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On Point

Notes from Editor Tom Bucklin

It's been a couple of months since the Spring Comdex show in Atlanta, and many of the "Beta" products we looked at then have become *real* products. Talk about graphics! It seems like everybody decided to release an impressive barrage of dazzling graphic programs in the same month; everything from HAM painting, to ray tracing, to advanced animation techniques.

There wasn't a short supply of application products either. The release of WordPerfect and City Desk represent new levels of application for the Amiga.

Speaking of WordPerfect, we start off this issue by bringing you a report on this important product for the Amiga. With its release, the Amiga software market will probably never be quite the same. Now I can see some of you sitting out there saying, "what's this guy hung up on about WordPerfect.?" Well, it's not so much Wordperfect. It's more of what Wordperfect represents. It's important to remember that any company that has an

established and successful product in the MS-DOS world, takes a risk in order to write (or port) a program for a machine of an entirely different format. The R & D costs alone are often enough to discourage many software producers from expanding their horizons. Even after the programmers have been paid, there is still new manuals to write and print, production materials, advertising costs.....you name it! Knowledgeable personnel will be required to support the new product line as well.

That is why it is very significant that a company would choose to support a machine like the Amiga. It indicates their belief in the present, and future potential of this machine. This is the type of attitude that has already brought the Amiga to it's level of greatness.

That pioneering spirit was certainly evident in the original Amiga developers. They set out to bring personal computing to a new level of power and usability, and they succeeded. The many product developers today, some

of which are one or two man (or woman) operations, still show that kind of devotion to the machine, and the dream. Products such as Videoscape 3D and Sculpt 3D present us with some of the possibilities, and hint at the power that lies ahead.

It is not that difficult to remember the early days of the Commodore 64. I can still recall how "awesome" the capabilities of that machine seemed at the time. With the help of programming in machine language, and a couple of years under its chips, the C64 is performing feats today that the original designers didn't believe possible.

One can't help wondering what feats of computer magic the Amiga will be performing in a couple of years. As even newer realizations of the power of the Amiga are achieved, this time period will stand out as a turning point of credibility in regards to acknowledgment of the Amiga's abilities by the micro-computer industry.



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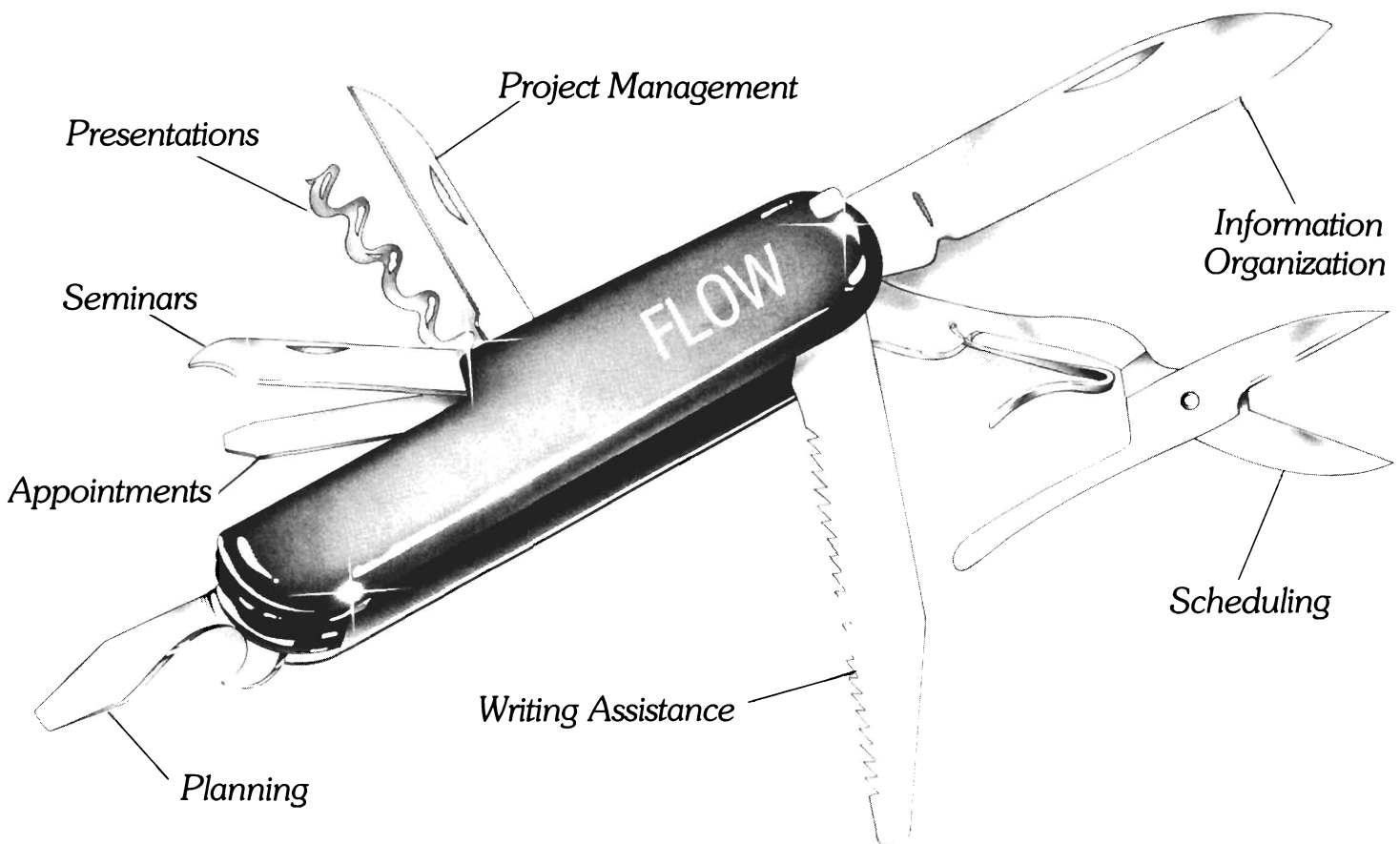
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The long awaited release of.....

WordPerfect

This first offering by a major IBM software producer lends credibility to the Amiga

by George Graves

WordPerfect is the most popular Word Processing program in the computer arena. Most popular on PC's, most popular on IBM mainframes, most popular on many other computers. Now it's available, in all its glory, for your Amiga. But does being the most popular word processor make it right for you? Not necessarily. Before you put this article down, I hope you'll know the answer.

I am a word processor fan. I once bought a \$2500 typewriter from IBM which could store up to 5 (count'em) pages of text, and would allow you to store phrases and paragraphs for as long as the machine was plugged into a wall socket. I've worked with Displaywriters and Wordstars, Wangs and Xeroxes. I've even worked for a company that made software which allowed these machines to communicate with each other. I love desktop publishing. And I love WordPerfect.

I am not saying that I was dissatisfied with the word processors available for the Amiga. Actually, I have been quite impressed. Textcraft was fine, a

very beautiful rendition of a traditional application using the Amiga's advanced graphics features. Programs like "Scribble!" are fine for most of my applications. I have formats for everything from recipes to 40 page legal documents. These types of word processors, for most applications, are not limiting in the least. In fact, by using the dot commands, I am able to do almost everything that I would like to do.... almost.

And that's the problem. I'm the kind of person who likes to be able to do everything I want to do, not almost everything. And that's why I like WordPerfect. Before I go too much farther though, let me make it clear that Word Perfect is not "WYSIWYG" ("What You See Is What You Get"). If that's your requirement in a word processor, this one is not for you.

My requirements are something different. I have a twenty-four pin dot matrix printer, and I haven't found a WYSIWYG word processor yet that supports it in its highest mode of resolution. Therefore WYSIWYG is nice, but limited to the screen. On the other hand, WordPerfect is a WYGIWYW (What You Get is What You Want) word proces-

sor. One that understands what your printer can do (it supports over 200 different printers and most of the accessories to those printers.)

When you plunk down your \$395, what you get is a Manual (just over 600 pages) and an envelope containing four program diskettes, keyboard overlays, and key-top stickers. The manual is impressive. From the moment you open it and see the heavy paper and beautiful page layout, you understand that you are dealing with the sort of thing you have not seen before for the Amiga. The manual is provided in the standard "PC" three ring binder format.

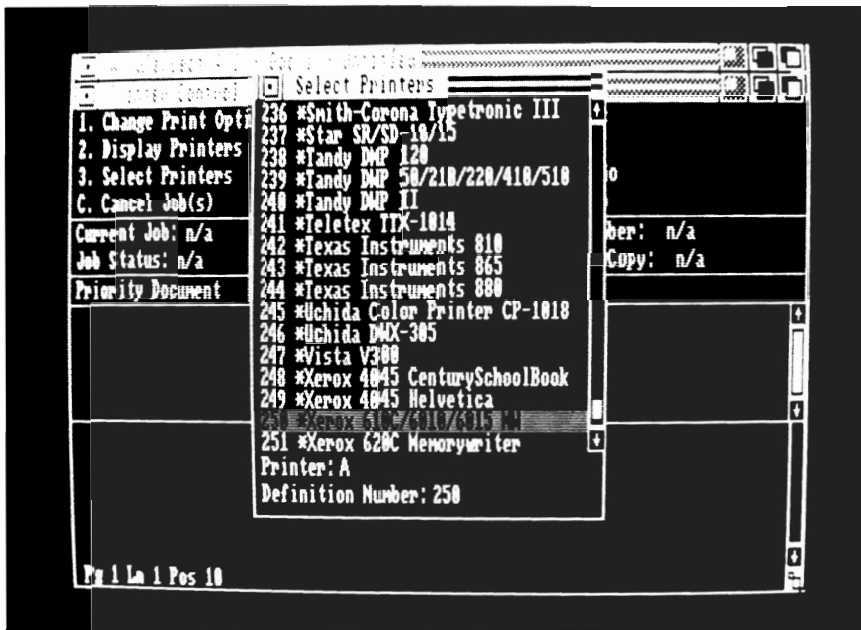
There are four major divisions to the manual: Getting Started, Learning, Reference and Installation. Getting Started is the first section, and in twenty one pages, it discusses Installation, Keyboards and Diskettes for the Amiga, WordPerfect materials, Disk Drives, Screens, Menus and Mouse usage. It includes a short course on how to use fundamental features of WordPerfect, such as text entry, revision, titles, centering, paragraphs, saving and printing files. You'll also find discussion of wrap, insert and typeover modes, preset for-

mats, and "hidden" codes. All this is done in clear and usable language. Information regarding the use of the mouse is separated from the text in a separate margin on the right of each page. This same margin is also useful for making notes for your own use. The margin for "mouse notes" is included in each section of the manual, and actually enhances the text by allowing you to glean many important aspects of WordPerfect from the text without having to read all the details. If you have explored WordPerfect courses, you have probably found that an introductory course costs \$50 to \$100 or more. Unless you are a complete klutz, save your money and work through this section of the manual. The information is presented in a logical, thorough, straightforward and complete fashion. And you will have the complete tutorial at your fingertips when you finish.

This learning section takes you from the most basic to the most sophisticated word processor capabilities as well as any instructor could, and the cost is included as part of the package.

The Reference section of the WordPerfect manual describes in detail the myriad features of this word processor. The two hun-

dred forty odd pages are each packed full of information and explanations. Amiga screen samples illustrate the more complex features (some of which nearly defy verbal description). Each topic is clearly presented, and contains examples and hints for practical use. This is one of the best reference manuals in the in-



WordPerfect has individual support for over 250 configurations

dustry. As with most reference manuals, if you know what you want to do, and the terminology of the tool with which you are working, it's easy to get information from the manual. But if you want to do some casual reading to get some ideas about how to use the tool, it's not the place to go. Fortunately, there are many excellent books which fill in this gap. If you do opt to purchase one of these books, remember that this is Version 4.1. The current PC Version is 4.2. Be sure that the book you purchase is at the 4.1 level or high-

lights 4.1 and 4.2 differences.

The next section of the manual is entitled Learning. This is a twenty nine lesson course (over 250 pages) on using most, but not all, of WordPerfect's features.

The fourth and final section of the manual is entitled Installation.

If you have read the Getting Started section, you were referred here early on. This section describes installation of WordPerfect on both floppy and hard disk systems.

That hard disks are even mentioned is a welcome change to most Amiga users. Once again, this underscores that this is a product for the serious user, and

is one that is going to be around in the future of the Amiga. Installation proceeds very smoothly, according to the manual, in seven simple steps, which have you do simple chunks of work from getting organized, to setting up printers. The manual also describes how to tailor WordPerfect to your unique needs, and provides the sage advice that you wait that until you have a feel for how it works with the standard settings. An appendix, glossary and index round out the manual. The appendix has information on

(*Continued on next Page*)

WordPerfect

(Continued from previous Page)

the program, its utility programs, Speller and Print, and the directories that WP needs to do its job.

All in all, the manual is well written, complete, and the level of quality that you would expect in a product of this price range. You'll have a comfortable feeling about your investment from the time you open it up.

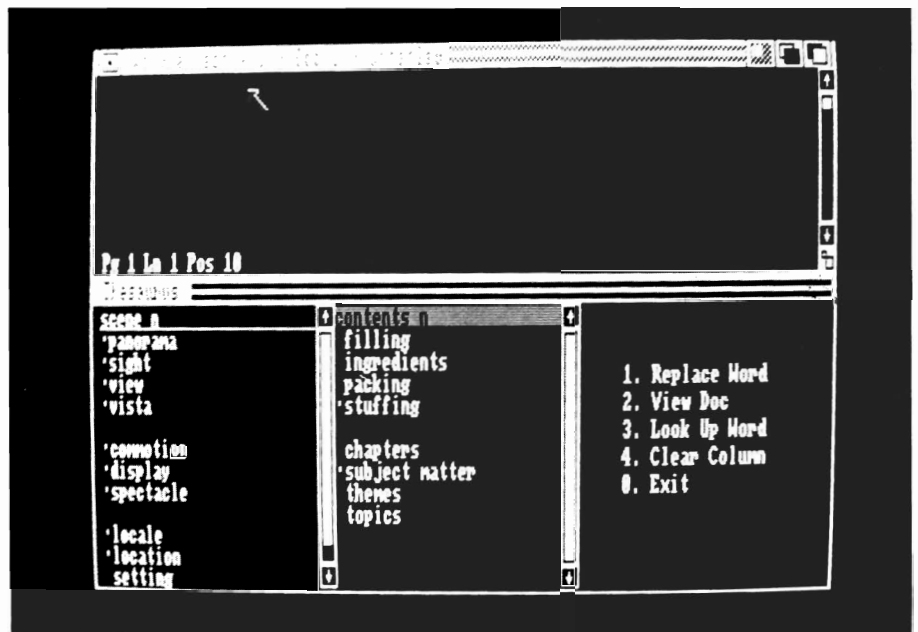
The WordPerfect system consists of two main programs, WP (the WordPerfect editor) and PRINT (which manages printing). Upon starting the editor, you notice a third gadget next to the front and back gadgets on the title bar at the top of the screen. This new gadget is a "shrink" gadget which shrinks the edit window just enough to get to the workbench title bar behind it. On the printer management screen, it shrinks the screen until it occupies just part of a single line at the top of the screen. The incorporation of this new gadget is just one of the features that demonstrate what a well thought out product this is. (Unfortunately, this gadget doesn't seem to be documented in the reference manual.)

You will also notice something about the screen that many people have commented upon. The screen is extremely plain. There are no beautiful colors. There are no dazzling effects at the beginning. The menus are in the same color as the screen and have no fancy doo-dads in them. Is this an Amiga interface? I say yes. The purpose of this word proces-

sor is to stay in the background so that the machine becomes a tool of maximum utility. Fancy screens are not necessary. Carefully drawn rulers and cute tab markers are no enhancement to either function or usability of this word processor. In short, this a tool that will do what you want, with no frills. My opinions are arguable, of course, but I would much rather have a word processor with a rich dictionary than one that changes the pointer to a pair of scissors for deleting text.

and one which runs on my friendly Amiga. Each keystroke that I have committed to memory on the PC works exactly the same on the Amiga. This is important because there are some really nice keyboard shortcuts that are more difficult to accomplish with the mouse.

WordPerfect comes with keyboard overlays which fit above the function keys (on the 500 and 1000) or around the function keys (on the 2000). In addition, the interface makes use of the nu-



The thesaurus has an extensive library of words

WordPerfect comes from the realm of MS DOS. For a time, it was the largest selling computer program in the country, outstripping Lotus 123. As ported to the Amiga, it retains keystroke for keystroke compatibility with the MS DOS version. In the office where I am writing this, I have two WordPerfects, one of which runs on a PC/AT clone,

merical keypad for functions. Included in the white envelope are key top decals ("keycals") for the numeric keypad on the 1000. These label keys as PageUp, PageDn, Home, End, etc. WordPerfect did more than retain keystroke compatibility with the PC, it included Amiga Mouse/Menu functions which I find much nicer than the PC interface. While

block commands (i.e. Cut, Delete, Copy) must be done via cursor control on the PC, the mouse can be used on the Amiga. And when I can't remember the keystroke sequence on the Amiga, I can use the Mouse/Menu interface to quickly go through the list of options. All in all, after working with the product, I can say that I much prefer WP on the Amiga.

