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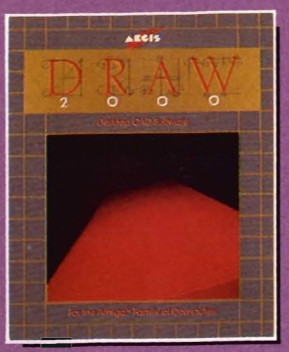

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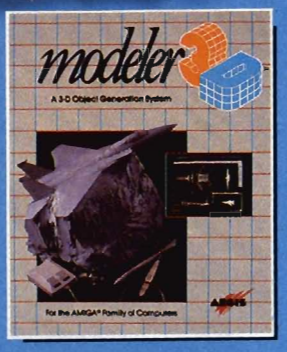

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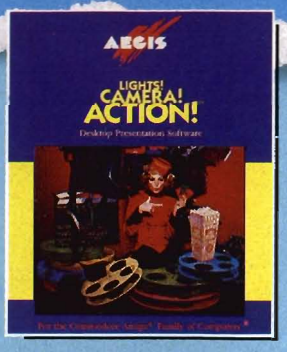

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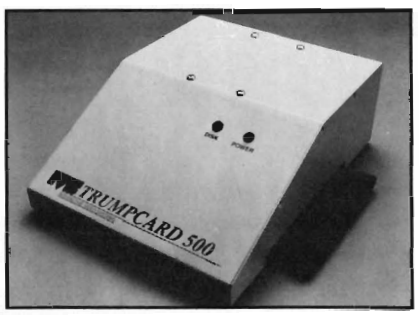

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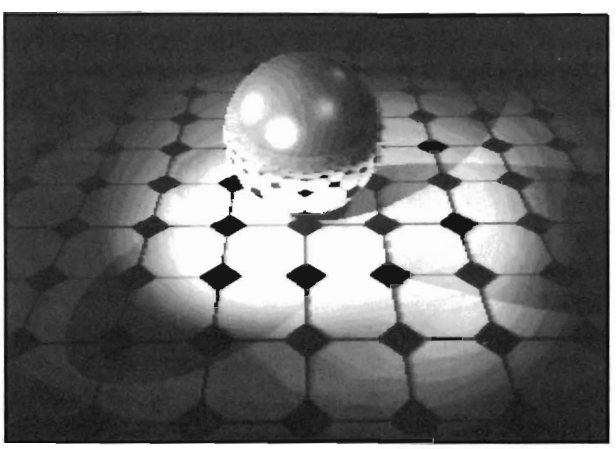

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On Point

Notes from Editor, Tom Bucklin

The second Ami-Expo in New York was held a few weeks ago. It had been some time since many of the participants were back in New York (October 1987, to be exact). As is usual in these kinds of events, participants come from all over the country, and in some cases, very rural communities. Watching the folks from these areas react to New York was arguably one of the best sights in NYC.

The hotel was located right smack in the middle of the theater district, and the full compliment of New York's fringe populated the streets. Where else in the world could you find streets full of people who are willing to let you in on how to buy a $25 GUCCI watch (or anything else you might need, for that matter). There were also free concerts in the park....well, er, it was sort of a park. Actually, it was a place where you park your car and the band was dressed in street cloths playing inverted drywall compound buckets at about 1:00 A.M. (The city that never sleeps, right?)

I have been a part of every Ami-Expo since the beginning, and I'm here to tell you that there is nothing like New York. It goes beyond the fact that there was a record turnout. New York is New York, and it is a great place to visit. The only problem is, unlike the song, what I was interested in doing after the weekend is sleeping in the city that never wakes...

Enjoy the issue...

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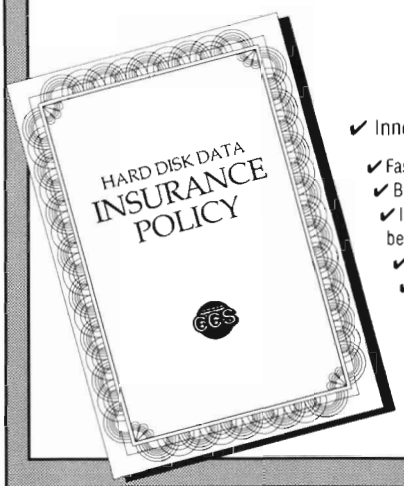

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Show Report:

Ami-Expo New York '89

12,000 Amiga Fans Pack the New York Marriot Marquis

The hottest tickets in New York during the weekend of March 3rd were; Phantom of the Opera, Joan Jett, and AmiExpo. Almost 12,000 fans attended the three-day all Amiga variety show. This AmiExpo wasn't on Broadway, but the Mariott Marquis is as "uptown" as you can get without a visit from Leona Helmsley. We'll try to describe the show for those of you who couldn't reserve a good seat.

The first AmiExpo was held in New York back in October 1987. There were three more in the following twelve months, making this the fifth staging. The playbill stays pretty much the same, but the most recent show featured a few changes. For most attendees, the exhibit floor with more than 60 Amiga developers is the main attraction. The latest in hardware, software, services, and magazines is sure to draw the last dollar from any Amiga enthusiast. Every AmiExpo has also featured seminars during which the audience can learn from, question and even heckle the "experts" in various Amiga arts. During the past three events these seminars were an extra-cost item, but AmiExpo management wisely removed the $5 and $10 fees. The seminar panels and presenters do their best to be informative, but the experiences are not uniformly worth the fees previously charged.

The "third act" of the AmiExpo was developed more recently. Master Classes, are intensive three-hour sessions limited to 25 students. These are conducted by acknowledged "experts" who are also good teachers in areas ranging from Video to C. For a fee of $50, you could have a front row seat with Jim Sachs in "the Art of the Amiga," Eric Lavitsky in the "Amiga in C" or Steve Segal staring in "Amiga Art in Motion." Master classes are a popular feature and are sure to be sold out in Chicago this comming July.

One other aspect of the show worth noting is the Amiga Artists Theatre. This event has been growing with each AmiExpo and reached new heights at the Marriott. AmiExpo sponsored a professionally judged Art and Video contest with the work of all entrants on display. The seventh floor ballroom was an appropriate stage for the many new works in 2D, 3D, Digitized, and Animated categories. The winners were announced at a special ceremony Friday evening. Prizes were donated by Amiga developers and ranged from accelerator boards, to digitizers, to harddrives.

One of the most awaited software packages in Amiga history, Pagestream from Softlogik, was both on display and shipping. As Sentry readers know from last month's issue, this is a breakthrough product which is well worth the wait. Deron Kazmaier, persevered through the dog-days of development to bring scalable fonts, high-quality dot matrix output, and many new professional desktop features to the Amiga.

Other new productivity software included, ProFonts from New Horizons. The makers of ProWrite have developed two sets of fonts which are specially created to give exceptional results on dot-matrix printers. Gramma Software was promoting NagPlus, the unique calendar system which features voice and sound reminders. If you are the type who needs to be told what's on your schedule, check this out. Emerald Intelligence previewed the next release of Magellan, and an Interface Toolkit which will soon bring expanded power to Amiga expert systems.

Micro Systems Software was proud to finally demonstrate the Works. This all-in-one package offers an integrated word processor, spreadsheet, telecomm program, and database. You begin or switch to any of the four programs from one common menu, and use clipboard based cut and paste operations to transfer data between them. You might expect that these would be scaled down versions of Scribble, Analyze, Online, and Organize but you'd be wrong. Each product has been enhanced with features and efficiencies.

The Works word processor now has over 104,000 words in its spell checker and adds a 400,000 word thesaurus, and the new version of Analyze includes a built-in sideways printing utility.

Across the way, Brown-Waugh was demoing their soon to be released Pen Pal. Promoted as a "third-generation" word processor it could be called "son of Softwood Write&File." Pen Pal includes a built-in database, 100,000 word spell checker, multiple fonts with intelligent font requestor, and extensive graphic functions. Special features include support of a full 4096 color pallete for each graphic, structured box and line drawing tools, and text flow around graphics. Perhaps the most important "advance" is support for the built-in NLQ fonts of many printers. We hope that Pen Pal meets its planned shipping date.

Although GoldDisk was not on the exhibit floor, representatives provided information on a flock of new productivity products including Transcript, a new word processor which retains the style settings when exporting text to Professional Page and a 300 DPI Black and White scanner, which is scheduled for release as you read this. GoldDisk and ASDG have teamed up to develop a breakthrough product in color scanning. You may remember that ASDG developed powerful software to interface Sharp JX color scanners to the Amiga. Now called ScanLab, this product uses ASDG's Twin-X expansion card to create a professional color scanning workstation for under $10,000. The latest addition, ASDG-Resep, works in conjunction with ProPage V1.2 (not yet released) to produce full 24 bit-plane color separations of scanned graphics. What this means is that you can scan a color image and compose a document using ProPage and a 4096 color HAM image on

screen. Then use Resep to substitute a 16 million color version of the same image during the Postscript separation process. Scanlab saves both versions of the scan so that this magic can take place. ASDG also introduced its Dual Serial Board. This combination of hardware and software adds two 9 pin serial connectors with a single A2000 expansion board. Now you can use up to three serial devices simultaneously! (The built-in serial port remains active.) Those who operate bulletin-boards, use digitizing tablets, and serial printers will greet this news with applause.

Another developer was showing an A2000 serial port expansion product. Amigo Business Computers is developing *ComPorts* which can support up to 8 serial channels on each board, up to 5 boards per computer for a total of 40 additional serial ports. ComPorts was being shown with a new bulletin board package, MulitBoard from Intercore Development Systems. This combination offers the ultimate in multi-user multitasking telecommunications. MulitBoard supports multiple file transfer protocols, CB simulation, and up to 32 users online. This Amigo card is not as pricey as the ASDG version, and gives you more serial ports.

There were many other hardware developers represented at the Marriott. Perhaps the most visible was GVP with four booths and crowds aplenty. AmiExpo was the first public showing of the new GVP removable media products, including the 44 MB Syquest Harddrive and Bernouli boxes. These are the only autobooting removable media products for the Amiga. In addition to their well-known Impact harddrives and memory cards, GVP introduced a surprise. A new 68030 accelerator card was running using a 20 MHZ chip and running at 20 MHZ! Till now the fastest any Amiga accelerator could run was twice the system clock speed or 14.2 MHZ. A new technology was developed to run asynchronously from the system clock and produce the fastest Amiga ever.

Spirit Technology showed-off their new Midi-Star (see February 89 Sen-

(continued on next page)

Ami-Expo NY '89 *(continued from previous page)*

try) and memory expansion products for all Amigas. Comspec, too, produces products for all models of Amiga's. Their new SCSI interface also supports Bernouli devices. Removable media are a good choice for project oriented users, especially animators.

The MiniMegs from M..A.S.T. is an external RAM expansion for the A500 which uses 256 by 4 bit "zip" packaged chips to provide up to 2 megabytes of fast ram. The tiny 3" by 5" inch package attaches to the expansion bus of any 500. Progressive Peripherals introduced a new harddrive. *The Vault* interface uses a unique cable which can connect to either a 1000 or 500 system! Progressive will offer a 20 MB unit for only $599.95 including controller and drive. Interactive Video Systems introduced a version of the Trumpcard for the 500. This autobooting SCSI controller can be configured with up to 100 MB of disk storage. (See review this issue)

On the Video front, Mission Graphics was present showing state-of-the-art animation and single-frame recording techniques. Impulse made a rare appearance with the latest version of Turbo Silver and several 3D object libraries. Mindware International introduced PageSync, the first multimedia Amiga tool. PageSync links MIDI events and Amiga Animations to produce fully automated media presentations. Incognito also has a new rendering program which supports the Haitex 3D glasses. Opticks is a full featured ray-tracing package which adds the unique capability of moving images to an IBM based Targa system, and its 1000 by 1000, million+ color palette (See review this issue).

Progressive Peripherals announced a new development in their Framegrabber product line. Framegrabber 256 captures 256 shade images in real-time. This product is scheduled for introduction in May and is well suited to medical, scientific and security applications.

R&DL Productions introduced new software for the AProDraw tablets. The latest software supports scaling so that the very high resolution of the graphic tablets can be used by mapping a sub area to the Amiga screen. R&DL also introduced *LightBox*, a pencil-test tool for the professional animator. (See review in this issue.) Electronic Arts shared a booth with Leigh's computers and made its presence felt with the soon to be released Dpaint 3. With built-in animation, overscan and half-brite support and much more, Dpaint 3 continues to give Amiga artists the creative edge. (See feature in this issue.)

The "Paint Wars" are not ended. NewTek announced Digi-Paint 3, skipping over version 2 altogether. Digi-Paint 3 will feature faster operations, keyboard equivalents, and unique new 3D texture mappings. Superbitmaps are now included, as is the ability to process images from DigiView using the dithering routines which have made the DigiView software famous.

Visionary Designs, famed for their faithful rendition of the arcade adventure game, "Dragon's Lair" was on hand to introduce DataStorm, a new high-action game.

Dr. T's, NewWave, and Intelligent Music represented the Musical side of the Amiga. NewWave's sequencer product, Dynamic Studio, is up to version 3.0 and boasts a redesigned WYSIWYG interface and auto-quantizing. Dr. T's introduced their newest version of the KCS, Level II (See review this issue). "M" is a real-time interactive MIDI composing and performing package. Using sophisticated pattern editing techniques, M is a powerful enhancement to the creative process.

Even as the final curtain fell, exhibitors, speakers and visitors alike could justly say that this AmiExpo was the hit of the season.

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Commodore's New

A2286 Bridgeboard

The Bridgeboard Steps Up to AT Compatibility

by Greg Illman

The long awaited A2286 AT Bridgeboard has at last arrived, and it offers a new level of performance for Amiga MS-DOS users. The present A2088 Bridgeboard is based on the very dated 8-bit technology using the Intel 8088 chip. This system runs like the original IBM PC at 4.77 MHz, and by today's standards, it is slow. The A2286 uses the newer 80286 CPU that supports full 16-bit data and also uses the extra connectors from the two shared PC/Amiga slots on the Amiga's motherboard to move the extra data bits quickly. Clocked at 8 MHz, the A2286 runs much faster than its predecessor.

Installation of the new AT Bridgeboard is essentially the same procedure as the old board. The card plugs straight into one of the two shared Amiga/PC slots. With the A2286, however, the choice of slot deserves some special attention since the AT bus makes use of the short connector between the Zorro and standard PC slots. If you're going to be using hardware like memory boards or drive controllers, the extra slot enhances performance and increases data transfer rates. On the down side, there is, in my opinion, a major weakness in the design of the A2286 that forces it to take up two Amiga Zorro slots. If you choose to place the board in the first shared slot, you only have two expansion slots left open.

On a more positive note, the AT Bridgeboard does come with a high density, 1.2 Megabyte 5.25 inch floppy drive instead of the 360K drives available with the XT BridgeBoard. The A2286 uses a specialized configuration menu that is accessible by typing Ctrl-Alt-Esc. This is a common feature on most AT clones and a vast improvement over the original IBM installation-disk method. The results of the menu selections are saved to a special battery backed section of CMOS RAM on the Bridgeboard. The unit ships with a lithium battery that commonly lasts 5 years in average service or more if the computer is in frequent or continuous use. The battery is small and difficult to place into the computer because of its shape. The installation manual for the Bridgeboard shows the battery attached to the power supply via the battery's adhesive backing.

The original Bridgeboard manual is probably one of the more confusing documents that Commodore has produced. The newer one has some improvements, but it still leaves something to be desired. The improvements lie predominantly within the installation sections of the manual. The first half of the manual contains nothing but basic hardware and software installation instructions. Pictures do make the hardware installation a snap to understand. The Janus software installation may make hard drive users nervous because the program appears to mark whole directories for deleting, but in effect, it simply highlights those directories which contain files that need to be changed. The section on creating a virtual bootable drive is complete, but it assumes some knowledge about hard drive settings. (As a hint for the inexperienced, it is a good idea to use the table provided in the set-up menu to pick a drive of the desired size, and then write down correct head and cylinder information.)

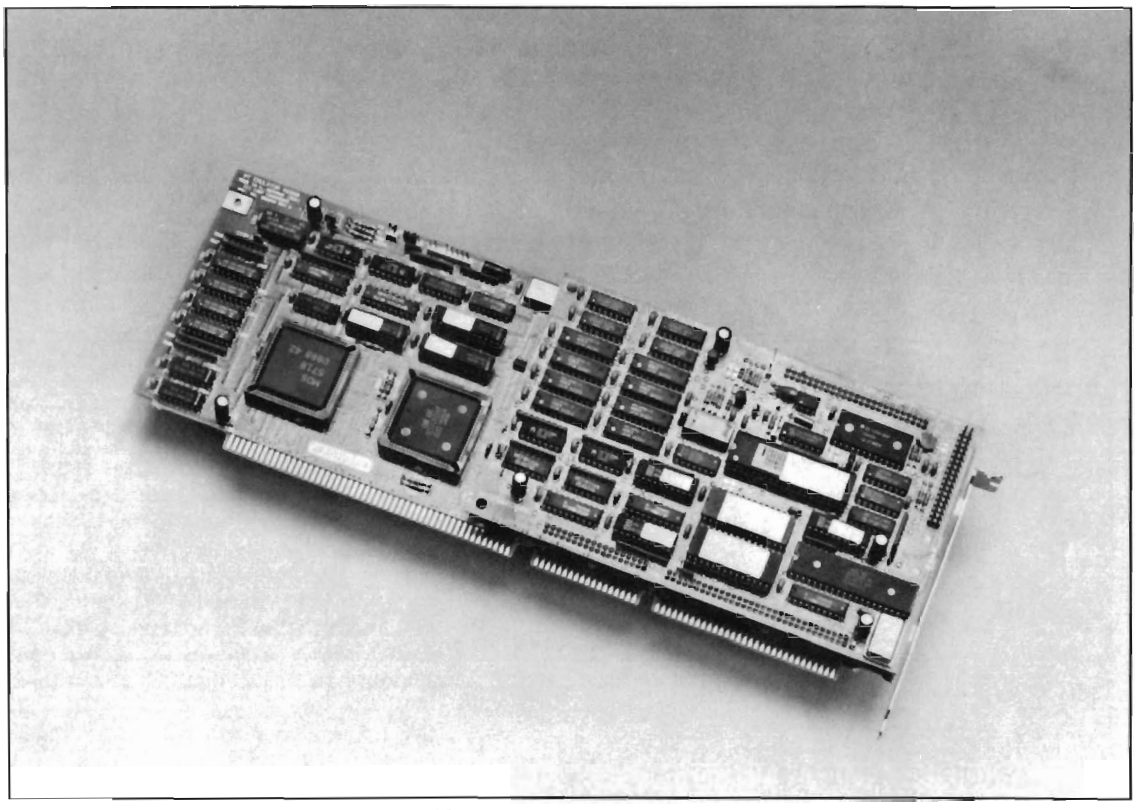
The "MakeAB" program asks for a block-per-track value which is not in the table. To get the right number, divide the size of the drive by the number of heads, then divide this value by the number of cylinders, and finally divide again by 512. Rounding the result should yield accurate results most of the time. The "MakeAb" program reports the virtual drive size and the Amiga file size, then performs a final check.

The manual does not do a good job of explaining the JLINK virtual drives and their limitations. This section is much like the original A2088 manual. It is still is a source of confusion. The bootable virtual drive makes the JLINK command less important, but

occasionally, these drives provide excellent temporary or mass storage. The Amiga mouse can now function as Microsoft compatible for most applications, but the manual's instructions are poor when explaining how to adapt the mouse to fit other applications. The instructions for this area also assume detailed knowledge of programming.

One section that I found wholly inadequate was the installation of the math co-processor on the A2286. A one-page explanation, half of which contains a picture, is all that is offered for this procedure. It has such helpful statements as, "Carefully disassemble the sandwich board from the motherboard." This innocuous phrase deserves a whole appendix to itself. The boards fit tightly together and there is little space in which to work. Firm pressure is required all along the connectors from both sides to avoid flexing the boards or damaging components. The absence of pictures and suggestions for separating the two boards is definitely a drawback, especially considering that the A2286 is large investment.

The price of the A2286 is high. It is estimated that the street price will be around $1300, with some lower prices possible through promotions. To measure processing speed, I used the Norton Utilities SI command, a widely accepted standard. The A2088 rated a "1" -- the same speed as an IBM PC. The A2286 rates 8.4 which means that the A2286 is about 8 times faster than the A2088, according to the software's estimation. In practice, the speed improvement does not appear to be quite as great because of the Amiga's slow screen updates. With a separate graphics controller, the results agree more closely with the Norton test.



The new AT compatible Bridgeboard features a clock speed of 8 Mhz

The unanswered question does, however, remain: Is the A2286 worth the wait and cost? For most people, the answer is probably "no." Software compatibility is the major reason for getting a Bridgeboard, and for most applications, the A2088 delivers that for less than half the cost of the A2286. It is possible to improve the speed of the A2088 by using an accelerator board like the PC-Elevator (reviewed in a past issue) or the low cost AST accelerator that typically sells for under $150 and doubles the speed of the A2088. (Other speed-up boards may work in conjunction with the A2088, but those mentioned above are the only ones that have been tested so far.)

While the 8 MHz A2286 is fast, it is not as fast as many IBM clones (or even as fast as it was originally announced). Most of my personal disappointment stemmed from the high expectations created by Commodore's original specifications. The planned AT Bridgeboard was supposed to run at 10 or even 12 MHz as a single board design. However, the A2286 does work and is fast enough for most applications.

The design of the sandwich board is poor, however. The sandwich board's cumbersome dimensions are such that

(continued on next page)

when it is installed in its own Zorro slot, a projecting capacitor blocks part of the adjacent slot, making it useless. Even without this capacitor in the way, the connector and wiring for the back-up battery hangs out from the board.

While I found the A2286's speed adequate for my purposes, it is far from the cutting edge of clone computing power, even for Commodore. Commodore is now shipping the PC-40-III which is a fast AT clone that carries a relatively low price tag. If you consider import clones and do some shopping, you could buy a complete 12 MHz AT clone with monochrome monitor for $1000.

Certainly, an advantage to the Bridgeboard is the ability to easily transfer files and share resources like monitors and hard disk drives within the Amiga. Hopefully, these advantages will help to justify the high price of the board.

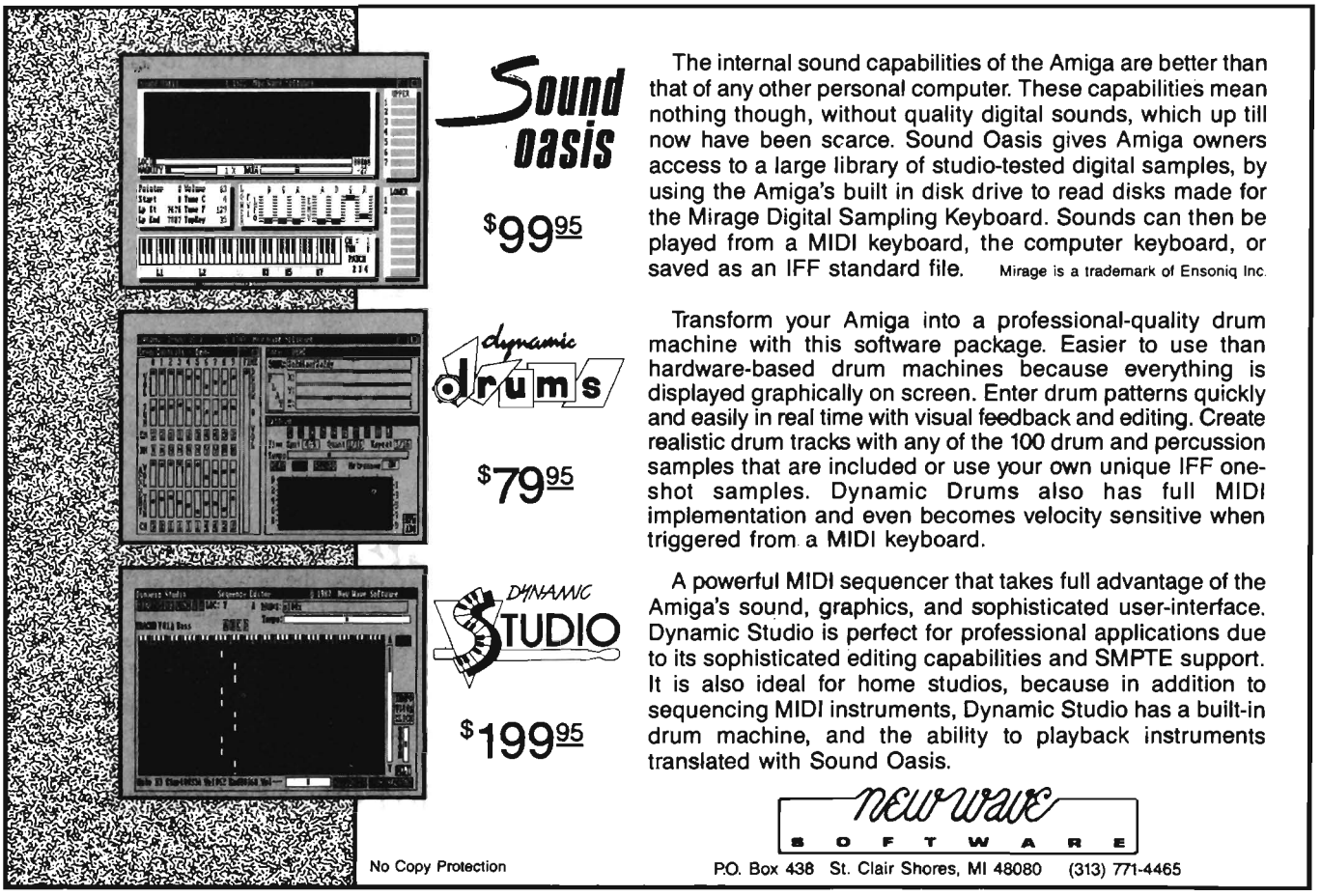
I had high expectations for the AT Bridgeboard, and in some ways, they were fulfilled. The software compatibility is good, but task switchers like Taskview, Desqview, and DoubleDOS do not work well, if at all. This is unfortunate, because a good program like Desqview can make some MS-DOS programs almost as nice to use as on the Amiga.

