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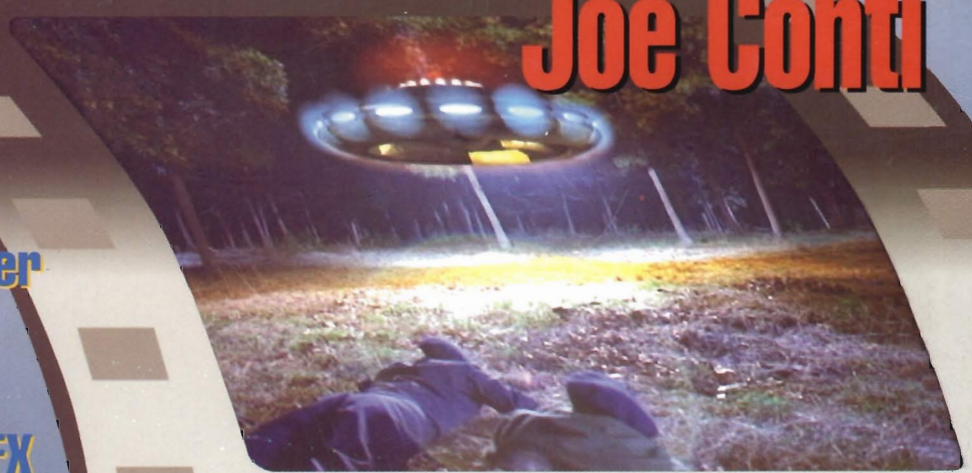

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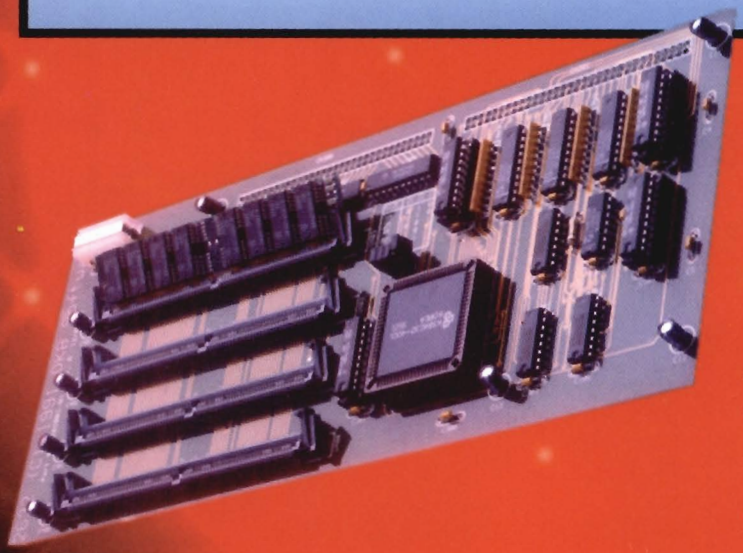

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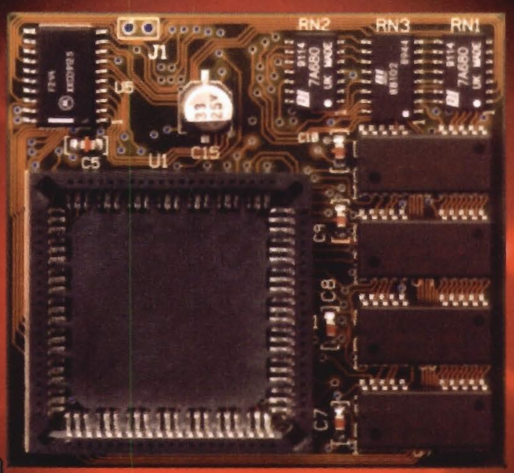

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THE DESKTOP VIDEO MAGAZINE

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VIDEO TOASTER USER is published bimonthly by AVID PUBLICATIONS, 21611 Stevens Creek Blvd., Cupertino, CA 95014. Subscription rates: 12 issues for $36 Application to mail at second class postage rates pending at Cupertino, California..
POSTMASTER: Send address changes to:
VIDEO TOASTER USER
21611 Stevens Creek Blvd.,
Cupertino, CA 95014

Toaster Talk

By Jim Plant

I have a dream (with apologies to MLK). It is certainly not an original dream. In fact, it is a dream that I believe is shared by many of you. My dream is simple: I want to be able to easily and affordably tap into the vast communicative powers of the audio-visual medium. Instead of sitting passively as waves of other's messages wash over me, I want to be the one who chooses the message. I want to be the one who produces the vehicle that carries the message to my chosen audience. I want to be the one who is in control, from conception to completion, of the entire communication process.

I want the same kind of control that desktop publishers have over the print medium. They can sit down at their computers with just an idea and, within a very short time, produce a laser-printed document with production values of sufficient sophistication to satisfy all but the most discriminating audience. I want to be able to sit down, all by myself, at my low-cost desktop video workstation with just an idea and be able to walk away a couple of hours later with a polished, professionally produced videotape.

The arrival of the Video Toaster, more than any single occurrence, has taken a dream that was mostly a glowing ember in the back of my mind, and fanned the ember into a small hot flame. No, the Toaster is not yet the complete answer to my dream (notice I said YET). But, in a very short time, NewTek has proven that the dream is reachable. More than that, I know that the folks at NewTek share my dream, as well. And, they're doing things to turn what has always been a fantasy into a reality.

Because of my position as editor of

Video Toaster User, I have the unique opportunity to talk, on almost a daily basis, to various NewTek personnel about this dream we share. This unique channel of communication allows me to get regular glimpses into the immediate and long-term direction of the Toaster. Naturally, a lot of this information is of a sensitive nature, so I cannot get too specific about much of what I hear. I CAN tell you this: BIG things are happening on the Silicon Prairie! I can also tell you that my dream is in very good hands.

The NewTek "World Tour" is Coming

In the coming months you are probably going to hear more and more about a new training/promotional program that NewTek has been putting together. This program is currently referred to in Topeka by the codename "World Tour." World Tour is what in earlier times was commonly known a "Traveling Road Show." NewTek's variation on this theme is designed to put a large group of enthusiastic NewTek Toaster experts and evangalists in a specific locale for anywhere from several days to a week. World Tour was specifically designed for the purpose of end-user training, dealer training, new customer prospecting and "just having a good time" with folks who want to learn more about the Video Toaster. NewTek is putting the final touches on the World Tour campaign and tentatively plans to launch it in Chicago to coincide with SIGGRAPH '92. If you're a registered Toaster owner you'll probably receive information directly from NewTek. If you're interested in finding out more about World Tour, call NewTek directly at 1-800-847-6111.

Toaster 3.0 on CD ROM?

It is still very early to be doing any SERIOUS speculation of the 3.0 Toaster software. But, having said that, one of the more interesting tidbits I've heard recently revolves around the possibility of a CD ROM version of the 3.0 software. There are several reasons that this might be considered. First of all, CD ROM technology has become much more popular in the past 12 months, and the price of CD ROM players has dropped dramatically. Secondly, if 2.0 is any indication, Toaster 3.0 software is going to be big. There's little chance that it will threaten CD ROM's 500+ megabyte capacity, but it almost certainly will exceed 2.0's 30-something megabytes. But, doesn't that still leave over 500 megs unused, you ask? Well, that leads me to point number three. NewTek could use that huge space to offer even more Toaster features. Or they could set themselves up in the 3rd party distribution business by letting other vendors put their software products on the disc. Vendors would have an efficient, low-cost way of delivering their product directly to the end user, and end users would have instant access to a potentially huge library of Toaster-related software. Anytime you found yourself in the middle of a critical job needing some specific Toaster font, or 3D object or texture, you could dial an 800# and use your credit card to unlock precisely the resource you need. Don't forget that I'm not a NewTek decision maker so I really don't know exactly how things will turn out. But, having given you the standard disclaimer, I'll tell you that I'm keeping my eyes open for a good CD ROM player.

DeskTop Video '92

DTV '92 was held May 21-23 at the Hyatt Regency-Airport near San Francisco. While attendance was very disappointing, those who did show up enjoyed the undivided attention of a number of Toaster-oriented exhibitors. DTV '92 was touted as a multi-platform show, but NewTek and the Video Toaster were the dominant attraction. NewTek occupied a HUGE space right smack in the middle of the hall. In fact, this was by far the biggest NewTek exhibit I have ever seen. A number of NewTek's most knowledgeable experts were on hand to provide top-knotch Toaster information. Among the crew that flew out from Topeka were Lee Stranahan, James Hebert, Arnie Cachelin and, of course, Kiki Stockhammer. Mac product manager, Jud Alford, was also in the booth showing off the Mac/Toaster combination that NewTek has officially dubbed ToasterLink/MAC.

Top NewTek execs, Paul Montgomery and Tim Jenison, made a rare appearance as the keynote speakers on opening day. They talked a little about the history of the Toaster and showed the eager crowd the latest Toaster demo reels and promotional tapes. They even provided a sneak preview of a new Toaster TV commercial that is slated for imminent broadcast in several test markets.

RGB Computers and Video, producers of the AmiLINK line of Toaster-compatible editing systems, had a very nice exhibit where they showed both the Amiga and the PC/Windows version of their product. HT Electronics, a local Amiga/Video Toaster dealer, had a very interesting setup that featured editing systems from both RGB and Videomedia. Videomedia, the company that manufactures the V-LAN devices that are used by many companies (including RGB) to interface computers and VTRs, has also developed a very sophisticated standalone editing system that integrates quite nicely with the Toaster.

There were four major Amiga/Video dealers in attendance at DTV '92: the previously mentioned HT Electronics, as well as Computer Showcase, Spectrum Computers and San Francisco Video. These four dealers also hosted representatives from various companies like GVP, MicroSearch, Scala, Videomedia, and Selectra.

Of particular interest to Toaster owners were the exhibits by Phil Kestell of Unili Graphics and Julie Peterson of Classic Concepts. Phil was showing his outstanding collection of 3D fonts for LightWave 3D (they're also available for Imagine and Caligari 2). Julie was showing her new collection of Toaster fonts, complete with all the proper diacritical marks for most popular foreign languages. Also of interest to Toaster owners was the exhibit manned by Bruce Robertson and Ralph Barclay of Cardinal Engineering. Bruce and Ralph are both ex-Grass Valley Group video engineers who have come up with a very well-designed product, called the BreadBoard, that helps overcome the critical timing problems that can arise when a Toaster is integrated into an existing video system.

As previously mentioned, DTV '92 was a multi-platform show, so there were a few MAC and PC-oriented exhibitors. But, to no one's surprise, NewTek and the Video Toaster dominated the show. You could not

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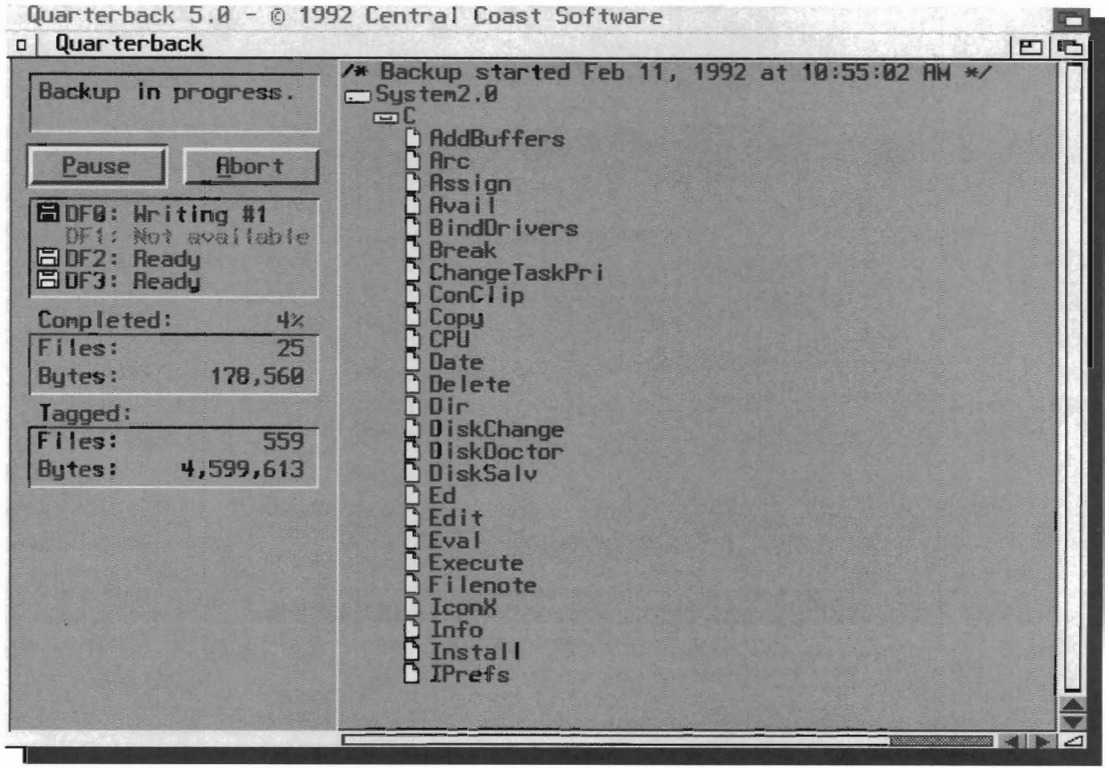

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SLICES

By James Hebert

Big news for those of you who missed the last issue of Video Toaster User, here's a quick catch-up on an important point you may wish to know: The second printing of the Video Toaster manual contained an additional addendum, known as the "Cool Tips Addendum." If you do not have this addendum, contact NewTek Technical Support and request a copy. It contains a half-dozen corrections to the manual itself, as well as numerous tips and tricks for using the Toaster, plus ARexx documentation for LightWave. Best of all, it's free of charge to Toaster owners.

More Big News...

By the time you read this, you may already be aware that there is a "bug fix" to two problems surrounding the System 2.0 software and certain third-party peripheral cards. (The term "bug" is used pretty loosely here since it wasn't a problem in the System 2.0 code, but the end result was a problem for some users.) The update will soon be available from Authorized Video Toaster System dealers, several of the national online networks, and many Amiga Toaster dealers. It contains no new features, only the following correction.

Different configurations of hardware within the Amiga operating system caused timing differences with the motherboard when saving a Framestore from the Switcher. The result was that the frame might be saved with horizontal or vertical lines running through it. A very small percentage of Toaster owners experienced this frustrating glitch. If you are one such owner, contact your local dealer (or NewTek Technical Support) for a single-disk System 2.0 update to correct the problem.

A second problem that occurred for Toaster users involved ToasterCG in tandem with the RCS 68040 accelerator. Unexpected interference could interrupt the display of Scroll Pages. This too has been taken care of by NewTek's programming team, Alcatraz, and the updated ToasterCG file is also contained on the single-disk System 2.0 update.

Again, this update is free from NewTek Technical Support, or for the cost of duplication from your local Toaster dealer. This update is a part of all Video Toaster System 2.0 software. If you just purchased the Toaster and are unsure whether you have it, contact Technical Support to find out.

ToasterCG In-Depth

One of the more powerful new features in ToasterCG is the ability to load text files directly into the page you are editing. This feature is useful for compositing lengthy credit rolls, displaying long lists of information (such as college class availability during enrollment), or converting an existing text file into instant CG graphics with minimum hassle (i.e., without retyping the entire file). I've even found it handy for saving "roughed out" ideas of CG pages when I'm in a hurry and haven't the time for the Toaster to boot up.

While a genuine word processor is preferred for this procedure, the WorkBench operating system's built-in text editor (Ed) can certainly be used to create and edit ASCII text for importing to ToasterCG. Whichever text editor or word processor you use, it must meet one main requirement: that it can save the file in the ASCII text format (some word processors may refer to this as a "text only" format). The other requirement is that you have a basic understanding of the organization of files on the hard drive (often referred to as the directory or file structure) so that you place the text file in the proper location where ToasterCG may find it.

The filenames that you use for ToasterCG pages follow a certain naming convention, called a pathname. The pathname is a simple method of describing both the location and the name of the file you are working with, in a single phrase. Here's an example pathname: **DH0:Toaster/CGTextFiles/Page00.text.**

You can read a pathname either forward or backward, because the information it contains leads you to the same result—a certain file in a certain location. Read forward, the above name indicates that on the hard drive device known as DH0:, in the drawer called Toaster, in yet another drawer called CGTextFiles, there is a file named Page00.text. Read backward, file Page00.text will be found in a drawer called CGTextFiles, which is kept within the drawer called Toaster, which is located on the hard drive known as DH0:.

All of the files that the ToasterCG will recognize must follow this naming convention. If not, when you select the Load Text File function ToasterCG will respond with the message "Unable to find file." (Unlike a word processor, ToasterCG does not present you with a menu of possible ASCII files to load into the page. The file must already exist for the page you are editing, otherwise the process will not function properly. ToasterCG accepts only one specific file for each individual page.)

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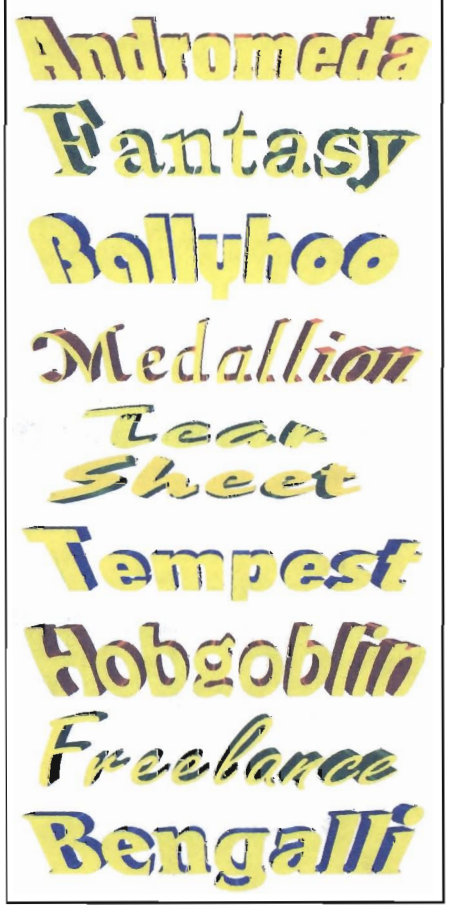

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Here's a list of pathnames for pages 00 through 04 that demonstrates the proper pathnames for a Toaster on hard drive device DH0:

```
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DH0:Toaster/CGTextFiles/Page01.text
DH0:Toaster/CGTextFiles/Page02.text
DH0:Toaster/CGTextFiles/Page03.text
DH0:Toaster/CGTextFiles/Page04.text...and so on through the final page...
DH0:Toaster/CGTextFiles/Page99.text
```

As an example, in order to load a text file into page 67, you will need to use a text editor to create a new file, type in its contents, and then save it with the name

```
DH0:Toaster/CGTextFiles/Page67.text.
```

Any slight variation on this file name will not be accepted by ToasterCG. As you may already know, close doesn't count with computers. Filenames need to be exact.

ASCII text files may be loaded into any type of CG page. Key and Framestore pages will only hold one screen's worth of text, since that is all they can display. Scroll and Crawl pages will accept files of almost any length, depending on the system's total available RAM. When creating the text file, the manner in which you type in the data determines its final appearance on the ToasterCG screen. This is also determined by the type of CG page into which you are loading this data. For example, consider the following lines as if they were an ASCII text file created for ToasterCG:

```
The Video Toaster Movie
starring
Miss KiKi Stockhammer
```

Loaded to a Key, Framestore Page, or Scroll Page, this file would appear exactly as it was typed in.

```
The Video Toaster Movie
starring
Miss KiKi Stockhammer
```

However, if you use too large a font size for the above pages, ToasterCG may need to place unwanted line breaks between words. The resultant page may look like the one below. (To remedy this, use a smaller font size first, then move to a larger size once the file is loaded and you can see how much room there is to work with.)

```
The Video Toaster
Movie
starring
Miss KiKi
Stockhammer
```

Loaded to a Crawl Page, this file would appear as below. All <returns> from one line to the next are ignored (they are treated simply as additional spaces). Extra spaces between words or phrases will be maintained.

```
The Video Toaster Movie starring Miss KiKi Stockhammer
```

Whichever type of page you load text into, line formatting will remain intact. If you have previously designed a certain page type, say a Framestore Page, with six lines of text, and each line uses a different font and color, then the newly loaded text file will retain those settings on a line by line basis.

Unless a word processor is handy, I tend to use the Amiga's built-in text editor called Ed. Although inelegant, it is simple and handy, (note: the updated Ed in WorkBench 2.0 is even friendlier). There are only a few commands you really need to know in order to set up a quick test file to load as ASCII text.

1. Open a Shell or CLI window.
2. Type ...

```
Ed DH0:Toaster/CGTextFiles/Page99.text.
```

A new window will appear, with the comment Creating New File at the bottom. (Be certain to type the filename correctly for your hard drive. If you make an error, you may be editing a file that the system will save under the wrong name/location!)

3. Enter the text from the examples above, using your own name or anyone else's in place of KiKi's. Remember not to go too far out on a line. Type several lines

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4. When complete, press the Escape key once (an asterisk will appear on the bottom line of window), then press the letter x (it will appear beside the asterisk), then press <return>. This will save the file, and exit the text editing program.

Now fire up the Video Toaster and enter ToasterCG. Go to page 99 and select the type of page you desire. Now hold down the Alt key and press F9. The page will fill with the text file you created earlier.

If for some reason ToasterCG will not load the file, the most likely answer is that the filename was incorrectly typed. This results in the file being "in the wrong place at the wrong time."

The error may be any of the following:

(a) an incorrect hard drive name (you did use your own in place of DH0:, didn't you?).

(b) a typo in another part of the full pathname (the letter O in place of the number 0 in DH0:).

(c) a punctuation typo, such as a semicolon (the period-comma) instead of a full colon (two periods).

The Ed text editor is documented in all Amiga manuals. However, the most common commands I find myself using are these:

1. Ed (followed by the full pathname of the file). This "starts" the text editor with the filename I wish to use. If the file already exists, it will appear. If not, it will be a new blank file.

2. Ctrl-a to insert a line at the cursor's current position.

3. Ctrl-b to delete a line at the cursor's current position.

4. Escape, x to save the file and leave the editor.

5. Escape, q to leave the editor and *ignore* any changes made to the file (this is handy in case you really foul it up!).

You might wish to try these out to get an idea of how Ed functions, and how ASCII text files work within ToasterCG. You may find them handy.

The CG Buffer Page Mystery Part I

Manual indicates that Scroll and Crawl Pages may be saved as CG buffer pages. Let the buzzer sound! This is an error, actually. Since Scroll and Crawl pages are rendered by the Video Toaster "on the fly," there is no need to pre-render them.

The CG Buffer Page Mystery Part II

A number of callers to technical support have had a bit of difficulty recalling previously saved CG buffer pages. They successfully create, render, and save the page. However, after shutting down and restarting the Toaster, those pages are missing.

The step that's missing in this equation is that of saving the Project after the buffered pages have been created and saved to the hard drive. Without this crucial step, the Toaster does not "know" that buffered pages have been saved. Therefore, here are the steps that should be taken to save and recall ToasterCG buffer pages successfully.

