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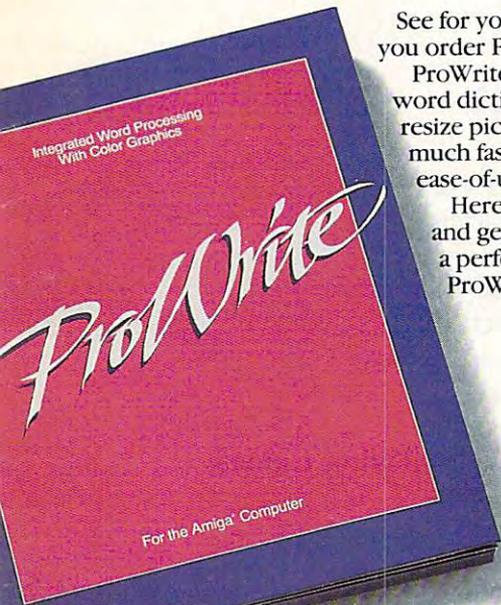
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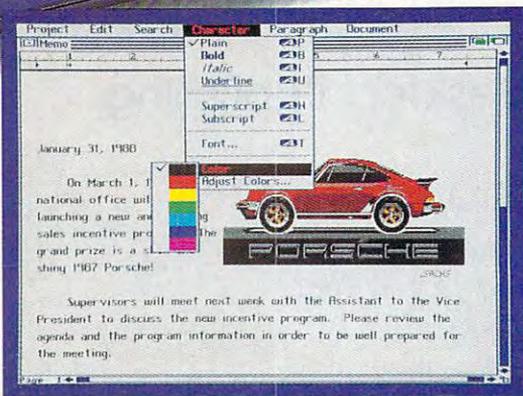
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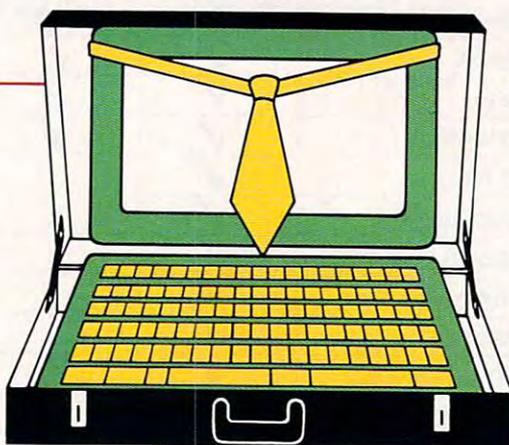
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Software Buyer's Guide

Caroline Hanlon

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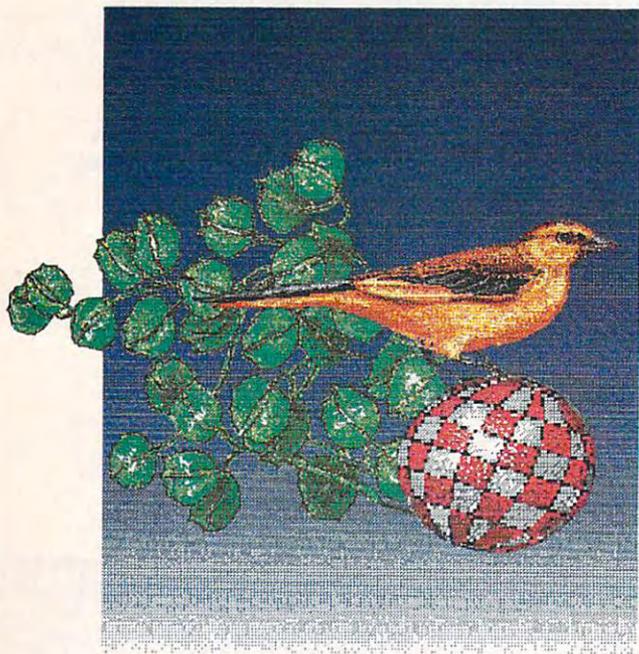
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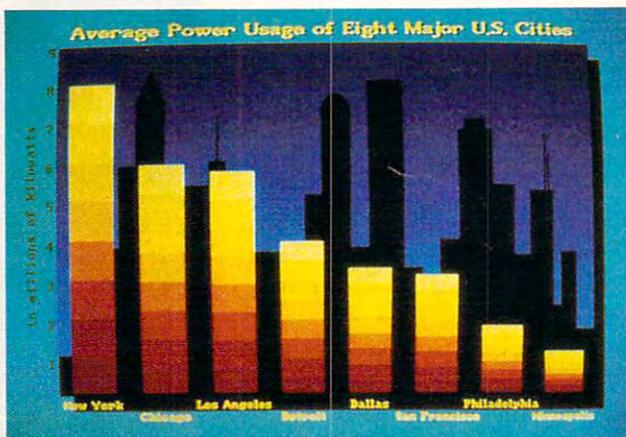
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EDITOR'S NOTES

This is more than a buyer's guide. I guess, in fact, you could call it a multitasking magazine.

After the success of our *Amiga Buyer's Guide*, we decided to take a different look at the Amiga environment. This time, in addition to our buyer's guide listings—which attempt to include every piece of Amiga software released so far in 1988—we've also put together a roster of features, reviews, and odds 'n' ends aimed at showing some of the Amiga's multiple abilities. Those abilities are helping the Amiga make an impact on all manner of applications. More than that, because it can do things that other computers can't, the Amiga is helping to create whole new areas of computer applications.

Desktop video is a prime example. Sheldon Leemon takes a comprehensive look at this emerging field, examining not only the video potential of the Amiga, but also the products and techniques that make that potential a reality. (For a closer look at imaging techniques, we asked Rhett Anderson, one of COMPUTE!'s outstanding editors, as well as our leading Amiga advocate, to share some of the techniques he used to create this magazine's cover. Rhett also uses an Amiga to create the covers for our sister publication, *COMPUTE!'s Gazette*.)

Amigas have a lot to offer in classrooms, as well. Neil Randall has put together a long look at the Amiga as an educational platform, and the views he shares are encouraging. With its true multitasking environment and its advanced graphics and sound capabilities, the Amiga is ready now to deliver to schools the level of power that other computers are still just promising.

For a computer to make a large impact today, it virtually has to be accepted by the business community. Amiga's inroads into the corporate environment are growing. Arlan Levitan writes of the special advantages the Amiga offers, and presents some ideas of his own as to how the Amiga can become more successful as a business platform.

It's already successful with a large share of the computing community at large. We spent a few days at AmiEXPO in Chicago, being alternately delighted and stunned at both the phenomenal capabilities on display and the overwhelming support the machine enjoys among its users. We've tucked in a feature about the show for those of you who were unable to attend.

And of course there is a comprehensive buyer's guide to 1988 Amiga software. We've listed and indexed every program we could find and have told you what the program offers and where you can get it. Despite our efforts, there's a chance that we missed some programs. If you know of any software we've overlooked, drop us a line and let us know; we'll include the package in our next user's guide, to appear in January 1989.

Speaking of software, COMPUTE! is eager to see any Amiga programs that you are developing. We pay competitive rates for all manner of programs, written in any language. (If you're not a programmer, we're also interested in considering Amiga artwork for publication.) Send us your work!

Let us know what you think of this approach to covering the Amiga. Take a moment when you're filling out the Reader Service Card to include a comment or two. Better still, write us a letter and tell us what coverage you'd like to see or offer suggestions for how the magazine could be improved. One thing I'd like to include next time, as a matter of fact, is a letters column. I look forward to hearing from you.

See you in January.

—Keith Ferrell

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VIDEO

Desktop

The Future Is Now!

Sheldon Leemon

It's a video world—and Amiga is the tool that lets users manipulate, enhance, and enliven their video productions. From broadcast-quality tools at the high end to affordable products aimed at the home, developers are working to make the Amiga the across-the-board resource for painting, animation, and lots of special effects.



The Amiga is an exceptionally versatile computer that can be used for all the traditional applications, from spreadsheets to video-games, but its talents really stand out in the emerging field of desktop video. *Desktop video* is a term applied to personal computer applications that are used to enhance, supplement, or even replace video presentations.

The Amiga is a natural for video-production work since in many ways it was designed with the U.S. video standard (NTSC) in mind. The clock speed at which its 68000 processor runs is 7.16 MHz, twice the frequency of the NTSC color signal. The display hardware makes it easy to synchronize an external video signal with the Amiga's display by means of a peripheral device known as a *genlock* interface. That same hardware makes it possible to extend the display into the overscan area, filling the entire visible portion of the screen—not just a fixed rectangle at its center. The computer's hi-res graphics mode produces a 400-line, interlaced display. Though this interlaced display is unsuitable for many computer applications because it causes small text characters to flicker, it is indispensable for video applications because it conforms to the U.S. television standard. The Amiga 2000 model even has a separate video interface slot, which makes every bit of the Amiga's raw RGB video signal available to video interface boards.