A small gripe I have is the apparent German design of the A2286. The dates displayed are in European decimal format and not the more familiar dashed or slashed American type.

Generally, I am not blown away by Commodore's new Bridgeboard. I don't feel that any significant new ground has been broken here. Look for the A2088 to continue with strong sales for some time to come.

A2286 AT Compatible Bridgeboard
Suggested List Price $1599.00

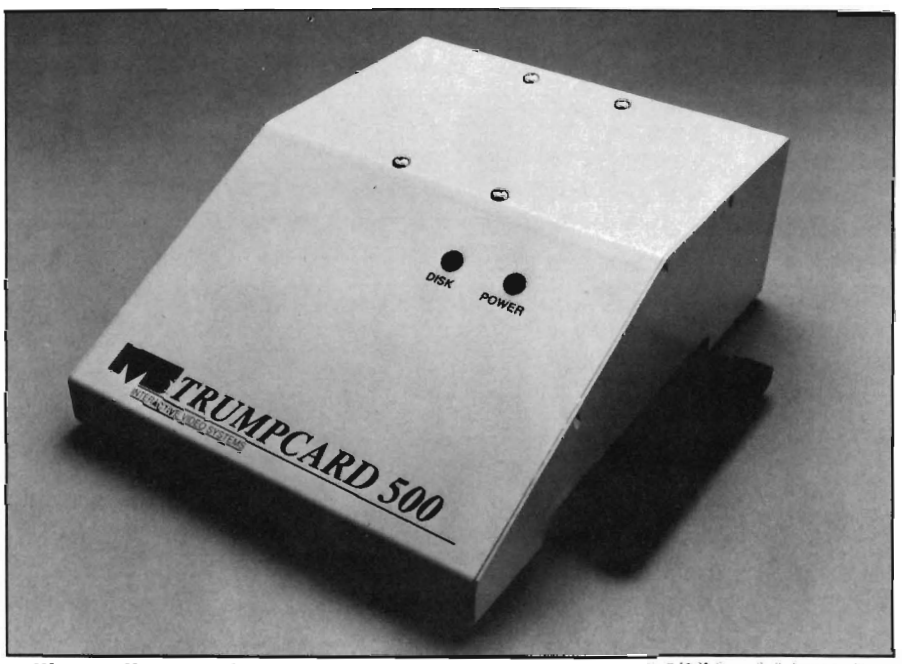
Commodore Business Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100



Trumpcard 500

A New Autobooting Hard Drive Chassis for the A500

by Steve Dock



The new Trumpcard 500 chassis can support a wide range of 3 1/2" hard drive units

The Amiga 500 is a deceptive personal computer. The all-in-one tan case with its built-in keyboard looks like a member of the C64 or Atari 400 family. These famous game machines also used the all-in-one approach to reduce costs. The similarity ends when you consider that 512 KBytes of memory and a 32 Bit 68000 are housed under the "hood" of the A500. Hundreds of thousands agree that this particular Amiga gives the most bang for the buck, and have purchased an A500 during the last two years. Most North American A500 owners also purchase the A501 optional RAM expansion to bring their system up to a full 1 Mega-Byte of RAM. A 1 MEG A500 is in many ways the equal of a stock A2000 and will often be used for graphics, word processing, and video applications.

Where the 500 and 2000 differ, is in expansion beyond the A501 memory unit. The 2000 has a chassis and power supply which support the addition of internal disk drives, memory boards, video boards, and even IBM style expansion boards. The A500 has a connector for external floppy disk drives, and an expansion bus similar to that of the original A1000. The A500 uses an 86 pin bus which provides full access to the system mother board and can be used to add memory or a harddisk. The peripheral product life-cycle of A500 expansion units reminds me of the cycle of the A1000 (eg. slow and few). While harddrives and hardcards for the A2000 were developed rapidly and new models continue to be introduced almost every month, harddrives for the A500 have been slow to arrive.

Therefore, we were very happy to receive one of the first Trumpcard 500 units for review. The Trumpcard is produced by Interactive Video Systems of La Mirada, California. IVS introduced its first harddisk product at the AmiExpo LosAngeles, in October 1988. The Trumpcard is an autobooting A2000 expansion card which provides a SCSI controller and a full set of features at a bargain price. The same autobooting controller is the basis of the 500 product with the necessary chassis and bus connector added.

The Trumpcard 500 chassis is a tan metal box about 7 inches wide, 9 inches long and 3 inches tall. The front two-thirds are angled to almost match

(continued on next page)

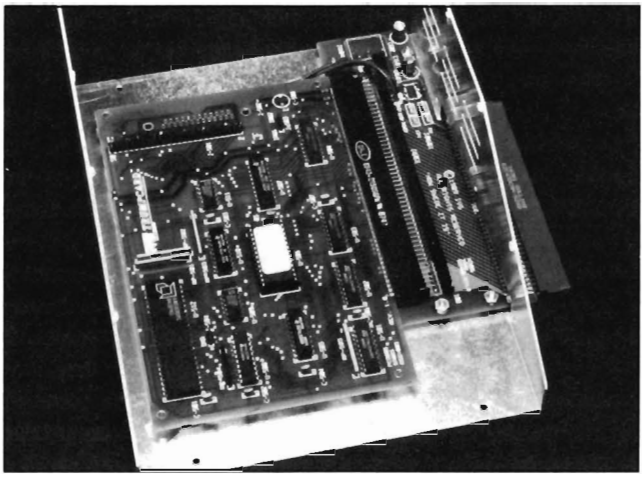
Trump 500 *(continued from previous page)*

the slope of the 500 keyboard. Two lights are mounted on the front panel to inform you of power status and disk activity. The standard Trumpcard 500 draws its power from the 500 expansion bus, but an optional external power supply can be ordered. Inside is a circuit board which converts the 86 pin bus to the newer 100 Pin Zorro standard, and provides two 100 pin conncections. The Trumpard SCSI controller is plugged into one of these conncectors. A 50 pin SCSI ribbon cable runs to the harddrive, which is mounted transversely and attached to the top of the chassis.

Installation is a two part process; hardware then software. First remove the plastic bus cover at the left side of the 500, then carefully align the harddrive unit expansion connector. The Trumpcard documentation suggests that you start with one end, then rotate the harddrive to a full connection. A little pressure will complete the installation. While this is an easy process to complete, you must take care not to lift the combined 500-Trumpcard, since the bus connector is the only support provided and it is not meant to take that kind of strain.

Now turn on the 500 and insert the Trumpcard Boot Disk at the Work-Bench prompt. (This disk contains everything you need to initialize your harddrive, so be sure to make a backup before your begin to use it). The start-up-sequence of the Boot Disk will ask you if you want to "auto-install" your harddrive. If you respond "yes" the TCUtils program will be loaded and a 7 point checklist will appear onscreen. The checklist is well documented in the booklet-style instruction manual and includes on-screen help for each section. The Trumpcard is a SCSI controller and therefore can perform the first item on the checklist automatically. SCSI harddrives come from the factory with certain information preset. If your drive is one of those included on the TCUtils disk you can breeze through Drive Select to Low Level Format. Before any harddrive can be used, it must be electronically marked and divided into sectors. A brand-new drive must go through this process twice, once for the SCSI controller, once for AmigaDos. The Low Level SCSI format simply requires a click of the mouse to begin. (This screen, like several others, protects you from erasing any existing harddrive data by requiring three different clicks on CONTINUE.) The next item is the optional "Certify Drive" screen. I recommend that you don't skip this step but spend the extra time required. You can choose a variety of destructive or non-destructive tests to ensure that there are no media defects on the drive before you load up your programs and data.

An internal view shows the Trumpcard



Next you will create a mountlist entry for your first partition. Most users will use the DH0: name for their harddrive but you can type in any valid AmigaDos device name. Values for beginning and ending cylinder will be filled in for the first partition, but you need to write down the ending cylinder value for use in other partitions. Item 5 on the checklist is Mount the device. Item 6 is AmigaDos format. Here you give a name to your Partition like "Hard Drive". The AmigaDos format will take some time, 10 to 20 minutes depending on the size of your drive. Finally, TCUtils will write setup information to the drive to allow it to autoboot.

With all items checked you choose EXIT and TCUtils. You will be prompted for an original Work-Bench which will be copied to the harddisk. This will finish the installation process. Now power off your 500 and restart. Assuming that your A500 has the 1.3 Kickstart in ROM, the Trumpcard 500 will autoboot and automount presenting the Workbench screen in a few seconds. (The default ICON for the TrumpCard partition is an eye-catching image of a playing card). You can now begin enjoying the benefits of a hard-drive equipped Amiga.

The installation software has provision for creating multiple partitions by repeating steps 4, 5 and 6 and remembering to record the ending cylinder values. While functional, this approach is not as user-friendly as some other installation software we have used. TCUtils also produces a small BOOT partition on your harddisk which does not use the fast file system. A purest might complain about this, but Commodore's own 2090A autoboot process also requires a non FFS partition. These comments aside, TCUtils does the job and produces the desired result, an autobooting harddrive.

IVS included a 100 MegaByte Connor CP3100 harddrive with our review

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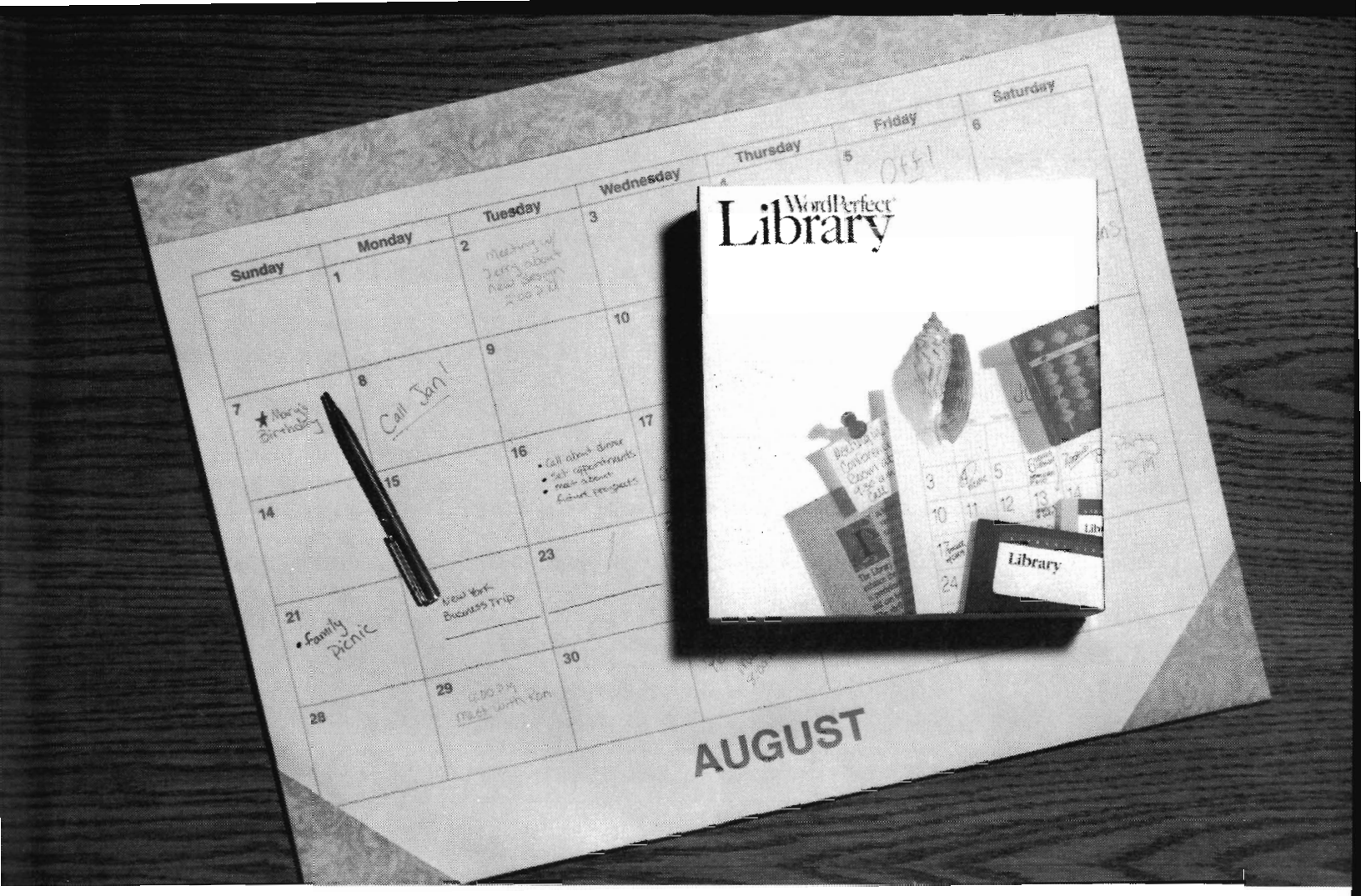

WordPerfect Library™ Calendar: You Can Plan On It.

Plan on the Calendar inside WordPerfect Library™ to organize your day. Its four windows work together to design your time, leaving you more room to get the real work done.

The Calendar window shows you the month at a glance. Using the mouse or arrow keys, you can move from today to yesterday, jump to the same day three months before, or move years into the future. Calendar will also calculate the difference (in days, weeks, and months) between any two given dates.

Appointments show in a window next to the Calendar. In a few keystrokes you can add an appointment, or merge your file with others to show possible meeting times. If you choose, an alarm will notify you of your appointments in advance. You can specify the timing, duration, and even the sound of the alarm on your Amiga.

A daily to-do list makes sure you don't forget the essentials. You can prioritize your tasks, change their order, and mark off those that you've finished. If you choose carry-over mode, any items not marked off at the end of the day will appear on the next day's list.

Memos let you record the day's events. You can quickly confirm past or future appointments, notes, or memos with the Search feature. Any part of the Calendar file can be saved, printed, or deleted, and to fit your personal needs, you can custom design Calendar by changing the size, placement, and format of any window.

Calendar is only one of five features inside WordPerfect Library. The rest are every bit as useful and exciting. Please see your Amiga reseller for a product demonstration, or contact

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Trump 500 *(continued from page 12)*

unit. Of course, the Trumpcard can support any of the popular SCSI drives, such as the Seagate 30 and Quantum 40/80 MB. The 100 MB Connor is a top of the line unit rated at 25 millisecond average access time, and it is certainly one the quietest SCSI drives I have used in quite some time. The power-up whine is there, but barely noticeable. When copying from one partition to another, I expect to hear a variety of clicks and whirrs, but the Connor remained silent. The TrumpCard-Connor combination works well with a wide variety of software and disk utilities, including Quarterback and DiskX, so compatibility is good. Even no there is no internal fan built into the unit, ongoing continuous test for periods of 12 hours or more produced some heat build-up, but no difficulties were encountered (such as heat lock-up).

To create a performance gauge with which to measure the Trump/Conner combination, I performed a variety of tests and have compared them to floopy drive speeds. As you would expect, there is a great distance between Trumpcard-Connor and a floppy drive (as would any good hard drive demonstarte). The real-world tests of loading and copying show that the IVS unit does in-fact provide high value/ performance ratio.

My impressions of the Trumpcard 500 are positive. The documentation is adequate, the unit is well constructed, the software is functional and straight-forward. My only concerns are the size of the expansion box itself and provision for further expansion. With the Trumpcard installed, the A500 will not fit into most computer desks. When you allow for inserting a disk into DF0: you need to have about 32" of linear desk space. Also, the unsupported nature of the bus connection means that you must take care when moving the 500 to connect a joystick or light-gun. IVS sells this chassis without the Trumpcard controller as a two slot expansion, so I assume that a second Zorro connector can be added and used for memory expansion. Since the Trumpcard has no provision for passing the 86 pin bus, this type of internal expansion would be a necessity.

Undoubtedly, one of the concerns for this unit will be the fact that it runs off the A500 power supply in its default configuration. Once, again, during my testing over extended periods of time with heavy loading I encountered no difficulty. However, depending on your A500 peripheral configuration, you may want to consider the purchase of the separate power supply for the Trumpcard chassis, which is available throught IVS. A DIN connector has been provided at the rear of the chassis for this purpose.

If we assume that most 500's are used primarily for game playing, then adding a harddrive is of little benefit. Unfortunately, many producers of Amiga games still depend on disk based copy protection which prevents installation on a harddrive.

With its price at $269.95 for everything but the harddisk, the TrumpCard 500 offers a high value which should encourage more 500 users to add a harddrive to their system.

Performance Tests - Single Task Running

	Connor CP3100	Floppy Disk
Copies:		
100 K File to RAM:	1.5 Sec	10 Sec
10 9K Files to RAM:	2 Sec	16 Sec
200 Files, 4000 K Partition to Partition	115 Sec	n/a
DIR: 197 Files	12 Sec	73 Sec
LIST: 197 Files	18 Sec	96 Sec
Load Excellence! 350 K	6 Sec	28 Sec

Results of DiskPerf- Single Task Running

	CP3100	Floppy Disk
File create	17 files/sec,	0 files/sec
File delete	33 files/sec	1 files/sec
Directory Scan:	106 entries/sec	44 ent/sec
Seek/read test:	96 seek/reads/sec	19 seek/reads/sec
Read / Write Speed: Buffer 8192 bytes		
READ	238312 byte/sec	12249 byte/sec
Write	154202 byte/sec	5050 byte/sec
Buffer 32768 bytes		
READ	327680 byte/sec	12365 byte/sec
Write	201649 byte/sec	5060 byte/sec

Trumpcard 500 $269.95
Chassis with Trumpcard
Chassis alone $69.95
Separate Power Supply:
$60.00 - $70.00

Interactive Video Systems
15201 Santa Gertrudes Ave.
La Mirada, CA 90638
(714) 994-4443

PrintScript

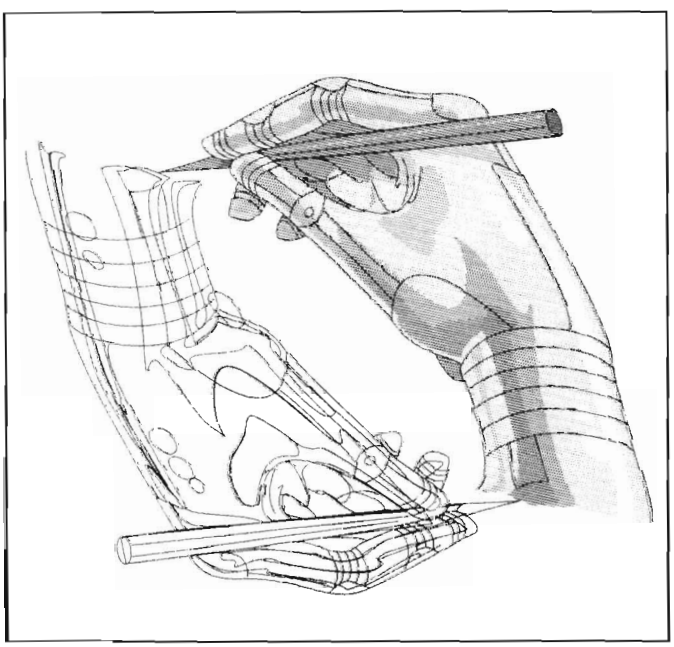
Print Your Postscript Files Out on Non-Postscript Printers

by Paul R. Miller

Software aside, the major impediment to desktop publishing on the Amiga has been with printers, namely PostScript printers. Real world desktop publishing means Postscript, but who among us can afford a Postscript laser? Even in that real world, Postscript lasers account for only 2% of all printers. And the reality is that anybody or anyplace that has such devices already has Mac or MS/DOS software and hardware already, so why use the Amiga? Although Amiga DTP software has an edge right now in color separations, it isn't as mature and solid (yet) as the existing programs for the Mac and IBM. Besides, why would those users want to learn another program?

Amigans, being somewhat more frugal either by necessity or choice (reveling in superior price/performance ratios), would prefer their cake and eat it too. Lately, some new software, combined with advances in printer technology appear to be offering just that chary dessert. These advances in printers include the advent of affordable 24-pin impact dot matrix devices whose 360 dpi resolution exceeds even the laser printers, and the more exciting advances in ink-jets that have yielded the Canon BJ series (both color and higher resolution B&W), the Xerox 4020 (color), the HP PaintJet (color), and astoundingly affordable HP DeskJet. In the case of the latter, for around $700 you get a device that produces output whose quality is virtually indistinguishable from a laser, which can be fitted with font cartridges of similar scope to the laserjet, which can produce a whole page of 300 dpi graphics without resorting to extra internal memory, and which, given the right software, ought to be able to produce any size font or image (and, by the way, is supported by the Amiga as a standard Preferences printer driver). Granted, the graphic output isn't as fast as a Laserjet (say 5 minutes vs. 30 seconds), but the issue here isn't high volume production.

This ProDraw image was saved as a Postscript file, converted with Printscript, then output using an HP Deskjet



As for software, first Professional Page, then Excellence!, City Desk, ProWrite, Shakespeare, and WordPerfect have included PostScript capability. The recent introductions of Professional Draw and Pagestream add to the rising realization that PostScript must be reckoned with. It only makes sense to take advantage of this well established language and the support network of ready made clip art and Linotronic service bureaus with 2540 dpi capabilities. As most Amiga's reside at home, it would be very nice indeed to output to a printer you can afford to have at home (who wants to wait for a pre-view print from a service bureau?). Starting with AegisDraw Plus, then followed by Express Paint and AmigaTeX, and most re-

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Printscript *(continued from previous page)*

cently with Professional Draw and Pagestream we have still more software methods to produce "super bitmaps" that can specify each and every dot on a full page (that's 2,550 by 3,300 dots on 8-1/2" by 11"). These programs manage to use non-laser printers to their maximum resolution. Some use Preferences drivers, some provide their own drivers. PDraw and PageStream supply their own analytic fonts that mimic the major Adobe fonts (Times, Helvetica, and Univers are the most frequently used). Rather than relying on the expensive memory and processors built in to a PostScript laser (these are required because the whole page must be composed and printed in one fell swoop), these recent programs use the Amiga's memory and processor to compose the page, sending it in increments to high resolution line printers. The results are remarkable. I have experimented recently with both ProDraw and Pagestream with both a newly acquired DeskJet and my older Xerox 4020, and am very happy with the results. Local user group colleagues report similar success with HP Laserjets and PaintJets.

Now in PrintScript we have yet another product that both further ups the quality of the printout and lets us use a much broader range of programs. Pixelations' package consists of a 24 page manual which is brief but thorough and a disk that comprises the PostScript interpreter, a program to "configure" your printer, some custom printer drivers, and two sets of "Adobe equivalent" fonts. As Pixelations recommends a hard drive and two megs of Ram, the typical user would first make a PrintScript directory on the hard drive, assign PrintScript and copy the programs, printer drivers and fonts there. Then from the CLI enter a "cd:Printscript" and execute the "configure" command. Configure poses a series of questions: Screen Frequency? (number of halftone lines per inch); Screen Angle? (angle between the halftone lines); Preferences or PrintScript Printer Driver? (you can use standard Amiga system drivers, or Pixelations' speedier drivers for HP Laser and Desk jets, Imagewriter, Toshiba 180, or Okidata); and Unprintable Margins? (to cause the program to compensate for the area where most printers can't print). The manual gives you starting suggestions for each question and explanations of various functions for your experimentations. The next step is to create a PostSript file and copy it to the "Files" sub-directory of your PrintScript drawer.

Version 1.0 supports files created by Professional Page, Excellence!, Laserscript, City Desk, ProScript, and Shakespeare, but the authors have already begun distribution of an upgrade (1.01) with support for ProDraw and PageStream. Other enhancements include more complete support of PostScript operators (EOFill and curved fonts), and access to additional public domain fonts.

Output is achieved with the simple command of "PrintScript" followed by your file name. As the program processes your file, the little CLI cursor rotates slowly so you know something is happening. The process is quite computer intensive (the PostScript script file is processed to define each and every curve of the analytic outline and fill fonts) and the total process is dependent on the complexity of the file and the speed of your processor. Two pages from Professional Page (the "New Laser Times" sample file) took over an hour to a DeskJet on a straight 68000 system. The sample ProDraw Flyer page took about 20 minutes with a 68020. In general, the more different fonts you have, the longer the process. The end results, however, are superb and will stand up to close scrutiny with a magnifying glass, not to mention skeptical Mac users who have examined samples and pronounced them equal to LaserWriter quality.

Present PrintScript limitations include limited font support, some still as yet unsupported PostScript operators (the manual lists them), and lengthy print times. Pixelations is at work on more fonts and expects to have nailed all the operator functions, plus include color support for a May upgrade to version 1.1. Further upgrades involve an arrangement with C-Ltd and the Laser Express so that print time may even surpass PostScript printers (for more detailed information you can download a recent BIX conference on PrintScript). Amiga owners thus may elect to acquire 68030 cards, 32 bit ram, etc., to achieve true production capability, but the resulting expenditure could approach the cost of a PostScript laser. On the other hand, for about $800 (the cost of a DeskJet and this program), you can achieve the same quality at the expense of some of your time. When you consider that the average PostScript laser printer serial file transfer takes about 15 minutes anyway, and then factor in the amount of time that is spent in composing the page in the first place, the issue of printing speed takes on a new perspective. Right now, the combination of PrintScript and the DeskJet represent a major breakthrough in affordable high quality desktop publishing, and once more -- sorry can't resist -- only Amiga makes it possible.

