easy to find the one you want. The manual lists the contents of the disks; image files are descriptive, for example: *Barnwood*, *Butcher Block 2 Polished*, and *Autumn Parquet*. You're also given advice on using the images with different types of graphics programs, as well as for creating your own seamless pictures. While the overall quality of the images is uneven, some are quite good and I recommend this package to those who need a variety of wood images and don't have the time or resources to digitize their own. If your budget or needs are limited, by all means go for the sampler package.

### MotionMan

LightWave surfers now have one less reason to envy Imagineers. Just as this column was going to press Tim Wilson and Thomas Hollier of Anti Gravity Products rushed me a preliminary version of *MotionMan*. This is a LightWave version of *CycleMan*, the expertly modeled and animated 3D human figure for Imagine, and it looks great. If you haven't seen *CycleMan*, try to get a look at the cover of the recent *AmigaWorld* Video and Animation special issue. *MotionMan* is the same figure, but the hierarchy was completely redesigned for use in LightWave.

*MotionMan* is a fully articulated hierarchical model of the male human figure. Among the 60 parts are all finger joints (but not individual toes), eyes and

eyelids, lips, and jaw. All parts have pivot points in logical places, so that if you rotate the lips, for example, *MotionMan* can be made to talk. As the manual suggests, you sometimes need to experiment to find the proper rotation axis—Heading, Pitch, or Bank—and you should enable only one axis at a time. In the above example, you would use Bank to rotate the lips.

As LightWave doesn't support a hierarchical object format per se, the parts come organized as four different scene files. *Man\_Standing* and *Man\_Standing.NoFingers* are for setting up your own motion; the latter simply means that the fingers aren't structured, simplifying the hierarchy and speeding up the interface. If you need a walking or running figure, there are also two appropriate scenes with a looping motion already set up.

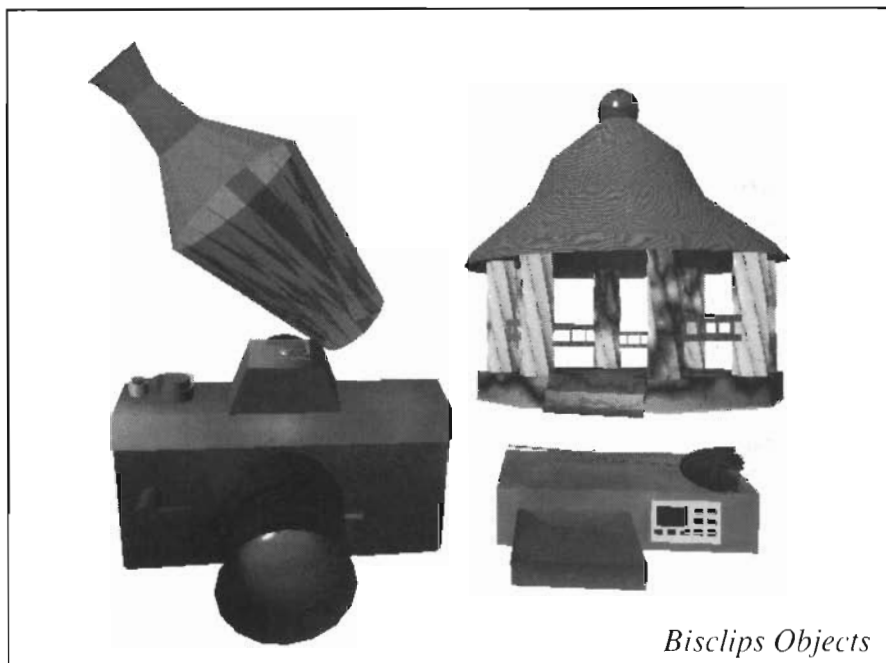
All 60 parts occupy over 200K of disk space, so you can imagine how detailed the model is—oh, those redraw times! Fortunately, you're also given a simplified model, along with instructions on how to substitute it for the full model during animation setup, then how to replace the original for rendering. So if you're saddled with a slower processor, or even if you have a fast one but are impatient, you can save lots of time by using this most thoughtful shortcut.

The manual is short but excellent. In addition to the points mentioned above, you're given sound advice for animation setup, suggestions for incorporating *MotionMan* in your existing scenes, and instructions for changing the various parts' surface types. In addition, there's a detailed essay on modifying your scene files with a text editor. I won't give away any of Tim's secrets, but I'll say this: if you're a serious user of LightWave, this information alone makes *MotionMan* an essential product. Not to mention you won't find a more convincing human male figure available as a commercial LightWave object. *MotionMan*'s retail price will be \$149.95, but if you order direct before July 15, 1992 (this is a firm cutoff date), you can get it for \$89.95. OK Tim, where's *MotionLady*?

### Exotic Cars

Consider this animation: *Cycleman/*





*Bisclips Objects*

MotionMan (or your own figure) walks up to a car that looks to be worth about \$100,000, opens the door, gets in, closes the door, rolls down the window, and takes off. It's now a possibility, thanks to AmiGrafix, Inc. *Exotic Cars Volumes I & II* is a single package containing two structured car objects, and is available in Imagine, LightWave 3D, and 3D Professional 2.0 formats (the latter is still in development at this writing). The Jackhammer is a generic American "silver bullet" style car, while the Ecstasis combines the styles of several different European cars. To use the Imagine format you should have at least three megabytes of RAM, and to use the LightWave format you should have at least seven megabytes. That's mostly for Toaster system requirements; actually, the LightWave versions contain about one-third the number of polygons in the Imagine versions. There are also less complex versions included if you're low on RAM.

If you liked to play with model cars as a kid, you'll love these 3D models. You can open and close the doors, pop or roll open the headlights, roll the windows up and down, adjust the mirrors, rotate and turn the wheels, and illuminate the lights. The LightWave version comes with scene files for rendering views of the entire car as well as close-ups of the dashboard, wheels, license plates, and

several animations.

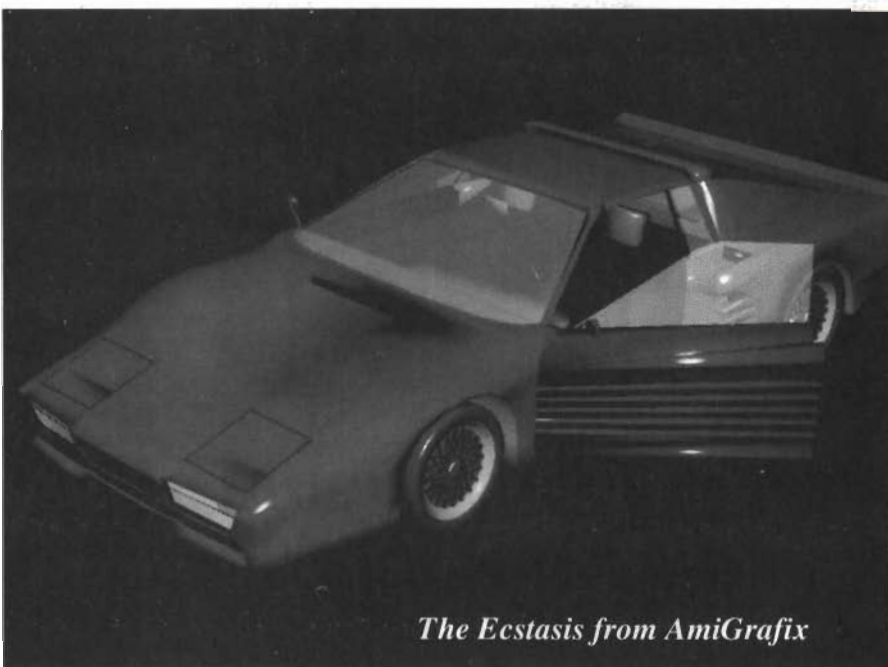
There's extensive documentation for both models included in text files on the disk, formatted for printing out. You're told how to scale the cars to fit your scene. The Imagine version contains sets of attributes for rendering in 24 bits or in HAM mode, and the instructions tell you how to set things up for whichever mode you render in. The LightWave version includes an extensive list of all surfaces (appropriately named, of course) and both versions include a table listing the in-

cluded image maps for the dash, license plates and tires and their exact positions and sizes. For animating the various movable parts, in the Imagine version you're told whether to use Pivot or Twist in the Cycle editor (plus special instructions on working around a Cycle editor bug), and the LightWave instructions advise on whether to use Pitch, Bank, or Heading.

These models are handsome, well-designed, and I recommend them to 3D Amiga animators who are also racing enthusiasts or who need fast sports car models for any application.

### **New Unili Fonts**

Unili Graphics, makers of high-quality 3D fonts for Amiga rendering programs, have been hard at work cranking out new fonts. They've just released Broadcast Fonts Master Packs Two and Three, each containing nine different distinctive styles of 3D character sets in LightWave or Imagine format. All characters are designed for correct phong smoothing—i.e. rendered characters have smooth fronts and sides, but sharp edges—and have extra points on curves to avoid the angular look on outlines, even in closeups. Each character set contains all letters in upper and lower case, ten numerals, and 29 punctuation symbols, yielding over 800 objects in each Master Pack. The punctuation symbols are (!#\$%&\*'"?/\,:;<>[]{}+-=) and the copyright and reg-



*The Ecstasis from AmiGrafix*

istered marks. Also, Master Pack 1 has been upgraded to version 1.5, which contains all of the new punctuation symbols and enhanced outline features.

The nine fonts contained in Master Pack 2 are Andromeda, Fantasy, Ballyhoo, Medallion, Tear Sheet, Tempest, Hobgoblin, Freelance, and Bengalli. The standouts here are Ballyhoo, a rounded circusy font, and Tear Sheet and Freelance, the two handsomely designed script fonts. And don't forget Hobgoblin for that Halloween animation. Master Pack 3 offers View Point, a sharp-edged sans-serif, and Galleon, an Old-English-style font. There's also Kangaroo, a script font, the Disney-like Aurora, and the Christmasy Ornament, as well as Belgium, Carlotta, and Time Line. The accompanying "Amiga Video Journal" image uses, from top to bottom, Belgium, Galleon, and Ornament. The fonts come packaged in three-ring binders with instructions for how to build words with the software you're using. Unili Broadcast Fonts look great and can enhance your income by leaving you more time to animate rather than model.

What, out of space already? And I haven't even gotten to the latest updates on Vertex, Animatrix Modeler, and 3D Professional, not to mention the terrific Big Rig 3D tractor-trailer object from Mach Universe. Well, it's something to

# Amiga Video Journal

*Unili Broadcast Fonts*

look forward to next month!

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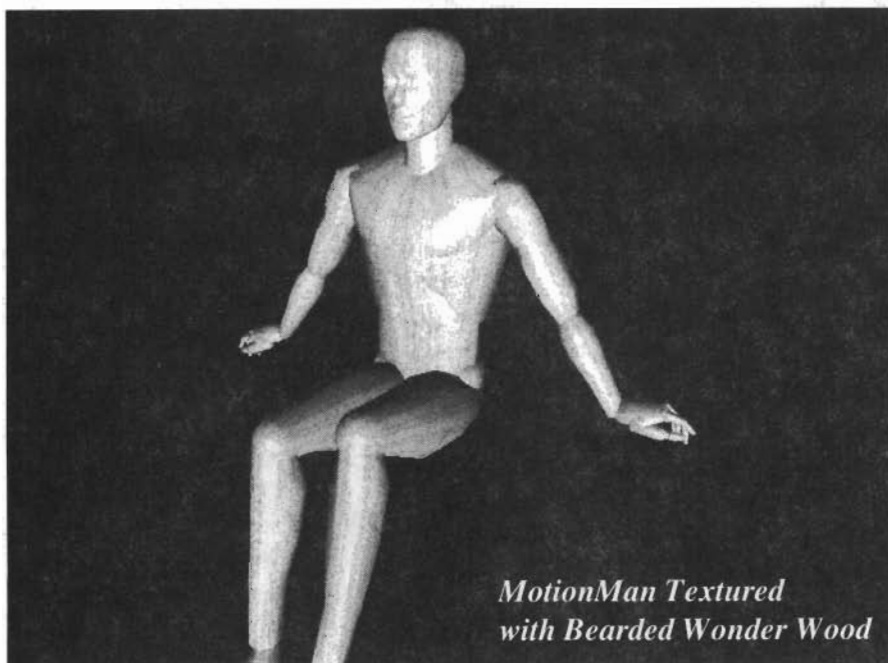
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*MotionMan Textured  
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# Toaster Tricks!



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**R**emember the metric system? When I was in junior high school back in the mid seventies, we had to study and learn how to use it because the United States was going to be switching over from feet and pounds to metres and litres (I prefer the British spelling, but will stick to the American spelling for the rest of the article.). I really knew my metric system back then but the inability of the U.S. to standardize anything and the ravages of time had caused me to pretty much forget most of what I knew — until LightWave came along. Anybody that has done any work in LightWave and Modeler has found out pretty fast that the software uses the metric system for its unit of measurement. Why did NewTek choose the metric system? I don't know the exact reasons, but if I had designed the software, I would have chosen it also. It is much easier to use a system based on tens than what we currently use. The metric system is also the accepted scientific choice for measurement. If you're a little rusty on the metric system, pay attention... I'll take you on a little refresher course.

The meter, abbreviated as m, is the basic unit of length measurement in the metric world. A meter is just a tad over the length of a yard (three feet, not the thing in back of your house... and that's feet as in 12 inches, not those things at the bottom of your legs). LightWave Modeler uses six "subdivisions" of meters —

three larger than a meter and three smaller. When you are designing objects in Modeler, you will see the size of the grid (expressed in — you guessed it!) in the lower left hand corner of the screen. Let's look at the large ones first: One thousand (1,000) meters is known as a kilometer, abbreviated as Km. One million (1,000,000) meters (one thousand kilometers) is known as a megameter (Mm). And finally, one billion (1,000,000,000) meters (one thousand megameters) is known as a gigameter (Gm).