The functions are the same as the PC's functions, too. Nothing has been omitted. In addition to the standard word processing features, WordPerfect has the ability to embed font and pitch changes and vertical line spacing changes into text. Indentation of both margins, for

the inclusion of quotations, is accomplished by a single menu selection or a two key keystroke. Columns of text are handled easily.

There are formats for forms processing, for movie scripts and for newspaper style. Each of these requires a different style of processing. WordPerfect handles each task. Footnotes, a problem for anyone writing term papers or legal briefs, are part of normal processing and are virtually unlimited. (The limit is actually 16000 lines or about 300 pages of note text. That's quite a footnote.) Endnotes are handled as simply as footnotes. For doing revisions of text, strikeout and redlining are included.

Outlining is included, and you also get to choose the numbering scheme. Title pages, tables of contents, and indices may be created as automatically as I have seen with any word processor. WP can draw borders around text as well.

There is a very powerful macro facility included with this product which allows for the nearly automatic generation of letters by simply chaining macros. Powerful mail merge and memo merge facilities are included. Both the macro and merge facilities may be combined to perform form letter processing.

WordPerfect also includes math functions which can again be
(Continued on Page 24)

Get down to some serious fun with Amiga® and carry on a conversation with your computer. He loves to show off his special skills: voice synthesis, outstanding graphics, animation, sound, mouse and menus. He'll challenge you to four logic games of increasing difficulty: Memory Test, Battle of Numbers, Pegboard and Checkers. The Checkers program is full-featured and includes:

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- Eight levels of play against the computer
- Replay a game and exit replay to continue play
- Take back any or all moves
- Set up special starting position
- Save and recall games from disk
- List game to printer
- Menu and function key driven
- Mouse or keyboard moves

But this is just the beginning! All the source code is provided — more than 4,000 lines of Amiga Basic and nearly 1,000 lines of C. The documentation explains how everything works and, along with the program listings, will lead you from simple Basic routines to advanced programming techniques such as:

- Organizing a large-scale program
- Debugging and error trapping
- Building a user interface
- Calling libraries and your own C routines from Basic
- Artificial intelligence techniques

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Express Paint

A new contender for "heavyweight" title of the paint programs arrives on the scene

by Edward L. Fadigan

Express Paint by PAR Software, Inc., is a full-featured graphics program that combines the best of desktop publishing and a 32 color paint program into one easy to use package. The roots of Express Paint can be traced to a "shareware" program called Vdraw, written by Stephen Vermeulen. Vdraw generated a lot of interest among Amiga artists for it's unique ability to allow editing of scroll-able pages larger than the screen size. As the author of Express Paint, Steve has worked his program into a powerful tool for creating newsletters, flyers, posters, etc.

Here's a partial list of Express Paint's features:

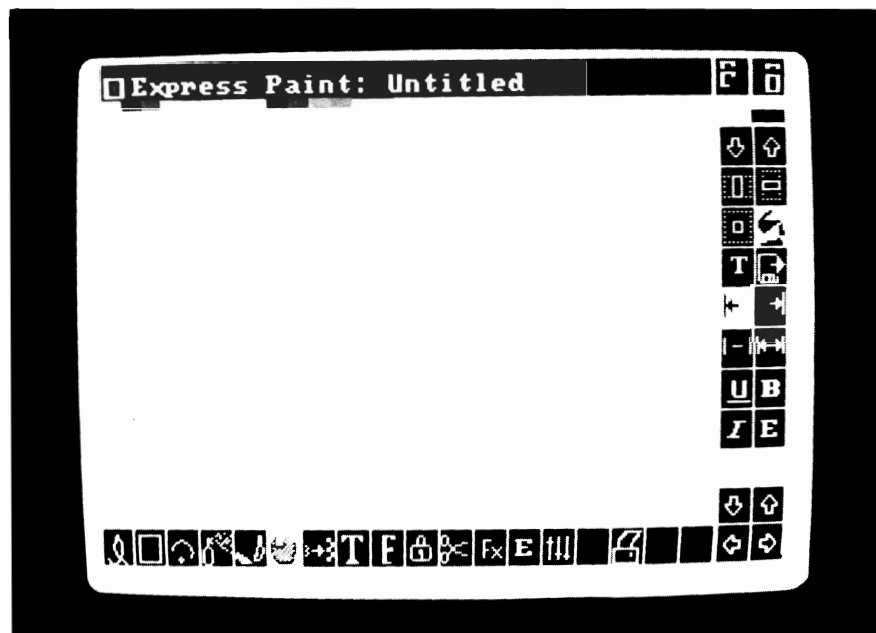
- * You can import text files from Notepad or other text editor.
- * Fully IFF compatible. Uses Dpaint or Images files.
- * Text is formatted in any drawn shape, not just rectangles.
- * Desktop publishing in 32 colors is now possible.
- * Run Notepad in the background. Express Paint multi-tasks.

When you first start Express

Paint you must decide what type of screen format you desire. Depending on your available memory, this can be anywhere from 320 X 200 in 32 colors, to a high resolution screen in 16 colors, with a work area of 1000 by 1000 pixels. At the same time, you also decide whether you would like the whole program loaded into memory or to have parts of Express Paint loaded in

Paint is pretty compact, I had no trouble running the program with my 512K Amiga in a simulated desktop publishing mode. I chose to use High resolution in black & white, with a work area of 970 by 720. Express Paint also makes use of the "overscan" mode, allowing you the maximum viewable area for your screen format.

The paint program features of



Each of Express Paints' lower icons bring up a different set of tools at the right

as "overlays" as you use them. The benefit of overlays is that you can greatly increase your work area if the entire program is not loaded into memory.

Since the code in Express

this package are varied, but I found myself using them comfortably in no time. Across the bottom of the work area is a well designed array of icons that

(Continued on Page 10)

AVAILABLE NOW! StarBoard2

If you've owned your Amiga® for a while now, you *know* you definitely need more than 512k of memory. You probably need *at least* double that amount...but you might need as much as an additional two megabytes.

We want to urge you to use **StarBoard2** as the solution to your memory expansion problem—and to some of your other Amiga-expansion needs as well!

It's small, but it's BIG—

Since most of you want to expand your Amiga's memory without having to also expand your computer table, we designed **StarBoard2** and its two optional "daughterboards" to fit into a sleek, unobtrusive Amiga-styled case that snugly fastens to your computer with two precision-machined jackscrews.

The sculpted steel case of **StarBoard2** measures only 1.6" wide by 4.3" high by 10.2" long. You can access the inside of the case by removing just two small screws on the bottom and pulling it apart. We make **StarBoard2** easy to get into so that you or your dealer can expand it by installing up to one megabyte of RAM on the standard **StarBoard2** or up to two megabytes by adding in an Upper Deck.

This card has decks!

The basic **StarBoard2** starts out as a one megabyte memory space with 0k, 512k, or one megabyte installed. If you add in an optional **Upper Deck** (which plugs onto the Main Board inside the case) you bring **StarBoard2** up to its full two megabyte potential. You can buy your **StarBoard2** with the Upper Deck (populated or unpopulated) or buy the Upper Deck later as your need for memory grows.

And you can add other functions to **StarBoard2** by plugging in its second optional deck—the Multifunction Module!

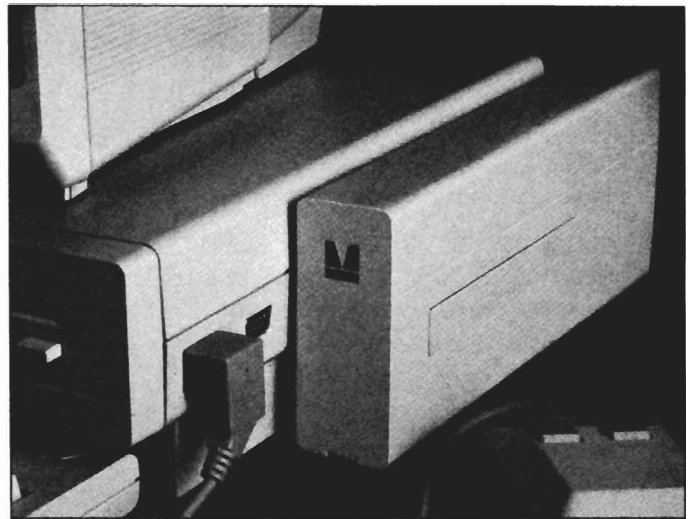
StarBoard2: functions five!

If we count Fast Memory as one function, the addition of the **MultiFunction Module** brings the total up to five!

THE CLOCK FUNCTION:

Whenever you boot your Amiga you have to tell it what time it is! Add a MultiFunction Module to your **StarBoard2** and you can hand that tedious task to the battery-backed,

**Auto-Configuring
Fast RAM
Zero Wait States
User Expandable
from 512k to
2 Megabytes
Bus Pass-Through
MultiFunction
Option: battery/
clock, FPU,
parity, Sticky-Disk**



real-time clock/calendar. A small piece of MicroBotics software in your WorkBench Startup-Sequence reads the clock and automatically sets the time and date in your Amiga. And the battery *is* included (we designed it to use an inexpensive, standard AAA battery which will last at least two years before needing replacement).

THE FLOATING POINT FUNCTION:

If any one aspect most characterizes the Amiga it's *fast* graphics! Most graphic routines make heavy use of the Amiga Floating Point Library. Replacing this library with the one we give you with your MultiFunction Module and installing a separately purchased Motorola 68881 FPU chip in the socket provided by the Module will speed up these math operations from 5 to 40 times! And if you write your own software, you can directly address this chip for increased speed in integer arithmetic operations in addition to floating point math.

THE PARITY CHECKING FUNCTION:

If you install an additional ninth RAM chip for every eight in your **StarBoard2**, then you can enable *parity checking*. Parity checking will alert you (with a bus-error message) in the event of any data corruption in **StarBoard2**'s memory space. So what good is it to know that your data's messed up if the hardware can't fix it for you? It will warn you against saving that data to disk and possibly destroying your database or your massive spreadsheet. The more memory you have in your system the more likely it is, statistically, that random errors will occur. Parity checking gives you some protection from this threat to your data residing in Fast RAM. Note that the Amiga's "chip" RAM cannot be parity checked.

THE IMMORTAL MEMORY DISK FUNCTION (STICKY-DISK):

When you've got a lot of RAM, you can make nice big RAM-Disks and speed up your Amiga's operations a lot! But there's one bad thing about RAM-Disks: they go away when you re-boot your machine. Sticky-Disk solves that problem for you. It turns all of the memory space inside a single **StarBoard2**

into a Memory Disk that will survive a warm-reboot! When your Amiga attempts to grab a **StarBoard2** in Sticky-Disk mode, a hardware signal prevents the system from acquiring the **StarBoard2** as FastRAM (and thereby erasing your files)—instead it is recognized as a Memory Disk and its contents are preserved intact. If you want to work rapidly with large files of data that are being constantly updated (such as when developing software) you can appreciate the Sticky-Disk!

Fast RAM—no waiting!

StarBoard2 is a *totally* engineered product. It is a ZERO WAIT-STATE design, auto-configuring under AmigaDOS 1.2 as Fast RAM. Since AmigaDOS 1.1 doesn't support autoconfiguration, we also give you the software to configure memory in 1.1.

Any applications software which "looks" for Fast RAM will "find" **StarBoard2**. And you'll find that your applications run more efficiently due to **StarBoard2** on the bus.

A passing bus? Indeed!

What good is an Expansion Bus if it hits a dead end, as with some memory cards? Not much, we think—that's why we carefully and compatibly passed through the bus so you could attach other devices onto your Amiga (including another **StarBoard2**, of course!).

The sum of the parts...

A really nice feature of the **StarBoard2** system is that you can buy exactly what you need now without closing off your options for future expansion. You can even buy a 0k **StarBoard2** (with a one megabyte capacity) and populate it with your own RAM (commonly available 256k by 1 by 150ns memory chips). When you add **StarBoard2** to your Amiga you have a powerful hardware combination, superior to any single-user micro on the market. See your Authorized Amiga Dealer today and ask for **StarBoard2**

SUGGESTED RETAIL PRICING:	
StarBoard2, 0k (1 meg space):	\$349
StarBoard2, 0k (2 meg space):	\$395
StarBoard2, 512k (1 meg space):	\$495
StarBoard2, 1 meg (1 meg space)	\$595
StarBoard2, 2 megs installed:	\$879
StarBoard2, 2 megs & MultiFunction:	\$959
Upper Deck, 0k (1 meg space):	\$ 99
MultiFunction Module:	\$ 99
<i>also available:</i>	
Standard 256k memory card:	\$129
MAS-Drive20, 20 meg harddisk:	\$1495
MouseTime, mouseport clock:	\$ 50



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Express Paint

(Continued from Page 8)

define the different tools available to you. There are 15 tools to choose from, and when a tool is selected, a sub-menu or "Tool Works" comes up on the right-hand side of the screen. For example, when the Sketch Tool is selected, the choices within the sub-menu include:

- * Freehand drawing
- * Straight line drawing
- * Several choices of line thickness
- * Several patterns of dotted lines

Most of the Tool-Works have at least 10 options making the choices wide and varied, yet easy to follow. The Circle/Arc Tool has options for drawing circles, ovals, and curves. The control allowed in the curve option is very delicate. In addition to using the mouse, combinations of the CTRL and ALT keys can give even more features. One of these combinations lets you create several connected curves that flow smoothly across the screen.

The Lock Tool gives you the ability to back up specific areas of the screen. I found this to be friendlier than the Undo feature in most other paint programs. If you lock the area you're working on, you needn't worry about messing it up by experimenting. Using the scroll arrows in the

Lock Tool-Works allows you to view all of the areas you have backed up with the Lock Tool, and select the area you want restored. Admittedly, this is not as convenient as simply reaching up and hitting the "U" key, but I don't know how many times I've used the Undo feature in other paint programs and regretted that I can only undo the last action. Backing up specific areas of the screen is easier on both the memory and your disk when you're about to experiment to see how something looks. And experi-

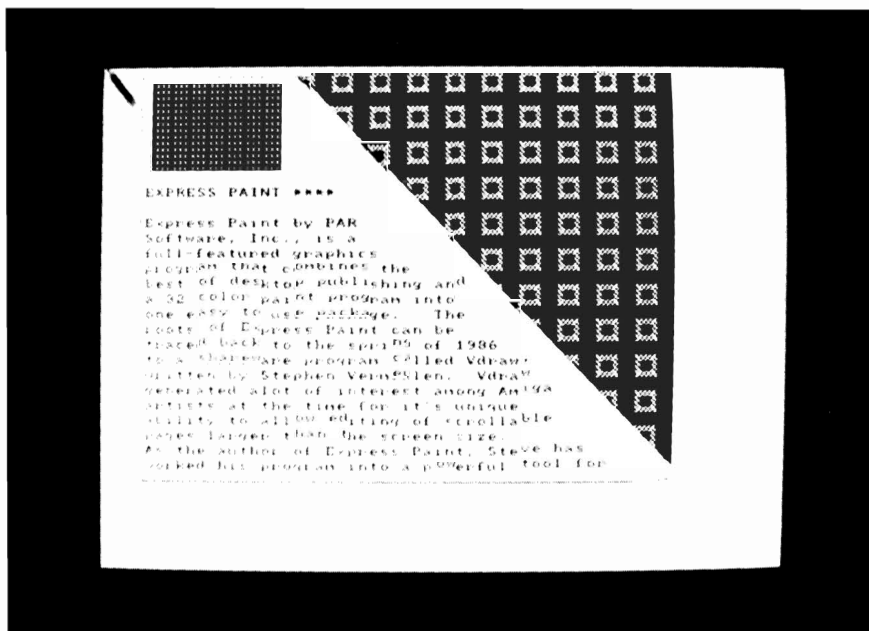
menting that allows you to choose from ALL of the fonts contained on your disk. This includes the fonts that come with Express Paint, plus any fonts that you copy from other utilities, or fonts that you've acquired from the Public Domain.

The Spray Tool gives you the ability to simulate an airbrush. Its Tool-Works is a set of slider-bars that let you control both the area of spray, and the density of the dots which are put on the screen. A feature that I especially value is that the airbrush won't spray

when the mouse is at rest. For those of us familiar with an airbrush, this is to avoid those all too frequent blobs that appear at the end of your strokes. Compared to any other program I've used, this one comes closest to a real double-action airbrush. Unfortunately, the programmer went to a lot of trouble to

have a realistic airbrush, and yet has the spray come out in a rectangular area rather than a circular one.

The Fill Tool allows for solid color fills, pattern fills, and most of all, text fills. Solid color fills are more convenient with Express Paint than other Amiga paint programs, because you are first asked to limit the area of the fill with a square box. By click-



A high resolution illustration created with Express Paint

mentation is one of the benefits of computer graphics.