PrintScript $89.00

Pixelations
P.O. Box 547
Northboro, MA 01532
(508) 393-7866

MyPaint

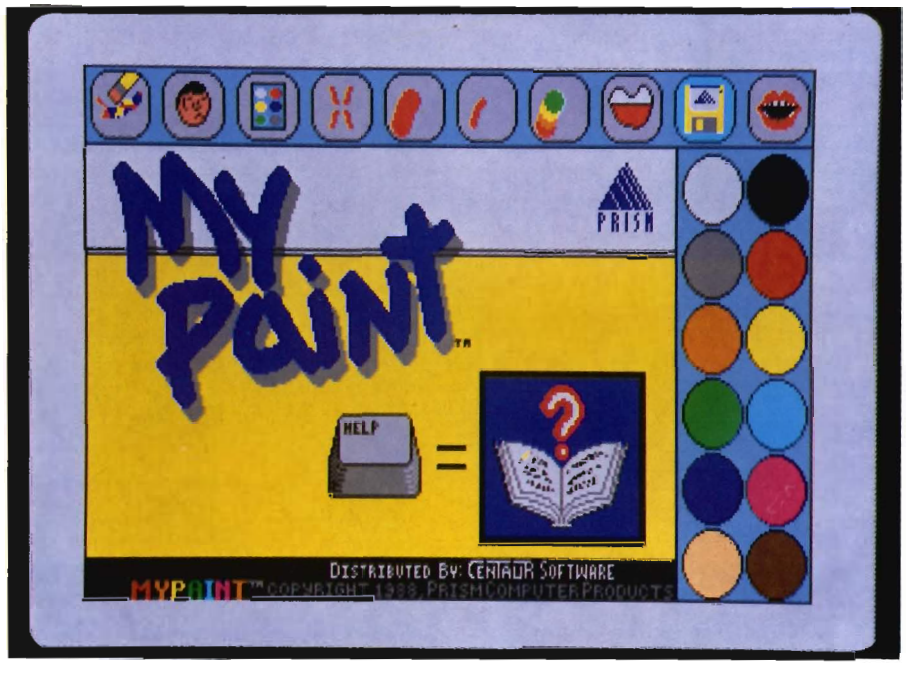
A Painting Program Designed for Kids

by Elaine White

MyPaint, a new program created by Prism Computer Products, bills itself as a paint program just for kids. A lot of attention has gone into everything from the bright yellow color of the disk to the appealing animated icons, to make this a program that will be of interest to children. For the very young child, this program provides a good way to become comfortable with icons, and moving the mouse. It can be a good test of eye-hand-mouse coordination. For the older child who is not yet ready to move to a "grown-up" paint program, this program provides room for creativity. The program was child-tested and supervised by educators and in this case, it seems to have paid off.

MyPaint is simple enough for a young child, but it has just enough twists to keep it interesting for the older one. The icons are attention getting and are easy to understand. When you select one, the border around it is highlighted. The very first title screen contains a help icon that points to each icon on the main screen and describes it in words and large, clear writing in simple, clear language. The mouse is used to move a pointing hand around the screen. For ease of use, either mouse button may be used to select icons. There is a color palette of twelve colors. It contains red, orange, yellow, green, light blue, blue, purple, brown, black, white, grey and tan in the shape of a water color paint box. When you select a color by clicking on the oval in the paint box, a flashing smiling face and a musical tone indicate that the color has been selected.

The large icons and bright colors make it easier for children to operate the program



MyPaint provides three ways to paint. There is a big brush and a little brush with which to do free-hand drawing, and a "fill-em-up" which fills a whole shape with the selected color if you click anywhere within that shape. There are two other paint tools, Eraser and "Oops!." Eraser, erases the whole screen of color. "Oops!" just erases the last thing you did. MyPaint includes a coloring book of twenty-eight pictures that can be paged through to select one to paint. Pictures include things like dinosaurs, fish, clowns, animals, space ships and geometric designs. Not only can you color the pictures, but you can add details free-hand. There is also a picture of a box tied up with a ribbon which is a

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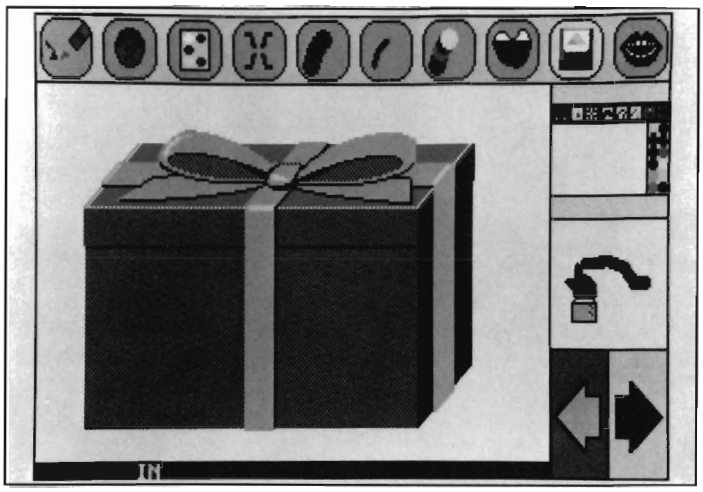
MyPaint *(continued from previous page)*

special feature called a Surprise Picture. If a child chooses this one, the computer randomly selects one of the twenty-eight pictures and puts it invisibly on the screen. The picture is then revealed by painting it with the magical paint brush. It can then be colored as usual. You can also start with a blank screen and do your own creating. Besides free-hand drawing with the brushes, there is also a mirroring icon. It mirrors and copies what you draw in one quadrant of the screen into the other three quadrants to create interesting symmetrical designs.

There are two special color effects. One is a color brush which creates a rainbow effect as you draw by laying down overlapping circles of red, orange, yellow, green, light blue, blue and purple. It works with both the big and little brushes. The spacing of the circles depends on how fast or slow you move the brush. The other special effect is selected by the flashing colors icon. This creates flashing pictures by cycling through the colors from red through purple. When this effect is combined with the Color Brush, the result is pretty spectacular.

There is also an icon of a mouth. The Coloring Book includes a word or phrase or music to go with each picture. If you want to hear this again, simply select the Listen To Sounds icon. This is a simple feature, but does add appeal to the program.

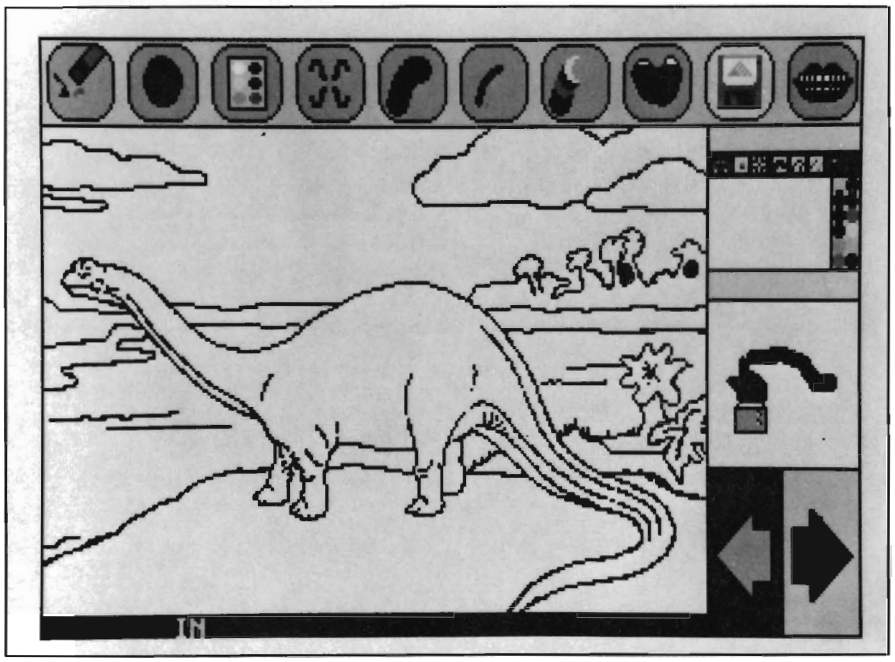


The "Surprise" option lets the computer choose a picture at random

The manual too is short and simple. For the younger child, or really, anyone who is going to use MyPaint, all the information that you would need is covered by the help screens. There is very little else that you can learn or need to learn from the manual. About the only thing not covered by the help screens are the keyboard commands. One command enables you to save the picture you have created. The other lets you quit the program if you don't want to turn the Amiga off.

There is one thing that I would like to see changed in this program. I think that the Erase icon is too easy to use. When little children create a masterpiece, they should be protected from wiping it out with one misplaced click of the mouse. There needs to be a "Do you really want to do this?" kind of step between that action and the destruction of the picture. This is a change that would be easy to implement and would prevent great disappointment on the part of a young Amiga user. My only other two complaints are very minor. The brontosaurus picture in the Coloring Book has an object which has a break in the black outline. This causes a problem when you try to use the fill-em-up because the color flows over into the adjacent area. My other complaint is about the color names in the manual. What I referred to previously in this article as tan is printed in the manual as "flesh". This is a form of racial discrimination which

Kids can create their own masterpieces, or they may choose to paint one of the pre-drawn pictures included on the disk



the crayon manufacturers managed to rectify several years ago. I hope that MyPaint will do the same.

The disk is not copy-protected, enabling you to make a back-up copy, a good idea where children are the users. The manual recommends storing the back-up copy and using the original disk as it is yellow and more easily recognized by children as being theirs.

I think this program has a lot of child appeal. The colors are bright and clear. The icons are clever and in constant motion. I tested this program out on a seven year old child. What appealed to her most was the Surprise Package and the hidden picture that she could reveal. She really enjoyed uncovering the pictures even if she chose not to color some of them in. The flashing colors also got considerable use and she would spend quite a while admiring the effect of them on her latest creation. It is pretty fascinating to a child to watch how the colors fill the shapes with the fill-em-up. Even making a mistake was not a problem. The Oops! man, his head shaking "No" with a frown on his face, was a fun way to correct the mistake. Since the pictures in the Coloring Book can only be paged through one at a time, looking for a certain picture to color can become tedious. Some kind of a flip feature would be appreciated after using the Coloring Book for a while.

At least for this child, it was difficult to get her to quit. Requests for just one more Surprise Package or just one more picture to color indicate to me that this is a program to recommend. It is good to see a program that is not competitive or stressful but that fosters creativity. Now about that "Just for kids" printed on the box and the manual. While I don't really recommend that an adult should run out and buy MyPaint, it really is a fun thing to play around with. It doesn't take a lot of concentration and it is comparable to a kind of relaxed doodling. I had fun trying the different effects of mirroring and flashing colors and color brushing. It isn't hard to fall into the "just one more before I turn it off" mentality. So if you've got children who are too young for your grown-up paint program, I recommend you buy MyPaint. Then you can play with it after they go to bed.

MyPaint $49.95

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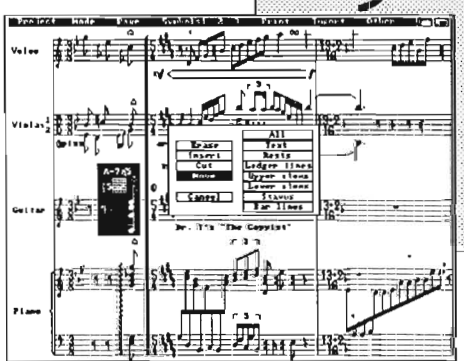
One, Two, Three



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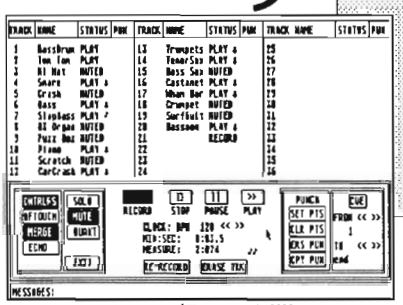
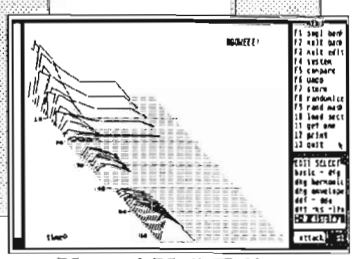


KCS/Level II



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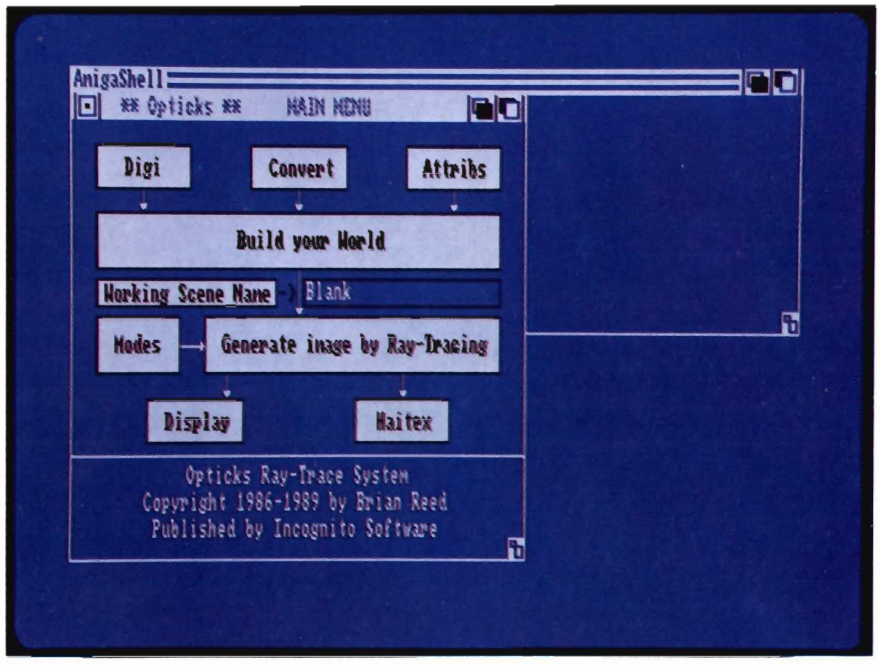
Opticks

A New Ray Tracing Program from Incognito Software

by Walter Steuber

Painting a picture that can be mistaken for a photograph requires either a great artistic ability or a great computer. Only a very few artists have the talent and skill to render in perspective, with highlights, shadows, reflections, shadings and color toning. With Opticks and the Amiga, almost anyone can get all these by simply giving the Amiga some basic information about what is to be pictured. Amy will do the rest, using the technique called ray-tracing. Opticks will mathematically calculate the effect of each light beam, each reflective surface, each color in the objects you have specified and it will deliver a reproduction of the scene as though taken by a camera. The objects photographed in this way do not exist in the real world, of course, but are imaginary things that you have dreamed up and placed in the scene.



Control in Opticks is accomplished by means of this flow chart panel

Many months ago Brian Reed began the ray-tracing craze with a public domain ray-tracing construction kit named "A-Render." This software enabled Amigans to produce photographs of imaginary scenes but it was, to put it in an understated way, not all that easy to use. Now he has greatly improved its user-friendliness, added lots of new features, and offers it for sale as Opticks. Brian has made it as easy as possible for a non-artist to set up complicated scenes full of odd shapes, strange surfaces and wild colors. It will also, if you ask it to, work as a stereo camera and generate a left/right pair that can be looked at with Haitex spectacles. (This makes Opticks the only third party program I've seen since getting my Xspecs.) The recommended minimum system is any Amiga with two disk drives and one Meg of RAM.

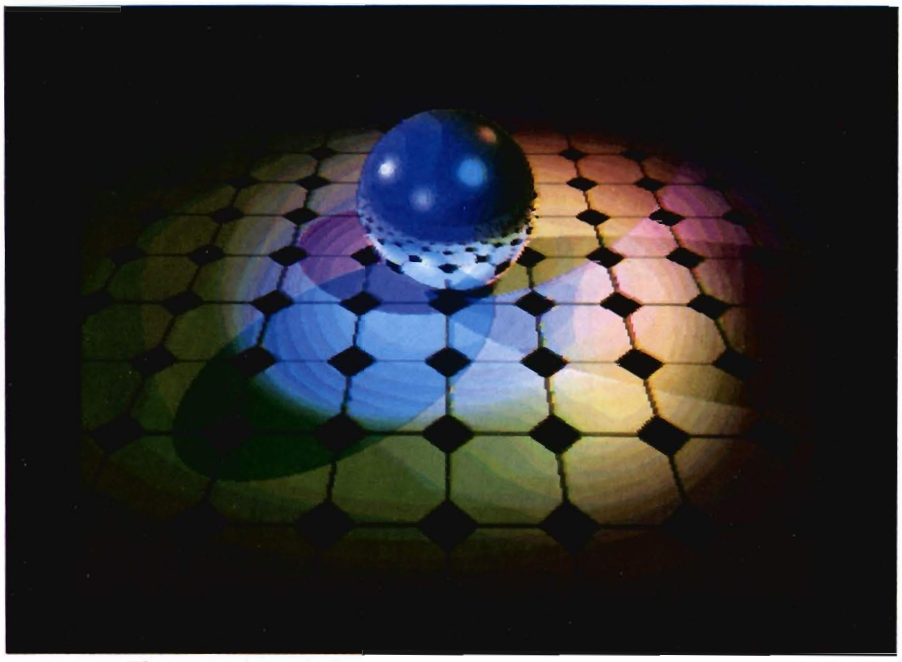
After you boot up OPTICKS, you set up the scene with mouse clicks. You will arrange solid objects in space, you will place lights where you want them, and you will select a place to view things from. With these things all set, OPTICKS will compute the picture in proper perspective. These steps can be simple and done quickly it you want them that way, but you can also get carried away designing elaborate shapes or arranging tricky lighting. The whole operation is closely analogous to setting up a scene for a tabletop photograph. Instead of arranging real objects on a table, you place computer objects. Instead of positioning real light sources, you do it with computer simulations.

Instead of a real camera, you point a computer camera and set its degree of zoom.

Real-life tabletop photography calls for many artistic choices, and this imaginary counterpart requires all the same ones. But this imaginary photography allows far more leeway because it is free of real-world physical limitations. You can, for instance, put a source of imaginary light right up against a subject, or you can put it fifty feet overhead with a stroke of the mouse.

After booting, the first button you will probably want to hit is "Build Your World." A mouse click on this opens up a 3-dimensional empty space, ready to be populated with objects of your choice. Showing a 3-dimensional volume on a 2-dimensional monitor face is a difficult problem faced by any program that deals with solid objects. There really is no completely satisfactory, intuitive way to do this, and we have seen several ways tried by different 3-d programs. The way OPTICKS handles this task is to present three orthogonal views of the working space: front, side and top. A solid object that you place in this space is seen in each window and you just have to get used to mentally fusing these three flat views into a single solid concept. Also in these three square windows are colored lines indicating what the camera will be seeing. These lines form a "viewing pyramid." Intimidating at first, the pyramid soon becomes very helpful in handling the 3-d space and conceptualizing the solid objects.

An object you set up in the working space can come from any of three sources. A library of about forty stock geometrical solids comes with OPTICKS and a mouse click will call one up. You can bring in a solid object you have already made for VideoScape, or you can simply draw a new shape. (A screen of graph paper pops up and you draw on it in DPaint fashion.) To convert your flat drawing into a solid object, OPTICKS supplies two routines, "extrude" and "lathe." Once you select an object, you place it where you want it in the work space and pro-



This image is an Amiga screen shot of the picture that appears on this month's front cover. Note the highly visible steps between color gradients

This Opticks 24 bit file entitled "Gallery" was transferred to and rendered on a Targa System

(continued on next page)

Opticks *(continued from previous page)*

ceed to operate on it. You can stretch or shrink it in any direction with some sliders that are tucked up in the corner of the screen. Furthermore, you can rotate it in any direction you like. (Yaw, pitch, or roll it.) The object is highlighted in the orthogonal windows during these operations, so you immediately see the effect of the rotations, translations and size changes you are performing.

Especially important to ray-tracing is the fact that you can specify and map color and surface texture. You might select a golden mirror surface that will totally reflect lights and surrounding objects or you might select any of dozens of other color/texture combinations. After getting this first object the way you like it, you go on and repeat the process with other objects. It's as near as the computer can make it to placing objects for a tabletop photograph.

After arranging objects the way you want them, you put lights where they will show things off to the best advantage. Lights are placed one at a time in the 3-d space by requesters and sliders very similar to those used to place the objects. OPTICKS offers eight kinds of sources: spot, flood, fresnel, sun, etc. You can, if you want, modify the color of a light by selecting a gelatin filter for it from a list of five colors.

Finally, you specify where you want that light to be placed and how bright it is to be. (If it were only that easy with real lights!) Place as many lights around the scene as you want. Just as in real-world photography, the choice and placement of light sources plays a big part in the overall artistic effect. You can only estimate what the effect of the lights and their placement will be, however. They are indicated simply by dots in the orthogonal windows. Only after the picture has been computed will you see completely what the lights do. OPTICKS lets you position the camera wherever you want it in the workspace, lets you rotate it so that it points in whatever direction you want, and lets you zoom in or out over a wide latitude. These camera manipulations, often quite troublesome in real photography, are easy with sliders. The colored lines of the "view pyramid" come in handy here because they instantly show the camera's range of view as it is zoomed in and out or moved around.

Now that objects, lights and view have been set up, things are about ready for your Amiga to compute the picture. The user can tell Amy to go ahead and do it her way OR the user can specify any of a dozen or so parameters for the calculation. The most important parameter is the number of screen pixels to bunch together to form a single picture pixel. When 10x10 screen pixels make a single picture pixel, the calculations are completed in a couple minutes and you get a rough draft of the ultimate picture. When full resolution is specified, the calculation of a complex scene can take over 100 hours! This does not mean your computer becomes totally unavailable for four or five days, because the computations can be done in the background at low priority, but it does mean leaving Amy running night and day for a long time. More typically, though, a modest scene with modest resolution will take perhaps an hour. The number of calculations that must be done is mind-boggling. I can't begin to think through all the things that get involved in computing each pixel in the picture.

One of the unique aspects of OPTICKS is its built in ability to save a 24 bit plane file in the True Vision Standard. This is the standard used by Vista and Targa display systems, and some of the images accompanying this article were saved out in 24 bit form, then rendered on a Targa system.

You may get the impression from this outline that OPTICKS is a powerful but complicated program. It is. More than shows here, in fact, because many lesser options and details have not even been mentioned. There are several good tutorials in the manual that gently lead the reader through the set-up steps, and after a little practice, they become familiar and reasonable. The package comes with a main disk that self-boots and an auxiliary disk that contains a slideshow of ray-traced pictures, the C code of some routines used in OPTICKS, and some software that will facilitate the use of a math co-processor. Opticks, like all ray-tracing software will benefit greatly from an accelerator and/or co-processor. (For anyone who wants to get much deeper into the mathematics of ray-tracing, Abacus has published a book on the subject. It is called Amiga 3D Graphic Programming in BASIC and it devotes all its 356 pages to explaining the geometry and algorithms of ray-tracing, supporting them with long programs in AmigaBASIC. One of these programs ties up the Amiga for three weeks of computation to draw a single picture!)

For most of us who want to simulate real-world photography with a microprocessor, Opticks offers a much better alternative than basic programs. You will find a wide variety of features and several good tutorials which will get those "impossible" images out of your mind and onto your screen.

Opticks $179.95

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DeluxePaint III

The Latest and Greatest Version of the Original Classic

by Paul R. Miller

More than any other program, Deluxe Paint has played a pivotal role in the development of the Amiga. Consistently voted the best graphics application by users in various polls and surveys, dPaint has probably sold more Amigas than all of Commodore's marketing efforts combined. Only a month after the machine's introduction, EA released the first version in a package that looked like a game, and had only a few pages of instructions that were rather too flip. Nevertheless, it outclassed all other PC based paint programs. Only one year later we had dPaint II, a major upgrade that gave us perspective and stencils, smoothing and anti-aliasing, fixed backgrounds, virtual pages bigger than the screen, access to all resolutions, and a real manual. It was an awesome program that took some time to master, not because it was difficult (the user interface is still the best) but because there was so much it could do. Even after more than 2 years of almost daily use, I am discovering new tricks and techniques. That same two years, however, has seen progress in other Amiga paint programs and the emergence of animation and video as the wave of the Amiga's future. Despite the advances and competition, dPaint II is still my primary graphics tool, but it's beginning to show its age. The little foibles that I used to ignore are getting more annoying: the slow line or outline tools with their weird redraws; the load and save requesters that default to df1: on a hard drive system; the lack of overscan painting; perspective that's just too tough to use; no access to half-brite; and, of course, the matter of fonts. Too many fonts in your SYS: directory to fit on the screen? Crash! Want to access other font directories? No problem, just use the beloved "assign" command, or use a disk named "fonts". Want to change fonts in mid-project? Let's see, where did I write down that tip? Oh yes, call up the screen format, click on "OK" and you'll have cleared your memory buffer of those fonts. With Photon Paint II now offering built-in animation and most of the interface features of dPaint, and in HAM mode yet, the time has clearly come for yet another EA upgrade.

A single frame captured from DeluxePaint's "Spin Title"

In what has to be the most complete Graphics package yet, EA (and Dan Silva) appear to have done it again.

Any Amiga owner who's been feeling insecure just because the MS/DOS version of dPaint grants 256 colors to VGA owners can again feel smug when they show off the astounding effects possible (only on the Amiga!) with version 3. All the little foibles are fixed, and the scope of new features added make this upgrade as significant as version 2 was to the original. The list of enhancements is impressive:

Extra-Halfbrite support; Full video (704 by 480) overscan painting; Page size up to 1008 by 1024; Four new fill types; Filled shapes with custom brush outlines; Filled freehand tool; Full screen image flipping; Improved perspective control; Automatic outlines; Definable brush handles; Stenciled brushes; Six color channels for cycling; Better printing controls; More memory Info; Multiple active commands; Modes for Tint and Halfbrite; Halfbrite fill modes for shadows, highlights, or gradients; Preferences for no icons, automatic transparent brush backgrounds, automatic perspective grid sizing, and startup configuration; Much faster overall operation; Animation with compressed delta files or full page flipping, 3-dimensional move requester for animation objects, "animpainting", "animbrushes", even 16 color hi-res at 30 frames per second; 3 disks with more art, tutorials, animations, color fonts, and a player utility; 237 page manual with extended animation and perspective tutorials; Keyboard equivalents for just about everything -- and, yes, a Font Requester that will access any font directory, scrolls the point sizes, previews your selections in normal, bold, italic or underline, and even asks if you want to load the colorfont palette!

Animation is the icing on the cake, so we'll save that part for dessert, but there are so many features in this feast of a program to deal with that we risk overindulgence! First the upgrades to old features.

TOOL ENHANCEMENTS

Almost every TOOL has been augmented with new requester options or keyboard modifiers. For all built-in brushes, a click with the right button will allow you to adjust size by dragging the mouse (you can still use the "+" and "-" keys too). Dotted and continuous freehand can now be constrained to horizontal or vertical with the shift key, while the curve tool is similarly constrained to expedite alignment of ending points. Airbrush, too, can be constrained, but for this you use the ALT key. Use of the ALT key with any of the filled tools will give you a filled shape with an outline of your current custom brush (and as modified by your handle location). Depressing shift as you pick up a brush limits your selection to a square shape -- either in absolute pixels or a "be-square" compensated aspect ratio.