In addition to its unique video-specific characteristics, the Amiga has a number of more general qualities that make it suitable for video work. It can produce graphics displays of up to 4096 colors, at resolutions of up to 768 × 442 pixels. It has two graphics coprocessors that can manipulate the graphics display independent of the main processor, freeing it for other tasks. These coprocessors make it easy to perform such graphics operations as scrolling the display and flipping rapidly between areas of display memory to produce smooth animation sequences. The Amiga's multitasking operating system allows several programs to run at the same time, making it possible for a music program to run with a graphics display, for example.

Commodore has always recognized the Amiga's potential in the video realm. The Live! realtime digitizer and the 1300 Genlock interface played prominent roles in the Amiga's debut at Lincoln Center in early 1985. But the Live! product ran into endless delays, and the 1300 never produced quality video signals. There wasn't much video-production software at the beginning, either. It's only been in the past 12 months that desktop video on the Amiga has become a reality. Despite the slow start, however, there's been such an explosion lately of video hardware and software products for the machine that the Amiga has been thrust into a leading role in the emerging desktop-video field.

RGB Video Converters

The first problem facing the Amiga videophile is how to get the computer's dazzling graphics off the monitor and onto videotape. The original Amiga 1000 had a composite video output that connected directly to a VCR. The Amiga 500 and 2000, however, have only monochrome composite outputs, requiring the use of an adapter to convert the RGB video signal to color composite.

A number of these adapters are available in the \$50-\$100 price range. C Ltd., for example, produces two versions of the C-View adapter: One creates a composite color signal; the other, a separated chroma-luminance (Y-C) signal for use with Super VHS recorders or monitors such as the Commodore 1702. Creative Microsystems' VI-500 and VI-2000 provide both composite color and separate Y-C outputs, while the RF versions of those adapters offer RF modulation for direct connection to a TV as well. The 2000 models use the video slot, making it possible to plug an RGB monitor into the video port at the same time. Another adapter that will soon be offered is the VideoKey, from Practical Solutions. This interface has a pass-through for the video connector so that both an RGB monitor and a VCR may be connected at the same time. The unit is designed specifically for videotaping, and it features both composite and separate Y-C connectors.

Genlock Interfaces

The next step up from an RGB converter is a genlock interface. A genlock has two functions. First, it can be used as a simple RGB encoder to transfer Amiga graphics to videotape. Second, and more importantly, it can mix an incoming video signal with the Amiga's computer graphics. The resulting image displays the computer graphics on top of the video picture. The incoming video signal may come from a video camera, a VCR, a TV tuner, or even another Amiga. The outgoing signal is usually taped by a separate VCR.

The Amiga display hardware is set up so that if it detects a genlock, it automatically re-places the back-ground color (color 0) display with the incoming video image. No special software is required to make



this happen, which means the genlock can be used with any Amiga software. This characteristic makes the genlock useful for tasks other than video output. For example, a genlock can be used to replace the background of a drawing program with an image from a video camera, allowing you to focus the camera on an object and trace its outline with the mouse.

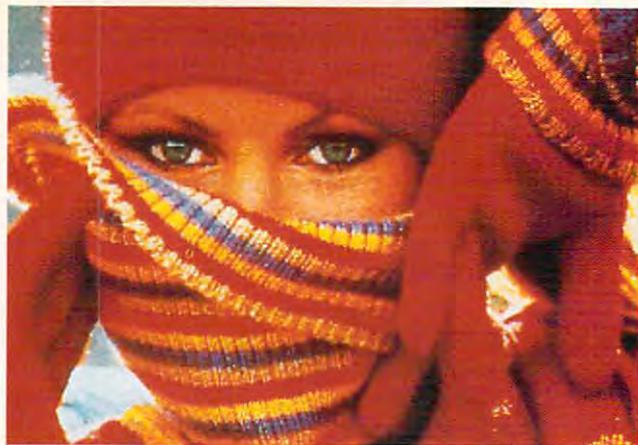
Genlocks all have monitor outputs that let you view the combined picture on your RGB monitor at the same time that they're sending the video signal to your VCR. Some have controls which allow you to display just the video signal, the computer graphics, or a combination of the two. Most use BNC connectors for low signal loss. None of the Amiga genlocks, however, allow you to overlay the computer graphics with the video image, as is done with the TV weather forecaster standing in front of a computer-generated map. That requires a separate video interface known as a *chroma-keyer*. The main function of a genlock is to superimpose titles, animated logos, and other computer graphics onto a video image.

There are a number of genlock interfaces currently available for the Amiga, ranging in price from \$200 to more than \$1,000. At the low end is Mimetics AmiGen, a compact unit that plugs into the Amiga video port. Although not really of professional quality, the signal it provides is suitable for home use. The next step up is Progressive Peripherals' ProGen, a \$400 unit that produces a somewhat-higher-quality output. The \$750 SuperGen from Digital Creations provides near-broadcast-quality output and a number of additional features. These include a notch filter to minimize bleeding and ringing effects and a pair of slide switches that let you gradually fade either the computer graphics or the background video image. These controls may be manipulated from software to achieve programmed fades and dissolves. At the high end of the current crop is Sci-Tech's GenKey, a \$1,000 unit that features separated Y-C output specifically designed for the new generation of S-VHS equipment.

There are a number of other genlock interfaces that should appear shortly. Commodore has already previewed its Amiga 2300 genlock, a \$300 board for the Amiga 2000 video slot. Communications Specialties is about to launch its GenOne, a flexible \$1,000 product with a host of adjustments and separated Y-C output for S-VHS. And Magni will soon introduce its 4004 genlock board for the 2000, a \$1,400 interface that is said to produce broadcast-quality video.

Video Digitizers

Another popular piece of video hardware is the video digitizer. While a genlock converts computer graphics to video signals, the digitizer converts video signals to computer graphics. These graphics can then be touched up, modified, and sent back out to video. The first Amiga digitizer to appear on the market was Newtek's *Digi-View*. This tiny, low-cost (\$200) interface produces images of startling realism in up to 4096 colors. Color pictures are captured by making three separate scans of the image with red, green, and blue filters over the lens of a high-resolution black-and-white video camera. Since the process takes about half a minute, only still images can be scanned this way. The new 3.0



version of the *Digi-View* software lets you digitize full-screen overscan images and includes a line-art mode for black-and-white drawings.

For less patient video buffs, Sunrize's Perfect-Vision digitizer can capture black-and-white images in near realtime. For color images, though, it too requires a color filter wheel and three passes. The fastest color digitizer currently available is Live! from A squared. The Live! digitizer captures as many as 30 images per second and can store a number of sequences of frames in memory or to disk. The images don't quite have the photographic quality of those from *Digi-View*. Nonetheless, Live! provides a wide range of controls that let you process the image in realtime, making it suitable for special-effects generation. The original Live! version interfaced only with the 1000, but A squared is coming out with a 500 version soon.

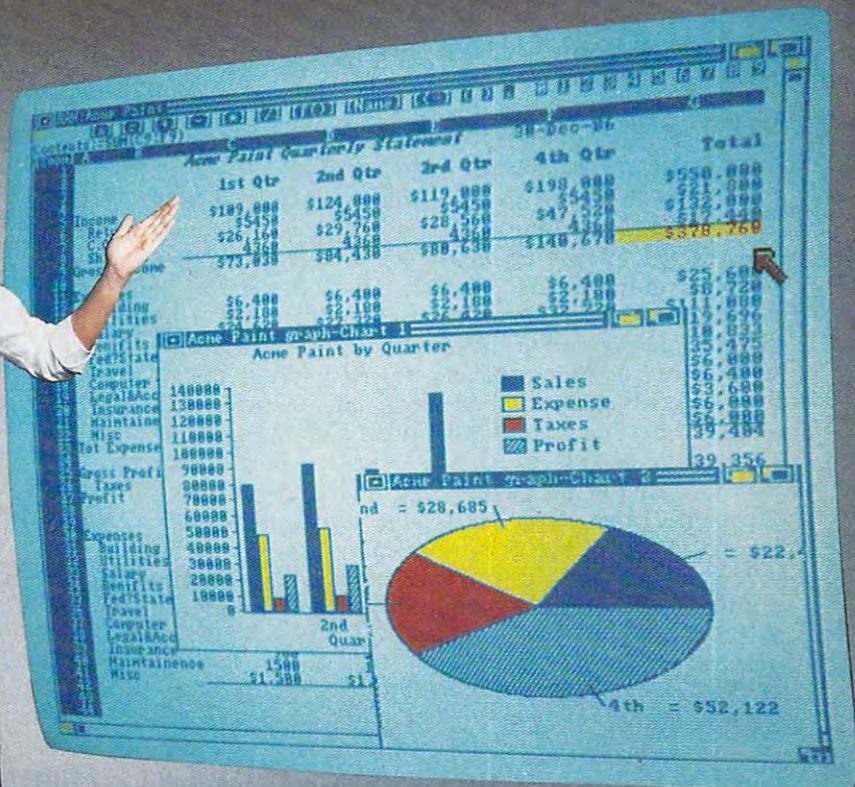
Next-Generation Video Hardware

The next generation of video digitizers will allow you to capture high-quality color images in a fraction of a second. Both Progressive Peripherals and Impulse have announced frame-grabber products in the \$500-\$600 price range. These peripherals are stand-alone boxes—with their own video memory chips—which relay picture information to the computer via the printer port. NewTek is also rumored to be working on a similar project dubbed *Digi-View II*.

