AmiGadget

THE JOURNAL OF AMIGA CREATIVITY

Volume 2, Number 1
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March 1992

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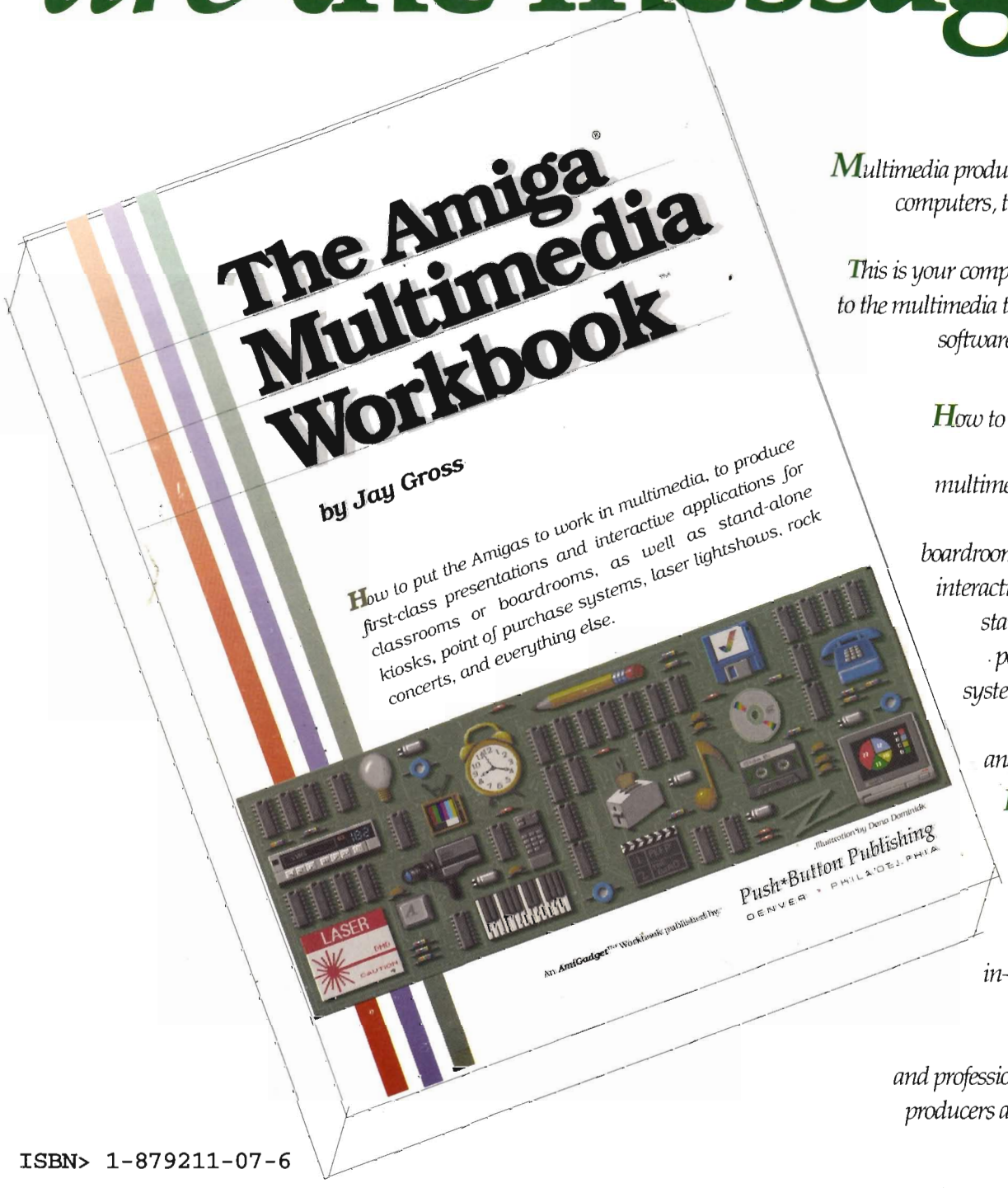

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Volume 2, Number 1

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by R. Shamms Mortier, Ph.D.

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C O N T E N T S

New Stuff

by Jay Gross

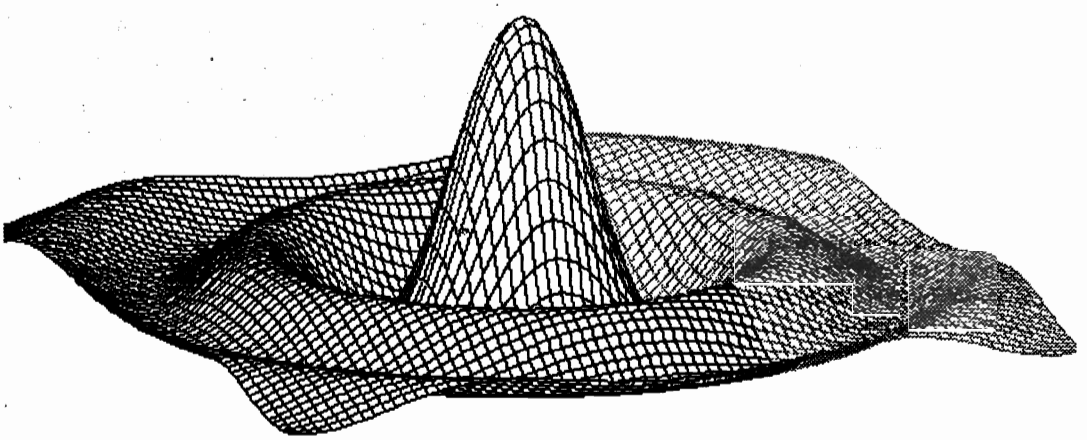
In addition to frigid winter storms, there's something else coming down from the Great Frozen North these days. Amiga software. Okay, math-seekers, the calendar is set to *r equals r-squared minus r*, and this one's for *you*. Waterloo Maple Software has shipped a killer math program called Maple V. If your mathematical computing needs are below Remedial Calculus, read on anyway, so you can gloat. We're talking big-time, serious, heavy-duty math and calculus here, not your normal add-up-the-checkbook-and-cry kind of math. The Maple program is a new version for the Amiga of math software that has been available on non-Amigas for several years. The company calls Maple V a "powerful, interactive computer algebra system used worldwide by mathematicians, engineers and scientists for teaching, research and commercial applications." Whew.

It's a right serious product, indeed, newly brought home to Amigas. Forget running this one from floppies. It wants *eight* megabytes of harddisk space, plus plentiful memory. Maple V for the Amiga produces 3D graphs of math functions, as well as performing a slew of mathematical operations. Output of the graphs can be to Postscript (*Ahhhh.*) or to old standby Amiga IFF graphics screens.

With the release of the Amiga version, the product's mathematics library has been expanded to include more than two thousand functions, the absolute least of which is add and subtract. The power of the program -- and its usefulness - derives from its more specialized functions for engineering, as well as a new facility for defining and using mathematical operators. Think "derivative," and other Excedrin headaches.

Maple V works on Amiga professional-level machines (2000, 2500, 3000, etc.) and requires Kickstart version 2.04 or higher. It also wants at least two megabytes of memory (Actually, four megabytes are recommended.) and about eight megabytess of harddisk space. The product comes with two hardcover manuals published by Springer-Verlag. Memorize these; there'll be a test on them Tuesday.

In use, the product implements a high-level programming language of math, calculus, and statistical functions, with which you build the complex, customized functions you need. In addition, the system provides an ARexx port which supports all of its functions. So, you can address it from



Maple, showing off.

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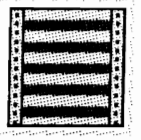

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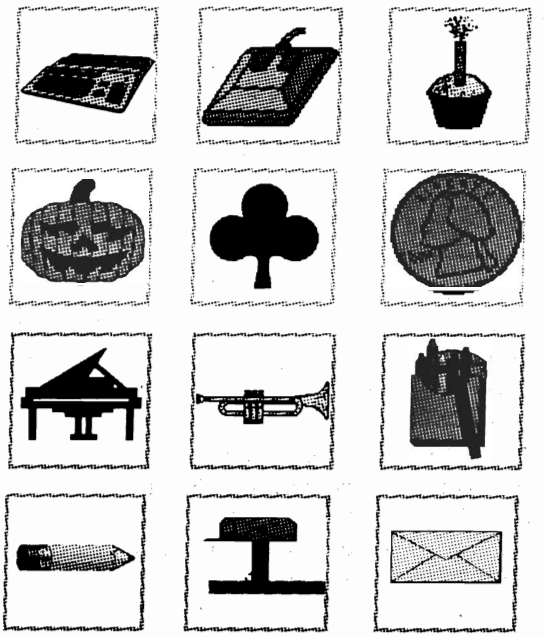

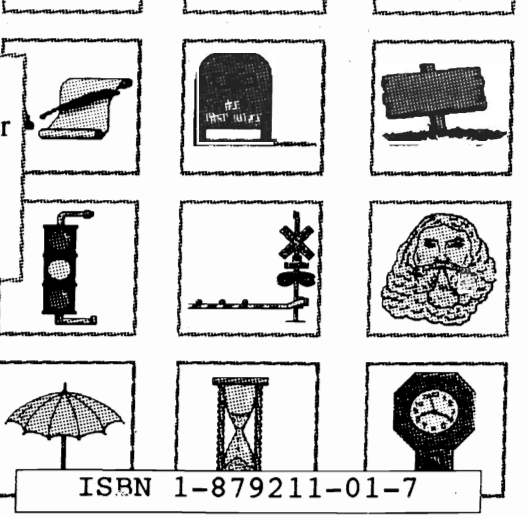

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Usergroups uniting

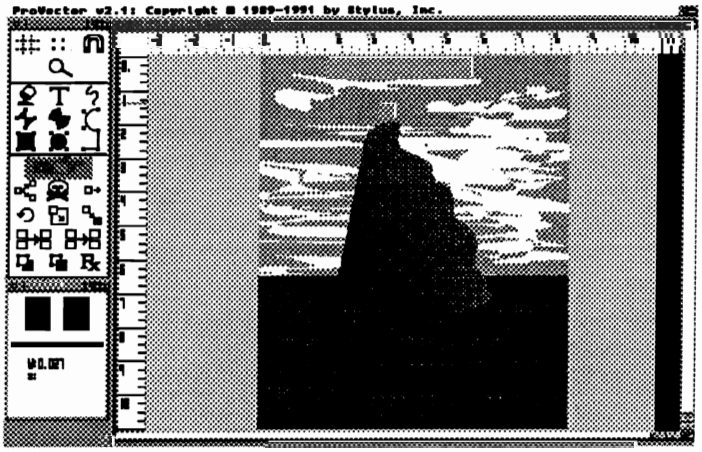
The Amiga usergroups in the Carolinas are being invited to join a regional association of usergroups, SCAN. In addition to being a marvelous acronym for "Southeastern Commodore Amiga Network, SCAN wants to be an umbrella group to organize Amiga usergroups in both Carolinas. It was started by two usergroups local to the Raleigh and Durham area of North Carolina. Raleigh is the state's capital city. The group is appealing to Amiga usergroups to form a wide-area network (ahem!) of usergroup members, for mutual assistance with Amigas. A SCAN membership card would be good for all usergroup meetings in the network, and a monthly newsletter would detail the meetings, topics, times, and places for all of the member groups. Membership dues is $5 per person per year. The group is planning to make the Raleigh area's annual Guru Meditation picnic into an exposition, beginning in June of this year.

Member clubs for SCAN, and exhibitors for the Guru Meditation are being signed on now. Contact Bruce Drake, president of one of the founding clubs (919-469-2835), or David Randall, owner of Small Business Systems computer store in Durham (919-469-3391).

Rocky report

Roctec Electronics is promising an add-on to their RocGen Plus genlock. The new device is named like a rock, of course. RocKey. Cute, eh? At least it's not a kitchen appliance. . . that is, unless you're into making Stone Soup.

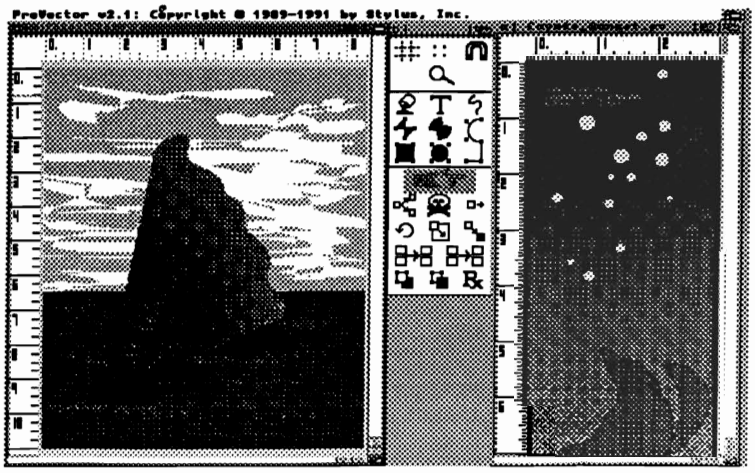
RocKey does a chroma keying act on video. Chroma keying is what happens when you mix one video signal with another one, based on the presence of a specific color where the replacement video is to occur. The cool thing is that one signal you can chroma key with is the one coming out of the Amiga. So. . . you can put video signals over the Amigas' graphics screens, by simply chroma keying out a specific color, like blue. Well, not *all* blues, either, but a carefully defined, narrow range of blues. The usual one is best described as "sick" blue.



ProVector Updated

Stylus, Inc., has shipped their version 2.1 of ProVector, a structured drawing program for the Amigas. This isn't news, having already been mentioned in these pages in the next-previous issue. The news is, stay tuned for an add-on product that'll autotrace a bitmap for use in the program, as well as modules that will convert Encapsulated Postscript files (EPS) and other file formats for use. The new version imports its own format, "DR2D", as objects for use in itself (Think about *that* awhile). The company is also promising a solution (not exactly defined, as yet) to the incompatibility between its DR2D file structure and Gold Disk's publishing products.

The accompanying pictures were not available when the previous article was snuck into the magazine at the last minute, and they are now. Have a gander.



Forget the laptop

Your chagrinned editor, like lots of other people, appears to have been suckered into believing that a company called Newer Technology was preparing to market an Amiga-compatible laptop computer. It now appears that the product was, and is, vapor. Moreover, it appears that the company was not, and is not likely to be, authorized to sell the Amiga chipset. There is, in fact, little hope for anything but infamy ever coming to light from all of this. Your contrite editor most humbly apologizes for having been taken in. He should have known better.

anywhere in the Amiga system that is friendly to ARexx, or have the program do its work for you under control of another program--say, a database, an AmigaDOS command script, or Bars&Pipes Professional (so you can make music to Maple by.) Isn't ARexx wonderful?

The program's user interface is twofold. You can either deal with the product in its own terms, typing commands and command language into a text-based window (and looking at the function plots on a custom graphics screen), or you can put your hand on the mousebuttons and point-and-click your way to mathematical ecstasy. If Fermat'd had one of these, his last theorem might not have been his last, or at least he might've left a nice graph to show it off. The initial release of the product sports a few rough edges on its pointy-clicky interface, but they'll get around to fixing those.

A news release circulated by the company provides some other oh-wow information that'll no doubt thrill everybody. The company says twenty-five universities internationally have contracted Maple as their official symbolic algebra software, including MIT, Stanford University, Rensselaer Polytechnic Institute, and the California Institute of Technology. Besides that, Marvin Weinstein of the Stanford Linear Accelerator Center uses Maple for the Amiga for his work in high-energy physics theory. Maple has also been a primary component in the development of new calculus curricula funded by the Sloan Foundation and the National Science Foundation. The National Science Center Foundation of Augusta, Georgia, is incorporating Maple into an overall high-school algebra product.

Enough already. Maple doesn't cook breakfast on Wednesdays, and it's overkill for subtracting out the checkbook. Maybe next update. . .

The product isn't particularly inexpensive, but if you need its features and functions, there's no other choice on the Amiga. Yet. (Non-Amigas have the competing product Mathematica, among others.)

Maple's single-CPU price is $450 (US dollars). If you have the product for some other machine, you might want to ring the company up for information on an upgrade to the current one for your Amiga. The company says that for academic customers, upgrade programs, academic pricing and site licenses are available. That means that if the college or university (high school?) you're at is a Maple-licensed site, you can get the product for a lot less money than $450. The nice thing is that the product is also made for many other microcomputers, workstations, minis, mainframes and supercomputers. So, when you trade in your Amiga on that Convex you've always wanted. . . .

Waterloo Maple Software is a private Canadian company founded in 1988 to market, distribute and support Maple software, which is the result of ten years of extensive research and development in the computer labs of the Symbolic Computation Group in the Department of Computer Science at the University of Waterloo. For more information on Maple V, contact the company: Waterloo Maple Software, 160 Columbia Street West, Waterloo, Ontario, Canada N2L 3L3. The company isn't particularly dealer-friendly, so you might not find this baby on a shelf at your local Amiga store. The telephone number is 519-747-2373.

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Current Assets		**Current Liabilities**	
Cash	100000	Accounts Payable	30000
Accounts Receivable	15000	Salaries Payable	10000
Inventory	80000	Taxes Payable	8000
Raw Material	10000	Short term Loans Payable	5000
Work in progress	12000		
Finished Goods	25000	Total Current Liabilities	53000
Total Current Assets	242000	Long-Term Debt	
		Term Loans	100000
Fixed Assets		Bond Issues	0
Land	21000	SBA Loans	100000
Plant	380000		
Equipment	300000	Total Long-Term Debt	200000
Total Fixed Assets	701000	Net Worth	
		Preferred Stock	0
		Common Stock	300000
		Retained Earnings	390000
		Total Net Worth	690000

Professional (at last) Calc

While we're still here among the beady-eyed math types, have a look around at another stranger to the Amiga software shelves. A new spreadsheet. Sure, sure, there's the feeble MaxiPlan in any of its eleventy-teen incarnations. There once was V.I.P. Professional, a superbly cloned knock-off of Release 1A of the venerable Lotus from non-Amiga-land. There are lots of these still around, and they work good as ever, but support is *nil:* and Release 1A is to Lotus as pterodactyls are to 747's. HaiCalc, the stripped down wonder, at least can add, and doesn't cost much, but for professional purposes, its home-market orientation leaves Amiga powerusers drooling in the aisles of non-Amiga stores. The sad thing is that people have repeatedly, over the years, put out Amiga spreadsheet programs that can't *add.* Let it be known that the single precision math capabilities in the Amiga are purely for the entertainment of the criminally wierd. Real spreadsheets need math precision, and anything less than

New Stuff continues on page 00

The AREXX Tutor

By Jay Gross

Starting string manipulations

Sooner or later, some smart programmers (those are the ones who put ARexx capability into their programs) are going to start writing nice, useful ARexx macros that come with the programs, so the users won't be left holding the manual. Till then, it's easy enough to try to learn some simple ARexx programming skills. With a few ARexx skills at your command, too, you can modify ARexx programs that other people have done, in order to customize to your needs.

The first thing you have to do is convince yourself that it isn't difficult. And it isn't. If you can get the graduate engineer level user configuration panel on a Panasonic printer to do anything but blink stupidly. . . if you can program your microwave oven to defrost and cook a chicken pot pie, then you can do ARexx. With a little learning.

Remember that like any computer language, ARexx has to be told what to do, *very* specifically, in a very specific way. Let's take strings, for example. These aren't the kind of strings you throw to the cat for an evening's entertainment, nor the type you drag the cat's entrails across to star in the local philharmonic. These are "text" strings. Oops, keyword alert.

To a computer, anything that isn't a number is a "string." Simple enough. Even simpler. . . to ARexx, *everything* is a string, in fact. The language considers everything a string, unless specifically told otherwise. Keeping this in mind will help you out when the interpreter spews error messages at you. A string is a single character--like "A"--or a bunch of characters, like "Hey, this is a complete sentence, even." It doesn't even have to make sense: "Grmph," "$nk=lf," and "CBM" are all nonsensical strings. If numbers are within a string, it's a string, not a number. "7w," "8G5L6U," and "803-951-6366" are all strings, even though they contain numbers. The middle one is a Canadian Zip Code, and the last, a telephone number is a string, not a number, because of the presence of the hyphens, although if you worked at it, you could convince an ARexx program to consider it as the number 803 *minus* the number 951 *minus* 6366, for all the good it'd do you. A five-digit zipcode (*60439*) could be a number or a string, since the number contains no non-numeric characters. However, a nine-digit zipcode could *only* be a string. It has a hyphen between the fifth and sixth characters.

Strings can be a few characters, a single character or many characters. ARexx's limit on string length is huge, 65,000 characters or so. That should be enough to keep you busy for awhile, just counting them. Most of the time, the strings you work with will be rather small. However, if you wanted to retrieve an entire document from an ARexx-capable program, and the document is smaller than that limit, you could snag it in one pass, by simply assigning it to a variable. A *big* variable.

Variables

Another keyword. A *variable* is a convenient name you can call something that might change or be changed during the program's execution. Remember your algebra. . . `x = y x 12.` "x" is a convenient way of stating "whatever the result of the other side of this equation is." If y is "something," then x is twelve of those. See?

Variables can be much more complex than algebra made them. In ARexx programming, a variable can stand for a string--say, the entire Gettysburg Address. Or, it can be a number, like 367.8953. It can be a yes/no choice, or an integer (numbers which have no decimal point). Programming in any computer language *runs* on variables, as automobiles run on gas. It is this indirection that gives a computer language its power. The ARexx manual refers to variables as "tokens," a more learned term for them.

You can treat variables in a number of ways in ARexx. They can be used to check whether the user wants something done, or they can be used to do the actual work required. You have to deal with variables differently, however, depending on what they contain. Numeric variables can be worked on with math. Add, subtract,

THE NEWS

Vulume 1, Number 2 News about the Amigas and Amiga Companies by Jay Gross

ASDG adds modules

The Art Department Professional, by ASDG, is getting some new modules for its Professional Conversion Pack, to make it friendlier to non-Amiga file formats. The Professional Conversion Pack adds support for Targa, Tiff, and Rendition file formats to the Art Department Professional program by installing file "loader" and "saver" modules where the program can find them. The new modules add modules to load and save X11 ("X Windows") and Sun image file formats.

X11 and Sun file formats are native to Unix machines, but are often used by other workstations to pass files around. Sun, for example, is not by far the only vendor of Unix workstations in the known universe. ASDG's modules take advantage of the "alpha" channel built into the Sun format, in order to control compositing operations. In addition, "alpha" channel support is being added to the Targa and Rendition loaders already in the package, and updates will be available to registered owners.

An alpha channel is a way of addressing a display in two parts, so that one part can be changed without the high processor overhead of redrawing the entire display. Generally, this technique is used to overlay a computer's user interface onto high-end graphic displays (of 256 colors or more), permitting the mousepointer, windows, etc., to be manipulated quickly, independent of the graphic display in the other "channel." (Both channels are displayed to the screen simultaneously, but the alpha channel takes precedence.) This technique is employed, for example, in the Amiga 2420 Display, the so-called "Lowell" graphics board included with some of the Amiga Unix machines.

On Suns and many other Unix workstations, "alpha" channel displays do the same thing, or they can be pressed into service to store attribute or other information for use by high-end graphics display devices.