A right button click on any line or unfilled shape pops a requester for dotted lines: total number of dots, dot increment, continuous, or airbrush -- the latter allowing you to make your shape with your current airbrush in its current size setting. New code has made all the line tools much faster, so lines rubberband in real time. The spacebar now will terminate (not cancel) an unfilled polygon at its last point, but it still completes a filled shape. Use ALT with the fill tool and you can fill outward from your cursor position to the current background color. This is especially handy in a tinted fill mode over an existing gradient. Click on plain fill or any filled shape with the right button to yield a new fill type requester.

A new "Tint" -- which replaces the canvas color with your current foreground hue and saturation settings, but leaves the value unchanged. Depending on your available palette, this can give a pretty good approximation of HAM colorizing for grey scale background. "Brush" is also new -- it takes your current custom brush and resizes it to fit your filled area. Perspective remains unaltered (it fills with your current brush in current perspective setting). "Wrap" is a major addition -- your current custom brush is surface mapped around your current filled shape (circles yield spheres, rectangles cylinders, ellipsis for lozenges, polygons for cones and beyond, or freeform fill for whatever you can create). Pattern, From Brush, and Gradient are with us still, but also improved. Patterns//From Brush can now be wrapped, and the horizontal line gradient is smarter -- it now adjusts the gradient on each line so it isn't fooled by re-entrant corners and gives you reliable 3-d shapes. If you've selected 64 colors in Screen Format, the fill requester will give you options for HalfBrite fill: this converts canvas colors from their full to half values (or back to full with the right button), and it's terrific for subtle shadows or highlights. The other HalfBrite option involves gradients -- either used or excluded from the gradient. As the HalfBrite colors are arrayed together at one side of your gradient (eg. a range of light greys and a range of darker greys) it doesn't allow you to intermix and save on palette colors, but it may be useful for some unusual effects.

What's left? Zoom and Undo are unchanged, as is Symmetry (but the manual offers a tip to use "fix background" for underpainting). Palette now lets you hold the mouse button down as you move over the colors, selecting as you release, plus you get a total of six color channels for cycling or shade ranges. Magnify is the same, except it

(continued on next page)

can be activated simultaneously with another action. This is a major convenience! Now you can start a line in magnify mode, turn off magnify, move your cursor and remagnify to align the end point -- all in one operation. Grid now affects dotted freehand, line, rectangle, circle, ellipse, text, and your custom brush if you activate perspective and the "AutoGrid" preference (more on this in the discussion of perspective). Picking up a brush is also better -- "AutoTransp" on the preferences menu will give you a transparent background regardless of your current background, provided the four corners of the rectangle you drag are all located over the same color, and a shifted B keypress will toggle between your current and last custom brush.

Last, but certainly most appreciated, is an intelligent Fonts requester (right button on the text symbol). A scrollable window lists all the font names in your current "fonts" directory, and a separate size gadget scrolls points. More gadgets toggle Bold, Italic and Underline, and a "Show" button will preview your font in another window. Any size over about 60 points spills out the top, and I got some garbled displays in giant size "MasterPiece Fonts" in italic mode, but despite these flaws it serves its purpose well. Best of all, a string window lets you enter a path to other directories. Now we have immediate access to unlimited fonts without the hassle. Just be certain that your newly created directories have a subdirectory named "Fonts", copy your fonts and .font files there, and dPaint III will do the rest. If you've run the ColorText utility first and access a ColorFont, dPaint will even thoughtfully ask if you want its palette.

MENU ENHANCEMENTS

One of dPaint II's most perplexing quirks involved the load and save menus. If you had only one floppy drive, or you were using a 2000 with your second drive external (df2:), you had problems.... Version 3 no longer defaults to these problems, but instead presents a semi-intelligent requester that automatically recognizes up to 5 mounted devices. LOAD permits you to specify the number of frames (for non-compressed animation) and will even load a batch of files -- starting alphabetically in your current directory up to the frame # specified (all must be in the same resolution format). Similarly, if you've created multiple frames, SAVE will allow you to save a range, with automatic sequential numbering suffixes added to the common filename. Gone are the annoying backup.pic's that cluttered your files and wasted time; instead, a message box asks if you want to overwrite an existing file. Also gone (if you select "No Icons" in prefs) are the equally cluttering icon files. Delete is wisely limited to one file. Up-to-date with 1.3, Print provides for placement, percentage vs. absolute pixel count for sizing, and buttons to issue line feeds and formfeeds. Also welcome is an exit button that allows you to setup your format ahead of time.

"Flip" lets you mirror the whole page horizontally or vertically, and "Page Size" now reflects the reality of overscan at 353/704 by 240/480. Built-in pages are there for 8-1/2" by 11" as before, and you can enter any number up to a limit of 1008 by 1024."About" now lists memory in four categories: Chip, Fast, Anim (the size of your current delta file), and AnimBrush (also delta file). Screen Format grants the new 64 color HalfBrite mode (lo-res and interlace only), and a button that activates Overscan. Now you can paint right to the edges of an overscanned image (just toggle off the title bar). More thoughtful requesters appear when you change screen formats, allowing you to shrink overscanned to normal screens, and prompting for your replies to options as your alter the number of colors.

Brush:

Loading and saving feature the path enhancements, and include color cycling information as well as palette. "Edge" grants an automatic outline to custom brushes (one pixel thick, and in your current foreground color). Keyboard equivalents "o" and "O" add or subtract these outlines at a stroke -- they are especially useful with text. Under Change Color, a "Change Transp" option quickly transposes your transparent color to whatever is currently selected for the background. Finally, handle locations can be accessed from the keyboard (ALT-x and y), with successive toggles to left, right, up and down. Ultimate control is accessed through the menu or ALT-z: drag the mouse to a custom brush position and release.

Mode:

Smooth is now enabled by the F8 key (DEL toggles the cursor), and we get two new modes. "TINT" applies the Hue and Saturation levels of the current foreground. HBrite transposes colors from full to half value (or back with the right button). Tint requires that you use only the built in brushes, but HBrite mode can use a custom brush. This is extraordinarily useful for subtle shading and shadow effects, and when combined with animation presents an awesome effect.

Preferences:

Coordinates now can be toggled with the shifted backslash key and then further toggled in perspective mode between angle and position readout with the slash key. The aforementioned "No

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Icons" and "AutoTransp" are nice conveniences, but the real plus is "AutoGrid". In conjunction with perspective, your custom brush dimensions automatically become the temporary default grid settings. Pick up a brush, enter perspective, switch on grid, and what previously was an ordeal -- the movement and registration of brushes through 3-D space -- now is a snap! All previous preference options are still included, and you can configure the program through the icon tooltypes to load with whatever combination you prefer.

Effects:

Stencil and Background are unaltered in function, but worth noting is the inclusion of the halfbrite registers in the stencil maker. Once understood by the user, Stencil was one of the most powerful features of dPaint II. The combination of HalfBrite modes, fills and stencils ought to provide wonderful effects, once we begin to understand the possibilities in combination. Much of the power of dPaint lies hidden in the mastery of these combined effects, the benefit of which is only realized with repeated use and experimentation. The amazing depth of this program only yields to the familiarity of constant use and play. But that's okay by me, because I vastly prefer dPaint to any game.

When version 2 was released I thought that the perspective effects would be of great utility and I would find practical applications in my architectural practice. Alas, despite a fair amount of work at it, the results I desired eluded me. It was okay for some illustrative effects, but the kind of control required to produce accurate representations of "measured" objects just wasn't there. I didn't think I was particularly dumb in the area of perspective because I could construct them by hand with the traditional geometric methods, but I got nowhere with dPaint. I took some comfort in learning that other people had trouble too, but still wished I could do it in this program. Dan Silva has come to our rescue with a vastly improved approach. For starters, the outline box for your brush includes X and Y axis markers, so you don't get lost in space. Now there's easy toggling between angle readout and position (without moving your cursor), so you can stay where you want to be. Add toggling of brush handle from the keyboard and you're almost set. Enter a requester for Perspective Settings:

Now chose from a grid that is either screen based (you set the values) or based on your brush. If you've opted

(continued on next page)

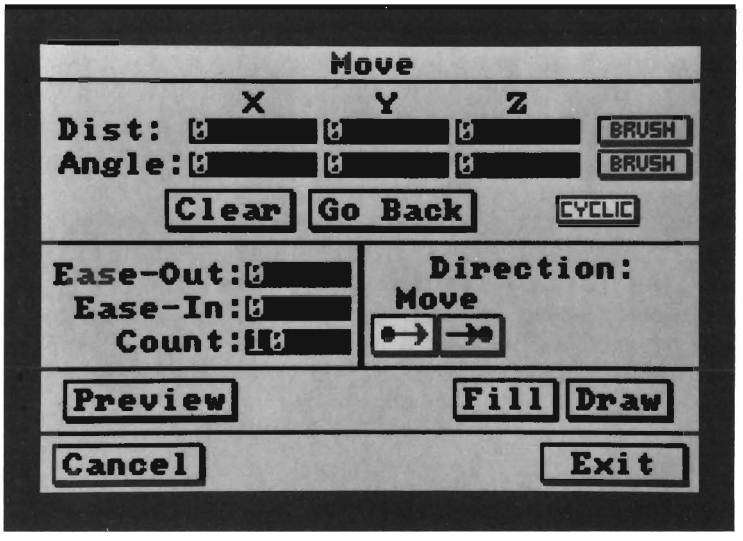
for brush based (the default with Auto-Grid), any movement along the 3-D axes is in increments of your brush. Choose also between screen based perspective (your position coordinates or angles are based on the "absolute" world), or brush based (now reflecting position and angle relative to your brush axes. A further refinement lets you enter custom values for the shifted number keys (eg. 450¿ rather than 900¿ increments).

Finally, pressing the CTL key temporarily fixes the Y axis so you can now move right/left and forward/back with the mouse. Hallelujah! It works! The manual gives you a nice explanation and tutorial, and it takes a little bit of practice, but the techniques are solid. Screen versus Brush perspective will allow almost any result you desire (especially useful in animation), and the program cleverly lets you replicate a series of relative (i.e. brush based) moves through space because the screen coordinate and angle readouts that result from a series of moves give you the cumulative position and orientation.

ANIMATION

And then there's animation. First off, let me say that I've worked and played with just about all the animation programs, both 2 dimensional and 3. No one can fail to be impressed by the power and sophistication of such programs, but can anyone truly and honestly say that they don't (with the exception of Photon Paint II) interpose a barrier between the object and movement? For solid modeling the issue of intermediate steps from object creation to path description to rendering is not so critical, as considerable forethought as to the object is a foregone conclusion, and the chief objective is generally the realistic appearance of object and movement through space. In 2-D animation, however, we want more to inhabit the magic realm of the classic cartoon. Animation is tough. All the gimmicks in the world -- be they hardware or software -- are no substitute for a story line that is implemented in coordinated objects and motion. The classic animator has the device of a registered tablet with overlays of translucent paper that allow pencil testing -- immediate feedback during the process of drawing. Until now, Amiga users have had painting programs where they create the images, and separate animation programs in which to move and show them. DPaint III brings it all together.

The big news with this new version of Deluxe Paint is the addition of motion



The Anim Menu:

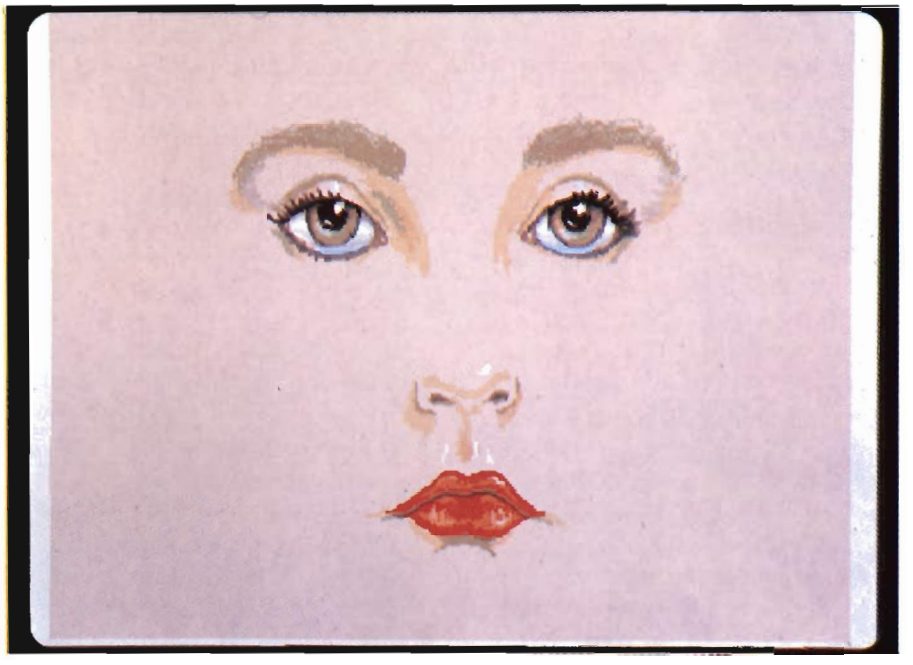
DPaint can work in two modes. The first is Full Page-by-Page flipping, which involves the rapid sequencing of full screens of IFF images. The number of frames possible is limited by available memory and the resolution and number of colors (bit planes) of your screen. Select the "Expanded" method from the submenu, then select "Set#" from the "Frames" heading. DPaint will then set a number of frames depending on screen format and memory. My 2000 has 5 megs of RAM, and even while multi-tasking this review, will allow 86 frames in 64 color lo-res (over 550 frames in 2 color). At a play rate of 15 frames per second (standard for most commercial animation), that isn't too bad. The second method of choice, however, will be "compressed," the familiar ANIM format that builds files based on the differences or "deltas" between frames. Here there is no predetermined limit to the number of frames. There is, of course, the potential for very big files if the changes between frames is great, but for most applications you'll get more for your RAM. No need to worry about overstepping the limits, because dPaint keeps track of chip and fast ram (use CTL-a) and the "About" menu will keep you posted on the size of your ANIM.

LOAD and SAVE are the usual requesters, and in the case of the former, will automatically respond to the format. For a test, I loaded a VideoScape animation done 18 months ago in an old ANIM format. DPaint responded perfectly, shifting to overscan, (still multi-tasking with Scribble!) and there I had it. A press on the number 4 key and it played perfectly except for a glitch at the beginning of the loop. No problem, just edit out that extraneous frame (that's right -- DPaint III will let you load and edit ANIMS!).

DeluxePaint III *(continued from previous page)*

The FRAMES submenu provides for adding and deleting frames, copying to all, and setting the total number of frames. Compressed animations can be expanded in scope at any time just by resetting the number of frames, and this feature is the basis for many of the techniques of layered animation tricks offered in the tutorials. CONTROL options allow you to set RATE (up to 30 frames per second), set the range of play (frame # to frame #), and control the play for Play Once, Loop, Single play, or Ping Pong, as well as Next or Previous frames, and a Go To option. These menu commands are also mapped to the keyboard, and shifted keyboard presses let you go to the first or last frames, go back to the last "go to", reverse loop play, reverse once play, go to the first or last, next or previous cells of anim brushes. Rounding out are key strokes for reverse play, stop, speedup, slowdown, and toggle of color cycling -- a complete range of commands for interactive playback control.

Once you've set the number of frames, you're ready to begin "animpainting." A press on the left Amiga key in conjunction with a paint tool yields true magic. As you paint, dPaint flips through the cells automatically, so a simple stroke of the brush is caught on each frame as it is displaced in location over time. A keystroke plays it back instantaneously. Add more strokes and play it again, layering and editing 'till it suits you. If a session with animpainting doesn't raise your pulse a bit, you ought to consult your doctor, because this is just plain exciting stuff! EA's press release states that "...Disney couldn't have done it better", and I'm hard pressed to say that's an exaggeration. The heart of the animation menu is the MOVE requester, which grants extensive control of object movement and coordination. Once you've stamped a custom brush down



in a frame, a trip to this requester will yield settings for movement in the three-dimensional world. Distance is set on the X, Y, and Z axes, as is angle of rotation. Additional gadgets Clear the settings, and activate "Cyclic" or "Go Back". Cyclic provides automatic positioning for loop playing so that, for example, a full rotation of 360 degrees starting on frame 1 automatically ends at just the right position on the last frame of your sequence to loop smoothly back into frame 1. Go Back comes into play in multi-part sequenc-

(continued on next page)

es. DPaint normally "remembers" the position of the brush at the end point of any sequence, with the next move starting from that point. Go Back allows you to restart your brush from the very beginning point.

The next block of gadgets in MOVE provide for EASE-OUT (acceleration) and EASE-IN (deceleration), and a COUNT gadget to set the frame duration of any particular sequence (independent of your total frame count). The combination of these tools make it very easy to simulate, say, the effect of gravity as in a bouncing ball that decelerates at the top of the bounce. DIRECTION gadgets let you specify whether your distance and angle settings represent a "go to" or "come from", and whether to record your sequence forward, backward, or still (painting to all the frames). Once you've made your settings, you can PREVIEW (near real-time wireframe) or choose the DRAW, FILL or TRAILS commands. Draw is the straight choice; Fill renders each successive frame in its perspective setting to the horizon; and Trails gives you the sum totals of previous frames as it goes. Finally, Cancel aborts your request and Exit lets you leave with your settings intact.

As if this wasn't enough, dPaint gives you one more powerful feature, the "AnimBrush". Once you have created a sequence of frames, you can go back and pick up your moving brush as a whole, and then use it again, or modify it's movement with yet another round of MOVE transformations. The tutorials give you a simple example where you first create a ball, and make a sequence in which it moves up and decelerates. Then you pick up that segment as an AnimBrush, modify the setting of the animbrush for ping-pong movement, and set the whole subset of bouncing movement into another overall movement across your screen and back into the distance. AnimBrushes can be saved and loaded (with color cycling), and can be further controlled as to "duration" -- a number greater than your current cell range will slow the motion down, a number smaller will speed it up. You can also pick the starting cell point within the range of your animbrush, and control its direction (forward, reverse, or ping-pong).

Needless to say, there are a whole lot of options and the potential for combined effects and layering seem endless. The manual offers a about 25 tutorial segments that drill you in the basics: simple move, simple rotation, brush vs. screen axis movement and rotation, the Go Back option, Cyclic vs. non-cyclic, Ease in's and out's, and basics of the Animbrush -- pickup, use and settings. Next you begin to combine the effects in scenes that involve receding and approaching shapes, dissolves, expanding forms, trails, slinky's, curving titles, tumbling 3-D objects, orbits, scrolling backgrounds, filled planes that simulate moving ground and rolling horizons, with a final exam that involves the creation of a rotating, bouncing and receding ball. It's the most fun I've ever had with software tutorials, and I found myself repeating them over and over just so they could become second nature.

What more could we ask from a painting and animation program? It all seems to be here, and I am hard pressed to think of very many effects achieved in all the other 2-D animation packages that can't be accomplished faster and better, and with more immediate feedback and control, right in this one very impressive program. Not too soon to think about version 4, however. Since CBM has announced their 256 color board in Europe, maybe Dan Silva could give us all this and heaven too. In the meantime, all Amiga graphics people should be thankful to Dan Silva for this version, and I have no doubt about dPaint III taking top honors in the next round of polls.

DPaint comes with 3 disks (Program, tutorial Art, and Animations and utilities) and a very extensive manual. EA plans release in late March, with upgrade policy as follows: $50 (plus $7 shipping) for version 2 owners who purchased prior to December 1, 1988; $20 (plus $7) if you purchased after that date. Upgrades will require that you send the manual cover and a dated receipt for the original purchase.

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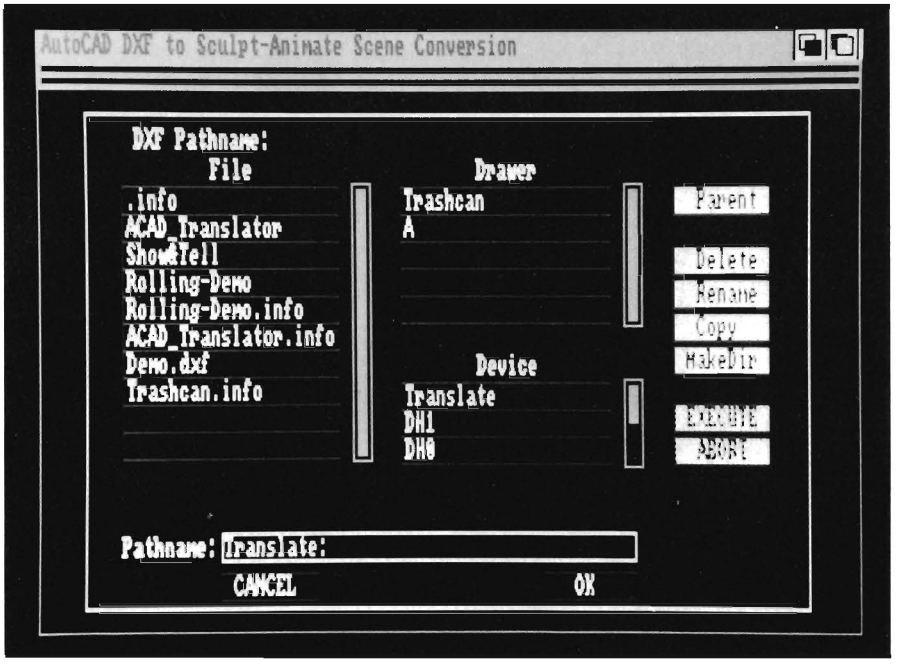
ACad

Translate Industry Standard DXF Files to Popular Amiga Programs

by Paul R. Miller

Like it or not, AutoCAD is the most widely used PC based CAD program, with users numbering in the hundreds of thousands. At the large architectural and engineering firm where I work our CAD production is based on a sophisticated main frame system, but we regularly translate to and from AutoCAD files -- either because our clients supply us with data in that format or they require archival documentation in DXF format at the completion of our design for their ongoing facilities management needs. Because it is so widely used, AutoCAD has become the design and construction industry's standard for the propagation of libraries of various manufacturers products, from windows to furniture. Thus, nearly every CAD system from Intergraph to Versacad has been served by utilities that provide for these translations, and the links extend from MS/DOS to Sun, Apollo, and Macintosh. Although the Amiga is certainly not (as yet) a viable instrument for commercial CAD production, the ACAD Translator represents the first link to that realm.

The Acad translation requestor screen



Access Technologies' first Amiga product was a set of carefully crafted three-dimensional fonts for use with Sculpt 3-D, which was later released in a version for Turbo Silver. (These fonts can also be used with VideoScape 3D or Forms in Flight II via InterChange, and can be translated via either Modeler 3D or with another InterChange module into Aegis Draw Plus or Draw 2000, and then into Desktop publishing as well.)

Although ACAD is touted as a means for utilizing the Amiga's superb rendering and animation capabilities to show off 3-dimensional DXF files with Sculpt 3D or 4D, Access has also provided a link to all those other applications as well.

The AutoCAD .DXF file format provides an ASCII base for 2-dimensional and 3-dimensional files. ACAD provides a means to translate those files, with default settings suited for Sculpt 3D, but with provision of control over parameters of magnification, circle subdivision, layers, and blocks that will help users tailor their translations for other applications and even edit objects prior to those translations. But first things first -- that vast resource of .DXF files resides in the MS/DOS world. ACAD's slim but thorough

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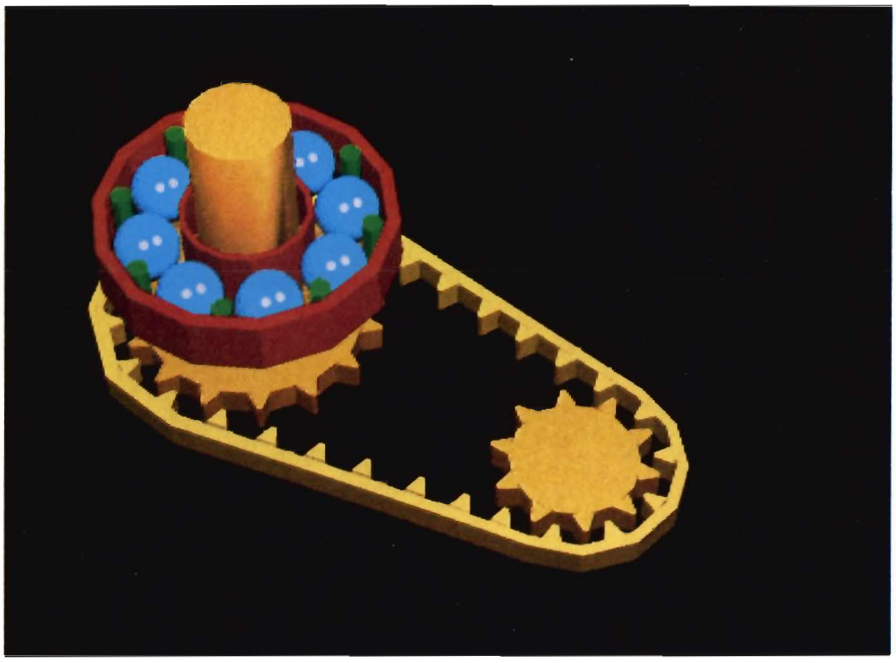
manual leads you through the three methods:

Modem Transfer -- either direct or from various BBS's which have substantial DXF databases. (Access reminds us to set our telecommunications program to strip the carriage returns from the MS/DOS ends of lines to standard Amiga line-feed only.)

Amiga 5-1/4" (or 3-1/2") disk drives -- You can use the "PCCopy" utility from Workbench Extras. Again, Access is brief but explicit in their directions, directing us to use the filter option to strip the Carriage Returns, and offering suggestions to split DXF files (if they exceed the 360 K disk size) before transfer. Users of DOS 2 DOS can accomplish the same tasks, and have the advantage of access to 720 K MS/DOS format 3-1/2" floppies.

Bridgeboard -- easiest of all, but limited again by the 360 K 5-1/4" format. Serious CAD users may take comfort in the hoped-for-soon release of the AT BridgeCard and access to 1.2 meg floppies.