1. Create a Key or Framestore Page.

2. When the page is to your liking, hold the Alt key and press F9. This will render the page and save it to the hard drive.

3. Press the Escape key to return to the Switcher (do not shut down the Toaster, you want ToasterCG to remain loaded in memory).

4. Press F10 to go to Toaster Preferences.

5a. If the Project that is showing is the one you want: double-click on the Save Project button (it looks like an arrow aiming into a disk). Answer Yes to the confirmation menu that appears.

5b. If the Project that is showing is not the one you want: click on the Save Project button, press the period key on the numeric keypad, type a name for the Project, then double-click on the Save Project button.

At this point, you may safely shut down the system. When you return to the Video Toaster and load this Project, the buffered page(s) will be available to the Switcher for instant loading.

FYI, buffered pages are saved with a the current page, and the current Framestore device. You will not be offered the opportunity to name the page when you save it. To the underlying computer system, a typical buffer page filename looks like this: **007.PG.047-DH0**. The first three digits (007) indicate the Project to which this page belongs. The next two characters (PG) indicate that this is a page. The second three digits (047) indicate the CG page number that this file represents. Finally, the last three characters (DH0) indicate where the current Project is located.

Loading Version 1.0 ToasterCG Books into System 2.0

Several users have attempted to access Version 1.0 Toaster Projects (that contain CG Books) without success. The names/positions of certain Switcher effects were altered, and this alteration causes difficulty in loading an older file. However, there is a way to access the original CG book and get it up to date.

1. Start up the Toaster.

2. When you reach the Switcher screen, activate the CG by clicking on it once (of course, if the CG button is solid or dark, it is already active and you may skip this step).

3. Press F10 to go to Toaster Preferences.

4. Select the proper device where the Version 1.0 Project files are located.

5. Locate the correct file using either the mouse (dragging it over the three-digit numeric window) or the numeric keypad (pressing the plus or minus keys).

6. Double-click the Load CG Book button (it looks like three stacked pages). This will load the CG Book *only*, ignoring the Project file itself.

7. Return to ToasterCG. You will find, upon entering CG, that your files are intact. At this point, it is advisable that you return to Toaster Preferences and save this book in its updated form, with a System 2.0 Project.

Well that's all for now. See you next issue.

James Hebert is head of Technical Support at NewTek.

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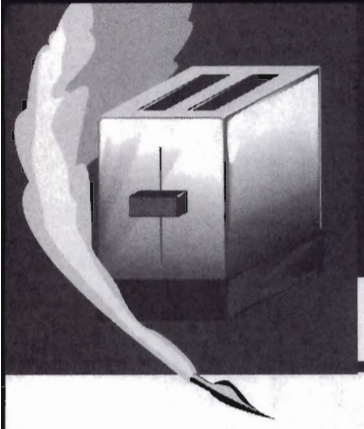

Dear John

By John F. Gross

Welcome to this month's Dear John Column, where I answer your Toaster questions. Let's take a look in the mailbag and see what we have.

Q: *Is it possible to create ANIM files from frames created by LightWave 3D to play back at a reduced resolution and frame rate to get an idea how your effects look without using a VTR? How could I get the detailed information to create such files or find out which software to buy?*

James Guske

Rancho Cucamonga, CA

A: There are currently three programs that I know of that will allow you to do exactly what you want. Rend24 is a shareware program created by Thomas Krehbiel (see page 36). It is a fully multitasking program that operates in the background, converting images into a lower resolution anim file as you render them from LightWave. ADAM is a CanDo application created by Daniel McCoy. It is similar to Rend24 with the exception of converting images to DCTV format. The third way I know of converting images to a lower resolution and combining them into an ANIM file is to use FRED, the new frame editor that is included with the latest version (2.1.3) of Art Department Professional. You could write an ARexx batch script that would convert a number of LightWave rendered images to a lower resolution and then use FRED to combine them into an animation.

Q: *Your Q & A column on the Video Toaster caught my attention and I hope you can help me with using Toaster 2.0 with the A3000. You see, we bought an A3000 as soon as it came out and were told at the time that there would be no problem in using the Toaster with it. We found this to be "salesman talk" since it was incompatible. Later on we managed to run the Toaster by changing the super Denise chip for the regular Denise chip and it worked fine. We recently purchased version 2.0 of the Toaster, but to my surprise, after a normal installation process, I kept getting the infamous "Toaster not responding" message over and over. After several trials rebooting (warm and cold), I still got the same result. I reinstalled the old version of the Toaster software and it worked fine. Is there any other adaptation that must be made? Please help me - it's very frustrating to have 2.0 and not be able to use it.*

Roberto Pons

Director - Cristal Rio Producoes

Rio de Janeiro, Brazi

A: In talking to the knowledgeable folks at NewTek Tech support, I was informed that occasionally the new version of the Toaster software may give the "Toaster not responding" message when installed in a 3000. There is one adjustment you could make to the Toaster board that may correct the situation: Carefully remove the cover of the computer (4 screws on the sides and 1 in the top-middle back). When viewing the side of the Toaster card, you will notice a small adjustment screw above the "R" in the name Video Toaster printed on the side of the card. Make sure to ground yourself before touching anything inside the computer to avoid static discharge. Make sure to take a good look at the position of the screw before starting to turn it. Using a small, non-metallic screwdriver (commonly referred to as a "tweeker"), carefully turn the screw clockwise about an eighth of a turn. Try booting the Toaster software again. If you still get the "Toaster not Responding" message, try turning the screw another eighth-turn and start the Toaster again. Keep this up until the Toaster finally responds (hopefully). Be warned that NewTek advises to be very careful when making this adjustment. If you get it too far out of alignment, you may have to send your board back to them for proper alignment. Also, if you have any qualms about working on the inside of your computer, I strongly recommend that you have a qualified technician perform this procedure. It's also possible that you may have some faulty RAM chips in your 3000. While 1.0 may run fine, 2.0 is much more memory intensive and even one RAM chip that is slightly defective may cause problems with 2.0. Run a good RAM test program to check your RAM to see if there are any defective chips. By the way, Toaster System 2.0 is compatible with the new Super Denise chip (Toaster 1.0 was not); however after the final release of the software was completed, Commodore changed

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the Denise chip making it exhibit some problems with the Toaster. If you notice a dark interface screen while working in CG, you have a new Denise chip problem. NewTek is currently working on a fix for this problem and should soon have a work around. I have also heard from different users that have mentioned various problems with using the Toaster in a 3000. One of the things that seems to be a common denominator is the power supply in the 3000- -It is not as beefed up as the 2000 version. There are a few manufacturers producing stronger power supplies that will work in the 3000. This may also help with your problem.

Q: *I am just starting to experiment with single frame recording of LightWave images. I am running into a couple of problems however. I often get a message that states that LightWave can't find the current frame or the frame is not the correct version.*

Mike Powers

Downers Grove, IL

A: The problem you are experiencing in LightWave is a common one. When you first tell LightWave to save frames, you must give the frames a suffix name. For example, you would click on the Save Frames button in the Record panel, select an area on your hard drive to store the frames (LightWave will default this to your Images directory), and then type in a name such as "LogoFly". When the frames are saved to your drive, they will be named in the standard framestore convention - 001.FS.LogoFly, 002.FS.LogoFly, and so on. When you are ready to record these frames to tape and you wish to play them back, you need to select the Play Frames button in the Record panel and select the name of the frames you wish to play. Here's the key—LightWave just wants to be informed of the suffix name, so if you select the entire framestore name - 001.FS.LogoFly and click on OK, LightWave will give you the message you have seen. What you need to do is select the Framestore name and then delete everything but the suffix—in our example, you would delete everything but the name LogoFly. Now when you click on OK, LightWave will play the proper frames assuming of course that you have the proper first frame/last frame options chosen. In other words, if you saved frames 30 through 60 to your hard drive and you go to play them back, you must first go to the Scene panel and choose first frame 30 and last frame 60. This way LightWave can find the proper frames.

There is a small bug in ToasterPaint that causes a filled polygon to not fill...there is a work-around.

Q: *Sometimes when I am working in Toaster CG, my screen turns pink and I get these strange artifacts of text on the screen. I work in a three monitor mode, and the artifacts don't seem to hurt anything. Do I have something wrong with my system or is it something I am doing wrong?*

Tom Lentzman

Sioux Falls, SD

A: What's happening to your interface is occurring while you are in a key page and you have taken the image to the program monitor. This is not a problem with your system and you are not doing anything wrong—this is simply the way the Toaster operates. You will find that this only happens after you create a key page, render it to preview and then hit F10 to take it to program. As soon as the image is taken to program, your "artifacts" appear on your interface screen. Like you mentioned, it doesn't affect anything and as a matter of fact, it can sometimes be very helpful in moving text around—you get to see the "before" position as you move your lines of text. If the pinkish color bothers you there is a very simple fix. Simply escape (not shift-escape) out of the CG and select any effect on the switcher screen. You will notice immediately that the artifacts disappear and your screen returns to its normal colors. When you return back into the CG, everything is back to normal.

Q: *Sometimes when I am in ToasterPaint and I try to draw a filled polygon, I only get the outline of the polygon. What gives?*

Lisa Enge

Orlando, FL

A: There is a small bug in ToasterPaint that causes a filled polygon to not fill. It doesn't happen all the time but often enough to cause problems. There is a work-around. If you notice, this only happens when you are using the single pixel brush or the horizontal line brush (and even then not all the time). If you choose any of the other built in brushes, such as the smallest circle brush, you will be able to draw out any filled polygons.

John F. Gross is a Video Toaster graphic artist employed by Alpha Video in Minneapolis. He has been using a Video Toaster every day since it was released and is still trying to catch up on his sleep. Questions can be sent by mail to:

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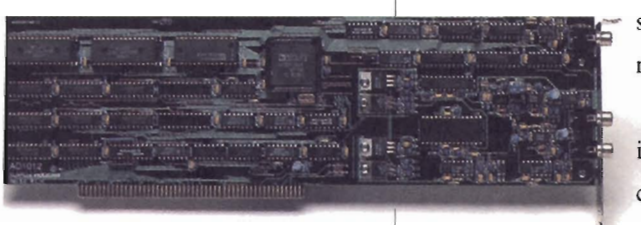

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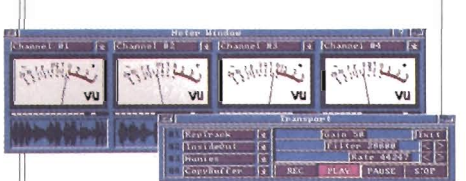

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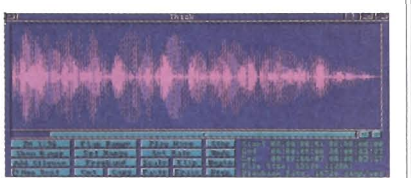

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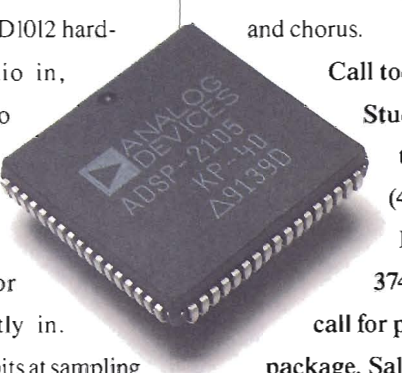

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Taming the Wave

By David Hopkins

This business is mighty tough to keep up with... Some of you may not recall the pre-Toaster days of the Amiga, but when Commodore released the Amiga it sported a standard Motorola 68000. Many of the Amiga models still do, but soon the Amiga 2500 arrived with the amazing 68020. This thing was a blaze of speed, let me tell you! Couple that with a huge 20 megabyte hard drive, and you had a "state-of-the-art" computer system!

Well, that was then, and this is now (good ol' S.E. Hinton there...). Just a couple of months ago I covered the new 68040 boards from Progressive and RCS. Now THOSE were fast! Just when I thought I had covered the highest end available, up pop a handful of new '040s. And these are clocking in at an astounding 33Mhz, while the previous were at 25 or 28. So, how much difference can a few lousy megahertz make? You wouldn't believe it!

The board in question at the moment is the 40/4 Magnum from CSA. Before we hop into the more interesting parts, let me point out that when I cover a new device, I don't babble on and on about the technical specs. It's my feeling that the device should just plug into the machine, and do amazing things. If you are like me (and I think you are), you want to know what it does for you in the real world. THAT is where my tests come in.

Steve Riker, an old friend of mine from CSA, drove up from San Diego to bring me both the board and an incredible 1.2 Gigabyte Panther hard drive from Maxtor. After ripping open my newest Toaster system, yanking out the '030 GVP processor that was resting comfortably in there, he plugged in this large card. Both sides of the card have slots and/or plugs for a variety of gadgets. I've never seen a single card that had things on both sides, but then, I've never seen a card with banks of LEDs either! That's right, two separate banks of LEDs keep a constant display of the board status easily at hand (well, as easily at hand as anything INSIDE your machine's case CAN be, I guess..). We were a bit worried about having to change jumper settings or something for the two hard drives that I already had internal when we moved them onto the 40/4. But when we tried booting the system, found that the card had autoconfigured the Panther, the 100 meg drive, and the 50 meg drive, with no problems at all.

If you are using something such as ripples or the underwater texture to animate a surface, you may want to try image mapping it instead.

As the Toaster software loaded up, Steve told me about the meg of Static RAM which comes standard with the 40/4 Magnum, allowing astounding processing speeds. He told me about a SCSI hard drive controller capable of transfer rates up to 6 megs a second, the extra parallel and serial ports that come out of the back of the card, giving you two of each on your system, and the built-in hardware support for AppleTalk waiting only for software to support it. It even has the ability to put up to 64 megs of 32-bit memory directly on the board. And, he told me about the $4995 list price.

Of course, that price includes 16 megs of 60 ns 32-bit memory, making this demo unit just a tad more expensive than the standard model, if you don't count the fact that this IS a 33 Mhz '040. The standard model comes with 8 megs of 32-bit memory and the single meg of Static memory, plus all the other goodies mentioned above, for $4599. This may seem a bit steep, but keep reading...

The first test I ran was the default scene which is included with my "Big Rig" object set. The scene consists of the entire truck (over 24,000 polygons), four image maps, tracing shadows and reflections, in hi-res Letterbox mode. On the RCS and Progressive boards this image was created in roughly 14 minutes. Get ready for this one...8 minutes, 42 seconds! Think about that for a minute!

I also chose a scene that you could try on your own machine in case you don't have the truck...The Workstation Scene which is included with Toaster 2.0. In default settings the image rendered in 2 minutes and 6 seconds. Switching the resolution to high gave me 7 minutes and 2 seconds. Try rendering them on your machine, and you'll get an idea of what this means!

All right, on to the next test—this time a bit of hard drive work. A Toaster Framestore loads from the hard drive in an impressive 3 seconds. Next, I restored 29 megs of textures from a Quarterback back-up off of a single floppy drive in roughly 17 minutes. By the way, while it was restoring, I was using ADPro 2 to follow up the restore process, loading each image, JPEGing the file, then saving it back on the same hard drive. I was able to convert an average of two images

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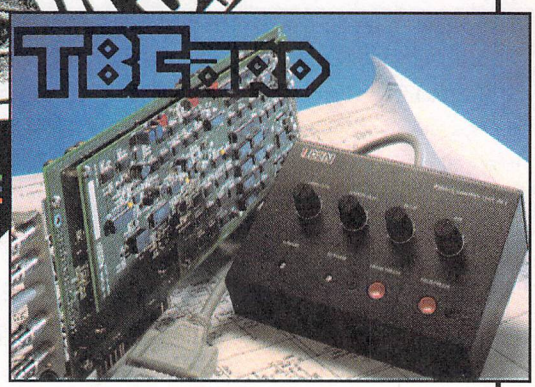

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between every Quarterback disk swap.

A program supplied by CSA on the included disk rates times for certain activities. I am usually leery of any "rating" software supplied by the manufacturer, but I'll pass it along anyway. The test consists primarily of writing files to the hard drive, reading them, scanning directories, and so on. In the course of all this, the program is also analyzing the percentage of processor ability still available. I must say, the ability to create over 600 files per second and still leave 91% of the processor available is a pretty impressive thing...

According to Steve, the board includes crystals and chips for use with AppleTalk. Since the software driver for AppleTalk is not yet completed, the connector is not poking out the back of the board yet. He expects these to be fully functional in the near future, but no firm date was offered. I took a close look at the board and saw that there were indeed support chips for these things, so I suspect it won't be too long.

All in all, this board is nothing short of amazing. While the list price is just about double the price of the 25 Mhz RCS FusionForty or Progressive '040, the speed increase is dramatic. If you use LightWave professionally, this is the board for you. CSA is possibly one of the most under-rated names in the Amiga accelerator market, but the 40/4 Magnum seems destined to change all of that.

I also want to VERY highly recommend the Maxtor 1.2 Gig Panther hard drive. While this was included with my evaluation 40/4 simply to better illustrate the drive transport speed, it proved to be remarkable on its own. You just have to sit and play with a hard drive of this size for a short while before you are asking how you could ever have lived without it. I converted the entire Masterpiece Fonts collection (110 fonts) into Toaster CG fonts using the ToastFont utility, had all of those on this drive, the original system font versions, the ENTIRE contents of all three Texture City sets (decompressed), and ALL of WorkBench 2.0, and still had almost 900 megabytes of storage left! The list price on this drive is $2,695, but CSA offers it for $2,355. Keep in mind that this is 1200 megs of storage! Very stable, very quick, VERY big!

Moving on to other things, I got a call recently from Scott Wehba of Infinite Solutions in Beaverton, Oregon. He was working on animating a caterpiller for one reason or another and ran into some problems with repeated morphs. After explaining the solution to him, I decided that this was something I should pass along to all the rest of my loyal readers.

Imagine you have an object that morphs three times (this is just an example, the concept holds true for any number of morphs...). At the end of the morph into the third object, you want the whole sequence to start over again. This seems pretty straightforward, what with the Repeat option offered in the morphing requestor, but there is a rule that many people don't realize. You see, each of the morph targets have to have the same number of defined frames in their envelopes.

Let's call our objects Ball, BallWide, and BallTall. The direction of morph is exactly the order they are listed. We want Ball to become BallWide in frame 30. BallWide becomes BallTall in frame 60. So, we build the Ball metamorph envelope to read 0% morph at frame 0, 100% at frame 30. Then we make the morph envelope for BallWide to read 0% at frame 30, and 100% at frame 60, right? This will work for one circuit through the morph cycle, but making it repeat wouldn't work. The proper settings are as follows:

Ball:
Frame 0 = 0%, 30 = 100%, 60 = 100%, 90 = 0%
Target = BallWide, Behavior = Repeat
BallWide:
Frame 0 = 0%, 30 = 0%, 60 = 100%, 90 = 0%
Target = BallTall, Behavior = Repeat
BallTall:
Frame 0 = 0%, 30 = 0%, 60 = 0%, 90 = 100%
Target = Ball, Behavior = Repeat

Notice that we have defined all of the morphs with the same number of total frames. If they were different, the morph would be staggered and all sorts of strange things would happen when it was repeated. Keep in mind that you want to make sure that the repeats are set in the morphs, NOT the motions. If you set the repeat in motions, the morphing object would jump back to its original starting position at frame 90, rather than continuing a motion you may have defined.

Moving along...my good friends in NewTek Technical Support offer an interesting tip this month. If you are using something such as ripples or the underwater texture to animate a surface, you may want to try image mapping it instead. Don't worry, you'll get the same result because you are going to render full screen images of just the ripples in a sequence, save them on your hard drive, then render those images onto the surface you would have rippling. Since mapping an image is quicker than calculating the entire ripple sequence, you'll save quite a bit of time. They've even provided a formula for figuring out how many frames you need to record to loop properly. Simply take the Wave Length and divide it by the Wave Speed to find the number of images required per loop. If, for example, you have a Wave Length of .5 and a Wave Speed of .025, you'll need 20 frames to make a complete loop (20 x .025 = .5). This is a unique approach that I haven't had a chance to experiment with, so it is "hot off the presses" to you!

That's about all I have room for this month, but I'll be back again next month with still more information to help you make better use of your time in LightWave and Modeler. Of course, you know that YOU can decide what these columns are about, right? That's right, all you've got to do is let me know your particular interest, problems you're having, and all of that kind of stuff, and I'll do my best to provide you with answers in the fastest manner possible. Hope to hear from you soon, and keep up that ol' animatin' thang!

P.S. note the new address. That's right, the Mach Universe Studio has moved to a larger location!

You can write to me at:
Mach Universe Productions
625 The City Drive, Fourth Floor
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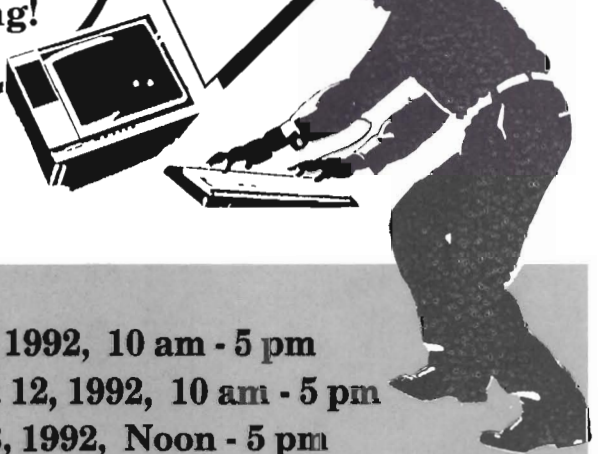

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ARexx & THE TOASTER

By Arnie Cachelin

You may have heard that your Toaster can be controlled by external devices, and even by other software running on the Toaster. You may even know that this is often done using something called ARexx. What is ARexx anyway? ARexx is a program which runs on the Amiga computer where your Toaster lives. It can read a script and coordinate the actions of multiple applications running on the computer.

But ARexx is not only a programming language, it is also a way for different applications to talk to one another, and a way for simple scripts to control those applications. ARexx programs or scripts consist of a series of commands to external programs as well as internal commands which provide things like mathematical functions, text manipulation, and file handling. Commands to external programs are defined and documented by the programs themselves, and will probably be different for each program (although "save", for example, is a common option). Any program which has defined a set of commands to which it will respond will also have a distinctly named ARexx message port to accept those commands. All you need to know to control a program is the name of its ARexx port, and the commands it understands.

To run ARexx programs, you have to own and install the ARexx software. If you have the new 2.0 WorkBench it is already installed. To work with ARexx programs, you will need to use the Amiga's "WorkBench" screen and an AmigaDOS Shell. To get from the Toaster interface to the WorkBench and back use the ctl-ctl-alt-alt combination hotkey. You will also need a text editor to create ARexx scripts. The editor MEmacs should be in the tools drawer. ARexx program names often end in ".rexx" and the script execution program, rx, will run the program even if you don't type the .rexx! ARexx programs must begin with a comment, a line which does nothing and is enclosed between "/*" and "*/".

ARexx is an Amiga program that can read a script and coordinate the actions of multiple applications running on the computer.