The Font Tool has less options in it's Tool Works. In fact, there are only two scroll arrows and a Load gadget. But don't be fooled into thinking that Express Paint doesn't have many options when it comes to fonts. On the contrary, selecting the Load gadget brings up a scroll-able win-

ing the mouse and dragging a box around the object you want filled, you can avoid messing up your entire screen because of a "hole" in the border of your object.

Pattern Fills can be patterns that come on the disk, or patterns you create yourself using the Cut Tool. (A CUT is like a brush in Dpaint). I loaded a picture I had drawn into the Cut, and then drew a circle on the screen. Using the Pattern Fill Tool, I was able to fill the circle with my drawing, creating the illusion of my picture draped over a sphere. I had a lot of fun with this option and don't think it can be duplicated with any of the other paint programs.

I designed a fat, round balloon font, and then made a square Cut of some blues and whites shaded to resemble chrome. When the Cut was filled into the letters, the results were pretty convincing.

Another unique feature is text fills. First you define an area of the screen, and select the Disk Gadget in the Fill Tool Works. At this point, a window comes up listing the files on your disk. Select a text file that you have previously created with Notepad or another text editor, and then go back to your work screen and "pour" your file into a defined area. Your text will then be automatically justified into that area. Keep in mind that the area can be rectangular, circular, or any shape drawn on the screen! The documentation contains a walk-through example which has you filling text into a doughnut shape.

I believe that this is one of the

most powerful parts of Express Paint. Justifying text to the left, right, centered, or full justification, was as effortless as a solid color fill.

The Special Effects Tool will give you the ability to modify brushes in a variety of ways. You can rotate your brushes at any angle, and then shrink or stretch them. The images after rotation seem clean and crisp, with a minimum of "jaggies". I was intrigued by one of the effects called, "Ghost 2X Explode". When a picture in the Cut is modified by selecting this Tool, the end result is to expand

" The print tool seems to be the most flexible of any paint program that I've seen "

your picture to twice its size, and yet change every other pixel to the background color. When I did this to my Max Headroom picture with the background color as black, it looked as if Max was displayed on that big sign in the middle of Times Square.

The Print Tool seems to be the most flexible of any I've seen in a paint program. You can print just a specific area of the screen, or print everything in a multi-page poster form. Express Paint also has a way of choosing an Aspect Ratio from screen to printer so that circles on the screen will appear as circles on your document. This is included so that you can print documents pixel for pixel. Many programs contain a re-sizing algorithm that may distort the smaller fonts

when they are printed, making some of the letters smaller or larger. Modifying the Aspect Ratio to match your printer will let you print documents with clean, easy to read text, in combination with the Amiga's mind-blowing graphics.

When I did print some screens, was I surprised! I troed outputting my screens to a Panasonic KX-P1091, and I've never seen text and graphics look so good on a dot matrix printer. The fonts were all of the same size and clarity, and the graphics were much more crisp and clear than output from comparable programs.

I had a little trouble implementing the Aspect Ratio feature of Express Paint. When I called PAR Software for help I talked to Ron Little, a programmer there. He explained that when the Aspect Ratio is properly set within Express Paint, circles on the screen will appear distorted, but will print as perfect circles. This means that IFF files you import from other programs may have to be stretched a bit to print with the correct horizontal to vertical proportions. This is only relevant when using the "pixel for pixel" print mode. When using the "Auto Size" mode, circles on the screen will print as circles. Auto Size mode uses the re-sizing algorithm common in most print utilities.

Other Tools in Express Paint are the Box Tool, in which you create hollow, filled or patterned rectangles; the Cut Tool, to load and save areas of the screen as brushes, and the Palette Tool to

(Continued on page 14)

Sculpt 3D

*A Ray Tracing Construction Set
by the Author of The Juggler*

by Steve Dock

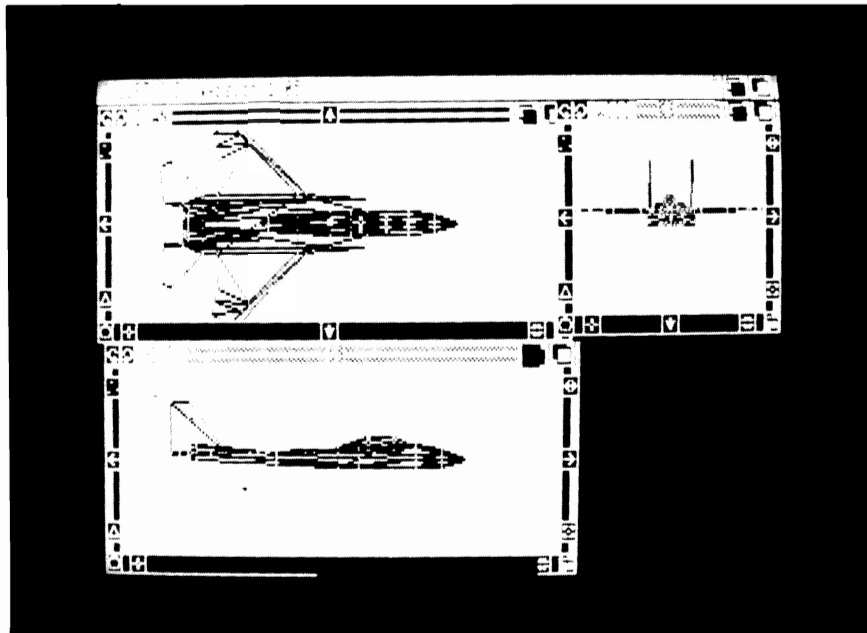
We've all marvelled at The Juggler. The bouncing balls with accurate reflections of the thrower, sky, and checkered ground made Ray Tracing a hit. Now Eric Graham has created a solids modeling program which is coupled with a fast Ray Tracing display generator. This combination puts the power of ray traced imagery into non-mathematical hands.

Imagination is the key to Sculpt-3d. With it and an Amiga, you can create a realistic looking scene which until now only existed in your mind's eye. You start with a small set of building blocks, edges, spheres, cones, cubes, circles, etc. Sculpt 3D lets you combine, connect, distort, and re-shape these until you have an accurate wire-frame rep-

resentation of anything you can imagine. Then the magic happens. With a few menu selections, Sculpt will add substance and reality to your objects. Shadows,

reflections, hidden surfaces, multiple colors, and perspective are handled automatically.

Think of the renderings as photographs. (This analogy is used within Sculpt 3D). As photographer, you can set up lights, place the objects, place your camera, and even choose the lens. The program will accurately compute an image which would result from these choices.



Sculpt 3D's tri-view creation screen

I couldn't help thinking I was using a Polaroid as I moved the camera position again and watched my new picture develop in a minute or two.

One of the most amazing things about Sculpt is that every object consists of triangles. Even the spheres and tubes are constructed of triangles. It seems that if you use enough of them you can approximate curved surfaces. In fact Sculpt creates its solid objects by drawing the flat surfaces defined by each triangle's corners. The term 'face' is used to describe these surfaces. (It may help to picture the facets of a diamond).

Sculpt 3D includes a well written, spiral bound manual and several example objects on the disk. Both are necessary to learn the program.

You can probably lead yourself through the project menu. The Load option opens several sub options. Select Load Image and a file requester will appear. Click on the

file named CoffeeCup and you'll see a unique BUSY indicator. The authors use two spinning gears in place of the standard Amiga ZZZZZ. You'll be able to

watch the picture develop several surfaces at a time. First one edge, then the bottom, then the inside surfaces are drawn. When the gears stop spinning, a very solid looking cup will be represented.

Click the left button and while holding it, click the right button to return to the main display. There are many levels of picture sophistication available. In each, Sculpt uses the objects, lighting, and color you specify with menus to create a screen image. The image can range from a wire-frame to an anti-aliased Ray Tracing. The amount of time spent computing depends on these choices. I think that the painting mode is the most useful when you are designing.

Painting mode represents each face as a solid color, and shows no shadows or reflections. The effect is similar to an object created in a paint program. However, hidden surfaces and perspective are calculated producing a solid looking object. The wire-frame mode looks like colored spaghetti. Both Snapshot and Photo mode employ the ray tracing technique. Many colors are spread over each face to represent shading and reflections. Snapshot ignores shadow effects and is therefore faster than photo. Both ray tracing modes take more time for larger images. Therefore, Sculpt provides you with five sizes for your images. Tiny is just that. One eighth of the screen is used leaving most of the Sculpt design screen visible. Small, medium, and full sizes increase to 1/4, 1/2 and full screen respectively. There is also a

Jumbo size which uses overscan to eliminate the normal screen border.

The quality of the rendering also depends on the resolution, number of colors, and anti-aliasing you choose. You can select 320 by 200, 320 by 400, 640 by 200 or 640 by 400 screen resolution. The higher the resolution, the longer snapshot and

"Three dimensional thinking doesn't come naturally to many of us...You should expect to spend some time mastering 3D"

photo modes will take. Anti-aliasing reduces jaggies by placing many intermediate shades at the edges of objects. It, too, slows down your drawing. Color options are expressed as bit planes. Each bit plane allows for two raised to the number of bit planes colors. Therefore 3 bit planes gives eight colors, 5 bit planes gives 32 colors. Sculpt employs the Amiga HAM mode in low resolution to display up to 4096 colors.

The final image can be saved to disk. Although the manual does not mention it, the saved file is in IFF format and can be used in Amiga paint programs. Other items can be loaded and saved. An Object file contains the basic geometry of one object. It will be loaded to the current cursor position. A Scene can contain multiple objects, and includes specifications for lights, sky, foreground, and the observer. A Script is a text file equivalent to Sculpt menu and mouse com-

mands which can be replayed.

The Sculpt 3D disk includes several example objects, scenes, and images but disappoints me in several ways. Where is the Juggler? Although he is pictured on the manual cover you won't find him on the disk. There are images for a tracked robot, and a humanoid head without the corresponding scene files. This means you can look but can't learn from these stunning examples. I also regretted the lack of pictures in the manual. There was just one illustration of an object being designed.

It's not always easy to make the transition from your imagination, to program terminology, to screen action. Three dimensional thinking doesn't come naturally to many of us. Architects and engineers have learned how to translate the front, top, and side elevations of a drawing into reality. You too, should expect to spend some time mastering 3D.

The process of 3D creation takes place in what Sculpt calls the Tri-View. Three small windows are arranged in an L shape. These are labelled DOWN, NORTH and WEST. Each window has a flock of gadgets in its border. The normal grab bar, sizing gadget, and front/back gadgets are joined by thirteen others. Many of these gadgets are used to move the object around within a window. These include Up, down, east, west, center, expand and contract. Other gadgets get to the heart of object creation.

To create the simplest object you must place the crosshair cur

(Continued on Page 39)

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PERFORMANCE

Express Paint (Continued from Page 11)

modify the current color with an RGB slider-bar. The documentation is concise and complete, and will have you creating stunning documents with a minimum of effort. It's all contained in a plastic ringed binder that opens to allow removal of the pages.

My complaints with Express Paint are few and trivial. In addition to the previously mentioned shape of the airbrush, I would like a Zoom option that has more than one magnification. The binder that holds the program and documentation, while slick and convenient, makes a blood-chilling sound when it's opened. I had also

gotten used to a paint program with keyboard shortcuts in addition to menus. Express Paint makes little use of the keyboard, which leaves my other hand dangling while using this program. These problems are easily corrected, and PAR Software says they are committed to support of this program. They plan on making available frequent and reasonably priced updates.

Express Paint is a unique, economical, easy to use hybrid of a Paint program and a Desktop publishing program. I highly recommend it if you are looking for a program with color printer capabilities which live up to those of your Amiga. As an Amiga artist, I'm happy to add

several of Express Paint's unique capabilities to my bag of tricks. For sharp looking documents, signs, or newsletters in 32 colors, Express Paint is the way to go. Which is probably why PAR Software decided to call the package, "The Ultimate in Desktop Graphics".

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DIGIPAIN

Edward L. Fadigan

In the early days of the Amiga, everyone was impressed by its incredible graphics power. Never before had a home computer been brought so close to the capabilities of dedicated graphics workstations. With the ability to use 32 colors from a palette of 4096, we would be able to create sophisticated computer graphics that rivaled machines many times the Amiga's price.

I purchased one of the first Amigas because I saw capabilities that had been lacking in earlier computers. Using Graphicraft I was able to learn the ins and outs of making images on my monitor screen. With the release of Deluxe Paint, I was able to manipulate images and colors beyond my expectations. Then I saw a HAM screen.

HAM stands for "Hold and Modify". It's one of the standard Amiga screen formats. What makes Hold and Modify different from the other Amiga screen formats is that HAM uses 6 bits to determine the color of each pixel. (A pixel is a picture element - one dot on the screen.) HAM uses the

first two bits in a pixel's color to tell the Amiga how much different the color is from the color to the left of it. Let's say the first pixel is Black. (That would be an RGB value of 0-0-0). Now, the first two bits of the next pixel would tell the Amiga whether it's going to stay the same color, or change its Red, Green or Blue value. The result of this "relative" approach is that you can display all 4096 colors on the screen at once!

If you've seen the digitized pictures that are usually displayed on Amigas in computer stores, then you've seen the HAM format. These digitized pictures were created by using Digiview hardware and software and a video camera. If you didn't own this equipment, you really

*"It is second to none
for pasting together
illustrations
of more than one
palette."*

couldn't do anything with the HAM mode except display pictures. The digitized pictures were wonderful, and showed what we Amiga artists were missing until we could get our hands on the FULL Amiga pal-

ette, the palette that the original AMIGA developers intended.

At last, "Digi-Paint" from NewTek, Inc. is here. Digi-Paint is a HAM paint program which operates much like Graphicraft or Deluxe Paint. With it you have the tools to draw freehand lines, rectangles, or circles on the screen. The difference is that you can use all of the Amiga's 4096 colors on the screen at once. Digi-Paint can be used in the Amiga's interlace mode, allowing you a maximum resolution of 320x400.

The program displays an impressive set of icons on the Workbench screen. There is one for each of Digi-Paint's two resolutions and another for the main body of the program. When an icon is selected, you are greeted with an impressive Digi-Paint logo. The lettering in the logo looks like reflective chrome. Here you must dig out your manual and look up a specific word in the documentation. This "purchase verification" assures that you are an authorized user of the program. Next, there's a brief pause before you see the Digi-Paint Toolbox. It certainly has a shorter startup time than other

(Continued on Page 40)

Now showing..

VIDEOSCAPE

3D

Create your own 3D animation with this latest offering from Aegis Development

by Walter Steuber

Graphics on the Amiga just jumped into the third dimension! No longer do images have to be stationary and two-dimensional. Now you can drive a solid sports car among city buildings, zoom to the stars, or display any other three-dimensional action you can imagine. VideoScape 3D from AEGIS brings powerful three dimensional animation to your desktop.

By its very nature, 3-D animation involves mathematical and artistic puzzles, making it a natural for the computer and a fascinating challenge for a special kind of user. The challenges start with the need to design interesting objects, and then to describe them in exact geometrical detail so that the computer can calculate a picture of what the objects will look like when viewed from some arbitrary direction and distance.

Building an animation consists of assembling a sequence of computed pictures in which each one shows the objects in positions that are slightly different from those in the preceding picture. When the pictures (normally called frames) are displayed in rapid succession, objects move smoothly through space along the paths that were assigned to them.

As Videoscape objects are made

to twist and turn, the light reflected from a particular surface changes in a realistic manner. New surfaces become visible as others pass out of sight, and their size changes appropriately. All in all, the illusion of looking into space, rather than at a flat screen, is vividly realistic. Not only that, the viewer can twist and turn and zip through space at the same time, with no limits on speed or maneuverability. It's a thrilling effect, at least for addicted Amigans.

VIDEOSCAPE 3D is a toolbox of utility programs designed to make the animation procedure as easy as possible. The central program, the one that makes animation possible, computes frames to match the user's specifications of where the objects are in space, what direction they are pointing, where they are being viewed from, what direction the light is coming from, and a few more similar details. This enormous amount of computation takes anywhere from 5 to 30 seconds for each frame, but just clicks along automatically from one frame to the next (unless the user wants to intervene.) Other utilities in the collection include editors to aid in the construction of the object and programs to show the completed action. People already into 3-d animation

will be glad to hear that the public domain program ROT has been upgraded, given a new name, and included in the toolbox.