On the tiny side, one thousandth (.001) of a meter is known as a millimeter, abbreviated mm. One millionth (.000001) of a meter is a micrometer. The abbreviation for a micrometer in Modeler is um. The u is the greek letter mu which looks like a u with little 'tails' on both sides. Last but not least we have the tiny nanometer which is one billionth (.000000001) of a meter! The abbreviation for a nanometer is nm.

There are of course a few different sizes in between these (such as centimeters) but these six are more than adequate to define anything you may attempt to model. Actually everything can be expressed in terms of anyone of these dimensions — for instance the earth is approximately 12,800,000 meters thick. That's the same as saying it is 12,800 kilometers or 12.8 megameters thick. If you really wanted to get annoying you could also say that it was

12,800,000,000,000,000 nanometers thick. Now look at the American way of doing things — 12 inches to the foot, three feet to a yard, 1760 yards to the mile, ad nauseum. It makes you wonder what they were thinking of when they thought that up.

Since you have the ability to model objects in mammoth and microscopic sizes, you should take advantage of it. One of the best tips I know for LightWave is to always model to scale. You would not believe the problems you can cause yourself by not following this advice. If you don't believe me, just keep building things any old size and someday you will find out what I am talking about. A good modeler should always have a ruler around for measuring things. If you are going to go to the bother of modeling something in the computer, do it right and be as precise as you can. When I needed to model a spinning globe, I called the library to find out how many degrees the earth is tipped on its polar axis. You'd be surprised at how many spinning globes I've seen that aren't correct. I've even seen some globes that spin in the wrong direction!

## All Those Surfaces

Speaking of LightWave, have you ever had problems with surfaces not seeming to save properly? There are a couple of things that need to be understood about surfaces.

When you go into Modeler and design an object you give different surface



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names to different parts of the object. When you save the object, you are saving the shape of the object plus the names associated with its surfaces. Now, let's say you exit out of the Modeler after saving your object and then you load it into LightWave Renderer. As soon as you look at the surface values, you will note that all the surfaces default to the same values — R, G, and B all equal to 200; 0% specular, smoothing off, etc. If you change the surface values and then save the object by either using the Save Object button or the Save All Objects button, you will have saved your object plus all of its new surface values.

But, let's say you go back into Modeler to make a change to the shape of the object. After making the shape change, you save the object using the same name as before. If you go back to the renderer, and rerender the object, you will notice that the shape hasn't changed. What happened? Modeler and Renderer each keep their own version of the object in RAM. The obvious thing to do is to clear the scene and reload the newly saved

object into the renderer. Now the shape has changed to match your changes, but the surfaces are all back to the default values! Remember, since Modeler has its own version of the object, that version has no idea that you had changed the surface values of the object. Each time you save the object with the same name, you are overwriting the previously saved version. If you wish to make shape changes to this object and save the surface values, the correct procedure would be to make the surface changes in Lightwave, save the object and then go into Modeler, clear out the old version of the object and reload it. If you use the copy in Modeler, you will overwrite the surface values (even if you use a different object name).

If you have a number of different objects that use the same surface names, you will run into trouble if you wish them to have different surface attributes. For instance, let's say you have two text objects, such as words generated with Pixel 3D. You want the words to have different colors but the surface names are common

fronts and common sides. If you change one word so the fronts and sides are yellow and save it, then change the other word so the fronts and sides are pink and save it, the next time you load these two words into the same scene, all the colors will change to the color of the last loaded object's surface. There is a very simple solution to get around this: load the first object and rename the surfaces (from the Surfaces panel) right after loading it. You can then load the next object and since these surfaces have different names, they will not change the values of the first surface.


## All Those Lights

I've seen a few scenes created by other people using a large number of light sources. In most cases this is unnecessary plus it really slows down rendering time. There are three different types of lights one can use in LightWave. Follow along as I explain the different light sources and perhaps this will shed some light (sorry...).

The first type of light source is the distant light. This is the default light that is always in a scene. Think of a distant light as the sun. It doesn't matter where a distant light is, it only matters which direction it is facing. Imagine an infinite number of light rays all coming from the same direction — that is a distant light. You can have one distant light in a scene and it can be behind an object (as seen from the camera point of view) as long as the direction the light is facing is not aimed at the camera, you will get some light on the object. If you had a distant light pointing straight down and a gigameter (remember...?) away from the object, you will have light hitting the top of the object. you could even have a distant light inside of an object and you would get light hitting the outside of it.

The second type of light is a point light. It shines light equally in all directions from a single point. A good example would be a light bulb or a candle flame. It doesn't matter which direction this light is facing, it just matters where it is located. If you put this light inside of an object, you won't see its effect on the outside of the object.

The third and final type of light is a spotlight. It matters both where a spotlight is and which direction it is facing. A



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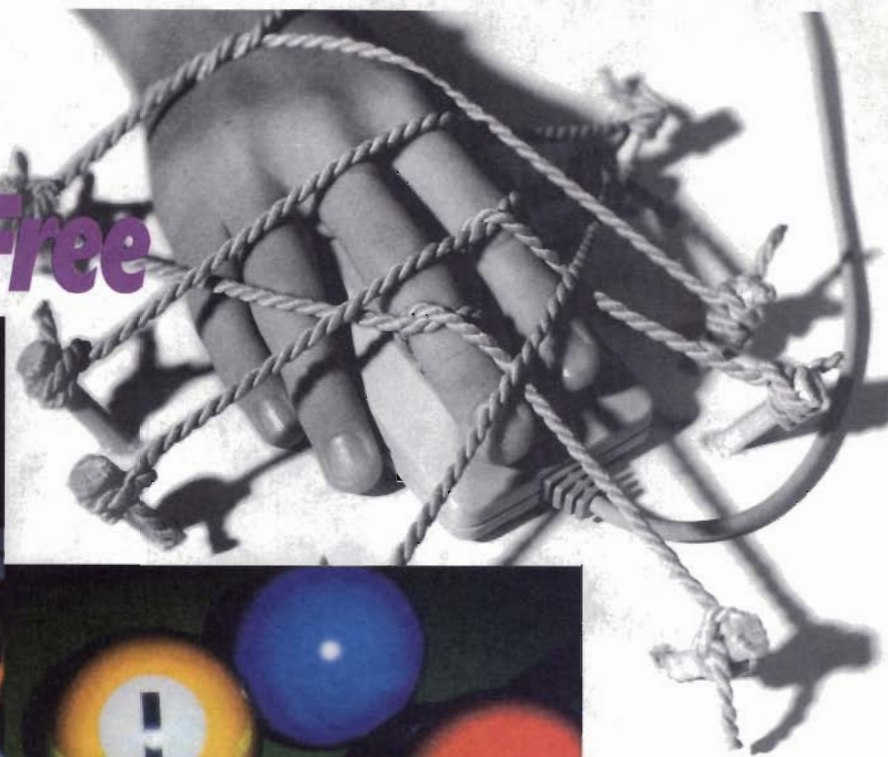
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spotlight is just what it sounds like. It projects a round cone of light. The cone angle is user-defined. If you adjust the cone angle to 15 degrees, you will have a 15 degree arc from the center of the spotlight out to the edge ( a total of 30 degrees across). At the edge of the cone angle you can define an edge angle (defaults to 5 degrees). This allows the edge of the cone to 'fade' into blackness. Without the edge angle you would go from a brightly lit surface to darkness. Usually this doesn't look very natural but can be striking for special effects.

There are a few other little things to know about lights. If you have an object with a cutout (like a letter O) in it and shine a light at it from the bottom, you will not only light the bottom of the object but also the top of the inside surface. Lights 'cut through' objects. Similarly, if you put a point light inside one object and have another object next to it, you will see highlights on the second object but not on the first.

You never see a light source by it-

self, you only see the light as it falls on objects. If you aim a light at the camera you will not see a big white flare of light when you render the image (not yet anyway...). If you want to see a beam of light, you have to design it as an object. I use long transparent cones that are white and luminous. If you wish to see refractions of light in the camera as a light beam sweeps across the lens, you need to design your own 'sundogs' — those little octagon shaped refractions. Basically just design some flat, octagon shaped polygons and make them very transparent. Move them across the view of the camera at the appropriate times.

### Quickie Tips Toaster Paint

1) Choose your framestore device in Toaster Preferences before entering Toaster Paint. When you choose load frame, the requester will default to the currently chosen framestore drive.

2) Colorizing an image with any gray scale color such as white or black will strip the color and turn the image

black and white.

### Switcher

The colors of the matte effects (falling sheep, page tear, flying ace, the sports effects, etc.,) can be changed by first selecting the effect, then going into preferences and changing the background color to your new choice then coming back and executing the effect. Once you choose a different effect then come back to the changed one, the matte color is back to its default value.

Watch this space next month for more Toaster tricks.

*John Gross is a Video Toaster graphic artist employed by Alpha Video in Minneapolis, MN.*

Tips, tricks techniques and questions can be sent to:

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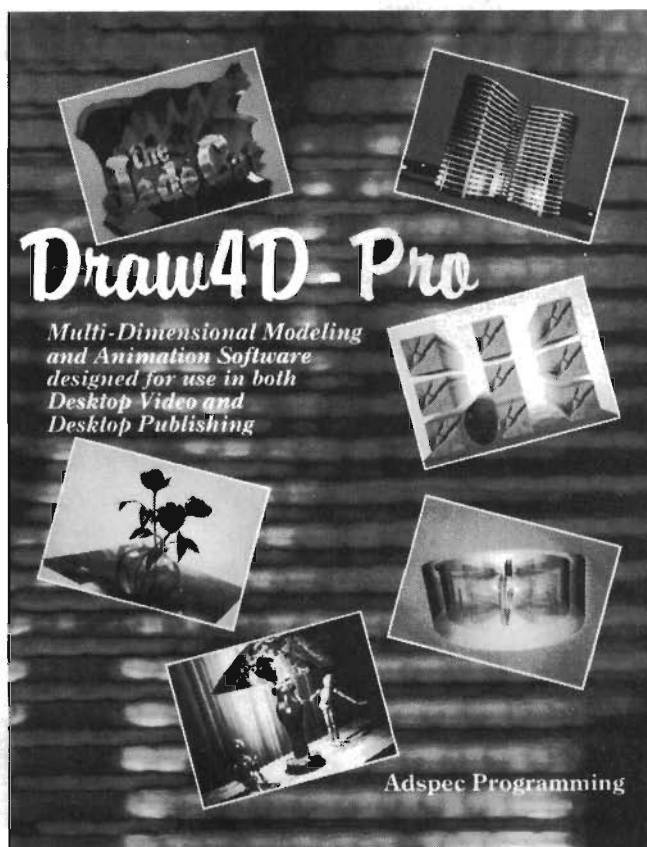
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# Back to Basics

*Or...*

**How Those Old AMIGA Programs Still Have A Lot Of Life Left In Them**



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**B**eing from an older generation, to me the computer is still an intimidating marvel of high technology and wonderment. I'm constantly overwhelmed by the flashy ads in the computer magazines touting the latest video software, hardware, and special effects. Consequently, I'm still behind the times when it comes to utilizing or even attempting to use the latest version of many popular video software programs. I sometimes think I'm like the caveman scratching on the walls with a stone, while my neighbor is using a jackhammer! By the time I feel comfortable with a program a new version is already on the market. Now I'll be the first to admit that progress is needed, but why so fast?

A few months ago, however, I did take a quantum leap in upgrading the old Amiga 500. I was able to get a good deal on a used hard drive with the ability to add another 2 megs. of memory. Heady stuff for the likes of me, especially when it came to putting the programs on the hard-drive. Talk about an ordeal, but that's the subject of another story. My set-up now consists of an Amiga 500 with

Workbench 2.0, a hard drive, three megabytes of memory, an external floppy drive, and an AmiGen genlock. Pretty basic right? The software I use for my video productions consist of Digi-View Gold 3.0, Deluxe Paint III, TV Show, and occasionally Fantavision. Again, very basic, but I'm continually amazed at the power these programs have to let you visually communicate an idea or concept in an interesting and entertaining manner.

Not long ago I decided it was time to put all this paraphernalia to a profitable use. I started a video production service and so far have been involved with weddings, special events, and training videos.

With the wedding videos, it soon became apparent that I needed something different that would give me a competitive edge. Most wedding videographers provide some sort of introduction to the event, usually a shot of the wedding invitation. I wanted something that would accomplish the same purpose, but with a little more pizzazz, and one that wouldn't break the bank in additional production/

editing cost. I had already been using the Amiga as a basic character generator and thought there must be some other uses for this highly sophisticated piece of equipment.

I've read that Digi-View could capture an image directly from a VCR or camcorder. Previously I had always assumed you could digitize only through a camera with the supplied color wheel. By selecting an image from the videotape and putting the VCR into Play-Pause the output of the VCR can be directly digitized by Digi-View. This opens up a lot of possibilities for creative uses in desktop video. It should be noted that the digitized image is only in black and white. I haven't tried it yet, but I'm told that with the use of a color splitter the image can be in color.

Now imagine this as an introduction to the wedding video: while panning down and zooming out from a clear blue sky, the steeple of a church comes into view. During that action, a small image of the bride and groom, dressed in their gown and tux, appears from the sky and gets larger as it tumbles onto the screen





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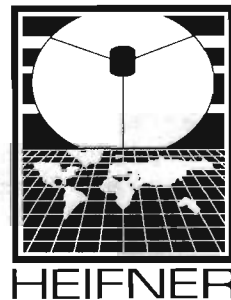
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along with names, dates, and church location. Now I thought that was pretty neat, and to my knowledge none of my competitors were doing it. It is now a standard special effect in my wedding video packages. My clients love it because the introduction highlights the two of them on the video of their special day.