More ambitious multifunction video boards are also in the works. The Computer Graphics Lab of the New York Institute of Technology is working with Commodore on a Professional Video Adapter (PVA) board for the 2000. This board combines the functions of a genlock and a realtime color digitizer with an optional frame-storage capability. NewTek's Video Toaster board for the 2000 provides all of the same functions provided by the PVA and adds realtime digital special effects, such as pixelization, mosaic, split frames, rotations, and more. Both the PVA and the Toaster are slated to appear at the end of the year and are priced in the \$1,000 range.

Companies like Mimetics and Impulse are also at work on frame-buffer peripherals. These will allow the creation of very-high-resolution video images that can display millions of colors. Such images can already be created by programs such as *Digi-View*, *Turbo Silver*, and *Sculpt-3D*, but the Amiga doesn't have any way to display them as yet. Frame buffers would not be real-

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time displays, however, as it would take time to transfer the images from the Amiga to an external box. Expect these products to be in the \$1,500 price range if and when they appear.

Painting and Image-Processing Software

A wide variety of painting and image-processing software is available for the Amiga, allowing you to touch up digitized images or create signs, logos, or other computer graphics from scratch. The old standby in this department is Electronic Arts' *Deluxe Paint II*. This program provides all of the familiar computer art tools for drawing and filling shapes, and then adds a host of new features, such as perspective tilts, stencils, and gradient fills. The major limitation of *Deluxe Paint II* is that it only works in the standard 16- or 32-color modes, not in the special 64- or 4096-color modes. Two paint programs, NewTek's *DigiPaint* and Micro-Illusion's *Photon Paint*, are designed for use only in the 4096-color HAM (Hold And Modify) mode. These programs are excellent for manipulating and colorizing digitized images.



Photon Paint, in particular, features some fancy tools for wrapping an image around a sphere, cube, or cone. In the image-processing field there are Progressive Peripherals' *Pixmate* and Eagle Tree Software's *Butcher*. Both can be used to transform an image to a negative, reduce the number of colors used, trace the outlines of an image, sharpen it, or pixelize it. Electronic Arts' *Deluxe Photo Lab* represents a new generation of

paint programs that combine many of the functions of previous packages. It can be used to paint in every graphics mode that the Amiga can display, including HAM and Extra Half-Brite, and can convert pictures from one mode to another. It allows you to work with multiple images in different-resolution modes at once and to create images much larger than the screen display. It also has some of the image-processing and colorizing features of *DigiPaint* and *Butcher*. NewTek is working on a similar next-generation package, *DigiPaint II*.

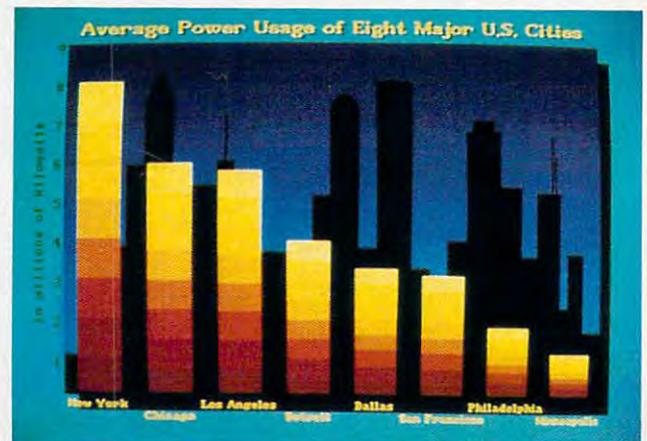
All the paint programs are suitable for creating signs and titles, since each can create text using the standard Amiga system fonts. Additional large fonts suitable for video use are sold by companies such as Interactive Softworks (*Lion's Fonts*) and the Zuma Group (*Zuma Fonts*). One of the paint programs—*Express Paint*, by Parsoft—has a number of features for mapping text into various shapes, as well.

Titling and Presentation Software

The software packages that most directly apply to the video field are the ones designed for video titling and presentation. Most of these programs take a two-stage approach. First, the user creates static title screens with the help of packages such as Aegis' *VideoTitler* or the Zuma Group's *TV*TEXT* and saves each frame to disk. Then, he or she uses a slide-show program to display the individual frames in sequence, using various transitions between screens, such as fades, wipes, or reveals. These allow for credit rolls, crawls, and similar effects. Display transition programs include Zuma's *TV*SHOW*, Electronic Arts' *Deluxe Productions*, the VideoSeg portion of Aegis' *VideoTitler*, and *Director*, by The Right Answers Group.

Each of these programs has slightly different features. *Deluxe Production* works only in hi-res mode, for example, but allows the user to program the movement of small video images on top of the main display. *TV*SHOW* works in all modes and allows you to mix synthesized speech into your presentation. Aegis' *Video Titler* allows you to mix animation sequences with static screen displays. The *Director* is a complete video programming language, something like a slide-show BASIC.

JDK Images' *Pro Video Plus* takes a somewhat different approach. It stores all scene information in the computer's memory (rather than reading it off of disk), creating each title screen as needed. *Video Plus* comes



with its own high-resolution fonts and an outstanding repertoire of screen transitions. It turns the Amiga into a full-fledged professional character generator, comparable to stand-alone units costing several times as much.

The Amiga is so far ahead of other computers in the video-titling area that it's starting on its second generation of software while other computers are waiting for their first. *TV*TEXT* and *TV*SHOW* are being updated, for example, and Aegis is working on *Video-Titler 2.0*, as well as a display program called *Lights, Camera, Action* that will incorporate musical scores and sampled sounds into its presentations.

Animation Software

While the Amiga's static images can be breathtaking, the computer can also make those images move. First-generation animation programs, such as Aegis' *Animator* and EA's *Deluxe Video*, moved two-dimensional, low-resolution images. Newer 2-D animation software, such as Mindware's *Page Flipper* and Micro-Illusions' forthcoming *Photon Cel Animator*, allows you to create traditional 2-D animations such as cartoons.

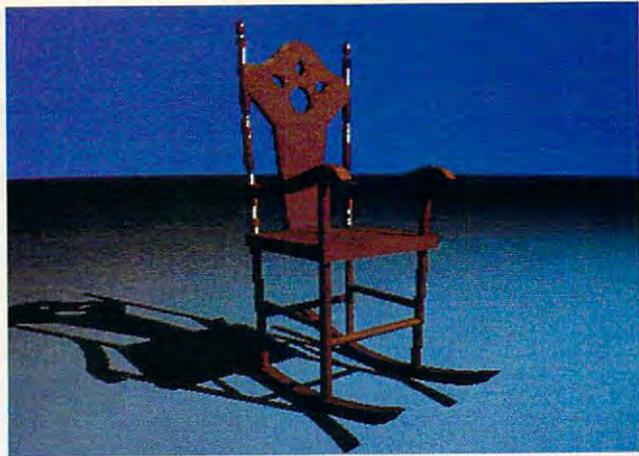
Another category of animation programs falls somewhere between 2-D and 3-D graphics. They allow you to take flat graphic images and rotate them in three dimensions. This technique can be extremely effective for creating rotating logos or high-impact transition sequences. At \$200, Innovision's *Video Effects 3D* provides rotations, zooms, and 3-D extrusions. The more moderately priced *Animation Stand* and *Animation Effects* from Hash Enterprises take a no-frills approach to the same kinds of effects.



3-D Animation Software

The hottest area of computer graphics today is 3-D modeling. Using this technique, three-dimensional objects are stored as a series of *x*, *y*, and *z* vertices and can then be drawn from any angle and at any distance. First, an editing program is used to create objects by drawing each view in three windows or by taking a two-dimensional object and spinning or extruding it. Next, an object-rendering program is used to draw individual frames, varying the point of view and light sources. Finally, an animation program sets up a sequence of frames and compresses them into a movie file that can be played back at up to 30 frames per second.

Until the Amiga came out, this kind of animation



was confined to systems costing tens or even hundreds of thousands of dollars. But today, there are five full-blown 3-D animation packages for the Amiga, with half a dozen more in the works. In fact, there are more public domain and shareware 3-D animation packages available for the Amiga than there are commercial programs on other personal computers.

The major commercial 3-D animation programs include Aegis' *Videoscape 3D*, Byte-by-Byte's *Sculpt-Animate 3D*, Impulse's *Turbo Silver*, Micro Magic's *Forms in Flight*, and *Animator Apprentice* from Hash Enterprises. These programs cost \$100–\$250 and produce images that vary in sophistication from simple flat-shaded figures to extremely lifelike pictures. Ray-tracing packages such as *Sculpt-Animate* and *Turbo Silver* produce the highest-quality images but require a lot of time and memory. Other programs, such as *Videoscape*, try to balance image quality with rendering speed.