VIDEOSCAPE 3D provides so much choice of what to do that it boggles the mind. We'll make up a simple, specific scene and quickly step through its creation. Let's say we want a winged spaceship to fly across a nighttime background and do a roll maneuver while the viewer turns to follow it:

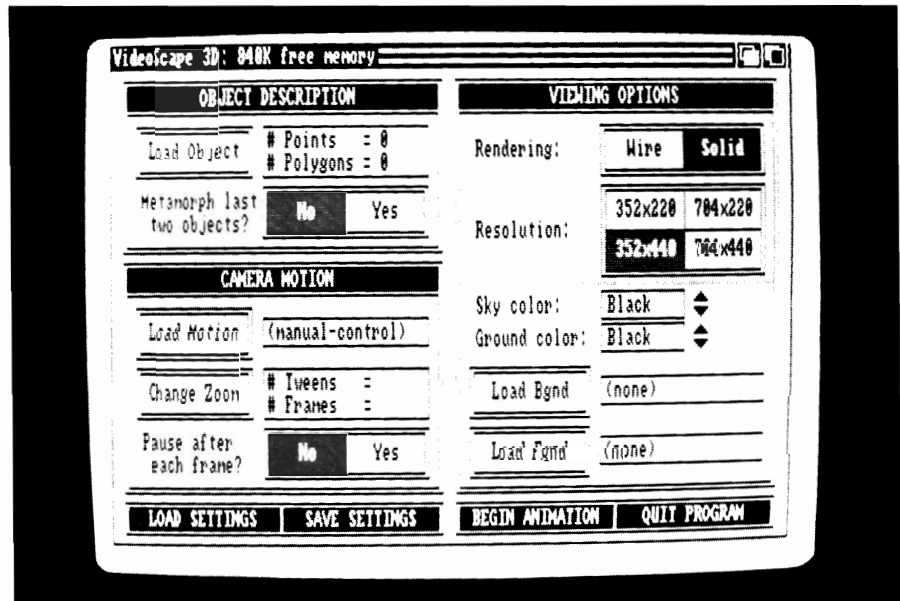
First, build the spaceship. That is, draw it on graph paper and make an actual model that you can move through space to plan out the course you want it to follow. (The solid model must be built up by joining simple surfaces like triangles or other flat polygons.) You must then create an Amiga text file that tabulates the three coordinates of each vertex in the model, specifies each polygon by its vertices and specifies color for each polygon. One of the tools in VIDEOSCAPE 3D is a simple editor (EGG) which can be used for creating the GEOMETRY files for basic shapes like boxes, spheres and cones. Another of the utility programs (OCT) will join simple shapes into a single file as a more complex shape. (Details on how to write the all-

important text file that defines an object is well covered in the manual.)

Check the appearance of the ship. VIDEOSCAPE 3D lets you display the newly-created spaceship and view it from any direction you want by pressing keys on the numeric keypad. You may want to revise the design of the ship at this time; multitasking makes it quick and easy to go back and forth between writing the file and viewing the product.

Describe the ship's motion through space. Move your model through the air to plan the course it is to follow through space and then create a text file that specifies key positions along the course. (VIDEOSCAPE 3D will later interpolate as many intermediate steps as you want between these key positions.) At each key position you also specify what direction the ship is pointing, so we can introduce the desired roll at this point.

Describe the camera's motion. The scene is "photographed" by a



The control panel sets up the parameters for your animated scene

camera that may move along any course through space and point in any direction you want. You specify your wishes by writing another text file for the camera motion in the same format as the file for the ship's motion. Only a couple of key positions need to be specified for the camera and the program will compute a smooth panning motion from one

key position to the next.

Make the animation. Go to the main panel of VIDEOSCAPE 3D and start pressing buttons. This is a big, busy panel that allows a large number of choices to be made, but it is laid out in an orderly way with which you will quickly become comfortable. With mouse clicks, you tell the program which text files are to be processed, what kind of screen resolution you want, and what direction you want the sunlight to come from. You would also specify, if you wanted, a background and foreground (IFF pictures made with DPaint or selected from a group that comes with VIDEOSCAPE 3D). In our simple example, however, neither foreground nor background is used, but instead, we will push buttons that make the whole screen black so that the spaceship travels through a night sky.

Pressing the button that tells the program to store the final file

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City Desk

Powerful features in this new desktop publishing program allow you to produce quality documents

by Bill Barker

CityDesk from MicroSearch Inc. is the third "Desktop Publishing" program to be released for the Amiga. Among its features are page formatting, text and graphic functions, preferences and PostScript compatible printing, all in a WYSIWYG environment.

First of all, an extensive set of embedded commands provide more formatting options than the other Amiga publishing software. Equally important, CityDesk includes support for the HP LaserJet and PostScript laser printers. This support is not standard with other Amiga publishing software.

You should start by making a backup copy of CityDesk for use. Since there is not enough room on the disk for preferences, you must copy the system configuration file from your workbench disk. Start the program by booting under Kickstart v1.2 and selecting the CityDesk icon. You will be presented with a screen consisting of a Menu Bar, Toolbox, Clipboard, and the Working Page of two columns. This layout is very similar to PageSetter in appearance.

There are six pull down menus

which allow you to perform many of the program's wide variety of functions. There can be accessed by mouse or keyboard using the right-Amiga key in combination with other keys. The menus from left to right are: Project, Edit, Preferences, Grid, Toolbox, and Flow.

Support For HP Laserjet and Postscript Printers

Creating a Project :

To create a project with text and graphics, you really must preplan a page layout, text format, and selection of fonts. You can not really use CityDesk to create your text files. Instead use a program like Scribble! or ED. Then start your City Desk program. The working page that appears is the Default page. To set up a different page format you select the Page Tool with the right mouse button. A Default Page Format Requester will appear where you select your margin settings, number of columns, rules (lines between columns), and outlining of the page.

City Desk allows you to set any measurements in points, picas, inches, centimeters, or milli-

meters. Next select the ABC tool with the right mouse button to bring up the Default Text Attributes Requester. Here you choose the type of text justification, attributes, spacing between lines and the font type and size you wish to use. In both cases when you have made your selection you click the OK gadget.

Then from the Preferences Menu you choose Print To in order to select the type of device you are printing to. Choices include Preferences printer, HP Laserjet and Postscript. Still in the preferences menu you select Column guides visible or invisible; and Text format as Scribble!, ASCII, or Amiga. (City Desk can use text files created by any of these programs and will convert the format commands and text attributes to embedded commands.)

From the Grid Menu you choose Grid Snap on/off, Grid Display on/off, Grid Spacing and select the grid size you wish to use. These are important settings for properly aligning pieces of text and graphics.

Finally from the Flow Menu you select Snap to Top if you would like your text to begin at the top of each column on a

page. Auto Flow is used to make City Desk flow text to as many pages as needed automatically.

The first time you go through this selection process it will seem confusing. However, City Desk allows you to SAVE all these settings in a file. The Preferences Menu includes an Open command to retrieve your settings. You can create and save as many different configurations as disk space will allow. A nice feature of City Desk is that, if you name your file "Autoprefs" it will use this file on startup of the program. After making all the initial selections you select New from the Project Menu to set all pages to your desired format.

To place graphics on the page use Load Graphic and select an

item from the ClipArt directory provided on the program disk. You may also create your own graphics by using the Create Graphic from the Edit menu. This will place you in the graphics editor where you can build your own black and white images to place on your page. You can also import IFF files from Dpaint or other paint programs, but its best to only use brushes because the full screen image takes forever to convert to black and white. When you have selected your graphic the arrow tool changes shape to let you know that it can be placed on the page by positioning the image. You can use the resize tool to alter the shape of the graphic or select the EDIT tool to enter the graphics editor.

Next load your text file and

the pointer will change shape indicating text is ready to be flowed on the page. If you have Grid Snap and Auto Flow set on then your text will be flowed automatically into as many columns and pages as necessary. This is unlike another desktop program for the Amiga in which you must manually open each new page and check if all text has been flowed. Text will attempt to flow around one side of any graphics placed on a page unless there is not enough room to do so. In that event text flow will stop and you will manually have to restart the text flow below the picture or on a new column or page. After text has been flowed on to a page you can alter the current text attributes or the current page format and reflow

(Continued on Page 32)

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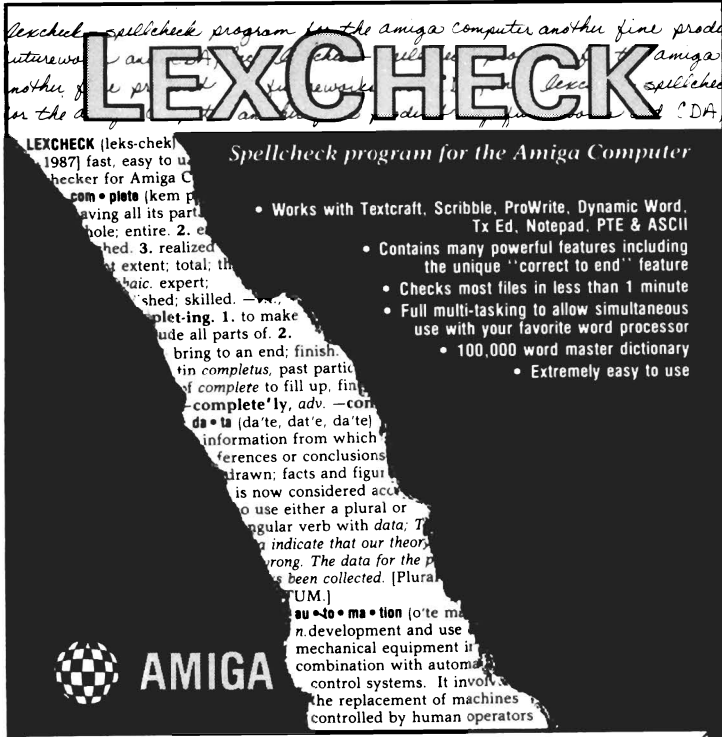
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Kwikstart

You'll get a "boot" out of this new hardware replacement for your disk based Kickstart

by Reve' Valenz

Some real limitations were imposed on applications for the Amiga by the "2 disk" system built into the A1000. With the advent of the new A500 and A2000 Amiga models, this problem has been solved by putting Kickstart in ROM (read only memory). However, owners of the A1000 are discovering the advantages of an auto booting machine.

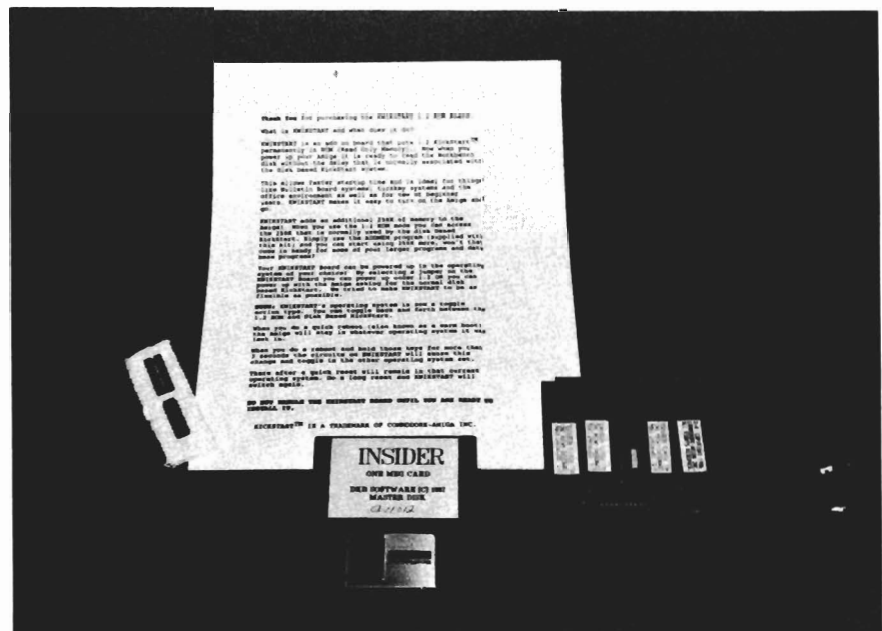
Michigan Software, the people who brought you the "Insider" memory expansion board for the Amiga 1000, now introduce "Kwikstart". This is a double sided circuit board that installs inside your A1000, and provides Kickstart 1.2 in ROM. This practice of creating peripherals that attach to the motherboard results in a much more difficult installation than an external device. However, the initial difficulty can be outweighed by some unique advantages. For one, with an internal accessory, you won't tie up any of your ports that you may be using for other peripherals. Also, internal devices sometimes have access to some unique addresses and bus lines.

The Kwikstart "kit" consists of the board, (with appropriate ROM chips installed) measuring in at

about 3 1/2" by 3 1/4", an 18 page installation and operation manual, a disk of memory utilities, and a replacement Pal chip with socket.

The level of know-how required to install Kwikstart is higher than for the "Insider"

stated last month in regard to installation of the Insider board, any of these projects are not intended for the inexperienced. However, most people know a dealer or an individual who possesses the skills to perform this type of installation with no problem. In the event that you want



You get the module, an 18 page manual, the Pal chip, and memory utilities

board. This is mainly due to the fact that you must desolder a Pal chip, and then resolder a socket to accept the new Pal chip. (One should not underestimate the art of soldering and de-soldering. Inability at these skills, particularly the latter, have destroyed many an electronic device.) As I

to purchase Kwikstart, but just have no contacts of this sort, Michigan Software will install the unit in your A1000 for you. You simply call the company and make arrangements to ship out your A1000 (You pay to and from shipping). A \$16.00 charge will be added to the cost

of the board for this service. (If you've ever taken apart your Amiga, you'll realize that this price is a real steal.)

However, for those qualified self-installers out there, the installation process is very straight forward, requiring only basic, small tools. However, the addition of a de-soldering iron to your arsenal of tools would be advised. Radio Shack sells a very inexpensive one, that performs well when used with care.

If you already have an "Insider" board installed, you would remove it and discard the extender socket that was provided with the "Insider". The Kwikstart module then takes the place of the extender socket, so that you end up with the same total elevation as the "Insider" originally had. (This clearance is important to maintain or you won't get your RF shield back on.)

Complete instructions are given for owners of the CMI Kickstart Eliminator who wish to convert to Kwikstart. The reasons for such a move are several. You can purchase the Kwikstart board without ROMs for \$99.95. Installation of CMI's ROMs will then produce a working Kwikstart. The Michigan Software method of kickstart in ROM is superior in that it requires less "hacking". It is also more versatile, allowing you to toggle between ROM based and disk based Kickstart, depending on how long you hold down Cntrl-A-A (longer than three seconds will initiate the toggle).

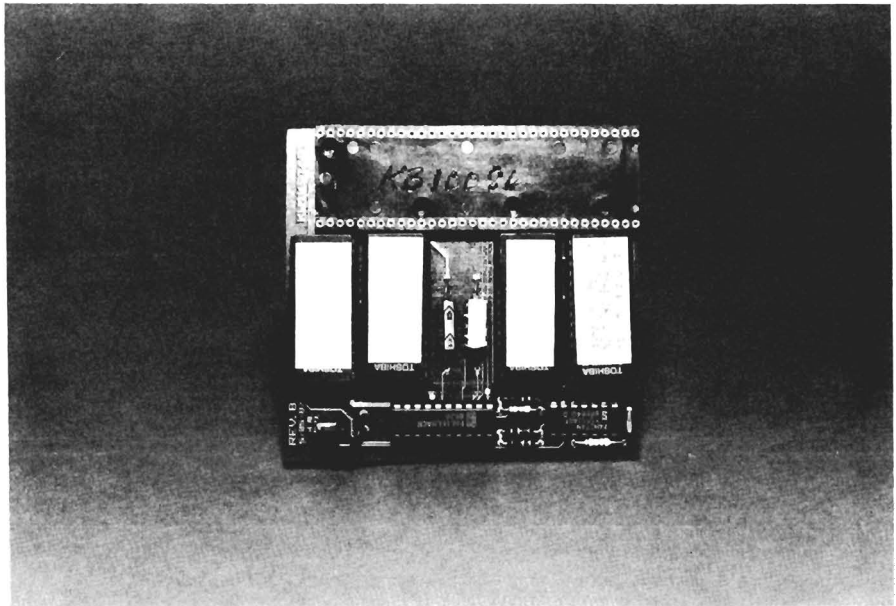
With the Kwikstart module in

place, you simply turn on your computer, and within a few seconds, you receive the Workbench prompt. Considering how well trained you can get in performing your disk based Kickstart ritual, it's amazing how fast you can put that whole operation out of your mind!

One of the wonderful fringe benefits of having your Kickstart in ROM is the 256K of *available* memory that is freed up. For-

kind of an upgrade policy", with cost as yet to be determined. In any case, you should be able to just replace the ROMs (already socketed on your Kwikstart board) and be off to a "higher plane of Kickstarting".

In this time of transition between the A1000 and the new models, it's always impressive to see a developer continuing to create innovative new products for the A1000.



The ROMs come socketed to facilitate future upgrades to Kickstart

merly used to hold the information contained on your disk based Kickstart, this ram is just an *addmem* away (supplied on the memory utilities disk).

The folks at Michigan Software state that as a Kickstart 1.3 and beyond become available, they will be producing the appropriate ROMs for upgrading the Kwikstart boards. Although too premature for any real details on this matter, representatives of the company have expressed assurance that there will be "some

If you run a BBS system, or just have the "Kickstart Blues", the Kwikstart might just be what the doctor ordered...