## How To Do It

While taping the wedding I always make it a point to shoot lots of extra scenes, like the outside of the church, the gardens, statues, flower arrangements, lighted candles, anything that can be used as a background with a reflective mood. Sometimes the bride or groom may have a favorite location, so it's always important to discuss this with them in advance of the wedding day. Usually their photographer sets up some beautiful shots of them and I always roll tape during this time because that's a good source of getting that special pose of the bride and groom together. I haven't yet run into a photographer who objects to my stealing some of his setups. If he (or she) does, or if you don't like the poses, set up your own; the bride will love you for it later.

To get started, open Digi-View and select the following: Interlace-Off, HiRes-Off, Vertical overscan-Off, Horizontal overscan-Off, Color-Off. Click "OK". The "No video signal present" requester will appear. Click "Cancel". Next, go to the menu bar and select Control-Camera. In the requester select "Slow/Color Camera", and size "Full". Then click on "Color", and select the following in the requester: "B/W, Dither 1, and Pos.". Click "OK". The preceding has set up Digi-View to receive the signal from the VCR or camcorder. I have found these settings to be the best for my use. You may want to experiment with different settings to get the results that best suite your needs. One thing I have noticed is that selecting a Lo-Res screen in Digi-View results in a sharper and clearer image when it is brought into Deluxe Paint III on a Hi-Res screen.

Next is getting the image ready to be digitized. One problem to overcome is to insure that the image from your VCR or camcorder is stable and not jittering. A stable image is needed for at least ten

seconds so that Digi-View can capture a well defined image. Most newer model VCRs can handle this without any problems as they will provide a stable image when put into the Play-Pause or Freeze mode. I have been using a VCR that is about five years old and it works just fine. Some of the older models have an adjustment knob to steady the picture or you could try adjusting the tracking. I also have a Sony CCD-V5000 camcorder that puts out a stable image because of its built in time base corrector. To be honest, if you cannot get a stable image with your equipment this procedure is not gonna work!

Ok, let's assume that's not a problem. Fire up the VCR and select a frame of the bride and groom that is pleasing to the eye, with good composition, and a simple background. Remember, this image will eventually be picked up as a brush in Deluxe Paint III and manipulated in an animation sequence. So it's important to keep it as simple as possible. A nice tight "head and shoulder" shot of the couple will be perfect. Once the frame is selected, put the VCR into the Play-Pause mode.

At this point Digi-View is ready to accept an image. It's important to make the following cable connections quickly. Most VCRs will stay in the Play-Pause mode for only a short period of time, to reduce wear on the video heads. Connect the output cable of the VCR to the input of the Digi-View black box. Note that when you disconnect the cable you obviously will lose the picture on your VCR TV/monitor, as well as having a dark screen on the computer monitor. In other words, you are now working blind. If you want to continue monitoring the image from the VCR, you will need a distributor as described in the Digi-View manual. Once the connection is made move the pointer to the menu bar and select "Digitize". When the process is complete take the VCR out of the Play-Pause mode. You should now have a full screen image on the computer monitor. At this point you may want to experiment with the various controls, such as, sharpness, brightness, and contrast in the Color menu, to enhance the image. Once you are

satisfied open the Save requester from the Project menu, give it a name and save it!

Now the fun of moving this image around in Deluxe Paint III is at hand. Open Deluxe Paint III in the Hi-Res mode. From the Project menu select Picture>Load and load the digitized photo image. A system message will appear to "change format to that of picture"; select "No". The photo image is now on the screen in about one-fourth the size of the original. Notice how much clearer or sharper the image is by keeping the format in Hi-Res. Select the brush tool and pick up the image as a brush. Clear the screen. You should now have a black screen, (color 0), the photo image of the couple as a brush, and a palette of blacks, whites, and grays.

From the menu bar select Anim>Frame>Set#, and in the Set Frame Count type 40 and click "OK". Press "Shift-2" to go to the 40th or last frame. Next, position the brush in a suitable location. Select a location that will be compatible with the final videotaped scene over which this animation will be superimposed. For this example I've selected the upper right hand corner. Move the brush to this location and stamp it down on the 40th frame. Return to the menu bar and select Anim>Move. You are now ready to select the path over which the photo image will move. Let's have it going from way back in the screen, and coming forward in a tumbling manner. When the Move requester appears make the following entries. Set the Z-distance to -3000, the X-angle to 360, the Direction indicator to "come to ->", and record to "forward >>". Click "Preview" to see how it looks. If satisfactory, click "Draw" to render the action.

Next, let's add some text to the animation. Press the "j" key to go to the scratch page. Select text by pressing the right mouse button over the Text tool. The font requester will appear. Select a suitable font, and a white or grey face color from the palette. Type out the text. In this example I'll use the couple's names and for the sake of symmetry I put one name over the other instead of in a straight line. Pick up the names as a brush, press the "j" key to return to the last frame of

the animation. Here again you must decide where and how the names are to appear. Let's have it coming from off the left side of the screen and ending up just to the left of their photo image. Stamp the brush down to the left of the photo image. Select the Move requester in the Anim menu and enter the following: type 300 in the X-Distance box, select "come to->" in the Move and "forward >>" Record in the Direction box. Click "Preview" to see how it looks and "Draw" if satisfied.

Repeat this procedure for each set of text you want to enter in the animation, such as, dates, church name and location. By changing the directions in the Move requester you can have these various texts come from the top, bottom, right, left, behind or from the front of the screen and all joining together in the final frame. Just let your imagination run wild. That's one of the beauties of this program, if you don't like something, it just takes a few keystrokes to make changes or corrections. You could also introduce other objects, like wedding bells or champagne glasses, into the animation at this point. Just don't make it look too cluttered.

Now it's time to fine tune the animation and get it ready to be genlocked over the original video scene. First let's make sure the scratch page is clear and still set to color 0. Do this by pressing the "j" key, then click CLR in the tools box. Further on you'll see why the scratch page needs to be clear. Press "j" again to return to the last frame of the animation. Press "Shift-1" to get to the first frame. We also want this frame to be clear and set to color 0. By doing so you will be able to see your original video footage before the animation starts. This will allow you to start the animation at precisely the point you want it too. While at the first frame, go to the menu bar and select Anim>Frame>Add Frame. When the additional frame has been added you will see that you are now at frame 2 of the animation. Return to frame 1 by pressing "Shift-1". Then click CLR and Clear Current Frame in the requester. Frame 1 should now be clear and set to color 0. Before committing the animation to videotape, let's see how it looks. At this point you should be at the first of the 41 frames. Press F10 to

remove the menu bar, tools, and palette. Press the period key to make the brush a one pixel dot. Move the dot as far off the screen as possible. To remove the small cross hair around the dot, just press the "Del" key. Next press the "5" key and watch the animation. If at the end of the animation the final frame appears to jump slightly, you will need to add more frames. This is done by returning to the menu bar and selecting Anim>Frame>Add Frame. After a frame has been added try running the animation again. It usually takes 5 or 6 additional frames for the jumping to stop.

It's now time to put this project together. Connect the input of Genlock device to the output of the play the genlock VCR and the output of the genlock to the input of the record VCR. Cue up the play and record VCRs and put both into pause mode. Make sure you are at frame 1 of the animation and that the menu bar, tools, and palette are off, as well as the one pixel dot being off screen. Start the VCRs. You should now be able to view the original videotaped scenes on your VCRs monitor. When you reach the point where the animation is to start, press the "5" key to run the animated scene. When the animation is finished you can return to a clear screen by pressing the "j" key. Since the scratch page is clear and set to color 0, this will make a very nice wipe effect of taking the animation off and continuing on with the original video footage. That's it! In real time the entire procedure as describe can be done in less than five minutes. It's just a matter of learning the proper keystrokes animation settings, and practice.

Obviously this procedure is nothing new, as I'm sure there have been many similar applications of using Digi-View and Deluxe Paint III. In defense of the companies developing these excellent programs I fully understand the need to enhance and improve upon them. Progress as well as profits have to be made. My only point, as a novice, is to make others like me feel confident in the basic uses of a program before upgrading. Doing so will ensure that the learning curve with the new version will be shortened. That's something we all want to do.

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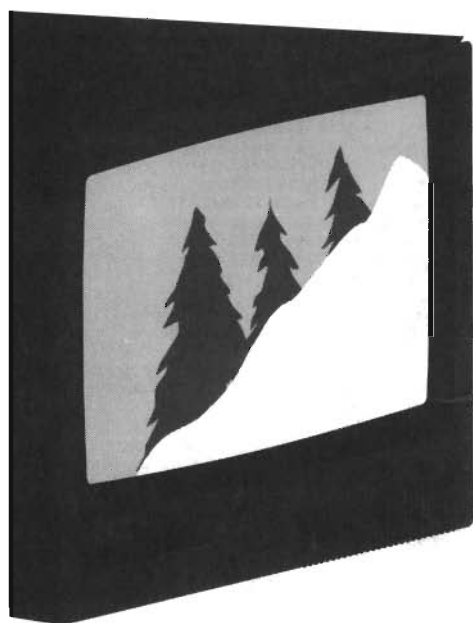
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**N**ow in its second major version, Scenery Animator 2.0, the terrain generator from Natural Graphics, is a user-friendly program that creates three-dimensional images and animations of scenic natural landscapes. Either imaginary fractal landscapes or real world Digital Elevation Model (DEM) landscapes can be created. Over 65,000 "seeds" for the creation of fractal landscapes and four real-world landscapes—Grand Canyon, Yosemite, Mt. St. Helens and Oahu—are included with the program.

Scenery Animator can be used to generate standard IFF and DCTV animations that can be played back in real-time and recorded by a VCR, as well as generate individual IFF-24 frames that can be recorded by an optical disc recorder or a frame accurate VCR using an animation controller. Still images of natural scenery can be generated for title, credit, and other CG screens. Brush maps and textures can be generated for use with Amiga 3D programs such as Imagine and LightWave. Befitting its name, Scenery Animator can be used to generate animations and still images that require a natural, scenic look.

Major changes and additions in the

new version of Scenery Animator include the ability to add trees to landscapes, smoother rendering of vegetation, manual or automatic banking of the camera with still images or animations, avoidance of collision with the ground, profile mode for changing camera pitch, animating only a partial range of frames so that animations can be appended, a loop mode for looping animations, a 25% larger manual, and four landscapes instead of two.

After a quick glance at the manual, anyone should be able to quickly and easily generate still images or animations with this program. The program has four screens: main, map, rendering, and screen mode. Only the main screen has pull-down menus. Once a landscape file has been loaded, or a fractal landscape generated, a simple IFF image of the landscape with the current camera settings is shown inside a preview window on the main screen. The camera focal length, direction, pitch and bank angles can be easily adjusted using the main and/or map screens. Using the main screen, a small square with horizontal and vertical lines can be used to move the camera in the XY, XZ, or YZ planes. By pointing the cursor inside the square and

clicking the left mouse button, the camera viewpoint can be moved anywhere within the X, Y or Z planes. The new viewpoint is updated and displayed in the preview window.

Another way to change the camera position is to use the map screen, where a topographical view of the selected area is available. The map screen provides an overhead or aerial view of the area looking straight down at the ground. Lower elevations are represented by darker colors, higher elevations by lighter colors, and water is of course blue. The camera viewpoint is shown as two converging red lines. Where the two lines meet is the camera location. The angle between the two lines represents the focal length of the camera lens, which determines the width of the view. The camera viewpoint can be interactively moved and rotated using the mouse or entered f the keyboard. The focal length of the lens can be typed in as well, with 18mm for a wide angle lens and up to 400mm for a telephoto or extremely long lens. I found that the map screen provides the easiest way for selecting the camera position, especially when selecting animation keyframes. The main screen preview

# Syndesis Corporation announces InterChange Plus!

Syndesis Corporation announces the Summer '92 release of InterChange Plus, the upgrade to its essential system for translating objects between 3D modeling programs.

InterChange Plus includes Converters for LightWave objects and scenes, Imagine, Turbo Silver 2.0 and 3.0 objects (including Terrain landscapes), VideoScape 1.0 and 2.0 ASCII and binary objects, Sculpt 3D and 4D scenes and scripts, PAGERender objects, Vista DEM landscapes, Atari ST CAD-3D models, structured drawing formats such as Professional Draw, Aegis Draw, and ImageMaster ISH custom shapes. Most Converters both import and export.

Now it's easy to move between Imagine and LightWave. Convert a multi-object, hierarchical Imagine object into a LightWave scene for Toasting. Turn LightWave scenes into Imagine objects for raytracing. Each LightWave object becomes a sub-object in Imagine, linked properly to its parent and children. All geometry moves easily between both programs, including lone points and edges, polygons and triangles. All surfaces and textures are translated with great accuracy, including RGB color, reflected and transmitted color, smoothing, specular, glossiness, refraction and surface names. InterChange automatically generates accurate surface names such as "ROOF: light red" from Imagine triangle colors. LightWave surfaces become Imagine "groups," making it easy to adjust the color of similar triangles within objects.

InterChange Plus includes the InterFont Converter, a program that makes it easy to generate 3D text objects. InterFont uses outline-based fonts to make 3D objects, automatically generating precisely aligned text in the size and justification you want. Choose from one of twenty InterFonts, enter the text you want, set its height, curve smoothness, extrusion depth, and destination file format. Click a button and InterChange creates a ready-to-use 3D text object. No more auto-tracing!

It doesn't stop there. InterChange Plus also includes Tools for manipulating and adjusting 3D models, including a Scale Tool for precisely sizing objects, a GridSnap Tool for re-aligning the points of an object, and a Point Reduce Tool to remove excess points from an object. InterChange makes it easy to batch-convert dozens of files at once, too, even if they're in different formats. The new Surface Converter makes it easy to extract and alter surface attributes from one object and map them to another. The Statistics Converter translates any object to a readable text file for detailed study.

All the limits are gone. Converters no longer open windows unless you open them, without gobbling precious graphics memory. InterChange uses less memory to convert an object than it takes to render it. It uses your numeric co-processor and runs under AmigaDOS 1.3 and 2.0.