Although these packages allow you to literally create your own world and animate it, the process is far from simple. Creating complex objects can take hours, and rendering a series of complex scenes can take days, or even weeks. The use of add-on 32-bit processor cards with floating-point math chips can make some of these programs much less painful to use, but they are fairly expensive. Casual users will probably confine their 3-D activities to creating animated logos and title sequences. Titles in 3-D are particularly effective and can be created easily with Syndesis' *InterFont* program and imported into any of the animation packages.

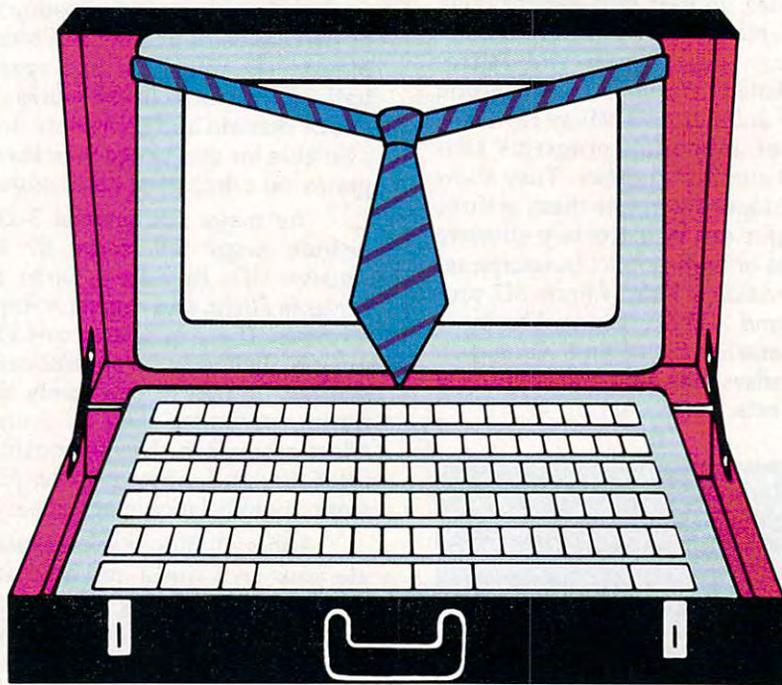
New Video Horizons

The Amiga has finally begun to deliver on its promise of desktop video production. A basic system consisting of an Amiga, some extra memory, a genlock interface, and software packages such as *Pro Video Plus*, *Deluxe Photo Lab*, and *Video Effects 3D* can cost as little as \$2,500–\$3,500 and can deliver the same video power as products costing 4–10 times as much. Video occupies a major role in our society; video-production facilities can now be found in high schools as well as universities and in small businesses as well as major corporations. Desktop video on the Amiga offers high-end hobbyists, small-business people, and educators the opportunity to create professional-quality videos at a price they can afford. □

AMIGAS

In The

OFFICE



ARLAN R. LEVITAN

The Amiga is a great graphics, sound, and video machine. It also has the potential to become a major business microcomputer. Will that potential be fulfilled? Here's a look at what's needed.

The Amiga has all of the capabilities that are requisite for the implementation of classical business applications. There certainly isn't a shortage of innate number-crunching power. The Motorola 68000, the central processor used in all Amiga systems, is many times more powerful than Intel's 8088 and 8086 processors, used in the majority of IBM PCs and PC compatibles. The Amiga isn't stingy when it comes to main memory, either, being capable of directly addressing eight megabytes of random access memory. The Amiga's maximum screen resolution of 640 × 400 pixels is not lacking, and the past year has seen the introduction of relatively low-cost, high-capacity hard disk subsystems as well.

Why then, is the Amiga not generally considered a *business* machine? The Amiga, although almost three years old, is still in its infancy and has yet to win its spurs in the eyes of most corporate computer users. Gaining acceptance in the business arena has been made all the more difficult by IBM, whose entrance into the personal computing marketplace in the early 1980s has become a double-edged sword. Although the first inroads on the boardroom were made by computer hobbyists brandishing *VisiCalc*-equipped Apple IIs, IBM's participation in the market probably did more to legitimize the microcomputer as a business tool than any other single event. Unfortunately, IBM has dominated the market to such an extent that if a computer is not a clone of the ubiquitous Big Blue, its appropriateness for business is immediately suspect by many pinstrippers.

The very existence of hundreds of word processing, spreadsheet, and database systems for the IBM PC works against the success of new computer architectures, but it surely isn't part of some odious plan. The plain and simple truth is that there has not been a massive movement among Amiga software developers to duplicate applications that exist on the IBM PC. Many developers have assumed that if those in the market for a new computer specifically want the functionality of *dBase* or *Lotus 1-2-3*, they'll buy an IBM PC or clone. Indeed, prospective buyers who head into a computer store to purchase an Amiga with the sole purpose of implementing massive spreadsheets or relational databases are few and far between.

Does this mean that the Amiga can't be used for a wide variety of business applications? Far from it. What it does mean is that for some time to come, informing your colleagues that you use an Amiga for business will likely raise more than a few eyebrows. Many Amiga-philies predict that the eventual acceptance of the Amiga in business will mirror the history of Apple's Macintosh. Apple fought against the "IBM means business" ideology for more than five years, and the Mac is just now gaining acceptance in business circles. The Macintosh did not penetrate the business world with killer applications across the board. It first wedged a foothold with presentation graphics and desktop publishing, perceived by many analysts as niche markets.

Is the Amiga a viable machine for most common business applications? While Amiga owners who use their systems for business are somewhat limited in their choice of software when compared to the IBM world, there are quality programs available that will meet most needs of today's businessperson and that occasionally will offer unique features that differentiate them from run-of-the-mill PC software.

Word Processing

Word processing is one business application in which the Amiga can hold its own against the IBM, in great part due to the availability of *WordPerfect*. *WordPerfect* is something of a rarity, being a port of one of the most popular word processing packages for the IBM PC that hasn't suffered a whit in the translation process. All of the power, speed, and features of the PC-based program have survived the journey from IBM-land. In fact, the Amiga version of *WordPerfect* is considered by many WP aficionados to be an improvement over the original in one important aspect. *WordPerfect* on the Amiga is fully keyboard-command and mouse driven. The Amiga version's smooth and robust mouse support was designed into the program. Mouse support in the IBM version is a kludgy add-on that feels like an afterthought.

WordPerfect's integrated Thesaurus provides both synonyms and antonyms, and its 115,000-word Spelling Checker is fast and complete. With extensive search and formatting capabilities, coupled with support for almost 300 different printers, *WordPerfect* qualifies the Amiga for industrial-strength word processing. Other features include a built-in outliner, automatic numbering, ability to format and space footnotes, flexible mail merge, and a macro facility that lets you store frequently used phrases for easy insertion into documents. Up to 32 text windows may be open at a time, and text can be cut and pasted between them freely.

One area that the current Amiga release of *WordPerfect* lacks is the ability to mix text and graphics within the body of a document. To that end, MicroSystem's Software has introduced *Excellence*, a word processor that supports the inclusion of IFF graphics images with text. *Excellence* also supports color text and printing, a realtime—as-you-type—spelling checker, math functions within documents, multiple columns, and proportional text. Authors will also appreciate *Excellence's* style and grammar checkers and its index and table of contents generators.

Databases

Keeping track of related pieces of information is one of the most popular computer applications. Few PC-based database packages allow for the inclusion of graphics in stored records. On the Amiga, virtually all high-end and many intermediate database packages can be used to incorporate graphics as well as text into

your data files. A few are said to be in the works that will let you store sound as well as graphics and text within fields.

Precision's *SuperBase Professional* is a relational database that has almost all of the logical and command capabilities of *dBase* and a number of capabilities that are unique to the Amiga. A paint-type program is used to set up the screen format used for your data. You can take advantage of the Amiga's multitasking environment by using a command language to invoke other programs from within *SuperBase*. An integrated communications module that will be able to feed received data into a database automatically will soon be incorporated into *Superbase Professional*.

Software Vision's *Microfiche Filer* is a database that makes unique use of an elegant microfiche metaphor. Data is displayed as a two-dimensional sheet of text and pictures over which you drag a magnifying glass to locate information. Also in the works is a new release of *MicroFiche Filer* that will incorporate an interface for William Hawes' AREXX batch-command language, which will be used to manage intertask communications and processes between concurrent tasks.

Abacus's *DataRetrieve* lets you work on as many as eight databases at a time. *DataRetrieve* is more in the line of traditional flat database packages, but it's far less restricted in file, field, and record size than its distant PC cousins. Up to 80 indexes per database are supported with full reporting capabilities as well.