Moving large files

Suppose you have a picture. Not a particularly big one, but a color one. Twenty-four gorgeous bits of color, and a fairly busy screenful of stuff that those bits are applied to. You have this gorgeous picture on your Amiga, of course, but you need to get it onto a Whatever-else computer, so the unenlightened can work on it. If (and only if) the picture will fit on a disk, that's not much trouble at all. Crank up CrossDOS or Dos2Dos, to name a couple, and move the file to a non-Amiga disk using only your Amiga. So, what if the picture's bigger than an Amiga disk? Now there's a problem. If both machines are in the same room, you can move the file through a wire (a null-modem cable, actually), using telecommunications software (on both sides). If they're not in the same room, but have modems and telecommunications software in both places, you can transmit the file across the phone lines. It might take awhile at low transmission speeds, but it'll work. The big rub comes when the file won't fit on a disk, and you don't have any other way of getting it to (or from, for that matter) the other machine. This means you have to split the file into parts, and put the parts back together on the other side.

ASDG has created a computer-independent file format, which they're shipping with the new version 2.1 of Art Department Professional, which should facilitate the process of moving large files around. The important word there is: computer-independent. The idea is for all computers to have software capable of reassembling (or of splitting) large files which have been split (on a different machine, so as to fit on a /Iset/n of disks. The new Art Department Professional comes with the programs you need to do this under AmigaDOS (home team!), Ms-Dos, and Windows. Additional machines will be supported later on.

The heart of the process is a new "Form" registered as an IFF "chunk" for use by any program that wishes to use it, not just ASDG. The IFF forn, "SPLT" enables programs to easily keep track of files which have been split onto multiple disks for movement from one computer to another.

Notice also, however, that the split and re-join programs will work on any type of file, not just pictures. Moreover, the files on the foreign machines need not send Amiga IFF-format pictures over via the split-rejoin method.

ASDG has made all of this usable by software developers on all computers free of charge.

The update to Art Department Professional is free, too, if you have version 2.0 or higher. Earlier versions can be updated for a fee. Contact the company for details.

Imagine a new Imagine book

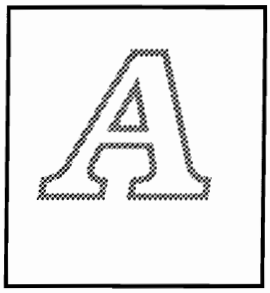
Steve Worley, noted for the collections of Imagine tutorials he's made public, has published a book, *Understanding Imagine 2.0*, which takes up where the program's manual leaves off: at the beginning. The book is a complete guide to the software, including an extensive reference manual for all of the editor and menu commands and discussions of techniques for using the program. An appendix contains descriptions of and comments on other Amiga programs and hardware which might be useful add-ons for manipulating object and picture files for Imagine. Of course, much of the information in the book applies to earlier versions of the program, as well. Moreover, the add-on products are just as useful to other animation, rendering, and raytracing programs as they are to Imagine.

Impulse's Imagine is a 3D modeling, raytracing, and rendering product, recently updated to version 2.0.

Understanting Imagine 2.0 is indexed, 230 full-sized (8.5 by 11) pages, plastic comb bound, with an introduction by Louis Markoya. The book comes with an Amiga disk containing brushmaps and objects to play with (including a photorealistic "Luxo," in case you want to take on Pixar for the Lamp Tracing Olympics.) The retail price is $30, at Amiga shops everywhere, or contact the publisher: Apex Software Publishing, 405 El Camino Real Suite 121, Menlo Park, CA 94025.

Why Amy *can* read

OCR means "optical character recognition," but the *optical* part means electronic contraptions' optical devices, not human eyeballs. Machines can read bettern that lots of humans, in fact, with the help of software (and often hardware) affectionately called "OCR." Migraph, the people who make (what else?) Migraph scanners, are selling their OCR software for the Amiga. The Migraph OCR facility is all software, so you can run it on images of text scanned with anybody's scanner, flatbed or handheld. The software implements the *Omnifont* character recognition technology, which relies on mathematical definitions of characters to match the scanned image against, rather than simpler bitmapped structures. The software comes already "trained," to recognize characters in twenty common typefaces, including Courier, Helvetica, Times, Bookman, and Letter Gothic. You can teach it any typeface, and the OCR "engine" can be also be taught to deal with defaced type and special symbols such as Greek alphabets and mathematical symbols. The engine also deals correctly with the entire ANSI character table, including accented characters, and languages other than English. It deals with both proportional and monospaced fonts that have been either typeset or typewritten, laserprinted, or even NLQ dotmatrix printed. "Typewritten," you might recall, is what the poor people of the distant past had before wordprocessors were invented. The engine accepts type in point sizes from en to eighteen points. Smaller ones can be read if scanned at 400 dots per inch or better.



In addition to the vector-based recognition algorithms, the Migraph OCR software implements "Lexicons," which permit an additional check for accurate character recognition. A lexicon is a database of linguistic characteristics that the program uses to analyze the content of the text being scanned. The program checks what it recognizes for correct syntax against the database, in order to make decisions about questionable characters--in just about the same way a human would do, in reading material with characters obliterated. Lexicons for English, German, French, and Dutch come with the software.

In use, the software permits viewing the whole page and zooming to various levels, in order to position the OCR read where you want. A "polyline" feature permits selecting irregularly shaped regions of text to decipher. Text output files are saved as standard ASCII, and the program will happily load wither IFF (Amiga) or TIFF (non-Amiga) files created with any scanner. It also permits saving a region as a graphic in either file format.

Micraph OCR requires an Amiga (*natch*), any model, with at least two megabytes of memory and a harddisk drive. List price is $299.95, and the software comes with the version 2.6 update (*see next news item*) of the scanning software for the Migraph scanner.

Touch-Up touched up

In other Migraph news. . . Touch-Up, the company's driver software for its own (and several other companies') scanners for the Amiga, has been updated to version 2.6. The new version takes advantage of AmigaDOS version 2.0, and adds a picture previewer that is accessible from within the program. Users can also specify the resolution of Touch-Up's screen, as well as the percentage of overscan, and adjust the program's palette. The updated program is available to registered owners of the software for $20.00. It's included with the OCR package, too. Contact the company for further details.

whatever. To add and subtract string variables, the computer has to perform different operations, so you have to deal with it differently.

Add and substract strings? Sure. Suppose you had a phone number in one variable, and an area code in another. You want both pieces of information in one variable, so you *add* ("append" is a better word, in this case) one to the other. To be more precise, you *concatenate* the contents of the two variables, in the right order, to end up with what you want. Subtracting, too, is the wrong term for working on strings, but you *can* chop off pieces of a string ("subtract" some of it), or even cut a chunk out of the middle, with some work. To work on strings, ARexx includes a rich collection of functions and operators that you can select from. There's no right or wrong way to do it. If the method you choose works, then it's the right method. You might, however, find that speed of execution can be improved by choosing some methods over others. Generally, manipulating strings--especially large ones--is a rather slow process in any computer language, so you can refine your program simply by eliminating unnecessary string operations.

A stolen example

The example program to illustrate all this is lifted intact out of one of the many new ARexx macros that come with the new ProVector 2.1. ProVector is a structured drawing program that has supported ARexx commands from its beginning, and the new 2.1 update of the program implements an impressive new way of dealing with its extensive ARexx macros, directly from the program's pulldown menus. In the new version, the 'User' pulldown menu contains a listing of ProVector's ARexx macros that the program finds when it starts up. You can execute any of these macros by selecting it from the pulldown menu with the mouse. The best part, though, is that ProVector has provided a mouse-clickable requester within itself, so that ARexx macros that need user input (say, numbers for the 'Blend' function) can gather this information easily, in a graphically friendly way.

```
/* Measure.pvrx
Copyright  1991 by Stylus, Inc. Author - Ross Cunniff & Jeff Blume
Abridged and slightly modified for use as ARexx article illustration in
AmiGadget(TM) magazine, Vol. 2, No. 1, April 1992

[Lots of stuff left out here. . . --J:]                          */

        'Prompt "Click points to measure:"'
        'GetUserData 1 2 2 "Measure OK" ""'

/* [Other stuff left out here.

        The GetUserData function permits drawing a vector
        on the screen, and passing its coordinates
        to the ARexx program through the variables detailed
        in the next few lines. -J:]
                                                 */

        X0 = Pts.0.X;   Y0 = Pts.0.Y
        X1 = Pts.1.X;   Y1 = Pts.1.Y

        /* Next, calculate the parameters for the text string  */
        DX = X1 - X0;           DY = Y1 - Y0
        Dist = sqrt( DX*DX + DY*DY )

        /* [HERE'S THE PART OF INTEREST TO THE AREXX TUTOR ARTICLE! -J:]

        /* Convert scientific notation to a number mortals can relate to
*/
        Exp = right(Dist,3)     /* Exponent is rightmost 3 chars */
        Len = length(Dist)      /* Length of 'Dist' text string */
        Mant = left(Dist,Len-4)         /* Mantissa is length less "e" and
exponent */
        Dist = Mant * (10**Exp)

        GetBool '"Distance = '||Dist||'"' OK OK

/* THE END -  This program exerpt is for illustrative purposes only. It
will NOT work as is.  You must have the whole macro, which is included
in Version 2.1 release of ProVector. */
```

Anyway, this example is lifted from the ProVector ARexx macro that calculates a distance between two points the user gets to pick with the mouse. The whole macro is included with ProVector, of course. The four lines extracted (stolen) from it here perform a useful function--converting scientific notation numbers to human-readable ones. The rest of the macro deals with taking in from the user the points to be measured betwixt, calculating the distance, which the computer dishes up in scientific notation, and drawing the result back to the drawing, complete with an arrow between the two points. It's a very slick macro that adds an exceedingly useful function to the program, which doesn't otherwise support measurements.

The whole macro is `Measure.pvrx`, which is Copyright © 1991 by Stylus, Inc. The macro's authors are Ross Cunniff and Jeff Blume. Down almost to the end of it, this section occurs. It's a subroutine called by the program when needed:

```
    /* Convert scientific
notation to a number mortals
can relate to */

    Exp = right(Dist,3) /*
Exponent is rightmost 3 chars
*/
    Len = length(Dist) /*
Length of 'Dist' text string */
    Mant = left(Dist,Len-4) /*
Mantissa is length less "e" and
exponent */
    Dist = Mant * (10**Exp)
```

That's it. Simplicity itself. The variable named on the left is the main key to what's going on. There's no limit to what you can call a variable in ARexx (except reserved words, of course), but keeping them small makes the typing quicker, and helps to distinguish between words that are names of variables and words that mean something else. So, you *could* have a variable named "Exponent," but "Exp" says it, and it's quicker to type and to read.

Let's take the program lines apart, and see what they do. The first one is,

```
Exp - right(Dist,3)
```

This puts the exponent portion of the string into the variable, "Exp." The statement should be read as: "Exp(onent) is equal to the *three right-hand characters* of the variable `Dist`.

`Dist` is supplied to the routine from elsewhere in the program. It's the distance between two points, generated by the computer in scientific notation. `Dist` comes in as a string like this:

```
3.02e010
```

That simply means "Three-point-oh-two times ten to the tenth power." This line of the program causes ARexx to consider only the righthand three characters of the string, using ARexx's built-in function `right`. To make this function work, you provide it the name of the variable you want it to work on--`Dist` in this case--and the number of characters you want considered, counting over from the right of the string. In this case, that's three, but it could be 1, or 1000, or 407. It could, moreover, be a variable whose value is determined somewhere else in the program.

The next line is:

```
Len = length(Dist)
```

Remember, everything after the slash-asterisk is a comment, and doesn't get executed. This line finds out the length of the contents of the variable `Dist`. This information is needed in the next line, because the program has to index its further activities from the length of the string. `Length` is a function built into ARexx, for dealing with strings. It returns the length in bytes of the contents of the variable. So, if you have the letter "A" in a variable, the function would return "1", which is how many characters there are in the variable.

There's another function that would do this job, if the length of the string were always going to be the same. That's `left`, which of course deals with stuff on the *lefthand* side of

. . . At any point... you can pipe the contents of your calculations or variables, whether numeric or string, to another program's ARexx port, and cause magic to happen.

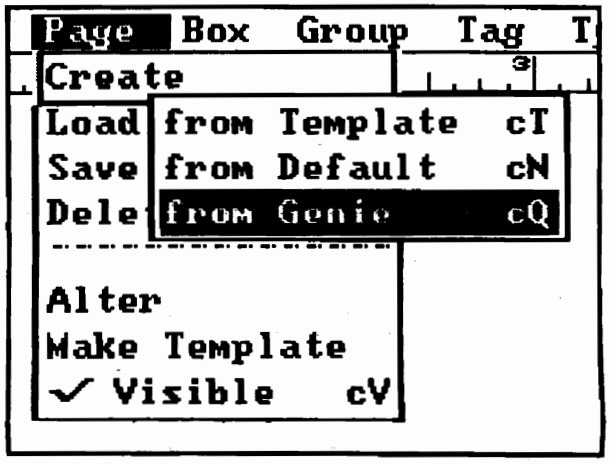
Speed your work, indeed. Who'd need a genie to slow work down?

Station break

Time for a commercial.

If anybody needs it, your astute editor offers a free time-wasting service. If you need time wasted, call in an expert. By appointment only.

Okay, back to business. . . One of the "Genies" in Professional Page appears from the picture in the poop sheet to be an elaborate page design menu option. Of course, it'll be hard to beat the page set-up options in Saxon Publisher, and nobody's touched Saxon's shaded fills, yet, either. Soft-Logik? Gold Disk? Okay, maybe next round. Meanwhile, back to Professional Page 3.0.



There isn't any font large enough to state this next item properly, so here it is, in plain body type, the ultimate understatement: Undo. *Wow.* Finally! This is *even* better than blueberries and cream on a Sunday morning in the South. In the spring!

Next item. Fonts. A subject dear to your fontphiliacal editor's heart, such as it is. You get some more Agfa Compugraphic fonts with the new Professional Page, including Caslon 540, Garth Graphic, CG Omega, Shannon Book, and Uncial. Caslon 540 is a beautiful, Roman face from the wee distant past, being cut by William Caslon back when fonts were still executed in metal. Gold Disk's Compugraphic fonts are supplied in a form ("Bullet") suitable for use by AmigaDOS 2.0's "Fountain" program, to make fonts on the fly (or not), that can be part of the Amiga system, if you want. The new program, however, also adds support for Postscript Type 1 fonts, something PageStream has had for a long time.

Another new, and welcome feature is the ability to scale type in increments smaller than even numbers (integers, in the trade). The present program permits 8 point type, and 9 point type, but nothing in betweem, even though the font size requester displays decimal places. Although it will seem silly to non-graphic artist types to even *want* type in fractional point sizes, when you get right down to the nitty gritty, sometimes 8 point is too small, and 9 point is too large. Most daily newspapers, for example, use eight-*and-a-half* point body type. Want ads are generally a fraction less than six point (which is why they're hard to read). Of course, there isn't as much need to have fractional sizes available when dealing with large type (not much difference between 60- and 60.5-point type). In body sizes, though, the fractional sizes will be quite useful for copyfitting, especially in ads. The type you're reading now, by the way, is a big 9 point. A point is a seventy-second of an inch.

Gold disk appears to have taken a clue from other programs, too, and has moved the text filters out of the program to separate "drivers," to support different flavors of wordprocessors. The first ones of these, to be supplied with version 3.0 of Professional Page, work with ProWrite, QuickWrite, and Excellence. It's about time, too--especially the ProWrite one.

The poop sheet says the color separation algorithms have been improved, too. Your expert editor will see it, and then report on it. In that order. To their credit, however, the separation facility in the current version of Professional Page is *quite* capable, as evidenced easily here by the cover of this magazine, which was color separated with Professional Page version 2.1. from color EPS files (The back cover) and 24-bit Amiga IFF's (The cover illustration), as well as Compugraphic type (All over the place), and Professional Draw drawings (The *AmiGadget* logo).

Gold Disk appears to be working on an updated version of Professional Draw, too, as the poop sheet for Professional Page talks about dynamic linking between the page layout program and Professional draw 3.0. This won't work till the updated Professional Draw is a reality, but it's the same facility as the Article Editor has now, swapping information readily among the programs. With luck, the company will adjust Professional Draw's interface to conform to Professional Page, making it less masochistic to run the programs simultaneously. To print Postscript from one program you do Amiga-P; from the other one, it's F-2. This makes using the two programs at the same time such a headache that it's no matter than they don't share data readily.

Let it be said, here, nonetheless, that this magazine is produced entirely on Amigas, and entirely with off-the-shelf Amiga software, *including* the color on the cover. Moreover, for the present, this entire project is being accomplished with Professional Page. As to which is better, Professional Page or PageStream, this is a religious question, and cannot be addressed in these secular pages. It is, after all, largely a matter of what you *like.* PageStream is considerably slower at dealing with bitmaps than Professional Page. The user interface of Professional Page is what makes it nice.

For all of the updating and re-updating that's been done on Professional Page, it still doesn't support decimal tabs, dot leaders, round-corner boxes, proper quotation marks (The ones in this magazine are obtained laboriously.), nor en- and em-dashes. This means the program is

considerably less than "professional" when compared to non-Amiga programs--although, to be fair, most of the others cost a lot more money. In addition, your furious editor has twice transmitted a forty-item list of bugs and insects to Gold Disk, and in neither case has the *biggest* of the problems been addressed. That is, while printing a document for a long time (*days*, in the case of this magazine), multitasking is totally disabled by the fact that every time Professional Page accesses a new "box" to print, it snatches the pointer, puts it to sleep, and makes *itself* the active task. You're typing along in a term program, happily rapping away, and suddenly you're typing into Professional Page, which is printing in the background (and when it gets done printing, it'll *honor* all those keystrokes, if it can). This stupidity was installed in version 1.3 of the program--no doubt unintentionally--and as of version 2.1 it's still not fixed. Maybe there's hope for version 3.0.

SuperJam

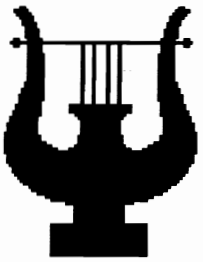
The Blue Ribbon SoundWorks is calling this one "Super" right off the bat, because the plain name "Jam" conflicted with other people's products already out there. It's getting so you can't say much, anymore, without uttering *somebody's* trademark. Anyway, Jam is now *SuperJam*, so there. Oh, for once the "Jam" part doesn't apply to toast, or even video, though you could easily think up several handy uses for the product in a video production situation.

SuperJam jams. You make music out of nothing--unless you count mouse motions for something. When done, the MIDI sequences thusly recorded can be stored to disk and even moved to Bars&Pipes or Bars&Pipes Professional. They can be played back through the Amigas' internal sound channels, too.

SuperJam also incorporates special programming tricks to permit playing up to sixteen voices at one time. The Amiga's normal limit is four. The program synchronizes with video, multimedia, and animation software, too.

MIDI interface, too

The Blue Ribbon SoundWorks is also selling a peachy MIDI Interface of their own, with some added capabilities to show off Bars&Pipes Professional. The Triple Play Plus offers three, separately-addressable MIDI out channels. This configuration permits *forty-eight* simultaneous MIDI channels at once--and if you can afford that many MIDI instruments, the lunch tab is on *you*.



Bars&Pipes Professional customers get some special MIDI Out Tools with the Triple Play Plus interface, so they can operate the interface from within the program. List price is $179.

Art Department learns animation

ASDG's Art Department Professional is now in version 2.1, the latest updating of the product coming with a new "Fred" utility that cleverly implements animation. The Fred utility is a visually oriented "frame editor," for doing animation with Art Department Professional's batch processing and image manipulation tools. Fred loads up screens full of pictures as precisely rendered icons, which can then be batch processed through Art Department Professional's image manipulations by simply selecting the target pictures with the mousepointer. Fred also calls up special-purpose drivers which can produce animation effects automatically, using the pictures you've specified. Another use of the Fred facility is for previewing animations to the Amiga screen before committing them to single frame recording devices.

Art Department Professional's version 2.1 also adds the 'Roll' and 'Broadcast Limit' operators, which are specific to video operations. The 'Broadcast Limit' operator identifies and corrects colors which would be "illegal" in NTSC (or Pal, or user-definable) broadcast standards. These colors are said to be "hot," in the trade, and result in a splash of muddy color that the NTSC bandwidth cannot deal with.

Other changes to the program include the addition of eight more dithering methods to the 'PrefPrinter' saver option. This option prints 24-bit color or 8-bit greyscale pictures on printers supported through the Amiga's preferences, taking advantage of the higher resolution of the pictures in producing the prints. The 'PrefPrinter' saver is also capable of printing larger-than-life prints, up to a billboard-level number of *feet*--no kidding--wide and tall.

The price? You ask. Funny you should ask. *Free*. Not a bad price, don't you think? The revised program and a supplement for the program's ring-bound, looseleaf manual will be sent for free to registered owners of Release 2 of the program. Upgrades are available from earlier versions for $75 from Version 1, and $130 from The Art Department. Owners outside the United States get to pay a bit more for the upgrades--$90 and $145 respectively). Shipping cost is included in all of these. Contact ASDG for further information (608-273-6585).

J:

a string. Since it's not known how many decimal places the numeric part of the string might have, the `right` function has to be employed to deal with it.

```
Mant = left(Dist,Len-4)
```

Okay, there's `Left` in action. In this case, notice that the specification for the number of characters to be dealth with is indeed a variable: `Len-4`. So, if the length is 65000, this function will return a string of 64996 characters. If it's 5, you'll get the leftmost *one*. Simple. The purpose of this, as you can see from the considerate comments put there by the programmers, is to separate the *mantissa* part of the number from the exponent (and the "e").

Next line:

```
Dist = Mant * (10**Exp)
```

This line puts the number back together as a number, rather than a text string. Notice that the contents of the variable `Dist` are being replaced with the new material. The gibberish characters in the line are simple arithmetic operators. Asterisk, for multiply; two of them for raising to a power. After this line is executed, its contents are supplied to the program's ARexx port, where they're used to draw a vector between the two points the user has selected. The value of `Dist` is displayed in actual letters (ProVector's stroke font), centered over the line. It's just as though a meticulous draftsman has annotated and labeled your drawing. You can incorporate this line into your drawing, if you wish, or perform manipulations on it, for whatever perverted purposes you can think up. After the program draws the line--so to speak--it's a normal, ProVector object.

The power of ARexx, of course, is that at any point during this or any other program, you can pipe the contents of your calculations or variables, whether numeric or string, to *another* program's ARexx port, and cause magic to happen in the other program. Gold Disk is blowing big brass horns about their three-hundred-command ARexx interface in Professional Page version 3.0. Consider the possibilities. From this little program, if you needed a table of conversions for numbers in scientific notation, and wanted to print the document with Professional Page--the new one with the ARexx capability--it wouldn't be hard to build the remaining parts of an ARexx macro that would automate the task.

This program excerpt will not actually "run" by itself. It's just a real-world example to illustrate some simple principles of dealing with strings. However, if you're writing an ARexx program, and you *need* a module of this type, this one is a good start.

[Your courteous editor thanks Stylus, Inc., for the use of their ARexx macro for purposes of this illustration. If it matters, they've neither received nor given any payment for it.]

J:

Here it is.

The inevitable sales pitch

for subscribing to the magazine, buying the disk, and generally sending in money.