InterChange Plus is an expandable system. You can purchase Converters and Tools for other formats and everything you own works together. Syndesis also sells Converters for AutoCAD DXF, Wavefront .obj, and Digital Arts .AOB objects, with more formats to come in the future.

Can you depend on InterChange Plus? Is it a professional product? NewTek, Inc. chose Syndesis Corporation's products to be part of the Toaster 2.0 system. LightWave now loads AutoCAD DXF, Wavefront .obj, Swivel 3D and 3D Studio objects because of Syndesis conversion technology. InterChange Plus is the perfect complement to LightWave and Modeler, making it possible to import *and* export objects in other formats from clients, friends, or add-on 3D object collections.

InterChange Plus retails for \$99.95. Look for it this summer at your Amiga dealer. Upgrades are available to registered owners. For more information, write Syndesis, N9353 Benson Road, Brooklyn, WI 53521, or call (608) 455-1422, or fax (608) 455-1317. VISA and Mastercard accepted. International orders welcome. Dealer and distributor inquiries are welcome, too.



window is useful for visually setting the height of the camera above the ground and for fine-tuning the camera position. Finally, the camera height can be locked at a constant 10 meters above the ground when animating, much like a military aircraft hugging the ground to avoid enemy radar.

Using the appropriate main screen buttons, it's possible to access the fractal seed, trees, land, sky, light source and water functions. In addition to loading real world landscapes such as the Grand Canyon, Scenery Animator can create randomly generated fractal landscapes. 65,536 fractal seeds are available to choose from, more than enough to satisfy the average Amiga user. While the resulting landscape can't be predicted in advance, the same seed will always produce the same landscape. Besides changing the seed number to produce a different landscape, altering the height of the terrain will alter the landscape as well. A value of 0 meters will produce a totally flat landscape, while a value of 1000

meters will produce rolling foothills. Higher values will produce average to steep mountains, depending on the height used. I was able to easily create a DCTV image of a grassy golf course fairway using a height value of 0 meters and minimal tree coverage. After loading the image into DCTV Paint I quickly added some sand traps and bunkers. The program even created a very nice tree in the left foreground. After adding a shadow to the tree using DCTV Paint, I had a very nice title screen for a videotape on golf.

The Tree function is new to Scenery Animator 2.0, and provides for oak trees, redwoods or both. The program defaults to 25% tree coverage, and can be changed to any value between 0 and 100%. Maximum and minimum height values can be selected for where trees may occur, consistent with the tree lines found in nature. While adding trees to an image increases the total rendering time, it greatly enhances the image's overall realism.

The land function determines the elevations at which snow, rock and vegetation occur. The program defaults to logical elevations according to the overall terrain, and the user can enter values as well. By default soil will occur where there is no snow, rock or vegetation. No elevation values can be entered for soil. With native Amiga IFF images, only three of the four variables (snow, rock, vegetation and soil) can occur at the same due to palette limitations. With DCTV, PCX and IFF-24 images this restriction doesn't apply.

The Sky function provides for the addition of Cirrus clouds. Like the tree function, the amount of cloud coverage or density can be entered manually as a percentage. The program defaults to 50% coverage. The altitude of the clouds can be manually entered, with the default at 4000 meters. A blend function allows for the sky to become lighter at the horizon and darker overhead.

A very useful feature of the Sky function is the ability to animate clouds, with or without the camera position moving. The effect is much like performing time-lapse photography with a film camera where the camera records a frame every second or so, effectively condensing the time required for the clouds to move overhead in a very short time. By

entering 0 for both the north and east cloud positions for the first keyframe and then changing the north value to 5000 for the second keyframe, the program will generate an animation with the camera static but the clouds moving quickly overhead. By filling the upper half of the screen with sky and a 50% cloud coverage I could generate a DCTV animation using interlace, overscan and four bitplanes and still get very smooth animation using DPaint for the playback.

The final two functions, light and water, provide for the placement of the sun and whether or not the user wants an ocean to occur in the image, with or without waves. By choosing different positions in the sky for the sun, it's possible to animate shadows moving across the landscape for a dramatic effect.

Because Scenery Animator can output native Amiga IFF, IFF-24, DCTV (three and four bitplane) and PCX formats, the screen mode or frame buffer screen provides for interlace on or off, high or low resolution, and the amount of overscan. RGB sliders are available for adjusting frame buffer colors used for sky, snow, rock, vegetation, water and soil. While the program always defaults to logical color choices (blue for water, green for vegetation, etc.) there may be times when it makes sense to alter these colors to something else. A separate palette requester is provided for adjusting the colors used with native Amiga IFF images.

While Scenery Animator is capable of generating still images of beautiful landscapes with a high degree of photo-realism, it's the program's animation capabilities that will probably be of the greatest interest to Amiga video users. Scenery Animator generates three-dimensional animations using keyframes. The user selects the starting and ending points or keyframes for the camera to follow and selects how many frames should occur in between. Additional keyframes can be added between the first and last keyframes as pass-through points to indicate changes in the animation path. Animation paths can be comprised of straight or curved segments or a combination of the two. Animations can be previewed before rendering by using the Amiga display preview window found with the main screen.

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While the frames themselves will be drawn fairly crudely and the motion will be jerky, the overall motion path, position of the sun, etc. will be displayed.

Animation modes include IFF frames, IFF-24 frames, DCTV frames, Anim 5, and DCTV Anim 5. With the first three modes frames are rendered and saved as individual files. With the Anim 5 and DCTV Anim 5 modes, frames are rendered and automatically saved as animations. While IFF or DCTV frames can be rendered and saved as animations, IFF-24 frames must be first rendered and then single-frame recorded to a frame-accurate VCR or an optical disc recorder.

Using a stock Amiga 3000 operating at 25MHz, overscanned, interlaced DCTV and IFF-24 frames can take about eight to twelve minutes to render, depending on the size and complexity of the image (degree of overscan, the amount of sky and water included in the image, the number of bit planes used with DCTV frames, etc.). High-resolution, overscanned and interlaced (736 by 480 pixels) 16-color IFF frames, surprisingly enough, can take a few minutes longer to render than equivalent DCTV or IFF-24 frames. Low-resolution, non-overscanned and non-interlaced 32 color IFF images with the detail button turned off require about two or three minutes to render, again depending on the complexity of the frames. Because an animation

can be rendered fairly quickly using the 320-by-200-pixel mode, animations can be previewed with smooth motion and better detail compared to using the main screen preview window, useful when checking for any errors before rendering the animation as DCTV or IFF-24 frames.

During an animation, the camera can be banked as it flies along the motion path, much like an airplane banks its wings when turning. The detail button can be turned off (it also works with still images) to reduce the rendering time. The detail function adds surface detail to avoid visible polygons in the landscape,

especially with those areas of the landscape closest to the camera. For previewing animations using the 320 by 200 pixels mode be sure to turn the detail function off for faster rendering, otherwise leave it on for more realistic images.

The program is now distributed on two disks, one for the main program and one for landscapes. Scenery Animator 2.0 can be run from a floppy but works best from a hard drive. An automatic installer is provided for loading the program onto a hard drive. Two versions of the program are provided, one for stock Amigas with a 68000 CPU, a second for accelerated machines. Both ShowANIM and a display program from Hash Enterprises are included with the program disk for displaying images and playing back animations. While a minimum of two megabytes of system RAM is recommended, more memory is desirable. A total of 32 landscapes are available from Natural Graphics including Devils Tower, Crater Lake and Pikes Peak. Future upgrades to the program include the ability to generate quarter-screen DCTV animations for smoother playback due to the reduced file size, other tree types and the generation of flowers. All in all I highly recommend this program for generating scenic backgrounds and animations.

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## Two Major New Products for the Commodore A2630 Accelerator

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I turned on my Amiga 2000 today, and when the Workbench came up I looked at the top of the screen and noted that there was about 69 megabytes of free memory available. No, that's not a typo. Let's backtrack for a moment. The Commodore A2630 is one of the most popular accelerators found in Amiga computers today, since it's included with every Amiga 2500/030 sold. It's a good 25 megahertz accelerator but has always been hampered by its inability to handle more than four megabytes of 32-bit RAM, the kind that the 32-bit 68030 processor works with so quickly, although the chip can directly address a much larger memory range. So 2500 owners have been effectively saddled with a Ferrari engine stuck in a go-kart chassis, so to speak. Fret no more, 2630'ers—you've been doubly blessed. Not only is there a memory expansion board that will let you own the fattest Amiga on the planet, but there's also an accelerator that doubles the 2630's speed, which we'll get to shortly. And, mirabile dictu, they work together—I'm a witness! I must admit that the memory board DKB sent us for review contained

only 64 of the maximum possible 112 megabytes of RAM, but I'm sure adding the extra RAM is no problem, assuming you're willing to take out that second mortgage on your home. Even so, it makes my own 18-megabyte 68040 system look pretty puny.

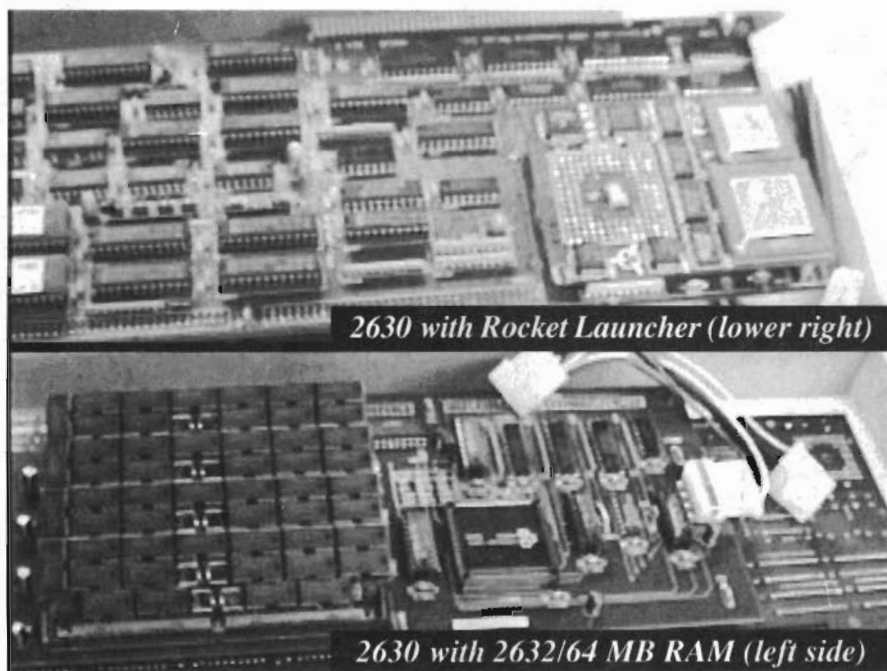
"Well now," you might be wondering, "why in blue blazes would I need anywhere near that much RAM?" (take it easy on that chewing terbacky, you feisty old codger). If so, maybe you don't. But if you've ever tried to model a complete human figure, for example, with all the bumps and curves, and then ran out of memory when you tried to render it, this may be what you're looking for. As you'll see by reading on, it's entirely possible to model an object that fits in memory, but that doesn't leave enough free memory to render it. As far as I know, (and I certainly haven't researched it thoroughly), there's no set formula for calculating the amount of memory required to render an object of a certain complexity. So if your animation calls for many complex objects, very large memory sizes might be necessary. But at

the very least, you can add four megabytes of 32-bit RAM that works in burst mode, thus speeding up your system. You can get the DKB 2632 32-bit Memory Expansion for the Amiga 2500 populated with any amount of memory between 4 and 112 megabytes. You can add 32 megabytes with a single SIMM module—other sizes are 4, 8, and 16 megabytes. Unlike most other memory cards, the 2632 can mix module sizes for a wide variety of expansion amounts. Modules are standard configurations available from most computer dealers—apparently the largest are used primarily in Mac Quadras. Although the RAM on the 2630 can't use burst mode, the 2632 RAM can, so things can speed up significantly. If you're a Bridgeboard user you'll be happy to know that the 2632 doesn't use the autoconfig memory space so that you can use more than 6 megabytes of memory.

### Putting It In

Installation of the 2632 is easy, but if you're not experienced in poking around inside your computer you probably should leave it to a qualified technician. The two pin connectors on the card fit snugly into





the two receptacles on the back of the 2630, and a rubber bumper on the 2632 keeps the two cards separated. There's no edge connector on the 2632, but it does require extra power for all that memory, so there's a four-prong plug that connects to your main power supply, with another connector wired in to extend the chain (for attaching additional devices). Then just copy the 2632 program on the supplied disk into your C: directory, insert a command into your Startup-Sequence file to run it, and you're all set!