To work with the Toaster, ARexx programs must first add the Toaster commands to the list of functions which ARexx already handles with the line: add lib ('ToasterARexx.port'). This command is very important and it will fail if the Toaster isn't running, if the name is not spelled and capitalized exactly, or if the name has already been added. To avoid this last, check if the name is there first, and/or use: remlib('ToasterARexx.port') at the end of the program. Look at the examples to see how this is done. The name of the Video Toaster ARexx port is "ToasterARexx.port". The commands it understands are in the appendix of your VT manual.

Now that you know all that, what can you do with ARexx? One very simple example might be a frame grabber for self portraits. Like the timer on a camera, it would let you step back from the Toaster, pose, and be grabbed after 10 seconds or whatever. If this got fun, or you felt like painting a dozen clones into your studio, you might want to teach the program to save the frame, and even to take multiple frame grabs delayed by some interval. Now it's time-lapse photography. This kind of control is also handy for presentations, since it is just as easy to tell the Toaster to load and display saved frames. Again, you can get more ambitious and add different transitions, CG pages, etc. to your presentation, to teach it to wait for a GPI trigger input from your spare mouse. ARexx programs like these examples already exist, and they are in the ARexx_examples directory of a version 2.0 VT.

What is happening in the Toaster when one of these scripts is running? When a script named "Slideshow.rexx" is launched from a Shell window with the command "rx slideshow", the program rx will search for the script file, find it (hopefully), and begin reading the file and trying to interpret and carry out its commands. If there are errors in the script or in the application it is controlling (e.g. "Disk Full" on a save) you may get an informative error message

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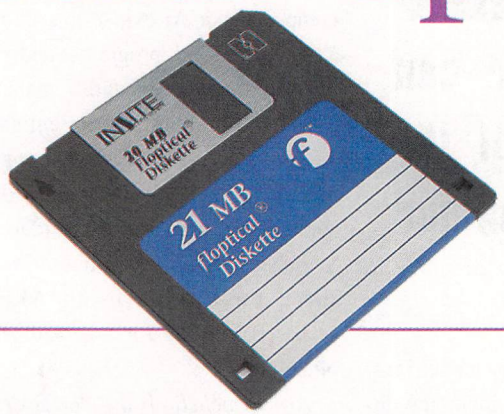

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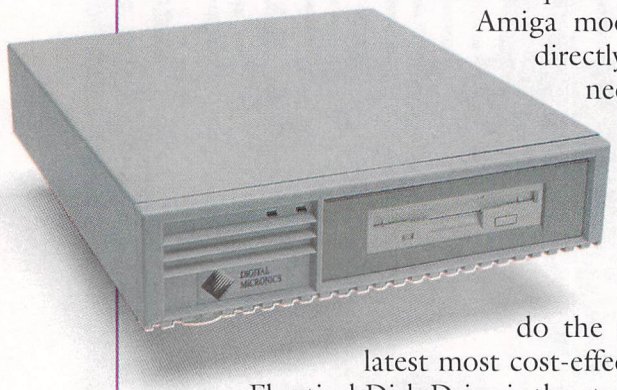

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which accurately tells you what the problem is... or you may not. In the case of our slideshow, the script has probably found the Toaster, moved the Switcher screen to front, and set up the presentation by loading the first framestore image. If your images happen to be sequential, then you can load them using only the '+' and 'enter' keys, which are simulated by the KEYP and DOEN commands. You may have selected an effect before running the script, which every AUTO transition would execute, or you may select a different effect with each frame. Possibly you will delay display of each frame by using the Toaster's WAIT command to pause the script for a specified time, while the current image is viewed. If there are quite a few images to show, you may want to let ARexx repeat the load-wait-display cycle for you as a loop. This saves a great deal of typing, although it limits your ability to use different effects or delays for different images.

If you would rather not become an ARexx expert, software like TRexx or ToastMaster can take care of the programming for you. They provide a point-and-click interface for Toaster script creation with complete control of Toaster settings, as well as convenient things including delays, loops, and external commands. These utilities save your sequences as ARexx programs. Similarly, most video editors used with the VT control the Toaster by creating sequences of ARexx commands. In this case the commands are stored in the editor, which precisely controls the timing of messages to the Toaster and to source and record decks. On the other hand, proficient ARexx hackers might welcome the speed and source code protection offered by the Rexx Plus Compiler from the Dineen Edwards Group. This software compiles your ARexx scripts into executable, stand-alone programs, and sports an excellent and very detailed manual. Another good book for ARexx enlightenment and examples is Abacus' "Using ARexx on the Amiga". We have now discussed some basic uses for the Video Toaster Switcher's ARexx abilities. Watch this space for tips on using ARexx and ToasterPaint, and for other advanced applications.

If you would rather not become an ARexx expert, software like TRexx or ToastMaster can take care of the programming for you.

Arnie Cachelin is the NewTek employee who was responsible for the ARexx scripts that ship with Toaster System 2.0.

About the Examples

In the ARexx_Examples directory of your 2.0 VT software, you will find some useful examples of working with the Toaster and ARexx. Many of the example programs are for ToasterPaint, which will be covered in our next installment. To use ToasterPaint ARexx programs, it will be very handy to open a shell window to make the WorkBench screen available when you enter ToasterPaint. Here's a description of some of the Toaster-ARexx example programs which work with the Switcher:

GPIGrabber.rexx

This program will grab and save frames when it receives pulses on the GPI input (second mouse port) of the Toaster. It will save a specified number of frames and then exit. While the Toaster is awaiting a GPI trigger pulse, it ignores all other input, so it is difficult to interrupt this script, or make any changes to the state of the Toaster.

TimeLapse.rexx

This program will grab and save a sequence of up to 1000 frames with a delay of between 1 and 60 minutes between them. You specify how many frames to grab, at what interval and the name to save them under.

ToastPresenter.rexx

This program also waits for a GPI pulse. It displays all the framestores one by one using whatever transition happens to be selected when it is started. Since it will basically run until it cycles through every single framestore on the current framestore device, you may want to put a selected set of frames in a framestore directory on the RAM disk for faster loading and limited slides!

ToastSlideshow.rexx

This program displays all the framestores in the current framestore directory in rapid succession, without waiting for anything at all.

A.C.

An Introduction to LightWave's Modeler

Part 1

By Tim Doherty

One reason that the Toaster is such an incredible value is that it has many different video applications, any one of which make it worth its remarkably low price. I purchased mine specifically for its 3D animation capabilities, but have since found numerous money-making opportunities using the Switcher, CG, or Paint software. Likewise, many users acquire a Toaster primarily for use as a CG or Switcher, only to discover that LightWave 3D opens new markets. They also discover that the learning curve for 3D animation is considerably steeper than it is for other Toaster slices. LightWave's state-of-the-art layout screen has drastically shortened this curve by making scene composition as interactive as possible. However, great animations don't start on the Layout screen; they start with well designed models.

Though the Toaster's Phonebook is stocked with an array of pre-made objects, LightWave users will invariably be faced with the need to alter or build models. This can quickly overwhelm the newcomer, since 3D design is, by its very nature, a complicated task. Fortunately, the LightWave Modeler is intelligently constructed to simplify and unclutter your 3D workspace. Its layering capabilities, combined with its exceptional speed and numerous tools, make it the design program of choice for many professional animators. By entering the world of 3D sculpting one step at a time and learning how to take advantage of Modeler's many features, the new user will soon find that 3D design is intoxicating rather than intimidating.

The View

When you first load Modeler, you'll see a screen as illustrated in Figure 1. Menu items are located across the top of the screen. Command buttons are on the far left. The remainder of the screen is divided into four boxes. Three of the boxes contain grids. These are your main design windows, each representing a different two-dimensional view of our 3D world. The black lines in each box are the axes along which you can operate in that particular window. If you have had any exposure to 3D programs, or have used 2D paint programs which have perspective controls, you are probably already familiar with using XYZ axes to define space. If not, just visualize your monitor as a hollow box. Left to right movement within the box occurs on the X axis. Up and down movement takes place on the Y axis. Movement into or out of the box is on the Z axis. In order to be able to determine exactly where something is located in the box, we need to assign a coordinate system to the axes. The point where the three axes intersect at the center of the hollow box has the coordinates of 0, 0, 0 (x,y,z). Moving to the left, away from the center, is moving in the negative X direction, while going to the right along the X axis is in the positive direction. Likewise, positive Y is up, negative Y is down, positive Z is going into the box, and negative Z is coming towards you out of the box.

Separating a 3D object into three 2D views, each containing a different set of axes, is known as orthographic projection. If this concept is difficult to grasp, imagine photographing a chair with a Polaroid camera. In order to show exactly what the chair looks like, you'll need three photos: one from the front, one from the side, and one from above. Now imagine that you want to mark the photographs with a pen. With the picture taken from the front, you can move your pen from side to side on the photo (x axis), or up and down (y axis). However, if you want to

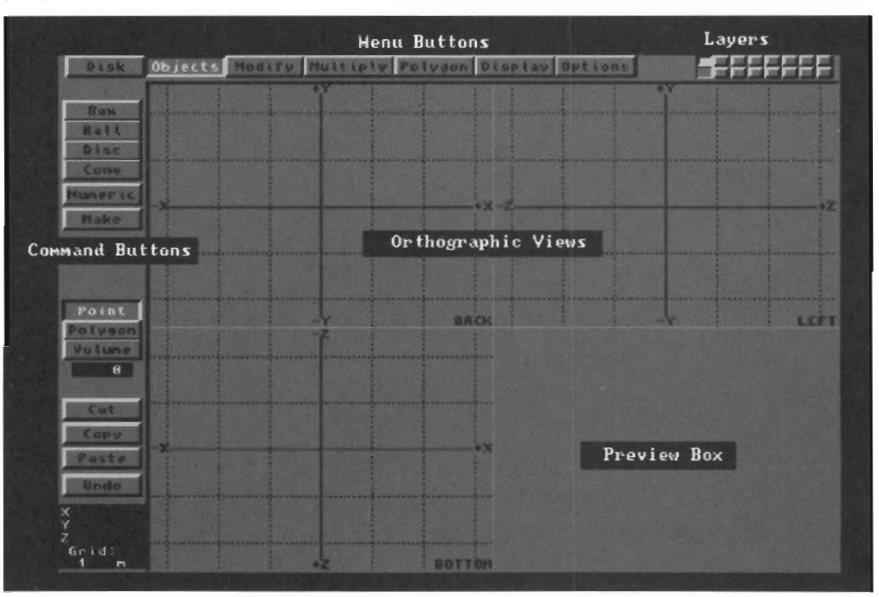

Figure 1

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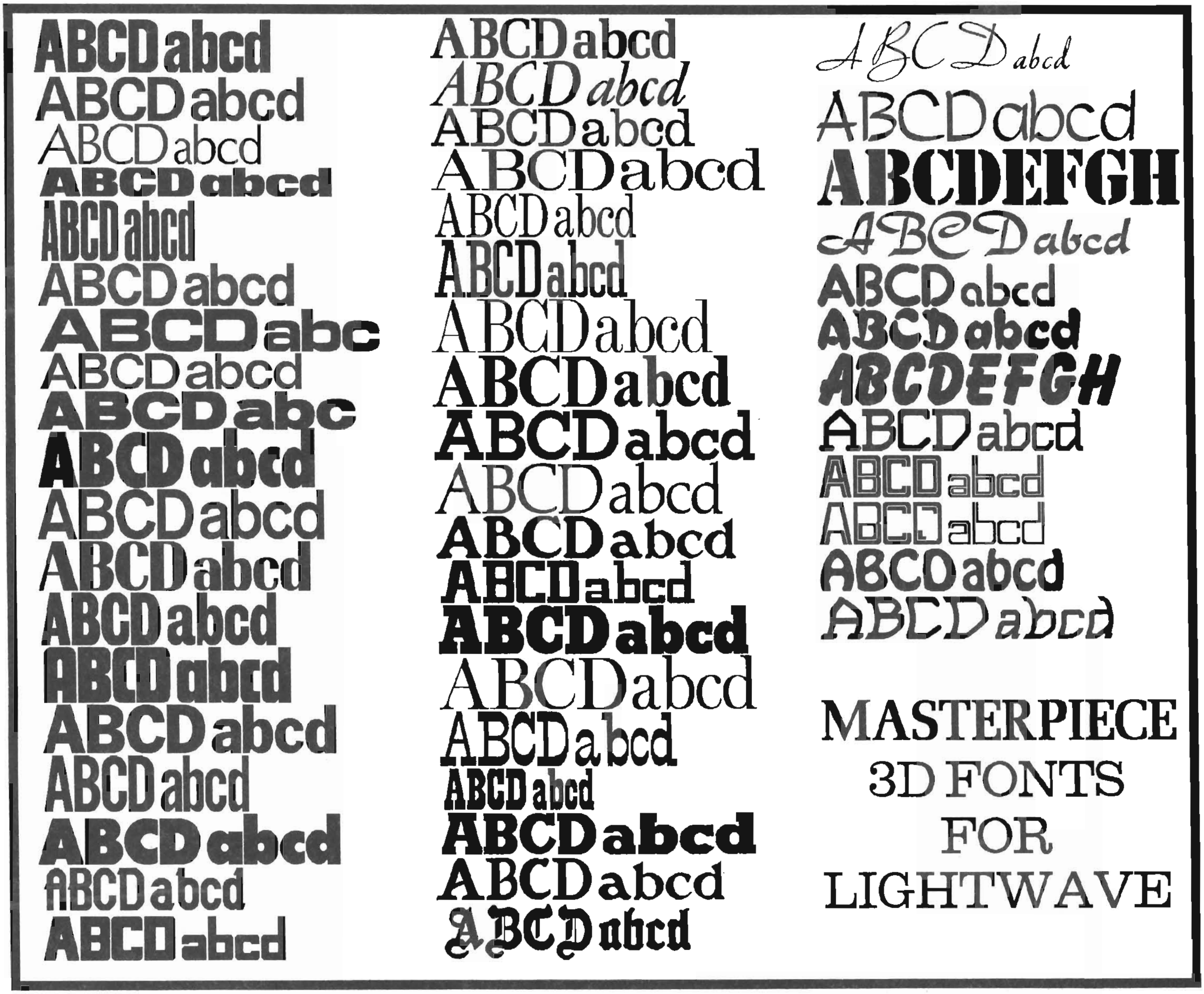

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put a mark further back on the chair seat, you need to use the side or top photograph. The side picture allows you to move your pen from the front to the back of the chair (Z axis), or from top to bottom (Y axis). The top photo allows you to put a mark anywhere along the X and Z axes, but not along Y.

With this basic understanding, let's load an object into Modeler. Press "L" to bring up the Open Object requestor, then click on the SofaChair model in the Furniture drawer. Once it has loaded, press the "A" key. The "A" keystroke is a useful command that automatically zooms the window in or out so that the entire object fills as much of the views as possible. When the display has been remagnified, you can easily observe the three orthographic projections of the chair. Notice that each window bears a label identifying your viewpoint: Back, in which you are in front of the object facing back along the Z axis; Left, which displays a side view looking at the X axis; and Bottom, looking down the Y axis at your object. This is the default view. It matches the position of the LightWave Layout screen, and is known as Logo orientation since it is a convenient perspective for modeling logos. If you click on the View button under the display menu, you'll find several other orientation choices. Try clicking on each of these. Observe how the orientation of the chair changes. As you delve deeper into 3D modeling, you'll find it convenient to switch your viewpoint to accommodate different types of models. I usually construct all of my models using the Logo or Map settings.

In addition to altering the orientation, you can also adjust the size, magnification, and position of the windows. Note that these commands have no effect on the object itself. We are simply changing our position as we look at it. To resize the boxes, place your pointer over the location where the three windows meet, then hold down the left button while you drag your mouse. By enlarging a window in this way, you can concentrate on a particular view or views. For example, drag the crosshairs towards the lower right corner. This will enlarge the back view. Next, let's magnify the chair. Under the Display menu, click the In button twice. The chair should now fill the entire window. Clicking the Out button will move away from it again. You can also perform the same operation by pressing the "<" and ">" keys. Clicking the Magnify button gives you slightly more control, allowing you to zoom in and out by dragging your mouse.

As with magnify, there are several methods for repositioning your viewpoint. The Pan button allows you to drag the area around with the mouse. Try it now. Remember that the object is stationary; we are changing our position relative to it. You can also activate the Pan function by holding down the "Alt" key while pressing the left mouse button. The cursor keys provide a third method of moving the view by scrolling it in the appropriate direction.

By the way, the various keyboard commands mentioned in this article are worth learning. You'll realize greater efficiency and enjoyment when using Modeler. In fact, I never use the display menu at all except to occasionally change the view orientation. If you forget a keystroke, or need a quick refresher course, just press the help key and a summary of all available key shortcuts will be displayed.

I should mention one more thing about the windows before we move on. Unlike an Amiga DOS window, which requires you to click on it to be active, each of Modeler's design boxes becomes active as soon as your mouse moves inside it. Again, this is a big time saver, but keep it in mind when using keyboard shortcuts. You may be looking at one window while your pointer is in another.

Complementing the orthographic windows is a special fourth view. Resize the windows so that they are all approximately the same, then go to the Options menu. You'll see three buttons under Preview: None, which is already selected, Static, and Moving. Click on Static. Another wireframe representation of the sofa chair will appear in the lower right box. Unlike the orthographic windows, this display has no set of axes running through it because the viewpoint is not fixed. You can move to any position or angle relative to the object. Modeler's tools do not function in this box. You can only select points and polygons, or rotate your position. Nevertheless, the perspective window is a very powerful addition to the the standard triview display. It allows you to preview your object from any angle, and to select points and polygons that you might have trouble picking in the other windows. Any changes you make to the model in the orthographic windows will be reflected in the preview.

If you click on Moving Preview, you'll be given two additional choices: wire or solid. These show a continuously rotating model. You can no longer select points or polygons, but can still change your perspective. If you choose a solid moving preview, the object will be displayed with hidden line removal. As your design work becomes more complex, you'll frequently find it useful to refer to the Static Preview for selecting parts of the model to work on, and to the Solid Previews for a better idea of what the object looks like.

Object Basics

Now let's turn our attention from the view to the objects themselves. As you've observed with the sofa, Modeler shows objects in wireframe form. They are portrayed only by lines and points, with no solid faces, which means that you can see through the object from one side to another. Complex wireframe models may therefore become confusing. This is why the Preview window is so useful. Also, the program's layering capability, to be discussed in the future, is invaluable in simplifying complicated design work.

Objects are composed of polygons which, in turn, are made up of points. As with other Modeler functions, there are several methods of adding points to our 3D workspace. Clear the chair and reset the window sizes by clicking on the New button, found under the project menu. Next, go to the Polygon menu and click on the Points button. (Note that this is different than the Points option located further down under Select.) Now, by clicking your left mouse button anywhere in the orthographic views, you can position crosshairs which will indicate where a point will be created. Place the crosshairs in the Back window, then press the Return key. A point has just been added. Using the Return key to

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create points is the keyboard equivalent of clicking on the Make button when the Polygon/Points button is selected. A still faster method of adding points is by clicking the right mouse button while keeping the left button depressed. Try adding a few more points at random locations in the Back view. Notice that the points all lie in a straight line in the other two views. This is because we have only moved the crosshairs along the X and Y axes. The points have therefore all been created along the same Z plane. To change the Z position, go to one of the other windows and move the crosshairs to a different Z location. Return to the Back view and add a few more points. In the side and bottom screens, they are now at a different depth than the other points. It is important to remember that each orthographic view is flat. Moving in all three dimensions requires that you change position in at least two different windows.

Reset Modeler by pressing the Shift-N key. Go to the Back window and enter five points in a clockwise circular order. Then press the "P" key. Much like a child's connect-a-dot puzzle, we have just joined a series of points into a polygon. This polygon is a solid object which can be loaded into LightWave, given color, and rendered. The "p" key is used to turn a series of two or more selected points into polygons. Unlike other 3D programs which use only 3-sided triangular polygons, those in Modeler and LightWave can be made up of any number of points and sides.

As you've probably noticed, the points we've just created look more like small squares than dots. This means that they are selected. Points or polygons which are selected are ready to be manipulated with any of Modeler's tools. Selecting or deselecting points or polygons is usually accomplished by clicking on them with your left mouse button. However, anytime new points and polygons are created, they are selected automatically. The buttons to toggle whether you are selecting points or polygons are located in the center of the left hand list of commands. Below these buttons, a black box provides a handy reading of how many points or polygons have been picked. If you click on the Select Polygon button, you change from Points to Polygon mode, whereupon the points deselect. At the same time, the edges of the polygon turn white and a dotted line appears extending from its center, indicating that the polygon is now selected. Click on an edge of the polygon in any view and it will deselect. Click again and it will select.

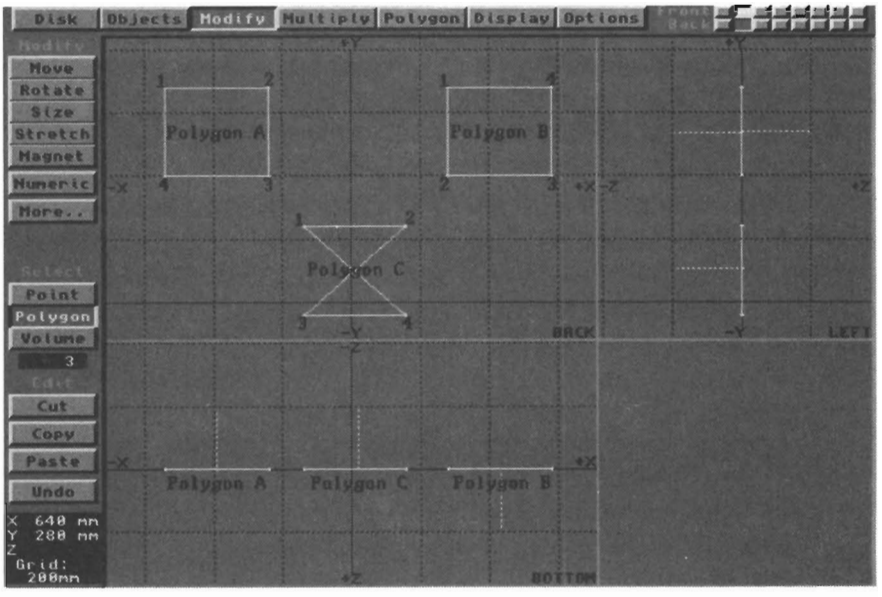

Figure 2

Activate Select Points mode once more. The five points which define the polygon are still highlighted, because Modeler always remembers which polygons or points were selected when you switch between the different modes. Hold down the left mouse button and move the cursor over all five points in the Back view. One by one, as the cursor passes over them, they will deselect. Repeat the same procedure to select them again. Next, click your cursor in the empty space between the More and Points buttons on the far left. The points deselect all at once. Clicking in this blank space is a convenient method of deselecting all points or polygons at the same time rather than individually. The "/" key is the keyboard shortcut for this command

Return to the Back view. Holding down your left mouse button, pick any three points, then release the button. Now, click on one of the deselected points. Nothing happens. When you are in Select Points mode and none are highlighted, you can pick points as long as you hold the mouse button down. As soon as you release the button, Modeler automatically toggles to deselect mode. It will stay in deselect mode as long as one or more points are selected. To override this and continue selecting points, press the shift key before holding down the mouse button. This procedure applies to Select Polygon mode as well. Also, you cannot jump from one view to another when continuously selecting points. You'll again need to use the Shift key and resume in the new view.