Two sample images that were converted from DXF Files and rendered with Sculpt

No matter what method, the user will eventually have to contend with the fact that DXF files tend to be big. They are, after all, text files. The skillfully constructed files that reside on BBS's or circulate on sample disks tend to be nice and compact, but in the real world it's not unusual to encounter 2 to 7 meg's in the script format. ACAD has built-in tools to let you translate only selected layers or blocks, but unless you have portable mass storage devices or an unlimited phone budget, it's best to break up the files before DOS transfer.

Once you've got your DXF into AmigaDOS, the translation is easy and quick. Loading the program will yield a full screen file requester to set the source DXF pathname. Three scrolling windows are provided for Device (Disks, RAM, etc), Drawers, and Files. A series of scrolls and clicks will produce your full source pathname in a separate window.

For added utility in file manipulation, ACAD gives you some more buttons for Parent, Delete, Rename, Copy, MakeDir, Execute and Abort. Once you've selected your file, a click on OK will take you to the Output Pathname requester where your go through a similar process, with a reminder to give

your file a ".scene" suffix so Sculpt will recognize it. Another click on OK takes you to the Translation Tools screen, which offers only three simple choices: Start, Cancel, or Select Parameters.

Access thoughtfully supplied a disk with some DXF sample files, so I plunged in straight away with the famous 3-D view of St. Paul's cathedral. The file listed at about 55 K in DXF and translated to a .scene file of about 160 K. I didn't time the process, but it couldn't have taken more than a minute from floppy to hard drive. A quick shift into Sculpt, add a light, set observer and target, mode, size, and render -- a seamless transition. Since that was so easy, I decided to get fancy.

Next I loaded into Modeler 3D (using the load Sculpt file option). It came up very small in the tri-view so I activated Auto-Scale. No problem -- except for being upside down. Next step was to open a wireframe preview, then rotate for the desired view, enlarge the window, and activate save as (DrawPlus) drawing.

Okay, on to Draw 2000. Again, there was St. Paul's -- this time in wireframe projected 3-D view. Now on to Professional Page or PageStream (when the latter implements its DrawPlus interpreter).... You get the idea -- ACAD can funnel AutoCAD to the whole range of Amiga programs and formats, from desktop publishing to IFF painting to animation. If you're not a Modeler 3D user, you can go the same route with InterChange, from Sculpt format to DrawPlus. In fact I got better results with the latter in my translations to a .geo format for VideoScape -- missing facets were filled in and it came out right side up. In addition to the straightforward default translation mode, ACAD lets you specify other parameters. Selecting the Parameter button results in another screen with four windows:

Magnification -- a default number of 4096 (a lucky Amiga coincidence?) is designed to yield optimum enlargement for easy viewing in Sculpt's tri-view, but can be altered at will.

Circle Subdivisions -- set to a default of 12, this can be any integer greater than or equal to 3. This number determines the degree to which a curve is segmented for Sculpt. A larger number will produce more segments (and will also increase the time to translate and the size of the file). Your setting here should be tempered by the Sculpt rendering mode you intend to use. While more segments would result in a

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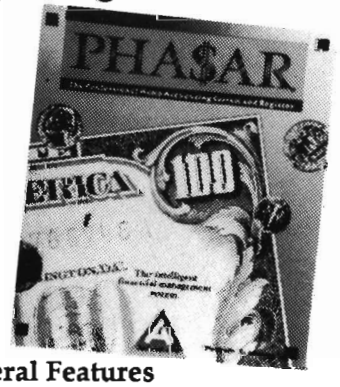

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Acad *(continued from previous page)*

"smoother" curve, you might actually do better to reduce the number (if you are rendering in snapshot or photo) and set the smoothing with Sculpt -- resulting in smaller files and quicker rendering.

Select Layers -- if your DXF file is composed of layers, this option permits both layer exclusion and color and texture editing. ACAD displays layer names, and you click textures and move color sliders.

Select Blocks -- if the file has blocks, you may elect to include or exclude them as they are displayed in the requester.

The disk includes a sample file to accompany brief tutorials in layer and block manipulation. ACAD operates hierarhically in the Parameters window: Cancel or Continue buttons at any stage will either cause the program to translate according to previous selections (i.e. Magnification and Subdivisions only), or let you go on to the layer, color, texture and block options. In all cases the program exits and returns you to your workbench after each translation. The receipt of an updated disk from Access (it fixed an obscure bug) prompted a telephone call to Texas, which was the occasion for some additional facts. Although ACAD is "officially" certified to handle AutoCAD release 9 files, Access reports that it works with release 10 as well, with the exception of 3-D "Mesh" files. These can be handled indirectly, however, by exploding them first with AutoCAD before the translation, yielding proper 3-D facets. Access is also hard at work on another Amiga software product which ought to find a grateful audience. If we look at ACAD as just a translator from 3-D AutoCAD to Sculpt rendering, it would seem to have appeal to a rather limited user group. Perhaps unaware, however, Access has given the Amiga a link to a very wide base of data in the "real world," and with the use of readily available supplemental utilities like InterChange, we can use this data in Amiga based structured drawings, desktop publishing, paint programs, 3-D rendering and animation, and video. A nice bit of serendipity that seems to be happening more and more frequently these days....

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Video Page

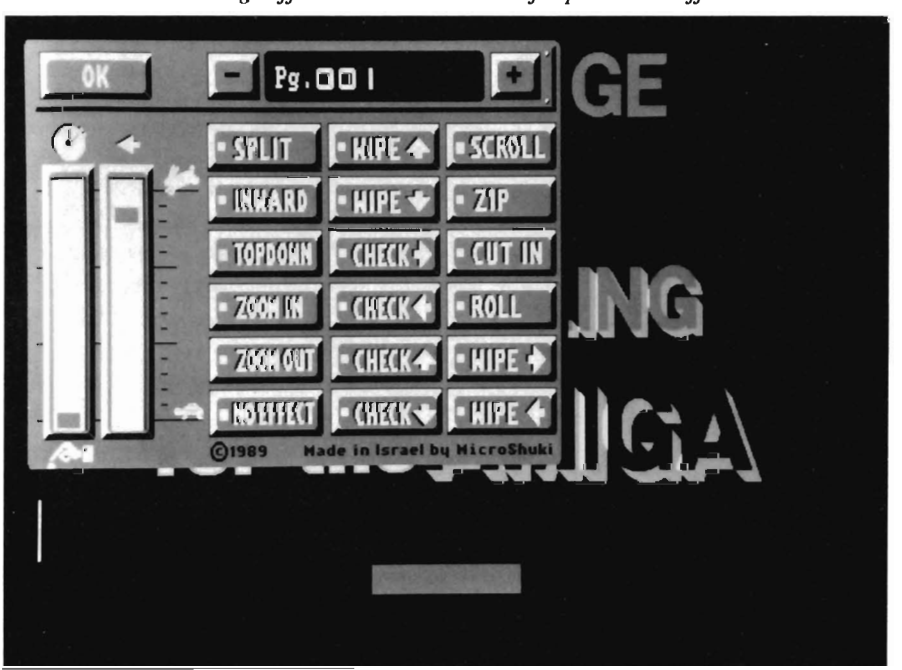
A New Video Titling Program from Impulse

by Tom Reed

Video PAGE is a new video titling program for the entire range of current Amiga computers which is designed to help you create professional looking titles for your video productions. You can mix different sized and colored fonts on the same line of text. With Video PAGE your titling project will be accomplished in an efficient and speedy manner. Video PAGE requires AmigaDos 1.2 or higher, at least 1 megabyte of RAM memory and a second disk drive or hard disk. The Video PAGE program comes with a program disk, several font disks and a manual. Video PAGE is not copy protected. The steps for using Video PAGE are simple.

1. Load up to six different fonts into what Video PAGE calls a font cartridge.
2. Type in your pages of text.
3. Click on the effects and transitions for each page from the effects requester.

Video Page offers the user a number of sophisticated effects



When those three steps are complete, preview your work and make any necessary adjustments. That's it! As easy as "one, two, three".

Because the program is easy to learn and operate, it is possible to overlook how thoughtfully the program is designed and implemented. Video PAGE follows a very intuitive and logical approach in its operation and execution. Screens are a joy to work on because of the attentive manner to detail in which the layout and user interface were created. Requesters are large and present information clearly. The only minor exception to this statement is the fact that some screens require input from the mouse and other screens require input from the keyboard. When I first encountered pages that needed keyboard input, I instinctively reached for the mouse to make a selection when the keyboard was the way to go. The screen looks as if the mouse should be used, but no, strike the appropriate key to make the selection. The adjustment to using the different methods of input, mouse or keyboard, was quick because of the logical nature of the requests. Of course, all of this could have been avoided if I had only read the manual first!

The manual is a fifteen page document that contains all of the necessary information to run Video PAGE. The

(continued on next page)

manual is written in a clear and concise manner. The topics contained in the chapters are: The Video PAGE Interface, A Simple Tutorial, The Editor, Effects, and a Reference Guide. The easy as "one, two, three" steps are contained in the chapters on the Video PAGE Interface, The Editor, and Effects. Let's look at these three areas in some detail.

A sample title from Video Page

Interface

To start the program insert the program disk in DF0: and double click the disk icon. If a Video PAGE fonts disk is not in place, you will be asked to insert a Video PAGE fonts disk. My review copy of the program would not load properly if I booted with the Video PAGE program disk and had the fonts disk in the external disk drive during this booting process. Booting with the Video PAGE program disk in DF0: and then inserting the fonts disk after the Video PAGE icon appeared caused no problems.

Upon the successful loading of the program, you are presented with a fonts selection screen. Selecting fonts could not be easier. Each fonts disk comes with its own screen for loading fonts into a fonts cartridge. The interface conventions are the same for each of the fonts disks. It is therefore possible to load into the same fonts cartridge different font point sizes, different styles of the same font and other font sizes or styles from the other disks of fonts which are provided. The cartridge permits you to load up to six different fonts at one time for use in the program. When your selections are complete, click on EXIT and you will be taken to a blank page in the editor.

The Video Page font Selection menu

The Editor

You will recognize the editor page by a status stripe which appears at the bottom of the page. The status stripe contains the following useful information: current line number, font number, font color, mode (insert or overwrite), and the current page number. Enter the text for your first title page. Entering text into the program follows most of the same conventions that your word processing program uses. You may use any number of different font sizes, colors and styles on the same line. Key strokes may be used to easily change from one font to another. Holding down the Alt key and pressing 1 selects the first font in your cartridge. Alt 2 selects the second font. etc. Press F9 to view a page that displays the selected fonts in your current cartridge. This same key allows you to select a new active font. The font selection screen is activated by pressing F8 if you wish to load in different fonts.

The color of your font is just as easily changed by using the Ctrl key and numbers 1-8. Another way to select colors for rendering text is to press F6. The available colors are displayed and your selection is made using the arrow keys. To adjust the color palette for

any of the eight colors available press Ctrl F6. The default color values are set with the sliders at the 15. For a clean video signal, these should be set to a value no higher than 12. The 15 value looks great on the RGB monitor screen but overdrives the video signal when transferred to video tape. This is due to the nature of NTSC video signal and its limitations, and not a fault of the program..

When a page of text is complete, press F4. This will cause Video PAGE to store the page that you have just been working on and present you with a new page. This process of entering pages of text continues until your titles are complete. Then it is time to go to the effects screen.

The Effects

The effects requester is accessed by pressing F10 and provides an opportunity for you to present your titles in an interesting and effective manner. Video PAGE provides you with eighteen ways to have the pages of your text appear. Programing the movements of your titles is another simple task. Click on the effect or transition you would like to use.

When the selection is made for an effect, the "LED" next to that effect will change to yellow, indicating that the selection has been made. Click on the + (plus) in the upper right hand portion of the requester to move to the next page. The text of the current page will appear behind the effects requester screen. The space bar will toggle you between the requester screen and your page of text. The "no effect button" allows you to skip a particular page of text. The timing for the effects and for the duration between each page of text is taken care of with the two slider bars on the left side of the effects requester. When these steps have been completed for all of your pages of text you may preview your work by pushing F1.

It is an easy task to go back and change any of the work that you have done. Adjustments to the text of a particular page or to the effect or transition used to present this text are equally simple to accomplish. The review copy of the program and manual I used had a few small problems. Two function key commands were not operative. Ctrl-F1 for displaying job status and Ctrl-F9 for the line justification requester. The line justification functions worked perfectly using Crtl L (left justify), Crtl R (right justify), Crtl M (mid or center justify) and Crtl N (no justify).

Overall, the program worked well. Video PAGE was easy to learn and simple to use. This program allows you to put high quality titles onto your video productions. Video PAGE is a tool that allows you to concentrate on the job at hand-producing effective title sequences. Video PAGE does a very good job, is easy to learn, a pleasure to use, and puts high quality video titles at your disposal.

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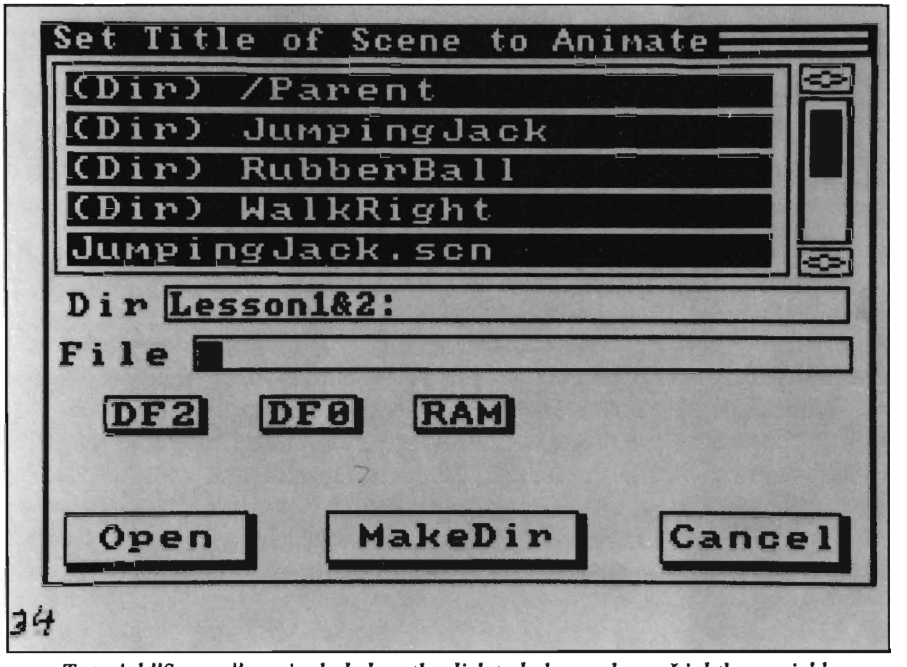
LightBox

A Pencil Test Animation Tool for the Amiga

by Tom Reed



Tutorial "Scenes" are included on the disk to help you learn Lightbox quickly

LightBox from R&DL Productions is not a paint program, not a ray-tracing program, and not a program which will create "tweens" for an animator. It is designed to be a computer based cel animation tool, precisely this and no more. LightBox is patterned after the artist's tool of the same name. Animation artists use transparent drawing cels with an even white light source behind them. The lightbox provides a means for accurate alignment of cel elements.

Lightbox the program, takes advantage of the Amiga's powerful graphics ability and allows the animator to view three frames of animation simultaneously. The current frame is rendered in black, the previous frame is ghosted in magenta, and if there is a frame in advance of the present frame, it is ghosted in cyan. In short, the program is a computerized pencil test system.

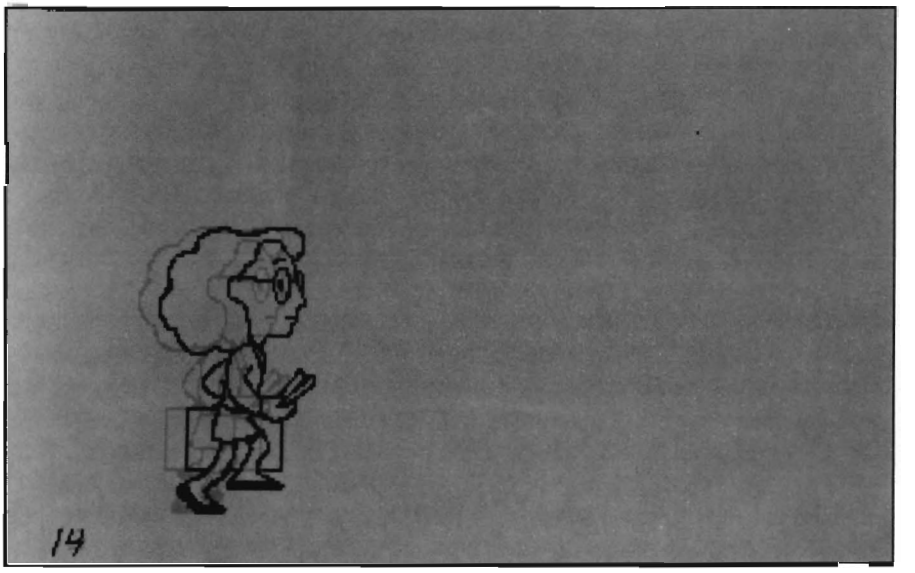
The Amiga does all of the necessary housekeeping chores that are normally associated with the cel animation process. LightBox keeps frames in order, provides an evenly distributed "backlight" and erases cleanly. Page flipping is built in and is accessible with just one keystroke. R&DL has provided just the tools that can help a traditional animator be more productive using a computer.

The complete process of drawing individual frame details is up to you. LightBox does not create ANIM files but treats each frame of the animation as a separate IFF picture. Because you can view up to three frames (pages) of an animation at one time, it is easy to precisely place the next element or action in the animation sequence. An animation pencil test is used to plot an animation path and enter the appropriate gestures or elements of a sequence to provide the desired effect when filmed. LightBox accomplishes this by providing the animation artist with rudimentary drawing tools to construct the animation. Freehand drawing or sketch modes are the artists tools provided in LightBox for the construction of an animation. Custom brushes can be made allowing use of common elements in subsequent frames. Your artistic arsenal is limited to one black "pencil" on a white screen. To add color to the animation, special effects or backgrounds you must export the picture files to a paint program that can load IFF files. LightBox can be

started from either Workbench or CLI. Once loaded, "Set Title of Scene to Animate" is the first screen the user encounters. You may either open a previously saved scene or begin a new one. LightBox automatically saves your drawings to this file as frames are created or altered in any way. Typing in a new scene title causes a new subdirectory to be created within the currently selected directory. LightBox uses this new subdirectory to store each frame of your animation.

Making An Animation

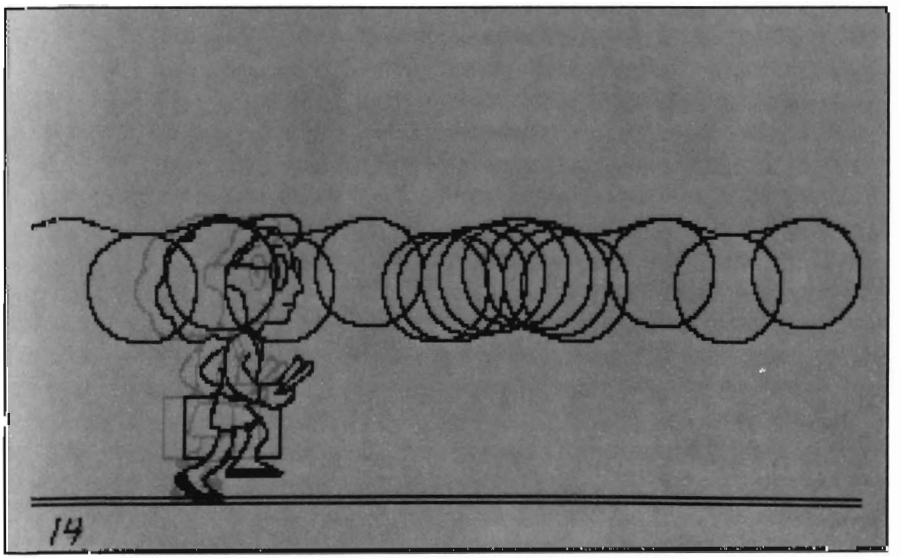
The work screen in LightBox is a white screen with a small crosshair pointer. The left mouse button is used to draw your animations, black is the only foreground color available to draw in your frames. The right mouse button will activate the background color of white. This allows you to 'erase' parts of your work using the right mouse button. The brush size is controlled by the numbered keys just below the function keys. The numeric keypad has different functions than the number keys. On the numeric keypad: 4 will move you to the previous frame, 5 will flip through your animation, 6 moves you to the following frame, 7 adds a previous frame, 8 continues inbetweening, 9 adds a following frame. After practicing drawing on the LightBox page, F10 will clear the page.



R & DL's LightBox system allows you to reference your previous and next frames by displaying them in different hues

The first step in the creation of an animation is to determine the path that your object will take across the screen. Press 'p' on the keyboard to set path mode and draw a line that will serve as a reference for the path that your object or objects will take. This path line will be red and appear in every frame of your animation providing you with a reference line for the planned action. Even though this path line appears in every frame the path line is not saved with the animation frames. After drawing the path lines press 't' on the keyboard to get into the tween mode. The tween mode allows you to place frames in-between two frames of action.

The program uses a graphic display to illustrate your motion path



The tutorial in the manual has a bouncing ball entering from the upper left hand corner of the screen and hitting near the middle bottom of the screen and exiting screen right just above the mid point of the screen. To do this animation, you draw a circle in the upper right hand corner of the screen. Next press '9' on the numeric keypad to add a following frame. The circle that you have just drawn will turn magenta and that frame will be automatically saved to disk. The magenta object will always be the previous frame. The instructions call for you to next draw the

(continued on next page)

LightBox *(continued from previous page)*

frame with the ball at the bottom of the page. This represents the furthest point that the object can travel in one direction without a drastic change in its path. After that is done press the '9' key again. The first circle will disappear from the screen and the frame you have just drawn will turn magenta. Next, you draw a circle at the next extreme, which is at the mid right side of the screen. After that is done, press the numeric key '4'. The numeric '4' key will take you one frame at a time towards the beginning of your animation. This will take you to the second frame you drew with the ball at the bottom of the screen. This current screen will be black, the previous frame (the first one you drew at the upper left position of the screen) will be magenta, and the following frame (the last one drawn at the mid left screen position) will appear cyan. With the path represented in red, and your ability to see three frames at one time, you are able to accurately proceed with your animation.

Menu Options

LightBox has two pull-down menus each with two options. The Project menu has 'New' and 'Quit' as options. New is used to close one scene and open or start another scene without exiting LightBox. Quit safely closes the current scene and exits the program. The ILBM menu contains two options: "Import" and "Export." Import loads a picture into the current frame. Export saves the current frame as an IFF picture. LightBox animations are flipped at a preset rate of thirty video frames per second. Each LightBox frame is displayed for a duration of two video frames or 1/15th of a second. LightBox is a program with a very specific use. It is aimed at the artist who requires total control over an animation, but is open to use of a tool which removes some of the drudgery. It performs this function well and elegantly. The ability to see up to three frames at once provides the animator with an accurate way to place actions within an animation. This is a crucial step in producing high-quality animations. All that remains is to take the finished cels into a paint program for "inking."

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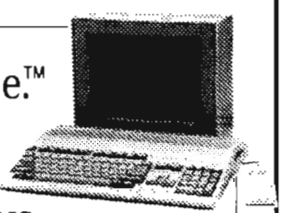
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High Speed Road Racing Action from Sega/Mindscape

by Anthony Bevivino

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Everyone of us has dreamed of roaring down the highways in a hot sports car, top down and radio blasting. With Sega's Out Run, you can come one step closer to realizing your dream. You get to "drive" that sports car of your dreams through some of the most beautiful parts of the world, at speeds so fast you need to have a pilot's liscence. So if your looking for a little more than a Sunday drive, get ready for Out Run. Out Run is a game by Sega, made for the Amiga from an arcade game. Out Run is primarily a graphics game, and if you liked the graphics on the arcade game, then you will like the graphics in this game since they are almost identical. The graphics used in Out Run are somewhat different then the graphics I am used to seeing on the Amiga, but they are still very good. There is a lot of bright colors and a very "busy" background to the game.

The brightly colored scenery adds to the road race excitement

In Outrun, you are being visually bombarded with colors and objects, which makes the driving that much more exciting and that much more difficult. Going hand-in-hand with the graphics is the animation. I was a little dissappointed at the lack of detail in some of the graphics, but I soon came to realize that this was necessary for the animation to be effective. If the graphics were very complicated and detailed then the animation would be slower, and the immpression of high speed driving would be ruined. Besides, how much detail can you expect to pick up when you whiz by at 275 KPH?? So when I took the nec-

(continued on next page)

cessities of gameplay into account, I came to realize how good both the graphics and the animation were in Out Run.

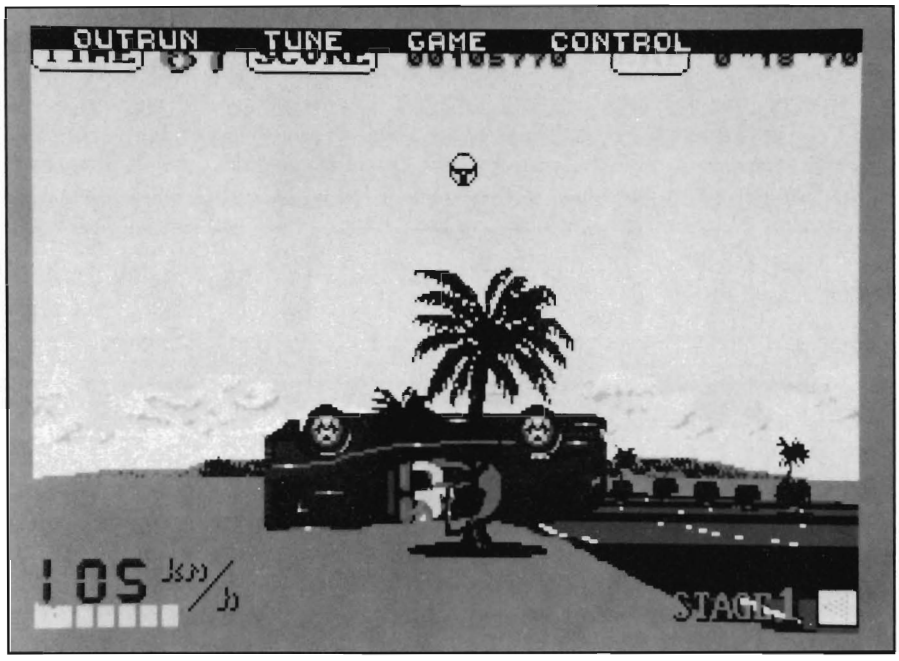
In the introduction to the game, it says: "And put in the best sound system money can buy." Sega is not kidding. The sound in Out Run is fantastic, and I felt it added greatly to the game. You have a choice of tunes to choose from as you cruise, each one different and each one very good. I prefer to change tunes each time I play to suit my moods, but everyone has a favorite tune to drive by, and this adds to the fun. The roar of the engine, the screech of the tires, the sounds of a spin-out, etc... are all very well done, and sound realistic.