At the same time that I installed the 2632 on a borrowed 2630 board. Special thanks to Mike Ingoglia of HT Electronics for the loan of the 2630! I attempted to install the new CSA Rocket Launcher, a new daughterboard that increases the 2630's speed to 50 megahertz by replacing the original 68030 and 68882 chips with the faster versions. I didn't get very far. The Launcher comes with a small metal tool for removing the original 68030 and 68882 chips that looks like a bent fork. Neither I nor the technician at the Amiga store where I work were successful in removing the chips with this implement, for a couple of reasons. First, it wasn't strong enough. Second, the two processors are tightly contained in a rectangular metal shield that stands perpendicular to the 2630 board and prevents

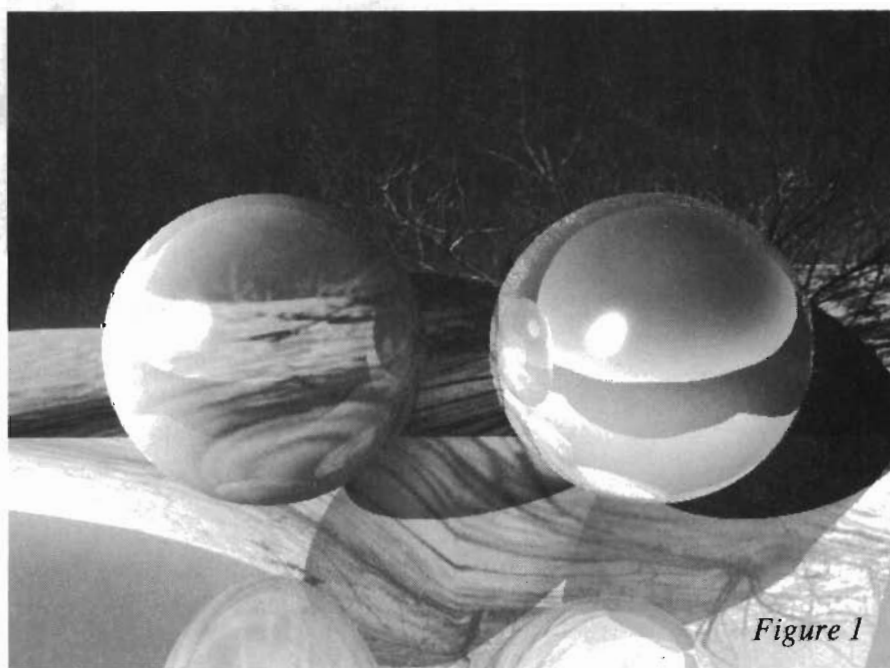
radio-frequency interference, the kind your neighbor bangs on the door about when you're disturbing his TV reception. You have to gently pull up on the two square chips from all four sides, but the shield blocks several of them. So the technician ended up having to remove the shield completely, and it's not easily replaceable.

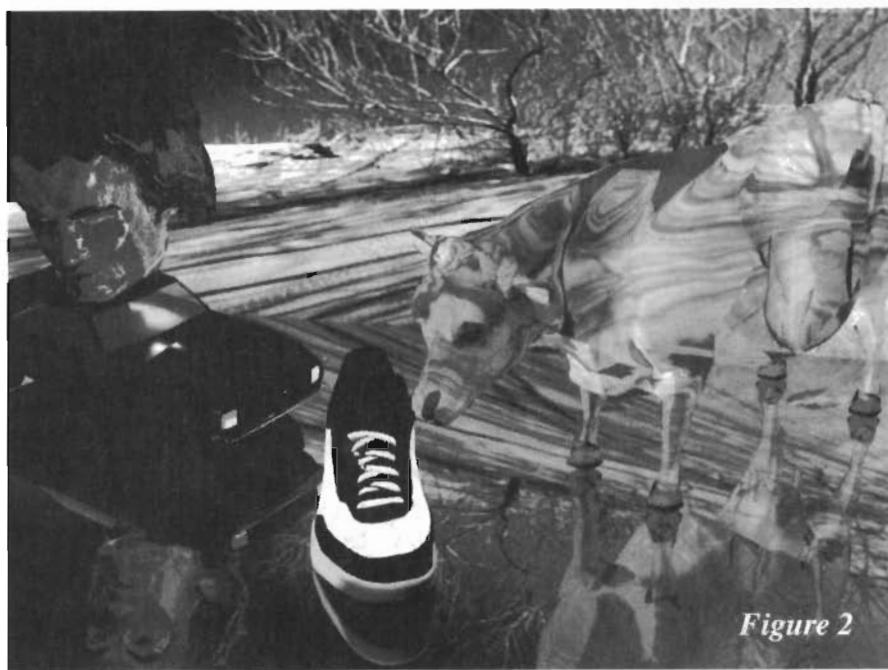
The upshot is that even if you're qualified to install the 2632, I strongly recommend having a technician install the Rocket Launcher. By the way, I note

that the board doesn't use gold pins, for better electrical contact. However, it does do the job intended, which is to significantly speed up the 2630, which means you can get almost twice as much rendering done in the same amount of time.

The first test I tried was an attempt to max out Imagine 2.0. Just to see what would happen, I almost completely filled memory with polygons, the same way you might copy and repeatedly paste a block of text in a word processor to test its capacity: I loaded the program, went straight into the Detail editor, and added a primitive sphere of 50 circle sections by 50 vertical sections. I subdivided it a couple of times with Fracture, ending up with a 19,600-polygon object. I copied it, then pasted it five times, moving each new sphere as it was pasted. From time to time I monitored the amount of free memory from the Workbench. I then grouped the six spheres, copied the group, and pasted it six times for a total of 42 spheres containing 823,200 polygons. At this point the computer was down to about 3 megabytes of memory, and I didn't want to push it. I was satisfied that that Imagine's Detail editor can handle as many polygons you can throw at it, given the memory.

Unfortunately, when I attempted to render this, Imagine complained that there wasn't enough memory. Only after I





eliminated all but 14 of the spheres, leaving about 48 megabytes free, could I render the spheres after setting them up with a light source in the Stage editor. At this point I set the Perspective view (in the editor) to Solid, and the program required over 20 megs and about five minutes just to draw the perspective view. Also, it didn't return the memory to the system pool after drawing the image, so I had to set the view back to Wireframe before rendering.

As a benchmark Toaster users can use to compare with your own system, I loaded and rendered the Workstation scene included with Toaster 2.0. The 2630 with the Rocket Launcher and 64-meg RAM expansion rendered it in 4 minutes and 45 seconds, the Progressive '040 in 2 minutes and 47 seconds, and the standard 2630 combination at 25 Mhz rendered it in 6 minutes and 19 seconds.

I then created a LightWave test scene, shown rendered in Figure 1, containing two spheres, each made up of 1280 triangular polygons, one reflective and the other transparent and refractive as well as slightly reflective. The back wall and floor are each made of a single rectangular double-sided polygon, the former image-mapped with a desert scene from Texture City, and the latter set to be reflective. The scene was fully ray-traced at medium resolution, 752 by 480, with

Trace Reflections, Refraction, and Shadows turned on. The Progressive 68040 required 1 hour 11 minutes, the 50 Mhz Rocket Launcher 68030 required 3 hours and 9 minutes, and the standard 25 Mhz 030 took 4 hours and 30 minutes.

To test the board with Imagine, I created a scene containing the Beethoven, Cow, Camaro, and Lowtop objects included with Imagine 2.0. I made the Cow transparent and refractive and the Beethoven bust reflective. I added a green reflective ground and a flat image-mapped backdrop, and ray-traced the scene with a single light with shadows turned on. At 752 by 480 resolution, the standard 25 Mhz 2630 took 21 hours and 40 minutes, the 2630 with Rocket Launcher at 50 Mhz took 12 hours and 46 minutes, and the Progressive 68040 required 3 hours and 9 minutes.

So from these real-world tests you can see that while it doesn't double rendering speeds, the Rocket Launcher can save significant amounts of time. Consider that for every hour of rendering time saved per frame, you're saving 300 hours on a ten-second animation. So if you already have the A2630 68030 accelerator (check with your dealer if you're not sure), at \$699 list price this is a cost-effective upgrade. Otherwise, if you're shopping for a complete system, a 2000 with the Progressive or other 68040 ac-

celerator makes better sense.

Then I ran LaMonte Koop's great public domain benchmark program, Amiga Intuition Based Benchmarks Version 4.0, or AIBB for short. Following is an edited excerpt from Koop's instructions, describing each of the benchmark tests. By the way, he emphasizes that no benchmark or set of benchmarks can be a complete measurement of a system. (note: boldface all test names and delete this)

**WritePixel:** The WritePixel benchmark will open a low-resolution screen and fill it completely with a given color. The filling is done one pixel at a time.

**Dhrystone:** This test should be fairly familiar to most people, as it has been utilized on many different system for benchmarking purposes. It is a test which attempts to put conditions upon the system which more closely simulates a possible applications program section. It returns, not run-time in seconds, but rather a rating of Dhrystones per second, where in this case, the larger number indicates better performance.

**Matrix:** A matrix manipulation benchmark utilizing 3 50x50 integer matrices. The test simply performs a series of matrix operations (addition/subtraction, multiplication, transposition, etc) upon these matrices. The test is set up in such a way that a great amount of time is spent moving data, as well as performing arithmetic operations upon it. Therefore, this could be thought of as also testing memory manipulation efficiency. The test is an indicator of how well a processor/memory combination handles memory accesses to data and operations on such, as the test does not allow the processor to simply perform the data operations solely within its registers.

**MemTest:** This test is memory-bound, as the name implies. In essence, it is a memory block movement test, timing the efficiency of memory accesses and transfers. Memory from both Chip and Fast RAM is utilized, with transfers occurring from Fast RAM to Fast RAM, Fast RAM to Chip RAM, and Chip RAM to Chip RAM. This gives an overall look at the memory efficiency of both the system's Fast RAM and Chip RAM complements. The results given here will



be a composite showing overall how the system is performing in terms of memory accesses.

**Sieve:** Another test which should be familiar to most, the Sieve of Erathosthenes. It uses a fairly simple algorithm to determine prime numbers within a range of numbers. This test simply times your system when implementing this algorithm, which is described fully in many textbooks, or one can simply look at BYTE Magazine's benchmarks, which use a similar Sieve test.

**Sort:** A series of 30,000 16-bit integers is sorted from a pseudo-random setup, and the procedure is timed.

**IMath: Integer Math.** This test performs a wide variety of integer math functions. Included in these functions are the standard functions, such as addition, subtraction, multiplication, division, and a few additional bitwise functions, such as ANDing, ORing, and XORing.

**TGTest: Text/Graphics test.** This test is another one which is dependent upon the efficiency of the system graph-

ics routines' execution speed, as well as the efficiency of the CHIP RAM bus interface on the system. Text is output to the screen in a repeated pattern, and scrolled in order to maintain its visibility on the screen.

**Transcendental Usage Notes:** The floating-point specific tests implemented by AIBB are given below. Note that these tests are also dependent on any standard code type selections which may be made, as well as the type of floating-point code utilized. Tests are marked as to their usage of transcendental functions ( sin(), cos(), log(), etc... ) for record keeping and comparisons by 68040 users. The rating scale used below for such usage corresponds to this table:

Level	Meaning
NONE	No transcendental functions are used
LIGHT	5-20% of calculations are transcendental in nature.
MODERATE	21-50% of calculations are transcendental in nature.
HEAVY	Greater than 50% of

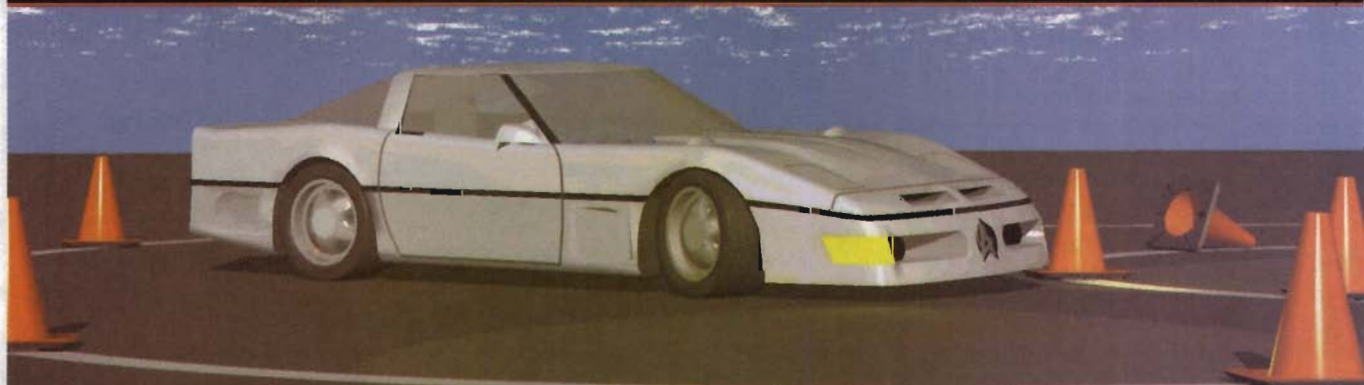
calculations are transcendental.

**FMATH: Floating Point Math.** Similar to the IMATH test, with the exception that Floating Point values and operations are utilized. With this test, no bitwise operations are performed. Single precision floating point operations/values are used here. Transcendental Usage: NONE.

**Savage:** This is another of the "probably familiar" tests. It is a standard implementation of the Savage test, which makes nested calls to transcendental functions to create a single value. Double precision floating point operations/values are used. Transcendental Usage: HEAVY; this test is almost exclusively transcendental in nature.

**FMATRIX: The FMATRIX test** is similar in concept to the Integer Matrix test outlined above. Again, a great deal of data movement is performed, in addition to the operations involved, which are floating point operations in this case. With the matrix operations, the results under Floating Point coprocessor equipped systems can be interesting to note, as the system is not able to keep the data within fast-access

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FPU registers, and thus must make many bus accesses for the data it needs. Double-precision floating point math is used for this test. Transcendental Usage: NONE.

SWhetstone and DWhetstone: These tests are identical, save that the SWhetstone utilizes single-precision floating point operations and data, while the DWhetstone is double precision in nature. The Whetstone test is yet another of the many "standard" types of benchmarks which have been used to test system performance. It tests various circumstances, including floating point math, function calls, etc. Integer math is also tested to an extent, but since this test does rely on floating point math as well it is kept in this section. The test returns values in Whetstones per second, where like the Dhrystone, higher values indicate better performance. Transcendental Usage: MODERATE.

BeachBall: The BeachBall test was originally written by Bruce Holloway of Weitek, and published in the March 1988 issue of Byte Magazine. It is essentially a

very math-intensive operation which draws a beachball on the screen, complete with shading. The test opens a 640x400 interlaced 16-color screen, and proceeds to render the picture. This test is closer to a true "application" test, in that it actually does something visible, and produces an output. The system will end up being tested in both the floating point arena, and in CHIP RAM access performance, which is done through standard operating system graphics handling calls (thus will be affected by the speed of such, which in turn can be affected by ROM image re-mapping, etc.). Transcendental Usage: LIGHT.