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Jay Miner
 October 10, 1987
 9:00AM - 10:30AM

Jay Miner, the father of the Amiga, will open AmiEXPO with an insightful discussion of what the future of Amiga beholds in the new and on-coming communications revolution. He will include some stories about the early days working at Los Gatos, the philosophy of the machine and what may be in store for the next generation. This is certainly a unique opportunity to meet the inventor.

R.J. Mical
 October 11, 1987
 10:00AM - 11:00AM

R.J. Mical, the father of Intuition, will discuss "Making the Amiga: The Glory Years!", a look back at developing the Amiga, its story, struggle and fun at Los Gatos before and after Commodore. R.J. is a dynamic speaker, fun to listen to and great to see at work. This will be a first hand chance to hear what it was like.

Richard McIntyre
 October 12, 1987
 9:30AM - 10:30AM

Mr. McIntyre is Senior Vice-President of Sales and Marketing at Commodore Business Machines. He will let us in on the developments within Commodore, the future of Amiga from the manufacturers point of view, as well as the world wide impact that Amiga is making in the computer markets. Mr. McIntyre's discussion will be an insightful view from a leader in the Amiga of today and tomorrow.

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10:30 AM to 4:30 PM

October 11, 1987

11:00 AM to 4:00 PM

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10:30 AM to 5:00 PM

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SCHEDULE OF SEMINARS

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Conference A	Introduction to the A500	DeskTop Video Entry Level	Word Processing
Conference B	Introduction to the A2000	Graphics Professional — I	Music/MIDI Entry — I
Conference C	Desk Top Productivity Professional	A1000 Expansion — I	Entertainment — I
Conference D	Telecommunications	C and Assembly Programming	CAD Applications — I

Sunday, October 11th

	11:00 - 12:15	1:00 - 2:15	3:00 - 4:15
Conference A	DeskTop Publishing Professional	Avant Garde Amiga Art	Educational Software
Conference B	Music/MIDI Professional — I	Small Business Applications	Introduction A500
Conference C	Local Area Networks	DeskTop Productivity Entry	Amiga Graphics Entry

Monday, October 12th

	11:00 - 12:15	1:00 - 2:15	3:00 - 4:15
Conference A	DeskTop Video Professional — II	Introduction to the A2000	CAD Applications — II
Conference B	Music/MIDI Entry — II	CD-I and Optical Media	Engineering Applications
Conference C	Business Presentations	DeskTop Publishing Entry	A1000 Expansion — II
Conference D	Amiga Graphics Professional — II	Entertainment — II	Modula-2 and Forth Programming

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WordPerfect

(Continued from Page 7)

combined with macro and merge functions. Although I personally have little need for the math functions, letters such as billings, price increase notices, etc. may be created. Basically, one is limited by patience and creativity in the use of these functions, not by the word processor itself.

If all this sounds like what you want, then that's good. But there are two more features which really are superior in WordPerfect... the Spelling checker and the Thesaurus. Spelling checkers in the past have reviewed a number of word spellings and given a few alternate choices. WP's spelling checker has a very rich vocabulary. It seems to know most of the words that I mis-spell, which are not proper names. But it takes the concept of spelling checkers two steps farther than others I've seen: 1) it can look up words by pattern (for example, the word forfeiture may be looked up by keying in the template f*f*ture) and 2) it can look up words by sound (forfetsure). Either way, the help is certainly there for folks like me who are creative spellers. The WP speller will also find occurrences of repeated words (i.e. bear in the the woods.)

The thesaurus is also a superior facility for those whose craft is words. If you've ever used a thesaurus to write a paper or memo, you're aware that much of the time is spent going to several levels of words. The thesaurus in WordPerfect allows you to do as many word searches as you wish, indicating at each level

which words have lists of synonyms at a lower level. The time savings of this alone could make the package worth buying. All in all, these are two of my favorite features of the WordPerfect.

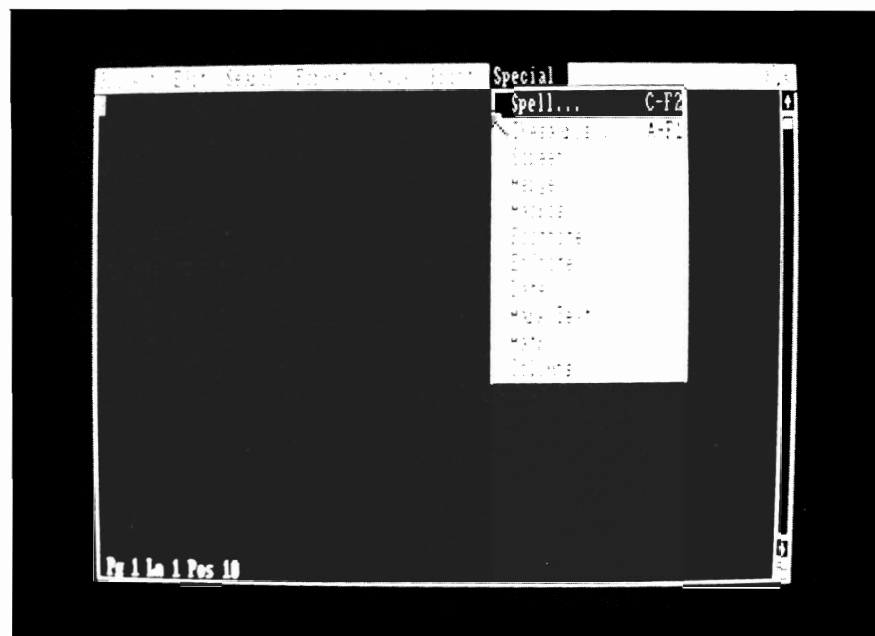
The final feature of the editor which I would like to highlight is the Reveal Codes feature. All word processors that allow reformatting of text have "hidden" codes, that is, codes which are in the text file, but are not displayed on the screen. WordPerfect has a feature which reveals these codes on a two window screen so that you can see what's really

created by someone else.

I have covered only a few of the features of the text editor, but I wish to state that there are many, many more "under the covers"

of this plain looking word processor, (such as timed document backup.) It takes effort to uncover and use them, but they are there.

The PRINT facility of WordPerfect may be started from within the text editor or may be started by itself. In either case, it executes as a separate task in your machine. Once started, it can



The spelling checker, like the thesaurus, can be activated via pull down menus

in your document. This allows you to fix a document that won't do what you want it to (i.e. What You Want is What You Get). I have had my share of misbehaved documents on other word processors, and this feature is great, especially when you are trying to fix a document that was

manage the printing of a queue of documents. Documents may be cancelled from the queue before or during printing, priorities in the queue may be managed, etc. The PRINT facility also makes use of the new "Shrink" gadget mentioned earlier. The Printer Control window may not be

closed until printing is complete, but you can return to the Editor and continue work while printing. Just click on the shrink gadget to reduce the printer control window.

The print facility can route documents to a Preferences defined printer or can drive your printer directly. My printer, for example, is an Epson LQ 800. This is not a printer supported by preferences, but by a driver available in the public domain. I also have a cut sheet feeder on my printer which tends to confuse most printing programs from time to time. This works flawlessly using the WordPerfect internal printer driver with the sheet feeder defined, and is thus my choice. It also handles proportional spacing quite nicely, which seems to be a problem for many word processors.

All in all, the WordPerfect programs are as much a cut above other programs as the documentation is above other Amiga documentation.

And there's yet another bonus: SUPPORT! WordPerfect is supported for registered users via a toll free number eleven hours a day. The support for WordPerfect products is among the best in the industry. I mean to say that it's GOOD, not merely the best of a bad lot. People who man the support lines are patient and know what they're doing. That alone may be worth the price of the product if you use it in business.

Although I have not tested this,

WordPerfect files can reportedly be transferred from one machine to another, via modem or disk, and are compatible. You should be able to use the Workbench 1.2 PC transfer routines to move WordPerfect files to PC format (until you have an Amiga at work.) This, I am sure will be a plus to many. I have not tried it, simply because my 3.5" drive has not yet arrived for my PC.

My overall recommendation is this: If you plan to use your Amiga for serious and/or complex word processing tasks, or if you have ever reached the limits of your current word processor, give WordPerfect a serious look. It is expensive, but in my judgement a good value. If you don't need its advanced features, and never plan to, then be satisfied with the word processor you already have. It's probably right for you.

Wordperfect \$395.00

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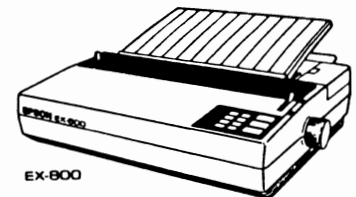
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Guild of Thieves

The streets are filled with all manner of scoundrels.....want to join them?

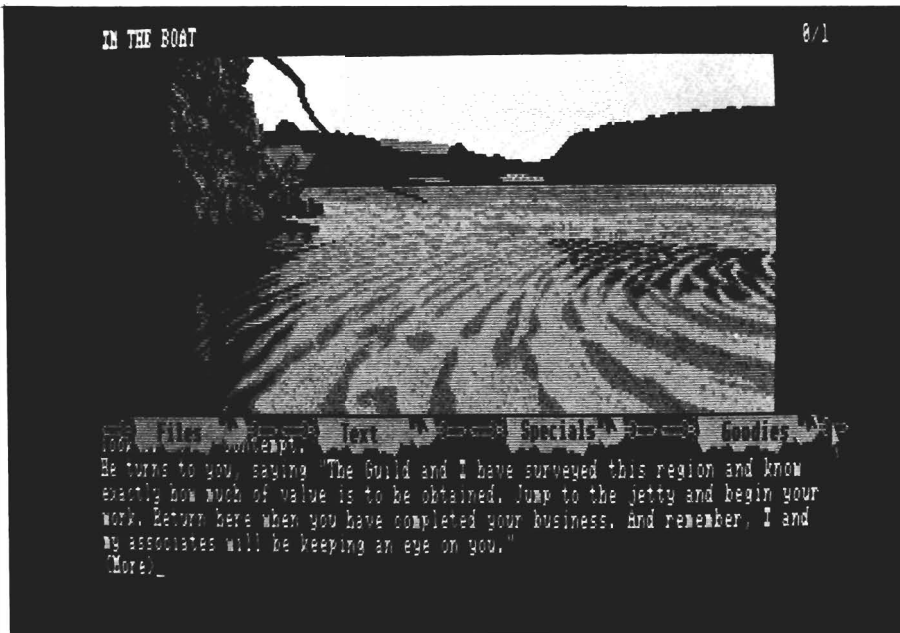
by George Rapp

I stood outside the castle grounds. Inside was all the wealth I could carry just waiting for the furtive touch of an experienced thief. All I had going for me was my swag bag and self confidence in my skills as a thief.

of the Guild. Failure means disgrace or an untimely demise. "The Guild of Thieves" (GUILD) is a text adventure with graphics added which could be described as the sequel to "The Pawn", but can stand on its own merits.

GUILD comes with a bootable, non-copy protected disk, a

set of encrypted hints for playing the game's most difficult portions. The authors suggest making a backup copy immediately since the game is not copy protected. They also give complete instructions for preparing a blank disk on which to save the games. Although designed to be started by booting off the game disk, it is also possible to run the game from CLI and ram disk.



Impressive graphic scenes accompany you on your journey

"The Guild of Thieves" is a new game from Magnetic Scrolls that puts you in the position of an apprentice thief on your first big mission of robbery and plunder! Success means passing the Guilds test and becoming a full member

crooked die, a membership card to the Guild (stolen of course), and the Guild newspaper, which is also the manual. The manual gives a witty and humorous history of the guild, basic operating instructions for the software, and

After starting up the game, a loading message appears for half a minute before you see the title screen. This screen is an amazing high resolution image of the drawing on the box with almost no visible flicker. The high quality of the graphics is the first clue that this is not just another text adventure.

The game does not use Intuition, so the mouse buttons do not operate as expected. The menu bar is a series of scrolls across the top of the screen. The options smoothly unscroll down when a scroll is clicked with the left button. The right button allows you to pull down the graphics screens that accompany the text. The graphics are impressive and add to the game play by illustrating the descriptions in the text. The text portion is presented in a plain, readable style, and you

have a choice of concise, normal, and verbose descriptions, with verbose being my favorite. The part of the program that interprets your input and reacts to it is called the parser, and shows a high degree of creativity. Compared to the Infocom game's parser, the Magnetic Scrolls is much easier to work with. If the parser can not interpret what is typed in, it has an array of snappy replies that make playing more enjoyable.

The game play is slightly different than most others of this type. The physical area in which the game is laid out is small and so simple, that detailed mapping is not needed. However, you can not proceed very far without running into a few small problems. This slows down the game play but gives GUILD its special character. As a thief, you wish to be in the shadows so there are few chances to interact with other characters, but there are a multitude of intellectual challenges. Most of the puzzles presented prevent you from progressing further into the game until they have been solved. The solutions, although not obvious, are not difficult. The real challenge is finding the solutions with the materials at hand.

Should you get really stuck, you can select the HINT option from the "Special" scroll and type in the encrypted hint in the manual. Typing in the hint is difficult enough to discourage cheating, but it is great to have the help available. By comparison, I am not happy with the In-

visiclues from Infocom. These are just an additional expense and can only be used once, since the clues fade out over time, and the developing pen runs or dries out.

All in all, I prefer the style of this game to most of the Infocom or Epyx games. Basically, I find mapping a chore and like the simpler world structure and graphics of GUILD. There are a series of graphic novels produced by Polarware but they do not use the high resolution modes for graphics, and the parser leaves much to be desired. Magnetic scrolls has included many thoughtful touches for the Adventurer.

The manual is plain fun to read and there are some clues buried amongst the jokes. One area that deserves special commendation is the option of two text sizes and the use of the Amiga narrator voice to read the text. This is one of the few times a company has gone to special lengths for visually impaired Amiga owners.

There are no specific instructions given for running "The Guild of Thieves" from CLI, but a little understanding is all that is needed. Of course, the big advantage of using CLI to start a game, comes from the use of a ram disk to speed up the game!

If you only have a 512k Amiga, there is not as much you can do to increase speed. There is enough room on the GUILD

disk for transferring addbuffers from Workbench 1.2 or FACC from ASDG. These programs would have to be started prior to beginning Guild.

For those of you who are fortunate enough to have at least one megabyte of RAM, you can copy the whole game to ram. To make things easier on myself, I have made a batch file to copy the files to ram and start the game running.

```
stack 3000
echo "Copying files to ramdisk."
copy "The Guild of Thieves:The
Guild of Thieves/#?" to ram:
cd ram:
"The Guild of Thieves"
```

This file sets the stack size, tells you what is happening, copies the files, and starts the game. I have the batch file in the root directory on the GUILD disk and EXECUTE the file from CLI. You can also use this as the startup sequence on the game disk. You should keep the disks handy since Guild uses some of the libraries while loading, and will use the disks again while saving. I hope that this will help you get the most out of the game.

I do have a complaint with the way GUILD works with the Amiga operating system. I would expect that a text/graphics game could be moved to the background, or used with the multitasking abilities of the Amiga. Instead, any task that is running in the background behind

(Continued on Page 28)

Guild of Thieves (Continued from previous Page)



The eerie "master thief"

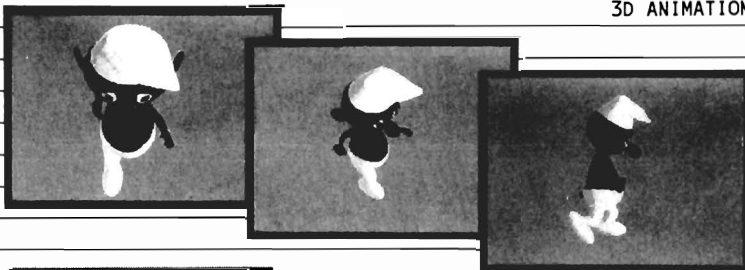
GUILD is cut off from all input and output to the screen. The only way to exit from the game is by rebooting. These seem to be the only lapses in an otherwise well thought out software package.

If you're looking for several hours of stimulating but not exhausting challenge, Guild of Thieves is a steal. Good luck and happy thievery!!

Guild of Thieves

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Timesaver

*Time, Date, Macros, and more from this nifty,
new, hardware module made by C-Ltd.*

by George Rapp

Many different companies are offering battery backed up clock calendars for the Amiga. So far, these devices have plugged into the mouse port, parallel port, the expansion bus, Zorro cards, inside other cards, and just about everywhere. C-Limited has found a new place to put one, between the Amiga and the keyboard. The C Ltd. "Timesaver" does more than supply time and date functions however. It uses its unique location to add programmable "macro keys" to the Amiga.