Click on the Select Polygon button again. If it isn't already highlighted, pick the polygon by clicking on it. The dotted white line that extends from the center of the polygon does more than just indicate that it is selected. This line is called a surface Normal, and is used to show which side the polygon is visible from. Polygons created in Modeler have only one side. This saves memory and improves the rendering speed of LightWave. It also means that you must exercise caution when you join points to form polygons. Otherwise, the polygon may face the wrong direction and be invisible when rendered. The order in which you select points is important. Always select points in a clockwise direction to the viewing angle. Figure 2 shows how the order of point selection produces different results. Polygon A was created in the correct fashion, with a clockwise order of points. Polygon B was made after selecting the points in a counter clockwise order, and is facing

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the wrong way. Polygon C is twisted because no order was followed when picking points. Remember that if you make a mistake while selecting points, you can always stop, deselect the points in error, then press the Shift key and continue selecting again. If, after creating a polygon, you discover that it is facing the wrong way, you can click the Flip button in the Polygon menu, or press the "F" key, to easily flip it over without remaking it.

Knowing how to create points and polygons is essential to building models, but that doesn't mean that we need to do all of our design work from scratch. Indeed, much work is done by manipulating basic 3D objects that are already included in Modeler. These object primitives include a box, a ball, a disk, and a cone. Let's clear the workspace (Shift-N) and load in a basic 3D shape. Go to the Object menu and click on Disk. Move your pointer to the upper left quadrant of the Back view. Hold down the left mouse button and drag the pointer towards the lower right area of the window. A box will be pulled out from the position of your first click, and will interactively follow your mouse. The disk will be created within the boundaries of this box. Thus, you can easily make the disk circular or oval by simply stretching the box this way or that. When the box is sized and proportioned to your liking, release your mouse button. If you now click on the Make button or press the Return key, a two dimensional disk will appear. Try this, then undo the operation by pressing the "U" key. Move your pointer to one of the other views and drag out the bounding box. We are now adding one more dimension to the object. When you press Return you will create a cone. To see what the object looks like, activate the Moving Preview from the Display menu. Repeat this procedure, but start the disk in another view. Notice the object's new orientation in the Preview window.

Experiment with the other primitive shapes, both as 2D and 3D objects. Try starting the object in different views, and notice how the orientation changes in your preview display. Also note that, among other things, the Numeric button in the Objects menu allows you to change the complexity of ball, disk, and cone by adding more points to them. Remember the all-important Undo key ("U") will instantly erase any mistakes or experiments.

Hopefully you now have an understanding of the Modeler's viewpoint, and of the fundamentals of basic object shapes. If so, you've just graduated from Elementary Modeler 101 and are ready to move to the next grade level. In the next issue, we'll examine how to modify and manipulate polygons and objects. This will include other techniques for selecting parts of objects, the importance of polygon names, cutting, pasting, moving, and rotating selected areas, and the power of Modeler's layering tools. Until then: class dismissed.

Tim Doherty is an Amiga animator whose work has appeared on NBC, PBS, and cable TV. Write him at:
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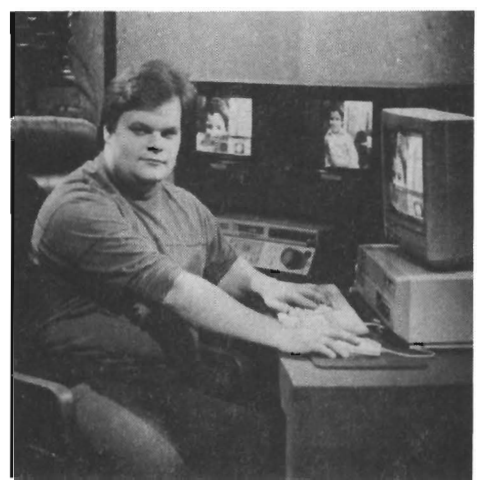

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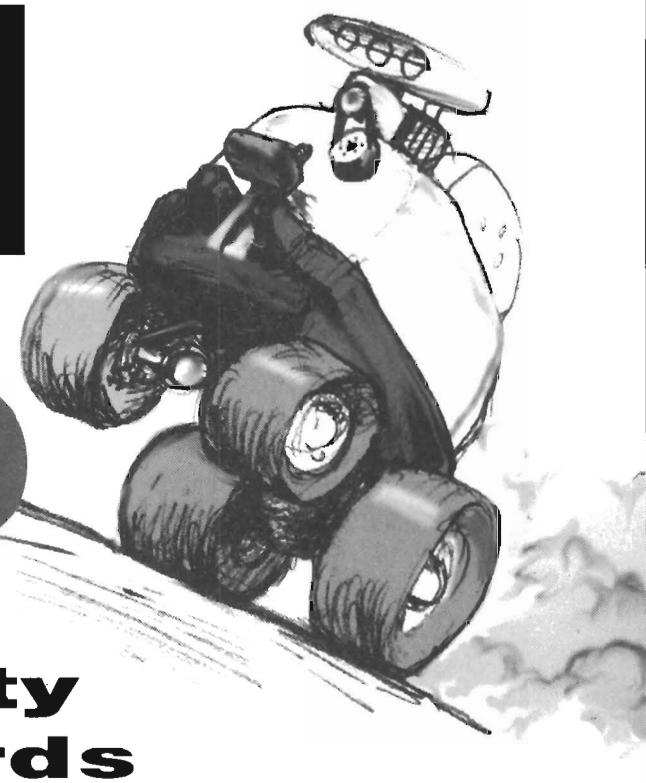


Part 3
Orange County Ad Club Awards

By Joe Clasen

Every time I hit the road with my Toaster, I seem to have to pull the show together as it happens. Recently, for a welcome change, we got a couple of weeks to prepare for a big "Black Tie" affair for the Orange County Ad Club. In the past, these shows were produced by using multiple slide projectors and rear projection screens on either side of the stage. This year, we decided to use large video projectors and use the framestore capability of the Toaster to display the art that was up for awards. All of you who know the joys of a stuck slide in a multi-projector show know how much fun these shows can be. Not only does the Toaster excel at quick retrieval of framestores, but has an ability to jump around, making all those multiple nominations just a couple of key presses away. Now let me detail the task of assembling the show!

A preliminary meeting with the producer laid down the basic framework of the show. We would need to produce a short video, called the Opening Module, which would spoof the year in review and related advertising mayhem. The art would be collected, shot and stored in my Toaster. The scriptwriter worked from the theme, "After a year behind the eight ball, you deserve a shot." Once the opening module was edited, the sound man could lay down sound effects to enhance the comedy. The sound man was also to record the voice-over for the awards onto reel-to-reel tape so the Master of Ceremonies wouldn't have to butcher people's names. I left the first day as they ran off to their favorite bar to "check out" its availability for the pool hall shots they wanted to insert within the "Opening Module" video.

A week later we met at their studios and the three-ring circus began. We set our Toaster up in the large room of the sound studio and attached a Sony DX 3000 camera onto my old Digi-View copy stand. I don't think you'll ever use Digi-View now that the Toaster is here, but for shooting over a hundred pieces of art, the copy stand and the lights proved invaluable. After we white-balanced the camera, graph paper and tape marks positioned the art with the least amount of fiddling. We then proceeded to place the art, pictures of the judges, the sponsors, and a couple of pictures that had been the "Call to Entry" flyers for the show. While we were storing framestores, the guys in the next room were editing the opening module. They had a Toaster in their edit bay, but it was the vanilla 68000 version that NewTek sells and they really didn't use it for anything except switching or Character Generation. I went over and showed them how with ChromaFX they could remove the color from some footage. Taking it one step further, I showed them how to use the ChromaFX and the simulated Film-Loop effect together. They ended up using about a dozen different effects from the new 2.0 software on the Opening Module. After seeing the KiKiFX, they asked me if I

could make an effect like that. I couldn't, but my wife Susan, (the artist in the family), looked as if she needed a break from touching up the 150 framestores and could cook up something.

For a great opening effect, the editors wanted a "1991" to fly into the screen and continue through until it acted as a wipe. While we ran a couple of cables to the edit bay in the next room, Susan made a quick animation in Deluxe Paint IV. She used low resolution until they got what they wanted. Unfortunately, it was one of those "I'll know what I want when I see it" projects. After a hundred trips to the motion requester, we arrived at an agreement. Slipping into hi-res overscan, she finished it in black and white. By careful keying with the Toaster and another switcher in the edit bay, we managed to have three moving sources for the effect, one keyed to black and two keyed to white which changed as the 1991 moved toward the screen. Four hours later we had a great four seconds of video for the opening of the module. After that, we all then broke for pizza in the audio room and listened to the music and sound effects the sound engineer had put together. In the corner was the script girl with her IBM hacking out the script. After dinner we touched up the remaining pieces of art and packed up.

For the price of just the software on the Mac, you can do everything you need with a Toaster and have bucks left over

The next Friday night we all got together one more time to put the finishing touches on the show. A few pieces of art were digitized that were unavailable before, so we set the copy stand and finished up the rest of the show. With Diskmaster II, I easily rearranged the show by simply renaming the first three numbers of the Framestores on my Syquest 88 cartridge. Upon doing so I was in for a welcome surprise. Because we had gone into ToasterPaint and touched each piece of work with a black border, the normal framestore size of 722,008 (up from 709,712 in Toaster 1.0) shrank to about 500,000! Some were as little as 300,000. It turns out that the extra Syquest cartridge I had expected to use for the show could be used instead for my latest animation. What is more important, I wouldn't have to change cartridges in the middle of the show.

Speaking of animation, the opening of each category was preceded by an animation that was produced by a Macintosh and a program called Electric Image. Although the animation of the spinning "ADVIL" bottle was cute and fluid, the software that produced it cost $7,500; and you still needed a computer, still frame recorder and

controller! Just for a quick sample of what a Toaster could do, I rendered an eight ball and a pool table, and I used a background picture of a pool hall I had saved as a framestore. Using the new "Underwater texture", a new addition with the 2.0 software, on the pool table provided a myriad of shadows for the ball to move through. I saved the frames out as DCTV frames with DAAM and committed the animation to tape. For the price of just the software on the Mac you can do everything you need with a Toaster and have bucks left over for DCTV and probably the tape deck. After seeing what the Toaster could do with animation, they started talking about an accelerator and a Syquest Drive for their Toaster.

We arrived at the show about noon. While the lights were set and the stage erected with the two rear projection screens on either side, we set up directly behind the stage. Two camera stages were set up at the rear of the hall along with the follow-spot stage. Two Sony DXC-3000s with a DXF-50 Studio Kit allowed for the engineer to fine tune the cameras at the station next to me behind center stage. A large video monitor allowed us to see the show from our secluded area, one of the cameras always taking the wide shot and the other, with an 18-1 zoom, did close-ups. Two switchers were used, a Panasonic WJA 4600 and a JVC KV-1200. The main video engineer needed two switchers to go to each screen independently with either tape playback, either of the two cameras, or the Toaster output with the art. The screen on the left had two Sony projectors in double registration, a task that needed a great deal of time to get correct. One projector had our output and the other had the RGB output directly from the Macintosh.

The Mac had the duty of providing text to one of the video screens listing all of the nominations as the voice-over tape played back the current nominations and winners per category. The Mac used Persuasion software, and as we tested out the output through the 1270 Sony Video projector, the output seemed reasonably good. We used an Inline breakout box that took the direct RGB output and fed the projector directly. Because the output could not be fed directly into the switcher, we were at the mercy of the Mac operator to go to black on his own to play back video, camera, or Toaster output on one of the screens. In total, two operators were needed for the Mac, one for the program itself and one for projector control. Two guys ran the main switcher, one throwing switches and one cueing tapes. My wife and I held down the Toaster station. While I entered the framestore numbers and cued things up, she held the script and told me what was next. One sound man handled audio playback while two cameramen and two lighting guys ran the main board and follow-spot. There was one stage manager coordinating the show, making a grand total of 12 crew members.

The crew had arrived about 8:00 A.M. the day of the show to let the stage and lighting guys build the stage, hang the

lights and erect the pipe and drape around the stage and screens. What they hadn't planned on was part of the room being used that morning by some motivational pyramid meeting! First, we put up the 17' pipe and drape in the middle of the room in order to allow the rest of the stage to be set. Everyone tiptoed around trying not to laugh while a Donald Trump Wannabe on the other side of the curtain tried to talk a group of people into being super-salesmen. Behind the drape we constructed the scaffolding to hold the projectors, cameras, and staging. As the seminar next door ran overtime and started to really make our lives miserable, I fired up Audiomaster IV and began giving demos of some of my favorite animal sounds. They soon got the idea and left so the lighting guys could hang their fixtures and get a focus. As we scrambled to make up lost time, we missed our 3:00 tech run through and had to try to wing it as best we could.

It is unfortunate we never got a full run through. As the guests wandered into the Grand Ballroom at 7:00 P.M. for dinner, I played back framestores of the "Call to Entry" posters. While the crew had dinner, we talked over how the show was to proceed and tested the headset systems. As the show began, everything looked great. We played back the Opening Module tape and it was received with laughter and applause. As we ventured into the show, it soon became apparent that the Macintosh was taking way too long to build each frame it was trying to display. The prerecorded tape finished as the old Mac chugged and rendered out at its own sweet pace. How I wish we had another Amiga and Oxxi's great program "Presentation Master"! The stage manager decided that he would read the text as it appeared upon the screen, thus saving the day. I must say that the Toaster was never holding up the show, and the new 2.0 quicker framestore retrieval allowed me to pull up any frame in any order with no problem. After we got our rhythm, things went OK until the lighting circuit breaker blew and darkness fell except for the follow-spot. The Master of Ceremonies, a well known stand up comic, covered nicely for a minute while we found and threw the circuit breaker. After that, we succeeded in going forward with the show as planned. Framestores of the art appeared on the right side of the stage while titles of nominations appeared on the left side of the stage. The winner was announced while the cameras showed their smiling images on both screens. We proceeded until the end of the show when we rolled the credits and turned on the lights.

It was one of those shows that grinds men's teeth. However, the test of the performing arts is whether you grin and bear it or choke. The Toaster never slowed down the pace. The art was captured and projected to everyone's satisfaction. Next year, I believe the show will be run by two Toasters, complete with stored animations on tape that will replace the Macintosh. And hopefully, the lighting guys won't plug a hundred amps of lighting fixtures in a sixty amp circuit!

BreadBox "Classic"

Rend24

previously appeared in Issue 2 of BreadBox

By Tim Doherty

Rend24, a share ware program by Thomas Krehbiel, addresses the output of real-time, solid model animations by converting 24-bit pictures into standard Amiga anims (and also into Black Belt System's HAM-E format). It is a must have for every LightWave user. For the non-professional, or the small production house without expensive edit VTRs and single frame controllers, Rend24 allows the user to create full color, real-time animations. Even large production companies will find Rend24 useful, since it provides real-time previews of features which cannot be viewed in the layout's wire frame mode --such as moving waves. This saves wear and tear on expensive tape decks.

The program excels in three areas. First, it is fast. Converting a lo-res overscan 24-bit image into lo-res HAM takes about 10 seconds on an accelerated machine. Second, it is versatile. There are no less than 19 different command parameters covering options such as image scaling, dithering, and NTSC limits. Third, it multitasks flawlessly with other programs. For example, you can instruct Rend24 to convert LightWave's RGB images as they are generated, and pack them into a HAM anim on the fly.

Rend24... is a must have for every LightWave user

Though a makeshift ARexx mouse interface is provided, Rend24 was designed to operate from CLI. With so many parameters to type in, Rend can appear confusing. Actually, it is as easy to use as it is flexible. Let's go through the steps to build a HAM preview anim from LightWave. For demonstration purposes, we'll say that we are going to generate a 60 frame lo-res LW3D animation and save the IFF24 pictures under the file name "Fish" in the Toaster/3D/Images directory.

Before loading the Toaster software, open a shell or CLI so that you can toggle back to WorkBench from within LightWave. I've found it convenient to keep Rend24 in my C: directory, and to change the current directory path of my shell to the area where my IFF24 pictures will be saved (in this case, "cd dh0:Toaster/3d/Images").

In order to build an anim, you must first make the color palette Rend will use match the converted IFF24 images. To optimize the palette, it is best to render and save a frame which shows all or most of the animation's colors. If your scene has several objects moving into and out of view throughout the animation, you'll want to set up and render a temporary key frame which has all of the objects visible at once. For scenes with only one or two objects, such as a flying logo, you can simply render and save any frame which displays the object(s) front and side colors. Let's assume this is frame 30. Once the image has been Rendered and saved to disk, pull WorkBench forward (Amiga-N) and in your shell type: "Rend24 -dhpcolors Fish030". Rend24 will then load in the picture, convert it to a dithered HAM image, and save a palette to the current directory. Here, we've named the palette "colors".

Rend24 Version 1.4 boasts a full intution interface

As Rend24 creates the palette, it also displays the converted 24-bit image. This gives you an opportunity to determine whether or not to use dithering. If the image looks coarse or grainy, try leaving out the dither command. Also, the dithering threshold can be adjusted by entering "i" followed by a number 0-3. You'll probably want to experiment with turning dithering on or off each time you use Rend24, since the results vary widely from animation to animation. In this example, let's say that the image looks best when dithered.

Once you have saved the palette, you're ready to automate the process of converting images and building an anim. From the shell, type: "Rend24 -aFish.anim -df60 -hnpcolors -rvw fish." The "a" parameter instructs Rend to build an anim under the name "Fish.anim". Since we didn't specify a directory path, it will be saved in the current directory, "Images". The next two commands turn on dithering ("d")

and set the number of frames in the animation ("f60"). Notice that more than one option can be combined, but those requiring an argument must be last in the list. The other parameters we've selected are, in order: turn on HAM mode ("h"); instruct Rend not to wait for a mouse click before proceeding ("n"); use the palette we've created ("pcolors"); remove the IFF24 files after they've been converted, thereby freeing disk space ("r"); hide the Rend24 screen while converting, which speeds up the process ("v"); wait for the files to appear ("w"), allowing Rend to run concurrently with LightWave, and bumping its priority to convert each image as soon as LightWave saves it to disk; finally, we've specified the file name for Rend to convert ("fish"), setting it to look for 60 sequenced files beginning with "fish001" and ending with "fish060".

When you hit return, a window will open, stating that Rend is awaiting the first picture. At this point, flip back to LightWave (Amiga-M). Under the record menu, make sure that LightWave is set to save a series of IFF24 images named "Fish". Then, click on Automatic Render, and let the computer do the rest. When LightWave is finished, you'll find a file "Fish.anim" in your Images directory. The anim can be played with any animation player which supports HAM and overscan. Be forewarned that HAM animations can be large--my 60 frame tests typically run 3-5 megs in size. Of course, you can always generate your animation in 32 colors rather than HAM. I use the public domain program View to play back my animations. View is very small, which is important when loading such large files. It handles overscan, allows easy speed adjustment via the function keys, and even permits you to pause and frame step through the animation at any point.

I've used Rend24 to make many previews, and it has performed flawlessly with the exception that there is no way to shut it down or exit until the entire frame count has been generated. Overall the image quality is excellent. I've also tested Rend24 with the Ham-E system, and though this produces more accurate (not to mention spectacular) animations, they suffer from a slower playback speed.

Subsequent to completing this review, the programmer informed me that the most recent Rend24 update (version 1.4) now boasts a full intuition interface! It also supports DCTV, along with numerous other improvements. Rend24 is available on many Amiga bulletin boards, though the newest version is probably easier to obtain directly from Mr. Krehbiel. He requests $20 for private use, and $50 for business use. Get out your checkbooks—Rend24 is worth every penny.

Thomas Krehbiel can be reached via US Mail at: 10747 Surry Road Chester, VA, 23831

PIXEL 3D & LightWave Part 2

by David Duberman

Welcome back. Last issue we discussed the use of Pixel 3D along with different programs that can output bitmap images of text to create 3D extruded text that we could load into LightWave. We learned how to use Pixel 3D's Bevel option, and discovered the secret of cutting and pasting polygons in Modeler to create smooth sides and sharp edges in the beveled text. I hope you've been keeping your virtual scissors and electronic glue pots busy, but if you've stored them away, brush them off and get ready to learn some new techniques that will keep your flying logo clients banging on the door 'til the wee hours.

Remember Pixel 3D's Manual option? The one you turned the page on quickly in the manual because it looked so tedious (all those settings!)? To refresh your memory briefly, just in case, Manual lets you set a different extrusion level for each, of up to 32 colors in the original image. This capability is eminently useful for creating flashy-looking text with protruding chrome outlines and patterned inlaid front edges—see Figure 1 for an example.

First create the outlined text in Deluxe Paint III or IV. Run the program and set the screen to 640 x 400 with four colors. Select Color 1, which by default is beige in DPaint III and grey in DPaint IV. Use any technique such as drawing or typing from the keyboard to get your text on the screen. Keep it large but as simple as possible. By the way, the resulting 3D object tends to use up a lot of memory, so if you have less than nine megabytes total, keep the image small.

Click on the Custom Brush tool or press the b key and pick up your entire drawing by drawing a rectangle around it. Then click on Color 2, which is blue in both versions of DPaint. Press the o key about six times to give your logo a nice thick blue outline—see Figure 2. If you get any out-of-memory messages it means insufficient Chip memory is available. If you use

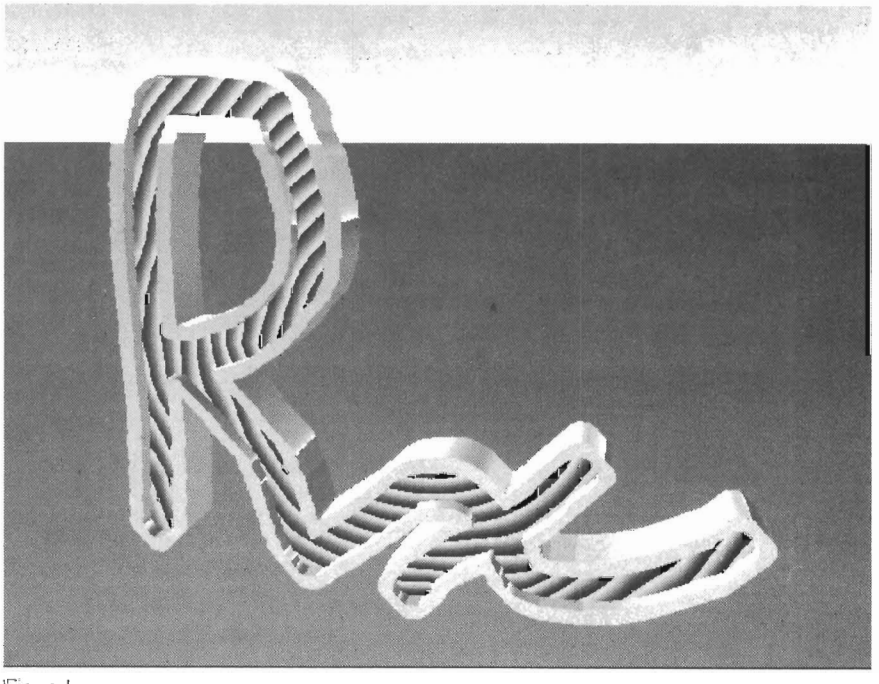


Figure 1

the Toaster you must have at least one megabyte of Chip memory, which means you should be able to perform the six Outline operations. You may have to close other applications or even reboot your system to regain sufficient Chip memory—remember to save any important files first.