Spreadsheets

Just because business people spend most of their time hanging around cells doesn't mean they're white-collar criminals—especially when those cells are in a spreadsheet. Spreadsheets on the Amiga tend not to be as robust as *Lotus* or *Excel* for the IBM PC, but they make up for their lack of complexity, in part, by providing very easy-to-use, visually pleasing user interfaces.

It may be a youngster compared to *VisiCalc*, but Oxxi's *Maxiplan 500* is the granddaddy of Amiga spreadsheets. *Maxi* can build worksheets up to 512 columns \times 65,530 rows. More than 70 functions are available for manipulation of cells, and worksheets may be dynamically linked. Cells can be conditionally formatted, protected, and sorted. If you expect Amiga spreadsheets to sport good graphics, you're right. A *Maxiplan* worksheet can contain up to eight separate charts. Chart styles supported include Exploding Pie, 3-D Bar, Stacked Bars, Scatter Plots, Area, Line, and Step. *Lotus 1-2-3* format files that do not rely on macros may be imported directly into *Maxiplan*.

Integrated Packages

Integrated software attempts to combine the functions of two or more programs within a single entity. At this time, most integrated software packages are merely collections of existing Amiga programs, bundled together.

Micro-Systems Software's *The Works* bundles its popular database, spreadsheet, and word processor into a single, reasonably priced package. Included is *Scribble*, a word processor that allows you to preview

the appearance of printed pages before printing. *Scribble*'s spelling checker may be customized and expanded. A mail-merge facility works in conjunction with *Organize!*, the database portion of *The Works*. *Organize!* is an easy-to-use flat-file database that can handle 128 fields per record and up to four million records per file. Supporting the spreadsheet end of *The Works* is *Analyze!*, a competent program with good graphics support.

Accounting

Nimbus's *Record Keeping for Small Business* is an accounting program for the small-business manager or owner who may be inexperienced in general accounting procedures. Nimbus tracks General, Receivable, and Payable accounts on a cash basis. Net Worth and Retained earnings accounts are maintained automatically as are month- and year-end closings. Nimbus prints invoices, balance sheets, income statements, and account aging reports on demand or at predetermined intervals. The accounting modules are multitasking, allowing all three types of accounts to be displayed on the screen at one time.

KFS Software's *The Accountant* incorporates General Ledger, Accounts Receivable and Payable, and Payroll functions. The Payroll function is integrated with a check register that allows payroll checks to be printed by the Amiga. According to KFS, *The Accountant* handles the withholding tax structure for any state and produces reports for quarterly payroll and unemployment taxes, in addition to printing W-2 forms for employees. *The Accountant* supports daily business operations with point-of-sale posting and invoice generation.

Miscellaneous

WordPerfect Library contains a number of handy programs for the computerized professional. A calendar program lets you keep track of scheduled appointments, create memos and to-do lists, and set audible alarms to remind you of important meetings. *WP Library*'s calculator includes a financial function that handles loan amortizations and future and present net values of cash streams.

Desktop Publishing

The Amiga's graphics capabilities make it a natural for desktop publishing applications. Whether you're interested in producing flyers on an inexpensive dot-matrix printer or cranking out 300-dot-per-inch documents on a PostScript-compatible laser printer, the Amiga is up to the task when outfitted with the proper software.

Professional Page from Gold Disk is a well-executed package that integrates full-featured word processing, precision typesetting, bitmap graphics, and powerful page-layout capabilities. *Professional Page* supports precision kerning and hyphenation, and it contains a full set of tools for creating and editing structured graphics. *Professional Page* also supports color, including the 4096-color HAM mode. With the addition of *Professional Color Separator*, you can prepare four-color separations for color lithography.

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Professional Page reportedly will be bundled in the near future with some interesting hardware that promises very-high-speed laser-produced documents for the Amiga. *Laser XPRESS* will consist of C Limited's SCSI controller, a SCSI laser printer based on Ricoh's laser engine, *Professional Page* and Par Software's *Express Paint*.

Laser XPRESS differs radically from other DTP set-ups in that it composes in the Amiga's memory an entire page's bitmap. The whole bitmap is shipped via the high-speed SCSI interface to the printer. In preproduction demonstrations of the system, it took less than 20 seconds to print complex documents. The *XPRESS Paint* program can even be used to edit individual bits of the document.

For those with less complex DTP requirements, Northeast Software Group's *Publisher Plus* may fit the bill with simple-to-use but effective formatting, graphics, and text-editing support. It allows importation of any IFF picture, brush, or digitized image, and it can translate color pictures to a dithered gray scale. Seventeen fonts created specifically for dot-matrix allow the creation of high-quality text on inexpensive printers as well as PostScript-capable laser printers.

CAD

X-CAD, by Taurus Software, is a two-dimensional computer-aided design program fully suitable for those involved with drafting and engineering. X-CAD sup-

ports parameter-driven autodimensioning, user-definable fonts, and metric or English measurement units. X-CAD can produce drawings with up to 256 layers and eight depths. Grid snap, entity snap, Cartesian or incremental coordinates, and group-modification commands (rotate, mirror, scale) are supported. Entity edit commands include break, trim, and stretch.

X-CAD's symbol libraries are user-definable, and drawings may be linked and contained within other drawings, each maintaining independent scales and units. Explanatory menus and a full online help manual are available to ease the learning curve for novice users.

The Future

Amiga owners are well aware of the graphics and sound capabilities of their machines. Today, a small but steadily growing stream of Amiga systems are being purchased by firms for use as desktop video stations. As the installed base of systems increases, more business applications, other than the half-dozen or so currently available in each of the classic business-software genres, will find their way to market. Many will be simple ports or translations of popular PC-based programs, but the most successful programs will be those that integrate the Amiga's unique strengths into traditional constructs, yielding synergies that may fundamentally change the way we work and use information toward the business world's classical goals of maintenance and creation of capital. □

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The Educational AMIGA



In many ways, the Amiga is the perfect classroom computer. More and more educators are using Amigas in different, and exciting, ways to enhance both teaching and research.

The Amiga should be an educator's dream computer. Amiga owners have never doubted it. Superb graphics and sound should lead the way to creative pedagogical uses of everything from desktop publishing to interactive video, while student presentations could approach professional levels. For teaching purposes, the Amiga seems to have everything.

It hasn't happened, though. At least, not yet. Uncertain of the Amiga's market from the very start, Commodore made little effort to establish it in the school systems, concentrating instead on the already-established 64 and 128. When it is remembered that the Amiga became widely available in early 1986, just as Apple began its big push to install the Macintosh in schools and colleges, Commodore's lack of foresight is more remarkable still.

Neil Randall

THE VIEW from Commodore

Toward a New Beginning

Fortunately, things have begun to change. "Commodore is getting aggressive about education again," according to Dave Archambault, director of educational marketing for Commodore in the United States, and that aggressiveness is concentrated on the Amiga, not the 64 and 128.

"What Commodore is doing in the educational market," he continues, "is to take technology as our thrust. When you look at what the machine can do—its video capabilities, its sound, its multitasking—and compare it to computers that are already in the educational market, the Amiga is a natural for that market. We've established a chain of 150 new educational dealers across the country to help the process."

Specifically, Archambault cites the attempts by Commodore to develop "a full-fledged, single-stand-alone authoring system" for programmers to develop courseware. The benefits of such a system are clear, says Archambault; "The school can purchase just one set of equipment, and all courseware will run on it."

Dr. Ken Brumbaugh, who oversees the development of educational software for Commodore, confirms Archambault's assessments. Brumbaugh's concern is that Commodore move immediately into the educational market, before Apple and IBM eliminate the opportunity. When it comes to computers in the classroom, the Apple and PC standards are ingrained in the minds of educators. "The hardest job is to get people to stop and look at the Amiga," Brumbaugh claims. "Once they do, they say, 'Oh my God—I didn't realize it could do all that.'"

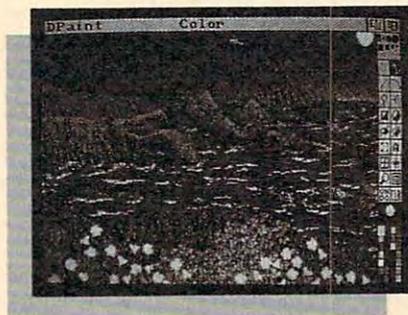
"It's a matter of cleaning up past problems," Brumbaugh continues. "The top people now at Commodore know how to plan. It's

just a matter of not trying to run until we learn how to walk."

At this time, the Amiga is being touted as a teaching device rather than an instructional delivery system. "There's no point going up against the Apple II in the educational market right now. The Amiga's uses concentrate on its graphics, sound, science capabilities, its ability to overlay computer signals on top of video, and its making possible live, interactive video. It's being used in the classroom as a presentation aid, a newsletter and video-yearbook creator, and as a music and graphics workstation."