On a side note, the sound on the title screen is some of the best I have ever heard. My advice is to crank up the stereo speakers and hit the road!!

main "claims to fame" of Out Run is the scenery that you drive through. Well, this claim is misplaced. I am not saying that the scenery is not great, or that you don't drive through France, or the Autobahn, what I am saying is that you don't see much when you fly by at high speeds. In order to make it through each sequence, you have to do it within a time limit, and in order to do this you need to drive fast. If you take the time to admire the scenery, you will either run out of time or be involved in a tremendous crash.

curve, when to take the inside of a turn, etc. You also need to worry about other cars and trucks on the road. One of my few complaints about Out Run is that these other cars always seem to go just a little slower then you. I don't know about you, but I have not seen too many station wagons and economy cars that go over 200 KMH, but they abound in Out Run. This may seem like a small detail to some, but I think the speeds of the other cars should have been on a more realistic scale. For the most part, however, this is a great game to play. In fact, sometimes the only reason I knew I was playing a game was when I realized there were no police cars on the road!!

Of course, what good would a road race game be if you couldn't flip over



There are two ways to control your car, mouse or joystick, and in a game such as Out Run, control is everything. Both methods of control work quite well, but I think that the joystick is the obvious choice. In order to really enjoy the game, you have to sit back and put some feeling into it, and you can't do this if your mouse has to remain on the trusty mouse pad. The response I got from the joystick made me really feel as if I was driving, and the mouse left me feeling like I was controlling a car in a computer game, so I have to reccommend the joystick. One of the

And now we come to the most important question for Out Run, is it fun to play?? All of the above elements come together and what results is a very good driving game. Your goal is to get through five checkpoints in the alloted time and take one of the many possible routes to reach one of the five finish lines. This is fairly straightforward, but the game is much more complicated than that. You have to learn when you are going too fast for a

There are two small things I noticed about Out Run that I really appreciated. One of them is the menu of options given before the game starts. It is very simple to use, just highlight the option you want and either click the mouse or hit the fire button. All game options can be quickly and easily accessed and changed in this manner. The second detail I liked was the documentation. I thought that it was very well done, both efficient and to-the-point. It seems that Sega has a habit of making good documentation, and I hope this is one habit they don't break.

One thing that greatly impressed me about this game is that the computer version is almost identical to the arcade

(continued on page 46)

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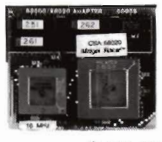

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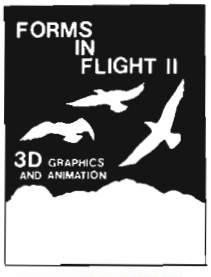

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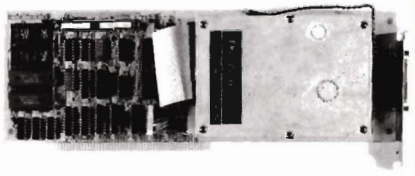

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Outrun (*continued from page 42*)

version. Except for the fact that the arcade game has a steering wheel, and takes a quarter each time you play it, the two versions are very much alike. I am happy to see that a port over from a complicated and quality arcade game can be done so well, and I hope to see more of this in the future.

One thing that I was very displeased about was the torture that Out Run puts on my drive during boot up. The copy protection is excessively heavy, and I found my drive making a lot of noises that it was not designed to make for a very long time. There were times when I wanted to play Out Run, but the agony I knew I was putting my drive through made me put it away. This is a sure sign that Sega went overboard on the protection. A company can copy-protect its software, but not if it will adversely affect my disk drive.

Out run by Sega is an excellent driving game. It is almost identical to the arcade version, and if you like one, you will like the other. The graphics and animation are different, but well done. The sound used is of top quality, and greatly added to the game. If you enjoy the feeling of high speed driving, then Out Run will put you behind the wheel of a high-performance sports car and let you take it to the limit.

Outrun $ 49.95

A Sega Game
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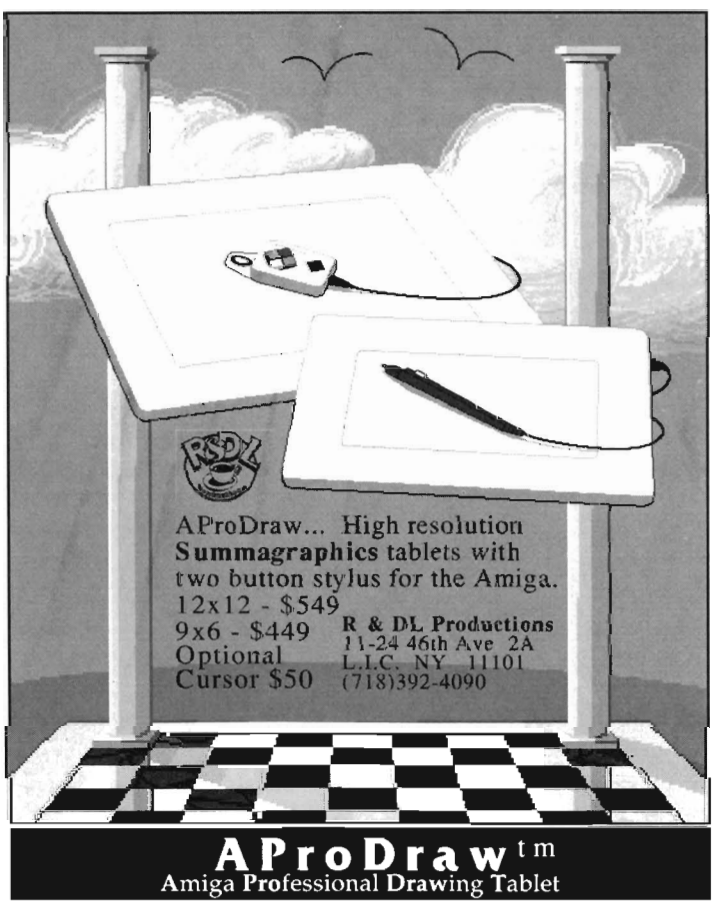

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Hostage Rescue Mission

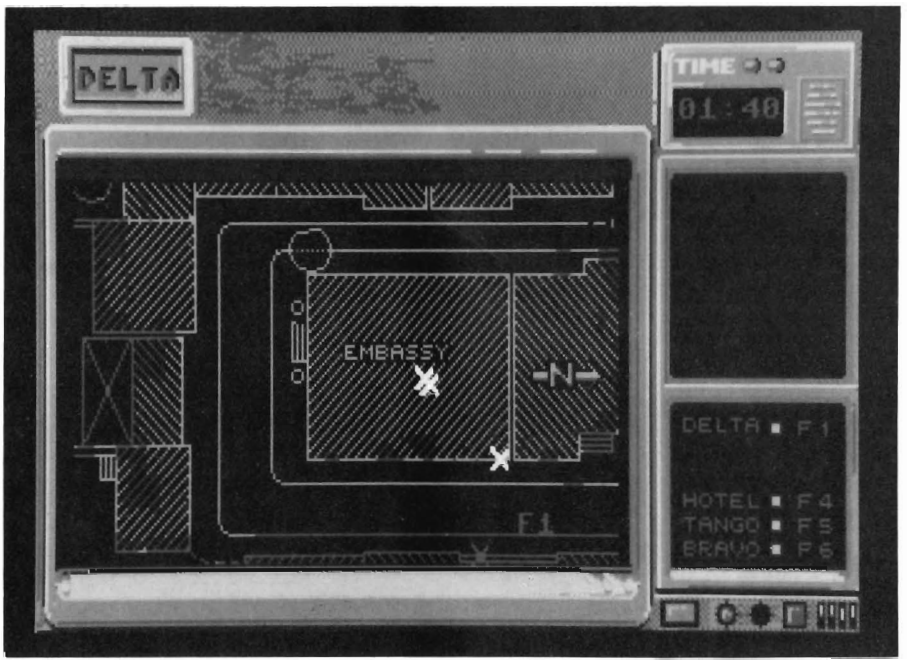
Mindscape's "Out of the Headlines" Action/Adventure Game

by Anthony Bevivino

"SPECIAL ALERT... Attention all Special Forces Personnel:URGENT. Hostage situation. Prepare for immediate action. Terrorists have stormed our embassy and forced their way past the security guards. An undetermined number of personnel are being held hostage. The terrorists' demands are unacceptable and negotiations have broken down. These terrorists are heavily armed and extremely dangerous. As far as we can determine, they now control all three floors of the building. A six member assault force team must infiltrate the embassy, neutralize the terrorists, and rescue the hostages before time runs out. The government is counting on you to avert a disaster of international proportions... Good Luck!"

And so begins the Hostage Rescue Mission. In this new release from MindScape Inc., you must rescue a group of hostages being held by terrorists at your embassy. You are in command of a six-man team of highly trained men, and you must direct them in the best way against the terrorists and save the hostages. These six men are code-named Delta, Echo, Mike, Hotel, Tango, and Bravo. Hostage Rescue Mission has four stages, each with its own challenges to overcome.

A map view is used for strategically positioning your men in readiness for the assault

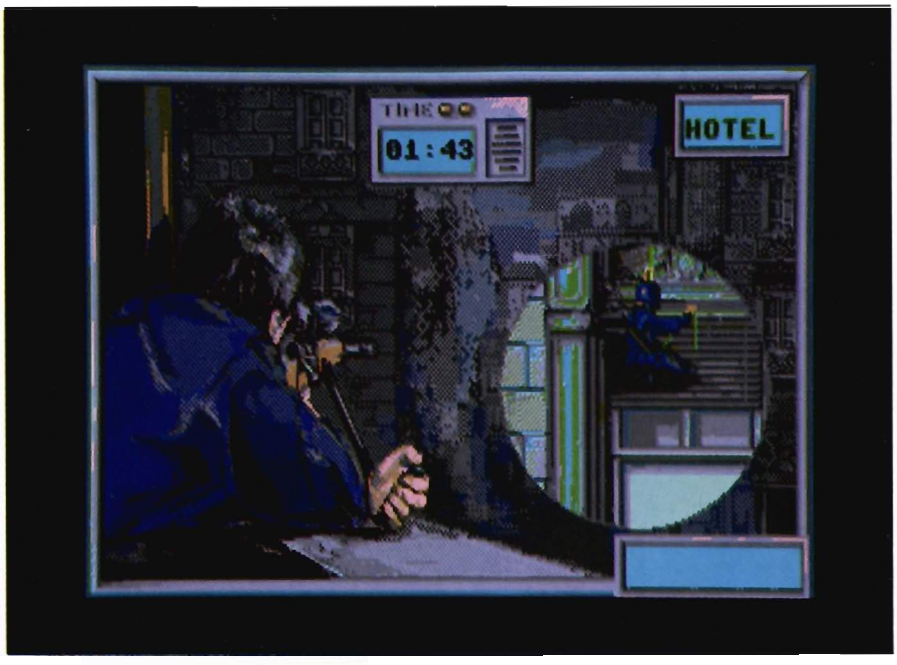


In Stage 1, you must position three members of your team in strategic positions around the embassy. These men are your expert marksmen, and they will provide cover fire so your men can enter the building as well as perform surveillance. Your marksmen are Delta, Echo, and Mike, and you must direct them to the most advantageous positions around the Embassy. Aiding you is a map of the area, with your man's position marked, and the strategic positions indicated. Each of your men starts out behind cover, somewhere around the building, and they have to get to one of the locations on the map. This is not as easy as it sounds, however, as the terrorists are covering the areas with spotlights. If your man is detected by the light, the terrorists will open fire on him, and if he takes enough hits, then another life has been lost to the terrorists. Your man, because of the need for stealth, cannot fire back, he must duck, dodge, and hide until he comes to one of the destination points. He can crawl under spotlights, do a diving

(continued on next page)

Rescue Mission *(continued from previous page)*

Once on the rooftop, you must repel down the side of the building to gain access to the window without being picked off by onlooking snipers

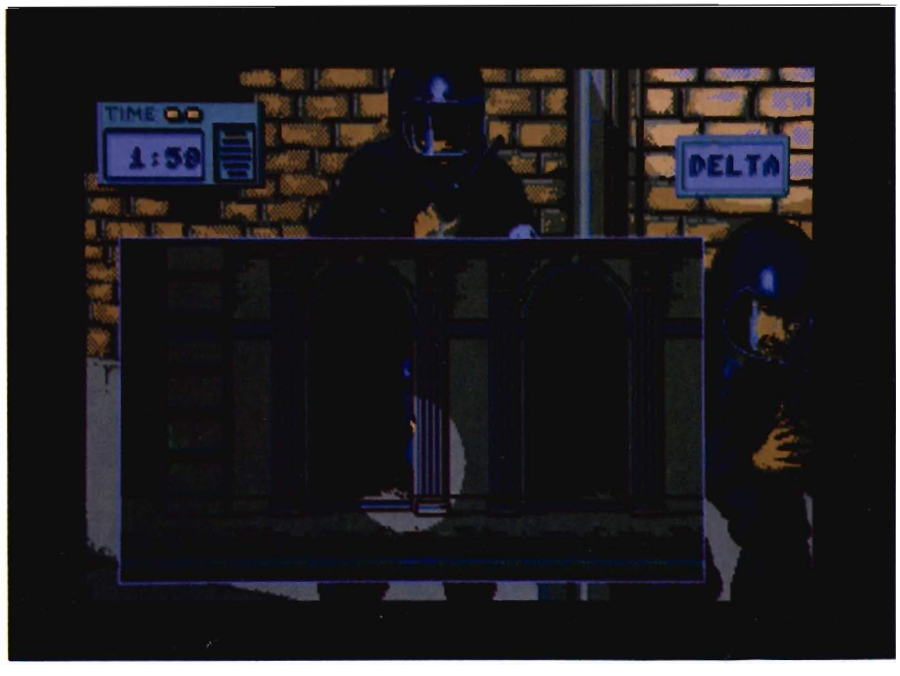


roll through them, or duck into a window or behind a doorway. Once at least one (and hopefully all three) of your men makes it, you proceed to the next phase.

Stage 2 involves the use of the full team. As your marksmen provide cover, the Direct Intervention Team is dropped via helicopter to the roof of the Embassy. The D.I.T. consists of Hotel, Tango, and Bravo. The map in this stage is an overhead view, marking the positions of your marksmen as well as the members of your D.I.T. You must use your marksmen to survey the side of the building they face using their night-scopes,and make sure there are no enemies by the windows. Once the area is safe, you must send one of the team in. Select a man, and then his position on the building. Your man must then repel down the side, choose one of the windows, break through it, and get into the building. Remember, the Embassy has only three floors, so don't jump too far, and don't position all of you men on the same floor or same side of the building. Once your men are inside, the real action begins!!

In Stage 3, you are inside the Embassy, where you must rescue the hostages and liquidate the terrorists. You have a mini-map, which will tell you where the hostages and the terrorists are. It will also show you the layout for each floor, and the location of stairwells. Use this map well, it means the difference between life and death, success and failure. In this stage, you get a "first-person" view, and as you move from room to room you may encounter terrorists, or hostages, or both. If you find a hostage, he will follow you, and you must take him to the "safe room" on the upper right of the third floor. If you encounter a terrorist, it is kill or be killed. Open fire with your machine gun, and blow him away, but watch out, he will be trying to do the same to you. If you encounter both a hostage and a terrorist, the terrorist will use the hostage as cover. You must kill the terrorist, but do not harm the hostage!! This is very difficult, but part of the mission. In this stage, it is critical to remember that you have three men inside the building. You must use each of them wisely. If you don't move a man

In the initial stage of the assault, you must move in on the target building without being detected by the ever-present searchlights



for a long time, the terrorists will find him and kill him. You should also position your men so that you have all the floors covered, so you can protect the hostages and cut off a fleeing terrorist. Once you have completed your mission, you go to Stage 4, the Outcome. Your entire mission will be evaluated. If you have killed the terrorists, rescued the hostages, and have all men alive, you have earned a promotion and will be praised by the headlines. If you have lost men, or killed hostages, watch out, you won't be getting a red carpet. When you make it through a mission with great success, you will be promoted and be lucky enough to tackle an even more difficult mission. Good Luck, you'll need it!!

The graphics in Hostage Rescue Mission are the foundation of the game, and I found them to be well done. I was not astounded with the quality of graphics, but considering the game is only one disk, as well as the speed and diversity of action present, the graphics are good. The colors and texture are above average, and they are very appropriate to the game and allowed play for a long time without a headache. What impressed me most about the graphics was the perspectives and angles used. Only the first stage has the standard "third person, two-dimensional" graphics, and even these were good. The second and third stages truly have great use of perspective. When you look at your sniper, it appears as if you are right behind him, and you only see what is in the small circle of his gunsight. Inside the building, the "first person" perspective is very effective, and is also well done. There is very little sound in this game, but it does not take away from the game at all. So much is going on visually, such as maps, switching men, etc. that any background music or barrage of sound effects might distract your concentration. The sounds that are used, like gunfire, crashes and screams, are well done and realistic. So, while there is no large quantity of sound, there is a high standard and good taste for the sounds used.

"I was not at all pleased with the copy protection used...It uses both disk-based protection and document protection"

Hostage Mission is controlled with the joystick, and while this is the only method possible, I thought it could have better sensitivity. In a game like this one, split-second reactions and lightning fast maneuvers are called for, and I did not feel that the control responsiveness allowed me to do this. I use good, quality joysticks, so my controllers were not responsible. I found that sometimes my man would crawl instead of roll, or keep repelling when I wanted him to stop. These are not critical points, and do not happen all the time, but Hostage Rescue Mission demands precision, and while the controls are adequate, I felt they should have been tighter.

One feature that Hostage Rescue Mission excels in is playability. I truly enjoyed playing this game. Even though it is a very challenging game, I never got bored or frustrated, and this indicates a good challenge. I felt I was involved, and there was tension in the air as I played. I bled with my men when they took enemy fire, and my heart was beating fast when they searched the Embassy. Any game that makes one this involved shows a high level of playability and enjoyability, and this is one of the best.

I was not at all pleased with the copy protection used. The game does not torture your disk drive, but it does go a little overboard with copy protection. It uses BOTH disk-based protection and document protection. This means that you cannot put the game on a hard drive, and you also have to go through the tedium of looking up word 7 on line 5 of page 18 every time you boot up. Document protection is by far the most reasonable method, and I can sometimes live with disk based protection, but both at once is overkill. Come on guys, you can put that disk space to better use!!

Aside from this, I thought that the packaging and documentation for this game were of the highest caliber. The package was very appealing and drew my interest, but the docs were really outstanding. The documentation comes in a file marked 'TOP SECRET' and gives you a sense of involvement right away. The docs explain the stages and types of control in each in a very efficient way. This is a complex game, yet the instructions made it seem easy. The docs were well-written, clear and easily read; a trend I would like to see imitated in many other products.

All in all, Hostage Rescue Mission is an excellent game. It provides a variety of challenges and very good storyline. The graphics and playability set this game apart from all the rest. I found myself really involved and wanting to get greater challenges, which Hostage Rescue Mission provided. I am sure it can do the same for you.

Hostage Rescue Mission $ 44.95
Mindscape, Inc
P.O. Box 1167
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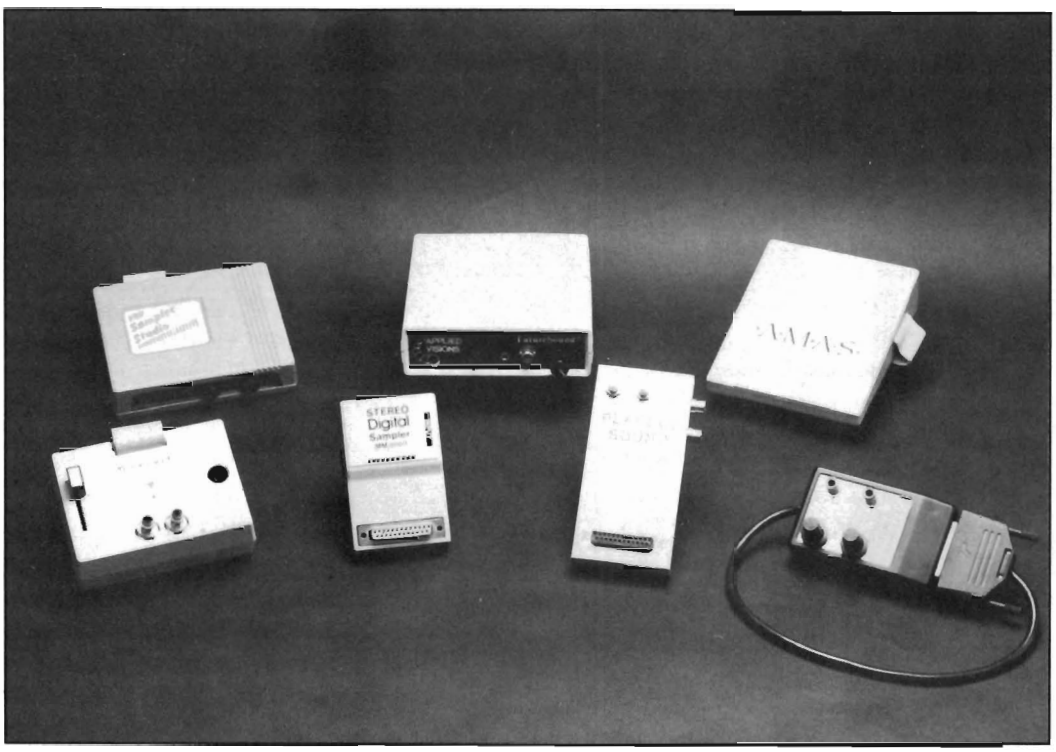
Audio Digitizers

A Comparison of Amiga Sound Samplers

by Walter Steuber



Capturing sound has never been easier! All it takes is a little piece of hardware. Musical instruments, voices and special sound effects can all be moved from the outside world into an Amiga file through a little box plugged into the printer port, substantially expanding the already impressive sound capabilities of the Amiga. The only problem you might face in buying a sampler, also known as an audio digitizer, is how to choose among the many brands that are available.

Since they all are built to do about the same job, you may be surprised when you see how different their features are. They differ in the way they connect to the sound source. They differ in how they connect to the Amiga. Some have more sensitive amplifiers than others. Some have controls to adjust the signal level, some don't. Most of the new offerings handle stereo sound, but not all of them. Some, but not all, have ready lights. They come packaged with operating software, and this, too, is different with each one.

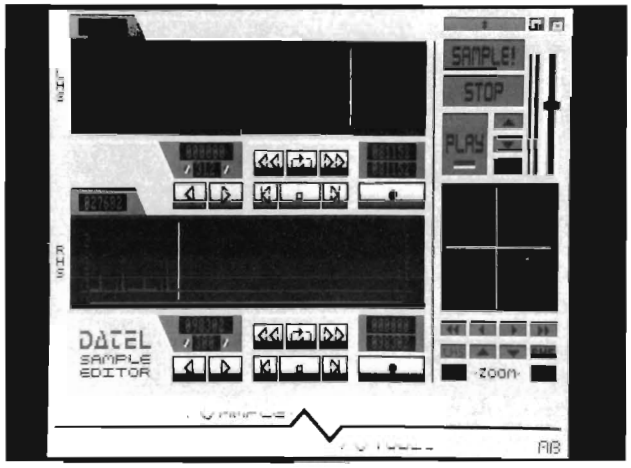
Seven of the current hardware offerings were exercised on an A2000 to see how they compare. Two of them are brand new on the market, the others have been around anywhere from a month to over a year. They come from Norway, Germany, England, Texas, and a couple of unidentified origins. Consequently, they do their thing in different ways. Any one of them would be an important addition to an Amiga system. I've never met a digitizer I didn't like, but I do like some more than others, as you will see. My approach to comparing this group was to try out each one with three different sound sources: 1) my voice reading 2) a stereo tape of Pete Fountain playing clarinet, and 3) an electronic signal generator.

The soundfiles collected from the first two sources could be judged only subjectively, but the signal generator yielded objective indicators of the quality of each piece of hardware. Any digitizer is mainly an amplifier followed by an A/D converter, but these may be supplemented with filters, stabilizers and other hidden cir-

cuitry. In the following assessments, no attention was paid to what was really inside a device, each was treated simply as a black box and each was run under control of its own software.

The pieces of hardware have been listed in the order of how much I liked them. The ordering is not entirely the result of objective measurements. It is heavily influenced by personal preferences for certain features. I like a device to have a sensitive input for my weak microphone and I like it to have a separate pair of inputs for stereo from a tape player. I like it to have controls to adjust the recording level, and the connection to Amy to be through a flexible cable. (If a device did not have a cable, I supplied one, both to bring its inputs around to the front and to take the load of the dangling cables off the pins of my parallel port.) I like to have connectors that fit my equipment, even though adaptors are easy to get. I like it to operate with AudiomasterII. Recognizing that somebody else's set of preferences could make the ordering come out quite different, here they are:

AMAS The Advanced Midi Amiga Sampler is a combination stereo digitizer and Midi interface. It has two RCA phono inputs, a single mic input, a Midi input (5-pin DIN socket), a Midi output and a Midi pass-through. It connects to the computer through two 18-inch cables, tying up both the parallel and the serial port. (Separate versions are offered for the A1000 and for the A500/2000.) The midi part was not involved in this comparison, but it obviously is an important extra feature.