Now save your outline brush from the Brush menu and quit the program. Run Pixel 3D and click on the Config button. In the Bitmap Import Configuration requester that appears, click on the button next to Conversion Mode repeatedly until Manual appears— see Figure 3. We only need to set two extrusion values. The first is for Color 1, the beige (or gray) that makes up the logo's inlaid face. Click on the up arrow next to Extrusion Value 2 until the number 20 appears, or click on the number box and enter 20 from the keyboard—don't forget to press Return. This is the distance that the front faces, colored by beige or grey, will be extruded. This is just a starting figure, so try it, then change it if necessary. Since Extrusion Value 1 represents the logo's back edge and we want that the same for both colors, we'll leave it alone.

Next click once on the up arrow next to Extrusion Set # so the number 2 appears. Enter 28 in the box next to Extrusion Value 2. By using a larger number here we force the outline areas to be extruded by a larger amount then the enclosed areas; change the figure if your application requires it. The front and inner and outer side surfaces of the outline areas retain its color, which is blue in this case. Now click on the up arrow next to Smoothing Value in the lower right corner of the requester so the number 2 appears. That's it! You might wish to use Save Settings to avoid having to manually reset these values in the future. Finally click on Continue to return to Pixel 3D's main interface.

Click on the Import button under Bitmaps, and select the brush file you saved from DPaint. After a few seconds you should see the extruded logo. Move in closer for a better look and rotate it to see it from different angles. Then click on

Save under Objects and save it in the LightWave object format in your usual LightWave object directory. If you like, call it Text.lwob. Again, if you run into any memory problems, make sure no other programs are running, especially the

Figure 2

Toaster! If that doesn't help, use a smaller or simpler brush. You may simply need to allocate more memory via Pixel 3D's Memory gadget

After you quit Pixel 3D, check the amount of available Chip memory. If it seems smaller then usual, it could be due to a bug I've encountered with the program in which it doesn't return all the Chip memory to the system after certain conversions. In this case, it's probably a good idea to reset the computer before running the Toaster, in order to gain access to the maximum amount of Chip memory.

Run the Toaster and enter LightWave. Except for the brief discussion of ray tracing reflections, everything here applies to LightWave and Modeler 1.0 and 2.0. If you're using LightWave 1.0 you should first set up a dual gradient background; light blue at the horizon to dark blue at the zenith for the sky, and dark brown at the horizon to light brown at the nadir for the ground. Don't forget to turn off Zenith Only.

Load the Text.lwob object you saved from Pixel 3D. Click on Surfaces. In this example we'll give the outline areas a chrome appearance and the inlaid front polygons a wood pattern. Feel free to experiment with different combinations on your own.

Incidentally, while researching this article I found that due to an apparent bug Pixel 3D sometimes neglected to extrude the second color, resulting in a flat outline at the back of the extruded first color. Therefore, before proceeding you should enter Layout and examine the wireframe object from the top; the XZ view. If you see short thin lines sticking out from either side of the back of the wireframe object (the upper surface as viewed from the top), discard the object and try again.

The current surface should be named "Color 0 - White"; this represents the frontal inlaid areas. Rename it if you like, then click on Color and note that it's colored the same beige as in DPaint. That's fine for the lighter wood tones, so we'll leave it. Click on Texture, then on the arrows at the top right of the Texture requester until Wood appears. To the right of Texture Axis click on Z axis. That's because Z is the in-out direction, and the object is facing us (out), so we want the texture to lie along that axis. Click on Texture Size and set the X, Y, and Z sizes all to 2. Click on Texture Color and set a nice dark brown; I found Red 73 Green 33 Blue 0 to work well. Finally set the Ring Spacing to 1 and click on Use Texture to exit the requester.

Select the next surface, "Color 1 - Blue"; it should be the only other one beside Default. This, of course, represents the outline portions which were extruded an extra eight units. Click on Surface Color and enter 150 next to Red, Green and Blue for a medium grey color. Set Reflection Map to about 70, and click on Smoothing at the bottom of the screen. We didn't need to bother with smoothing for the front surfaces since they're completely flat to begin with. Leave all other settings as they are.

Now enter Layout and position your camera, object, and light. A slightly oblique camera angle (e.g. above and to the side) is usually more dynamic-looking than a head-on shot. Don't forget to create keys for any altered objects, then exit Layout, set the desired resolution from Camera, then Render! Looks pretty good, doesn't it?

There are lots of ways to play with this. You can import images for use as reflection maps instead of using the background colors. You can use multicolor outlines and extrude them to different lengths. You can bring the object into Modeler, and using the technique outlined in my article in the previous issue of Video Toaster User, make the front surface separate from the rest so that only it becomes mirror-like. Incidentally, if you keep the sides of the extruded outline reflective and turn on Trace Reflections (LightWave 2.0 only), the inner outline surfaces will reflect the inlaid front surfaces, which may not be desirable as they'll lose their chrome-like appearance.

Morphing Text

Have you ever tried morphing one 3D text phrase into another? If you have, you know that it's not a trivial task by any means. Well, almost any means. With Pixel 3D and any program that can generate bitmap text images, you have the wherewithal to create this effect, after a fashion. To achieve this we'll use Pixel 3D's Defined 2 extrusion method, which always creates a rectangular wireframe grid of predictable size. Defined 2 places a grid over the imported image, and the extruded height of each grid point is deter-

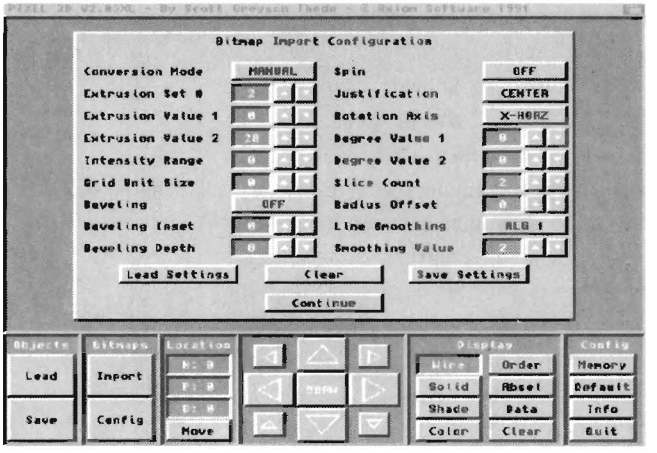


Figure 3

mined by the average of pixel values in that area. As long as the image size and grid sizes are kept the same, any two objects created by this method can be morphed into one another. While you can't morph bump-maps in any current Amiga 3D program, you can achieve the same effect (at an extra cost in memory) with this technique.

Get ready to learn some new techniques that will keep your clients banging on the door

First run DPaint in 320x200 two-color mode. Using white as the foreground color, draw or type two different full screens, saving each as separate image files. Run Pixel 3D and in the Bitmap Import Configuration screen set Defined 2 to be the Conversion Mode, 30 for Intensity Range, a Grid Unit Size of 4, and Smoothing of 2.

Click on Continue, then import an image file from the first step. Examine it from various angles and distances, then click on Data. Note that there are 4,000 four-sided polygons. Typically with this extrusion method many of these are non-coplanar, which means they won't render properly in LightWave. Triangles can't be non-coplanar, so if we split all the polygons in half there won't be a problem. Also, in general it's a good idea that smoothed objects to be morphed be made up only of triangular polygons. Click on the button to the right of Polygon Division so it says "On", then on the Perform Manipulation button, then on OK. After the division is complete, note that there are now 8,000 polygons, then click on Continue and save the object in LightWave format. Repeat the process for the second image file.

In creating the grid object, Pixel 3D averages colors, which results in a LightWave-format object with a number of different surfaces. The best way to deal with this is to load the object into Modeler and make the whole thing the Default surface. Enter Modeler and load one of the objects. Make sure no polygons are selected (i.e. all are affected by changes), click on Polygon at the top of the screen, then on Surface at the left side of the screen (if you don't see it, click on More..). When the Surface requester appears, make sure Default is displayed, and click on Ok. After the conversion is complete, save the object and repeat the process with the other object.

Exit Modeler and load both objects into LightWave. The second is our morph target; set its Object Dissolve to 100%. Then make the first the Current Object and set the second as its Metamorph Target. Click on the Metamorph button, then on the Envelope button. Here's where you decide whether you want to morph forward only or forward and backward. To morph forward only, create a key at frame 30 (we're using the default animation length) and set the Envelope Value at frame 30 to 100%. To morph in and out, create a key at frame 15 and set the Envelope Value at frame 15 to 100%, then create a key at frame 30 and set the Envelope Value at frame 30 to 0%. Click on Use Envelope.

Enter Layout and arrange your setup. If you're using LightWave 2.0 note that you can't see the second wireframe object, as it really isn't relevant here. When you're morphing objects in LightWave, only changes made to the first object in the Layout editor take effect during the animation. Create any necessary keys, then make and play a wireframe preview. This should give you a pretty good idea of what the final animation will look like. Exit Layout.

Click on Surfaces and set the Default surface to smoothed, Color to grey (150 Red, Green and Blue), and set Reflection map to about 75%. If you've set the sky and ground gradients properly, this will result in an eye-catching rippling chrome effect in the final animation that will have your clients throwing money at you. Of course, try other effects for variety. If the next version of LightWave has surface morphing you'll really be able to do some amazing things with this effect.

see article on page 16

Really using CHROMA FX

By C. William Henderson

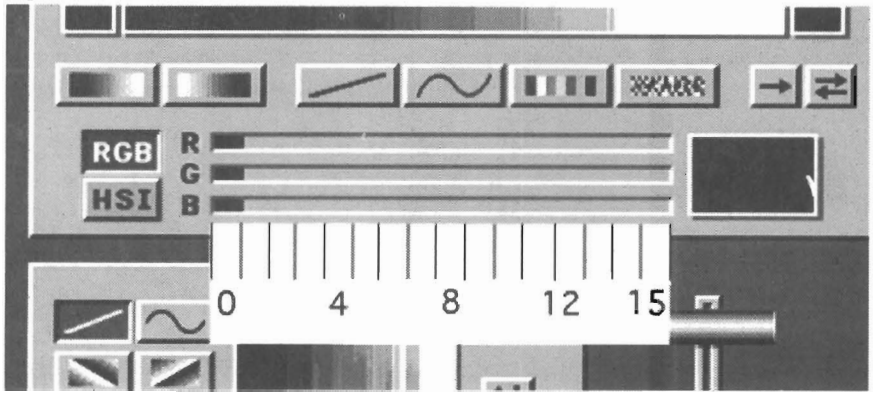
ChromaFX is perplexing to many Toaster users. They can't see where ChromaFX is much more than a graphics toy, something you play with when you don't have much better to do. They can't see much practical value to it except for a few unusual special effects that aren't needed all that often. Yes, it can be a toy. Certainly that's the way I first looked at it. But I later learned ChromaFX is also a powerful video tool.

There are two basic types of ChromaFX; filters and special effects. Filters enhance video images whereas special effects dramatically alter the images. The former are more practical, the latter lots of fun and can be extremely effective for dramatic or artistic applications.

Let's first concentrate on the filtering capabilities of ChromaFX, and why these effects are valuable. If you are a serious videographer, you are concerned about the quality of your camerawork. Often there are times when you discover that what you shot isn't exactly what you expected, especially if your viewfinder image is black and white. Or you may want a color effect that the existing lighting conditions won't permit. Of course, this can be solved with glass filters, and, preferably, should be if you have them available. But often your video can be enhanced after shooting. The video may be slightly off color as when recorded in fluorescent light. Or you may want to change the mood of your shot by adding warmth or coolness. That's where ChromaFX comes to the rescue.

ChromaFX can produce three filter-like

Figure 1



effects. The plain color effect acts like a plain color photographic filter, except in ChromaFX you can vary the degree of tint without having to change filters. Then there are the multi-color filter effects which are very much like the split color filters of photography. Lastly, the designers of ChromaFX have provided value changing filters. These latter correspond to some degree to the differing film types of photography.

So, let's get started. Since NewTek reports that 90% of version 1.0 buyers have upgraded to version 2.0, and not much has been changed from 1.0 ChromaFX, this discussion will concentrate on 2.0. I presume your first reading of this article is from a comfortable chair rather than in front of your Toaster screen, so first thing, take page FX 4 from your manual and keep it handy for reference. This article is not intended as a substitute for the manual, but rather as a supplement.

Note the screen looks very similar to version 1.0 except for two sets of buttons numbered 1, 2, 3 and 4. Those near the lower right corner, when clicked will put one of the four video sources into the Toaster on the program screen for ChromaFX manipulation. Those at the top right-center are the PRESET buttons to which you can assign an effect which can be activated from Switcher Bank F. To assign an existing effect to these presets, type the effect number from the keypad, click in the Text (top left) window, press ENTER (not RETURN), then click on the preset you desire. More on that later.

The manual page FX 13 has a list of all effects up to 52, which can be upgraded by you to 56. As you create effects beyond that number, add them to this list for easy recall.

Since most of our filters will be modifying color video, the Color Button (upper right) should be depressed. Below that is the Filter Control Panel. The upper button (called Transition) allows single color tinting of the entire screen. The Filter button below it permits a gradation of color filtering of the screen. Initially we will work with plain filter colors, so the Transition button should be depressed. And the upper-left (diagonal line) button of the Color Table Control Panel (lower left of screen) should be depressed. Now we are all set except for one thing.

Notice the slider bars in the Color Strip Control Panel. There are no windows to designate RGB values. In most cases you probably can select your color by eye, but it is difficult to repeat a color you may have used in the past, and nearly impossible to describe in writing. So I prepared a tool which is helpful in defining a specific color. The only way to guage the value of an RGB slider bar in ChromaFX is to note its location with respect to the Palette Tools above it. This guage is calibrated for the 16 Amiga RGB values, not the 256 of a 24-bit scale, and should be quite adequate for filter and special effect purposes. To set a slider to a specified color, just observe the location of a button above the color designation and place your slider with respect to the button. I suggest you make a copy of Figure 1 and put it in your manual or keep it handy to your Toaster.

So, thinking in Amiga RGB values, let's create a filter. Assume that you just shot a video in incandescent light and forgot to set your camera on automatic or manual incandescent. Horrors, your video is too yellow. No problem with ChromaFX at the ready. We will create an effect that permits a whole range of filters to cool down the yellow. When used with the T-Bar, it will provide a tint ranging from clear to a pronounced blue.

1. On the numeric keypad type 57 (or the number following your last effect; press ENTER. (You have selected a blank effect numbered 57.)

The Color Table (lower left) should grade from black on the

right for the entire height of the table. Note that the top arrow is depressed, indicating whatever you do in the Color Strip will affect the top of the Color Table. We want to leave that alone and work on the bottom of the table.

2. Click the bottom arrow in the Color Table Control Panel. (This selects the bottom of the Color Table.)

If you want a positive, or normal, looking video, click the Normal Video button (far left button in the Color Strip Panel) to produce a black to white spread. If you want a negative effect, click the Negative Video button to its right, giving you a white to black spread.

3. Click in the right box of the Color Strip. (This selects the farthest right [Brightest] color to change.)

4. Using Figure 1 as a guide, set the RGB sliders of the Color Control Panel as follows:

red 06
green 08
blue 09

(This turns the right side color blue.)

5. Click the Horizontal Spread (diagonal line) button in the Color Strip Control Panel, then click again in the left box. (This makes a spread from black to blue.)

Your Color Table is now complete. We must next render this to a frame buffer and to the Program screen.

6. To render, click on the T-Bar, or the Clapboard, or the easiest way is to the RIGHT mouse button with the pointer anywhere on the screen.

7. After the flickering stops, click the right button again and move your mouse down. The T-Bar will move down too and the Program video will become bluer.

8. To name the effect, click in the Text window, then type "Daylight" (no Quotes), click RETURN.

9. Turn to Manual page 13 and enter this as a new effect.

This, and any other new effects, will be saved automatically when you exit ChromaFX.

Let's now make a filter that will correct a video taken in daylight with the white balance set to "indoors" or "tungsten".

1. Create a blank effect numbered 58 by clicking on numeric +.

2. through 4. Repeat the above substituting the following values:

red 15
green 10
blue 09

5. through 9. Repeat the above, substituting "Tungsten" in the text window.

Fluorescent light is very difficult for video color balance to deal with because of the many types of fluorescent lamps. The filters are generally something in the magenta range to counter the green of fluorescence. One you may wish to try is:

red 11
green 08
blue 15

Now for one final simple filter. You have seen movie and television scenes purporting to be at night or in moonlight. They are usually shot in bright sunlight through a blue filter and underexposed two stops. They are not color accurate. Moonlight is sunlight reflected from a dark basalt body and, thus, is not blue, but slightly brown. But it is so dim that the receptors in your eyes that detect color can't see much color illuminated by this light. The powerful blue of the photo filters overrides most color in the imagery, thus simulating the low lunar luminance. Since we are so used to movie moonlight, a correct movie simulation would probably look unreal to us, so we will join the crowd and go the blue filter route. Such an effect is best shot in sunlight and over a somewhat monochrome scene with glistening water. So let's try a blue moonlight filter as follows:

1. Select another blank effect.

2. Leave the top of the screen: grading from black to white.

3. Click the bottom arrow of the Color Table Panel.

Since objects in moonlight shadow are hardly visible, we want our darker colors to be black. So:

4. Click the left (Darkest) box of the Color Strip Panel. (Selecting black as our color.)

5. Click the Copy button.

6. Click 1/4 of the way to the right in the Color Strip. (The range of our solid black.)

7. Click the Horizontal Spread button.

8. Click the left (darkest) box. (Complete the total spread.)

9. Click in the right (Brightest) box and create the following:

red 02
green 03
blue 04

10. Click the Horizontal Spread button.

11. Click the far right of the black spread. (This gives us a large black shadow band.)

12. Click in the Text window and type "Moonlight".

That about wraps up the simple tinting filters. These filters aren't going to give you the crystal clear quality of glass filters on your camera lens because they tend to become hazy the farther the tint is from clear. But if your video needs correcting, ChromaFX is an easy and effective way to do it. And remember, slight tinting of a video image can enhance the mood considerably. So you may wish to create pink, red, yellow or green tinted filters in the manner you just used. You never know when they will come in handy.

Let's take these simple filters farther. Click on the Black and White button in the Filter Control Panel (second from top right). Now when you render the effect with the right mouse button, the program screen becomes black and white video. Moving the T-Bar down imparts a colored tint to the black and white image. Clicking the Color button will add the original color to your tint without your having to re-render. The same is true for the Filter Control Panel (just below the color buttons). First move the T-Bar to its top, then click the Filter button (the one with a rectangle in it). You now have a graded screen tint, from clear on top to color on the bottom. The T-Bar doesn't serve any purpose in this mode, merely moving a hard edge transition up or down the screen. If you find a use for this provision, I'd like to know about it.

This brings us to multi-colored filters. NewTek's Sunset(02) and Mars(06) filters are examples. Instead of being clear on top they grade vertically from one tint to another. Why don't we make one?

The default Sunset filter with its orange top and blue bottom may be appropriate for a clear crisp sky where the reds and yellows are confined near the setting sun and the foreground colors are illuminated by the deep blue sky overhead and the nighttime dark in the east. Let's make our filter simulate a brilliant sunset where the sultry air and cloud filled sky enhance and exaggerate the rich reds and yellows to fill the entire sky. In this case the foreground will be bathed in warm light.

Click the + key until you get a blank (nameless) effect, and click the top arrow by the Color Table to ensure you are working on the Color Table top. Click in the right (Brightest) box and proceed as before with the RGB sliders to create a color, click Horizontal Spread and then in the left (Darkest) box to complete the spread. Click the bottom arrow and repeat the process for the bottom spread. When you have finished, type in the Text Window "Sunset2" and hit RETURN. The filter colors for a red sky and a yellow foreground are as follows:

Top		Bottom	
R	11	R	15
G	00	G	09
B	00	B	00

You may have seen photographs with a rich warm sky and a clear foreground. This effect can be created with a split color filter that is clear on the bottom and with a tobacco color on top. So lets get another

blank and change the top spread by putting the following color in the right box:

R 10
G 06
B 05

Type "Tobacco" in the Text window and press RETURN.

Remember, by clicking the Transition button in the Filter Control Panel, you can turn these multicolor filters into plain filters with variable tints.

You will note the default effects list contains Contrast(08), Brightness(09) and Gamma(10). These change, for the lack of a better word, the value of the images. However, I believe one may be misnamed. The Contrast(08) filter actually has more effect on saturation rather than contrast, whereas Gamma(10) really controls contrast. Brightness affects just what it says along with a little saturation. You may prefer to name these filters as Saturation(08), Brightness(09) and Contrast(10).

Now let's put some of the filters you created to use. Select any filter with a gray scale on top, click a preset then press ENTER. Also click the Black and White button and Transition button. This will give us a variable tint over black and white video. Exit ChromaFX. Toaster pauses here to store the new effects and load your effect into its preset. When the Switcher appears, select the same video source for Preview and Program. Then click the F bank and click once on the preset you selected in ChromaFX.

The preview screen will momentarily go blank, then return with the video in black and white. And the little triangle in the preset button will blink indicating a chroma effect is active. Click TAKE to put the B & W video on the program screen. Now, pull the T-Bar (or right mouse) down and watch the video image change tint. Not much different from the ChromaFX screen? Right! This is just another way to do the same thing.

You have seen the current fashion in commercial television where a black and white video slowly changes to color. Well, push the T-Bar to the top so the video is black and white. Go to Bank A and click once on button A47 (Bank A, line 4, button 7). Click the S (slow) button at the lower right, then click AUTO. Color slowly pours over your video to produce a great effect. A46 (pour), A32 (tear and C35 (sweep) are also great. The effect names are my own because I couldn't handily find them in the Toaster manual. You needn't go from only black and white to color. Had you left your T-Bar at a different setting, the video fade would be accordingly tinted. Some Switcher effects won't work with ChromaFX presets, but you see this immediately because, when activated, they cancel out the Chroma effect. The fade button 48 of each bank works with the presets, but if your image is still or doesn't move much, you will notice a slight shift. It's not noticable with a moving transition. Experiment with the various transitions and write down their numbers and effects for further reference (and playing).

You can do essentially the same thing another way. First select the same video source for both monitors, then enter ChromaFX, select an effect and click the right mouse button to render. When it renders, set the T-Bar where you want it and see the result on the program monitor. Exit ChromaFX and note the regular video is on the preview screen. Select any transition that works with ChromaFX. The only difference with this method is that the Switcher T-Bar doesn't change the Chroma effect, but it will operate the transition. It is useful if you want to make a very slow transition or set it to half way. But use the right mouse button, not the pointer, because the Toaster screen goes blank and you can't see your pointer. To exit a ChromaFX transition, click a preset or execute a transition that doesn't work with presets.