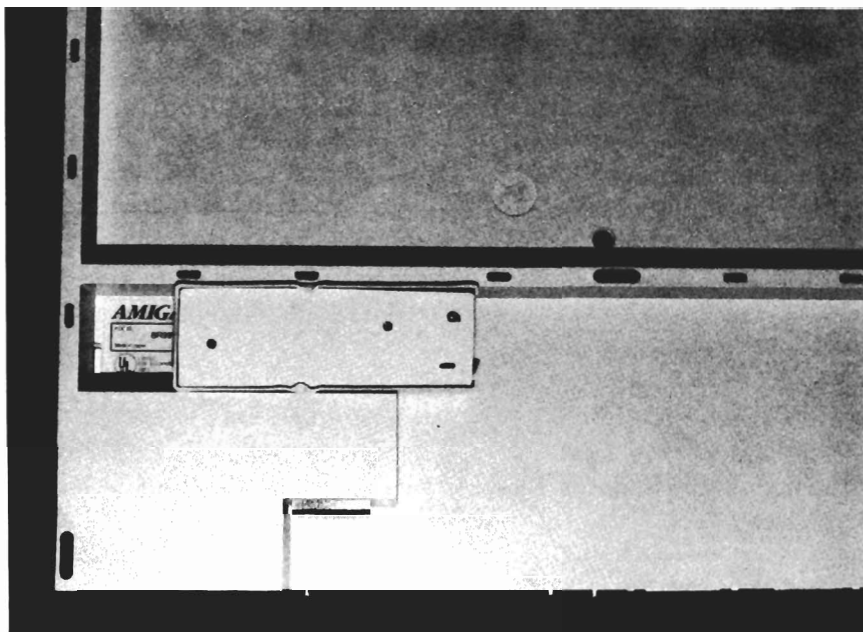
The Timesaver is a small rectangular box with two phone style jacks in one end (see photo.) One jack is connected to the keyboard port on the rear of the Amiga while the other jack receives the plug from the keyboard. The jacks are labeled "I" and "O" and it is very important to connect the device properly. Otherwise, according to the manual, the Timesaver is ruined.

Once connected, not much happens. But after reading a bit you'll discover that pressing "HELP" and F4 will give a short prompt for you to set the clock and date. After the information is typed in, hit return and you will see

";entered" as confirmation. From now on any time you press "HELP" and F5 a date stamp will appear just as if it was typed from the keyboard. Once set, this date and time will be available for years. The Timesaver draws power from the Amiga when available, and from its own battery when the Amiga is turned

off. There are a total of 36 macros supplied with Timesaver. You check the status of the macros by typing "HELP" and F10. A screen will appear showing whether or not any one of the Timesaver functions is active or on.

Timesaver provides the Auto Break function to interrupt the



The Timesaver module neatly tucks away underneath the Amiga

off. I should mention that this is the only Amiga clock which sets the system time using the standard DATE command.

In addition to its clock function the Timesaver has 7k of memory for user definable keyboard ma-

normal startup sequence so Timesaver can take control. Auto Macros allows you to substitute macros for the startup sequence. The Auto Date function sets the date every time you boot up and then resumes your startup

(Continued on next page)

Timesaver

(Continued from previous Page)

sequence; The History function causes timesaver to remember your key strokes.

User defined macros must have an ALT key, either Amiga key, CTRL, or right SHIFT as the first keystroke. Since some combinations of these keys are used by specific software, conflicts can result. The manual provides some hints for avoiding or bypassing the conflicts that may occur. Mouse movements can also

itor. This allows the user to retrieve past commands or lines from the Timesaver memory, edit them, and execute the edited line. The command line editor does use some of the memory available for macros but I haven't run into any conflicts.

Once you have become sure enough of the use of Timesaver to mount the device under the Amiga, another useful function becomes apparent. "HELP" and

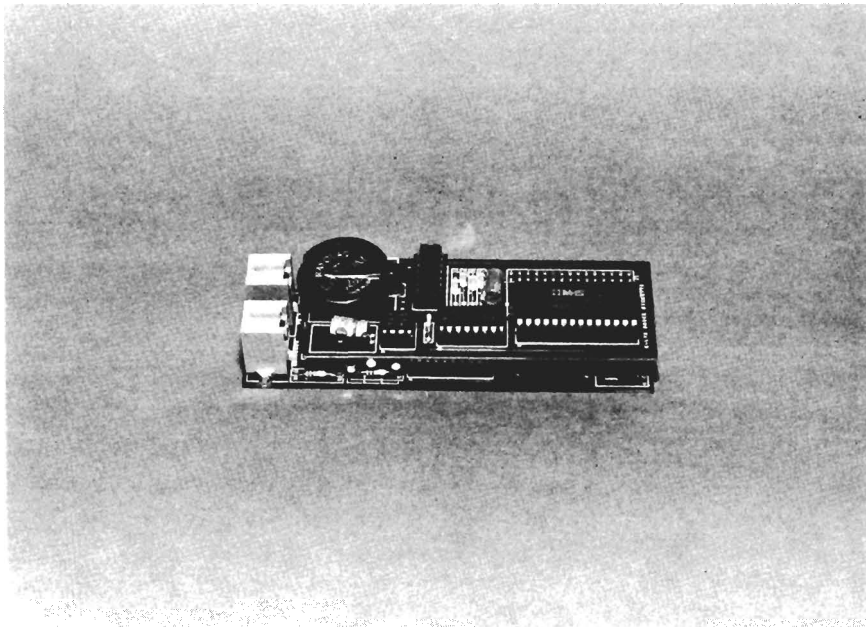
plicated device. Fortunately, the manual is clear and readable and includes enough examples to make the use of the features simple enough to understand. C-Ltd also includes a customer service number to help out in case of real problems.

The overall design of Timesaver is well laid out. The circuit board is neat and has short traces and only one wire jumper is present. The exterior case is less well designed. The all important markers for input and output sides are melted in by hand with a soldering iron.

The actual function of the Timesaver was near flawless. The biggest problem in normal use was conflicts with macros. It is possible to turn off the macros and solve this problem, but it would be great if groups of macros could be turned on and off independently. Timesaver does not use preferences, so there is no key repeat when editing.

Timesaver is an oddity in that it offers hardware solutions to some software "problems". However, C-Ltd has made Timesaver a good value by offering the battery backed up clock and calendar in addition to the macro features for a price close to that of a clock alone. If you are planning to purchase a clock, check this one out.

Timesaver
C-LTD
723 East Skinner
Wichita, Ks. 67211
1-(316)-267-3807



The module consists of two high density, double-decked circuit boards

be stored as Timesaver macros by using combinations of the Amiga and arrow keys. Since the Timesaver macros are not lost when the Amiga is turned off or rebooted, they can become very handy. I don't know of any other way to ensure that my favorite keyboard shortcuts are always available.

Another feature that comes in very handy is a command line ed-

F7 activate a password mode that on startup appears to lock up the keyboard. In reality, Timesaver is intercepting all key strokes and passing none on to the Amiga until the correct four letter password is entered. You can also activate the password feature at any time by using "HELP" F8.

It is fairly obvious by now that the Timesaver is quite a com-

VideoScape 3D

(Continued from Page 17)

on disk generates a requester for the filename under which it will be stored. Finally, you reach the "Begin Animation" button and the screen starts displaying frames one by one as they are calculated and stored.

Look at the action. The animation can be called into action from a CLI window by still another utility program supplied by VIDEOSCAPE 3D. This program allows the user to specify how fast the action is to occur and how many times it is to repeat.

How to save these frames as they are generated is a question that comes up in any animation. The ideal device for storing many minutes of animated action is a single-frame video recorder, and VIDEOSCAPE 3D is set up to automatically write frames to one as it calculates them. A movie camera can be set up to photograph the screen, one frame at a time, and this, too, allows the animation to be of just about any duration. After each frame, the program sends a signal out the serial port and it is up to the recording device to get ready for the next frame.

For most of us the device closest at hand, of course, is our 880-Kbyte disk. VIDEOSCAPE 3D has a function that stores the frames on disk and another function that plays them back at any speed you want. Scenes are made without borders so they fill the entire Amiga screen and are suitable for playing on a television set. Only a few seconds of animation can be stored on a disk, but the play-back utility can be set to repeat a scene any de-

sired number of times. A scene that is designed to end in the same configuration it had when it started looks perfectly natural when it repeats.

Memory is consumed fast in 3-d animation. For smooth action, it is necessary to display roughly 25 frames a second, and you all know how much memory it takes to form one screen display. A clever compression routine is used by VIDEOSCAPE 3D to represent a frame in terms of only the pixels that are different from the preceding frame, so a small object moving across an otherwise stationary field uses very little memory, while animation that changes the whole screen can gobble it up. VIDEOSCAPE 3D keeps the animation designer informed of memory consumption, but it is up to him to stay within the bounds of his system.

In a different, but related kind of animation, VIDEOSCAPE 3D is able to make calculations that transform one object into an entirely different object. It takes talent, time, thought and experimentation to take advantage of this capability and to blend it into the other animation, but that's something those unseen programmers in the public domain are terribly good at.

Already, clever VIDEOSCAPE 3D animations are appearing on the bulletin boards. El Gato, for instance, uses one of the utilities from the toolbox, in conjunction with Digi-View and DPaint, to generate the appearance of a panther loping along endlessly. The Tampa Bay Area Group have used VIDEOSCAPE 3D to make

the Boing ball zoom around and through their logo. Three-dimensional animation is now solidly established as an important part of Amiga graphics, with several competing programs offering different approaches on how to do it.

My personal experience with VIDEOSCAPE 3D is that it delivers a reasonable, workable method of generating animation. I do have a list of suggestions though:

- * VideoScape needs an object editor that lets the user simply draw things on the screen.
- * Motion file and camera files should be created from on-screen mouse movements.
- * I wish that the moving objects would cast shadows.
- * Great animations cry out for sound. I wish there were an easy provision to add sound to the scenes.
- * It would be nice if DPaint brushes or Aegis windows could be used as the moving objects.

Videoscape is a program that does its job well and must have been a massive effort to develop. Now if only I had a single-frame recorder, a 40 meg hard disk, and more than 2.0 MByte of memory!

Videoscape \$199.95

Aegis Development
2210 Wilshire Blvd., #277
Santa Monica, Ca. 90403
1-(213)-392-9972

City desk

(Continued from Page 19)

the text again. You can enter headlines and captions by selecting the ABC tool to enter your text and place it anywhere on the page.

The Toolbox is located to the right of the working page and provides you with twelve tools to assist you in the layout of text and graphics. The following functions are provided when you use the LEFT mouse button to select the tool:

- * Hand tool is used to move text or graphics between pages or between a page and the clipboard.

- * Arrow tool is used to move text or graphics about a page.

Resize tool is used to change the shape of a graphic image. You have the choice of stretching the image in either the X or Y direction or both. You can also choose to maintain the correct aspect ratio of the image.

- * Scissors tool is used to crop graphics.

Open Page tool is used to select any page for view or use as a working page.

- * Copy tool makes duplicates of text or graphics.

- * Line tool is used to draw lines. You have the ability to set line weight to three widths and patterns.

- * Box tool allows you to place a box around an object with various line widths, patterns and shadows.

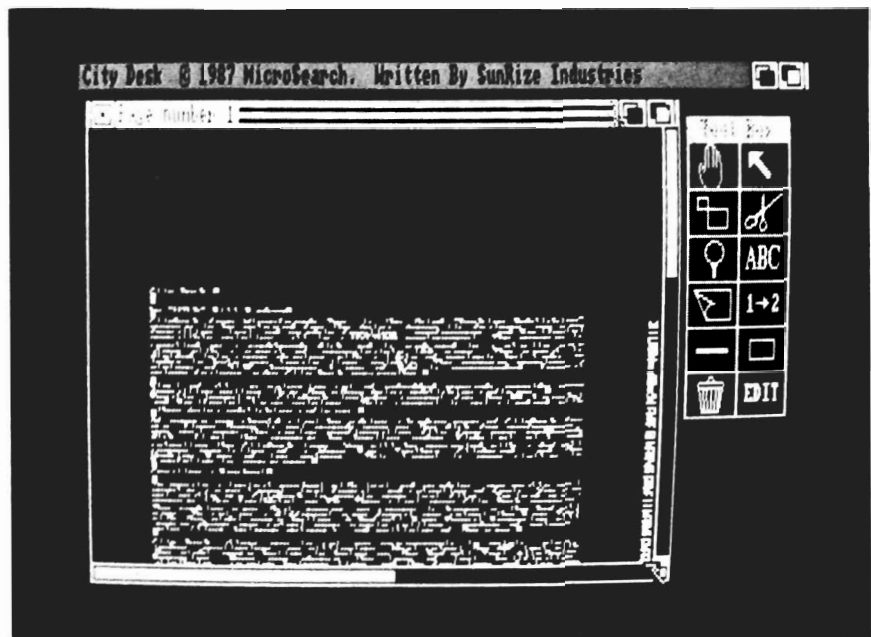
- * Trashcan tool allows you to delete an object.

The Headline Editor is the only means of entering new text onto the working page, as the program. When selected a text string gadget appears, which allows text and embedded commands to be entered. Its main function is for adding headlines or captions to text or graphics. It has a maximum size of approximately 32K. You could enter a document using this simple string gadget but the manual recommends that you use an editor of your own choice. The reasons given for the simple editor are the large program size of City Desk and the developers felt that most users would not prefer to learn a new

ready been flowed onto the working page. It is also a string gadget but has the ability to do a forward or reverse search for exact text matches. Text or embedded commands can be inserted or deleted from the text chain by clicking on the point where you desire to change the text. You may also use the slider gadget to move the text string right or left. This is satisfactory for small changes, but it does take getting used to seeing a single line of text rather than a whole page.

Embedded Commands

The feature that distinguishes City Desk from all other desktop



The City Desk work screen

editing or word processing program. This is probably true for the majority of users who are already accustomed to using AED-IT, TxEed, UEDIT, Scribble!, Notepad etc.

The EDIT tool is another text editor but only for text that has al-

publishing programs is use of embedded commands. These are special commands which you place in your text to control such items as margin settings, text justification, text attributes, font type and size, tab settings, paragraph indentation, superscripts,

subscripts, leading or spacing of lines, widows, and soft hyphens. The program has approximately fifty different commands for you to use in a document. The format for every command is to enclose it in square brackets [command]. Multiple commands may be strung together inside a pair of brackets if separated by commas or semi-colons. For example the command [bd,un, citylight 14]Fish would cause the word fish to be printed in Citylight 14pt, bold attribute, and underlined.

Once your page is finished you can print it a page at a time, print the entire document or save the project to disk for later printout. The CD print program has been provided to allow you to print out a project without entering the City Desk program itself. My favorite CD print feature is the ability to print out multi-page documents unattended.

Observations

I made a more useful CityDesk disk by stripping files from my working copy in order to free enough disk space to add an editor. I was able to put TxEd on the same disk and have it running in the background. Will use any font disks you have in df1:. Just be sure the disk name is FONTS and that all files are at the root level. DPaint II can be used to create pattern fill backgrounds or clipart to use as brushes in your clipart drawer.

I had the opportunity to use this program with the HP LasetJet+

printer for about six hours and the printout of text was fine. However, I was not pleased with the graphics printout. Plain black and white graphics look stark and amateurish in comparison to the text quality.

I also spoke to a MicroSearch technical representative who informed me that a two disk upgrade to version 1.1 will be out shortly. The upgrade will include some examples of page layout and the use of embedded commands, as well as new clipart. I was disappointed to hear that neither softfonts for the HP LaserJet+ nor support for any 24 pin printers will be available in the near future.

CityDesk is the type of program which cries out for a ongoing newsletter or BBS system which could provide you with sample page formats and responses to complex situations. MicroSearch is considering these options.

The program is supplied on a workbench disk and is packaged in a plastic case along with a manual of approximately 100 pages. The manual is divided into seven chapters with a table of contents but lacks an index to help you locate items quickly. The program requires a minimum of 512K, however 2 meg of RAM is recommended.

The major drawback of CityDesk is the lack of on-screen editing. The ability to edit your work directly on screen is vital in composing a page. If you can

accept the awkward editing gadgets, the set of menu driven features exceeds other Amiga publishing programs. There is great flexibility possible with embedded commands, but it is not the most convenient way to accomplish your formatting. Well established publishing programs on the more traditional systems steer away from embedded commands because of their confusing nature, using a "point and click" environment instead. Certainly, the Amiga is capable of manipulating data in the same manner, and should surpass other systems.

Although this program represents a new level of performance for Amiga desktop publishing, the round about way that you must accomplish some tasks would make it very tedious for someone who is accustomed to page composition.

If you are looking for something to produce a newsletter or small booklet of a simple nature on the Amiga, then you may find that City Desk would perform fine for your needs. However, if you need to produce something that requires more complex formatting, the lack of on-screen editing, and the embedded command procedures may make an already complex job *too* complex.

Citydesk \$149.95

MicroSearch
9896 Southwest Freeway
Houston, Texas 77074

1-(713)-988-2818

Lights...action...

Print!