FTrace: Another applications-type test. FTrace implements a subset of the calculating functions which are used to perform ray-tracing operations. Ray-tracing is a particularly floating-point intensive art, and this test gives some indication of a system's performance in this type of operation. No visible result is produced, so in that matter it is not an 'ideal' test, but it can be used to give some

indications in this arena. Transcendental Usage: LIGHT; Calculations are performed in such a way that transcendental usage is minimized.

CplxTest: This test implements a series of complex-number operations and times their execution. Complex number applications are important in many of the sciences, and are particularly prevalent in such areas as electrical engineering (circuit analysis) and vector analysis to some degree (not specifically "complex numbers" in that case, but the operations are similar). This test utilizes a lot of quick, small memory moves, as well as performing a variety of floating-point operations. Transcendental Usage: LIGHT TO MODERATE.

And here are the test results. All tests were done using full accelerator and inline floating-point code, with multitasking turned off. All caches and burst modes were turned on, and for the 68030 boards FastROM (copying ROM into 32-bit memory for extra speed) was used, and the 68040's Copyback mode was used.

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For each test, the results compares speeds of the three different tested accelerators with a stock Amiga 500 with no Fast RAM (NFR), so that the standard 25 Mhz 2630 is always 1.0. The other numbers show how much faster or slower the other computers are. So for example, in the first test, Writepixel, the Amiga 500 ran about one-fifth the speed of the 2630, the Rocket Launcher ran 114 percent of the 2630's speed, and the Progressive 040 ran 45 percent faster than the 2630.

## Comparison Ratings

### Test Name: Writepixel

A500-NFR : 0.22  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.14  
25Mhz040 : 1.45

### Test Name: Sieve

A500-NFR : 0.11  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.93  
25Mhz040 : 2.00

### Test Name: Dhrystone

A500-NFR : 0.18  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.11  
25Mhz040 : 3.83

### Test Name: Sort

A500-NFR : 0.14  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.67  
25Mhz040 : 3.31

### Test Name: Matrix

A500-NFR : 0.10  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.61  
25Mhz040 : 2.35

### Test Name: IMath

A500-NFR : 0.05  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.65  
25Mhz040 : 2.59

### Test Name: MemTest

A500-NFR : 0.18  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.48  
25Mhz040 : 1.39

### Test Name: TGTest

A500-NFR : 0.49  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.05  
25Mhz040 : 1.06

### Test Name: Savage

A500-NFR : 0.00  
25Mhz030 : 1.00 Base System  
50Mhz030 : 2.00  
25Mhz040 : 0.82

### Test Name: FMath

A500-NFR : 0.04  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.93  
25Mhz040 : 3.36

### Test Name: FMatrix

A500-NFR : 0.14  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.71  
25Mhz040 : 1.17

### Test Name: BeachBall

A500-NFR : 0.01  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.52  
25Mhz040 : 2.65

### Test Name: SWhetstone

A500-NFR : 0.02  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.77  
25Mhz040 : 0.52

### Test Name: DWhetstone

A500-NFR : 0.02  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.63  
25Mhz040 : 2.98

### Test Name: FTrace

A500-NFR : 0.01  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.80  
25Mhz040 : 1.25

### Test Name: CplxTest

A500-NFR : 0.04  
25Mhz030 : 1.00 Base System  
50Mhz030 : 1.35  
25Mhz040 : 4.57

As you can see, the 68040 accelera-

tor isn't always the fastest, and in fact it's beaten even by the 25Mhz 68030 in the transcendental-intensive Savage test. That's because the '040's built-in floating-point processor doesn't have transcendentials. This impacts all Amiga 3D renderers and animators in that code that isn't specifically written to take advantage of the 68040 can, but generally doesn't run slower on the '040. A good example of this is the Fractal Noise procedural texture in LightWave, which renders significantly faster on most 030's than on the '040. This will be fixed in the next release of the software. As far as I know, Imagine doesn't have any specific problems with the '040. More to the point, note that in the FTrace test, perhaps of most importance to renderers because it simulates the concentration of calculations used in ray tracing, the Rocket Launcher runs 80 percent faster than the 25 Mhz 2630.

So that's our look at a couple of products that can add more power to your Amiga graphics workstation than you may have dreamed possible. The list price of the DKB 2632 with the standard configuration of four megabytes of RAM is \$699, and with the tested configuration of 64 megabytes is about \$4900. The list price of the CSA Rocket Launcher is also \$699. However, there's a special combination offer now available called the Amiga A2000HDA/100 bundle. The 2000HDA/100 is the new version of the Amiga 2500 that comes with the 2630 accelerator and a 100-megabyte hard drive. If you get the bundle that includes the 2632 and Rocket Launcher, you can achieve substantial savings over buying the components separately. Also included are special software and other incentives. Contact your Amiga retailer for details.

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# Using the Canon *Xap Shot* With DCTV!



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**T**he problem: you have a project that requires you to get some "real life" imagery into your Amiga. It could be an over-the-shoulder still for a newscast, or maybe you need to animate a 3D airplane swooping past some buildings or down a runway. It could be a sports cablecast and you want to do an intro with overlaid titles atop uniformed players and freeze-frame jumping cheerleaders. Maybe you just need a company's logo from the front of their building. So where do you get this kind of imagery? Well, you could use a scanner if you could find stock shots somewhere, but that might involve licensing fees and a lot of running around. You could try framegrabbing from live television, laserdiscs or videotape but again the source material might not be exactly what you want and it's probably copyrighted anyway, and your budget just won't allow for that expense. You could go out and shoot photos, have prints developed and then digitize them, but that takes a while. Hire a photographer? They don't come cheap.

Over the years we've seen a constant improvement in the price-performance ratio for video digitizing gear you can hook up to your Amiga. Oldtimers will remember it all started with NewTek's DigiView and those cheap black & white security cameras, wooden copy stands, floodlights, and cumbersome color wheels. DigiView is still around and

people still use it, but before you go out shopping for a way to get real-life imagery into your computer, for whatever purpose, read on. There's another piece of hardware you might not have even considered, one that provides not only excellent quality but true portability, extreme ease of use, and is now available at the most attractive price ever. And if you already own a DCTV then you already have half of the solution right on your desktop.

The Canon RC-250 or "Xap Shot" still video camera is small unit about the size of a sandwich, weighs under a pound, and is insanely easy to use. When the Xap Shot is used in concert with the Digital Creation's DCTV you can carry around what amounts to a portable digitizing studio in the palm of your hand. Take it anywhere. Shoot exactly the imagery you're after. Come back to your home or office, feed the camera's output into DCTV's input, digitize, scale, touch-up, title, paint on it, and you're in business.

Originally pushed to consumers by Canon as "Photography for the Video Generation" the Xap Shot came out with a price tag of about \$1,000. While spending a G-note to take video pictures of vacation spots, babies and house pets could be deemed a legitimate reason to own a Xap Shot, the camera soon found its way into the hands of computer owning videophiles who realized there was a lot more to this gizmo than looking at its

output on a TV set in the living room.

Digital Creations' DCTV is a great low-priced pseudo-24-bit paint box and display system you've read about in these pages before. You may even already own a DCTV but have just been using its paint and image-processing features, not its digitizing capabilities, and perhaps you've been thinking about buying a camcorder to use with it, but the sticker shock from the good models scared you off.

Canon recently lowered the retail price of the Xap Shot to \$799.00. This brings the street (dealer) price down to the \$400.00 level, making it an excellent bargain.

The Xap Shot package includes the camera (available in either all-black or all-white body colors), the AC adaptor which also serves as the battery charger (which holds its small lead-acid battery about the size of a pair of Vegas dice), the composite video out module, an RF adaptor to hook it directly to a television if desired, and interconnecting cables. Various accessories are also available at extra cost such as the \$80 Action set which adds a very useful screw-on grip and wrist strap, tripod socket and a 1.3 "telephoto" lens, the \$139.00 Multi-angle set with the same stuff as the Action Set plus an 40mm wide angle lens, the \$70 Macro Frame, basically a copy stand for holding the camera exactly 12" above flat imagery when using its macro switch setting, and the \$460.00 Mini LCD Long Play Kit





*The Canon Xapshot*

which includes a 2" color monitor.

Using the Xap Shot couldn't be simpler. Load in a 2 inch "video floppy" disc. One comes with the camera, and more are easily available for about \$8 each at camera stores. The video floppy is not a digital recording media; rather it's analog, like a flat, round piece of videotape in a plastic shell with a shutter. Each disc holds 50 pictures which may be selectively erased and re-shot, in no particular order, as you like.

To take a picture, just view, point and shoot. Focus is fixed from three feet to infinity, or exactly 12 inches with the macro switch engaged. There's a built in strobe flash which can be set to off, light-sensing auto, or on. The Xap Shot is a rangefinder style camera so you don't view through the taking lens, but this helps keep it very compact. There's an exposure-compensation button, useful when your subject is lit from behind more brightly than from the front. You can fire off shots singly, or in a continuous three frames per second mode, or put the camera on a tripod and use its self timer mode. All of the camera's features are controlled by five small buttons and two slide switches on its top side.

A small liquid crystal display atop the camera's body informs you which shooting mode you're using, which frame on the disk you'll be recording to next, if

your disk is not loaded or is write-protected, and the internal battery's condition. Canon claims the battery holds enough juice when fully charged to record 800 frames without flash, or about 300 frames if you use the flash 25% of the time. The Xap Shot will power itself down automatically after 2 minutes of non-activity in playback mode when using the battery, or after 15 minutes when using the AC coupler.

Use the camera for ten minutes and you've mastered it. It's really that simple.

Unlike some other still video cameras you may have heard or read about, the Xap Shot is both the recording AND the playback device. No separate player is required or available. The Xap Shot has playback resolution of 400 lines and its CCD (charge-coupled device) image sensor captures 786 pixels horizontally so it delivers crisp and clean results, about on par with what you'd get from VHS videotape.

The camera does have a couple of annoying design deficiencies but certainly nothing serious enough to deem it unacceptable. Unlike a typical camcorder, the Xap Shot itself has no facility to view the pictures you've taken with it. You *must* run a cable from the "video out" jack on its AC Coupler/Battery-charger's base to some kind of television or monitor in order to see your pictures.

There's no flash hot-shoe or sync jack, so you're stuck using its rather small built-in strobe. Besides the limited number of lenses, the only other real major annoyance I found using the Xap Shot and something I'd consider a design flaw involved the rather idiotic finger dance one must endure to completely erase one of its little video floppy disks. Only one frame can be erased at a time and doing that requires being in PLAY mode, holding the ERASE button down, pressing the shutter release button and then pressing the FWD button to advance to the next



frame. That means pressing three buttons fifty times each to erase one disk. Again, annoying, but really no worse than that.

Otherwise, the Xap Shot is well-built, precise-feeling, and mine has functioned perfectly for over four years. Considering what Canon has managed to cram into such a tiny portable package, the Xap Shot is really a rather amazing piece of hardware.

Using your Xap Shot with a DCTV provides very fast and satisfying results without a lot of mucking around. Simply connect the video output of the camera's AC coupler to DCTV's Video In jack with a good quality double-male-ended RCA cable. Put the camera into Play mode and run your DCTV software. On DCTV's "Digitize & Process" screen, select Tape input, interlace mode, filter off, highest quality and slowest speed. These are the settings I've used with great success. You might want to experiment with other settings but always be sure to be in DCTV Tape digitize mode. Then just click on the Scan button. In a few seconds you'll have your first Xap Shot image on your screen. It might need some adjustments with DCTV's image processing sliders and this will wholly depend on your source pictures and how you want the final output to look, so experiment: there are no hard and fast rules here as to what will look "the best."

Once captured by DCTV, you can do with a Xap Shot image anything you can do with any other DCTV image. Run it through DCTV Convert and turn it into a "normal" Amiga mode IFF picture. Save it out as IFF24 format for viewing on higher-quality display devices such as Impulse's Firecracker 24, GVP's IV-24, DMI's Resolver, or whatever you may have. Convert it to gray scale and import it into desktop publishing software.

If you've fired off a series of shots in the Xap Shot's 3fps continuous mode, you could capture each of them in DCTV, save off the DCTV display mode frames, and then assemble them into an animation with a utility such as Cryogenic's AnimBuild or Right Answer Group's The Director. Three frames per second isn't exactly full motion video, but it will give you that trendy Max Headroom look which is so in vogue these days.

Here's something interesting to try: if you own a pair of Haitex X-Specs stereo 3-D liquid crystal shutter glasses, you can use the Xapshot and DCTV to make stereo DCTV pictures! Take the camera outside and find a suitable subject, preferably something with a deep field of focus such as a sculpture garden, a long hallway, or have a model or a friend stand between you and a distant tree. Bring the Xap Shot up to your left eye, position the model's nose directly in the center of the frame and fire off a shot. Then move the camera to your right eye, re-center the view so that the model's nose is in the exact same location in your viewfinder and take another shot.

Digitize both pictures with DCTV, remembering which one was left-eye and which was right-eye and save them off to disk in DCTV display mode. Now merge the left and right views together with the Haitex M3D utility that came on the disk with your glasses. Voila. Stereo DCTV real-life pictures. Naturally you'll need both your DCTV and X-Spec connected at the same time to view them properly, and you could use Impulse's freely-distributable IVIEW program which will both display the picture and toggle on your glasses.

As a national Amiga sysop (I run the Amiga Zone on The Portal System), I need to keep up with the latest doings in the Amiga community so I attend AmiExpo and other trade shows whenever possible. My Xap Shot is always with me. I shoot pictures of manufacturers' booths, new products, and familiar faces at these shows. Once back home, I use my DCTV to digitize from the camera, and create pictures I can upload to our online library so our online users who could not attend can see what they missed. Rather than forcing folks to download many pictures, I've developed a simple technique whereby I combine four or more Xap Shot picture on a single DCTV screen.