Subscriptions. That's where magazines are delivered to your doorstep by agents of the federal government - usually two weeks *after* you gave up and bought another one over the counter. Not to be outdone, but not to carry on the tradition blindly, either, ***AmiGadget*** offers subscriptions, too. But with a *difference*. ***AmiGadget***'s subscribers get first-class treatment. Your magazines come to you in an envelope (paper - recyclable) by First Class Mail.

The Post Office gives First Class Mail special treatment. For one thing, First Class Mail goes through only the *new* shredding machines, and only the highest paid employees get to trample the sacks. It's a premium service, you see.

Of course, this First Class service is going to cost, but ***AmiGadget*** generously allows you, the subscriber, to pay for it. Subscription copies of ***AmiGadget***, delivered First Class, cost ***$4.50 per issue,*** First Class postage included. You can reserve one first-class issue or as many as you wish (***AmiGadget*** has one more issue scheduled in 1991, and six in 1992, so a seven-issue subscription would make a nice round number for a piddly $ 31.50). While you're at it, checkbook in hand, charge card at the ready. etc., the magazine has lots of other things you can buy. Natch.

The Issue Disk.

For one thing, there's the **AmiGadet Issue Disk Number Two**. This contains any program code from the articles already typed in, plus the finished, runnable programs, too, if applicable. In some issues, larger compiler code is only excerpted in the paper pages, and the whole is relegated to the **Issue Disk** where you can sink your programmer's teeth into it without having to type it all in. The disks also contain a selection of the pictures that illustrate the magazine, all in readily displayable, Amiga IFF format. Since the innards of the magazine are not printed in color - yet - the disk versions let you see them in all their brilliance on your own Amiga's screen.

There are many things disks do that paper doesn't, and as time goes on and issues roll by, ***AmiGadget*** will do things on the **Issue Disk** that are neither included nor includable on paper. The ***AmiGadget* Issue Disk Two** (future issues' disks will be named sequentially) is yours for only $ 4.50. If you add the disks' cost into your subscription, it's $9.00 per issue, and postage - *First Class* - is still free. Otherwise, there's the small matter of two dollars per order for postage and handling and such. No need to add any extra postage on magazine subscriptions, however. That's already included in the outrageous prices.

The Issue Disks are always available, too, so if you want Issue Disk One, which goes with the premier issue, Volume 1 Number 1, it's available now, also for $ 4.50. Remember postage is on a *per order* basis, so you can chuck in another disk or three for no extra postage charge.

Products.

In addition to this magazine, AmiGadget Publishing Company publishes a growing list of Amiga software titles, including *Color Clip Art* by Software Designs, *2020*, an AmigaVision tutorial package by the BCS Group, and *Fat•Sounds*, an extensive library of sampled sounds by Eyeful Tower Communications. There are advertisements for these wares scattered through the magazine, and if you're moved to buy any of them, you can use the order form for that, too, if you wish. Frankly, you'll probably find better prices at your local Amiga store.

The editor's books.

In addition to all this, there's a place on the order form where you can support your local magazine editor in a style to which he would like to become accustomed by buying scads of copies of his books. First is ***The Amiga Desktop Video Workbook,*** by Jay Gross. This is a book on (what else) video that tells the tale in pure-tee English for beginners. The 300-page tome includes thorough discussions of Titling, Animation, Genlocks, Animation, Audio-for-video, Staging, Lighting, Editing, and most everything else you could ask about desktop video on the Amiga. There's an extensive section on opening your own video business, too, including nuts-and-bolts advice on how to do it. The best jokes are in the Glossary. Then there's the new one. ***The Amiga Multimedia Workbook***, by Jay Gross, published December 1991 by Push-Button Publishing. You can reserve your copy with the order blank.

100% and pick white for the color. Carefully make tiny lines over the rock to suggest water flowing over. Also pull up from the wave to create a feeling of spray. You might want to add some lacy lines of foam near the shore, too. To add the second wave, avoid going into detail, just make the white line, softly blending it into the ocean.

Obviously there is much more we could do with this picture, such as adding more detailed waves or placing vegetation on the overhang. But I am going to leave it up to you to experiment with any ideas you may have. The finished picture, "SeaMountain" shows just what you can accomplish using the basics discussed here.

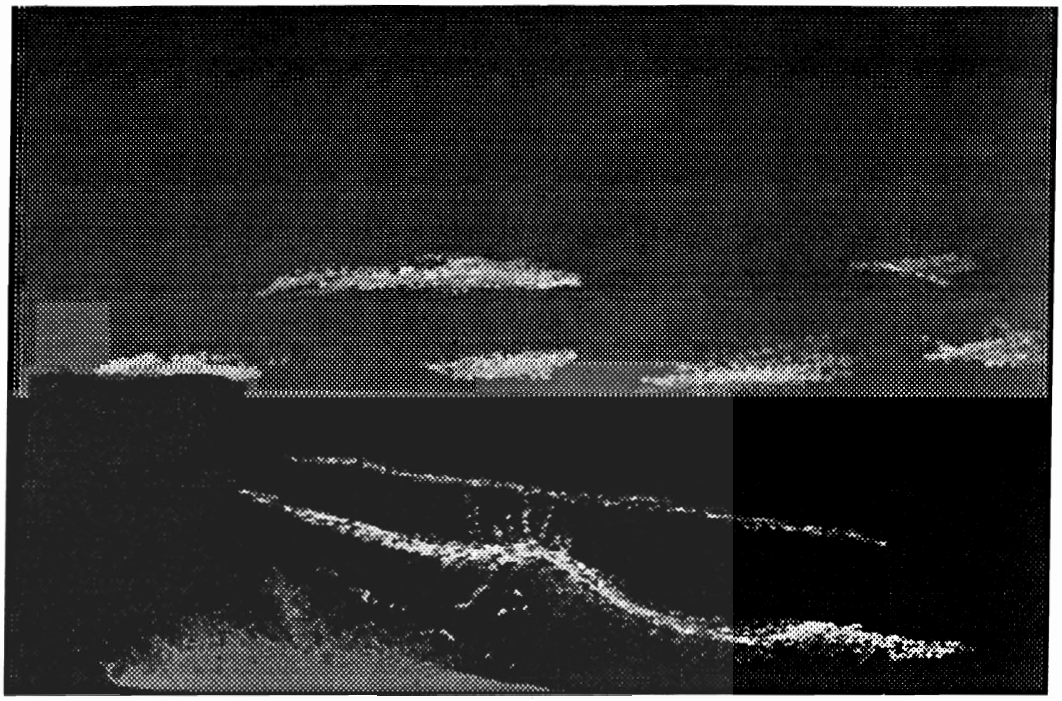


Figure 1

New Stuff

continued from page 25

boingball rolling, so to speak, Soft-Logik is selling two programs, in addition to PageStream, that take advantage of the links. These are BME, a bitmapped graphics editing program, and PageLiner, a text editor. The new PageStream add-ons are part of a Hot-Links Express Pack that goes for $99.95.

The way Hot-Links works is, you save a document from your text editor, and plop it into a PageStream page. If the text file is changed, its changes are automatically reflected in the PageStream document the next time you load it up. Of course, using this system will almost *require* you to learn to use the program's powerful tagging features, in order to prevent your having to reformat large amounts of stuff when something changes. Tags apply to *categories* of things--like headlines, subheads, etc.--and can make the page reformatting process nearly automatic.

Another change is to the non-Amiga-esque look the program has had since its inceptioon. PageStream 2.2 conforms substantially to the AmigaDOS 2.0 "look" of things, and uses the 2.0 file requesters. All listing requesters may now be selected by doubleclicking on the choice, too.

There are lots of other changes to the program, some you can see and some you can't.

The Toolbox is newly revised, too. Its most noticeable feature is the new Magnify tool. Just click on the spot in the document to maginfy. Shift-clicking the magnify tool does a reduction. The current magnification settomg is displayed in the toolbox, too.

Other tools have modified functions when shift-clicked. The shifted rectangle tool does a square; elipse-circle, eliptical arc-circular arc, etc. Shifting the polygon and line tools restricts the drawing to multiples of 45 degrees.

A new View tool pops up a requester in which magnification may be entered.

All the requesters have been redesigned to more closely conform to 2.0 guidelines. The Tab and Back tab can not be moved to move between text gadgets in requesters. Check boxes, radio buttons and selector gadgets have 2.0 styling and terminology. PageStream 2.2 uses the AmigaDOS ASL file requester when run under AmigaDOS 2.0. All through PageStream, doubleclicking on lists selects the item and closes the requester, in the normal Amiga manner.

Text objects may now be justified like text in columns.

There are new Crop and Registration marks. When using PostScript, PageStream produces crop marks, Slur Gauge, Registration Mark and a Color Strip. Only Crop marks print to non-postscript printers.

Not bad so far, eh? There's more. PageStream 2.2 includes a new HPGL printer driver for plotters and sign cutters (sorry, no bitmaps here). Significant improvements have been made to the Ascii Import module to handle both Macintosh and Ms-Dos extended character sets. There have been improvements in the .PCS, Pro Draw, DR2D, EPS and Adobe Illustrator import modules, as well.

The display of the font requester is almost instantaneous regardless of the number of fonts installed.

The company boasts of thirty-eight other improvements in the program's stability and interface uniformity. The program comes with a twenty-page addendum documenting the new features and documenting some features not previously documented.

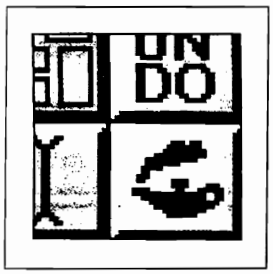
If you're a registered owner of the product, your updated program might already have arrived (by bulk mail, which is rather unpredictable as to timing). Contact the company for details. Programs that are on the dealers' shelves should be version 2.2.

Not bad, eh? Nice new features. A genuine Amiga look, for a welcome change. The linking stuff, some add-on programs. Improved speed, too. Oops, forgot to mention that, but not having seen it in person, yet, your conservative editor hesitates to commit his good name to anything he hasn't aimed baby blues at. PageStream supports true, publishers' quotemarks, en and em dashes, and the like. You have to do a funny key sequence to get them, but they're there. A good lob, in the pre-press wars.

Another volley

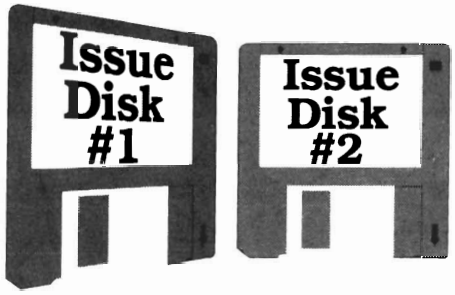
Gold Disk, on the other side, is promising a genuine ARexx interface in Professional Page 3.0. The poop sheet they sent out promoting the new program boasts of more than *three hundred* ARexx commands. With all those commands to document, it looks like the manual's finally going to grow up to fill the box.

Then there's the genie. That's a new feature in Professional Page. It's accessed by zonking the mousepointer onto a gadget that looks like an Alladin's lamp. The "genie" performs automatic formatting of documents. Gold Disk's poop sheet says the genie will "automatically format and address your envelopes for you, or create tables automatically from spreadsheet data, or perform complex mail merges, or create drop caps, grids, super and subscripts. . . There are more than twenty-five. . . genies in Professional Page to speed your work."



Back Issues, too.
The first ***AmiGadget*** back issue is, of course, the premier issue, and there are some left, if you want one. Back issues are $5.00 (isn't it odd how magazines *increase* the cover price for back issues?).

Sales Taxes.
The only people who get to pay sales taxes for these orders are South Carolinians, who are magnanimously permitted to pay this state's 5 percent fun - er, sales - tax. Add that onto the bottom line, please.



That's about it. Have at the Inevitable Order Form - now cozily placed on the front side of a non-article page, due to subscriber complaints about having to cut the magazine to whack out the form - and pick the products you want. Oh, and don't forget the magazine subscription, which started all this in the first place.

Thank you. Just one more thing. All of this stuff comes bundled with another exceedingly important item: *thanks!* Thank you.

International Subscriptions

Canada: Annual (6 issues) $33.00 CDN, $5.95 per issue, postpaid.
U.K.: Annual £41.00, £6.95 each Airmail postage paid.
Australia: Add $1.50 (U.S.) *per issue* postage, plus currency conversion.
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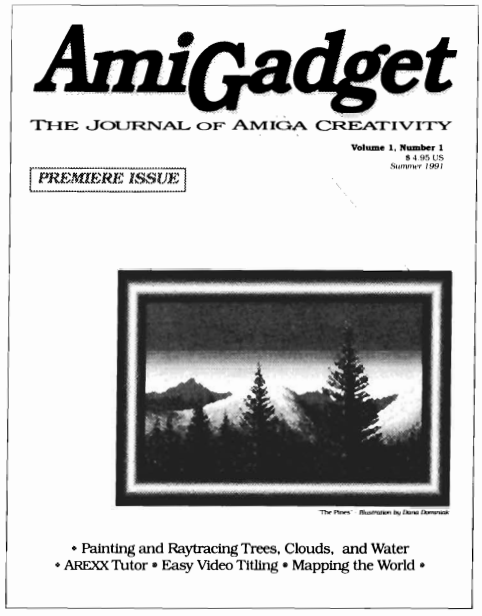

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Partial Contents Listing

New Stuff *by Jay Gross - What's new and notable* • **ARexx Tutor** *by Ray Radlein - Writing a simple macro* • **Complexities of Draw 4D** *by R. Shamms Mortier, Ph.D. - Drawing 'Very Complex Objects'* • **Getting acquainted with Bars&Pipes** *by John Thompson - It's not as complicated as it might look* • **How to map the world** *by R. Shamms Mortier - And a new word for your vocabulary* • **Trees poetic and artistic** *by R. Shamms Mortier - Mainly artistic* • **Water on the artist's computer screen** *by R. Shamms Mortier - Turning water into pixels* • **Easy and convincing bitmapped clouds** *by Randy Brown - Shade-mode brushes do the trick* • **C is for fun** *by Dana Dominiak - Full C sourcecode on Issue Disk One* • **The News** *by Jay Gross - Tidbits from the Amiga's community* • **The end: scroll titles** *by R. Shamms Mortier - Video titling made easy* • **The Ins and Outs of Time Code for Video** *by Mike Sox - When you need it and when you don't, and why.*

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MICROSEARCH

looks very interesting when rendered in 3D.

One thing about text strings manipulated like this. . . You cannot leave all of the letters connected as one object, but *must* separate them into individual letters. For pipe-extruded text, I remove all of the "holes" in the letters that have them, because this makes the finished rendering a little less complicated to perceive. To do this, select everything on screen with the *right* mousebutton and the 'Triangles' icon (fifth down on the right), then click on the eighth icon on the right--the broken lines or 'Unglue' tool, to finish breaking the letters apart.

It takes a while to pipe-extrude a whole text string like this, but try building the extruded objects by hand, and you won't mind the wait.

Figure 3 is another view of this process, this time showing a circle as the 3D cross-sectioned shape of the pipe. *Figure 4* shows a series of text strings that were rendered in this manner. If you were animating this, it would be easy to fly through the hole in a letter (though you might need a lot of extra memory and a fat harddisk to pull it off smoothly). Both the normal and the pipe extrusion tools are great for working with clients' logos, and can add great depth to both text and graphic designs.

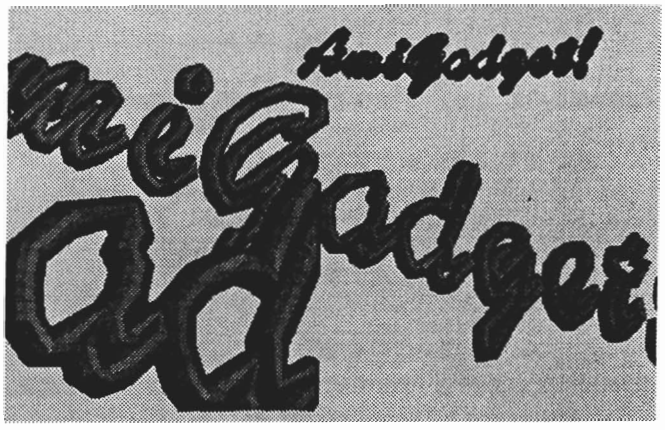


Figure 3

Other uses

If you notice the input areas on the 'Extrude' requester, you'll see that there is much more than just depth involved. By playing with these numbers and keeping some notes as to the outcome (I do not find this part of the process to be as intuitive as others.), you can change the way an object extrudes through space.

Figure 4 started out as a normal rectangle, and after the application of the figures that you see in the requester, and a little cloning and spinning of the results, the convoluted shape you see here was generated. I have included this to remind you that extrusion, normal or pipe, might be only one step in the creation of your 3D shapes. As to what might be possible, even with a strange conglomerate shape as this one, see the painting in *Figure 5*. Draw-4D Pro not only creates whole scenes, but you can also save your renderings as brushes, using them in other Amiga paint programs. Don't forget the Professional Draw output, too, for use in pre-press applications of printing and publishing.

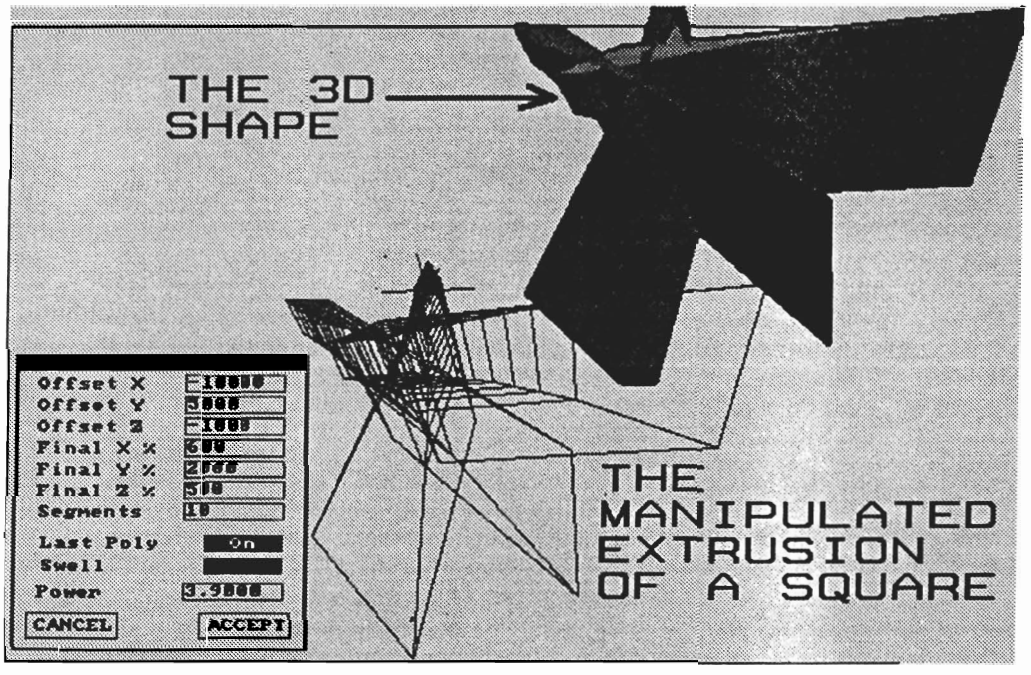


Figure 4

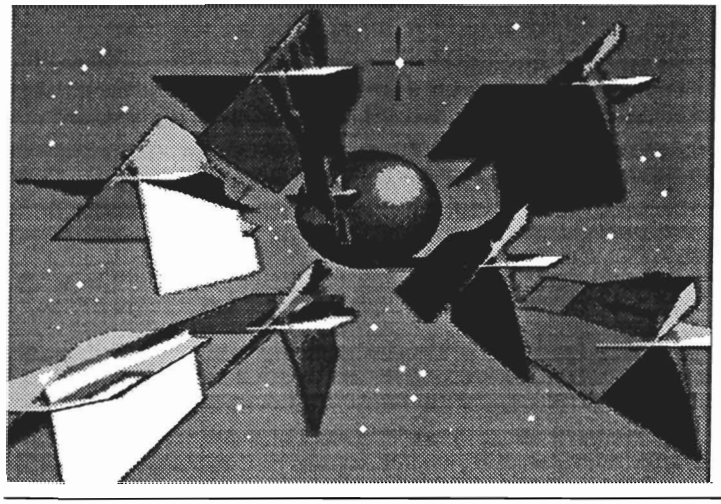


Figure 5

Realistic water with DCTVpaint

By Jeff Tyson

Let's try creating realistic water effects with DCTV Paint. The new version 1.1 of the DCTV software is now available, and there are several new features in version 1.1; however, most of what we will be using here is essentially the same as 1.0. Our example picture will be your basic *seascape*.

The first thing we want to do is create sky and ocean. This is simple, because we can do a single gradient fill to make both of these elements. Go into the 'Gradient' menu and clear the current gradient. Now select a medium blue and place it at the far left of the gradient bar. Select a light blue and place it about halfway of the bar. Pick a dark blue and place it just to the right of the light blue. Now drag the light blue over the dark blue, this will create a sharp cut from one color to the other. Finally, place an aquamarine at the far right of the gradient bar. Click on the bar to preview your gradient. Go to the 'Fill' menu and select 'Gradient Vertical' as your fill mode. Select 'Rectangle' and 'Fill' from the tool bar. Make sure you are in solid airbrush mode with a 100 percent Flow Rate. Beginning in the upper lefthand corner of the picture, make a rectangle that covers the entire screen. That's it. You should have a basic sky and ocean now.

Let's add some clouds next. In the next-previous *AmiGadget* article, we discussed two methods of creating clouds: additive and subtractive. We'll use the *additive* style here. Select the 'Dotted Freehand' tool, and make sure you have turned 'Fill' mode off. Using a brush size of 3 or 4, and *white* as your color, make some irregularly shaped blobs just above the horizon. Now select 'Blend' mode and set the Flow Rate to 75 percent. Change your brush size to 2 and pull those white blobs into wispy clouds.

Now we want to add some land. Make a medium brown and select 'Solid Airbrush' with a 100 percent Flow Rate. Go to the 'Fill' menu, and set it to 'Solid Color.' Next, select the 'Continous Freehand' tool and 'Fill' mode from the toolbar. Click the right mousebutton to remove the menu, and make a large brown shape on the bottom left side of your screen. Change to a yellowish brown and make an oblong shape below and to the right of the brown one. What we are attempting to define here is a beach and a small overhang. Select a pale brown and make small patches along the large brown shape where the edge of the overhang will be visible.

Select the 'Dotted Freehand' tool and deselect the fill mode; then choose black as your color. Using a brush size of 3 and a Flow Rate of 100 percent, follow the edge between the brown and yellowish brown areas. Now select the 'Blend' mode, and set the Flow Rate to 75 percent. Gradually blend the black into the yellowish brown to create a strong sense of shadow. Quickly pull some of the black over the brown to give it some texture.

The wave

Creating the wave is not as tricky as it seems. First, select the 'Dotted Freehand' tool, with white as your color. In the 'Solid Airbrush' mode with a brush size of 3, make a loosely flowing line that angles from near the top of the ocean on the left to the bottom of the screen on the right. Add touches of dark blue and black to the bottom edge of the white line. Now select 'Blend' mode and a Flow Rate of 75 percent, and gently blend the bottom of the white into the water. Select a spot along the white line to have the wave break over a rock. At this point mix in some green and yellow to the bottom of your wave. Now take a dark brown and make a rock. Select a brush size of 2 and solid airbrush mode. Set the Flow Rate to

Paper Portraits

a DeluxePaint IV tutorial

By R. Shamms Mortier, Ph.D.