The "dots" and "dots" of buying a printer

George Rapp

The Amiga has the power to produce astounding graphics number crunches, and to make text fly across the page. However, an Amiga is just too big to carry around to show off the results of your efforts. Most of us produce hard copy of graphs, text, or tables, and that requires buying a printer. This article will prepare you for your shopping by giving you an overview of printer technology, terminology, and some specific examples.

Before buying a printer there are several important questions that you must ask yourself. What are you really going to use your printer for? Will you need letter quality print, speed, color or graphics? How much can you spend for your printer and will the printer you like work well with the Amiga?

One of the nicer features of the Amiga is its use of specialized printer drivers that can be selected from preferences. These enable any software running under Amiga/DOS to properly use the features of the printer. This is accomplished by the print drivers supplied in the devs/printer directory of your workbench disk. If

the printer you like is not on this list, then you may not be able to use all of the features of that printer. Fortunately you are not limited to the print drivers supplied by Commodore, since the public domain offers drivers for many other printers.

There are five basic types of printers. These are daisywheels, thermal, dot matrix, ink jet, and laser. Each has its own advantages, problems and price ranges.

Daisy wheels are the oldest kind of printers, and are basically typewriters controlled by a computer. They use a set of keys arranged on a wheel or drum which is rotated over the page and struck with a hammer to place the ink from a ribbon on the page. This method gives some of the best print quality and probably has the least compatibility problems with Amiga print drivers. Most daisy wheel printers use either Qume or Diablo codes, both of which are supplied in preferences. The disadvantages of Daisy Wheel are the slow speed, loud noise, and almost complete lack of graphics. They are still the best choice for producing business letters, formal documents and true letter quality text.

In contrast, dot matrix, ther-

mal, and ink jet printers form their characters from a combination of dots on the page. Generally, the more dots that are used to make up a line or character, the sharper the character looks on the page. There is always some "jagginess" visible on the pages printed by this method. This has led to the terms "near letter quality", "correspondence quality", and "draft quality" to describe dot-matrix text.

Draft quality is the default printing mode of a dot-matrix printer. Most dot-matrix printers produce near letter quality by printing each letter or dot twice with a slight offset. This can effectively double the number of dots that form each letter and give quality close to a daisy wheel. Unfortunately when printing in this mode the ribbon or ink supply is used up twice as fast and the printing speed drops to about one quarter of the "draft" print speed. Correspondence quality, usually found on older printers, uses two strikes per letter but does not have the offset. This produces darker text but does not improve the actual characters. (See illustration)

Dot matrix printers are the most common type in use. They can produce graphics, readable text

and some can print in color. The print head is made up of a series of wires which strike the ribbon against the page. Early dot-matrix printers have 8 or 9 pins with which to form letters. They typically print 80 to 120 Characters per second. The newer (more costly) dot-matrix printers offer 24 pin print heads. They can print up to 300 characters per second.

Thermal printers were the first nonimpact printers. They are called nonimpact in that instead of a key or wire striking the page, they use a heated print head to burn the image into the paper. A newer variation on this idea is the thermal transfer printer. Here, the heated printhead is used to melt the ink from a waxy ribbon onto the page. The ribbons tend to be more expensive than regular inked ribbons, but they can produce some impressive results. Two printers of this type are the IBM Quietwriter and the Okimate 20.

Ink jet printers produce print quality very close to that of the dot matrix printers. The major difference is the method of transferring ink to the page. As the name implies, ink jet printers spray ink onto a page through a combination of pumps and nozzles. Since there is no impact as in daisy wheel or dot matrix printers, there is almost no noise. The wet ink tends to run together making the characters formed look smoother than dot matrix printers. Special clay coated or porous paper must be used to absorb the

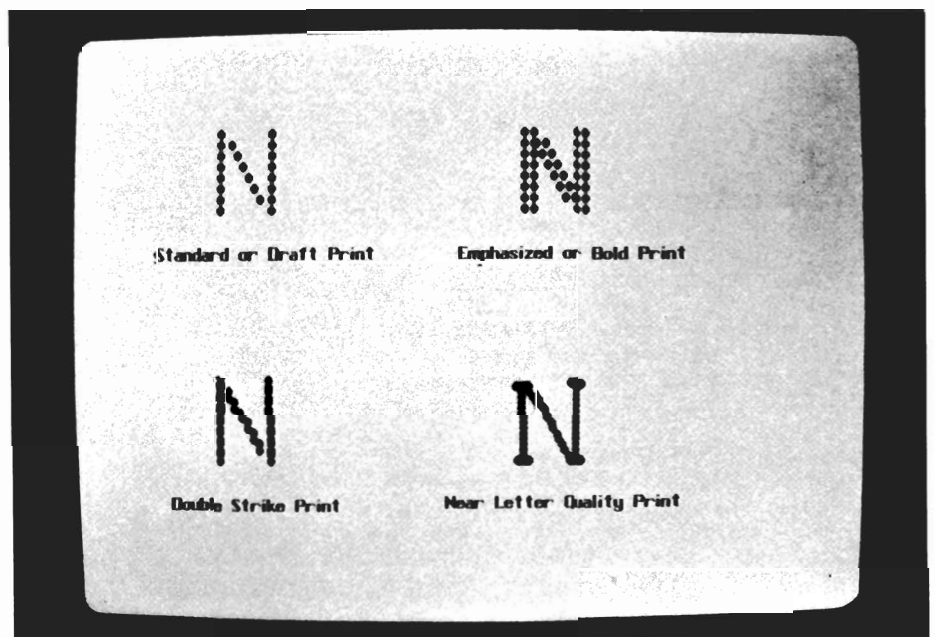
ink so that it does not smear. This tends to limit the use of ink jets in business applications. However, they do have the advantage of being able to produce overhead transparencies when used with a treated acetate.

Laser printers are the newest printer technology. Their method of printing is more closely related to copying machines than any other type described. Laser printers are currently considered the ultimate type of printer, because they can produce letter quality indistinguishable from a daisy wheel and graphics on the same page. Print drivers are currently limited to the AppleImagewriter, Hewlett Packard Laser Jet, and compatible printers.

telligence of the laser printers that allows a wide range of fonts and styles. The biggest draw back is price. Currently most lasers sell for over two thousand dollars.

Printing text is important, but most people are swayed by the Amiga color and graphics. Laser printers are probably the best choice for crisp graphics, but few of us can afford them. (Color laser printers are still in the test labs). Daisy wheels do graphics by combining letters on the page and do not produce satisfactory results. This gets us back to the ink jet and dot-matrix printers for more acceptable color graphics.

Printing in color is much more difficult than displaying colors on



The "Ns" and outs of printer text types

Currently, the drivers provided with the Amiga for running laser printers are poor at best. None take advantage of the built in in-

the screen. On the screen, the three primary colors of light are mixed to produce the 4096 colors

(Continued on next Page)

Printers

(Continued from Previous Page)

that the Amiga can display.

A printer must produce colors by mixing inks. In the inkjet and dot matrix printers, a colored dot is either present or absent, so there is a limited number of mixes possible. Colors that can not be made by mixing inks are made by "dithering" or mixing fine patterns of dots. Most color printers use black, cyan, magenta, and yellow inks to print in seven solid colors and many in between shades by dithering. The finer the dots, the finer the patterns produced by dithering and the more colors the printer will be able to display.

The standard for measuring graphics capabilities is dots per inch. The higher this number the sharper the graphics image will be. The currently accepted

benchmark for high quality in graphics output is 300 dots per inch. Most laser printers reach or surpass this mark while most dot matrix printers fall well below. For example, Epson 8 pin printers can produce 120 dots per inch horizontally and 90 dots per inch vertically. The NEC 24 pin printers are capable of 320 dots per inch vertically and horizontally if you can find the right Amiga printer driver.

With the printers that form characters by dots, one important figure is the character matrix. This figure is expressed as two numbers. The first represents the horizontal dots, and the second, the vertical dots. The larger these numbers, the better the text will be, and, unfortunately, the higher the price of the

printer. Another important consideration is the number of fonts and sizes offered and the capability to "download" additional fonts. Downloading involves storing additional fonts on disk and adding these to the printers ownfonts. Most laser printers have this capability as do some dot matrix printers.

One last thing to consider when purchasing a printer is the method of supplying paper to the printer. The basic methods are friction feed, tractor feed, cut sheet feed, and manual feed. Friction feed has the advantage of being able to handle almost any kind of paper or envelope. Because there is no firm mechanical link, fanfold paper can mistrack or twist while printing.

(Continued on Page 43)

Why Buy Amiga* Expansion Products That Limit Expansion?

Most products for the Amiga perform single functions (memory expansion, hard disk controller, etc.). With each, it is assumed that power requirements will be satisfied by the Amiga and, even when "stacking" these products one after the other, your Amiga will probably handle the load...probably...

The **Cage**™ from **Pacific Peripherals** is a two-slot zorro compatible expansion box that returns the Amiga bus for additional use. It also allows you to add power to the system using an inexpensive external supply.

The Advantage™ is **Pacific Peripherals'** no wait state two megabyte memory card. The Amiga standard (zorro) design of **The Advantage** will auto configure under both 1.1 and 1.2 operating systems. It may be used in any of the currently available card cages...or in the **Cage**. This same card has been used for months in the Xpander II on an OEM basis and is **not** a new, untested product.

For the price of most two megabyte boxes, you can combine **The Advantage** and **Cage** and still have another slot available. Fill the extra slot with any zorro standard card or leave it open for future expansion.

Included with each system is the **The Survivor**™, the RAM disk program Amiga should have provided. Our RAM disk appears to be identical to Amiga's, except...**it will survive a warm boot**...even if the memory you're using is the original 512K.

The Advantage™ and The Cage II™

A 512K/2 megabyte RAM expansion

- Autoconfigures under 1.1 or 1.2
- No-wait state design
- Amiga Standard Design ("Zorro")
- User expandable with inexpensive 256x1 dynamic RAM
- RAM disk software for warm boot recovery
- Two slot "Zorro" compatible

Both for \$499

For additional information or to place orders, call (415) 651-1905

Pacific 
Peripherals

1080 Hiawatha Court
P.O. Box 14575
Fremont, CA 94539

Recent trends in tele-communication programs for the Amiga have placed a greater emphasis on the transmission of mainframe graphic data ...this month we look at a product that goes a step beyond and provides a useful way to edit that data...

A-Talk Plus

by Geoffrey Mendelson

ATALK and ATALK-PLUS are telecommunication products by Felsina Software. Both require an AMIGA with at least 512k, one disk drive, and a modem. ATALK is supplied on one 3.5 inch floppy, and is not copy protected. ATALK provides a full set of features includ-

feature of ATALK-PLUS is a good implementation of a TEKTRONIX 4014 terminal. The Tektronix 4014 is a workhorse graphic terminal used in CAD/CAM and business graphic application. Typically, this terminal receives its images from a mainframe or mini-computer. The ATALK-PLUS emulator differs

them with your AMIGA. I successfully received plots from my IBM mainframe, and was then able to manipulate the plots using DELUXE PAINT 2. Using ATALK-Plus to record the plot in AEGIS DRAW format worked quite well also. Since the plot was stored as vectors, I could change, delete or move the sections around. This is a first for engineering or architectural users of the AMIGA. I can imagine building a library of F16 and Space Shuttle CAD drawings by downloading from high priced CAD/CAM systems.

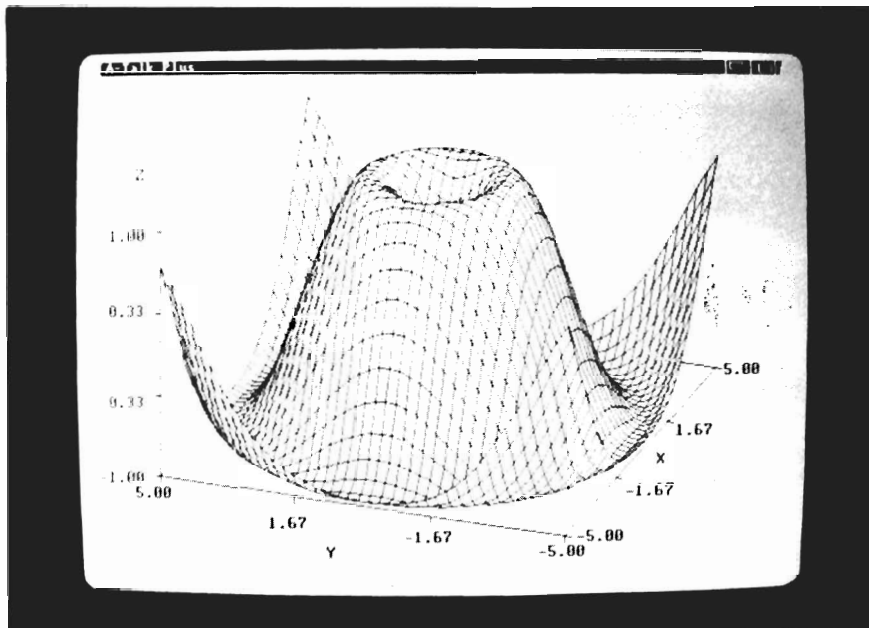
One plot was a mathematical equation known as a "cowboy hat." (See picture). It was plotted using the following commands:

```
DO X=-5 TO 5 BY .25  
DO Y=-5 TO 5 BY .25
```

```
Z=SIN(SQRT(X*X+Y*Y))  
PLOT Y*X=Z
```

The User's Guide that comes with A-Talk Plus is exactly that. It is not, nor does it claim to be, a tutorial. You don't have to be familiar with A-Talk to understand the User's Guide. Nor do you have to know other products to use it. Where you need them, helpful little charts and tables are placed in the book. For example,

(Continued on next Page)



The "Cowboy Hat" plot

ing multiple file transfer protocols and the ability to SPEAK the words you type and receive. If you are familiar with your Amiga, and have some idea of what to do with a modem, this product is for you. The PLUS

from all the others in one very important way. It will save a drawing on the screen in IFF or AEGIS-DRAW format. This new capability will let you transfer graphics from your place of work and continue to work on

A-Talk Plus

(Continued from previous page)

when deciding whether to send a carriage return, line feed, or both to your friend's APPLE, you can refer to the following chart, just in time to save tearing your hair out, when no matter what you do, "it just doesn't work:"

Amiga uses LF only.
Unix uses LF only.
IBM PC uses CR/LF.
Macintosh uses CR only.
Apple II uses CR only.

If you are buying A-Talk Plus to replace a Tektronix 4014, I have a few words of warning, not about A-Talk Plus, but about what you should expect from an Amiga when it emulates a Tektronix 4014. The nice thing about a Tektronix is the clear sharp displays, and the easy to photograph flat screen.

The early Tektronix terminals (4010) would give the inside of your eyeballs a suntan if you were not careful. They used a very high voltage display tube, and came with a safety shield. The Amiga 1080 monitor is much safer to use, but it displays the visual equivalent of a Max Headroom impression. Or, or, or, in p..p..p..plain English it tends to jitter. Changing colors in Tektronix mode will help. My monitor worked best with a light green (about 50%) background and an almost black foreground. The screens of most monitors are slightly curved, and will play havoc with your focus when you try to photograph them.

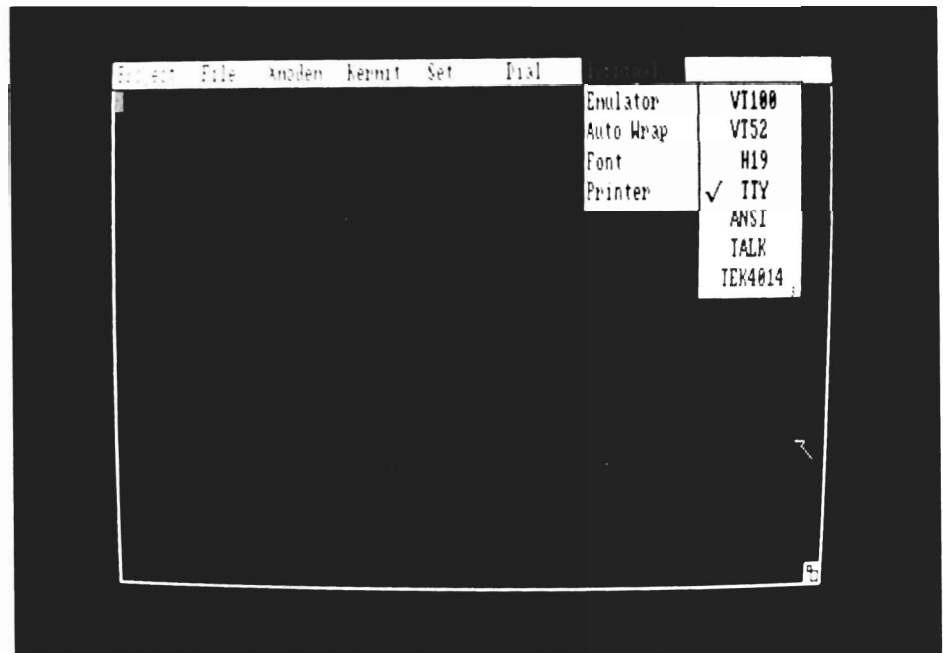
The other problem is with the amount of memory a high resolution plot requires. If you only want to display one screen at a

time, you will be able to slide by with 512k of ram. If you want to use the zoom feature of A-Talk, you can't do it. Fortunately, you get a nice A-Talk Plus warning, not the usual "I'M GOING TO REBOOT" Amiga-Dos message.