But its limitation as an instructional delivery system is soon to be lifted. "We're developing an

Deluxe Paint



Electronic Art's Deluxe Paint is the best known reason for buying an Amiga. This screen shows off the Amiga's graphical strengths.

authoring system," says Brumbaugh, "which will develop an industry standard for audio in, audio out, video in, and video out. We have the only standard file structure in the industry; the Amiga has only one data file structure. If we can take that two steps further on the authoring system, we'll be well-placed to challenge anyone as an instructional delivery system."

Brumbaugh sees developing this standard as a key to the Amiga's success. First, the development of educational software will speed up, and second, machines

that establish standards have a history of being well perceived in the industry. That perception was helped recently by Amiga's good showing at this year's National Educational Computing Conference. "We had a fantastic reception at the N.E.C.C.," claims Brumbaugh. "We had more traffic than the Apple booth, and we talked seriously with a number of educators."

THE VIEW from Canada

Into the Universities

In Canada, the Amiga's educational initiative is just beginning. Ray Prachun, one of three regional education managers for Commodore Canada, says that Ontario, the province with the largest population, is showing the first strong signs of a shift toward the Amiga in education. At the elementary and secondary level, the Amiga has a built-in head start, since Commodore's 64 and 128 have dominated that market the way the Apple II has dominated the K-12 market in the U.S. Thus, the switch to the Amiga 500 is a natural one.

Amiga's largest area of growth right now is at the postsecondary level. "We've seen considerable use of the Amiga in audio-visual departments," explains Prachun, "and it's showing strength in desktop publishing and in music education. I've also seen some use in CAD [Computer-Aided Design]."

Prachun agrees that the university market is tough to break, especially with the dominance of IBM and Apple. In fact, he says, "Commodore's PCs have done well, but we want the Amiga to be recognized. It's only this year, though, that the Amiga has come into its own with the full range of software and peripherals needed for a fully mature system. The 500 and 2000 legitimize the Amiga, and 1989 is going to be its year."

THE VIEW from Ohio State

The Amiga as Art Teacher

In 1985, Ohio State University decided to fund a more extensive undergraduate program in computer art and graphics. The Department of Art Education had been working for two years with the Apple IIe to develop courses in computer graphics because the IIe would be the computer future teachers would use for their own courses. But 1985 brought \$100,000 to be spent on equipment, and after looking at Macintosh, IIe, Sun, and AT & T systems, Kevin Reagh decided—bravely at the time—to go with Commodore's brand-new Amiga.

Reagh, associate director of the Advanced Computing Center for The Arts and Design (ACCAD), explains his choice: "We wanted to teach 3-D graphics, and we had decided to take 3-D software from higher-end systems and port to a micro, which the Amiga allowed. Also, we needed a powerful CPU, but we didn't want just one display device for the entire lab, and the Amiga was affordable. We needed color, which cut out the Mac, and extensive number crunching, which eliminated the IIe. We also wanted UNIX, but the AT & T 7300 offered nothing in the way of graphics. Finally, we wanted expandability, which the IIe offered, but without the Amiga's other advantages. When we looked at the Amiga, it didn't have UNIX, but it promised not to be obsolete, and it gave us excellent graphics and a powerful CPU.

"We hired Scott Dyer, director of software development for Cranston-Csuri Productions, a private software house. Scott had just bought an Amiga, and three weeks later had developed some 3-D software called *EYE*. As a result, the ACCAD had 3-D vector-display software as early as the spring of

1986, and we offered a course called 'An Introduction to Computer Graphics.'"

The ACCAD is an independent unit in the College of the Arts. It offers graduate-level instruction in computer graphics, with students graduating with an M.A. in Industrial Design, Art Education, or Photography and Cinema. Directing the center is Chuck Csuri (a member of Cranston-Csuri Productions), who is also director of the Ohio Supercomputer Graphics Project, part of the Ohio Supercomputer Center. The basis for this center is a Cray supercomputer purchased by the state of Ohio and available to all educational institutions and industry in that state.

Currently, in addition to research into computer graphics, the ACCAD offers three specific courses. Computer Graphics Studio I uses *Deluxe Paint*, *Digi-View*, and *Sculpt 3D* as means of teaching the creation of detailed stills. Computer Graphics Studio II expands these techniques with the introduction of image processing. The third course, 3-D Animation I, uses *Animate 3D* to introduce students to computer animation. Assignments require the production of at least one still, and often emphasize a specific technique of one of the masters, such as Rembrandt's brush-stroke quality. The students might then make a copy of the image but manipulate the palette to make changes.

The ACCAD also serves as a model for similar computer-graphics labs. In fact, it encourages replication by offering help in establishing other labs. The ACCAD environment has been emulated, for example, by Rutgers in Camden, New Jersey, and by Central State College in Dayton, Ohio. Reagh states that the ACCAD is "trying to become a center for other institutions setting up their own labs." To this end, he explains, "We are very interested in staff development for other universities and colleges."

Reagh himself teaches a workshop for other instructors and is now teaching faculty from Central

State while their lab is being built. Meanwhile, graduate teaching associates help other colleges, and undergraduate teaching associates help high schools. Furthermore, the ACCAD encourages colleges to become centers for their own local institutions, which makes the ACCAD a "metacenter."

The ACCAD networks its Amiga 1000s and 2000s through Ameristar into the Sun systems. Basically, explains Reagh, this system "treats the Sun as an Amiga hard disk" that lets the user "do things on the Sun under AmigaDOS." Reagh himself has written a *Sculpt-to-ACCAD* converter that converts Amiga files to UNIX files and allows the Sun or the Cray to calculate the scene. The idea is to do the time-intensive chores on the Amiga and then send the work to a higher-end system to perform the calculation-intensive work. ACCAD wants to extend this networking capability and is proposing to develop software to allow instant interactive access from the Amiga to high-end CPUs.

THE VIEW from U.C.L.A.

Teaching About the Brain

Dr. Ronald M. Harper, professor of anatomy at U.C.L.A.'s Brain Research Lab, makes extensive use of the Amiga in both research and teaching. As a teaching device, the Amiga has found its way into classes at the university's medical and dental schools. These classes focus on gross anatomy and the dissection of the human body, and Harper sees the Amiga's usefulness expanding soon into the teaching of microanatomy, which deals with the description of cellular structures.

In the area of research, the Brain Research Lab uses the Amiga's video capabilities to com-

bine images from different imaging devices. With the Amiga's help, computer-aided tomography, X-ray scans, CAT (Computerized Axial Tomography) scans, PET (Positron Emission Tomography) scans, and other forms of brain scans are combined to help visualize the brain's structure. "The major reason for imaging these brain structures," says Harper, "is for the localization of epileptic tissue. We do this because some epileptic tissue can be removed surgically to make the patient well without pharmacological intervention."

Impressive though it seems, however, this is far from the Amiga's only use in Harper's brain research. "There is a potential use for the Amiga in a variety of brain research functions," he insists. "It can help with tumor localization, for example. And we're using the Amiga now for physiological signal processing, to help patients with a variety of sleep disorders. In the process of doing this research we are training grad students and medical residents. Currently, we're getting into 3-D reconstruction of images, using commercially available software and Haitex's X-Specs glasses."

Why the Amiga?

"It's probably the most extraordinary bargain as a graphics device around," Harper says. "It's very hard to believe the price of this computer for its graphics capabilities. The other advantage is its interlaced graphics; it meshes well with video signals. We can use off-the-shelf composite monitors in the classroom. Every medical school has composite monitors in lecture halls and labs. With a simple Radio Shack cable coming out of the imaging computer, we can demonstrate to several hundred students simultaneously. It saves us tens of thousands of dollars and absolutely transforms the presentations."

Harper also likes the computer's multitasking and its friendly user interface but says without question that the Amiga's strengths are its open architecture, graphics capabilities, and sound capabilities.

"It's an extraordinary thing to be able to interact on the auditory level. I've watched young children play with *Robot Reader* packages, in which the child points to a chicken or a hen or a tree and the computer responds with a voice. It's nothing short of amazing to watch the level of interest and interaction that develops this way."

Older students also appreciate the Amiga's audio capabilities. "Now, we're dealing with a different population of students," Harper continues, "but if we're teaching neuroanatomy, it helps to take a mouse and put the cursor on

PIXmate



some structure in the brain. And if the students don't respond properly, a voice will tell them. A great deal of neuroanatomy is boring, and anything that can increase the interaction is helpful."

The Brain Research Lab has "a half-dozen Amigas," says Harper, "and we're trying to get more." Among the commercially software and hardware used by the Lab are *Director*, *Deluxe Paint*, *PIXmate*, and the Mimetics genlock hardware.

Also at U.C.L.A.'s Department of Anatomy is Ron Trelease, whose commitment to Amiga educational use is at least as strong as Harper's. "I got my Amiga in November of 1985," he explains, "and I put it to work almost immediately with lectures that showed its use as a slide projector. In 1986, I gave lectures on what the Amiga can do, using the closed-circuit color video screens and the 12-foot GE projection systems which were already in

place. Gradually, I began to use the Amiga in lectures to faculty and students at the medical school."