Figure 7

Figure 6

The most difficult thing for an artist to achieve in computer graphics is a "look" that is an original signature. After all, *my* reflective sphere will probably look the same as yours. But is that necessarily so in all cases? Not with a little experimenting, and especially not, if we become familiar with the specific tools of the graphics programs. In this session, we'll focus on a special tool new to the Amiga's DeluxePaint IV: the 'Hi' (for *Hi-light*) button in the 'Fill' requester (That's the requester accessed by pressing the right mousebutton over the paint can icon in the toolbox).

There are *five* new ways to fill an area in DeluxePaint IV that can be put into action by opening the 'Fill' requester and clicking your choice: 'Line' fill (*Figure 1A*), 'Shape' fill (*Figure 1B*), 'Circular' fill (*Figure 1C*), 'Contour' fill (*Figure 1D*), and 'Hi-Light' fill (*Figure 1E*). Let's dwell on the 'Hi-Light' one for now. Look closely at each one of the five, though, and notice the differences in the gradation of tones, and how each one curves inside the shape it addresses. A "high-light" is the area of a surface that reflects the maximum intensity of the light that comes its way. These bright spots add reality and interest to any surface.

There are a few things you should take note of as far as the DeluxePaint IV "Hi-Light" option is concerned. The first preparation to make for this tutorial is to go to the palette requester and set a smooth range of shades in any color. This is done by selecting a light or dark shade at the first paint pot, and then its opposite value at the end one. Then set a 'Spread' of colors from one to the other, which gives you a nice range of

in-between values (use the RGB setting). The examples here were done in high resolution, but you can use any resolution. If you use Ham modes, you will notice a much smoother look to your work. My *Figure 6* is a Ham mode example for comparison, whereas *Figures 1* to *5* are in High-Resolution. I like the look of High-Resolution here, because I think the "banding" that takes place is useful to the effect that I am trying to achieve. You might not like it, and may opt for Ham instead. High-Resolution offers better smoothing around the edges of figures due to the presence of more pixels on the screen, and Ham offers better dithering (smoothing between colors) because it has more colors to choose from (4096). I wanted a sort of "cut paper" look, so I chose the High-Resolution option. Ham (as seen in *Figure 6*) gives a more metallic feel. Ham 'Hi-light' fills also have a star-burst effect in the quality of their appearance, which is okay as long as it matches what you want. My desire was to create a series of caricatures, portraits with exaggerated features, that mimicked some of the styles I like and have seen in newspaper political cartoons. I then intended to produce a series of these faces, and have since saved them to a disk library for later use.

Figure 5

The illustrations

By studying the six "Prep drawings," you can see how a figure progresses from start to finish. I am always finding new ways to alter both my style and the steps I use in the process, so I never really use the same procedure twice in the same way. The "Prep" drawings, however, give you an idea of how one might build a caricature in an orderly manner. My main tool for these figures is always the 'Free-Fill' tool that is accessed by clicking on the lower right of the free-draw icon in the DeluxePaint IV toolbox. One thing to remember about the 'Hi-Light' option is that after an area tobe filled is drawn, a line attaches itself to your pointer. The direction of the line indicates where the "light" will come from. The distance from the area to where you click on the end of that line on the screen indicates the presence or absence of the first colors in your palette. Clicking on the center of a filled area will create an area that has your first shade or color in the center, and then a spread of the remaining shades. Like any artists' tool, it's always best to give yourself some experiment time before attempting to create your master works.

Figure 2

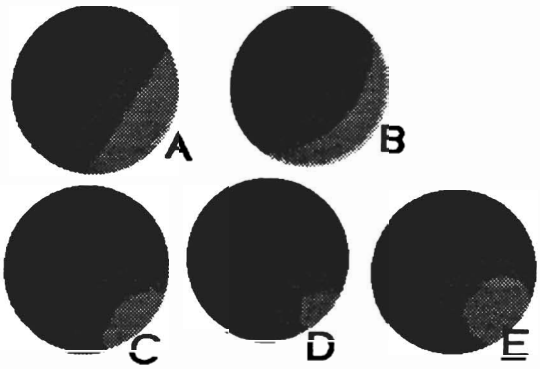


Figure 1

Figure 3 is a special case where the "beard" on the face of this being

Figure 3

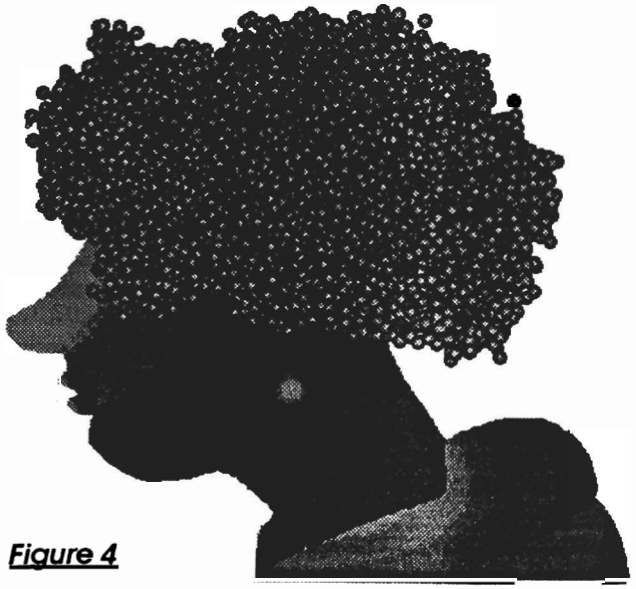


Figure 4

Extru-u-u-u-u-u-ding

Draw4D-Pro objects

By R. Shamms Mortier, Ph.D.

Now we focus on some of the creative applications of the "Extrude" function in Draw-4D Pro. *Extruding*, as many of you are already aware, is a method of adding depth to an otherwise flat ("2D") object, and it is one of the major ways that 3D objects are sculpted in 3D rendering programs. In the real world--the one outside computers-- extruding is a common method of forming metal into useful shapes, like the "channels" and similar shapes that make up the metal frames for windows, screens, picture frames, etc. The computer version of the process is a metaphor for the metalic one, with the added advantage of not having to yield to the properties and limitations of metals in extruding shapes to your liking.

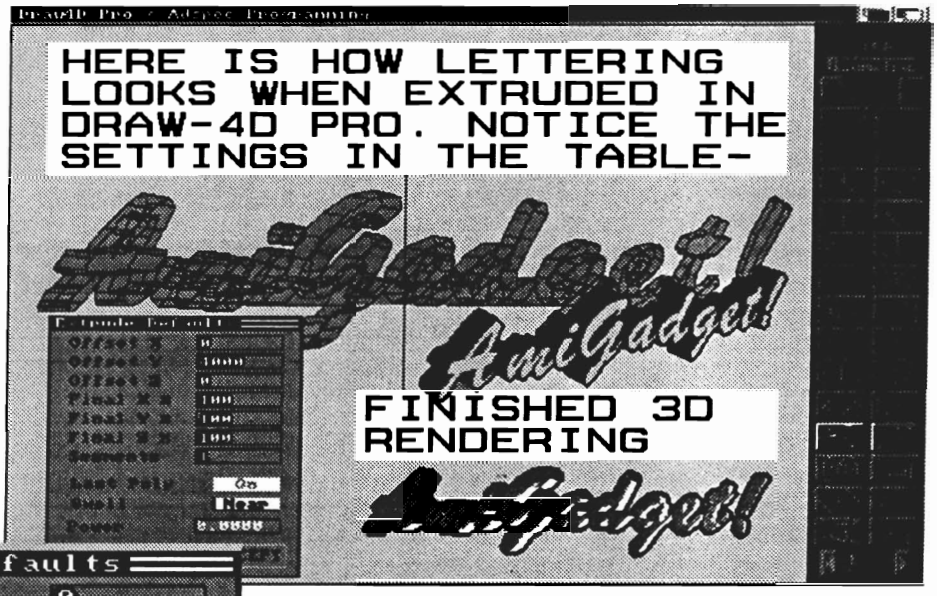


Figure 1

It is expected that the reader will already have gone through the first tutorial in the next previous issue of *AmiGadget* (and if you didn't see it, there are back issues available). Or, you may already have plugged through some or all of Draw-4D Pro's manual, which is advised. I've prepared a few graphics to highlight the salient points of this article, so please take a look at them when called for in the text.

For some of this tutorial, you'll need to know how to load alpha-numeric shapes (the alphabet), and how to enter a text string. In Draw-4D Pro, nothing could be simpler. The disk has a font (typestyle) already packed away in its library, and Adspec Programming issues more fonts with their quarterly newsletter disks. So, load a font by accessing the pulldown font menu. Your machine will click away as the fontnames are being stored in the computer. Now access the menu choice that says "Write Text," and enter a string of text to your liking. I used the word "AmiGadget," to impress the editor. What you will see on the screen is a flat, 2D representation of the text brushes. They have no depth yet. The entire string is considered as one object, so operations done at this point to one letter are done to all in that string. We are going to extrude, or *add depth to*, this string, so go to the rightside toolbox, find the 'Extrude' icon (tenth one down on the left) and select it with your *right mousebutton*. This brings up its menu of options. make sure your screen view is straight down the Y axis (you should only see the red and black crosshairs), and change the default Y input area in the options box to 4000

from the default 10000. This shortens the extrusion depth; 10000 is a bit much for a text string.

After closing this requester and accepting the changes, click on any part of the on-screen text with your *left mousebutton*. This selects it for application of the effects of a tool. All of it should ghost out (turn red and white). Now select the 'Extrusion' tool again, this time with your *left* mousebutton. Voila! You've just created your first (or perhaps your billionth) extruded object.

See *Figure 1* as an example of both the wireframe and the finished rendering(s).

If you like your wireframe, select 'Fill Screen' and render it in your chosen resolution and color palette. When I really am satisfied with my sculpting, I render it in DCTV mode, which Draw-4D Pro does directly. If you want to see a fast rendering of the object, choose one of the lower resolution modes first (like Lo-Res No Overscan).

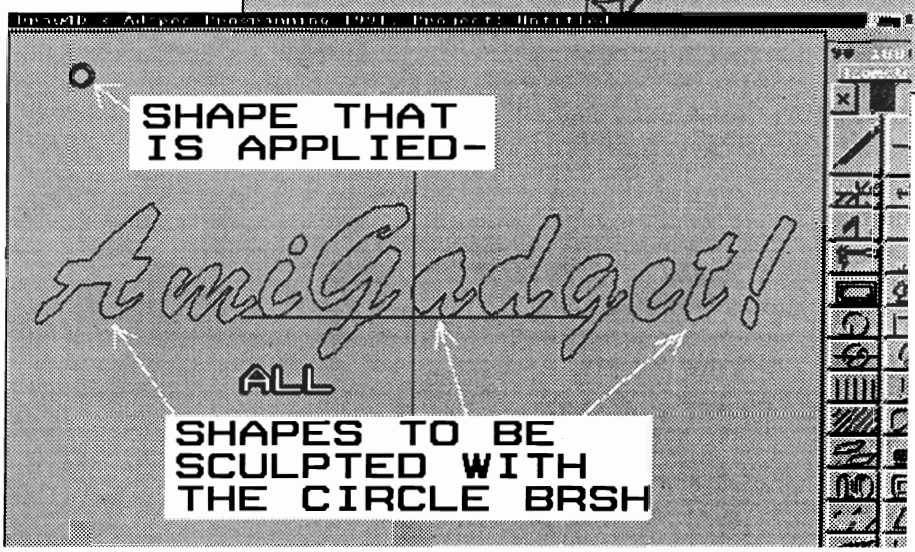


Figure 2A

&

Figuew 2B

The pipe extruder

Imagine that you can draw a straight or curved line in space, that is either connected back upon itself or remains with open ends. Now visualize yourself taking a tennis ball, and after you drill a hole in it, you pass it along the line you've drawn. Now imagine that at every place the tennis ball passes, as it is drawn along the "path," a replica of the tennis ball is deposited. Soon, your path will be a three dimensional one, whose dimensions match those of the tennis ball. This is a loose description of what the 'Pipe Extruder' in Draw-4D Pro does, only much more. The shape to be extruded, the one that will determine the look and dimensionality of the path, can be absolutely *any* geometric design you wish, and so can the "path." Since the finished sculptures resemble pipes, or bent straws, the technique is called pipe extrusion (I've yet to see it called "straw extrusion").

We can apply this process to letters or any other polygonal shape. The Pipe Extrusion tool is the one at the right of the regular extrusion tool in the toolbox (tenth down on the right). You'll need two shapes to do this exercise. One is the *Path*, the outline of the "pipe," and the other will be the dimensions of the 3D space that the pipe will occupy.

See Figure 2 for a visual example.

The white arrow points to my 3D design, a simple square. The Design must be turned flat on the X-axis (if you're working in the Y axis) in order for it to be applied properly. This is very important. Just select it (left mousebutton) and access the 'Rotation' icon with the *right mousebutton*. Input "90" into the X axis space, and select "Accept." Your design should now appear as a horizontal straight line (or close to it).

Now, select the *Path* (the *letter* in *Figure 2*) and *left*-click the 'Pipe Extrude' tool. A requester will appear at the top of your screen asking you to select 'OK' and then to click on the smaller shape. That's it. A moment later, your full 3D Pipe Extruded letter (or whatever path shape you draw) will appear. If you want to experiment, pull out some of the shape in other axes, so that it exists in its own 3D environment (It doesn't have to be flat.). Now when you Pipe Extrude it, it becomes a twisted pretzel affair that

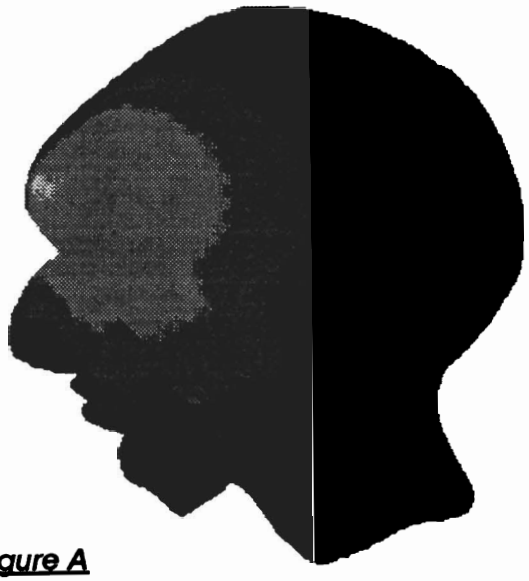


Figure A

was constructed in the following manner: First, I painted a small sphere ('Hi-light' tool still on), and picked it up as a brush. Then, using the 'Airbrush' tool, I painted the beard

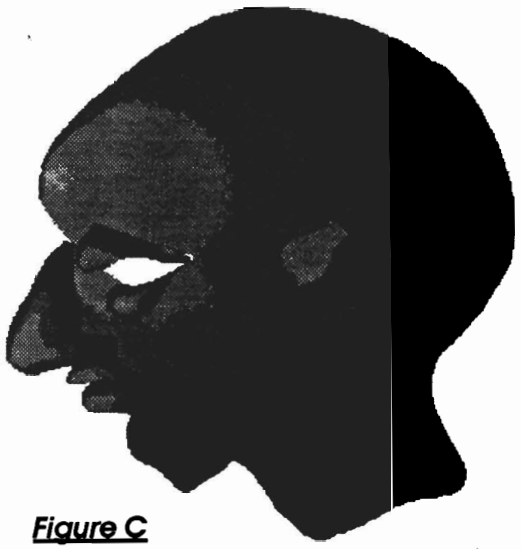


Figure C

on the face. The actual 'Hi-Light' on the small sphere was placed in its center, making it very much a 3D-like object. I liked it so much, I used it abundantly in *Figure 4*. That's what happens when you become immersed in your work. Discoveries lead to experimentation, all of which adds to your identity. I used a version of the same technique in *Figure 5*, only this time I made the spheres very small. With the sphere as a brush and the airbrush tool on, I created hair for eyebrows and face that has a very fine appearance (by the way, this is my caricature of Pythagoras). The wild look of the hair was created by using the 'Draw-Fill' tool and scribbling lines that crossed over each other. The highlight option then filled these shapes automatically. Madame Strange in *Figure 7* also takes her hair from the same technique. This time, to create the look of curls, I used a larger sphere and airbrushed it in curved, directional lines. These drawings print out

Figure B

Figure D

Figure F

nicely to a laserprinter.

By experimenting with this technique, the varieties that you can create are almost infinite.

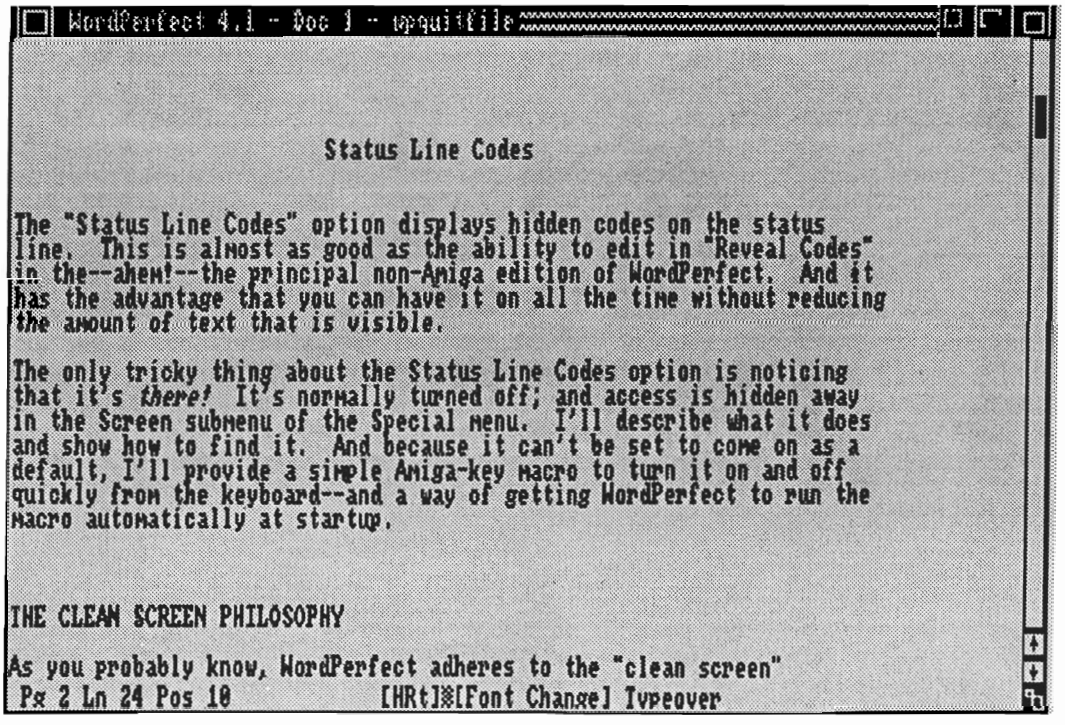
Amiga WordPerfect's 'hidden' features

By Donald Maxwell

A two-article series in this issue:

Revealing hidden formatting codes made easy.
and
Amigas' WordPerfect isn't a graphical wordprocessor. . . or is it? - **Page 18.**

If you use a version of WordPerfect earlier than 4.1.12 (dated 1/15/91), then you're missing out on some *very* useful improvements. Namely: 'Status Line Codes' let you see the program's normally-hidden formatting codes while you're editing. You'll hardly ever need 'Reveal Codes' any more. And 'Preview' lets you see a document approximately the way it will appear on paper, with headers, footers, page numbers, up to eight different bitmapped fonts, etc. It will even print the document as a bitmapped image, *fonts and all.* Even if you already have version 4.1.12, you might not have noticed these new features, buried as they are in sub-submenus. These two articles show how they work and how to use them effectively.



Status line

The 'Status Line Codes' option displays WordPerfect's hidden document formatting codes on the status line. This is almost as good as being able to edit with 'Reveal Codes' turned on, as is possible in the principal non-Amiga edition of WordPerfect. Its advantage is that you can

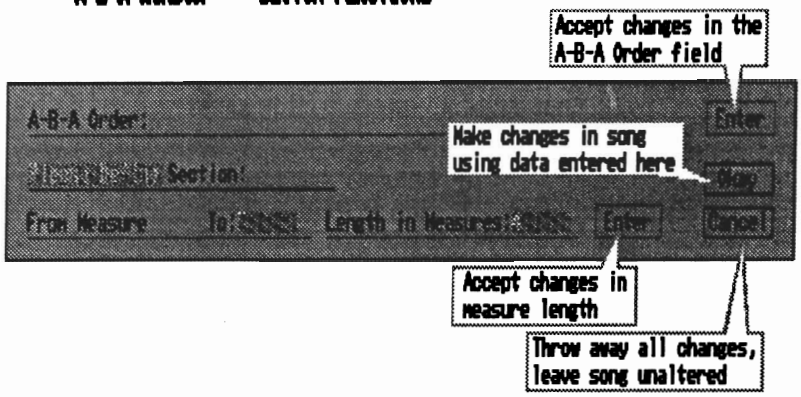
Move to the 'A-B-A' window by clicking on the 'A-B-A' button. Your first task here is to name and define the sections you have written. In our example, the verse occupies measures one through eight and the chorus runs from measure nine to sixteen. For the sake of brevity, we will call the verse the "A" section and the chorus "B." The term used to decribe the pattern of repeated sections is *form*; our song so far has the form "A-B."

When you open the 'A-B-A' window, the only active entry field is the top line, labeled "A-B-A Order:," which allows you to enter the present form of the song. In the case of our example, this will be "A B". *Note the space between the letters*; Bars&Pipes views that space as a separator, marking where one name ends and the next starts. This means section names may not contain spaces. You don't have to use single letters; "verse chorus" would work just fine. After entering the form, click on the 'Enter' button to the right, to confirm.

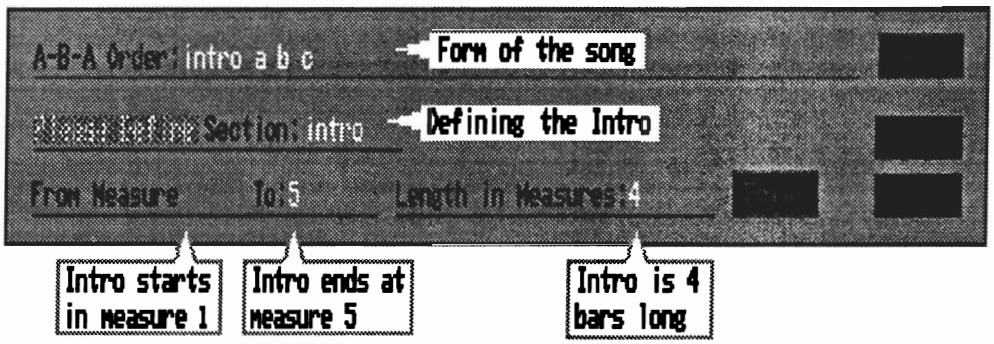
Bars&Pipes knows the names of the sections and how many sections there are. Now you must tell Bars&Pipes where each section starts and ends. Notice that the line "Please Define Section:" is followed by the first section name you entered: *A*. Below that, the 'From Measure:' field indicates that Section A starts in measure one, which is correct. The 'To:' field probably says the A section ends in measure two, and 'Length in Measures:' thinks A is one measure long. To fix this, enter either the number of the ending bar line or the length of the section. I find it simpler to enter lengths. Whichever you enter, Bars&Pipes calculates the other.