Toaster version 1.0 works similarly except when exiting ChromaFX both images return to their original colors. Click on preview DV1 and the preview video will change to the Chroma effect. Try various Switcher effects to see which work best or at all.

If you are creating a ChromaFX filter for a specific type of scene, like a seascape, you don't need to wear out a videotape by running the scene over and over. Just freeze a frame of the tape and save it to Framestore. However, you can't use ChromaFX on framestores directly from the ChromaFX screen because it takes up both buffers. So you must create the effect, assign it to a preset and exit to Switcher. Then load the stored frame into DV2 of the Preview, click the selected preset and move the T-Bar to get your effect. The still frame will work fine as an experimental image.

Filters from ChromaFX don't work exactly the same with Framestores as with real-time video. Here's how to make it work.

Select DV1 from your Program screen; select the desired Framestore and press Enter to display it as DV2 on your Preview screen; then select DV2 for your Program screen as well. Click the appropriate Preset button in the F Bank and after a moment the Preview will appear as a gray scale image (even if you had set the effect to normal no-filter transparency in the ChromaFX screen). This does not occur with a real time image. Click Fade (F48) and the Program screen will change with movement of the T-Bar, but might show a slight dual image due to the right shift, as the effect replaces the original image. Since you are using the Framestore only as a test, this problem shouldn't bother you much.

If you don't have a video tape of your desired scene, find a book or magazine with a photograph of something you like and shoot it live with your camera. This video image can be worked on from ChromaFX. You can also framestore videos of photographs if you want to build up a library. If your hard drive is filling up, store to floppies (one per disk). The video-out from your TV set or VCR (hooked to an antenna) can also provide images. This is good for general experimenting, but rather time critical for specific subject matter.

There could be several instances when you would like to know what a filter could do to a particular video situation before

you tape it. Say you are driving down the coast when you see a magnificent surf which you would love to tape at sunset, but alas, you have to be at your destination before dusk. If you know how one of your filters will affect the surf you are seeing, you can tape accordingly and add the sunset later.

I hate to end on a sour note, but NewTek seems not to have heard the old adage "If it ain't broke, don't fix it." In version 1.0 you could change the effects anyway you wished, then simply save them as part of a project to a hard drive or to a floppy to give to other users. Not so with 2.0. The Toaster cannot save Chroma effects in a project. Instead, when you exit to the Switcher, there is a pause while your effects are saved to a file named ChromaFX.Effects in the ChromaFX directory of the Toaster drawer on your hard drive. This file is limited to only 100 effects, including any defaults you wish to keep. Whatever project you subsequently load is stuck with those Chroma effects currently in the ChromaFX.Effects file. Next issue I'll show you how to save your effects to a separate file, albeit somewhat laboriously, thus negating the 100 effect limit.

To compound the saving problem, they have changed the format so version 2.0 will not load ChromaFX created by version 1.0, thus rendering the latter useless and a waste of the many manhours spent producing them. I have (or used to have) several projects of beautiful and dramatic effects that are now worthless and, more importantly, since they aren't viewable, probably forgotten.

But back to the positive side. NewTek has created a marvelous video tool with ChromaFX. There is still lots more to explore. So in the next issue, not only will we see how to save our ChromaFX, but we will get into the colorful, playful and fun part of ChromaFX; the special effects. We'll delve into stuff like Posterization, Color Cycling, Chalk-like drawings in real-time motion and wild backgrounds for the CG.

See you next month!

Toaster Talk

continued from page 4

turn around at DTV '92 without bumping into a Toaster system or a Toaster-related hardware/software product. The hit of the show, however, was a new video product that has no direct computer affiliation.

ParkerVision's CameraMan

In my opening remarks I explained that my dream is to be able to be in complete control of a sophisticated video production. The Toaster, of course, goes a long way towards putting this kind of control in one person's hands. Now, a Jacksonville, Florida company called ParkerVision has added a very important piece to the puzzle: remote camera control.

In order to tell this story right, I have to back up a little to about two weeks before the start of DTV '92. I was thumbing through another video magazine when I stumbled across a 2-page advertisement for a product called CameraMan. This ad stopped me dead in my tracks. Just by looking at the picture of the product I could immediately understand what it was designed to do. As I read the accompanying text I got more and more intrigued. Finally, I couldn't stand it any longer, so I picked up the telephone and dialed the 800# that appeared in the ad. I introduced myself to the pleasant man who answered the phone, and requested the free brochure and videotape.

As he was taking down all the pertinent information, we got to talking about AVID and VIDEO TOASTER USER. He had never heard of either magazine before so, naturally, I offered to send him some sample copies. As the conversation continued, I mentioned the upcoming DeskTop Video '92 show and asked if ParkerVision was planning on exhibiting. He said he wasn't familiar with the show, but would pass the information on up the line. We talked for a while longer and he explained what CameraMan was all about. I was really excited to learn more about it. In fact, I wanted to get my hands on one real bad! When our conversation ended I immediately FedExed a couple of copies of AVID and VTU. I was really anxious to get things rolling.

A few days later I got a phone call from Rick Schnarr, the marketing manager for CameraMan. We talked for quite some time about his product and our conversation made me more eager to see one in action. I talk to marketing types all the time, but I seldom run across any who carry more enthusiasm for their product than Mr. Schnarr. I could tell that he was totally excited about CameraMan, and his excitement was very contagious. By the time he told me he was going to try to

reserve some space at DTV '92, I was just as excited about his product as he was.

When DTV '92 rolled around, I finally got my chance to see CameraMan in action. I was not disappointed. ParkerVision's CameraMan is a very sturdily designed device about the size of two shoe boxes stacked one atop the other (see photo). Almost any camera weighing up to 10 pounds (they will soon release a version that can handle cameras up to 25 pounds) can be mounted atop the CameraMan. Once the device is set-up the CameraMan will smoothly track anyone holding the magic wand, thereby eliminating the need to have a live human being manning the camera.

Let me cut to the chase...CameraMan really works! I was amazed at how responsively and smoothly it tracked anyone holding the wand (Oh, I forget to mention that the wand is also a remote microphone). On the wand are a variety of buttons that give you even more control beyond CameraMan's default auto-tracking mode. For instance, you can program CameraMan to swivel away from the wand and focus in on a particular object or area (you can program up to 4 preset locations). You can also override auto-tracking and manually control the camera by using the up/down and left/right buttons on the wand. CameraMan also can be controlled through a serial port. Back up and re-read that last sentence. Do you understand the significance of this feature? CameraMan has the potential to be put under machine control! My mind just boggles at the possibilities.

By now you can probably tell that maybe I kinda like CameraMan just a little bit...NOT! I am flat out in LOVE with CameraMan. After the Toaster, it is one of the most significant developments in the desktop video market. CameraMan puts a very important level of control in the hands of the desktop videographer. There is a lot more I can tell you about CameraMan (the event that inspired the idea for CameraMan is a very touching story). But, you can find out for yourself by calling 1-800-231-1759 and asking for the free brochure and videotape. I must warn you, however. After you've seen CameraMan in action, you won't rest

until you have one. Good Luck!

Who are you Guys?

One of the problems we have in publishing Video Toaster User is figuring out what Toaster subjects we should concentrate on. We recently completed a telephone survey of 100 VTU subscribers and asked them a number of questions designed to help us get a handle on the "average" Video Toaster user. This was by no means a scientific survey, but it did help shed some more light on the subject. Here are some of the things we found out:

1. 92% of those surveyed own Toaster System 2.0. This is really no surprise considering how many enhancements were included in the upgrade. Most of the folks we spoke with who had NOT yet upgraded their Toaster software were in educational or government environments and were still trying to guide their requests through the acquisition process.

2. Almost an even 50/50 split between installations where the Toaster is the dominant video device and places where the Toaster is an additional video tool in an existing studio. It appears that more broadcast installations than I had expected are bringing in the Toaster. This bodes well for companies like Cardinal Video Products and Network Electronic Enterprises; two companies that offer products that solve potential studio timing issues.

3. 83% of the respondents said they used their Toaster in some type of commercial environment. I guess there are a lot folks finding ways to make their Toaster pay for itself.

4. 60% of those surveyed said they consider themselves videographers who use computers, as opposed to computer users working in the video field.

5. The Switcher appears to be the most popular part of the Toaster with 54% of respondents naming it as most used section. When asked what the most complex section of the Toaster is, 73% of those surveyed named the LightWave Modeler. The Modeler also led the voting for "least used" section of the Toaster. No surprise there considering the inherent complexity of 3D modeling.

We also asked a number of marketing-type questions that I won't bore you with. We'll probably go back in six months and do another survey to see if we can spot some developing trends. "Thanks" to all those who participated in this survey.

Chip RAM: More is Better!

Those of you who also regularly read our sister publication, AVID, have heard me rant and rave about the MegAChip 2000 from DKB Software. For those of you new to the wonderful world of Amiga custom chips, allow me a quick explanation: the MegAChip is a small square circuit board that plugs into the Agnus socket on the Amiga 2000 motherboard. What this circuit board does is double the amount of chip RAM that the Amiga custom chips can operate in. More chip RAM means more direct memory access for graphics and animation, and more room for multiple programs running simultaneously (multitasking). Take my word for it. More is Better!

Most of the true Toaster power users I know

have the MegAChip board installed in their system. Still, I'm often amazed to talk to people who have either never heard of the MegAChip or don't understand its impact on their system. I've had a MegAChip board in my system for over 18 months now and I go nuts when I work on a system that doesn't have one installed. In my opinion, it should be standard equipment on every Video Toaster system.

The only warning I used to have when recommending the MegAChip was to make sure of the availability of the 2-meg Agnus chip (usually sold separately) before plunking down the money. By the time you read this, however, DKB will have eliminated even that misgiving. They've begun shipping the MegAChip board with the 2-meg Agnus already installed! And, because they are able to buy these chips in quantity, they can pass some of the savings on to you. This makes the MegAChip an even better buy than before. Suggested list price is $349 which is about 100 bucks less than what I paid a year-and-a-half ago. What can I say? Buy a MegAChip 2000. It can really make a difference in the way your system performs. You can reach DKB Software at 313-960-8750.

Rodent Control

Before I go, I'd like to mention a neat little product I ran across a few weeks ago that, until I used it, I didn't even know I needed it. It's called Mouse Control and its a very simple little weighted stand that performs a very simple task: it keeps your mouse cord from tangling and getting in your way. This is one of those minor little annoyances that hardly seem worth the effort to eliminate them. But for about 15 bucks you can get Mouse Control and solve the problem forever. Mouse Control is produced by Advanced Image and they can be reached at 603-673-0212.

Well, that wraps it up for Toaster Talk. As you can see and feel, the magazine is growing rapidly each issue. We've added a significant number of pages from the last issue and there seems to be no end in sight. We appreciate all the phone calls and letters offering congratulations and support. We're going to keep working hard on our end to constantly improve Video Toaster User.

Jim Plant
Editor/Publisher

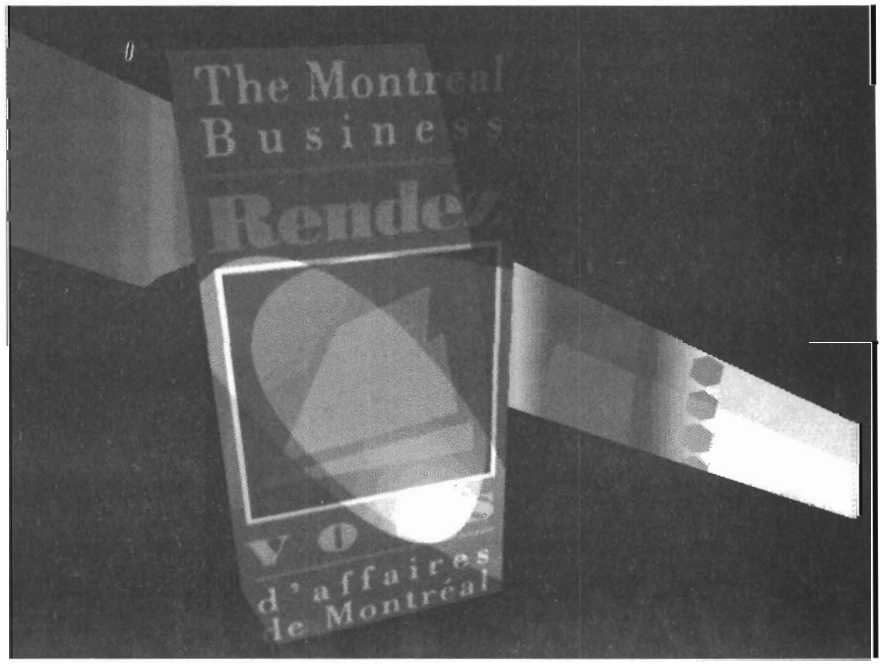
Toast of the Town:

By R. Shamms Mortier, PhD.

The NewTek Video Toaster has not only revolutionized graphic video production, it has also allowed state-of-the-art computer graphics and computer enhanced production technology to be accessible to a community of creative individuals and production groups who can finally afford these new tools. Many of these individuals and groups had already established a history of creative work in other mediums, so they were already primed to explore a new tool. Some of these folks are brand new to any design process, so that their interactions with the Toaster represent their first approach to enhanced and original videography and computer graphics.

As a designer, I have about 30 years of experience in the field. As a computer graphics user and designer/animator, my expertise is based upon a nine year interaction with various Commodore products (from the C-64 to the Amiga), and a smattering of university taught computer graphics courses. Many of the new and upcoming computer graphics designers have a very different background. Many have never (or hardly ever) been involved with "traditional" tools...T-Squares, "rapidographs", hand drawn animation cels,..but instead have been weaned on the electronic medium alone. This has its plus and minus aspects in terms of computer design. On the minus side, it creates a lack of understanding of the vocabulary and processes that are still in wide use today, from print shop communication to the animation studio. It also can lead to a "dead end" mentality when it comes time to be aware of creative options. On the plus side, however, it has created a community of young creative individuals who are quite comfortable with all aspects of the video medium, which includes computer graphics. Many of these individuals have been involved with every aspect of computer graphics, including programming, since well before the onset of puberty. They can understand the computer aided design hardware and process from all or most of its perspectives; from hardware components to hacking a software interface, from Basic to ARexx, from graphics tablets to waveform monitors, and to the NewTek Toaster and beyond.

My subject for this article: Matt Strauss, the Creative Director of the Media Design Group of Vermont, is an example of this new breed of design professionals. I have known Matt since he was about fourteen, and even at that time, he was intimately involved with electronics and computers. His workroom (his bedroom) looked like Captain Nemo's undersea laboratory, and was strewn with wires and the innards of electronic paraphernalia from one end to the other. There were monitors mounted on the ceiling, Commodore-64s linked together in parallel, massive wall-shattering speakers connected to keyboards and radios, and whirring disk drives



set in a row like new-age mini-robots. At any given time, Matt could be found engaged in programming some strange utility drivers that caused some piece of equipment in the corner to burst into light and sound, or leading his friends and interested onlookers on a tour of this strange altered Disney-like theme park. His parents were most forgiving, either out of a sense of awareness that their progeny was someone gifted and special, or out of a sense of frustration that there wasn't much they could do to intervene anyway.

When Matt was about seventeen, I hired him as a computer graphics consultant for the University of Vermont's Graphics Service which I manage. He helped me install and reconfigure hardware peripherals, and hacked more then one piece of software to comply with my special needs. Now, at the tender age of twenty-two, after stints with Vermont cable TV as a cameraman, editor, and computer graphics whiz, and along with his two year involvement as the creative director of one of the fastest growing design groups in the area, Matt still serves the university's video studio as a consultant and "fixer of last resort." His expertise with the NewTek Video Toaster is born out by use (he was one of the first testers and users in this area of the world) and extensive experimentation and application to professional ends. With the release of Toaster 2.0, I wanted to check in with him regarding the enhanced capabilities of the software.

The Interview

Q: *Matt, tell the readers something about the Media Group that you work for.*

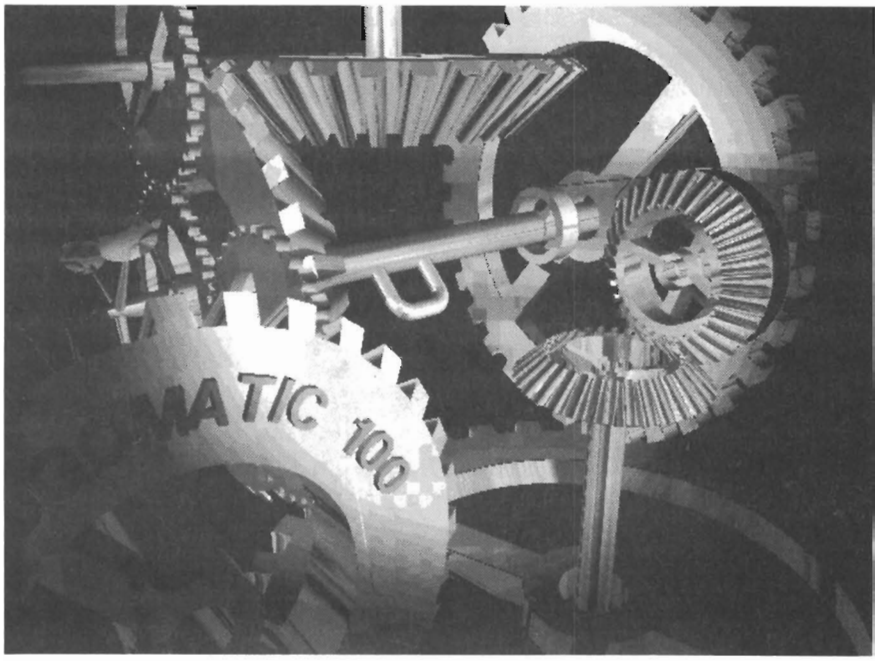
A: The Media Group is a full-service video production house located in Williston, Vermont. It specializes in all phases of video production. Clients include area high-tech firms (like General Electric and Xerox) as well as broadcast TV productions and commercials. One of our recent projects shows complete computer graphic battle scenes in full color 3D animation. The company started business in 1988, and the current editing suite includes A/B roll editing for 3/4" video and BetaCam SP. We also use Sony and JVC 3-chip cameras. We have Amiga, IBM, and Mac workstations.

Q: *What is the configuration of the Amiga workstation you use?*

A: Through use of ParNet and other devices, our Amiga can talk to both the IBM and Mac platforms. We actually use two Amigas, and each is fully loaded with RAM and accelerator boards with math coprocessing. Some of our recent acquisitions include a 1.2 and 1.7 gigabyte hardrive, a Fusion40 68040 board (32 megs of RAM), a BCD 5000 SFC controller, MegAChip 2000, a BOMAC Tower, and other peripherals.

Q: *I've also heard that you use an Abner Single Frame Device. Have you had any luck interfacing it with the Amiga?*

A: I've gotten the Abner to control the Amiga, but haven't had any luck going the other way. I've called the company PalTex,



and it seems their folks are working on it. There seems to be something that has to be done with the GPI (General Purpose Interface) trigger.

Q: *Matt, in general, how do you like the new Toaster software?*

A: Unbelievable! There has been a vast improvement over 1.0, and 1.0 was dedicated magic at that. This release, however, is much more suitable to professional work. It widens the horizon of possibility in several ways. For one, it seems to solve a lot of the old switcher problems while providing an almost infinite number of possibilities for future upgrades and changes. In addition, LightWave has some truly amazing new features. One of the best things that can be said about the 2.0 edition is the smoothness of the transition for users from 1.0 to 2.0. The cost of the upgrade, considering all of the new features, is extremely low. People might complain that it should have been lower, but these are folks who just don't realize how useful this unit is to the professional. There is nothing else like it.

Q: *With all of the new areas for creative Toaster work, which ones have you found to be the most interesting?*

A: Well, we'll have to go through each Toaster module one at a time since there is so much to talk about. Let's touch on the Switcher first. Positionable effects are at the top of the list, which is the closest thing I've seen yet to a user definable effect. Each effect can be customized to fit your needs. If you want a graphic of the earth to flow out from someone's nostril, it's easy to achieve with the positionable effects. Framestore compression is incredibly helpful. I've saved at least 30 to 40 megs so far on one job alone. I estimate that I create about 300 Framestores a month, and of these, I previously had to delete about half to conserve hard disk space. Not any more. I love having the ability to dissolve "key" on and off, as well as the option to dissolve any effect in mid transition. The addition of two more effects banks have been very helpful, but I'm still waiting for the day when I can create and save my own effects.

As far as the character generator in the Toaster goes, it's great to have the capability to import and use ToasterPaint backgrounds. This reduces the amount of time it takes to incorporate a logo with character generated art. Before, you had to create the CG page, save it as a Framestore, then get into ToasterPaint, load in the Framestore, hit-and-miss cut and paste, then save it again as a Framestore, which was creatively frustrating and time consuming...but not anymore. The speed of the CG is now vastly improved, about 200% or better. The new wider selection of Fonts is very useful, as is the place-

ment of shadows and outlines on crawls. The buffered pages come up faster then Framestores, even on screens packed with data. Though I don't use the ChromaFX a lot in my work, when I do I appreciate the new faster access time from the Switcher.

In ToasterPaint, it seems as if a lot of the revisions have gone on below the surface. Scrolling is more controlled, as well as the elimination of certain 1.0 bugs. I like the ability to grab a frame directly without saving it, which is kinder to my time and to disk space. The LightWave Modeler is something I'm using much more now then the 1.0 edition. The user interface is much clearer. I find the new commands like "Bend", "Twist", and "Clone" to be very helpful. Overall it's much more friendly.

The LightWave module is the place I spend most of my Toaster time. Number one on my list of thankful features is being able to import Swivel, DXF, and 3D-Studio files. I do this in two ways: 1. using a null modem and two terminal programs, or 2. using the Apple file exchange on one side and CrossDos on the Amiga side. The new spline controls give me more control over object motion. I can control central movements and tension between keyframes continuously, as well as benefiting from the linear option. Auto Texture-map sizing also saves a lot of trial and error time. The fractal and underwater features are very useful. The ability to negate an image can save time and memory. The bump mapping feature is much more fluid with the new planar, cylindrical, and spherical options. I wish it could modulate two bump maps on a surface though. The automatic texture sizing feature allows me to map an image and a bump map, which is nice for making an IFF texture with dimensionality. There is much more flexibility with image sequences, including the ability to choose a range for images, and also to load a Framestore as an image as opposed to only an IFF file. Finally...raytracing! There is a great refractive index at the back of the manual, which allows me to achieve new levels of realism.

The new resolution modes are very useful. "Print" resolution is targeted to my clients that want prints and/or slides. The size of the image, however, can be 10 megs or more. It would be nice if the output was targeted to JPEG directly.