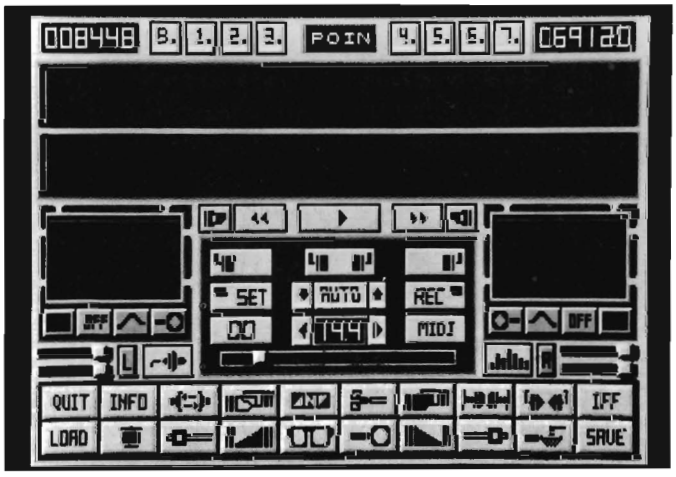


The Datel Sampler screen

FutureSound. The old single-channel version for the A1000. It is the device I have been using for months and continue to like a lot. It has an on/off switch, a phono input and a ready light, in addition to a level control, mic input and cable.

Perfect Sound. This unit has two channels entered through RCA phono jacks with a level control for each. It is built to plug directly against the A1000 parallel port, so the user must supply his own genderbender to use it with A500/A2000.

The AMAS Sampler screen



Omega This Stereo sampler has two channels entered through RCA phono jacks with a level control for each. It plugs directly into the parallel port of the A500/2000. It also has a short cable that plugs into the serial port and covers over the right audio output, requiring some new cabling before it can be used.

FutureSound 500 is Applied Visions' new version for the A500/2000. It has two RCA phone jacks for input from a tape player and a subminiature (3.5mm) socket for a microphone. It has a single control to modulate the input and it connects to the parallel port of A500/2000 through a 22-inch cable.

EiderSoft Stereo Digital Sampler The MM2000 has a single input socket to accept the subminiature two-channel pin that often comes on earphones. (An adapter was obtained at Radio Shack to convert this to two RCA phono jacks.) The sampler is constructed to plug directly against the A1000 parallel port and it comes with a genderbender to enable it to plug directly to the A500 or A2000 port.

Datel Pro Sampler Studio is a single-channel digitizer with three separate sockets for input: A 1/4" phone plug for small signals, a 1/4" phone plug for strong signals, and a 5-pin DIN socket. It has a ready light and connects to the parallel port through a 10" cable. (Separate versions are offered for A1000

(continued on next page)

Digitizers (*continued from previous page*)

and for A500/2000.)

	Voice	Clari	Noise	Mic	Ster	Rheo	Cable	Audi
AMAS	8	8	9	Y	Y	N	Y	N
FutureSound	8	8	9	Y	N	Y	Y	Y
SunRize	8	9	6	N	Y	Y	N	Y
Omega	7	7	8	N	Y	Y	N	Y
FutureSnd 500	5	3	Y	Y	Y	Y	N	
Eidersoft	5	5	N	Y	N	N	N	
Datel	5	3	Y	N	N	Y	Y	

Comparison Criteria Fields in Chart:
Voice: A single-channel microphone (electret condenser type) was used to make voice samples. It put out a weak signal that jumped all over, but averaged about 1 millivolt. Voice samples were collected under the best conditions of sampling rate, amplification, etc, that I could muster and were then rated for how faithfully they reproduced the original. The scale was 10=indistinquishable from the original, 7=pleasing but noticeably mechanical, 4=telephone quality, and 1=hard to understand.

Clari: A tape player with two channels of strong stereo output was used as the sound source and a short passage was collected of clarinet playing. A subjective rating of how well each device reproduced the original was made on the same scale used for the voice samples. If the device could not handle this stereo, it was recorded as monaural and indicated by `m'.

Noise: Spurious noise is always injected by any kind of audio device and is usually the main limitation on its quality. Noise could, of course, be heard in our voice and clarinet samples, but its effect was mixed in with other departures from full fidelity. Using a signal generator made it possible to look at the noise, separated from other effects. The signal generator was set up to put a steady sine wave into one channel and a steady square wave into the other. Both frequencies were kept at 500 Hz. (Other frequencies were tried, but this did not seem to be of any significance in comparing the different devices.) The resulting sound files were graphed with AudiomasterII and they were also examined with the program NewZap3.18. NewZap displays the numerical value of each sound sample, allowing calculation of the exact departure from perfect sine and square waves. The freedom from noise that showed up in the sound samples was then put on a rough scale-of-ten. The scale used was 10=no noise, 1=large amount of spurious noise.

Mic. Does the device have an input for microphone?

Ster. Does the device have stereo in puts for a tape or disc player?

Rheo. Does the device have rheostats to moderate the input?

Cable. Does the device connect to the port through a flexible cable?

Audi. Is the device compatible with AudiomasterII? This may be an unfair question, but it's important to me. There are different protocols for delivering stereo sound samples to the computer and I like the one AudiomasterII uses. Furthermore, some digitizers store their two stereo channels as separate IFF files, making them incompatible with AudiomasterII.

In conclusion, I'll say that I'd be happy to have any of the first three as part of my system. I had difficulties of one kind or another with the others. The absence of a rating in the chart indicates a spot where I never did manage good operation of the device. It was either trouble with their software, trouble getting the right size of a signal into them, or trouble cobbling up connectors.

Products mentioned:

FutureSound/FutureSound 500 $179
Applied Visions
One Kendall Square, Suite 2200
Cambridge, MA 02139
(317) 494-5417

Omega $139.95
Starvision International
305 Madison Ave, Suite 411
New York, NY 10165
(212) 867-4486

AMAS $69.95
Microdeal
576 S. Telegraph
Pontiac, MI 48053
(313) 334-8726

ProSound (Eidersoft) $159.95
Precision, Inc.
8404 Sterling St., Suite A
Irving, TX 75063
(214) 929-4888

PerfectSound $99.00
Sunrize Industries
3801 Old College Road
Bryan, TX 77801
(409) 846-1311

Pro Sampler Studio $119.95
Datel Computers
3430 E. Tropicana Ave, Unit # 67
Las Vegas, NV 89121
(800) 782-9110

KCS Level II

The Next Generation of Dr. T's KCS

by Tom Bucklin

Dr. T's line of MIDI related products have been around for quite some time. Back in the Commodore-64 days, when 38K bytes was king, Emile Tobenfeld (Dr. T) created a MIDI sequencer program that he hoped would make a real impact on the state of computer/MIDI software. Dr. T's Keyboard Controlled Sequencer (KCS) offered professional level power on a home computer. Since then, the product has matured and has come to support a variety of machines, including the C128, Atari ST, MacIntosh, and in more recent times, the Amiga.

Last April, we reviewed KCS version 1.6, and were suitably impressed. Around that same time, the word was out concerning the upcoming arrival of KCS Level II for the ST. Some Amigaphiles were a bit put off that Dr. T seemed to develop their products for the ST first. In actuality, I believe this was more of an anticipatory response on the part of the would-be Level II'ers rather than a criticism.

Avid users of KCS have indeed longed for the Dr.'s next level of MIDI management, largely because of an enhancement known as the "PVG," or Programmable Variations Generator. This feature alone might be worth the price of the program to many high-end MIDI enthusiasts.

What is a PVG?

The PVG is a breed of computer program that has only come into mass appeal in about the last decade. On the simplest level, a pure variations generator can be thought of as a process that acts upon a musical sequence in a way that is often compared to a throw of the dice. To effect these alterations, certain parameters are selectable to govern what type of MIDI event characteristic (such as pitch and duration) will be affected by the generator. Random alterations are imposed upon a musical seqment by the variations generator to (hopefully) create the equivalent of what used to be known in Bach's time as variations on a theme. If successful, the variations generator can be used as a tool in creating new or evolved musical passages and rhythmic compositions from existing ones.

However, as you may have guessed, the randomness of musical creation with a pure variations generator can often result in a dissonant and disjointed composition. What is really needed to make this process efficient is some form of control, along with a more accurate degree of predictability. Enter the PVG. By adding the Programmable dimension to the process, the composer can choose to create based on knowledge and not just chance. The PVG portion of Level II is indeed a powerful piece of software. At the core of its myriad of possibilities, however, is a system of controls which dictate factors such as probability, filtering, and quantity.

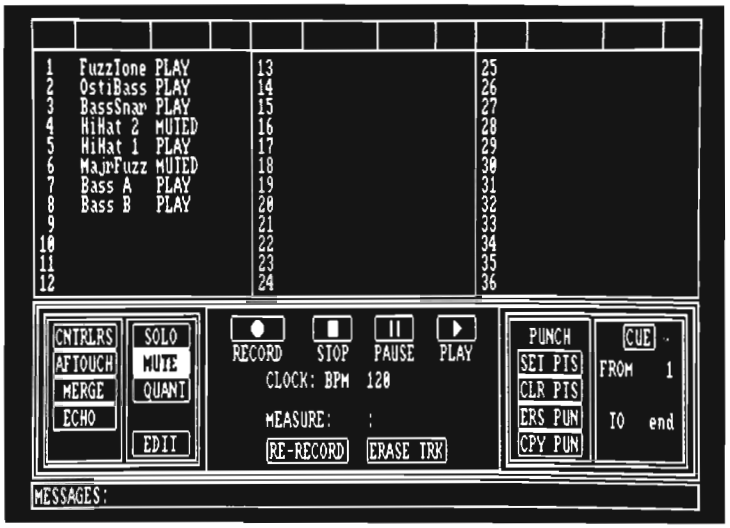
Although many editing-type operations could be performed through the KCS portion of the program, the PVG offers a potentially simpler way of accomplishing the same operation, with the added bonus of having an "Undo" feature so that you can revert to your original version if you don't like what you hear. By selecting the appropriate controls and values, editing operations which could take hours can be automatically performed by the computer through the PVG.

Level II boots from a single, copy protected, floppy. The program uses the "key disk" form of protection. The up side of this is that you can install the program on your hard drive for fast loads, saves, etc. The down side is that you can never be completely rid of your floppy because the program will always ask for the original disk upon loading. There is a pause in the loading process where you can choose the total number of events you wish to dedicate to the Level II (de-

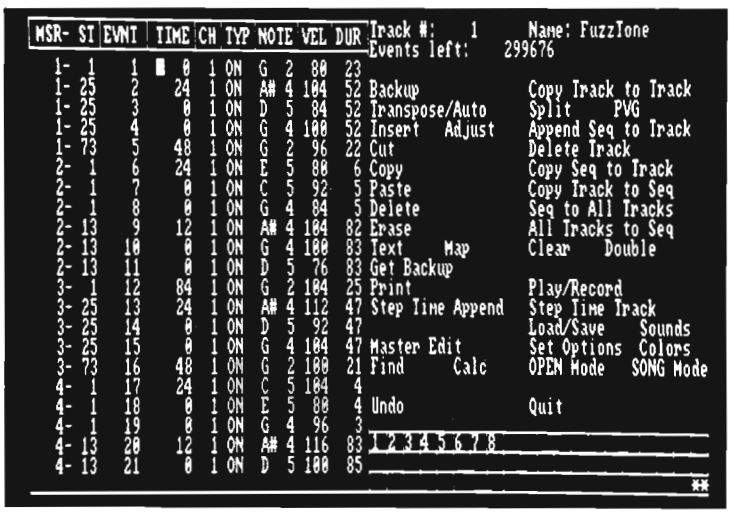
(continued on next page)

fault is half of the total number of potential events, as determined by available memory.

KCS is where this program begins, and it is a popular sequencing program as a stand alone product. You are immediately deposited into the familiar KCS Track Mode screen. (Since we previously reviewed KCS we'll move right through to the PVG). Clicking on the EDIT button in the lower control panel will bring you to the KCS edit screen, which is the main workhorse of the program. This is the heart of the sequencer with single screen access to most of KCS' editing features, as well as the main load/save functions. At the upper right is a new selection, "PVG." Clicking on this will bring you quickly to the main PVG screen.



The KCS sequencer section of the program finds its primary control in the EDIT and Track Mode Screens



It is easy to experience an immediate mixed response when peering into the busy Changes screen of the PVG for the first time. On one hand, you will probably get the feeling that there are an awful lot of blanks to be filled in with some rather cryptic abbreviations surrounding them. On the other hand, you will probably not be blown away by the graphic experience. In a word, the PVG screens are extremely plain. A minimum of colors and no variety in the fonts make for a potentially boring field of view. To their credit, Dr. T's products are not known for their glamour, but their power. Still, just a small bit of graphic fanfare may have visually conveyed to the user the special uniqueness that is inherent to the PVG (Sorry, we're getting into marketing now...). Because of the potential complexity of this program, I'll stick to some of the more central functions and their effects on the variation creation processes.

From within the Changes screen, the General Options box contains functions that are integral to most PVG operations. Notably, Changes per Vary specifies numerically how many variations to create. When used in conjunction with the Evolving Mults option, the variations that are generated will be continually different as they will be based on each previous variation.

The Restrictions box provides a way of exempting certain notes from the variation process, while also allowing for setting the affected range for pitch and velocity.

The top of the Changes screen contains provisions for adjusting the Amount and Weight of the possible changes affecting Pitch, Velocity, Duration, Time, Shift, and Interval. There are also three subdivisions across the page that further specify the behavior of the generator. For instance, Constant allows the composer to determine the size and weight of the changes, but the computer will choose the direction of the change (+ -).

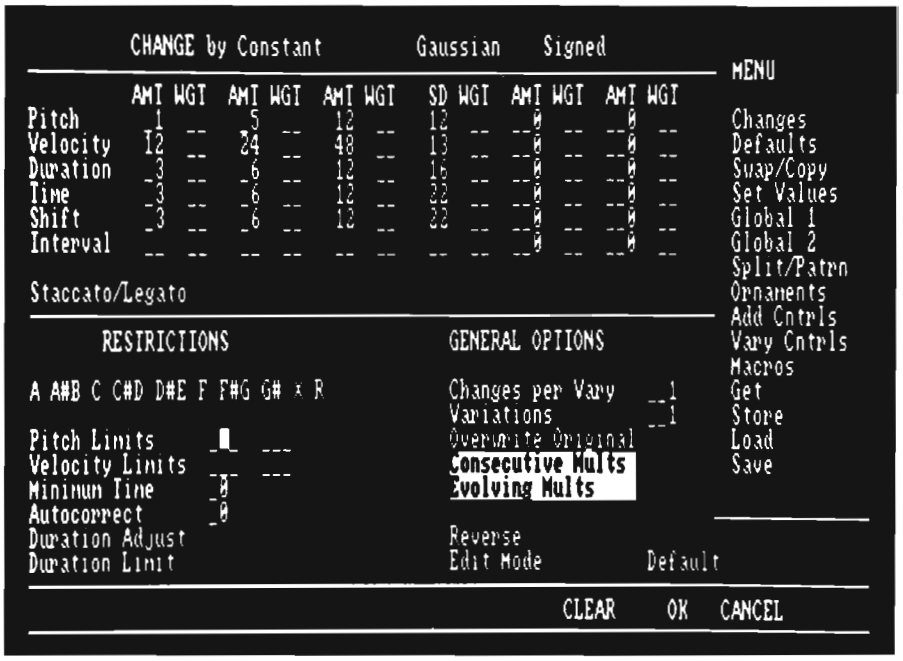
This business of Amount and Weight are the real brains behind the PVG. Both factors are entered into appropriate spaces in numerical form by either typing in the value directly, or by using the controls ala VCR-style at the bottom left of the screen to increase or decrease the values. (Another way which I found more convenient for these adjustments was to hold down the the < and > keys). The Amount value represents the quantity of change that is applied to a given characteristic, while the Weight value determines the probability that this change will be applied during a given variation. This creates an interesting combination of directional control over your creations without making them completely predictable.

"Protection" is another important concept in PVG. This option, available from within most operational screens, protects events from being changed during variation creation. With Protection, an entire event is protected. In the case of a note, this would mean the note pitch, time, duration, channel, velocity, etc.

The Protection feature can be used to accomplish some of the PVG's most impressive editing feats, and it can affect a host of components, including Velocity, Timing, Scale Position, and MIDI Channel. Protection, like all of the other operations within the PVG, become active when a probability factor is entered. Although powerful, using protection is an excercise that has to be thought out prior to use. This is mainly due to the fact that when Protection is applied, let's say, to a note, it follows that note. If you execute a variation that happens to change the pitch of that note, it is no longer protected.

Another interesting capability of the PVG is an operation known as Inbetweens. With this function you can create a linear interpolation between two existing sequences. An Autocorrect feature is available as a sub-option and is recommended for obtaining a useful rhythmic component in the newly created sequence. You may also add or vary a variety of controllers for a given sequence by using the options of the same name. As with the other operations within PVG, the Amount and Weight of the controller data manipulation is determined by the values set by the user.

Having just touched on some of the power of the PVG, it becomes quickly apparent that there seems to be an awful lot of buttons and whistles to remember. This is even more pronounced when you are attempting to use options that interact with one another, sometimes producing unexpected results. PVG supports its own form of "Presets" which can save your current settings. Up to 80 of these Presets can exist in memory. For even greater power, the program supports the use of Macros. A selection of basic presets and Macros have been included on the program disk.



From within the PVG control screens, you can set up numerous parameters to govern the way in which the variations generator will affect your music

Besides the KCS and PVG sections of Level II, a third way to accomplish your editing is provided in the form of the Master Editor. Within this section, you can affect changes such as blending (combining data), Chords (operations applied only to chord structures), and Tempo, to name a few.

Even though there have been sweeping additions to the original KCS in Level II, there has been some subtle, but welcome changes in the general program function as well. Previously, the KCS file requestors did not recognize many of the normal Amiga requestor protocols. In Level II, much of that has been addressed. Also, KCS now supports Polyphonic Key Pressure.

One last minute feature that was added into the program is the "Hot Key Remote." By pressing Amiga-R your KCS screen is repositioned to allow for access to a patch editor that may be running in the background via multitasking.

I've just scratched the surface of the possibilities with Level II. But one thing that is not subject to probability is that this is a powerful collection of MIDI recording and editing tools that works well, is responsive, and is designed with the high-end user in mind. Also, files produced with KCS are readily compatible with Dr. T's popular notation program, The Copyist.

KCS Level II $349.00
Dr. T's Music Software
220 Boylston Street
Chestnut Hill, MA 02167
(617) 244-6954

Hisoft Basic Pro

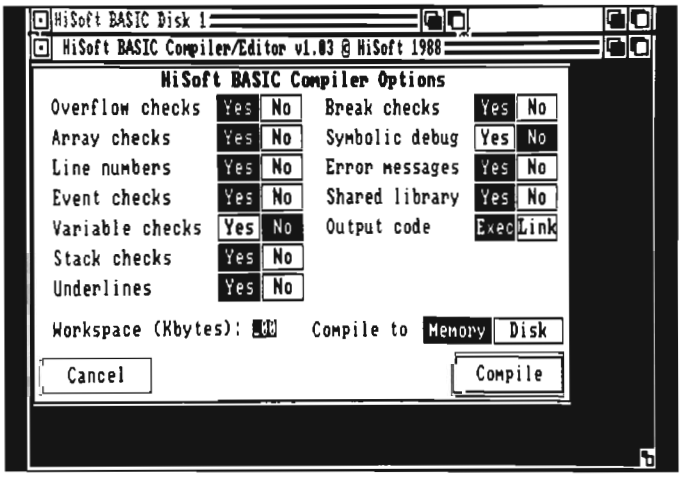
A New Basic Compiler Package from Michtron

by Walter Steuber

Amigans who program in Basic now have three good compilers to choose from. HiSoft BASIC Professional v1.03 is the new contender, stacking itself up against the well-established AC/Basic and True Basic. Although the three compilers go about things differently, they all provide a file that can run from the C-directory and one that will execute far faster than AmigaBasic. All three naturally pile on a few extra complications for the programmer, but they increase the power of BASIC so much that a serious programmer is just about forced to use one or the other. HiSoft will run a program composed of AmigaBasic statements without a quibble. When you ask it to run, it automatically compiles the program first, but this takes so little time that you hardly notice it.

By doing it this way, HiSoft runs compiled code on the inside but presents source code on the outside. The user can rearrange commands on the screen in the same way he always has. The compiling makes no demands whatever on the user unless he wants to save the compiled file. In that case, it presents a panel of about ten default conditions the compiler is going to use, giving the user an opportunity to change any of them. This is similar to the way AC/Basic does it, but with several small differences that make HiSoft somewhat more user-friendly. HiSoft has its own editor, with commands that are familiar and intuitive, so there is little trouble in switching over to it. This editor is superior to AmigaBasic's. It is faster, more versatile and a good deal more pleasant to use (which we know isn't saying all that much). HiSoft adds several features to the language that AmigaBasic does not recognize, so the compatibility goes only in one direction. In this sense, HiSoft is really a different dialect of BASIC. The addition that probably makes the most difference is giving the user a choice of passing parameters either by value or by reference. (AC/Basic also allows this choice.) Subprograms and functions can be called recursively. DO . . LOOP is supported. Higher precision constants are used and are stored in a different format. More control over windows and colors is supplied. It has 36 reserved words that do not appear in AmigaBasic. (These are ordinary-looking words that can cause a lot of trouble if you mistakenly use one as a variable name, but they give substantially more scope to the language.) In short, you can start using HiSoft immediately by limiting yourself to AmigaBasic commands, but there is substantially more that can be done with it after some study of its additions. HiSoft uses the Arp library and also another special library of its own. It works under AmigaDOS V1.3 and it generates stand-alone programs that meet those mysterious requirements for being resident.

The HiSoft Basic Compiler Setup Screen



The 358-page lie-flat manual that comes with HiSoft is well-written and well-printed, packed full of specific details. It does not teach how to program, but it does clearly explain the reserved words and how to use HiSoft.

It is easy to refer to the manual. The definition of each command starts out at the top of a new page with clearly marked sections for Syntax, Effect, Comments and Example. With 205 commands, some of which are quite complicated, HiSoft BASIC is a long way from the BASIC of 20 years ago. The whole language was defined then in a few pages and a Dartmouth student was expected to be using it a couple hours after he first met up with it.

Now, with HiSoft (or some other compiler), BASIC has grown up to where it can do just about anything the big languages can do. It no longer deserves to be considered kid stuff just because it is easy to work with. Some rough indication of how it fits into the overall programming picture can be obtained by running the same program in a few different languages. In this case, a trivial routine that sends a message to the screen 1500 times was used, but I claim the relative file sizes and execution times are reasonably representative:

	size of source	size compiled	secs to compile	secs to execute
AmigaBasic	143	--	--	33.5
HiSoft	143	756	5.2	19.5
AC/Basic	143	1916	25.2	16.6
Aztec C	187	5020	28.5	6.0
Cpt's ASM	2240	336	2.0	6.1

In several other comparisons between HiSoft and AC/Basic, this same paradoxical relation showed up: AC/Basic made much bigger files, but they executed noticeably faster. AC/Basic also took much longer to compile, but this difference usually did not really matter much. The procedure with AC/Basic was to get the program debugged and running in the AmigaBasic interpreter and then to compile it as a separate step. Extra seconds at this stage were easily tolerated.

Once you are comfortable writing programs in AmigaBasic, it requires very little additional effort to get started with either HiSoft or AC/Basic, and the rewards are well worth the extra work. Of course, to continue on and take advantage of the additional features of either one will require substantial study and experimenting. (I hear that True Basic is enough different from AmigaBasic that it will require some serious pounding of the manual just to get started.) Since AmigaBasic comes with the computer at no extra charge, is relatively easy to learn and really does a nice job, all things considered.

Why even consider getting into the complications of compiling? The main two reasons have already been indicated: A compiled program will run on its own, not needing an interpreter to operate it. A compiled program will run substantially faster, giving it more professional polish. A couple lesser reasons should also be mentioned: Compiling reveals bugs that might otherwise remain out of sight for a long time. Compiling offers secrecy. You can give someone a compiled program and they will not be able to decipher how it works or change it in any way (unless they are in the genius class.)

Say you've made a decision to get a compiler. What reasons are there for going with HiSoft? Its quick, nearly transparent operation is the biggest reason. It does its job so quietly that there is essentially no distraction from the fun of puzzling over coding. Your cerebration and rumination, those activities that make programming so engrossing, are not interrupted. Another important reason for going HiSoft is the easy, pleasant editor. This, too, works with a minimum of distraction. The manual is another important plus. You can expect to be checking out details pretty frequently, so an easy-to-manage manual is nice to have. The additions that HiSoft makes to the AmigaBasic commands are also a consideration. These additional commands make the language more powerful, but they slip in a few stumbling blocks in doing so. It has long been a truism that BASIC is incapable of recursive programming and consequently, for certain tasks, one must turn to assembler or C. But recursion is here, in HiSoft. Anyone who used BASIC when first learning to program finds recursion extremely hard to use, but those who started out with LOGO find it natural and easy. To get you over this substantial hurdle, the HiSoft manual and supplementary disk have a long tutorial on recursive programming. I expect a few people will find this capability for recursion to be the main reason for buying HiSoft.

My conclusion is that anyone who writes only an occasional short program might as well stick with AmigaBasic, but anyone who programs more than, say, an hour a week will clearly benefit by switching over to HiSoft. I liked HiSoft somewhat better than AC/Basic. This was mostly because of its editor and other user-friendliness, but also because it automatically compiled before running. In trying it out at a fairly superficial level, I am happy to say I found no bugs or difficulties with it.