That takes care of the A Section. To define B, move the mouse to the section name following "Please Define Section:." Press and hold the mousebutton; a scrolling list appears, containing all the sections you have named above. Select a section, in this case "B". If you have several sections, it's a lot easier to define them in order.

A-B-A WINDOW - BUTTON FUNCTIONS



A-B-A WINDOW ENTRY FIELDS



When you release the mousebutton, the 'Please Define Section:' field contains "B" and 'From Measure' contains the end of Section A. To finish defining B, enter either the number of the ending bar line or the the length of the section.

Essential numbers

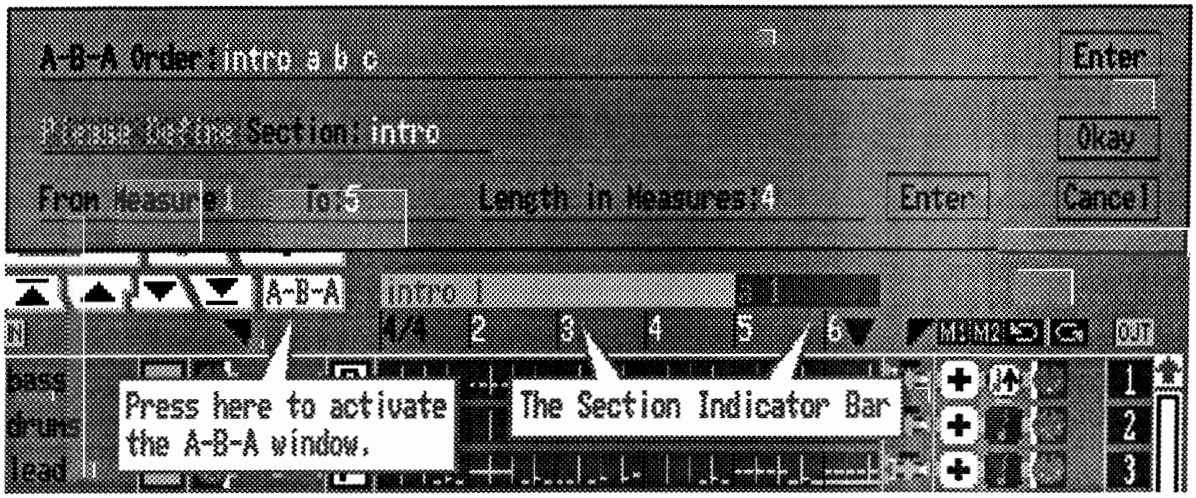
Bars&Pipes is very insistent on these measure numbers. The program calculates the beginnihg of each section based on the end of the previous section. This makes it impossible to leave measures out or include a measure in two different sections.

Caution! If you miscount the measures, it is easy to delete or scramble big chunks of your song. If something strange happens, select 'Undo' from the 'Edit' menu. Remember to 'Save' your song before any potentially risky operation. Better yet, load a song you have written, then choose 'Save As' from the 'File' menu. Give the working copy of the song a different name, so there is no possibility of overwriting music you want to keep. Also, when learning to use 'A-B-A', start with a short, simple song with clearly marked sections.

Okay, now you have tentatively defined the sections of your song. To put these sections to use, click on the 'Okay' button. The 'A-B-A' window disappears, and a new 'Section Indicator Bar' appears above the pipeline. Scroll through the song; the bar outlines each section we defined in a different color, and each section is labeled with the name entered in the 'A-B-A' window. Ignoring any other virtues, this certainly is worth having, if only for the aid in navigating about a song.

So far, all we have done is label the sections of our song; we haven't actually changed anything. Now we will use 'A-B-A' editing to do a bit of advanced cut and paste. Let's choose

a form for our song, one commonly used for pop songs: three verses, each followed by a chorus, with an extra chorus tacked on the end. That makes our song form "A B A B A B B". Open the 'A-B-A' window and enter this on the 'A-B-A Order:' line. Press the 'Enter' button to the right, the the 'Okay' button directly below. Now look at our song and note the changes. First, it's a lot longer. As you move through the song, you will also notice changes in the 'Section Indicator Bar': the bar is the same color above each A section, and the sections are labeled "A1," "A2," and "A3." The same goes for the B sections.



Advantages

How does this differ from ordinary cut and paste? For one thing, once you set up the original section definitions, you can can change the form of the song almost instantly. If you don't like the form we have now, you can make it longer, shorter, or rearrage the sections; just pop up the 'A-B-A' window and type in the form you want.

The other big advantage of A-B-A editing is the ability to propagate changes. Many times, especially the day after a late night arranging session, I will listen to my song and think *"Egad! How could I have written THAT?"* And to make matters worse, I copied that section and put it in five different places! Well, I still have to correct my mistakes, but if I've defined A-B-A sections I only have to do it once.

Suppose we decide to change the A section of our song. Go to the first A section, which is conveniently marked by the "A1" label in the 'Section Indicator Bar.' After making our changes, we will now copy our corrections to all the other A sections in the song. To do this, simply select 'Propagate' from the 'Song' menu. (Note: 'Propagate' is also found in the 'Edit' and 'Track' menus. . . more on this later.) Be sure you make your changes to the *first* A section; otherwise, 'Propagate' will copy the first section over all the others, wiping out your changes.

What if, unlike Sousa and Mozart, you don't want all your verses to sound the same? Maybe you want your song to start softly, then build, grow, swell until it reaches a glorious. . . never mind. Is it still possible to use A-B-A editing? Fortunately, the clever folks at Blue Ribbon Soundworks have made this possible. On the most basic level, you could write your sections, use 'A-B-A' to cut and paste the sections into the correct form, then make all the modifications you want. Don't change the form or use 'Propagate,' however, or you will wipe out the work you did making those sections different.

Perhaps you just want to make one verse different; all the others can stay the same. Instead of A-B-A-B you want A-B-A-B' (*read B prime*), which is very similar to B, but not identical. This is easy. Click on the 'Section Indicator Bar' above that second B section. A window will open, allowing you to change the Section Label to something like 'B-prime'. The name in the 'Section Indicator Bar' changes, and if you look in the 'A-B-A' window you will find the new name here as well. Now you may make all the form changes you wish; *B-prime* is treated as a completely separate section. Note, however, that since this section is no longer labeled B, any changes you propagate will not affect it.

Limiting changes

How about this: you have written a song with repeated sections. The percussion, rhythm guitar, and bass all stay the same, but you have added horn, flute, and violin parts for variety. After doing this, you decide you want to change one of the rhythm parts. Is it possible to propagate this change? Of course it is, or I wouldn't mention it! To propagate changes in just one track, choose the track by clicking on the 'arrow box' at the left of the pipeline, then select 'Propagate' from the 'Track' menu. This also works for multiple tracks if you have selected a 'Group.'

Here's one more hypothetical situation: you have set the form of your song, then made all sorts of changes. Suddenly you realize that every A section contains an error. How can you propagate changes in the A section without overwriting all the nice things you wrote in the B, C, and D sections? First, tell Bars&Pipes you want to change the A section. Mark it by placing the left 'Edit Flag' (the purple triangle) in the first A section. Now choose 'Propagate' from the 'Edit' menu.

have it *on* all the time without reducing the amount of text that is visible. The only tricky thing about the 'Status Line Codes' option is noticing that it's *there*. It's normally turned off, and access to it is hidden away in the 'Screen' submenu of the 'Special' menu. Because it can't be set to come on as a default, this article includes a simple Amiga-key macro to turn it on and off quickly from the keyboard, as well as a way of getting WordPerfect to run the macro automatically at startup.

As you probably know, WordPerfect adheres to the "clean screen" philosophy. That is, it ordinarily displays only the text of a document and none of the special formatting information or printer commands that may be embedded in the document. These codes control whether a line is centered, whether text is bold, italic, etc., and other factors in the layout of the document, like margins, headers, and the like. These codes are in the document, but not displayed on screen to muddle your view. The 'Status Line' at the very bottom of the window provides information about the document and your position in it. It displays the cursor position in terms of page number (Pg), line number (Ln), and column number (Pos). It also displays the "ON" condition of three typing modes: *Typeover, Num Lock,* and *Caps Lock*. (The last two indications are subtle.)

Until version 4.1.12 of Amiga WordPerfect, you had to enter the 'Reveal Codes' mode to see any of the hidden codes, which were displayed, but not particularly editable. The problem is that although you can delete characters and codes in 'Reveal Codes,' you can't *add* anything. Any attempt at doing so brings you immediately back to the edit mode. The version 5.x series of WordPerfect on other machines allows editing in Reveal Codes mode, but that series is not available for the Amiga, and the company says it won't be.

Status Line Codes: Help for the weary WordPerfect user

Codes to the left of us. . .

The new 'Status Line Codes' option, however, works in the normal edit mode. Turning the feature on adds a field between the column number and the Typeover indicator (when it's on). What you see is a crosshatch character representing the cursor, flanked by the character *or code* to its left and right. Thus, if you're trying to determine, say, whether a line ends in a hard return code (*HRt*) or a soft return (*SRt*), move the cursor to the end of the line or the beginning of the next line. 'Status Line Codes' will display "HRt" or "SRt." It works that way for all of the standard WordPerfect codes. It also indicates an embedded Printer Command as "Cmd," although it doesn't show the contents of the command. You still have to use 'Reveal Codes' to see that.

You turn these codes on and off by selecting the 'Special' menu and then 'Screen' and 'Status Line Codes.' It's that easy. Yet it can be even easier. One of WordPerfect's most powerful features is its macro facility. You can automate almost anything that can be done in WordPerfect by creating a macro. A handy example of this is a macro for turning on the 'Status Line Codes.' Here's how to make it for yourself. A ready-made, ready-to-use, disk-based version of this macro is on the magazine disk for this issue of **AmiGadget.**

You can begin recording the macro by using the mouse to select 'Special / Macros / Define. . .'. A requester asks for the macro's name. You can enter a word, like "codes," but an Amiga-key name, such as LeftAmiga-C, will save time later when you want to call the macro up. Once you've named the macro, WordPerfect will record what you do; so, simply turn on 'Status Line Codes.' To end macro recording, select 'Special / Macros / Define.'

Using this macro to turn 'Status Line Codes' on and off is really simple if you named the macro with the Amiga key; just hold down the Amiga key and the letter key. If you named the macro with a word, you'll have to select 'Special / Macros / Invoke. . .', and then type the name of the macro and press <Return>.

Automatic startup

What if you want WordPerfect to start up with 'Status Line Codes' turned on? There's no way to set the option in the Setup program, but don't despair. WordPerfect can execute a macro on startup. From the Workbench, add the macro to the WordPerfect icon, like this:

- Click once on the WordPerfect icon.
- Select 'Info' from the Workbench menu.
- In the 'Tool Types' requester, click on 'Add' and then enter the following:

```
STARTUP MACRO=MACRONAME
```

Be sure to use all upper-case letters. 'Macroname' is of course the name of the macro you've created.

- Finally, click on 'Save.'

Now when you doubleclick on the WordPerfect icon, the 'macroname' macro will be executed automatically, and 'Status Line Codes' should be turned on.

If you run WordPerfect from the command line, just enter

```
WordPerfect -m macroname
```

Either way, 'Status Line Codes' will be there to do its work for you.

--

WordPerfect's 'Preview' option: tricks you wouldn't expect.

By Donald Maxwell

A major addition to WordPerfect for the Amiga is not very well documented, but it's quite flashy, and can *almost* deliver graphics wordprocessing. It's a "preview" module that can be accessed from WordPerfect's 'Print' menus. It also works as a stand-alone program. This feature does two things:

1. Documented: It displays page numbers, headers, footers, footnotes, and all other functions that WordPerfect normally doesn't display on the screen. It also displays the text *as bitmapped fonts*. You can assign an Amiga font to each of the eight WordPerfect fonts. This means that the fonts you see on the Preview screen can resemble your printer's own fonts, and you can therefore get a good idea of how the text will look on paper.

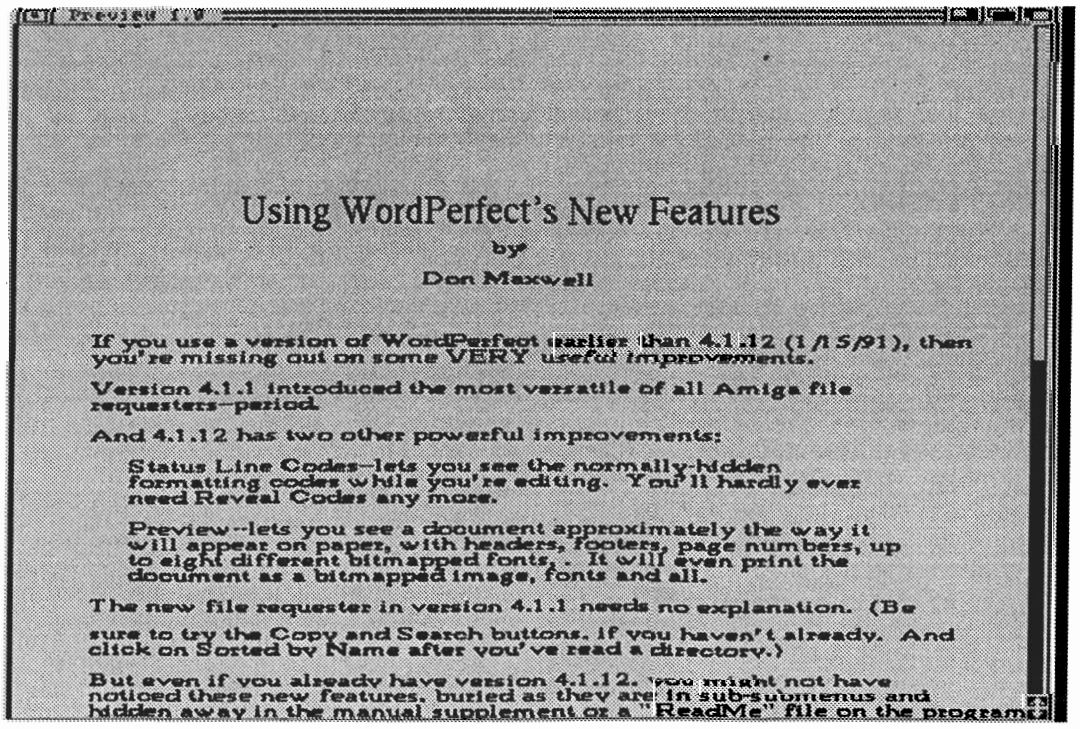
2. *Almost* undocumented: 'Preview' can print the bitmapped screen fonts to paper. WordPerfect Corporation isn't bragging about this feature at all--for good reason, as it can't come close to competing with ProWrite, Pen Pal and other graphics wordprocessors. It's slow and awkward, and it can't handle pictures at all, only text. Nor can you enter or edit text in it; you import text from WordPerfect. Still, Preview does manage to print any Amiga font. That's relatively big news, considering.

The entry "Preview. . ." appears in the new WordPerfect 'Print' menu (version 4.4.12). Selecting it opens the 'Preview' module, a stand-alone program. That's simple enough. Unfortunately, figuring out how to *use* 'Preview' is a bit tricky. The documentation is hidden away in *Update Pages*, the manual supplement that comes with the version 4.1.12 update. Unfortunately, there is no on-screen Help for 'Preview,' either in itself or in the regular WordPerfect Help file ("`help.wp`").

Making it work

Preview does not display a document that is open in WordPerfect. Instead, it reads a file that has been printed to disk--not saved normally, but *printed*, using a special 'Preview' printer driver that comes with the new version of WordPerfect. Getting it set up takes some concentration; but after that, using it is relatively easy. Here are some simplified instructions:

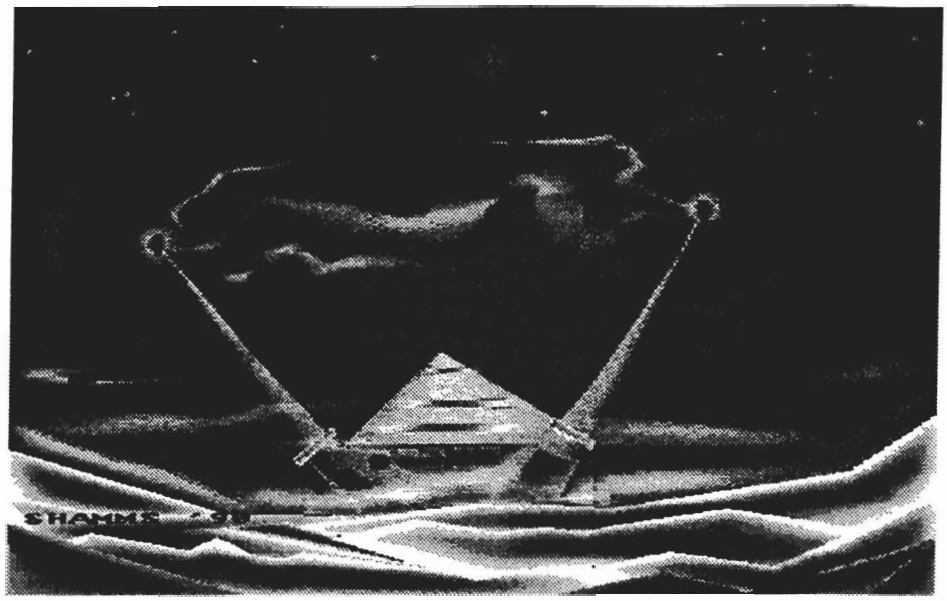
1. If you're using an exact working copy of the WordPerfect disk, skip to step 2. Otherwise, be sure that



Get the Disk!

Each ***AmiGadget*** magazine has a companion Issue Disk containing article illustrations, screenshots, the cover picture, music, animations, programs, macros, and any other stuff that goes along with the printed material--as much as will fit on a disk. The companion disks aren't sold in stores! They're available only from the magazine. You can subscribe to the magazine "with disks," too, if you like, and get them every issue, like clockwork. Individual Issue Disks are only $4.50 each, and Back Issue Disks are always available.

Just use the Inevitable Order Form on page 11. *And thank you.*



Painting #6: "The Gathering"
Software: Digi-Paint 3, 320 x 400 pixels, 4096 colors

For a more ominous look, the cloud palette contains gray-greens and blacks. The idea is to create an other-worldly environment, a place none too welcoming of Sunday strolls. Studying different types of cloud formations and even keeping a journal of your observations can aid in the construction of specific environments. Have you ever noticed the greenish quality of an impending violent storm - and the swirling patterns that clouds in that situation exhibit? The orb here is only a blur, smudged out by a dance of vapors. The structure in the foreground is an energy gathering station, an oasis of comfort on a not too comforting world. Mists of nitrogen and organic substances cloud the atmosphere.

Painting #7: "Home Planet"
Software: Digi-Paint 3, 320 x 400 pixels, 4096 colors

This is a real departure from the rest of the works here. Instead of painting in the clouds, the background is a digitized photograph (taken with a Canon Xapshot still video camera) of a sky in Vermont in the summer. Every other item in the picture is a texture-mapped surface that replicates a piece of the sky. Even the ships are texture maps of the background. The building-like objects that you see on the left horizon are also texture maps, but with a difference. Digi-Paint allows you to control the horizontal and vertical number of frequencies of the texture map. The buildings were set to map seven brushes vertically and horizontally in conjunction with the 'Polygon-Fill' tool.

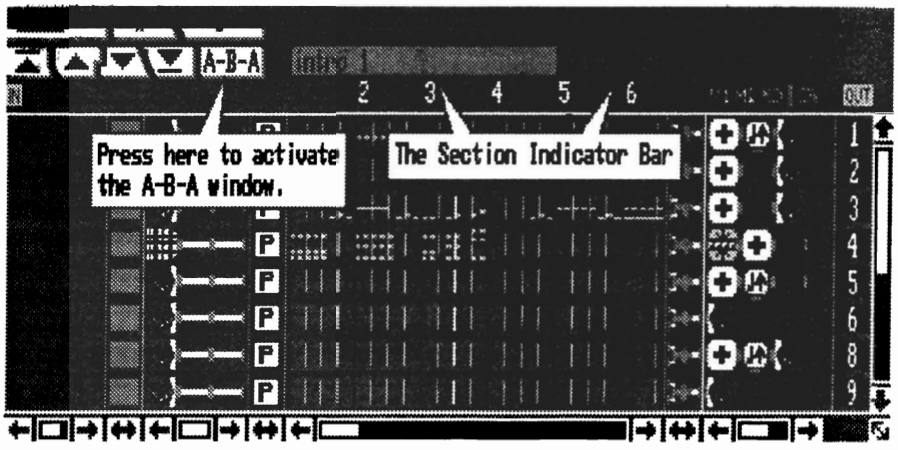
A-B-A-cadabra! Bars&Pipes magic

By John Thompson

The best thing about creating music on a computer is the ability to automate repetitious tasks. I would rather concentrate on *music* rather than the mechanics of arranging. Bars&Pipes in particular offers many intellegent features to eliminate drudgery, and A-B-A editing is one of the most powerful.

The concept behind A-B-A editing is simple. Most music is made up of repeated sections; after the component parts of a song have been written, it should be simple to copy them and shuffle them around. Exact repetition, or "cookie cutter" music, has been greatly disparaged, but it has been used by such composers as Mozart, John Phillip Sousa, and the Beatles, to name a highly diverse few. Often entire sections are repeated note for note. Of course, you could use conventional cut and paste functions to do the same thing; the A-B-A editor in Bars&Pipes, however, goes even further.

No matter what type of editing you are doing, you can't escape writing some music. Let's start off small; for this example, you are doing a song with two basic parts, a verse and a chorus. A verse is usually the part of the song where the words change; in the chorus, the words are usually the same each time. This is an extremely common form of music, often called "song form."



Write the song

All right, start writing your song. After a while you have entered tracks for verse and chorus, each of which, for the sake of our example, is eight bars long. You listen to this and like what you hear, except for one thing: it's too short. After much consideration, you decide to expand the song to three verses, each followed by a chorus. Glance through the song and note the measures where each section begins and ends.

the 'Preview' program is in the WordPerfect 'Print' directory. This is where WordPerfect looks for it when you select 'Preview. . .' from the 'Print' menu. If you have a harddrive, and if you haven't already updated your printer files, you *must* do so now. You can just run the "HDInstall.PRT" program that comes with WordPerfect.

2. Now you must select the 'Preview' print driver. You only have to do this once. From the 'Print' menu, select 'Control. . . .'

2.1 From the 'Printer Control' menu, choose 'Select Printers.' This opens up a requester that displays all of the WordPerfect printer drivers. At the bottom of the requester you should see "Printer A," and the name of the printer you have selected as Printer A should be highlighted. Use the horizontal cursor keys to select the printer driver that you want to designate as the 'Preview' printer. This can be any letter, A though F; A is the default printer, so you'll probably want to choose some other letter for the 'Preview' driver.

2.2 Next, using the scroll bar or the vertical cursor keys, find the 'Preview' driver. Doubleclick on it (or highlight it and press `<Return>`.

2.3 This opens the 'Print Options' window, with a string requester box highlighted. For near-automatic 'Preview' operation, type this exactly:

```
print:preview.wp
```

If you use a different path or filename, you would have to manually load the file you want to preview.