The "TIO" library requester is also very nice, but it would be better if this could be accomplished with images. Just fantasize what it would mean if NewTek had a license agreement with ASDG corporation, so that their AdPro software could be installed as a crouton on the Toaster screen. (Comment: or even if the Toaster had about six "open croutons" so that other software could be accessed with the click of the mouse!). It would also be useful to have a "Pixel-3D" button in LightWave. The Super-LoRes mode is great for previewing ray-tracing. I love having the ability to load/save surfaces separately, which allows for the creation of "Surface Libraries." I also like saving everything at once, but there still seems to be a bug that prevents the computer from coming back up after a save. The Envelope controls are vastly improved as far as controllability and load/saves. The diagram is larger and more readable. I would like to see it in relation to the size of a whole sequence, though, and to interact by adjusting and freehand drawing. The ability to preview an animation with bounding boxes allows me to concentrate on the movements alone in a sequence.

Last, but not least, is the Toaster manual, which is entirely rewritten. It is very impressive, like a video/computer-graphics Bible. The concepts are very well explained, even for beginners, and the screen dumped graphics are super. The manual is a work of art, and deserves an award for design, ease of use, and range of detail.

Q: *Thus far, Matt, you've been very kind towards the Toaster. Not to break the spell, but have you run across any annoying little critters in your Toaster work? How about pesky bugs in 2.0?*

A: Unfortunately, there are a few. They don't detract from the magic of the package, but should be addressed in the near future. ToasterPaint still has a bug when poly-line draw is chosen, because circle draw comes up. The genlock utility should quit when you

re-enter the Toaster. WorkBench can suddenly show up in CG. We should be given control over the "notch filter" on the genlock for adjustment, at least an on/off toggle. The "save all objects" option in LightWave doesn't allow you to resume computing afterwards. When TIO fails, it can cause havoc in the rest of the system. Maybe there are some anomalies in the DXF import section of TIO specifically.

Q: *How about an ADPro/Toaster connection?*

A: I'd like to see a user definable "slice" in the Switcher that would accommodate ADPro. Also, in ADPro, I'd like to have a "FrameStore" saver/loader, and in the Toaster (CG, LightWave, and TPaint) to have the option to save out work in any of the ADPro formats as well (DCTV, DPaint, etc.). I'd like to see a direct link that would render to the Toaster from ADPro. Maybe even a hotlink with ToasterPaint.

Q: *How about a Toaster/DCTV link?*

A: Now that would be something! DCTV could offer Toaster users a way to work in 24-bit in real time. With the DCTV/RGB adapter, what you see is literally what you get. In LightWave, DCTV could act as a nice preview device. PC, Mac, everyone else has a surface preview function...and a DCTV/Toaster connection could do that and more for Amiga users. With DCTV and a fast enough machine, you could change things like specularity in real time.

Q: *How about features that you would like to see implemented in a future upgrade?*

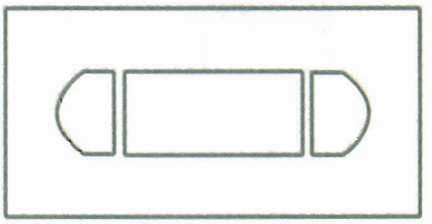
A: I've mentioned some, but let me recap and list my desires in order. The "ToastFont" utility should handle larger font sizes. I'd like to see a conversion utility that would allow you to transform ANIM 5's into Action-FX. It would be nice to have all of the "Escape Codes" accessible so that text files could be formatted directly. The user definable macro-croutons fantasized about earlier would be a great addition. I would also like to have a DPaint-like (Electronic Arts premier paint program) perspective mode available in TPaint. Also a poly-line draw toggle that makes lines and not polygons.

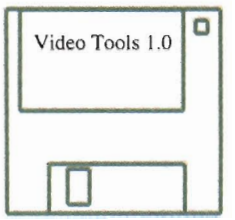
I would also like to see an "Expert" mode, that would allow a user to configure every part of the system, like an adjustable Preferences screen with hot-key input and more. The creative director who uses the Toaster needs much more flexibility to make each project unique. "Design Your Own Whatever" is the mark of the creative videography game. The Amiga-based Toaster user knows that we do not need another company like Apple out there with so much proprietary stuff! We've got to be able to do things ourself, not purchase it as a service. If NewTek doesn't allow for this kind of creative expansion soon, it will not be good for their continued success. People will recognize an effect as "just a Toaster effect", and miss the creative point. Designing a good effect is complicated, but never underestimate the creativity of the dedicated video professional.

I've heard rumors that a hardware upgrade is also in the works, whatever that means. Maybe future Toasters could have TBCs built into every channel. Adding two more digital effects banks would also help.

Thanks Matt for taking the time to be interviewed, and giving us some valuable information.

AmiWare Toaster II Training Tapes





It sure has been an exciting time at AmiWare for the last year and a half. NewTeks VideoToaster and RGBs AmiLink Edit Controlers have been hot sellers. With over eighty VideoToaster installations we have gained incredible knowledge of the products. You may remember the article in the January issue of Avid Magazine which we submitted on how to create custom VideoToaster wipe patterns.

When we sell a VideoToaster system to our customers we include three hours of training. Now you too can attend the same training course. The AmiWare Toaster II Training Tapes cover the following areas: * Detailed coverage of the switcher * Custom wipes with the art card * Composite video using ChromaFX * Graphic artist Jeff Evans brings you through the powers of ToasterPaint * Each gadget, requestor, and slider will be explained * Examples of 3D buttons, Embossing, Tiling, Compositing, Shadow Creation, and Image Compression will be given * From A to Z will be covered in the ToasterCG slice * Fly in titles with LightWave 3D * Using ARexx we will show you how to control your VideoToaster from an external computer .

In addition to the three hours of VideoToaster training we have included an hour of interviews with manufacturers. Meet Terry Smallwood of Nucleus Electronics, the inventor of the Personal SFC. Terry will bring you through the process of recording an animation to tape. A design engineer from Digital Processing Systems will talk about the use of the Personal TBC II, and VScope. Graphic Artist and 3D wizard Derek Grime will show you the Beyond Backgrounds Pro Set and we at AmiWare will demonstrate the AmiRoute Router.

Along with the training tapes we have included utility programs to help you with your VideoToaster. The tools alone are worth the investment.


- Fade with frame count.


- Select one of 4096 background colors.

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- ToasterPaint is used to compress a framestore.

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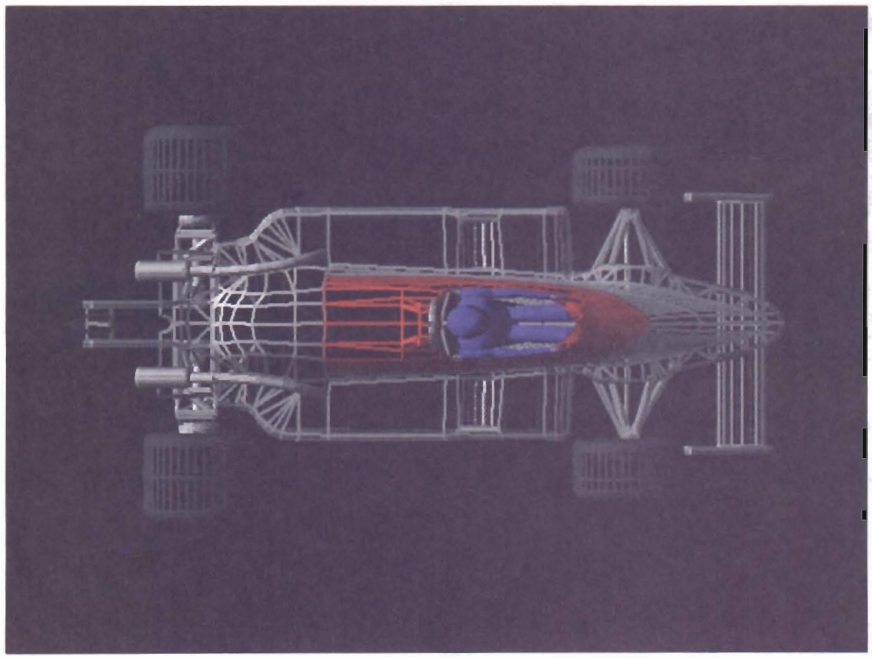
IINTERVIEW

Joe Conti: HOLLYWOOD Visual Artist

By Mark Swain

In the beginning there was the Video Toaster. Then came the skeptic, "It's a toy, and could never be used as a professional production tool," many nervous observers scoffed. The skeptics however, did not realize the potential power that each Toaster packs. It took the pioneering spirit of a special effects artist like Joe Conti, to fully visualize the Toaster's vast potential.



Joe Conti is no stranger to the world of special effects. He began his Hollywood career as a model maker at Boss Films on the film, "Die Hard." Classic visual special effects, models, optical printers, and stop-motion was the path Conti traveled for many years. In 1985, he began to see the potential of computer graphics when he purchased his first Amiga 1000. Conti used his Amiga to produce still graphics using DPaint for slide show presentations. "The Amiga allowed me to produce stunning quality slides rapidly," Conti said.

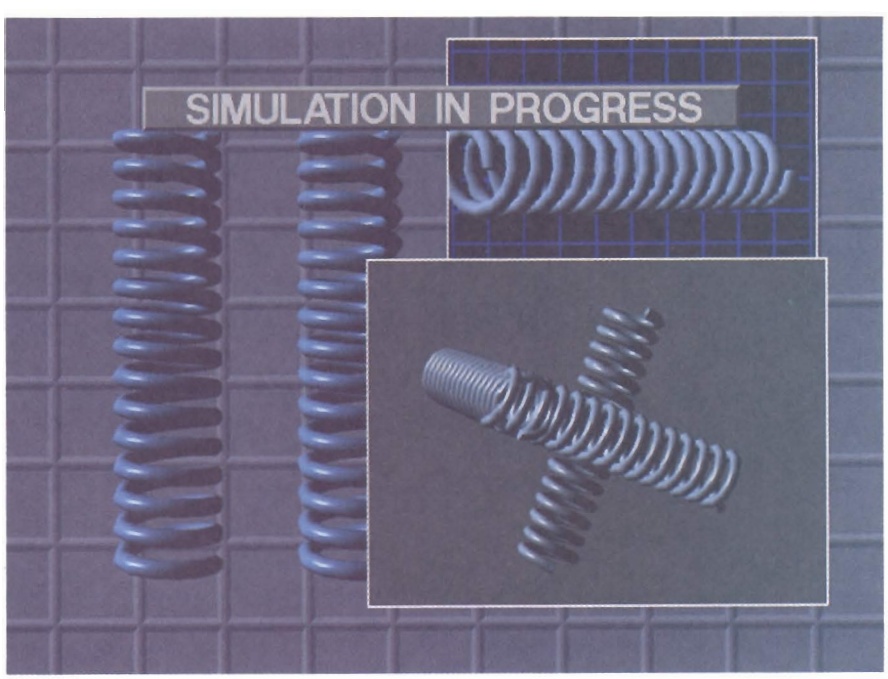
As the Amiga gained software, Conti switched from still slides to 2D and 3D animations. The 3D experience soon lead Conti to a project designing a walk through of a $100 million dollar Japanese theme park. The theme park buildings were designed in AutoCAD, and then transferred to Sculpt 3D to perform the walk through animation. Conti credited the Amiga for the success of the theme park walk through, "A simulation of this caliber would have cost thousands on a high-end system, but the Amiga allowed us to produce the project from our desktop."

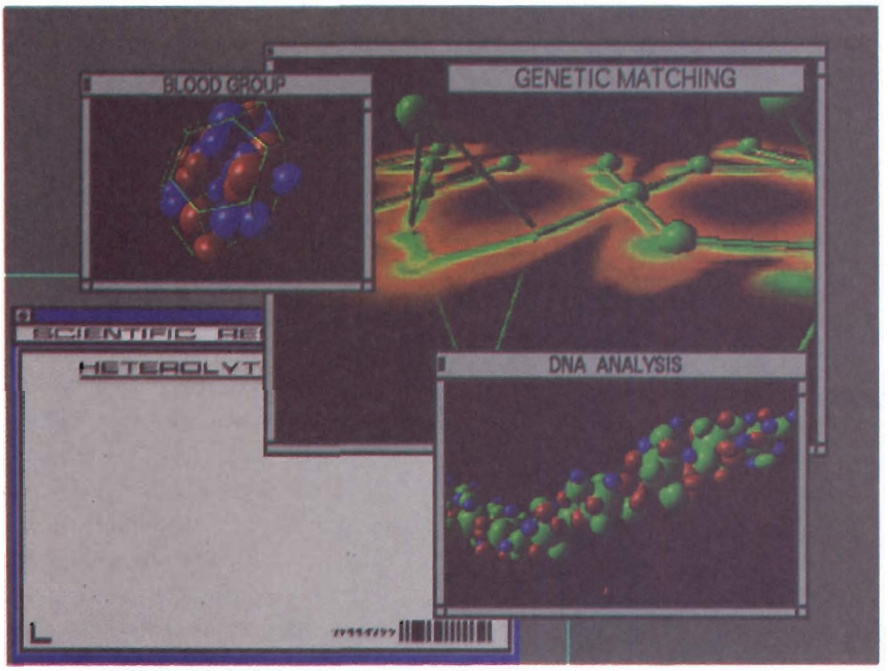
The Toaster Years

In September 1990 the world of special effects changed yet again for Conti, "I was creating graphics for a mid-range of clients, but then the Toaster appeared on the production scene and I was suddenly bidding on high-end Hollywood type projects." The first project that Conti was able to test the power of the Toaster on was a scene for the film, "FreeJack." The movie is a sci-fi, time-travel thriller that stars Emilio Estevez and Mick Jagger. Dream Quest asked Conti to create the opening computer time travel sequence. The sequence snatches Estevez's character into the future from his race car seconds before it crashes into the race track overpass.

The scene appears rather simple in the film, but numerous seamless transitions were required for the effect. Conti first digitized a frame from the film footage containing the race car before it crashes into the over pass. Next, he used ToasterPaint to digitally erase the car from the scene. A three dimensional model of the race car was created in LightWave Modeler, and visually lined up with the real car in the scene. The transitions start with the real scene dissolving to the retouched background without the race car. Then the real car transforms into the LightWave 3D computer model. The computer model then rotates while transforming from a solid model, into a wire frame model by using the polygon shrink function of LightWave. The background race track scene dissolves to black, leaving only the wire frame race car. The last part of the scene features a 3D targeting grid that locks in on the driver, and beams Estevez into the future.

The "FreeJack" sequence was completed in roughly two solid weeks of work, over a two month production process. Other high-end special effect companies





had also bid on this project. The lowest bid was $40,000. Conti completed the scene using the Toaster on a budget one-fourth the lowest bid.

Apogee Toaster Magic

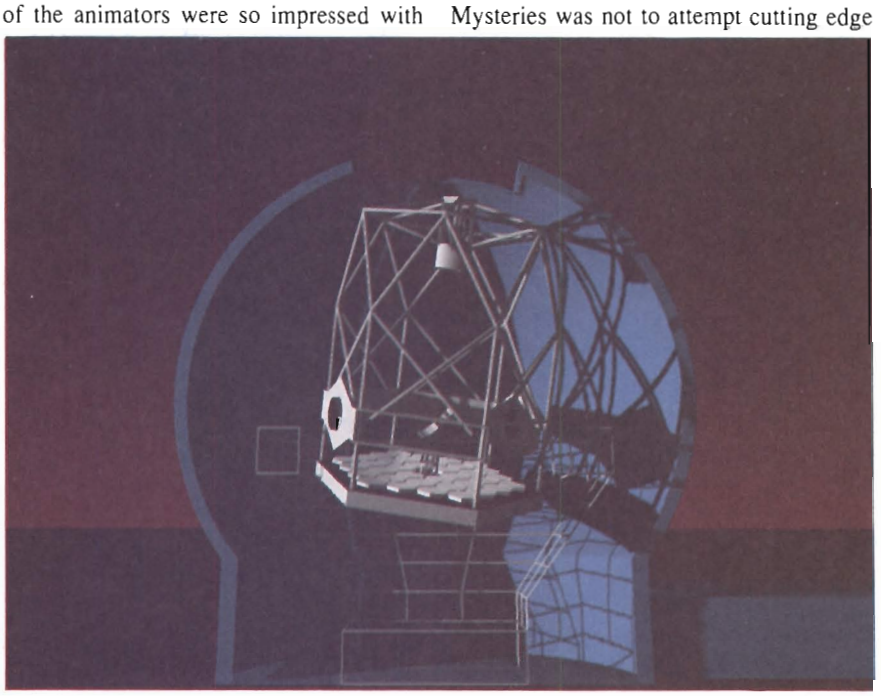
In late 1990 Apogee Productions was looking to add a digital imaging department, and heard of Conti's success with Toaster generated graphics. The special effects company hired Conti to head up, and develop their new digital department. "With the recent success of computer animation in feature films, Apogee was open to see what was possible with the Toaster," Conti explains.

The first project that Apogee called on the use of the Toaster was for a Pillsbury Doughboy commercial. Apogee has a strong hold in stop-motion animation attributable to their vast experience in classic model and motion control special effects. The stop-motion team, however was looking to develop a more sophisticated method of animating using digital video equipment.

The new method uses a video camera to view the stop-motion figure, a still store is used to freeze one animation frame, and then a switcher is used to dissolve half way between the live figure and the frozen animation frame. In this way the animators could see how much they were moving the character in each frame. To accomplish this animation technique, the team needed two expensive pieces of equipment: a switcher and a still store. Conti solved the expensive problem with a single Video Toaster, a system that incorporates both a switcher and a still store. "The animators were able to produce the Pillsbury animation faster, and much smoother than in past productions. Some of the animators were so impressed with how well the Toaster performed, that soon after the production they purchased a system of their own," Conti said.

Although Apogee used the Toaster as a stop-motion animation tool, the Toaster's big break was the show, "Unsolved Mysteries." Conti was asked to produce several seconds of animation featuring UFOs for the show's season premier. The UFO sequence that the producers wanted needed to be done quickly and on a tight budget. "Apogee was nervous about using the Toaster at first, but the show did not have the budget to build real models and shoot them with a motion control system," Conti recalls. The Toaster UFOs were given the green light, and the sequence was finished in two weeks time. Conti remembers the reaction, "No one could believe that we produced the sequence with the Toaster, they were convinced that real models had been built." Unsolved Mysteries' premier episode was enjoyed by over 20 million viewers, and has become one of the most popular examples of LightWave 3D animation.

Conti used the Toaster successfully in several more episodes of Unsolved Mysteries. Future episodes will bring to life a ghost blimp, and the Lochness Monster. "The goal for the segments in Unsolved Mysteries was not to attempt cutting edge



computer animation, but to produce a high quality product for broadcast television," Conti said.

The Freelance Toaster

In recent months, Conti has branched out on his own to produce computer graphics and animation for a variety of films and television programs. He created, with the modeling help of Allen Hastings, several of the bridge displays for Star Trek VI. "I knew the director of the film liked 3D graphics, so I called Allen and asked him to make a model of the Enterprise," Conti recalls. Hastings worked on the models all night, and then sent the ships down to Conti over the modem. In a 24- hour period, Conti and Hastings made a brilliant display loop of the Enterprise rotating in wire frame. Conti said, "The director was so thrilled with the 3D ship displays, that he wanted them shown on several of the bridge displays."

Conti has also recently Toasted up several Television programs. An episode of Doogie Howser M.D. this season featured a computer MRI scan that Conti designed. "The computer display showed a progression of tissue and flesh that developed into Doogie's friend Vinnie," Conti explains. A new show called, "Man and Machine" also features a Conti-generated computer display of a rail gun, and DNA strands. The interesting item about both of these projects is that no post production was needed. Conti says, "LightWave is great for compositing multiple animations together. It provides a real slick post-production look without the added post expenses."

Discover Stories is Conti's latest project. The program is produced by the Disney Channel, and is inspired by the pages of Discover Magazine. The basic intent of Conti's involvement in the show is to bring to life the lush illustrations that are present in Discover Magazine. "The producers wanted to bring these very technical illustrations to life with LightWave," Conti continues, "Once the graphics were finished, the producers could not believe the large amount of quality graphics that I could provide on a tight budget."

At The Post Group

Another project Conti worked on recently involved The Post Group, one of Hollywood's top post-production facilities. The group was responsible for the post production of, The Flash, Star Trek, Michael Jackson's music videos, and literally dozens of other television programs. Post boasts rooms full of digital video tape recorders, editors, digital disc recorders, WaveFront stations, and Harry suites. A facility to truly drool over.

The Video Toaster does however bring a cost effective method of producing computer animation for television programs to the Post Group. The group does not employ Toaster workstations, but instead calls on the expertise of computer graphics artists like Joe Conti. One recent example of the Toaster at use at The Post Group was for a pilot episode of a new sci-fi television show. Peter Moyer of the Post Group asked Conti if he could make a futuristic vehicle on the Toaster. The next day, Conti had an animated test of the vehicle turning on the screen like it had just stepped off the assembly line. Moyer made a call, and a few minutes later the producer of the show appeared. She was to say the least, excited about the possibilities that the Toaster computer animation could provide for her show.

Toaster Attitude

Conti views Toaster users as the new breed of creators, "It takes a pioneering spirit to try a new technology, and that trail blazing attitude really paid off with all the Toaster projects that I have been involved with in the last few exciting years." The new wave in Hollywood is to create more for less. Conti has proven the skeptics wrong. The Toaster does provide a high-quality means to produce Hollywood effects on a budget.

Joe Conti would like to thank the following individuals for the privilege of working with them on "Unsolved Mysteries": *CosgrovelMeurer Productions, Apogee Productions, Jennifer McKnew, Tim McHugh, and The Post Group.*

LIGHTWAVE Takes up THE MAC Challenge

By Mark Thompson

As someone who makes a living from creating 3D animation, I am always interested in hearing about the features of other products that can increase my company's animation speed and capabilities. And although I have been a devoted Amiga fanatic since I bought my first machine back in '85, I would not hesitate to purchase another platform if it could cost effectively add capabilities that I could not otherwise achieve on my Amiga. So it was with great interest that I read MacWorld's February 1992 issue in which the article "3D: Structure, Surfaces, and Movement", highlighted and compared the various 3D software offerings on the Macintosh.

Currently, most all of my work is done with LightWave3D, the rendering/animation package supplied with the Video Toaster. I have tried many other packages, but LightWave just feels more natural to me. Frequently however, I will find myself greedily eyeing the competition and thinking, that sure would make my job easier. Even so, feature lists can be quite deceiving and more often than not, don't truly exemplify what the software can produce. So I was pleased to see that the MacWorld article included a moderately complex test scene that was rendered with each package by each vendor's chosen artist. The intent was to visually show off each program's feature set. For those who have not seen the article, images were created with nine different packages: ElectricImage, Infini-D, MacRenderMan, MacroMind Three-D, DMacTOPAS, Presenter Professional, Ray Dream Designer, Sculpt 4D, and StrataVision 3D. Of these these nine, five of them used ray-tracing.

However, while studying the images, I thought to myself that I could render an image with LightWave that would rival, if not surpass, any of those pictured. The momentary feeling of envy was suddenly replaced by determination to duplicate the scene and demonstrate LightWave's outstanding image creation capabilities. And so I got to work Object Modeling.