In the spring of 1986, Trelease was using the Amiga every day in a head-and-neck anatomy class. "I wanted to show it could be done," he says. "We used its animation capabilities to show surgical reconstruction of cleft palates. Since then, I've used the Amiga extensively teaching medical gross anatomy and dental gross anatomy. I prepared a number of gross anatomy instructional programs, using *Deluxe Video* and the *Director*, which would run in the lab unattended for viewing by the students. Then I would supplement these programs in my regular lectures with video productions such as slide shows showing bones and muscles, etc."

The idea of using desktop video to create a self-teaching environment is important to Trelease. "In dental gross anatomy," he offers, "I created programs called Gross Lab Digests. At the beginning of each lab, the Gross Lab Digest presented the lab agenda for the day (i.e., what was to be cut up). It was set up in the *Director* as an endless loop, and the students would view it and then do it. The *Director* program and the Amiga helped pull the class together, integrating lecture materials with lab materials."

With the Amiga in place, Trelease sees a wealth of future possibilities. "Most of the next nine months," he says, "will be spent developing an interactive review program on osteology, on bones, joints, and muscles of the upper limb. Our new plan is to focus more on applications—to introduce a large program reviewing all the details of the upper limb, following the format of the lectures. The program would present the material in the first part; then the last part would have interactive questioning and examining."

The U.C.L.A. medical school is very dependent on 35mm Kodak Carousel slide shows. The Amiga is used to prepare slides for various

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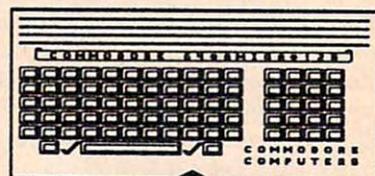
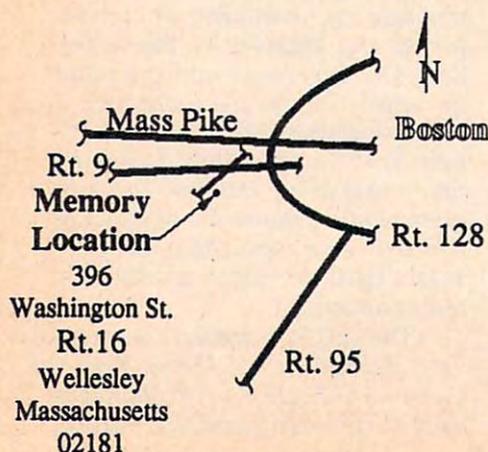
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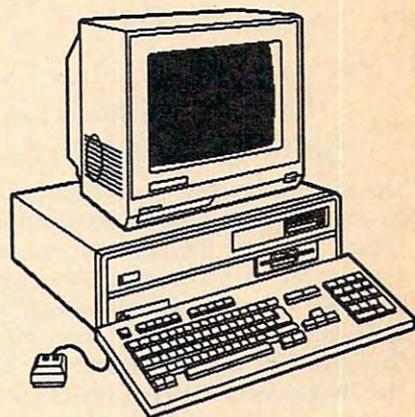
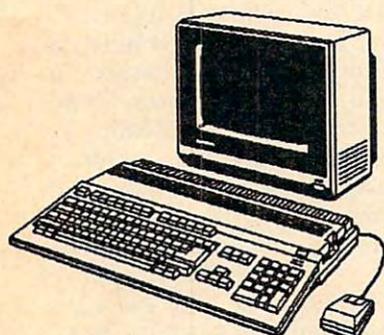
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classes, but its use may be changing. "I see a transition from slide shows to interactive video," Trellease says, "and I've taken it on myself to walk that path and show how it can be done."

Trellease uses Amiga 1000s and 2000s, with some 500s and genlock hardware coming. Commercial products used include *Deluxe Paint*, *Deluxe Video*, *Aegis Animator*, *WordPerfect*, and the new ray-tracing software. Like Harper, he makes strong use of Haitex's X-Specs glasses.

THE VIEW

from Stanford

The Amiga as Integrated System

Dr. Marvin Weinstein uses Amigas in the Stanford Linear Accelerator Center, part of the Department of Energy lab at Stanford University. His needs, though, are considerably different from those of Harper and Trellease at U.C.L.A. "We are one of the two large particle-physics labs in the country," Weinstein explains, "and we have a large mainframe IBM 3081 and various VAX computers. Therefore, we have several terminals scattered around the lab.

"The project we started was two-fold. One [purpose] was to find a color graphics machine. We do a lot of reconstructions we need displayed on the screen, and we needed color replacements for black-and-white displays. The Amiga, of course, was attractive as a way of filling this need, but what made it really attractive was its multitasking."

The need for multitasking is clearly the Center's major reason for choosing the Amiga. Its use of this often-neglected feature demonstrates just how powerful the machine can be. "The Amiga could multitask, but we needed software that really used it," Weinstein continues. "We talked to people and

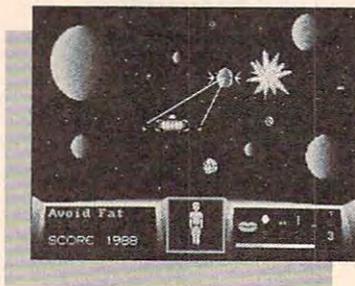
urged them to produce the software for us. We have it in place now."

How does the Center use the Amiga's multitasking environment?

"When we log on," Weinstein explains, "we have a terminal simulation program, a Tektronics emulation. Any program we run on the Amiga has the ability to talk to Rexx—an interpreter similar to BASIC, but much more structured. Rexx has been realized on the Amiga as ARexx, by William Hawes; it's completely multitasking, and it allows you to use the Amiga the way people say you're going to be able to use *HyperCard*."

Hawes has also written *W-Shell*, a shell that interfaces the CLI (Command Line Interface) to Rexx in a seamless way. Using these programs, Center personnel are able to take *TxEd-Plus* and *AmigaTeX*, the Amiga version of Donald Knuth's

Haitex X-Specs



powerful text-formatting language, and tie them all together in a series of Rexx programs, all running at the same time.

Creating large documents puts a strain on the mainframe, Weinstein says. "With this system, we can do text processing and previewing on the Amiga, then put the document back on the mainframe for printing. The Amiga becomes a symbiont to the mainframe."

Weinstein's primary focus is on sharing programs and information with his Amiga. Because the whole idea of Rexx (and Amiga's ARexx) is to allow one program to communicate with another, programmers and users can quickly move information among programs and

among computers using similar programs. They can quite easily create programs that do what they want with the information.

Rexx and ARexx allow the orchestration of programs written by different people. Since the mainframe uses Rexx extensively, it becomes easy to transfer programs and documents back and forth from the Amiga to the mainframe. "I want to emphasize that the Amiga has this integrated software today—ARexx, *TxEd-Plus*, *W-Shell*, and *AmigaTeX*," Weinstein says, "and all that a software developer has to do is open a Rexx port so that Rexx can talk to him. It rarely adds much code to the program."

For Weinstein's purposes, he says, it's absolutely essential to use the Amiga's interlaced mode. To that end, the Center uses Microway's *flickerFixer* and Zenith flat screens or multiscanning monitors. Including the new 500s, the Center has more than 20 Amigas.

Clearly, current uses of the Amiga at the postsecondary level are both inventive and encouraging. Most impressive is the fact that the Amiga is being exploited by all these projects for its inherent capabilities, not just for its excellent price.

If there is a down side to this exploration into the Amiga's educational uses, it is that the Amiga still has a long way to go in the educational market. Breaking the dominance of the Apple IIe will be difficult at the K-12 level, while making inroads against IBM and Macintosh will be almost as difficult in postsecondary schools. To be sure, this article has examined only some of the Amiga-based projects at the postsecondary level, but the machine's penetration is still relatively small. If the Amiga is to become a major force in education, Commodore must adopt a very aggressive strategy. The present Commodore management seems committed to doing so, but whether or not it will fulfill that commitment remains to be seen. As for the Amiga itself, it's a machine that seems ready to take off. □

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The Amiga Turns 3!

Rhett Anderson

On Saturday, July 23, a crowded Chicago ballroom echoed with the strains of "Happy Birthday" sung to a cake at the Midwest AmiEXPO. That may conjure up a strange image in the minds of those who did not attend, but it seemed pretty natural at the time.

After all, the cake was in the shape of an Amiga computer, and it was the Amiga's third birthday. And actually, the people in the crowd weren't singing to the computer cake so much as they were to each other and themselves. They were congratulating each other for working so hard at making the Amiga a success. Visitors also signed birthday cards (to be sent to Commodore) wishing the Amiga well.

That feeling of hopefulness and success permeated the three-day show (Friday, July 22-Sunday, July 24). The Amiga's ups and downs over the last few years have brought some developers to the Amiga and scared others away. Although the installed base of Amigas is presently only 600,000, the developers and press at the show were cautiously optimistic that this Christmas will belong to the

Amiga, not to the Commodore 64.