2.4 Click on "Other Device or File."

2.5 Click on "Continuous" for the type of paper.

2.6 Don't change anything else. Click on "Accept."

2.7 Click on "Yes" when the next requester asks if you want to save the changes you've just made.

2.8 Now click on the 'Close' gadget.

2.9 If you have copied all of the large printer files to your hard disk, choose "No" when the program asks if you want to copy your selections to small 'Print' files; otherwise, choose "Yes." That's all of the setting-up, finally. You can close the 'Print' window now and get a document ready to preview.

Printing to disk

3. Now you need some text. If you're in a big hurry, just 'Retrieve' any document and skip to step 5. Eventually, however, you'll need to define some fonts in 'Preview,' so you'll save time in the long run by writing a new file with eight lines, one for each of the eight fonts that WordPerfect can specify for a printer to print. (Some printers are capable of more than eight fonts; others, fewer.) There's a sample *PreviewFontTest* file on the magazine disk for this issue.

To specify different fonts in your document, use the 'Format / Print / Pitch/Font. . .' menus. Enter the pitch--WordPerfect recognizes 10, 12, and 15 characters per inch--and a WordPerfect font number, 1 through 8. As you may know, these are WordPerfect's default choices for the eight fonts:

Font 1 - Highest quality, regardless of speed
Font 2 - Non-letter quality
Font 3 - Proportionally spaced
Font 4 - Italic font
Font 5 - Double-wide
Font 6 - Double-high
Font 7 - Compressed
Font 8 - Highest speed, regardless of quality

These are the fonts that all WordPerfect printer drivers try to produce. The idea is that a document will be formatted correctly when loaded into any version of WordPerfect--on any computer--and will be printed properly on any printer for which WordPerfect supplies a driver. However, some WordPerfect drivers deviate from these font choices, to take advantage of printers' special capabilities. You can also customize the fonts for any printer driver, using the *PrintDef* program, but that's a subject for another time. Of course, if your printer doesn't have a certain font built in, WordPerfect may not be able to get it onto paper. ('Preview' probably can do it, though. You'll see how to do that shortly.)

4. Once you're satisfied with the document you want to preview, print it out on paper. You might want to save it, too.

5. Now get ready to look at it in 'Preview.' Open the 'Print' menu and select "3. Select Printers." A requester will open, displaying the WordPerfect printer drivers. Near the bottom of the requester you should see "Printer: A" (Assuming that Printer A is selected.) You probably won't want to make this your 'Preview' driver; so use the mouse or the horizontal cursor keys to change the letter to one you're not already using. Now find the 'Preview' driver. Highlight it and press `<Return>`. When the 'Printer Options' requester appears, select "Accept." Now click on "Yes" in the 'Save this definition?' requester. Click on the 'Select Printers' requester's close button. If you have a harddrive, you probably don't use small files. Otherwise, click on "Yes."

Fortunately, you won't have to go through that rigmarole again. The rest is easy.

6. From the 'Printer Control' menu select "1. Change Print Options"; and select the 'Preview' printer driver. Select "Accept." Do not close the 'Printer Control' menu, or 'Print' will revert to Printer A, the default.

7. Now *print the document.* Because you have selected the

WordPerfect Status

WordPerfect Corp. has stopped development of Amiga software. The current version for the Amiga will continue to be sold, and maintenance updating and support will continue, however. The Amiga package is not discontinued.

'Preview' printer, the file is printed to disk, rather than sent to the printer. This is slower than saving a file, but faster than printing it on paper. Once the file is "printed" in this way, you can see it in 'Preview.'

8. From the 'Print' menu (still in WordPerfect), select 'Preview.' Shortly, the 'Preview' window should open up on the WordPerfect screen (or in front of WordPerfect, if it's on the Workbench screen). If everything has gone right, your test document should soon appear on the screen as a bitmapped display.

(If it doesn't appear, you can load it manually, using the 'Project' menu's "Retrieve. . ." or "List Files. . ." requesters.) Now you can experiment with the 'Preview' menus. Holding down the right mousebutton reveals the menubar options 'Project,' 'Page,' 'Print,' and 'Special.' The 'Special' menu is tricky, but powerful, so here's a description of its functions:

Two submenus concern us now: 'Select Fonts. . .' and 'Setup. . . .' Anything you do in 'Select Fonts' is temporary. The next time you open 'Preview,' the default settings will be in effect again. The 'Setup' menu, on the other hand, allows you to change the defaults. You might want to experiment first with the 'Select Fonts' menu. Font selection in the 'Setup. . .' menu is the same as in 'Select Fonts. . . .'

Selecting fonts

Selecting 'Select Fonts. . .' brings up a requester that lists the already-selected Amiga bitmapped fonts for each of the eight WordPerfect font designations. The default for all eight fonts is Topaz 8. Below this list is a file requester containing the names of all of the other fonts that the Amiga knows about. To select a font, all you have to do is click on a font number in the top portion of the requester and then select a font and size from the lower portion. Click on "Accept," and the requester goes away, showing you the effect on the 'Preview' screen. Of course, you won't see any change unless you have previously specified a font in the WordPerfect document and have just selected a bitmapped font in 'Preview' for that same WordPerfect font number.

You can change 'Preview' fonts at any time, using 'Select Fonts. . .' and you can make permanent changes using the 'Set Defaults. . .' menu. If 'Preview' is to be useful, however, you'll need to select screen fonts that resemble your printer's own fonts. Otherwise, size, shape, and spacing may look fine on the 'Preview' screen but come out oddly on paper. This will take some experimentation.

Non-proportional fonts are the easiest to correlate. For example, the Topaz 8 screen font will probably be pretty close to most printers' 10-cpi fonts. For proportionally spaced fonts, try Times 13.

Using preview effectively

All these preparations might make 'Preview' seem too cumbersome to be of practical use. That's not so. (Although it could be easier.) Here are a few tips for making it help you:

Take advantage of 'Preview's' defaults--most of which are customizable. When you want to preview a document while writing or editing, the only real work comes the first time, when you have to select the 'Preview' printer. That step doesn't need repeating unless you select the printer's driver again or close the 'Printer Control' window. After that, all you have to do is "print" the document and open 'Preview' to see it. This takes hardly any longer than previewing a document on WordPerfect 5.1 for "non-Amiga" computers (although it requires two steps on the Amiga).

One of 'Preview's' quirks is that it keeps a file open while displaying it. This means that WordPerfect can't "print" a new version of the file to disk until it's out of 'Preview.' You'll get a "File already in use" error message if you try it. Therefore, if you intend to modify a document and preview it again, be sure to 'Exit' the document in 'Preview' before going back to WordPerfect. The simplest way to do this is to 'Exit Preview' altogether. Then when you call it up again it will load the newly-modified document automatically.

There's a quirk of WordPerfect itself that works *for* you when switching from the 'Preview' driver back to a printer driver. Of course, you can use the 'Printer Control / 1. Change Print Options' menus, but because 'Print' defaults to Printer A every time it's opened, it's quicker to close 'Printer Control' and then select 'Print' again. This is very fast if you have a harddrive; but it's still fast enough with floppies if the disk containing 'Print' is already in a drive.

Printing with preview

As mentioned, 'Preview' can print a document on paper. Just use 'Preview's' 'Print' menu, as you would in WordPerfect, and *voila!* There it is. Who'd a thunk it?

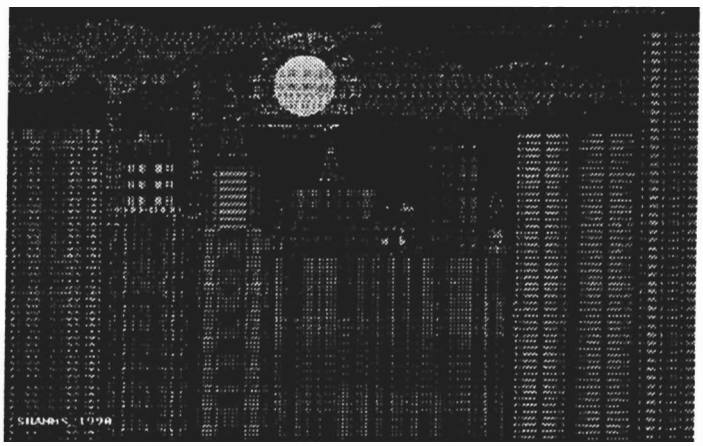
You won't be using 'Preview' for any serious desktop publishing. But in a pinch, it can print bitmapped fonts, up to eight per document, that look as good as any Amiga wordprocessor (except Final Copy) can produce. There are a few quirks here, too. One is that the 'Abort' printing requester comes up on the Workbench screen, so you won't know it exists if 'Preview' is on the WordPerfect screen. Another is that all printer control is done in Preferences, so you may spend a lot of time switching from 'Preview' to WordPerfect to the Workbench and back again.

Is 'Preview's' ability to print just a gimmick, or is it really useful? You'll have to decide that for yourself. Now that you know how to use it, you might find it helps to check the formatting of headers and footers, page numbers, columns, and so on. It has the added advantage of presenting your writing in a different shape than you ordinarily see it on the screen--often a boon to proofreading.

If your version of WordPerfect isn't the newest version, contact the company for upgrade information. The upgrade fee is only a couple of dollars per disk.

brush as a fill, choosing "Wrap" before closing the requester. Selecting the 'Free-Fill' tool, draw the mountain shapes. The cloud-sky brush fills in the shapes. Clouds become snow, and sky becomes rocky edges.

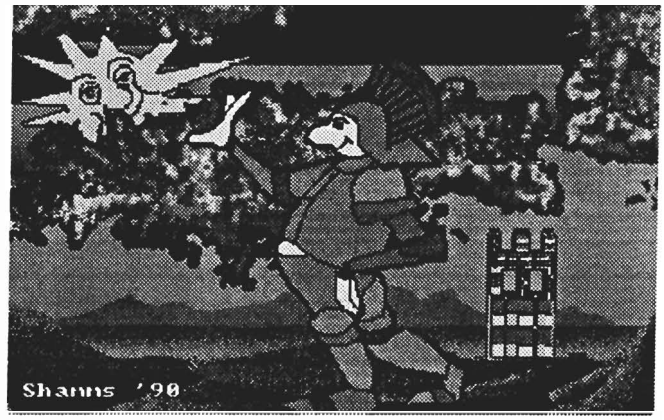
Before putting in the orb in the sky, apply a Stencil (protect from change) to the range of grays so that no clouds will be painted over. For good measure, also protect a couple of blues. This helps to break up the orb, giving it the appearance that it's really "behind" the scene. All that remains is to add some one-pixel definition lines on some of the mountain edges, and the clouds are in place, and the sky is blue. In the picture, at least.



Painting #2: "After Midnight"
Software: DeluxePaint III, 640 x 400 pixels, 4 colors

It is neither necessary nor wise to use the maximum number of colors in every work that you create. Sometimes, especially for "mood" pieces, a lower number of colors restricts the palette and promotes a more focused piece. There is also a difference between a work that may be categorized as a graphic design and one which we might call an electronic painting, although some works blur the distinction. A graphic design has a primary target of print media (mainly black and white), while an electronic painting is best appreciated as a slide, on the computer screen itself, in a video production, or as a full color, antialiased print. This piece leans more toward a graphic than a full-fledged painting, though it is now customary to exhibit graphics in the same gallery and other settings where paintings are displayed. Its mood derives from a limited palette, and also from the transparency techniques used to render the clouds and mists.

Everything in this piece was created with one basic brush. The brush was made by using the magnify function in DeluxePaint to produce a "screen" consisting of alternate one-pixel increments of a color and a blank (or background) area. Since "screens" are areas that can be seen through, likewise this screen is semi-transparent. Working in high resolution also means that the illusion of transparency is heightened, because the actual pixels are very small. There are two ways to work with a screen once you have created it. In the 'Fill Requester' of DeluxePaint are the two options: 'Pattern,' and 'Wrap'. If you use 'Pattern' and then choose one of the drawing tools, the area created will be even and symmetrical (like the mist that comes between the viewer and the "buildings"). If, on the other hand, 'Wrap'is selected, the screen will attempt to wrap itself around various shapes that are drawn. Rectangles with 'Wrap,' for instance, produce variable grades of screen. Some of the pixels are quite enlarged, producing shapes like the buildings in the cityscape. Study the piece carefully, and you can discern areas where either 'Pattern' or 'Wrap' was used to create specific effects in both the clouds and mists.

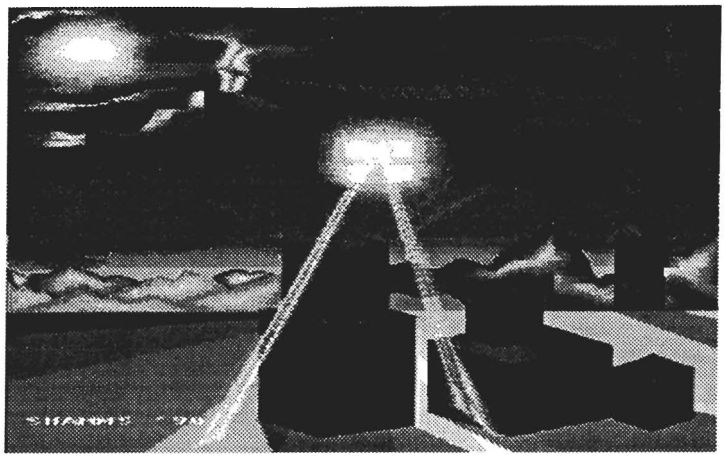


Painting #3: "Storyland"
Software: DeluxePaint III, 320 x 200 pixels, 32 colors

In children's storybooks, the artwork and the narratives are often experimental. Very often, techniques from this medium translate well into other, more painterly pursuits. This piece uses low resolution mode for its certain "primitive" look, appropriate to this genre.

As far as the "clouds" here, let your imagination and childlike concepts rule. Create a brush about 15 by 15 pixels in one color. Next, select all of the colors as a range in the palette, and go to the 'Fill' requester to choose ranging and rough dithering

The normal 'Draw' tool creates the cloud shapes, but with one change. Choose "Cycle" from the 'Modes' menu, so the drawing will change colors at each pressing of the mousebutton. What would normally be a one-color shape turns into a rainbow. Just as in the first painting, use the 'Smooth' function to blur the edges. The figure was added later, as was the smiling orb behind the clouds. A work like this might play well as a backdrop in a video animation for younger audiences.



Painting #4: "Lightscape"
Software: Photon Paint 2.0, 320 x 200 pixels, 4096 colors (Ham)

The primary tool in Photon Paint useful in the creation of clouds, mists, and bursts of ethereal light is its "Blend Requester." This tool allows you to choose the fading and dithering properties of fills in the horizontal and vertical planes, or both. You can actually *draw* these ratios, creating some that are more like textural fills than mere transparencies. Sometimes a certain blockiness can result, which may actually enhance elements in surprising ways. Other times, very smooth transitions can be provoked.

Clouds and mists that are generated in an Amiga paint program maximize the feeling that light itself is being played with. What we really do when we hide a painted sun or moon with a cloud, or when we think we can see through one thing and observe another, is that we're enhancing the invisible and revealing the mystery just a bit. That's why it's important for artists to learn to handle transparent effects in all media. Transparency creates a feeling of mystery disclosed. Various degrees of transparency enhance the feeling of mystery and secrets revealed, as well as adding to a feeling that the two-dimensional world has an appreciable "depth." In dealing with layers of elements, we create a three-dimensional reality, and the flat screen becomes a window that we can almost fall through.

Perspective also helps to enhance this effect. In this painting the rayed foreground leads the eye to the horizon. Just for effect, texture map different portions of the misted sky on the cubic figures below. Photon Paint has great texture mapping features. The dimensionality is enhanced by adding shadows to the figures, as well as setting a light direction and luminosity value before the figures are texture mapped.

Painting #5: "Burning the Mist"
Software: Digi-Paint 3, 320 x 400 pixels, 4096 colors

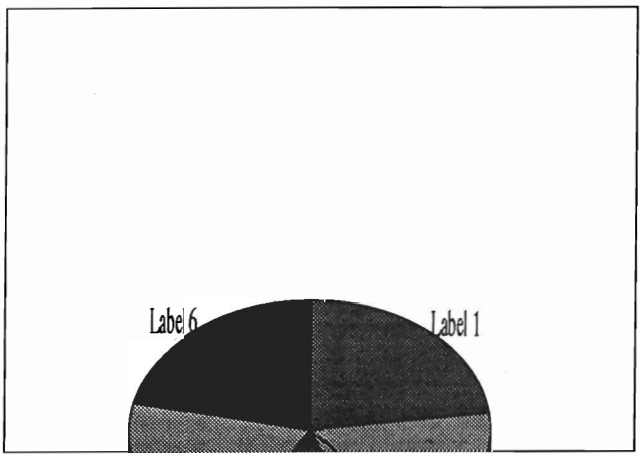
Color can signify every emotion known and felt by humans, and may even exert a similar force upon extra-terrestrials for all we know. In this scene, although we're working within the Ham mode that allows 4096 colors to play with, the palette is again kept to a minimum. This is so we can project a feeling of austere reality, and communicate through the colors themselves. The stark light of a bright star burns through a mist to the bare trees below, and everything feels the touch of that distant luminosity. The feeling is of a morning-like time, when misty fields dispense their vapors.

Digi-Paint 3 provides many nice tools to help in achieving these misty effects. At the heart of cloud creation in this software is the "Controls" screen, and especially the fade controls on the 'Fill' requester. These controls are *very* fine. Older Amigas, and even current Amiga 500's which don't have the "Super Agnus" chip show some limitations with Digi-Paint 3. This is especially true when it comes to the 'Polygon' and 'Free Fill' operations, so that large areas may need to be approached piecemeal. Not to worry too much, however; the 'Undo' and 'Repeat' tools encourage taking risks and making mistakes with impunity. By painting an area with a color, then choosing another color and hitting the 'Repeat' button, very complex, transparent overlays can be created. This effect is extremely useful in the construction of believable clouds and mists.

New Stuff

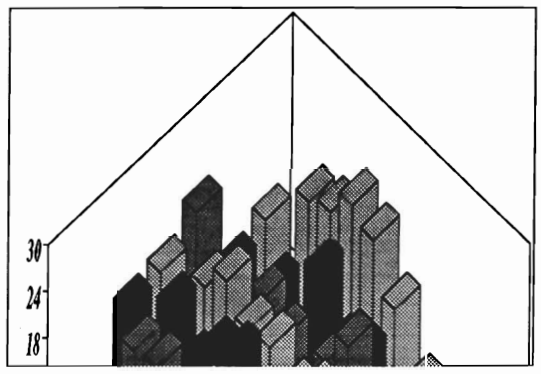
continued from page 5

perfect is unacceptable. Your frustrated editor avoids math at all costs, but even he knows that two plus two is *not* three-point-nine-nine-nine-nine. . . And Eight dollars and fifty cents plus three dollars and fifty cents is *not*

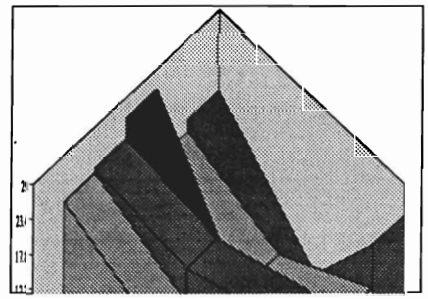


twelve dollars and a penny. No way.

The programmers are a-muttering now, no doubt, but lest you believe a syllable of their whinings, let it be known that the Amiga's *just* as capable of math as any other box on the market. Indeed, the Amiga machines come with a variety of shared math libraries (The newer, nicer ones have a math coprocessor in hardware.) that implement any math precision you need: lousy (as with Maxiplan and The Advantage), or *kerrrrect*, as with Analyze!, HaiCalc, and the new Professional Calc.



Professional Calc was written, oddly, by Michael Todorovic, the same person who inflicted The Advantage on an unsuspecting public. The Advantage can't do math, so don't even *ask* about complicated spreadsheet functions. Professional Calc, on the other hand, seems at first glance to be able not only to add, but to calculate dozens of neat spreadsheet functions in a flash. Its graphs, like those in The Advantage, are structured drawings exportable as such in Gold Disk's Professional Draw format, thence to page layout programs.



One of the nicer things about Professional Calc--and there are lots of nice things to choose from--is the ability to format a spreadsheet with your choice of font styles, sizes, and color. The program also supports output to Encapsulated Postscript files, so you can move the spreadsheets *themselves* around as a graphic, embodying all of the fonts, styles, sizes, and so forth. The Encapsulated Postscript output needs a little work, but it's functional. (Just don't expect it to reflect the page layout you so dutifully entered into the program--an update is promised, by the way, to stomp all insects.)

The problem here is that the program permits (and encourages) an elaborate specification for page size, margins, and the like, and then ignores all this in the EPS output file. EPS, being a page-oriented specification, anyway, should reflect that formatting. All the information, styles, and everything are present, but they're top-left justified in the EPS page. Non-optimal, but still workable. For outputting to Postscript, the program comes with a great selection of Adobe Postscript screen fonts and `.metric` files to support them. These are the same fonts supplied with Professional Page, and other Gold Disk programs that deal with Postscript. If you use these fonts in spreadsheets that you incorporate into Postscript or Encapsulated Postscript output, your work will be at the resolution of the output device. Meaning. . . *no* jaggies. Professional Calc's font requester goes to the trouble of flagging Postscript-able fonts for you, too, so you'll know which is which, even if you just dump all your fonts in one big directory.

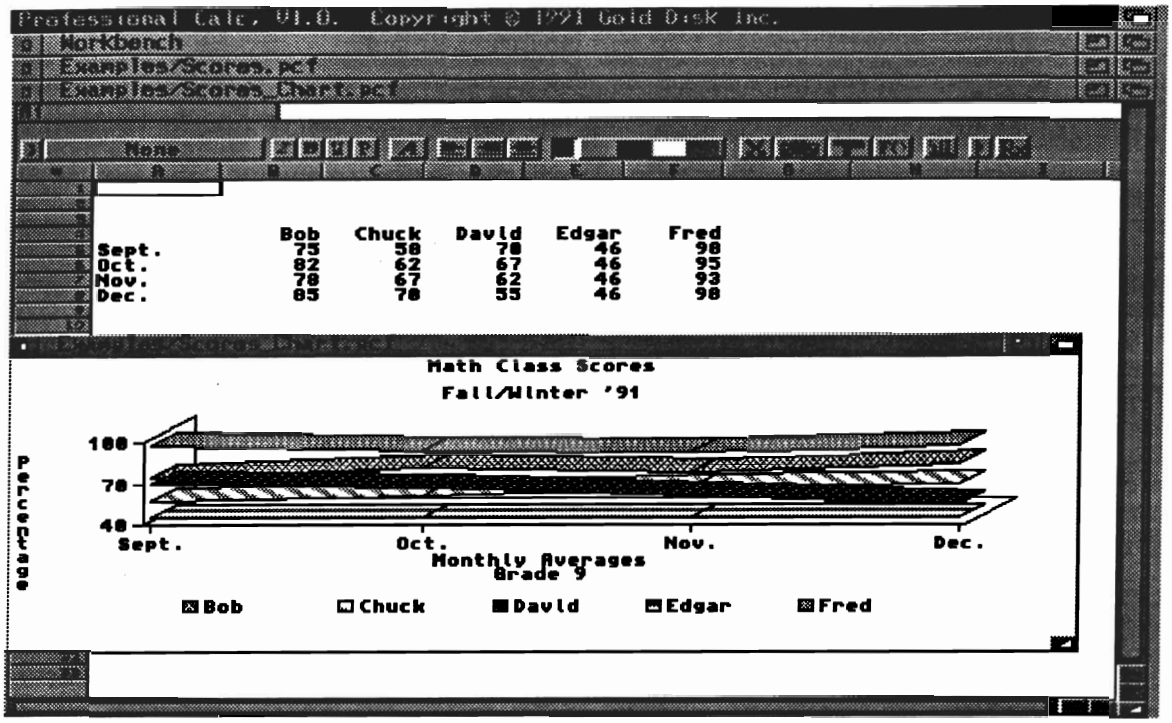
The program imports several spreadsheet file formats, and even exports one of them. The import formats of significance are Lotus 1-2-3, and Lotus 1-2-3, as well as Lotus 1-2-3. Also, the Lotus 1-2-3 file structure is an important one for importation, and Professional Calc does it. It imports Lotus 1-2-3 files, see? It imports Maxiplan sheets, too, but it gets some things slightly out of whack with some of the many versions of Maxiplan; the best idea is to load and then resave all worksheets with the current version of Maxiplan before importing to Professional Calc. They will then load correctly into Professional Calc.