Since I didn't have the luxury of starting with a completely modeled scene as did the Mac artists, I had to build one up from scratch. The most prominent and eye-catching object in the scene was the glass globe of an oil hurricane lamp. To duplicate its shape, I first scanned the image with the best edge definition. ADPro was used to increase contrast and decrease the number of colors. The scan was then loaded into DPaint where I carefully traced its silhouette in black and white. The top and bottom of the silhouette were then leveled off to remove the rounding caused by the perspective view. This image was then loaded into Pixel3D for autotracing. With monochrome conversion mode, line smoothing set to 8 on algorithm #1, and no beveling, spinning, or extrusion, I created a LightWave object from my silhouette. To get finely detailed curves out of Pixel3D, it is better to use a lower smoothing factor (say 6 to 8 depending on the image resolution), and then manually delete or realign any extra jagged points in your modeler. I loaded the traced object into the LightWave Modeler and cleaned up the left edge. The right edge was then deleted and I cloned the left edge immediately next to the original. This new edge would serve a the globe interior surface and give the glass a little thickness. I then carefully selected all the points in sequence one edge at a time and hit "p" to make the polygon. This was then lathed 360 degrees about the Y axis yielding my globe object. After checking that my lathed polygon normals were all facing the right direction, I named the surface "globe.glass".

After finishing the globe, the glass base of the lamp was next. I began by creating a 100 point circle in the X-Z plane with the disc primitive. Then 80 points were deleted leaving 5 points in each of 4 opposing corners forming a square with rounded edges. This was then extruded in the Y direction in 13 segments. Each of the segments was then stretched in the X-Z plane and moved in the Y plane to create the desired bottle shape. Since this is to be a glass object and I didn't give the bottle an interior surface, it was necessary to make all polygons two sided. This is trivially accomplished by going into the polygon menu of the Modeler and hitting Copy, Flip, and Paste in sequence while nothing is selected.

Adding oil to the lamp was a simple

task of copying the bottom half of the bottle to another layer and sizing it slightly smaller to simulate the thickness of the glass. The top of the liquid was then moved to fill roughly half the bottle. Finally, both objects were given named surfaces and pasted together.

The rest of the lamp is a collection of simple parts. The primary part which feeds the wick was merely a Y axis lathing of a polygon that was created with hand-placed points that were eye-balled from the MacWorld images. The globe supports were quickly sketched in DPaint and traced and extruded in Pixel3D. The wick is a multi-segment Y axis extrusion from a small rectangle with each segment given a small rotation in the X and Z direction. The knob that adjusts the wick is a couple of modified discs. And finally, the flame and glow are two stretched concentric spheres. When the lamp was finished, the remaining foreground objects were trivial, and the objects reflected in the mirror were a combination of LightWave supplied objects and some I had previously created.

Surface Definition

Once the objects were completed, the surfaces could be defined. The end table/mantle, inlay, and mirror frame were scanned golden oak, green marble, and red mahogany respectively. The image map for the wallpaper was scanned and then touched up in ToasterPaint allowing it to repeat seamlessly. The outside of the matchbox was created in DPaint while the inner box and matches have a subtle procedural fractal noise texture. The sofa in the mirror has a procedural grid texture that have the texture size set so large in the Y and Z direction that stripes are produced. Both the sofa and the curtains behind it achieve their natural look from a repeating scanned woven cloth texture that modulates their diffuse lighting. Also scanned was the pine texture used on the table in the mirror. The metallic surfaces used on the lamp were created by selecting color highlights with 80% specularity and applying 25% of image mapped reflection. The reflected image is nothing more than a few soft white blobs on a black background. The glass surfaces were also created with image mapped reflection to yield a realistic look without ray-tracing.

A test rendering of the scene was used as the reflected image for both the lamp globe and the fluid bottle. The surface attributes for both were set to 80% diffuse, 80% specular, high glossiness, 20% reflection, and smoothing. Opaque edges were also used to better simulate the refractive effects that occur on the edge of a glass surface. As for transparency, the bottle was set to 80% and the globe 100%. The only other difference between the two was a green tint in the bottle. The oil in the bottle was also set to be transparent but only 40% and with normal edges. A subtle fractal noise pattern modulated the color. For the glow of the lamp flame, the two concentric spheres mentioned above were simply given clear edges with no transparency and each had a slightly different shade of yellow-orange assigned. They were also set to luminous.

The surface that required the most work however was the mirror. Because LightWave 1.0 does not support true reflection, it must be simulated. To further complicate matters, the current method of reflected image mapping uses a spherical image projection which works well for smooth curved surfaces but terribly for flat ones. Therefore, rather than reflect an image, a planar color map was used. To create the image for the color map, the scene was rendered with the camera behind the mirror facing perpendicular to its surface and recessed back far enough to capture most of the table/mantle. Once the image was rendered, it was mapped to fit the size of the mirror, but the size in the X dimension was given a negative value to flip it left to right, thereby properly orientating the reflection. To properly emulate a perfect mirror with a color image map, one would normally enable the luminous flag rather than depend on diffuse lighting. By setting it luminous, the reflection would remain unaffected by lights in the scene, which is what you want since the reflected image has already been properly lit. However, I wanted to create the effect of a slight tint in the glass of the mirror to warm up the reflected image. Therefore I set the diffuse value to 100% and left luminous disabled causing the golden glow of the lights in the scene to tint the reflection. Lastly, the surface was given a high glossiness with 70% specularity resulting

in the bright flare on the mirror's surface. It is perhaps brighter than it should be for an oil lamp flame but I kind of liked it that way. Figure 2 is a composite of most of the image maps used in the scene. From left to right and top to bottom they are: cloth weave, golden oak, pine, red mahogony, green marble, wallpaper, mirror image, glass reflection, metal reflection, matchbox top, matchbox side, and clock face.

Scene Layout

With the objects modeled and the surfaces defined, scene layout was trivial by comparison. Object and camera placement was simply eye-balled from the images in the article. The only non-trivial aspect was lighting and shadow selection. I chose to use a three light source: a point light for the lamp flame, a spotlight for the floor lamp in the mirror, and a second point light behind and to the right of the camera. This last light was to be from a window or possibly another off camera lamp. As sunlight, it was given a white-yellow color with no intensity fall-off. While you would normally simulate sunlight with a distant light, in this particular scene it did not matter much, and it helped light the other side of the room. The lamp flame light was also given a yellow-white color but it had a high intensity (150%), with a large fall-off of 150% per meter. The spotlight was given a 25% fall-off and used the default cone angles.

The next task was to select shadow options for each object. In a static scene, it is fairly easy to determine what to shadow and what not to. When objects begin to move, this decision becomes more complex. The reason for bothering with this step is to reduce render time. For example, by disabling all shadowing for the mirror surface, about an hour of render time was saved. In this particular case, not only did it save time, but it was also more visually accurate. The other objects that had shadows completely disabled were the flame and all the background objects reflected in the mirror. Others were only partialy enabled. The glass globe, for example, only casts shadows and the walls of the room only receive them. I should note that to conserve precious memory, two separate scenes were saved; one for the final image and the other for the mirror reflection. This not only meant that none of the mirror reflected objects were needed in the final scene, but more importantly, none of their associated image maps were required either. The polygon count in the final scene was just under 6000.

Image Rendering

Before final rendering could be performed, the mirror and glass reflections had to be rendered. Because of the high visibility of the mirror image, it was generated at full resolution with shadows and antialiasing. Render time was roughly 4 hours. The reflected image for the glass surfaces, on the other hand, was rendered in the lowest resolution without shadows or antialiasing and only took about 2 minutes. At this point, the final image could be generated. At 768 x 480 with shadows and antialiasing, render time came to 11 hours and 50 minutes on my 25MHz 68030-based 2500 running v1.0 LightWave. I later tried it with the v2.0 LightWave and the time was reduced by two and a half hours.

Anyway, I leave it to you to decide how the image fairs against the Mac-generated versions. I may be a bit biased, but I think a Toaster equipped Amiga blows them all away. Of course there is much more to a 3D package than simply making pretty pictures. But if it doesn't do that well, you probably don't care. After all, its visual impact that commercial clients pay big money for, and visual impact is something LightWave has no trouble delivering.

Mark Thompson is a computer architect who has been designing graphics and imaging hardware and software for 10 years. He is a 7 year Amiga veteran and currently runs Radiant Image Productions in Merrimack, NH which specializes in 3D video graphics animation using Amigas.

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Networks

By Mark Swain

Power. A Toaster has an enormous amount of video and computer graphic power. This has been proven by the multitude of individuals producing stunning quality productions on a daily basis. A single Toaster and LightWave 3D can free creative minds to produce projects that are only limited by the imagination.

A problem arises when the imaginative visions of individuals are more grand and more ambitious than the tool can handle. Feature films, television programs, and special effects are projects that might cause one Toaster to keel over gasping for breath. The solution is simple, use more than one Video Toaster. In fact, use a battalion of desktop computers as a collective entity; crunching, and calculating the images of the creative mind.

Nets

Networks. A computer system linking dozens of different computers to a central controlling computer, known as the server. Networks have long been associated with main frame, mini, and other workstation style computers, but in recent years a tremendous amount of power has been found in netting up desktops. A network is based on the server, a computer that is setup to delegate tasks or jobs out to other computers on the network. The server contains a large hard drive that stores all of programs, and information (images) generated by other computers on the network.

The network frees the desktop of restricting disk, and file formats. A PC, Macintosh, and Amiga can all be networked together, and share the same storage device. The net thus changes a desktop from a software-driven device, into a data-driven number crunching digital engine. A good example of this is rendering an image on the Toaster, saving the image back to the network server, then turning to a Macintosh and touching up the image in photoshop. No disk format monkey business. The net provides a clean, simple, and very productive environment to create.

There are three distinct methods of connecting a network of desktop systems. Thick Net is based on a thick coax cable with a fifteen pin din connector at each desktop (node). This type of network is mainly used for long distance nets, such as universities. Thin Net, is based on regular video coax cable, with a standard BNC connector at each node. A thin net system is only reliable for small networks of roughly ten nodes. Thick and thin networks are based on a bus style network or the systems are connected in series. A problem appears in these nets when one or more nodes crash. This causes other nodes on the net to function unreliably.

The best solution for desktop networking is by using Unshielded Twisted Pair (UTP). A method that uses regular telephone cables to connect all nodes on the net. UTP also uses a star cluster concentrator that connects each node of the net directly to the server, thus eliminating the unreliable bus structure. If a node crashes using UTP, then the server ignores that node and delegates its jobs out to the other nodes on the net.

Toaster Nets

To include an Amiga in a network requires a basic hardware system. The Amiga base unit, accelerator, memory, network card (either net), and a single floppy drive to boot the computer. All the programs, and images that the system creates will be scuttled down the network to the massive hard drives on the server. The Amiga also requires a software interpreter for the network operating system, Novell. Oxxi has produced a product called, Amiga Client Service (ACS), that provides a reliable link between the Amiga and the Novell system. The network places the Amiga in a professional computer environment that is capable of spitting out animation frames rapidly. If more power is needed to crunch more information (frames), then simply add more computers to the network.

Babylon 5 Net

Paul Beigle-Bryant has been designing a Video Toaster Network based around Novell's operating system, Oxxi's ACS, and the UTP Networking method. Bryant is no stranger to setup networks. He once set up a 120 node, 21 printer network that existed on three floors for the Industrial Bank of Japan in Los Angeles. Bryant is now turning to the power of networks to produce a television movie called, Babylon 5 (see feature article on Babylon 5 in April/May issue). The movie will contain over 52 computer animated scenes, all generated using LightWave 3D. "Babylon has an enormous amount of animation, and we only have a few thousand hours of rendering time. The network will allow us to crunch out scenes on a daily basis, thus leaving us more time to create the models and animations," Bryant says.

The Babylon Toaster network will contain eight Video Toasters for rendering, four Toaster workstations, six PCs, and two Macintoshes. All the desktops will be connected to a server which is a 486 50 Mhz box with 64 megabytes of memory, 5.8 giggabytes of storage, and a 2.5 giggabyte dat tape backup system. "The net will create a virtual parallel processing computer system," Bryant continues, "With each Toaster rendering the same scene, but different frames at the same time, scenes can be completed rapidly and on a television budget."

The exorbitant cost of high-end workstations like Silicon Graphics' Iris (SGI), Techtronics, Sun, and others keep them out of the reach of most individuals. The desktop network is a plausible alternative to achieving high-end processing power at desktop prices.

Special Thanks to Paul Beigle-Bryant for lending me some of his knowledge on networks.

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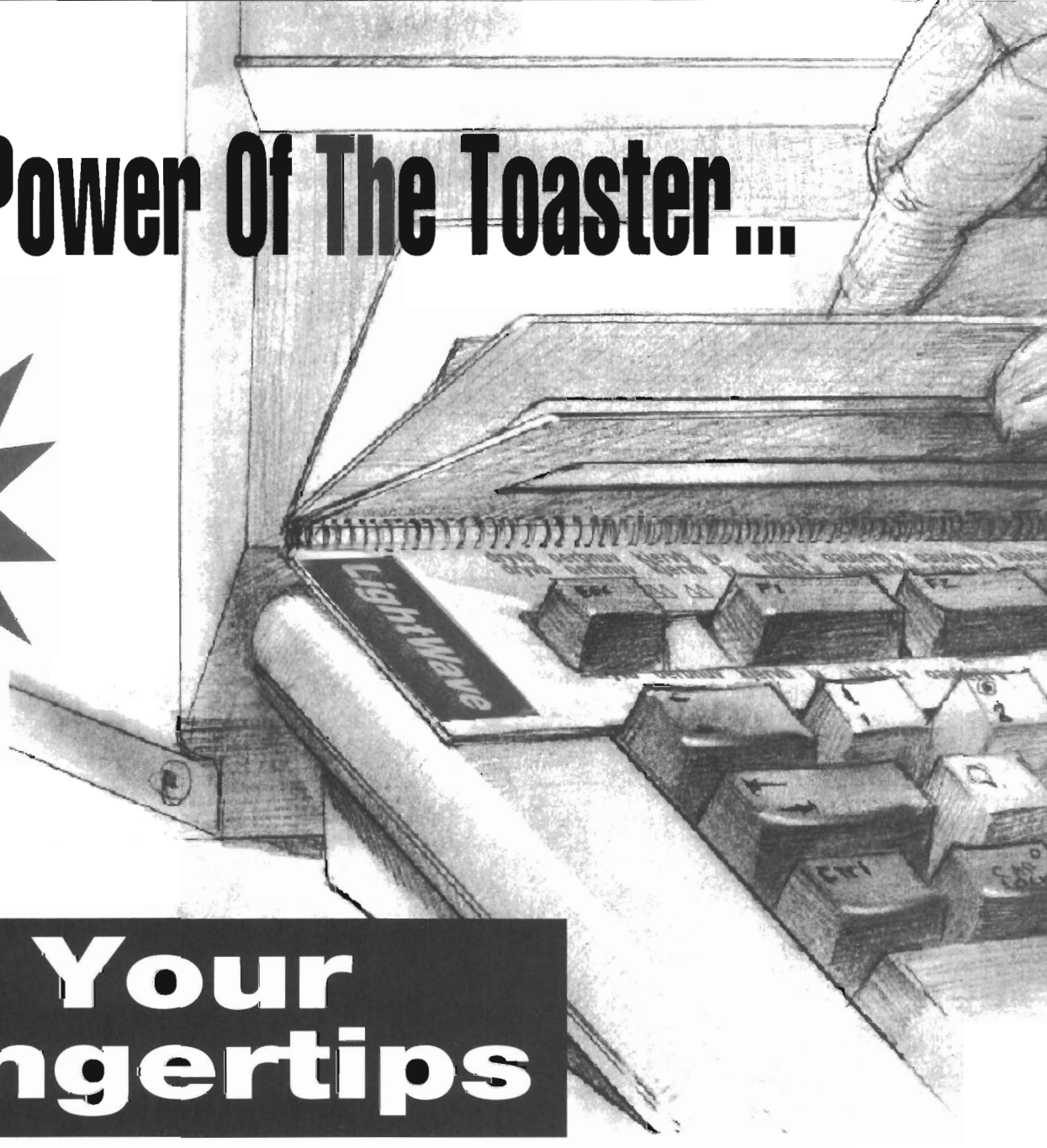

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FlashthatLogo

previously appeared in Issue 3 of BreadBox

By Tim Doherty

A popular method of adding dazzle to an animated logo is to illuminate it with a flash of light. This is especially striking if the logo is metallic. Unfortunately, a flash is sometimes difficult to create within 3D animation programs like LightWave. Toaster owners therefore are lucky to have other tools at their disposal. Using ToasterPaint (TPaint) and the Switcher, you can produce a flash for your logo which is both effective and easy.

To begin, load an image of the logo into TPaint. A sample is shown in Figure 1. In this case, I've taken the last frame of a LightWave animation. A flash will be added after the logo has tumbled into view and comes to a stop. Press F10 to render the image to DV1, and then F1 to enter the Transparency and Warping section of TPaint. Activate hotspot transparency by clicking on the Point Hotspot button. Next, set the center transparency to 50% by dragging down the left slider bar halfway, or by clicking on the middle left icon. Adjust the edge transparency to 100% by dragging the right slider bar to the bottom, or by clicking on the lower right button. Return to the paint screen by pressing F1 again.

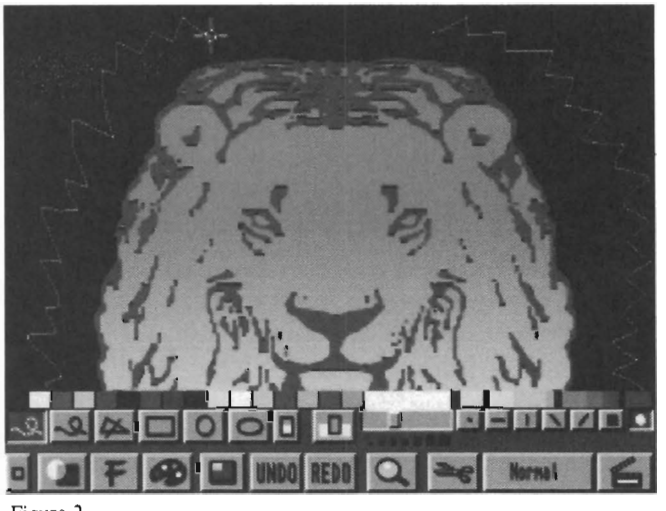

Figure 2

Set your drawing mode to freehand fill (keyboard command "D") and pick the single pixel brush (".") for better control. Then, select a color to fit the image. The logo in Figure 1 was gold, so I used the bright yellow color from the default palette. For chrome, choose white or light grey.

You are now ready to create the flash. Trace around the logo in an uneven, jagged pattern, as shown in Figure 2. If the logo is comprised of more than one word or object, it is probably best to trace each part separately. Try to keep fairly close to the image as you draw, since the effect looks best when it is less pronounced. Your logo will probably exceed TPaint's quarter view, so when you near the edge of the screen, hold down the shift key (while keeping the left mouse button depressed). This picks up the canvas, allowing you to reposition your drawing and then resume painting without a break. When the area is completely enclosed, release your mouse button. The resulting fill simulates a glowing object. Press F9 to toggle to the other frame buffer, and then F10 to view your work. If you've made a mistake, simply undo ("u") the operation and try again. When you are satisfied, save the file and then enter the Switcher.

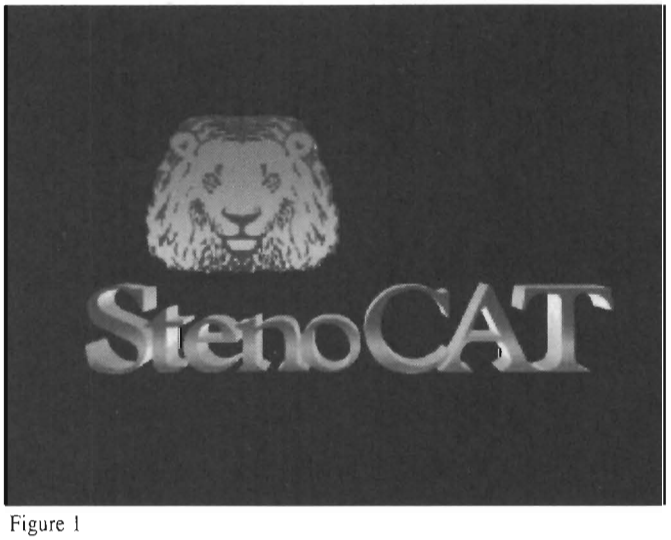

Figure 1

DV1 and DV2 should already hold the before and after images, respectively. If not, you must reload them. Select DV1 on the program bus to display the unretouched picture and DV2 on the preview bus. Click on the dissolve crouton, setting the speed to fast ("/"). Finally, tap your space bar twice. Your logo will appear to glow for a moment, as demonstrated in Figure 3. The speed of the flash can be adjusted by changing the dissolve speed, or controlled by how quickly you tap the space bar.

The flash in the Stenocat animation shown above was edited onto the end of a LightWave animation. You can also use this method to flash a title or name onto the screen beneath your flying logo. Again, render and save a frame of the logo after it has stopped moving. Load this image into TPaint. Add the necessary text--for instance, the company name that the logo represents. Text can be added directly in TPaint ("F2") using standard Amiga fonts. As an alternative, you can take advantage of Toaster 2.0's ability to combine CG and TPaint pages. To do this, return to the Switcher (making sure that your image is still loaded in Toaster Paint). Enter the CG. Select a Framestore page ("F1" followed by "F4"). Press Alt-F3 to choose the background and then F2 to pick a ToasterPaint canvas background. After hitting Return, you'll be able to use the CG fonts and positioning tools for your text.

Figure 3

Pressing F9 and then F10 will show the combined Framestore and text on the preview monitor. The original TPaint image is still unaltered, so you may reposition, recolor, or otherwise change the CG until your image is properly composed.

Once you have the text placed properly, save the picture as a new Framestore ("L" from TPaint, or "Alt-9" from the CG). If you used the CG, return to TPaint and load the new image. Trace around the words using transparency as outlined above. Again, save the resulting Framestore. From the Switcher, the three framestores should then be loaded and dissolved to as follows: 1) Plain Logo. 2) Logo with flash. 3) Logo with text only. Wehn edited onto tape, the company name will appear with a sudden flash.

The entire procedures outlined here should not take you more than 10 minutes or so. Given the speed and ease of this operation, it is a satisfying method of adding dazzle to already great looking animations.

Tim Doherty is an Amiga animator whose work has appeared on NBC, PBS, and cable TV.
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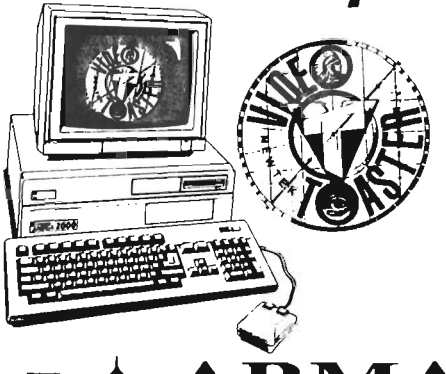

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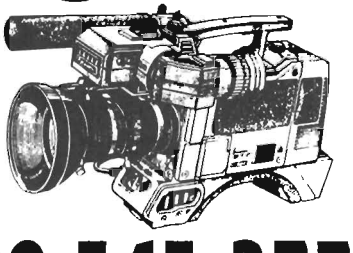

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