If you intend to use Aegis Draw to play with pictures saved by A-Talk Plus, you can only save small plots, or Aegis Draw will run out of memory. (Once again the 512K Amiga is too small for the real world.) The

a cheap replacement for an actual Tektronix 4014 out of the deal, I think you should consider a better monitor and more memory. Even with these added costs, you'll do much better than buying a Tektronix 4014, and you get an Amiga in the process.

ATALK-PLUS brings main-frame graphics to the AMIGA and adds the AMIGA's wonderful ability to manipulate them, thus giving you the best of both worlds.



A-Talk offers a variety of terminal emulations

short (4 page) addendum for the Tektronix 4014 emulation of A-Talk Plus covers this fairly well. It assumes you know how to use your Amiga and a Tektronix terminal. If you don't, you will probably become bewildered.

If you are a casual Tektronix user, or want a way of developing plots at home, I would wholeheartedly recommend your using A-Talk Plus. If you expect to get

A-Talk Plus

Felsina Software

1-(213)-669-1497
3175 South Hoover Street
Los Angeles, CA. 90007

Retail Price: \$ 99.95

Sculpt 3D

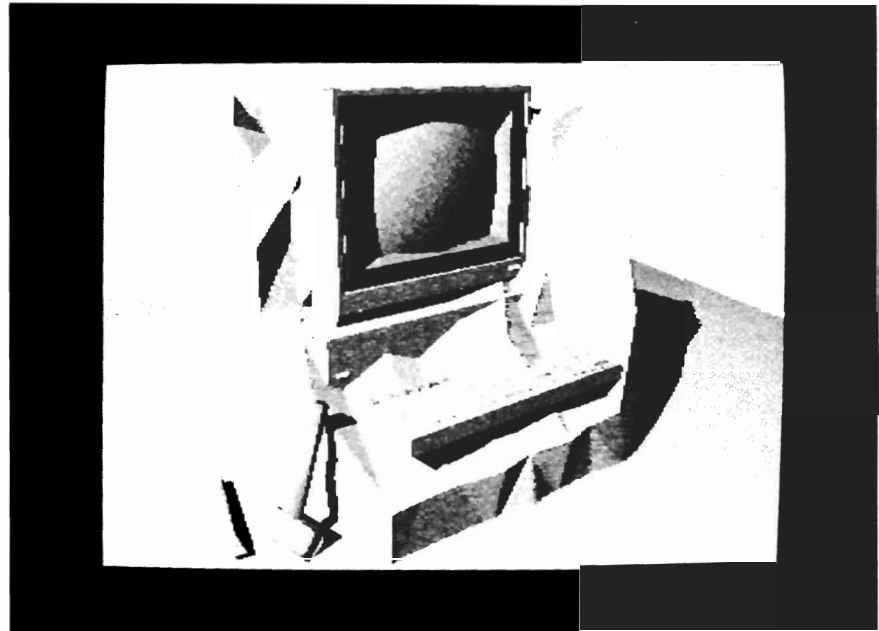
(Continued from Page 13)

sor at a desired spot and press the left mouse button. Hold the button down and press the right button. You have just created a vertice. Add two more vertices and you can use the connect gadget on any window to create edges and thus a triangle. All well and good, but how do we get from this triangle, to sports cars and rocket ships?

You can duplicate your triangle several times. Then use the Grab gadget to move them around into a pyramid. How do you arrange two dimensional triangles into a three dimensional pyramid? You must think in three dimensions. You cannot limit your building to one window. The flat objects you build must be manipulated in more than one window to become 3D.

Maybe this is obvious to you, but it gives me a headache. The Tri-View is less intimidating than a higher order equation, but I hope it's not the ultimate 3D user interface. I do much better using the solid objects provided by the Edit menu. Cones, Cubes, etc., can be dragged next to each other, or even into each other. Using this technique, all that's needed is to specify color and shading. These choices apply to the object or vertices which are Selected. You select by using the cursor and pressing the left button, or using one of several menu options. Selecting is an important skill to master.

Sculpt provides even more construction tools. Using the Magnet tool, you can simulate bulges and depressions as if your objects were made of thin metal. Subtle curves and effects are pos-



"Excalibur", a ray tracing created with Sculpt 3D

sible. The Curve tool can be used with the Extrude tool to create almost any solid shape. Once again, a few illustrations in the manual would speed up the learning process. I hope that an exchange of objects can be established. I'd gladly pay for a disk of well constructed vehicles, or furniture, for example.

There's no doubt that the results produced by Sculpt are impressive. Take a look at the Excalibur image if you need convincing. However, the overall effect of using the program is that I want more functions.

Where is the ability to move my creations? Sure, Byte by Byte is planning an animation module in the near future, but Sculpt doesn't even have provision for creating repeated frames. The Tiny and Small images could have provision for saving as Iff brushes. I've already mentioned that the manual

needs illustrated examples. There's no sample script on the disk either. The use of wireframes in the Tri-View is also a problem. Maybe the Amiga can't support building with solid representations, but I'd like to see Byte by Byte try.

The series of 3D drawing and animation programs which have just arrived promise new and exciting graphic applications. Sculpt 3D produces the most realistic single frame images with practically no limits on your creativity. Perhaps someday soon, these images can be animated, and shared among the other 3D packages.

SCULPT 3D \$99.00

Byte by Byte

Aboretum Plaza II

9442 Capitol of Tx. hiway N.

Suite 150

Austin, Tx. 78759

1-(512)-343-4357

paint programs I've used, in spite of the "purchase verification".

THE TOOLBOX

The Toolbox surprised me by being at the bottom half of the screen. From here you make your pull-down menu selections. This takes some getting used to, since we've been trained to go to the top of the screen for menus.

The Toolbox is easy to use, and is like other paint programs in a number of ways. On the left is a 4x4 grid of colors that make up the main 16 colors in Digi-Paint. They will vary depending on the HAM picture you are editing, and can be defined by the user from the 4096 color palette. Next to this is a large box that contains the current pen color. (This is the color that will fill the screen should you select the "Clear" option). Then there's a brightly colored set of three boxes called the "Color Menu". They will dynamically display all the possible shades of a selected color as you click your mouse within the boxes. Once you've selected a color, you can modify it further by employing the RGB sliders to the right of the Color Menu. In this way you can click on a shade of green within the color menu, and then fine-tune it to perfection using the sliders.

To the right of the RGB Sliders, is a set of brushes which will give varying effects depending on which painting mode you are using. These brushes range all the way from a single pixel for fine tuning your HAM picture, to a fat brush for laying down thick, bold lines of color. Under these brush selection tools you'll find the icons for drawing rectangles, ovals and straight lines. They work in the familiar fashion of dragging the mouse with the button down and then releasing

then click on the Magnify Tool again to return to normal. The Scissors Tool is used for cutting out custom brushes from the screen. Select the Scissors icon, then trace around the desired area while holding down the left mouse button. This tool uses a very flexible rubberband feature. You don't have to keep clicking the mouse to define your brush area. Just hold the button down and trace. This technique is so good, that Digi-Paint makes use of it for defining other areas.

Brushes can then be saved to disk, or used in one of Digi-Paint's 12 special drawing "Modes".

THE MODES

Digi-Paint has 12 drawing modes that are accessed from a pull-down menu above the Toolbox. Some of the modes are difficult to explain since they depend on binary logic to change the image. (These bit manipu-

lations give DigiPaint powerful image processing abilities.) Most modes are pretty straight-forward and will soon have you creating images in ways only the Amiga can.

Solid Mode is used for putting color directly on the screen. (Remember, this can be ANY of the 4096 colors!) There's a Blend Mode for averaging the



A painting done in DigiPaint's 320 x 200 mode

the button to have your shape drawn on the screen.

Two more icons make up the Toolbox. When the Magnify Tool is selected, you direct your pointer to the portion of the screen you would like to work on in detail. Digi-Paint zooms in on this area, filling the whole screen with a small part of your picture. Edit to your satisfaction,

color of the pixels under your brush with the selected color. If you select the Add Mode, the colors under your brush will increase by a value equal to the color you've selected in the Color Menu. Let's say you've selected a color with a Red value of 2, a Green value of 0 and a Blue value of 1 (a very dark purple). If you use the Add Mode to paint over Black (0-0-0), everywhere you paint will have the RGB value changed to 2-0-1. If you were to paint over the same area again, the color would change to 4-0-2. This technique creates some very convincing shading. I used this mode extensively when editing HAM screens.

The power of the Add Mode is demonstrated in the documentation. You are first shown how to load a picture. In this case, it's an interlaced, 16 color picture of a woman's face that's included on the disk. Next you are instructed to make the RGB value of the current color 3-1-0. Then you activate the Add Mode and turn the fill gadget on. When you trace around the woman's face, your pointer turns into a wait pointer as the face is filled with very convincing flesh tones. The Subtract Mode works similarly with the opposite effect.

There is also a Shade Mode that works very much like Dither Fill in Deluxe Paint. This mode can be used to create shaded objects where the color gradually changes to simulate the effect of a three-dimensional surface.

Digi-Paint comes with the stan-



Even grey scaling looks impressive with DigiPaint

dard Undo Gadget that will cancel the last screen action. Next to it, I found something I hadn't seen before. It's called the Again Gadget. With it, you can repeat the last screen action. This gadget is the perfect companion to the Undo Gadget. For instance, I had used the Add Mode to add flesh tones to the face in the above example. I decided that the flesh tone was not red enough for my tastes. So I clicked the Undo Gadget, cancelling the flesh-fill picture, and returning the picture to normal. I used the RGB Sliders, and changed the current color to one with a little more Red. Then I was able to simply click the Again Gadget, instead of re-tracing the face. This filled the face with flesh tones closer to my new color. If I still wasn't pleased, I could Undo again, change the color once more and use AGAIN to

repeat the fill. This Gadget saved me valuable time in achieving the look I wanted for my pictures. Digi-Paint will load and use standard IFF format pictures. For me, this was the most exciting part of Digi-Paint. I could now design my pictures in parts, and splice them together using Digi-Paint. Imagine doing a picture using your favorite paint program. Instead of picking a 32 color palette for your whole picture, you could have a 32 color palette for each part. A picture of a space ship flying through a meteor storm could be done in pieces. The stars could all be 32 colors, the ship itself could be another 32 colors, and the meteors could each be done with their own individual 32 color palette. Then each of these pictures could be pasted together into one HAM format image. I predict you'll

(Continued on next Page)

DigiPaint (Continued from previous Page)

soon be seeing a new look to Amiga art in the HAM format.

Digi-Paint is a great program for editing HAM screens to change their colors with different effects. It is second to none as a tool for pasting together illustrations of more than one palette. However, as a paint program in it's own right, Digi-Paint is too hampered by restrictions of the HAM mode to compete with existing paint programs. When you draw a freehand line with Digi-Paint, the program must wait until you finish drawing the line before it can change the colors of the pixels on the screen. This makes drawing very tedious. If you already own Digi-View (the digitizing equipment sold by

NewTek, Inc.), or if you crave more than 32 colors in your palette, then Digi-Paint should be on your "must-buy" list. Digi-Paint won't replace your current paint program, but it will make it 128 times better!

Digipaint

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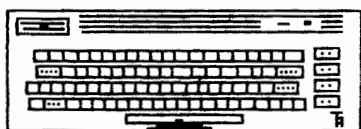
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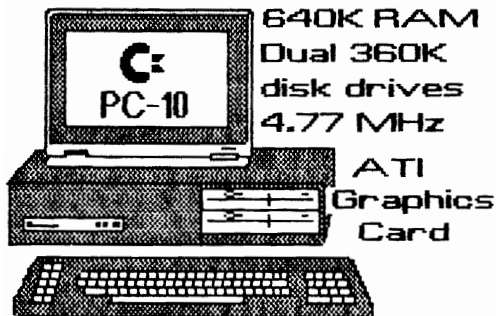


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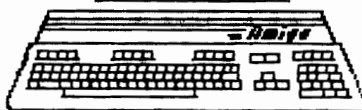
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Printers

(Continued from Page 36)

The tractor feed has the double row of holes on the edge for a good mechanical track, but leaves a rough edge when the tractors are removed. Cut sheet feeders move single sheets into a printer that already has a friction feed mechanism. The advantage of this is that letterhead can be run through the printer without having to pause to change sheets. Many printers now allow a choice of tractor feed or friction feed, or both at once.

The choice of a printer is very personal and all of the reviews ever printed can not decide for you. Try to "prioritize" your needs. If you will be printing formal letters for business purposes you should only consider high quality text printers, i.e. 24 pin dot matrix, laser, or daisy wheel printers. If your needs are more casual and include a strong desire for graphics, then dot-matrix and ink-jet printers will be appropriate. How important is color to you? If your primary need is for color graphics output then concentrate on thermal transfer and ink-jet color printers. By all means, get print samples and ask your friends and fellow Amiga users for their recommendations.

Hopefully this article has given you information that should answer most basic questions. Printer technology is changing rapidly and prices change even faster. In general, the longer that you can wait, the better the printer you can get for your money. If you can't wait, remember that good text and graphics can be produced by a \$200 close-out as well as \$4000 printer.

Add Color to Your Amiga Documents ...

When you are ready to choose a printer, there is no reason to limit yourself to one. Instead of spending a lot of money on one printer that tries to do everything well, you can buy two printers that do specific tasks very well. The Amiga preferences allows an easy method of changing between printer drivers as needed. The only additional requirement is an A-B switch to physically switch the connections.

I am using a Canon Pj-1080A for graphics work and a Facit 4509 nine pin dot-matrix printer for text. The Canon has distinguished itself as an excellent color graphics printer. It uses two ink cartridges that produce seven colors by mixing inks and can mimic more colors with fine patterns. The spreading of the ink gives a smooth even image with decent definition. Unfortunately, the Canon text is poor at best with characters poorly formed and slow in printing. The printer does not produce "true descenders". This means that characters with portions that would normally drop below the line are moved up. These are the lower case letters "g", "j", "p", "q", and "y" which without the true descenders look much like the upper case. The basic chassis of the printer is used in some other brands with different ROMs built in. The Quadram Quadjet is one that prints at a slower speed.

Another color printer that has better text than the Canon is the Okimate 20. The graphics are still full color and sharp but tend to show some lines. The print speed is faster in text but very slow on color graphics. The Okimate is a thermal transfer printer and uses a wax coated ribbon. The drawback with this is that it has a short life, can not be renewed, and is high in cost.

A printer that offers good text and color graphics is the Xerox 4020. It is a seven color ink jet printer with very fine dots and bright colors that can reproduce most of the Amiga's colors faithfully. It does have a definite preference for reds in the printing of graphics but is fairly free of smears or lines. The text is as good as most dot matrix printers making this one of the few printers that can do both tasks well. All this does come at a price, a very high price (\$1795.) that gets close to the lowest priced laser printers.

Another drawback is the Xerox maintenance procedures are more involved than those of the Canon. The printer has a shut-down cycle that is performed when switched off so you can not plug the printer into a switched power bus. The cleaning can get involved so it is best to follow the manuals instructions precisely.

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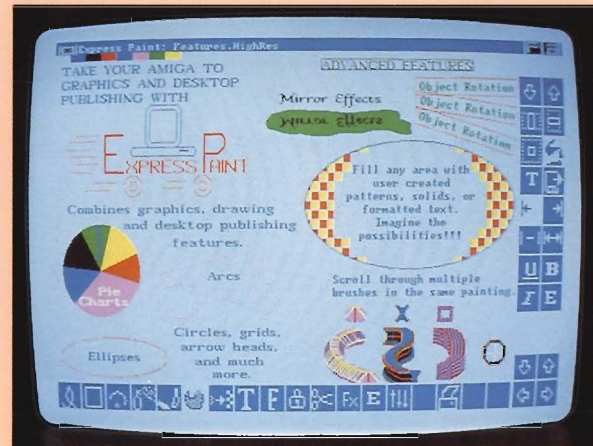
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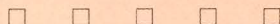


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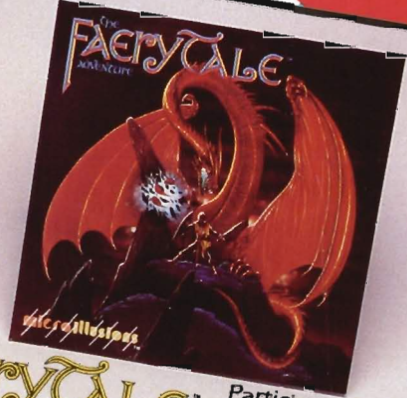
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