After I digitize a picture, I switch to DCTV's paint program, use the clip tool to grab the entire screen and then use the HALF button to reduce the full screen to one-quarter screen size. I paste this resized clip down in one quadrant of the screen, return to the digitizing part of the soft-

ware and grab another picture, and so on until I've created four quarter screen clips and assembled them onto one DCTV screen. Unfortunately, DCTV Paint offers no "grid lock" so this has to be done pretty much by eye. Happily, the new 1.1 DCTV paint software now has an Undo feature so if the pasted brush isn't exactly where I wanted it after slapping it down on the screen, I can try again till it's perfect. This technique of halving the full screen images actually makes the smaller images appear sharper to the eye.

Once I've assembled my montage of Xap Shot pictures, I can use DCTV's font features to add titles and my signature and copyright information. Then I'll save the entire screen out as IFF24 format, and compress it into JPEG format using ASDG's Art Department Professional. I prefer to share my work in JPEG format since (a) uploading a DCTV display format picture means a person has to own a DCTV to view it, which severely limit my potential audience, and (b) I actually get better overall detail and color fidelity by working only with the 24 bit data. Once you've saved a picture in DCTV display format, and THEN load and save it back out as IFF24, quite a bit is lost, and DCTV often adds some undesirable artifacting to the original image. Work only with 24 bit data and you can avoid that problem entirely.

By now, I think you'll realize that the Canon Xap Shot still video camera and DCTV's digitizing and paint features make for a terrific portable image acquisition and processing team, and you can put both of them on your desk for a cash outlay of around \$800.

If you have questions about any of this you can reach me as follows:

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If you own an Amiga, then you already have one of the best tools available for digitally recording, manipulating, and reproducing audio for video applications. The Amiga can virtually replace conventional tape recording and editing systems in the video environment. The advantages of digital sampling and editing sound are tremendous. A sampler hardware/software system with a MIDI/SMPTE interface (such as Dr. T's Phantom) assures frame-accurate synchronization with video at considerably less cost than analog tape systems. Editing sound with a digital sampler and the appropriate software can completely replace the tedious job of editing tape with a razor blade - with even greater precision. And more importantly, edits can be done in a non-destructive fashion. Audio segments can be copied repeatedly without losing any audio fidelity. Sounds can be manipulated experimentally in a variety of different ways.

A sampler and the right software can greatly enhance any audio/video system on a budget. Basically, your Amiga can be used to replace a stand-alone audio processing system. Your Amiga can serve as a real-time digital effects processor, create echoes or delay, filter or equalize sounds, or perform as a flanger or harmonizer. And with a little time and some practice, you can become proficient at digitally editing sound or narration for your video work. Music can be edited to create seamless new arrangements customized to fit the time restrictions and

mood of any video project.

If you were with us last month, you'll know that we took a close-up look at two eight-bit hardware samplers for the Amiga, Great Valley Products' new Digital Sound Studio (DSS-8) and SunRize Industries' Perfect Sound 3. Both packages come with a hardware interface (which plugs into the computer's parallel port,) and some very rudimentary controlling and editing software. Both samplers access the internal sound circuitry found in all Amiga computers for sound production. Either can be used to create sounds which can be easily edited, or imported into other Amiga music and multi-media programs.

This time, we'll examine some of the new, advanced software packages which offer the ability to sample, and edit samples with any Amiga parallel sampler. Understanding the use of these powerful audio production tools should be of tremendous interest to professional and amateur Amiga videographers alike. Additionally, this month we'll cover Aegis/OXXI's software/hardware combination, Audio Master IV and Sound Magic (formerly Sound Master.)

### Sampling the Latest Software

In this month's installment of AVID's in-depth series covering Amiga sound for video, we'll examine three advanced programs for sound sampling and editing: Audition 4, from SunRize Industries, A-Sound Elite from Canada's Deltaware, and AudioMaster IV from Aegis/OXXI. Each of these software

packages offers a slightly different and unique set of options for sound manipulation and reproduction.

The programs are similar in many ways, offering several of the same standard features and functions, including graphic display of sound data, and the ability to cut, copy, and paste segments or phrases of music or dialogue. The programs can all sample and manipulate sound in mono or stereo. All three allow samples to be loaded and stored as either the Amiga's native one, three, or five octave instruments in IFF 8SVX or Sonix format. Any of the three can be used to create sequenced loops within larger samples, thereby creating extended songs from relatively small samples. Segments can be selected by dragging the mouse and highlighting the portions of the sampled waveform you wish to play. The sections can be made to repeat, and they can be sequenced in any order you define, creating a song much longer than the length of the original sample, and saving valuable disk space and RAM space! Spoken phrases can be treated similarly. Multiple takes can be recorded sequentially directly into the computer's RAM, so precise edits can be made from among the different takes. (Just think of the fun you could have with Dan Quayle, Murphy Brown, and The Invasion of the Bodysnatchers!)

There are some differences in the ways these programs handle, store, and reproduce sample data. Rather than doing a complete review of all of the individual features offered in these three pro-



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**see article on page 40**

grams, we'll be paying particular attention to some of the tools possessed by each of the programs which have direct applications for video producers. But, before we get into the details of those programs, here's a brief supplement to last month's coverage of Amiga sampling hardware/software packages...

### Sound Magic

Sound Magic, Aegis' latest entry into the Amiga eight-bit hardware sampler market, corrects one of the major drawbacks which was present with both SunRize Industries' Perfect Sound 3, and with GVP's DSS-8. Namely, they are both relatively inaccessible due to their location on the back of the Amiga. To correct this inherent difficulty, the Sound Magic sampler has a four foot cable for connection to the parallel port, allowing the unit to be placed within easy reach.

The unit also has stereo line level inputs, stereo miniature microphone inputs, and a built-in microphone, with one LED to indicate signal overload, and another to show the (on/off) status of the built-in microphone. (As you might expect though, it's not exactly the highest quality microphone, but it is convenient for testing to see if audio signals are being received and processed by the software. The built-in microphone also has a tendency to pick up a fairly good amount of noise due to it's close proximity to the Amiga's fan.) Also present on the Aegis' Sound Magic is a slider for volume control of the incoming source. The design of the Aegis Sound Magic makes it my new personal favorite among Amiga 8-bit sampler hardware. And, it works well with all three of the programs covered in the following article.

### AudioMaster IV

Sound Magic comes bundled with AudioMaster IV, the latest version of Aegis/OXXI's popular sound editing software. Audio Master IV, also available as a separate program, functions equally well with many different Amiga samplers, including several older or obscure hardware samplers not supported by most sample editing software. This makes the stand-alone version of AudioMaster IV the obvious choice for anyone with an older hardware sampler not currently sup-

ported by Audition 4 or A-Sound Elite.

The program has a number of features which place it ahead of the pack in audio-for-video applications. Real-time effects include echo, delay, digital filtering, and something not found in any other Amiga program, real-time pitch-shifting. Another feature not found elsewhere which is extremely useful for video applications is called time compression. Normally, when the playback speed of a sample is changed, the pitch is also altered. Audiomaster IV lets you play back a sample faster or slower *without* changing the pitch. This works equally well for music and speech. Now, with AudioMaster IV, the length of a sound can be stretched or compressed to fit the time constraints of a video segment. If you've ever produced a commercial or public service announcement you know how difficult it can be to stay within the precise limits set by broadcasters. This is an easy way of assuring that you will not lose the end the narration track on your 30-second spot. (Make it 29 and a half!)

AudioMaster IV supports sequenced loops, which allow longer songs to be constructed from repeating phrases, as do the other two programs we'll review this month. However, AudioMaster IV has the unique ability to fade out the volume of a sequenced loop. The starting point for the fade is marked and then the program carries out the desired operation. The program will also automatically strip the "dead space" from a sequence, removing segments of the sound wave which are not actually used in the sequence. This can potentially create a much smaller sample by trimming all of the data which is not used in producing the sound.

AudioMaster IV also has the ability to utilize a playback process called oversampling. This results in a higher fidelity playback on all samples, particularly those with a low sample rate. Even sounds created with other sound editing programs actually sound better when they are played back by AudioMaster.

Although the program does not directly support the creation or editing of multi-timbral IFF instruments (those which have different sound samples in each of the octaves,) an additional utility called MultiMaker is included with Au-

dio Master IV. Three or five separate samples can be assembled into a single IFF 8SVX instrument, and saved for use in any Amiga program which utilizes these standard format sound files.

#### Audition 4

From SunRize Industries, the makers of Perfect Sound 3, comes their latest advanced sampling and editing software, Audition 4. While the program was written primarily to support Perfect Sound 3, it works with any Amiga parallel sampler. Written entirely in assembly language, the program is well designed, and very fast. Samples can be made at up to 56,000 cycles per second (with an accelerated Amiga,) and then re-sampled and saved at a slower sampling rate to save disk space. It has a good zoom function, so viewing and editing a sound wave with Audition 4 is quick and easy.

The program automatically calculates and creates three or five octave IFF 8SVX or Sonix instruments, but does not, however, support the creation of instruments (such as drum sets) with different sounds in the octaves. The program

records samples to the largest contiguous block of memory, so with expanded memory very long samples can be taken. Samples can also be recorded directly to disk, creating the eight-bit equivalent of a mini-CD. These disks can be played back on any Amiga—no special equipment or software is required. So, music or dialogue could be distributed or transferred to anyone who has access to an Amiga. The program supports sequenced loops, allowing longer songs to be built from repeating sections. An on-screen oscilloscope and peak level meters can also be displayed.

The program also performs real-time effects, allowing the Amiga to function as a digital effects processor. Effects such as volume changes, filter settings, and echo speed and decay can be adjusted in real-time, so variations can be tested before permanently committing them to disk. The program's Try function allows settings for effects and mixes to be "auditioned" before edits are committed to memory. Also, sound can be over-dubbed or recorded directly into existing sound samples, with

an adjustable ratio of incoming signal to existing soundwave. The sampling process can either be triggered by the left mouse button, or as the incoming audio level reaches a specified threshold.

The way in which Audition 4 allows volume to be ramped is also extremely useful in mixing audio for video. A range within a soundwave can be selected and highlighted by dragging the mouse. Then the sound levels for the range can be specified by setting the start and end volume. In other words, starting and ending percentages of the current level (100%) can be set, and Audition 4 will automatically make adjustments in the volume levels, creating a smooth change. For example, a change of 50% will cut the level in half, 125% will increase the volume by one quarter. The program automatically calculates the change from starting volume to ending volume, and creates a smooth transition, unless the resulting wave would cause clipping, in which case the program compensates for the oversaturation. Waveforms can also be combined or mixed, and the ratios of each

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component wave can be determined for the resulting soundwave. The Maximize function boosts the level of the sound to its maximum level without distortion.

### A-Sound Elite

Perhaps the most recent entry in the Amiga sound editing market is Deltaware's A-Sound Elite. While reproducing most tools found in the other software packages, there are a few extremely useful additions to the structure of A-Sound Elite which could be of particular importance in video work. The program uses 32 tracks of audio, which can be used to cut and paste segments of a single piece of music to create a new version of a theme. This format is also advantageous when editing multiple takes of narration, or for re-arranging phrases of a dialogue or voice-over.

Unlike Audio Master IV or Audition 4, A-Sound Elite has an Undo function. With the other programs it is necessary to frequently save sound data to a disk file to avoid accidentally losing valuable data. A-Sound Elite can also record directly to floppy disk, but a special program found

on the A-Sound program disk, appropriately named Playdisk, is required to play these disks. Currently, A-Sound Elite is also the only one of the three programs which supports sampling, editing and playback via ARexx scripts. An extensive library of ARexx commands, along with concise documentation covering their functions and use are included with the A-Sound Elite package.

It also handles multi-octave instruments quite differently from either of the other programs. Multiple octaves can be loaded simultaneously into consecutive tracks to be edited independently. IFF instruments can be created using different sound samples in each octave of the instrument. A-Sound Elite is also the only program that can create seven-octave IFF 8SVX instruments, for use in other Amiga music and multi-media programs.

Recently, I needed a 28-second arrangement of a longer musical theme I'd composed and recorded for a client a couple of years ago. Rather than reloading the MIDI files into a sequencer, re-editing and recording the new shorter

arrangement with my MIDI synthesizer system, I instead sampled the original digital recording. After sampling the entire song, it was a relatively simple process to copy the component segments of the piece (i.e., intro, first verse, second verse, bridge, and closing,) and then to paste each part in a separate track. The new, shorter version of the song was easily created by pasting each section into a single track in the desired order. An extended arrangement could just as easily been built in the same manner by arranging any number of these same segments in any order. In this particular case, however, I basically cut out the middle portion of the song and put the two ends together to make the piece fit the new, shorter video segment.

A-Sound Elite (currently in version 1.1) does have some problems. Numerous instances exist where values such as filter and volume settings and mix ratios are preset, and cannot be changed. This largely limits the flexibility of some sound processing operations, such as adjusting levels for mixing waves, and for setting

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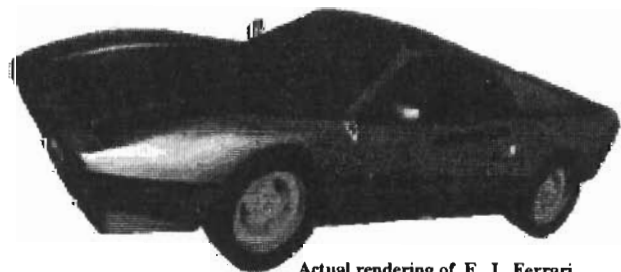
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the cutoff frequency of the digital filtering effect. Also, the sample size and rate must be set for each of the 32 tracks before each sample is recorded. A-Sound Elite does not automatically record to the largest block of memory.