HiSoft Basic Professional $159.95

MichTron
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700

Balance of Power: 1990

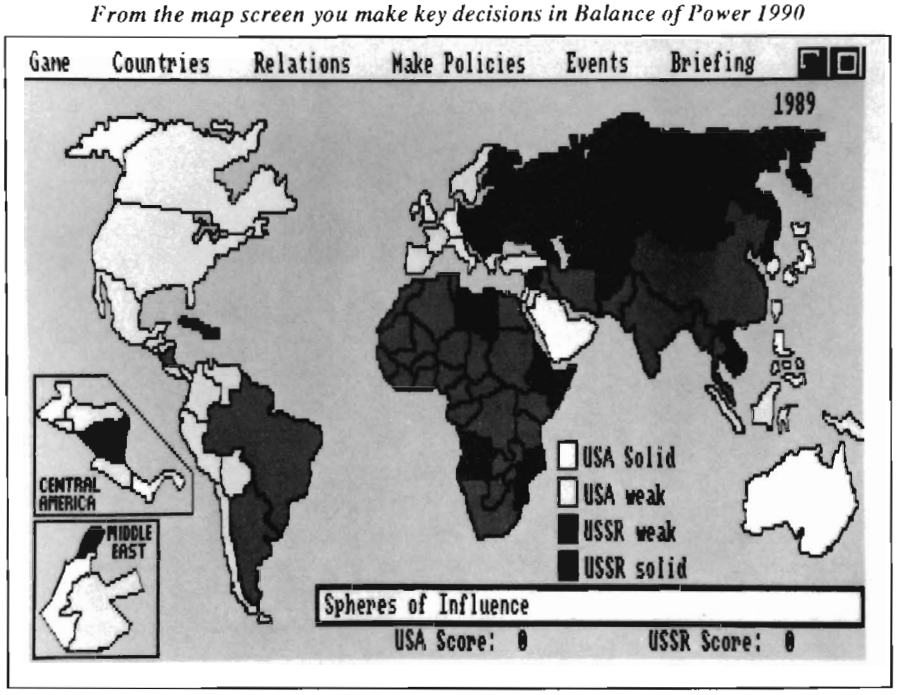
The Game of Political Strategy and War Returns

by Paul Shaffer

Imagine for a moment that you're the President of the United States. It's early May in 1989. Your advisor on the Soviet Union brings you the latest folder on "Soviet Actions." It presents evidence that the Soviet Union is sending $20 million in aid to the insurgents in Panama. The United States depends on the Panama Canal to provide a sea link for the Navy, as well as to provide a vital trade route between the Atlantic and the Pacific. If the revolutionary elements in Panama should gain control of the government, and thus the canal, US interests could be seriously threatened. You must take action, and stop this Soviet intervention in a country vital to the US.

The first course of action is the "Back Channel Communication." You send a special courier to the Soviet Embassy with a note to the ambassador, expressing in strong terms your displeasure with the Soviet action. Within an hour you get the reply: "The Soviet Government rejects your request." In light of the failure of quiet diplomacy to resolve the situation, you then move to the next level of confrontation, the "Diplomatic Crisis." You issue a press release, informing the world press about the Soviet's intervention in Panama, and your disapproval of their actions. You call the Soviet ambassador to come to the White House and explain what they think they are doing. The whole world is watching to see what the Soviet reaction will be to your strong renunciation of their intervention in Panama. When the ambassador arrives, his stern expression tells you that the Soviets are still intent on supporting the rising tide of Panamanian revolution. While an anxious world watches, you dismiss the ambassador, and reach for the Crisis Phone.

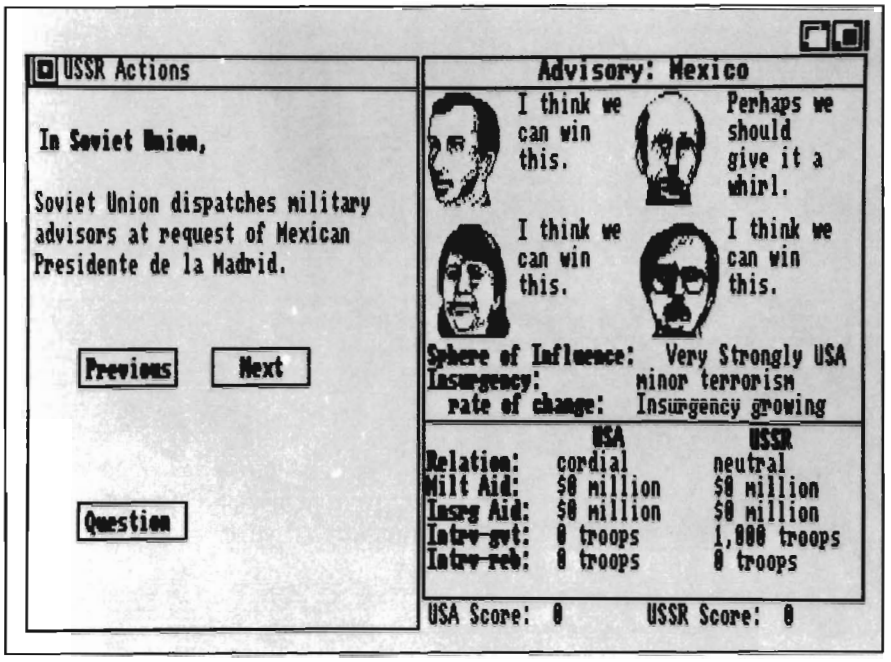
From the map screen you make key decisions in Balance of Power 1990



The next day, the evening news around the world is full of the movements of troops and bombers. The difficulty in Panama has now escalated into a "Military Crisis." Both superpowers are rattling their nuclear sabers, and the people of the globe nervously await your next move. Should you push the Soviets farther, risking global thermonuclear war, or should you back down?

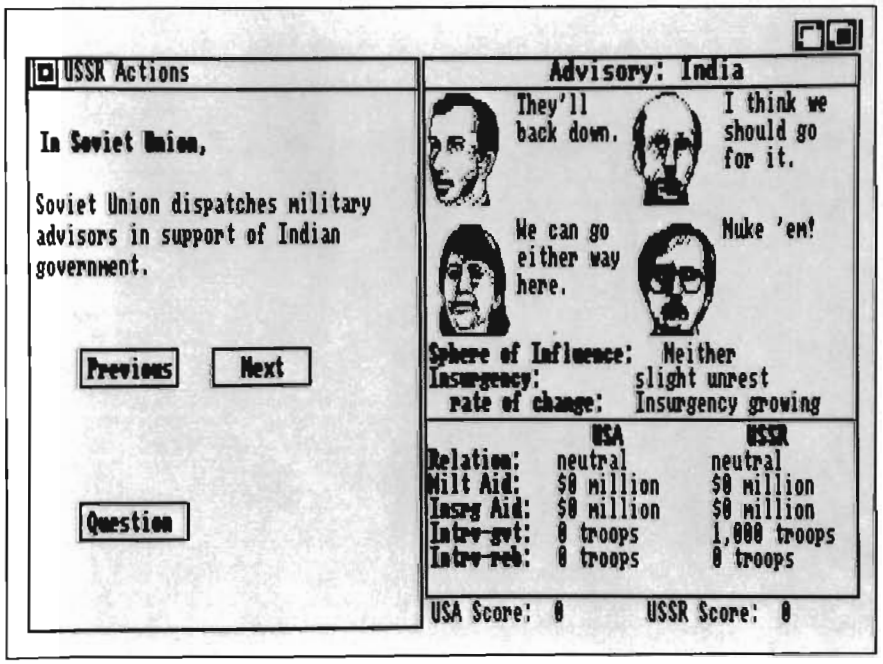
If you back down, the rest of the world, and especially the Soviet Union, will consider the President of the United States (YOU!) a wimp. In world opinion, the prestige of the USA

would go down. On the other hand, if you can get the Soviets to back down, the world press will reflect the lowering of USSR prestige. However, if you push the Soviets too hard, they will respond with the final option: massive nuclear attack via the north pole.



What will you do? This nightmare-like scenario, which in real life would have taken several weeks to transpire, involves a series of three clicks of the Amiga's mouse. It is the core of the poker-like game "Balance of Power," where you get the chance to advance the prestige of the United States in the eyes of the world, or maybe blow us all to Kingdom Come. All games must have a scoring system, and Balance of Power is scored on prestige. Every time you confront the Soviets, you stand a chance of gaining prestige points - if they back down. Conversely, if you confront them and have to back down yourself, you will lose prestige points. The amount of points won or lost is directly related to the level of crisis. Either side can give up early on without losing any points. Such early capitulation is just like folding in poker if you are dealt a poor hand. To win really big points, just like in poker, involves some risk. In the above situation, with the conflict escalated to "DefCon 3" - getting ready for war - there are usually about 14 prestige points at stake. These points are applied in a "zero-sum" fashion, i.e. if the Soviets back down, they lose 14 points, and you gain 14.

Good judgement is necessary to win at Balance of Power as your advisors will disagree



Now, for some of the specifics of the game: Balance of Power comes on one disk which is not copy protected. The manual is extremely well written, with chapters on introduction, playing the higher levels, some discussion on the game's artificial intelligence, and a bibliography full of books that would help the aspiring superpower player learn more about global politics. Like many games today, Balance of Power is made theft-resistant by requiring the user to enter a word from the manual. At random times during the play of the game, a dialogue box will open, and a face will ask "Are your papers in order?" The computer then asks you for a word on a particular page and line. To help avoid confusion, the first letter

(continued on next page)

is provided. If you have the manual, simply look up the correct word and type it into the space provided. If not, the game will let you keep guessing forever, or quit to AmigaDOS. This form of protection allows legitimate users to make a backup of the original disk, or install it on a hard disk.

Balance of Power: the 1990 Edition is a big, big program. While it does fit on one disk, it comes with a warning for Amiga owners with only 512K RAM. In order to fit into 512K, users must disconnect their external drive. Any program that big must be very complex and full of detail. On both counts, Balance of Power is one of the most advanced simulation programs available. This latest version includes more countries (80, up from 62), built-in "Crisis Advisors," and improved simulation algorithms. The most important change is the addition of a new fourth level, called "Multipolar." In this level, actions of all the countries in the world influence the course of the game. Minor countries fight wars and have crisis. You are allowed to use trade as a weapon. There are also additional displays that help you keep track of the complex and changing world.

The author, Chris Crawford, is considered by some to be one of the founding fathers of the large simulation game for microcomputers. His games have always set the standard for size and scope in their time. When Balance of Power first came out, people wondered if it was too complex for the "average" game player. It turned out that there are thousands of computer users who are willing to invest the time and effort required to enjoy the stimulating simulation provided with Balance of Power.

Balance of Power is not a game for kids. Perhaps the 14-year-old who gets 1200 on his SAT could play it, but the average joystick jockey would be swamped and bored by all the detail. Even at the beginner level, there are dozens of countries and options to keep track of during the game. Add to this the need to have at least a simple understanding for how much a given situation matters to the other side, and the game becomes quite a challenge.

There are four levels of difficulty available at the beginning of play. In the Beginner level, the only options available (to both sides) are military. These break down as follows: Military Aid (sending money to help the government armed forces), Aid to Insurgents (sending money to help the rebels, the Contras, for instance), Intervention for the Government (sending troops to fight on the side of the Government), or Intervention for Rebels (sending troops to fight on the side of the Rebels). The Beginner level doesn't allow for the possibility of economic aid, destabilization, treaties, diplomatic pressure, or trade policies, all of which are available at higher levels.

For people who are not up on the current state of world-wide geopolitics, there are numerous menus that present interesting and useful information. All these menus become available upon selecting the Background option from the Briefing menu. All the standard options in the top menu bar are then replaced with assorted informational menus. These include Resources, GNP (Gross National Product), Military Spending, Consumer Spending (things like food, shelter and entertainment), Investment Spending, Population, Military Personnel, Well-Being (things like Infant Mortality and Televisions per capita), Violence, and Political. While looking at background information, the game is suspended. All this data is interesting, but you can play the game without ever consulting the background option. It is included for your curiosity.

For more game-related information about a given country, you could chose the Closeup option from the Briefing menu. With it, you will get a complete summary of all the policies toward that country, both from the USA and the USSR. Also presented is information on the domestic state of the country, which "Sphere of Influence" it is in, and if there is any ongoing terrorism, revolution or civil war. It is a sad fact that in almost every country, there is some violent conflict. These conflicts can be central to the play of the game. The prestige points in Balance of Power are awarded when one side backs down during a conflict or crisis. The more serious the crisis, the more points are won (or lost). One sure way to find out what the Soviets are doing, and thus what you might want to object to, is to check the USSR Actions choice under the Events menu. This opens up what the game calls a "folder" of actions taken by the Soviet Union in the past year. As you move through the folder, you will be able to question each action the Soviets take. This process can take quite some time, since there are often 20 or so actions in a year (on the beginner level), and you should consider your responses carefully. Pushing the Soviets too hard on the wrong issue could start a nuclear war.

To help you make your decisions, the author has provided you (the President) with a group of four advisors. Just like in real life, the final decision is always up to you, but the advisors can steer you away from making the big mistakes. For example, if the USSR sends $100 million in military aid to Cuba, all four advisors (three men and a woman) would strongly advise to avoid a conflict. Cuba is strongly pro USSR, and it is unlikely that anything you could say or do would convince the Soviets to change their plans. On the oth-

er hand, sometimes there is an action which the advisors strongly advise that you should question. It seems unfortunate that the author choose to present the advisors words in this situation as: "Nuke 'em!" I know that they mean to say "Question the Soviet action," but the implied violence of their statements could have been avoided with another choice of words.

It is when the advisors are undecided that the game gets really interesting and intense. A situation could arise that is "too close to call." It will be up to you, Mr. President, to decide whether or not to question the Soviet's actions. With a click of the mouse on the "Question" button, you can initiate the Back Channel Communication. The computer will then display the Soviet's reply. In most cases, they will tell you to mind your own business. Now, the Question button has been replaced by a "Challenge" button, and a new button, "Back Down" has been added.

So far, there are no prestige points at risk. You can back down, and let the Soviets have their way, without losing any points. If you proceed, a diplomatic crisis is initiated, and one side or the other will loose prestige by backing down. If neither side backs down, the crisis becomes a military crisis, with only two possible outcomes: nuclear war at DefCon 1 or a major diplomatic defeat (with consequent loss of prestige) for one side. If you study the situation, and remember that nobody wins a nuclear war, you should be able to make it to the end of the folder on Soviet Actions.

The next step in the game is to make policy. Here is where you have a chance to help your friends and hurt your enemies. If there is a government who you like, and they have a little trouble with rebels, just send 'em a few hundred million dollars in military aid. In the advanced levels, you can also send economic aid, sign a treaty, or make a new trade policy. If your friend is really in trouble, you can also choose to send troops. This means young American soldiers going off to actually fight in a far-away land. A few thousand U.S. Marines can change the course of many situations, but there may be a large price for such aggressive action. Be sure the situation is worth fighting for before you commit troops.

On the other hand, if there is some government who you find intolerable, you could send money to help the rebels. If you send enough money, the rebel forces will take over and kick out the unfriendly government. Should you be exceedingly annoyed with the current leader, there is also the option of sending U.S. troops into battle on the side of the rebellion.

Once you have made your policies around the world, it is time to move on to the next year. The game starts in 1989 and runs until 1997. Each turn represents one year. When you are ready to move on to the next year, select the Next Turn option from the Game menu. The computer first saves the game (which can take a few minutes), then begins a long series of computations. First, it determines the reactions of the Soviet Union to the actions taken by the USA. The Soviet Union has the option of triggering a crisis over any of these actions. If they take this option, the game will display the "Crisis" window. After the news is analyzed, the computer calculates the internal developments in each country, and finally it decides the actions to be taken by the computer player.

People who are used to games of conflict are likely to blow everyone up the first few times they play Balance of Power. This game requires the skill of JUDGEMENT, which is rarely tested in computer games. I found "playing" Balance of Power a unique experience. Other detailed simulations place you in command of a jet fighter, or submarine, or even a nuclear power plant. This is the only simulation which puts you in the middle of global politics. As a player you are responsible for, but not in charge of, world events. In this respect, Balance of Power approaches reality. Such an accurate simulation of global "brinkmanship" makes me hope that our world leaders have sufficient judgement skills to cope with the events of the real world. I'd even recommend that all Secretaries of State, Defense, and Presidents be required to win a few "games" before taking office.

Now, it's 1990. You, Mr. President have to study the state of the world, make your policies and react to the actions of the USSR. At the same time, it will be up to you to keep a cool head in a crisis, and avoid plunging the world into "nuclear winter." Good Luck - you're going to need it

Balance of Power:
The 1990 Edition $ 49.95

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Combat Course

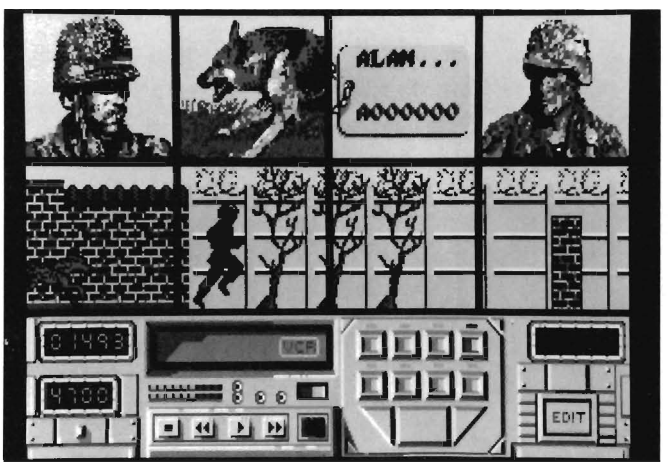
A New Military Simulator from Mindscape

by Anthony Bevivino

"So, you pencilneck dweebs think you've got what it takes to be part of the elite special forces? What gave you that idea? My ten year old sister is a better soldier than you! You're gonna be crawlin' over walls and wire, and when you're bloody from that, we're gonna sic the dogs on ya. And if that doesn't send ya runnin' home to your momma, we'll make sure the land mines do. And you WILL learn to work with explosives and defend yourself in hand-to-hand combat. I'm telling you that by the time we're through with you, you'll wish the dogs had gotten you. You can count on me to make sure of that. We're going to find out which of you wimps has the intestinal fortitude to survive this combat course..."

The above is an excerpt from Combat Course, a new game from MindScape Inc. In this game, you are a recruit who is being trained for the special forces, and this training is more like survival of the fittest. You have to somehow get through three levels of training to become a member of the special forces. The first level of Combat Course is the Physical level. You must run through a challenging physical obstacle course within a certain time limit. You will have to climb over walls, climb out of ditches, climb ladders, and slide down pulleys. If this isn't tough enough, you also have to watch out for an air raid and Rex the Combat Dog (he doesn't eat dog food...). You may also get orders from your sergeant like, "drop and give me 10" at varying times during the course, and you must obey.

In the second level, the Risk level, you must face even more danger. In this section, you will have to learn how to use explosives. If you find dynamite and pick it up, you will use it later to blow up locked doors. You can also find and use grenades to "persuade" the enemy to stop shooting at you. Be careful with grenades and dynamite, they can both blow you to bits. If the enemy opens fire on you, dodge his bullets (you don't have a gun to fire back).



Combat Course uses a split-screen approach to the action

If you thought level two was hard, you must now face level three, the Combat level. You are now able to use a machine gun to terminate the enemy. And if he gets a little close, you can engage in hand-to-hand combat. This level is fighting intensive. Use your gun whenever possible, but get good at hand-to-hand. If you are weak in these areas, you will soon be dead. If you master these levels, there is still hope for retaining your interest. Combat course comes with a construction set option, that allows you to build your own courses and put your men through. It lets you set up any obstacle or trap with varying levels of difficulty and intricacy. Up until now, Combat Course may seem to be a good quality game. Unfortunately, it is not. My major complaint is the format of the screen and the way the graphics are used. The entire bottom one-third of the screen is occupied by a "control console." This allows you to set up your options for the game, and while this method works, the console does not go away while you play! In addition, the remaining two thirds of the

Combat Course *(continued from previous page)*

screen is divided into eight boxes of equal size. The top four boxes are for miscellaneous pictures, such as score, the sergeant, or a threat. The middle four are for the game-play itself.

This is a bad arrangement. There is a barrage of images constantly on the screen (it seems as if you need a few more eyes to keep track of everything). You don't have the time to read messages, look for dangers in the upper boxes, and still play the game. On top of this, the console does nothing except take up space that should be used for the game. So while the concept of the game is good, the way it is presented kills it. I found the operational format so unappealing that I did not enjoy the game at all. I was so busy trying to keep track of all eight sections that I couldn't really pay attention to my soldier's movement. Consequently, I was both annoyed and frustrated with Combat Course after just a short time of play. I also felt that the documentation was poorly done. I truly enjoyed the docs for Hostage Rescue Mission, but that level of quality is not to be found in this game. The docs were boring to read and seemed unclear on many points. The control console encompassed some unfortunate choices as well. It is filled with unmarked buttons to click on, when a much simpler format could have been used. A game where it is necessary to re-read the docs because they are so vague with a control screen that is confusing is a game that needs some reworking. I would like to note, however, that the construction set option seemed very complete, and I liked the way it was set up. It allowed me to set up just about any configuration of obstacles I wished.

It appears that MindScape Inc. has not shown the same quality and skill it used in Hostage Rescue Mission. The concept for this game is good, but the entire format of the game is very bad. Graphics and sound are well done, but I did not enjoy playing the game at all. The only intestinal fortitude you will need for Combat Course is the guts to purchase it.

Combat Course $ 39.95
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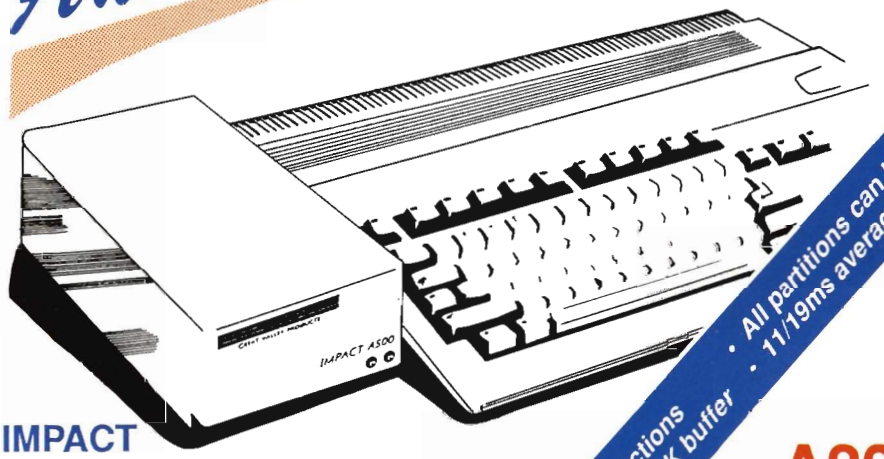

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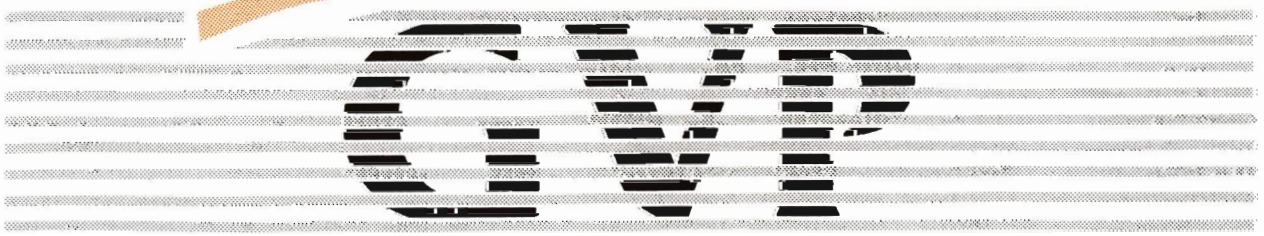

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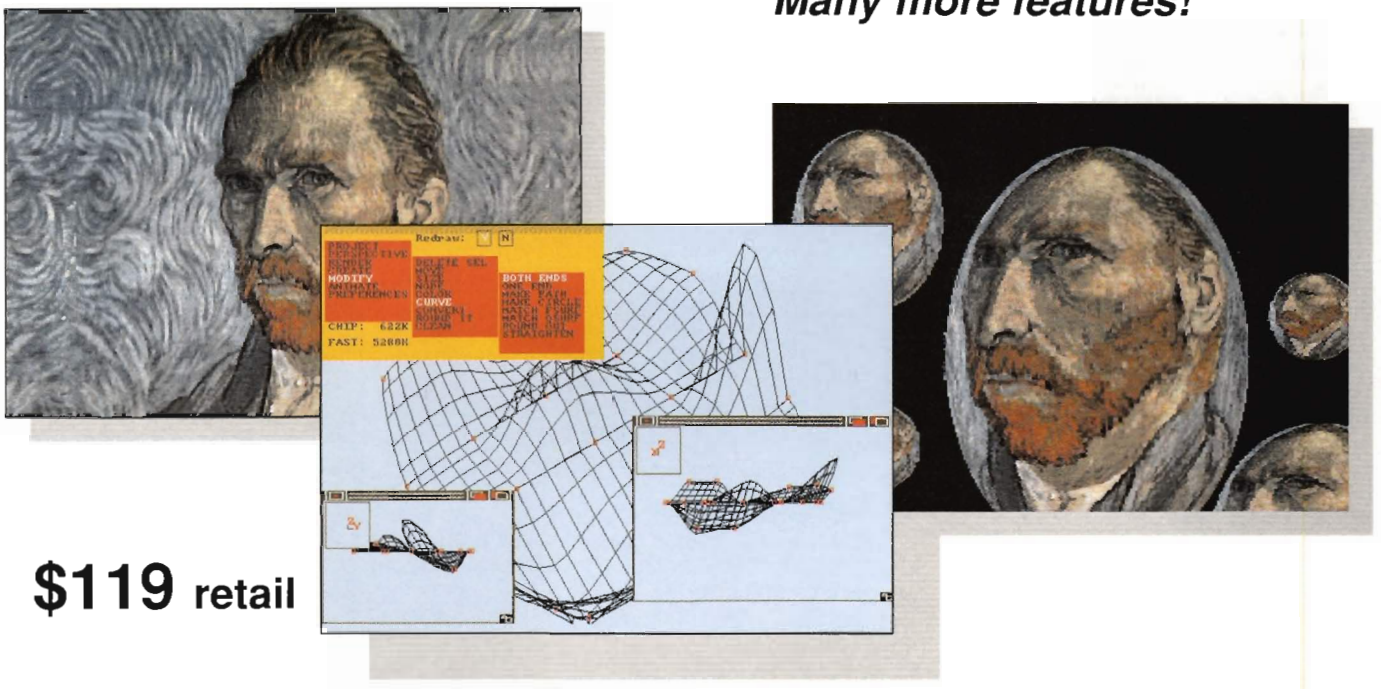

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