For output, you can choose from its own format or Lotus 1-2-3. There is no support for Analyze!'s file structure, although Analyze! can also export to

Lotus's format if you need to swap files around. Files you export from any program to Lotus' format lack almost nothing when imported either to real Lotus or another program that loads real Lotus files. Any differences should be minor in most cases. The program will almost seamlessly move files between the current Lotus and itself. Moving them to older versions might prove somewhat less exciting, depending on whether you've used features in Professional Calc that the older versions of Lotus don't honor.

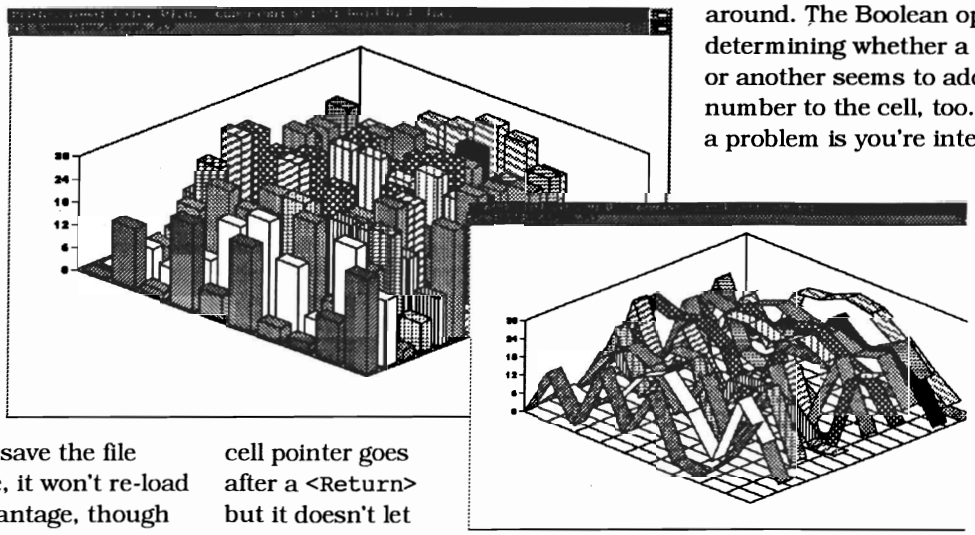
Professional Calc will also load (but not save) files generated by its predecessor, The Advantage. It's a one-way freeway, however. Once you re-save the file from Professional Calc, it won't re-load correctly into The Advantage, though why you'd want it to is beyond your vicious editor's comprehension.

Make no mistake--Professional Calc is decidedly *not* a Lotus clone, or even close to it. It looks different, acts different, and feels different. Lotus lovers will particularly dislike Professional Calc's insistence on the <Return> key to make changes to a cell and move to another one. Lotus' standard for this is *either* the <Return> key *or* one of the cursor keys (up, down, etc.). Professional Calc lets you configure what direction the cell pointer goes after a <Return> but it doesn't let you skip the <Return> and use only the cursor keys.



Problems

Fresh off the shelf and fresh out of the box, Professional Calc didn't work perfectly, unless you ruefully count crashes as "normal." That's fairly normal for very complicated, very complex products on most any computer, although it doesn't exactly inspire the kind of confidence you'd hope to have in your spreadsheet program. The dreaded Software Error (formerly a guru communiqué) appeared when your busy editor operated the new AmigaDOS 2.0 'Zoom' gadget while a pie graph was on the screen. When the program re-drew the graph into the smaller window size, it stomped on memory it didn't own. That brought the program and the machine to a halt. Keep your mousepointer clear of the 'Zoom' button till the inevitable update comes around. The Boolean operations for determining whether a cell is one color or another seems to add the color's number to the cell, too. This becomes a problem is you're interested in more than just the color of the contents. With a little updating here and there, Professional Calc looks like a competent, *professional* spreadsheet, although your cautious editor will reserve judgement till the verdict is in from the powerusers on his own, personal



A dream made visible. . .

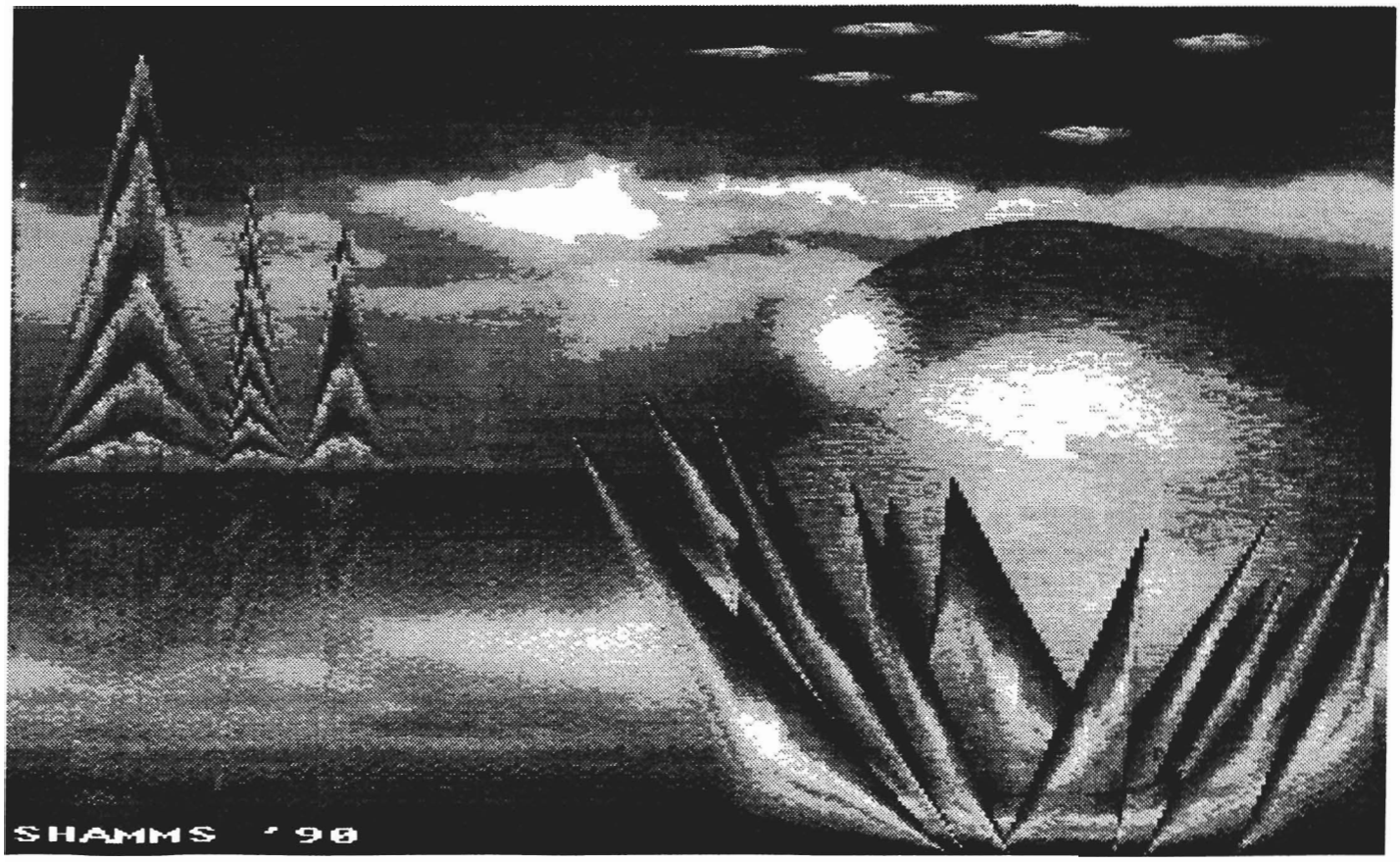
By R. Shamms Mortier, Ph.D.

Wisps of Fantasy 101

What is a cloud? A whisp of fantasy? A dream made visible? Or is it just a combination of vapors and chemical gases, particulate matter that rests on the verge of the visible? Whatever your choice of explanations, whether scientific or mystic, it's a sure bet that clouds are a very important element in graphics and painting. We associate much emotional impact with clouds and cloud-like objects. A painting of a sky that is cloudless is somehow insufficient, and our constant of believability is tied as well to the fuzzing out of reality that only clouds and mists are capable of.

For the electronic artist and animator, knowing how to create and manipulate cloud-like elements in a work is an important basis on which to build essential techniques. Clouds

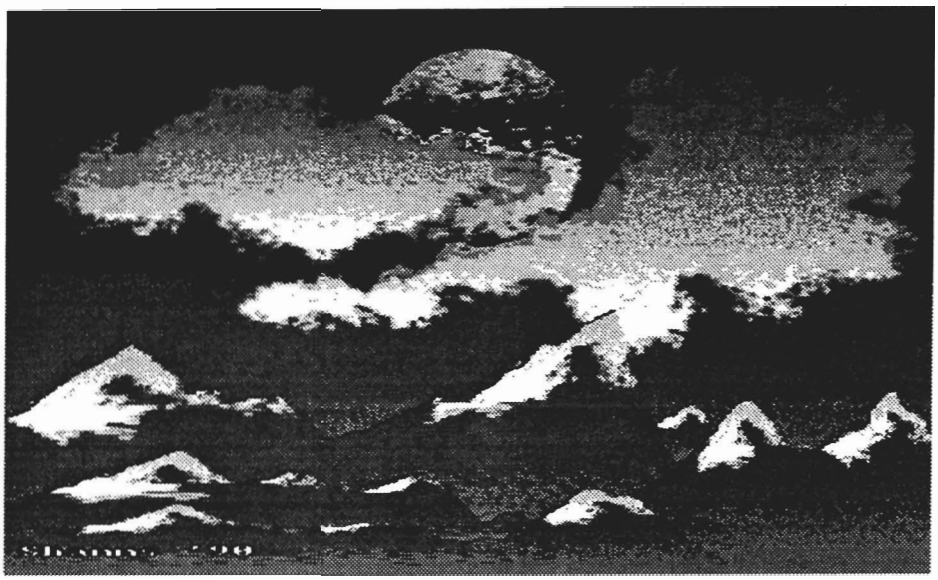
Figure 7



and mists have unique qualities, and mastering the generation of these objects is a tutorial for many other quasi-textural surfaces. Working with clouds and mists presents different challenges in Ham and non-Ham software, and achieving similar results between two fairly similar programs may even be difficult.

A word about the software

The examples here were developed with the following packages:



DeluxePaint III by Electronic Arts, Photon Paint 2.0 from MicroIllusions, and Digi-Paint 3 from NewTek (which is quite similar to NewTek's ToasterPaint program included with the Video Toaster). Depending upon what your vision calls for, you might choose one or a combination of these for a project, or other paint programs, too. The Amiga's Interchange File Format (IFF) for pictures allows artists to move work easily from one package to another. No one piece of software does everything; each has tools and modules that another lacks. Perhaps you and your credit card have realized this already.

All of these tutorials take it for granted that you have some experience with the software being used. If not, you will need to gain that experience by studying the respective manuals and working with the software for a while; then come back to the tutorials for an advanced lesson.

Editor's Note: Alas and alack, the paintings here are mere black and white. To see them in glorious color, refer to the AmiGadget Issue Disk for Volume 2, Number 1 (this issue), available from the magazine for a mere pittance of a fee. The Inevitable Order Form is on page 11. --J:

Painting Number 1: "Top of the World"

Software: DeluxePaint III, 320 x 400 pixels, 64 colors

In non-Ham painting DeluxePaint III provided so many excellent tools that the electronic graphic designer is hard pressed to learn to use them all to maximum capacity. The new DeluxePaint IV does all this, and Ham, too. The accompanying example picture documents the artist's discovery concerning giving clouds a specific "look." This painting might remind you of an oriental work on silk in its simplicity. It uses the 64-color palette, which provides 32 colors and half-bright shades of those colors. Using this palette puts the Amiga into one of the computer's special display modes. Some of the oldest Amiga 1000's don't have this display mode, but a chip change ("Agnus," one of the custom Amiga ones) can repair that problem, if it's sufficiently important to you.

To set up the palette, first choose two, eight-color ranges (Set each as a true "Range" in the palette requester); one set should be blues and the other grays. These form the central color basis for the work. Next, fill the background about 80 percent of the way down with the blue range, with darks at the top moving towards lighter shades at the bottom. Now come the clouds themselves. Using the 'Free-Fill' tool, select the gray range and start painting in cloud shapes. As you can see from the example, the clouds also range from darks at the top to lighter shades at the bottom. This, added to the same effect in the background, gives the impression that light is coming from below. Use the 'Dither' setting in the 'Fill' requester until you get the graininess that you like.

Next is the core of the cloud look. Grab the large circular brush from the top of the DeluxePaint toolbox, and select 'Smear' from the 'Modes' menu. Use the 'Smear' tool to break up all of the smooth cloud edges. The more you smear a cloud's edges, the "windier" it will look. You can create nice wispy effects with this tool. When finished with this, pick up a large chunk of the screen as a brush. Using the 'Smooth' option from the 'Modes' menu, carefully placed the large brush over each of the clouds, making sure that all of the edges feel the effect of this tool. Smoothing creates a range of colors where only one existed before. It can ghost out a sharp edge and blend it into a background, or in some cases can add surprising color effects to the edge of an object. It also cleans up stray pixels left over from the smearing process.

Another computer art trick will help you to create the mountains. The secret here is to grab a section of the painting that includes both a piece of a cloud at the top and a good section of blue background at the bottom. Go to the 'Fill' requester and select the

Spreadsheet Evaluation Committee.

At this writing, Gold Disk is preparing an updated version of Professional Calc which fixes the problems mentioned here, and any other problems that have been reported. Check the version in the box you get, and ring the technical support line for the newest one, if need be.

More on Professional Calc

A very nice thing about Professional Calc is that it lets you have your spreadsheet on the Workbench screen, if you want it there. This, of course, limits it to the palette and number of colors on your Workbench (Under AmigaDOS 2.0 that can be up to sixteen colors, remember.) However, the program also permits opening a custom Amiga screen, in which it can have a palette of your choosing, in low resolution (if you *like* ugly screens), high resolution, overscan (under AmigaDOS 2.0), or whathaveyou, and up to sixteen colors. The reasons for the colors are, first, that you can apply color, conditionally or otherwise, to any cell--say, red to the bottom line *if it's negative*--and, second, that the graphs you create with your data might need some color tweaking to make all the bars, pies, dots, lines, and so forth, stand out. Note that unless you're outputting to a color reproduction device, you won't see red where you put it, in either graphs or cells. Of course, if you're putting on a multimedia presentation, where the visuals are generated on the Amiga and blasted out through a video projector for all to see, you won't have any problem with the red not being visible. It'll *scream* for attention.

News Analyze!is

Your thorough editor hesitates to write much more about Professional Calc without first mentioning Analyze! in a reasonably complimentary light. Analyze! has been with us for a long time, and its creators, Micro-Systems Software, have been with the Amigas since *Alink* (around 30-B.C.). Analyze! is still around, still doing spreadsheeting in an Amiga-esque way (as with most of Micro-Systems Software's soft wares). Still being supported, even. Indeed, if your version of Analyze! has problems under AmigaDOS 2.0, just ring up the company and ask for the current maintenance release of the product. The charge is only a few dollars. It isn't nearly as pretty and flashy a product as Professional Calc, but it's been around, working away, for a long time, and its mathematical precision is just fine. Indeed, if you'd rather work in a Lotus-similar spreadsheet, Analyze! is closer than Professional Calc. It has *just enough* difference between itself and Lotus to keep the infamous Lotus lawyers at bay, and also to infuriate Lotus lovers (like your persnickety editor).

Now back to our regularity-scheduled program. Professional Calc isn't Lotus-similar at all, which means your habit-bound editor has to learn something competely new in order to use it. The hardest thing to get used to is the errant <Return> key.

Gold Disk isn't discontinuing The Advantage--it's really okay for simple tasks, like keeping track of your lawnmower's blades-per-gallon stats. Moreover, if you already own the thing, and want to move up to Professional Calc, there's an upgrade offer ($99 and your week's lawn clippings). No time limit on the upgrade, either.

Toaster 2.0 software

Brace yourself for another Kiki attack. Kiki is the person of the female persuasion who's receiving NewTek's star billing in Video Toaster brochures, promotions, even the product's title screen. This time, Kiki's actual bottommost parts (her legs) are the stars of a raft of new Video Toaster transition effects that kick off--so to speak--the new Version 2.0 software for the Toasters.

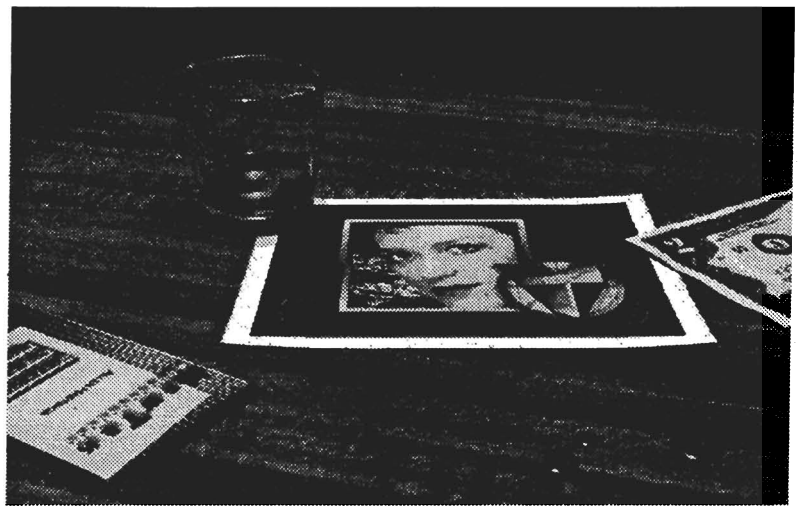
Don't confuse Toaster's 2.0 with AmigaDOS 2.0. They work together, but they're not the same thing. Also, don't throw out your old Toaster, in expectation of getting a new one. The changes, elaborate and impressive as they are, are all software. The same hardware still sits smugly inside your Amiga (or your standalone Video Toaster switcher box, whichever).

Legs notwithstanding, the new windowshade effect has to be seen to be believed. Apply a generous portion of imagination and you have the stuff of which hit movies are made: sex.

Other new effects include a set of sports ones that you can just *tell* you're going to see on national tube one of these days. They're *quite* innovative, and very impressive. An example? This is going to be hard to do in mere words, but here goes. . . Okay, the picture's on the screen, and it's your nerdy neighbor trying to beat the Amiga baseball simulators. Good footage, really--didn't take much effort to get a really *out-there* performance out of the brat. The next shot on the edit list is a real baseball game. The West Chester Morons versus the Los Gatos Kittens. Whoever. The wimp shot's on Toaster Input One, and the Kittens are on Input Two. Punch the button for the *baseball* transition and hit the T-bar (The Amiga's spacebar will do nicely). On the output, a silhouette of a baseball batter moves over the wimp shot. The silhouetted batter takes a swing, and the ball he (she?) hits sails rapidly toward the viewer. Brace yourself. As the ball enlarges to fill the screen, it *is* the replacement video - the Kittens cleaning clocks, in this example. *Slick.* The Toaster 2.0 software also includes football and other sports effects, as well as some incredible new pouring water, breaking glass, and other effects.

The flashy Toaster switcher effects aren't the only thing in the new Toaster software, however. The upgrade costs $395 and comprises thirty *megabytes* of software, which NewTek claims is the largest software upgrade ever. Note, however, that it is

entirely a software upgrade. The Toaster hardware stays the same. You just load the new software onto your harddisk (and hopefully it's big enough to accomodate quadrupling from the previous installation), fire up the Toaster, and go to it. New Toaster boards and Video Toaster standalone boxes come with it (for more money than the previous version).



The new software stomps some insects, and improves *many* things, too. For example, it makes it possible to share a screenload of memory between ToasterPaint and the titler, and getting titles from the "CG" is enhanced by the inclusion of some more fonts. A number of improvements have also been made to LightWave 3D, the modeling and rendering package that's a part of the Toaster support software. If you sent in the registration card for your unit, you'll no doubt get a ducky promotional videotape announcement of the new software that succinctly and eloquently shows some of the new effects and raves and carries on about the other improvements. Talk with your local Amiga dealer, or with NewTek, about the update. It's been shipped to some Toaster owners already, and should be in plentiful supply by the time you read this.

2.0, too

Another nicety of the new Toaster software is its ability to run under AmigaDOS 2.0. The old software required AmigaDOS version 1.3, and refused to work on Amiga 3000's (where the board doesn't fit too well, anyway) or under AmigaDOS 2.0. The new version of the software, according to NewTek, makes the product compatible with AmigaDOS 2.0, as well as making it compatible with all of the Denise chips, including the new "Super" one. With the old software, it was possible to hack it into an Amiga 3000 by replacing the 3000's new, "Super" Denise with the old model. Toaster 2.0 software obviates that silliness. However, you'd still have to--shall we say--*adjust* some things to get the board to fit, physically, into the Amiga 3000's sleek case. If you're not handy with soldering irons, drills, posthole diggers, and other implements of destruction, the Amiga 2000/2500 computers are still the units of choice for Toasting video, but at least the new software makes the Toaster hardware amenable to AmigaDOS 2.0, which can be readily added to Amiga 2000's, 2500's and the like.

Raytracing lovers will be thrilled with the addition in Toaster 2.0 of *raytracing* on an object-by object basis to LightWave 3D, part of the Toaster software package. The revised program will also create images for film or print in resolutions up to 2008 by 1920 pixels. NewTek claims a dramatic improvement in the speed of generating pictures, as well, through internal optimizations in LightWave. Other features of the new LightWave:

•Automatic sizing of image maps

•New image and bump mapping types, including bump mapping projected images, ripples, and fractal bumps, and the ability to render an underwater texture onto surfaces (for that *underwater* look, what else).

•Multiple object morphing.

•Separate, savable surface files. When you reload these, they can be applied to any surface.

•The ability to load Toaster FrameStore files.

•The ability to load object formats from Wavefront (!), Swivel 3D, AutoCAD ("DXF") and Sculpt.

• Spline-based control of animation for truly realistic curved paths and such.