I also had some problems with normal editing functions when I attempted to edit a very large sample—the program simply ceased to carry out the requested cut, even though the range selected was in fact very small. But, because of its multi-track approach to handling samples, some may actually find A-Sound Elite to be easier to use than Audition 4 or AudioMaster IV, particularly in instances where multiple sounds need to be handled simultaneously. And, A-Sound Elite may be the right program for your needs if you need to create multi-timbral IFF instruments for use in Amiga music programs such as Dr. T's Keyboard Controlled Sequencer, or Bars and Pipes Professional.

#### That's All For Now

I hope last month's and this month's articles have helped you to understand the basics (and some of the specifics!) of

the process of digital sampling. The main idea was to give you some insight into the potential uses of the hardware and software utilized in this relatively new field of digitally recording and editing sound.

Next month we look at SunRize Industries' newly released 12-bit sound card and hard disk recording system for the Amiga, the AD-1012. I've just received the beta version of the module which will allow the AD-1012 to be controlled from within Bars and Pipes Professional. Theoretically, at least you should be able to trigger 12-bit samples from your hard drive with MIDI notes directly from within Bars and Pipes Professional. Accompanying tracks—vocals, guitar, or other instruments—can be made to play along with MIDI sequences, and the record function can also be controlled from B&P Pro. I'll let you know how well this works next time around!

If you'd like to get working demo versions of Bars and Pipes, Bars and Pipes Professional, Synthia Professional, and M, just send me four blank 3.5 inch disks, and the appropriate return postage

and I'll be glad to provide them for you.

A-Sound Elite is produced by DeltaWare, 3148 Kingston Rd.,

Suite 202, Box 395, Toronto, Ontario, Canada M1M 1P4.

Perfect Sound 3 and Audition 4 are from SunRize

Industries, 2939 S. Winchester Blvd., Suite 204, Campbell, CA, 95008.

Digital Sound Studio (DSS-8) is a Product of Great Valley

Products, 600 Clark Ave., King of Prussia, PA 19406.

Sound Magic and AudioMaster IV are from OXXI-Aegis, PO Box

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Jaxon Crow has just released his first tutorial videotape on producing Sound for Video projects entitled AMIGA MUSIC FOR VIDEO, Volume One. Jaxon can be reached for questions or consultation at: Neon Tetra Productions, P.O. Box 876, Hot Springs National Park, AR 71902, (501)321-1198. Please call or write for a free catalog of our audio and video tapes.

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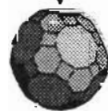
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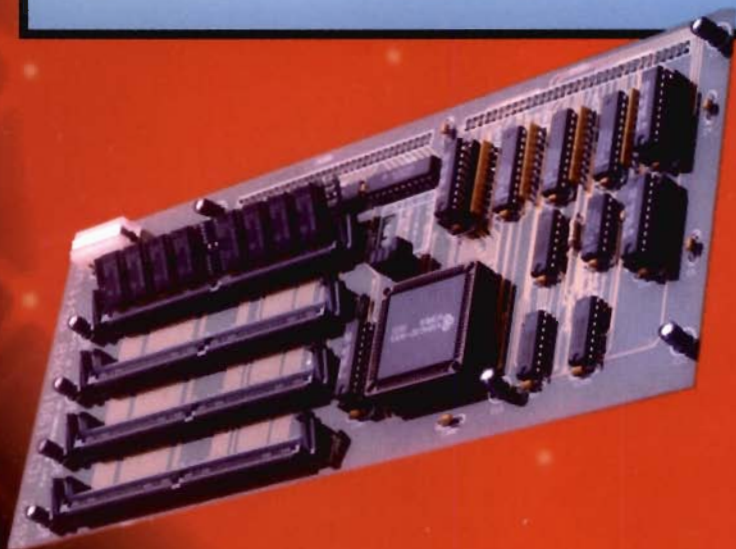
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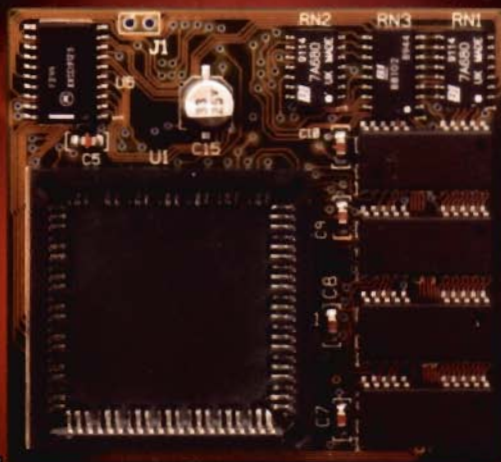
- Installs onto the CBM A2630 Accelerator card.
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- Compatible with the MegAChip 2000/500™ and MultiStart II™ ROM board.

- Now you can go beyond 4 Megabytes of 32 Bit memory.
- Expandable up to 112 Megabytes of 32 Bit memory.
- State-of-the-Art design breaks the 32 Megabyte limit that other accelerator cards have and allows the use of different size memory modules in the same bank.
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If you use your Amiga for Desktop Video, 3D Rendering & Animation, Multimedia or Desktop Publishing - Then you need the MegAChip 2000. Doubles the amount of memory accessible to the custom chips. Uses the 2 Megabyte Agnus that's in the Amiga A3000. Greatly enhances Graphics capabilities. Fully compatible with Workbench 1.2, 1.3, 2.0, and the ECS Denise chip. Fully compatible with the Video Toaster and other genlocks and framebuffers. Fully compatible with GVP's and Commodore's 68030 accelerators. Why upgrade to 1Meg of Chip RAM when you can have 2Megs of Chip RAM like the A3000?



### DKB Software

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# LETTER

*An AVID Subscriber  
Supplement*

June 27, 1992  
11:55 AM  
Silicon Gulch

Welcome back to another issue of the AVID LETTER, a subscriber-only supplement to AVID, The Amiga-Video Journal. We're heading right smack into another summer of Amiga-Video fun. While summer's are traditionally slow in the magazine publishing business, nothing could be further from the truth here at AVID Publications.

As many of you know, we started publishing Video Toaster User (formerly Bread Box) a few months ago, and like the Video Toaster itself, the magazine has experienced meteoric growth. What was a 20-page newsletter in December was a 44-page magazine in February, a 60-page magazine in April and an 84-pager in June. We've definitely been riding a rocket with VTU. A nice side-effect to this growth has been an increased interest in AVID. Subscriptions to AVID have markedly increased since we began publishing VTU.

I got another opportunity to spend a few days visiting NewTek in Toasterville, USA a few weeks back. The Alcatraz programming team was hard at work on Toaster System 3.0, and I got to take a few sneak peeks at some of the cool stuff they're working on for the next version of the Toaster software. Apparently, Alcatraz hasn't missed a beat since the release of 2.0, because they already have a number of major improvements written for most of the Toaster modules. Still, the general feeling I got was that they're just getting started, so don't expect to see anything until at least early next year.

Here are a few things I learned on this trip:

1. NewTek is getting out of the Toaster Workstation business. There are a number of reasons for this, but probably the biggest one is to help relieve tensions between NewTek, Commodore and the Amiga dealer channel. Apparently, Commodore told many of its dealers that if they signed on as authorized Toaster Workstation dealers, they would be in danger of losing their official Commodore dealer status. Some dealers ignored this and signed up with NewTek anyway, but the majority of them were reluctant to cross Commodore on this issue. These dealers could still sell Toaster systems by buying Toaster cards and installing them in Amigas, but because they were not official NewTek Workstation dealers, they did not have receive many NewTek amenities, including access to the lucrative NewTek referral network. NewTek has less than one hundred workstations in stock and when those are gone-that's it.

2. NewTek received its biggest publicity hit ever with a segment on Tom Brokaw's NBC nightly news. On June 10th over 12 million viewers got their first glimpse of the Video Toaster. The piece focused primarily on NewTek's unique way of doing business, prompting a flood of resumes to flow into NewTek's mailroom. The producers of the Today Show have, apparently, been considering a segment that would put the Toaster directly on the Today Show set where it would be controlled by Bryant and Katie during the taping. We'll keep you posted.

3. NewTek has decided to make available the first offerings of what may soon be a complete line of products featuring the distinctive Toaster logo. The first products available are T-shirts and posters. Look for NewTek's ads in both AVID (this issue) and Video Toaster User.

4. Look for NewTek to get into Toaster training in a very big way. There are tentative plans to launch what NewTek is calling the "World Tour", beginning this fall. The tour would have a group of NewTek Toaster experts visiting as many as 60 US cities in 4 month period. No scheduling details are yet available, but NewTek has promised to keep us posted.

5. There's been a lot of talk the past few months about NewTek moving from Topeka. A number of potential sites have been mentioned including Los Angeles, the SF Bay Area and even Kansas City. On this recent visit, however, I noticed that NewTek is renovating and moving into a number of spaces in downtown Topeka (including bigger, newer digs for Alcatraz). With all that energy and money being poured into Topeka, it seems unlikely that a move would happen anytime soon.

The main reason I took the Topeka trip was to open a dialogue concerning an All-Toaster trade show/exhibit/carnival/event. With close to 20,000 Toasters out there (that's not an official number just my "best guess") and current sales going extremely well, the interest is high and the time is right to put a major event together. NewTek was very enthusiastic and supportive of the idea and gave me the go ahead to look dig deeper into the details of promoting a "Video Toaster EXPO". I've been doing quite a bit of work on this project in the past couple of weeks and I'm just about ready to lay out my preliminary findings to the NewTek decision-makers. If everything goes as planned I should be able to give you some early details in the next issue of the AVID LETTER.

Going to Toasterville is always an inspiring event. I get real charge out of being around people who are working hard to change the world. Seeing some of the new 3.0 features is fun too. On this trip however, two events stuck out in my mind. The first is a conversation I had on a drive to nearby Lawrence for dinner. My driver (pilot?) for this trip was none other than Kiki Stockhammer. Kiki was driving ToasterCG programmer, Steve Hartford's, canary yellow Nissan 300ZX. We took the freeway on the way to Lawrence, so the drive going there was pretty tame. We took the back roads on the way back, however, and that was another story. In the middle of one G-pulling curve, Kiki casually mentioned that she had spent a lot of time driving on Germany's autobahn. Need I say more? Actually, after a few white-knuckle moments, I realized that she actually knew what she was doing, so I relaxed (sort of). The drive (in both directions) gave us the chance to talk about a lot of different subjects, the details of which I won't bore you with. Let me just say this: Every time I talk to Kiki she impresses me a little bit more. There is a very sharp mind behind that pretty face. I can't shake the feeling that this girl is destined for big things.

While the first highlight took place at ground level, the second memorable event occurred 3000 feet in the air. NewTek president, Tim Jenison, who earned his pilot's licence several months ago, took

Paul Montgomery and myself on an afternoon flight to Manhattan, Kansas (about 65 miles west of Topeka). Even though my stomach rebelled against the adventure, the flight over and back gave me the chance to hear Tim and Paul discuss their views on the future of the Video Toaster and the desktop video market, in general. It would be a gross understatement to say that the conversation was enlightening. I was planning to share some of the details of this conversation, but they both threatened to reveal the "puking" incident if I gave away any of their secrets.

Before I close, I'd like to mention a couple of items that should be of interest to all Amiga videographers. DKB Software is now shipping their MegAChip 2000/500 with the 2 MB Fatter Agnus chip already installed. Most of you know how I feel about the MegAChip (I HIGHLY recommend it!), and this new combined package is an even better deal than ever. DKB is also shipping the 2632 memory board that lets Amiga 2500 owners (with 2630 accelerators) exceed the current 4 MB restriction on 32-bit RAM. The 2632 board lets you install up to 116 MB of 32-bit RAM for use by 2500 owners. See David Duberman's report on the combination of DKB's 2632, and CSA's Rocket Launcher in this issue of AVID.

Yesterday we received a review copy of Innovision Technologies' new Broadcast Titler 2. This is the long-awaited " Super Hi-Res" version that takes advantage of enhanced display modes available to Amiga owners whose machines have the new ECS Super Denise Chip installed. This gives the Amiga the capability of addressing a pixel resolution of 1472 x 480 (commonly referred to as 35 nanosecond output). We will be giving this ground-breaking CG software a very close look in an upcoming issue. the Super Hi-Res version of Broadcast Titler 2 has a suggested retail price of \$499.95, but registered BT 2 owners can upgrade for only \$99. Call 510-638-8432 for additional information.

Inovatronics is a company we are keeping a close eye on. Their Amiga 500 Tower product is, apparently, only weeks from shipping and we should have review unit in house by the time you read this. We're very interested in seeing how well Inovatronics has implemented the video slot feature of this product. This could really open the doors for Amiga 500 owners to access the world of high-end genlocks, Toasters and other products that need this video slot.

The AVID Animation Tape is still selling very well (thanks!). Those of you who've purchased it may not realize the the mailer box contains a built-in reply card that you can use to choose your favorite animation segments. The top 3 vote-getters win some really cool prizes. The AVID Animation Tape is available for only \$10 by calling 1-800-388-3696. Besides the tape, we've also developed a custom keyboard overlay for Video Toaster users. The overlay consists of 5 separate overlays bound together. It firmly attaches to your keyboard with included Velcro tabs. The overlay features keyboard equivalents and other quick tips for the Switcher, ToasterPaint, ToasterCG, LightWave and Modeler. The price is \$19.95 and that includes shipping in the US (California orders include \$1.65 sales tax. Orders from Canada and Mexico add \$3 for shipping. Overseas orders add \$5 for shipping). Call 1-800-322-2843 to place your order for the Video Toaster User Keyboard Overlay.

Well, that's all for this month. I'll see you soon in the next AVID LETTER.

Jim Plant-Publisher



ANNOUNCING...

## The AVID Animation Tape

A sixty minute video compilation of animations created by AVID readers using the Amiga and a wide variety of hardware and software including the Video Toaster, Imagine, FireCracker 24, Deluxe Paint and other popular Amiga-Video tools. These animations were created with commercial applications in mind and will be a very valuable source of concepts and ideas for your own Amiga videographic projects.

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