•Doubled capacity for points or polygons. This permits working on more complex designs.

•Save all objects with a mousebutton click.

•Luminance keying of foreground objects, using adjustable clip levels.

•Non-linear fog. This is quality fog. If you're into fog, you've just got to sample the non-linear stuff. Mother Nature's fog is non-linear, so this new option permits rendering really realistic fog. Really.

• New texture maps: Underwater, Ripples, and Dots.

•New Bump Maps: Planar, Cylindrical, and Spherical, with adjustable amplitude.

•Antialiased image mapping, to soften unwanted patterning on television monitors.

• Pixel blending, to eliminate the mosaic appearance of image maps near the viewpoint.

•New modify tools in the modeler: Magnet, Shear, Twist, Taper, and Blend.

•Perspective selection

•New preview mode: solid mode with hiden line removal.

•Improved auto-scrolling in ToasterPaint

• Grab images from the framebuffers

•Color cycling, in the Chroma F/X module. Colors cycle even during Switcher operations, such as wipes.

• Transition color effects from Switcher.

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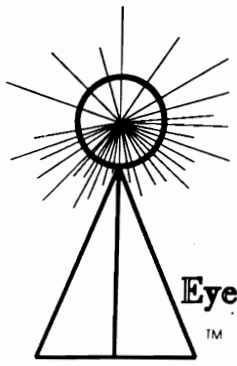

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AMIGA SINGS! Hailed by Keyboard magazine as ". . .music meant to serenade refrigerators and other appliances. . .". this cassette tape was created to demonstrate Amiga based music hardware and software and their potential for creating sound sculptures. 90 Min. Tape $15.00. *To be followed next year by **AMIGA SINGS AGAIN!**.*

VERMONT SEASONS The spectacular Vermont seasons captured in full screen images. Awesome as calendar art, animation backdrops, credit/titling backdrops, and stand alone pictures. Four 3-disk sets (*Spring, Summer, Fall, Winter*) at $39.95 per set.

AMIZOO - Created for the Amiga DeskTop publisher, these 16-color Hi-Res images are separated into three categories: *Frogs, Fish, and Birds*. 3 disk set, $44.95.

The **World Symbol Library** keeps on growing to include more cultures and themes. Originally developed for DeskTop Publishing, they make great image wraps, especially when viewed with Digital Creations' DCTV or other black boxes. Each set contains over a hundred Hi-Res images grouped according to specific symbolic themes. Each 3 disk set $44.95 (except for Volume #10).
Volume 1: Egyptian and Celtic **Volume 2: Magic and Mystical symbols**
Volume 3: Hebrew and Christian **Volume 4: Native and South American Indians**
Volume 5: From Greek and Roman to Feminine symbols
Volume 6: Oriental symbols and Crests of the World
Volume 7: Assorted Marks and Signatures
Volume 8 *(Jan 1992)* **: Egyptian Color Splendor #1**
Volume 9 *(Jan 1992)* **: Egyptian Color Splendor #2**
Volume 10 *(Jan 1992)* **: SEXUAL SYMBOLS OF THE WORLD** - [must be 18 or over to order. 4 disks for $99.95]

WRAP SESSION: From optical art designs to crochet patterns and electron microscopy images, these must be wrapped to be believed! 2 disk sets at $49.95 each (except #7).
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WRAP #3: Crochet Patterns **WRAP #4: Quilt and Flower wraps**
WRAP #5: Electron Microscope patterns and more
WRAP #6: Natural Wraps
WRAP #7: Special D4D-Pro/DCTV wraps!!! 4 disks for $59.95

GENAMATIONS: If you own an Amiga genlock-encoder, these animations will add spice to a video segment and interest to a scene transition. Two disk sets, $49.95 per set
GENANIM #1: Available now **GENANIM #2:** *Available 3/92 on*

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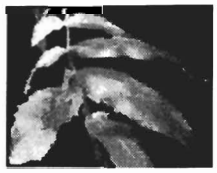

FLOWERS

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A 40+ minute VHS tape with sound. Created by one of the Amiga community's most prolific and original artist animators, this tape will amaze and delight you, especially if you have a taste for the unusual and experimentally bizarre in Amiga animation. Produced with the aid of *ADSPEC Programming*'s Draw-4D Pro and the *DCTV* external 16,000,000 color hardware, these animations were created to give you a better idea of the possible worlds that the Amiga artist/animator can explore at will. Fully wrapped 3D objects spin and whirl into view, pass through each other, and dance before your eyes in a panoply of color and sound. *Available from 1/92 on* at $29.95 per tape.

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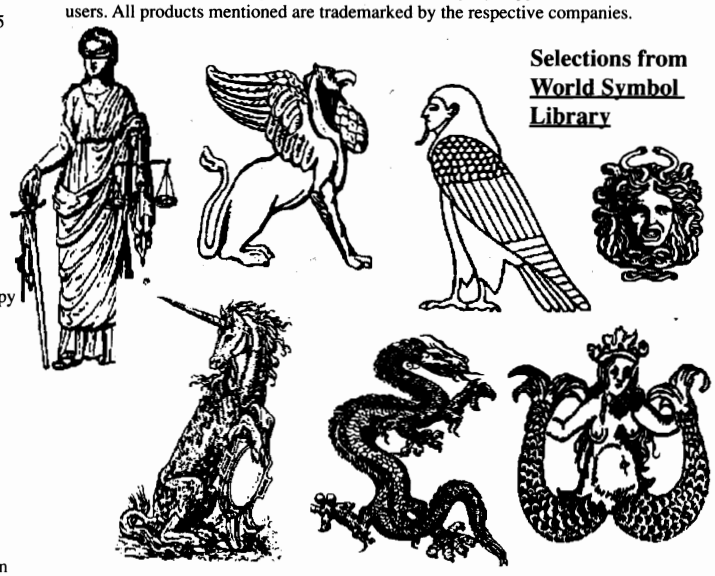
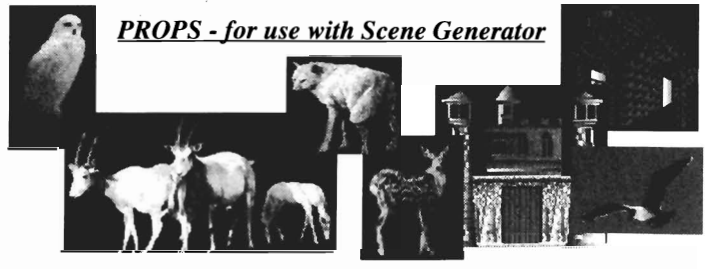
Selections from World Symbol Library



PROPS - for use with Scene Generator



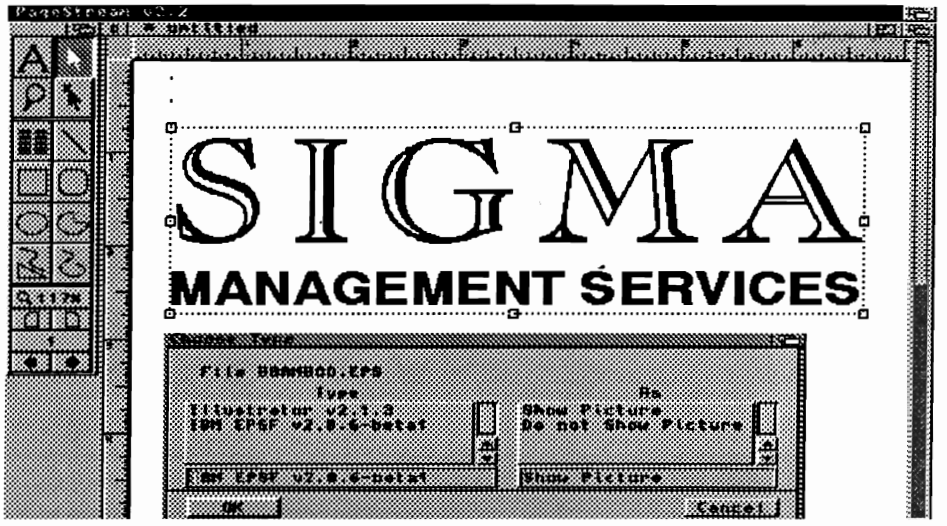
• Load ASCII text files directly into a Character Generator title page.

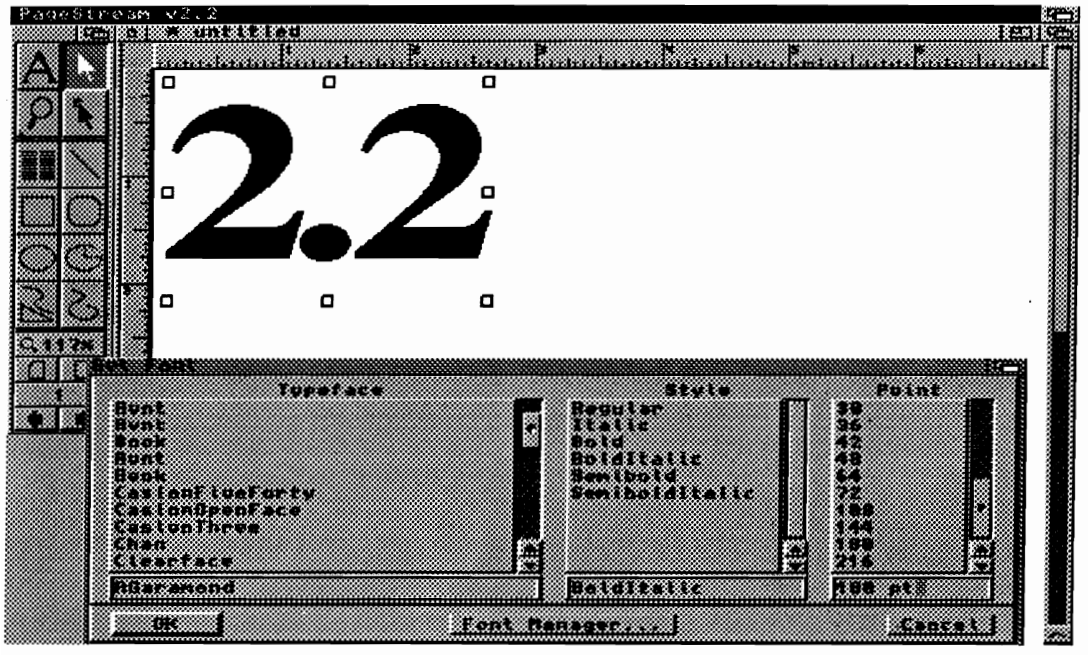
In addition (and this is by no means a complete list), the revised Toaster software comes with a Workbench utility to permit switching video sources, perform dissolves, and overlay computer images from other programs over the video or framestores of the Toaster, all without firing up the normal Toaster Software.

Prepress programs updated

The desktop pre-press war continues to rage, though it looks like Soft-Logik's been taking most of the battles for awhile. No matter. Amiga desktop publishers benefit from the competition.

PageStream first. New version. Again. Gotta give Soft-Logik credit for supporting their product with frequent (confusingly so, though) updates, upgrades, and added features, capabilities, and power. The new version is numbered 2.2, following shortly after 2.1, which followed shortly after 2.0. By the time this sees print, the company'll probably be touting 2.3, or 3.0, or something. The point is, though, that the product isn't frozen for interminable lengths of time (Gold Disk? Listening?), while users look longingly at features found only elsewhere. Soft-Logik's approach is, however, somewhat confusing. By the time the dealers get through the process of updating their inventory, there's a new version out. Soft-Logik also seems intent on shooting themselves in the foot by advertising updated versions far in advance of when they can ship them. Well, this isn't a clinic on running a software business, and it has to be said that extra-zealous product support like Soft-Logik's is *vastly* preferable to the arrogantly rarefied approach that Gold Disk and Saxon Industries take with their products.





To even the score, Gold Disk has announced Professional Page version 3.0. Don't let the version numbers confuse you. A higher version number does *not* necessarily imply a better, or even an older product, although in this case, Professional Page did appear on the Amiga shelves before PageStream sprang to life. Saxon, the newcomer to the scene, is threatening an upgrade, too, mostly to add dotmatrix printer support to the product. Its current version honors only PostScript output, which is all many professionals need, but it's nice to be able to proof to cheap printers before spending bucks on imagesetter output services. The recent drastic drop in the prices of Postscript laserprinters makes this question much less important, however.

Hot linking

Soft-Logik has innovated, somewhat, with the addition to PageStream 2.2 of a method of linking documents together. The system employs what the company calls "Hot Links," to set up disk-based links among various documents which support the process. To get the

New Stuff continues on page 44

Tricks to ToasterPaint with

By Thomas Crews

The ToasterPaint program is part of NewTek's Video Toaster software bundle. As a paint program for 24-bit pictures, it's developed a reputation for being somewhat inept, and it could definitely use some improvements. Yet, ToasterPaint has a few unique features that help make up for some of the more powerful ones it lacks. This article is to help tempt ToasterPaint users to experiment with the features that are available in the software provided. You don't have to be an artist to use these features.

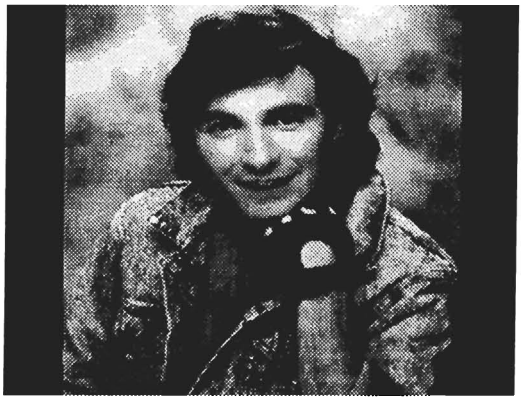


Figure A

'TxMap' is the main aspect of the ToasterPaint software that bears close examination here. For people who don't own a Toaster, this feature is also available in the Amiga paint package Digi-Paint 3.

First off, let's boot up the Video Toaster and load ToasterPaint. One of the nicer features of ToasterPaint is the ability to turn dithering *off* in the Ham-mode interface screen (where you will be doing all the work). To do this you press the "!" key. That's the exclamation mark. This only affects the Amiga screen and not the Program (output) image rendered by the Toaster. The main reason to do this is that it helps to be able to see where color gradations occur more easily and just plain makes the image look *neat*. Okay, now that ToasterPaint is up and running, lets get to work with the 'TxMap' function.

Raytracings

'TxMap' works great on raytraced images, digitized images, framegrabs, or just plain *any* picture that you might have. This feature can be useful for enlarging or shrinking part or all of an image. You can also grab parts of an image and enlarge them to full screen size. This is still just a small part of the 'TxMap' feature. Tiling effects, image warping, and other effects are possible.

We'll start by enlarging part of an image to full screen, one of the easiest and simplest aspects of TxMapping.

For examples of *why* you would want to do this, the accompanying

images are some which I've been working on for myself. I borrowed a friend's simple camcorder and grabbed a wallet sized picture of myself to the Toaster switcher (*Figure A*). Being a standard, VHS camcorder, its resolution and lens magnification were adequate for general work, but not for zooming in on a wallet-sized image.

After grabbing the image as best I could, I wasn't satisfied with the resulting borders that surrounded my image. Having a low-memory Amiga (only five megabytes) I couldn't possibly pick up the complete image (minus the borders) as a brush. Since all I really wanted was my face I used the scissors tool (brush) to pick up a rectangle that was slightly larger than my face.

To do this, you select the rectangle then select the scissors tool. You are now using the rectangle tool to outline the area that you want as a brush. If you're following along with your mousepointer, then you should load the picture you wish to work on. Choose what part of the picture you'd like enlarged. Note that the smaller the section you pick up, the more distorted the image will become once expanded. After picking up your brush image, select the 'Fill' tool, and then under the 'Mode' menu select 'TxMap.' Since the 'Filled Rectangle' shape was the last-selected function, you should now be ready to draw out a filled rectangle the size of the screen (*Figure B*). If you're using Digi-Paint 3, you must first select from the menus 'Brush/Swap/Copy this brush,' before you can use the 'TxMap' function. Remember to select antialiasing (the smooth triangle from the image transparency toolbox screen) for best results.

Since you now have a 'TxMap' image, you can draw out any size or shape. You can change drawing tools and set different transparencies to try different effects. You can even use the 'Flood Fill' tool with 'TxMap' for some very strange (perhaps useful?) effects.

Figure B

Another interesting effect is to 'TxMap' a smaller part of a picture onto the whole picture with a great deal of transparency, creating a composite picture with the original image and the transparent, enlarged image together. This effect was used on an image rendered with the public domain program DKBRender on one of the example `.dat` files. This effect is quite nice since it gives a double-exposed effect with the second "exposure" zoomed in on the key item of the picture (*Figure C*). I was quite pleased with how well an image maintained its quality after being enlarged. I am sure that this has a lot to do with color resolution because this does not work as well with Digi-Paint 3 on a low-resolution, Ham screen.

Since we're using the 'TxMap' feature, we now have access to the warping control panel. Warping is controlled with the outlined sphere and the three warping type controls. You have a choice of 'Point,' 'Horizontal,' and 'Vertical.' You also have a slider to adjust the amount of warping from none to maximum. Warping seems best used to simulate reflective spheres or glass-like balls. Using about a 25-percent warping with 'Point' mode, you can achieve some very nice effects from mirrored to glass spheres by adjusting the amount of transparency (*Figure D*).

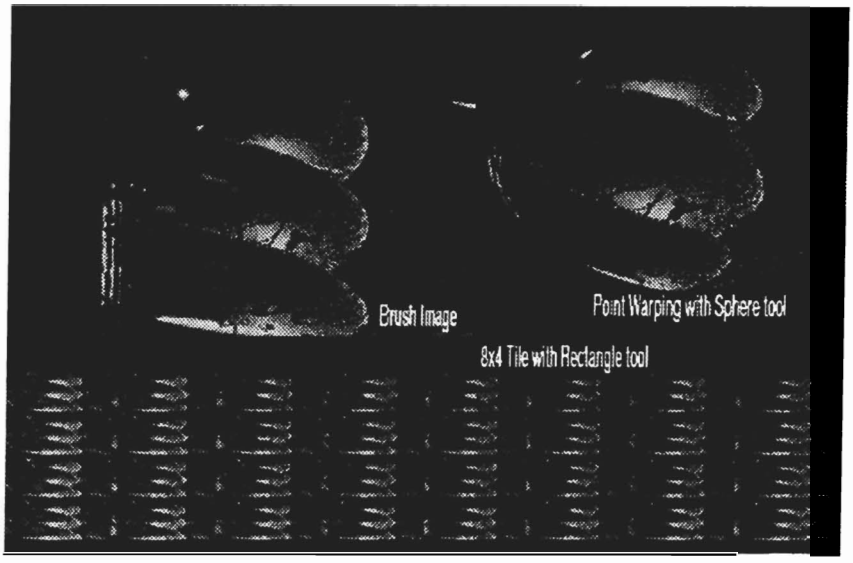


Figure D

One quick note: When you want to change your brush for a new brush image to 'TxMap,' you must first select 'Brush/Swap/Delete swap brush', from the menus. Then you can pick up your new custom brush and select 'TxMap' from the menus.

Tiles

Tiling is also available, since we are using the 'TxMap' feature. You can select from 1 x 1 up to 9 x 9 with any variation between, such as 4 x 9, 9 x 1, 3 x 3, etc. This is useful for having a repeating pattern fill an object, screen, or shape. All features such as warping, transparency, and shape tools are available. A very quick and easy way to fill the screen with a repeating pattern is to use the tile function. First load an image; use the scissors to pick up your pattern, and then select 'TxMap.' Now use the arrows to increase the number of repetitions both horizontally and vertically to the desired number. Select 'Picture/Clear' from the menus; then select the 'Flood Fill' tool and press the left mousebutton to fill the screen with your pattern.

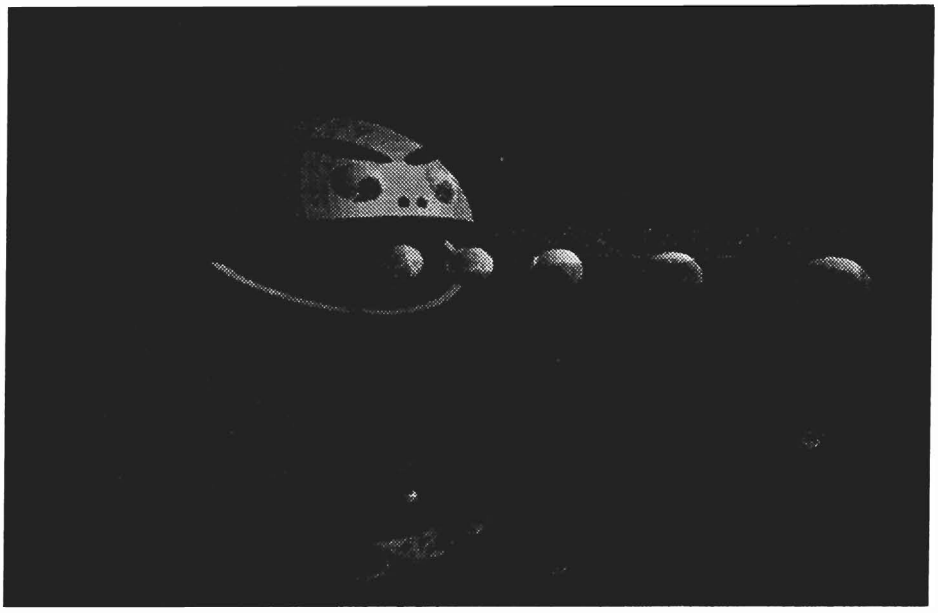


Figure C

This as you can see is just a taste of what you can do with only one feature of ToasterPaint, TxMapping. All I did was experiment with the different aspects of TxMapping and found results that were pleasing, entertaining, and useful. After all, how many people actually sit down and read their manuals? I hope that this article has whetted your appetite to experiment with different parts of the ToasterPaint software. It is quite easy to spend a whole day playing just with the transparency controls, and when you mix in TxMapping, Warping, and Tiling you can expect many hours of experimentation.

And nice pictures, too, perhaps.

Keyboarding ToasterPaint

Working with the ToasterPaint program can be easier and quicker if you know some of the keyboard commands for selecting different function. While using the iconic interface makes things easy and simple, sometimes a quick press of a key can prevent one from have to select mutilple menu choices and save time. These are some of the more useful or just plain 'neat' keyboard shortcuts.

These arn't all the keyboard commands (All can be found in the ToasterPaint Manual), but this list incluces some of the more useful and most used operations. My particular favorites are the Dithering keys and the auto-render selection. Auto-Rendering will render all changes as you make them without having to select the clapboard or pressing F10. It will also let you load an image and immediately render the image to the frame buffer when loading is complete.

-- Tom Crews

ToasterPaint Keyboard Commands

`	Normal Mode
1	Range Mode
2	Lighten Mode
3	Darken Mode
4	Colorize Mode
5	RubThru Mode
6	Blur Mode
7	TxMap Mode
8	And Mode
9	Or Mode
0	Xor Mode
<	Blur2 Mode
!	Dithering Off
@	Pattern Dither
#	Random Dither
F8	Select DV1
F9	Select DV2
F10	Render to Buffer
Del	Auto-Render Toggle
w	Whole Screen Operation
Help	Toggle Auto-Scrolling
p	Load RGB
P	Save RGB
l	Load Frame
L	Save Frame
Tab	Program Defaults