Over 70 exhibitors displayed hardware and software that included dozens of new or upgraded packages. On the last day of the show, representatives were estimating that the attendance could surpass 10,000, making the show the biggest AmiEXPO yet.

The Final Story

The highlight of the show was R. J. Mical's keynote speech, an audiovisual telling the story of the birth of the Amiga. Mical was the designer of the Amiga's Intuition user interface. He had previously told the story about 40 times, to user groups and participants of other computer shows. This was the last telling of the story for Mical, now an employee (along with other Amiga founders) of Epyx. Mical had the privilege of embarrassing two fellow Amigans. He made Jay Miner ("Father of the Amiga") stand for a healthy round of applause, and he brought fellow software engineer Dale Luck onto the stage for a demonstration of the wild strutting dance the two did to keep awake during the late nights before the Amiga's first CES

showing.

While the creators of the Amiga were dancing, the show's exhibitors were working hard at moving the Amiga into the mainstream of computing. Not an easy task, considering the dominance of IBM and Apple in the business and education markets. Amiga developers do have an ace in the hole, though—the hordes of brand-loyal Commodore 64 owners. The developers, and Commodore, are hoping that as 64 sales slow, Amiga sales will soar.

For attendees, there was plenty to see. Exciting video and audio products and services, new games, and boxes of merchandise were selling at special show prices.

Even if you didn't make it to AmiEXPO Midwest, you'll still benefit from it. AmiEXPO is a chance for developers to meet distributors, the press, real users, and other developers. It's a sure bet that nearly every programmer went home with at least one or two new ideas.

The Big Thrill

The first booth visitors saw as they entered the exhibition hall be-

longed to NewTek. The company's video products wowed spectators. NewTek's well-established *Digi-View* and *Digi-Paint* were on display, as well as its long-awaited special-effects do-it-all Video Toaster board, which will be available this fall. Contrary to previous reports, the board will work on all three Amiga models.

For the sound-hungry, New Wave demonstrated *Sound Oasis*, a program that reads any of the thousands of disks of sampled sounds available for the Ensoniq Mirage sampling keyboard. The samples can be saved in IFF format for use in music and desktop-video products. Mirage samples, digitized in studios, sound beautiful. New Wave also showed *Dynamic Studio 2.0* and *Dynamic Drums*.

The Amiga's video and sound capabilities are often seen as good reasons to buy an Amiga computer. A new company, Emerald Intelligence, thinks that it's found another. The company's new artificial intelligence program, *Magellan*, was introduced at a champagne party Friday night. The product allows users to build elaborate knowledge bases and expert systems. *Magellan* has been in the works for three years and is said to compete favorably with systems costing tens of thousands of dollars. The inexpensive program (\$195) will soon be augmented by a more powerful (and slightly more expensive) sibling. What can you do with this program? David Kennedy, president of the company, gave us a few ideas: build expert systems, create art and music, make decisions, write programs, and more. Kennedy expects that his program just may open Amigas to a new audience.

ASDG, developers of the popular *Facc II* disk-caching program and the public domain VD0: recoverable ramdisk, showed Twin-X, an expansion card for the Amiga 2000. It controlled four light bulbs which could be turned on and off individually by clicking on gadgets with a mouse or by running a wand over a bar code. "Don't think of these as light bulbs," said Perry Kivolowitz, developer. "Think of them as sole-

AmiEXPO is a chance for developers to meet distributors, the press, real users, and other developers.

noids operating a factory. . . . It's the first time this has been done on the Amiga." ASDG also introduced a fast and surprisingly powerful program editor—*CygnusEd Professional*. The editor is programmable, and it operates on virtually any size screen, including the hi-res mode of Commodore's upcoming monochrome monitor.

You Take the High Road . . .

Surprisingly, Discovery Software took the moral high road by dropping its popular *Marauder II*—the most popular Amiga disk copier. Discovery is turning over a new leaf, working to improve its already-excellent packaging and marketing. It seems to be working fine. Discovery's booth was among the most crowded. Employees stuck "I'm Protected!" badges onto attendees to promote their new *V.I.P.* virus-protection program. This program stores the boot block of every disk in your library. When you get a new disk, *V.I.P.* stores a copy of its boot block. If you ever catch a virus, use *V.I.P.* to restore the original contents of your disks. Discovery also showed a slew of impressive new games; the company is, in fact, quickly becoming the heaviest hitter in the Amiga game arena.

Discovery's withdrawal from the disk-copying market made the folks at Fuller Computer Systems happy. Their *Project D* copier (which also includes a powerful low-level disk editor) makes a working copy of just about every disk on the market. It's an important tool. Disks go bad and catch viruses. An extra layer of protection helps.

Did you ever see *Creature from the Black Lagoon* in 3-D? The red/green 3-D glasses used for those old 3-D movies are a recurring fad, but X-Spec 3-D glasses from Haitex take a new tack. They use liquid-crystal shutters to send alternate views to each eye. This strategy not only reduces the nausea that red/green glasses tend to produce, but it also allows for realistic, sharp, full-color 3-D pictures and animation. Haitex claims that over a dozen companies are working on software to support the X-Specs.

Bye, Bye, Interlace

Many participants at AmiEXPO were shocked at the quality of the video monitors used by several of the exhibitors. It wasn't just the multisync monitors that were creating the magic—MicroWay's expensive Flicker Fixer board was installed in many of the Amiga 2000s at the show. The flicker-free screens were breathtaking. T. S. R. Hutchinson was selling Flicker Master, an \$18 plexiglass screen, to budget-conscious buyers. For the price, Flicker Master does a good job.

Three-dimensional graphics packages such as *Sculpt-3D*, *Video-Scape 3-D*, *Forms in Flight*, and *Turbo Silver* were responsible for the many graphics demos at the show. Syndesis makes *InterChange* to solve the problem of how to move incompatible objects from one package to another. President John Foust was on hand to show *InterChange* at work. Attendees also got to see *InterFont*, a vector font designer which lets you convert fonts, design new fonts, and load fonts into paint programs and 3-D packages.

RGB Computer and Video Creations, the company that makes the *Deluxe Help* series of software, introduced its Super-VHS Video Workstation. This system uses an Amiga to control editing and step-frame animation—just what serious video users have been waiting for.

No matter how serious the developers are, the Amiga will never grow up completely. The new games shown at this AmiEXPO were the best yet. And you can expect them to get even better. □

Amiga PEOPLE

Who is the typical Amiga user? There doesn't seem to be one, which makes sense—the Amiga, after all, more than any other microcomputer, can be all things to all people. But, thanks to readers' responses to the survey presented in our *Amiga Buyer's Guide*, we do know a few things about you and your fellow Amigans.

The first question we asked was the slightly rude "How old are you?" Most of you indulged us and gave us what we hope was your true age. (One of you told us only the decade of the year you were born. Another asked why we gave readers two lines for answering this question.)

15 or younger	9%
16–25	21%
26–35	19%
36–45	32%
46–55	11%
56 or older	9%

Which Amiga is the most popular? It's a genuine horse race. We were surprised to find that some of you have more than one Amiga. In fact, one reader has five Amiga 1000s!

Amiga 500	38%
Amiga 1000	36%
Amiga 2000	15%
None yet	11%

What other computers do Amiga owners use? (Some owners have several computers in addition to their Amiga.)

None	49%
Commodore 64	23%
Commodore 128	15%
PC Compatible	9%

Atari 8-bit	9%
Various others	23%

What peripherals do you own?

Dot-matrix printer	75%
Letter-quality printer	32%
Laser printer	2%
Modem	55%
Memory expansion	70%
Hard drive	15%
Genlock/video interface	11%

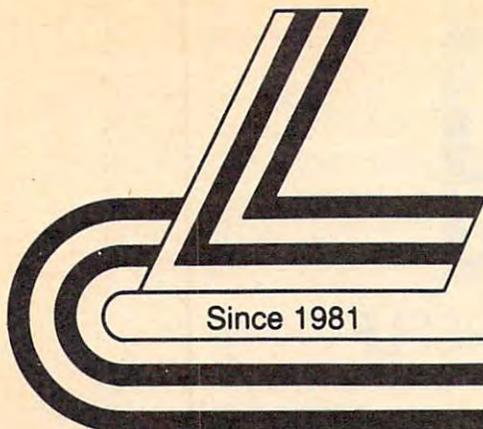
What software have you purchased in the past year?

Word processor	83%
Paint program	70%
Telecommunications	36%
Games	94%
Music	40%
Desktop video	32%

We asked several other questions. We found out that you spend an average of \$85 per month (more than \$1,000 a year!) on software. You couldn't agree on whether you bought computer books or not. *No!* was one answer. *Who doesn't?* was another.

Going out on a limb, we asked for comments. We got plenty, and we read them all. Many of you encouraged COMPUTE! Publications to increase support of the Amiga. We've done that. This user's guide is the evidence. We've also put together *COMPUTE!'s Amiga Games Disk*. You'll find ordering information elsewhere in this issue. Plus, check the newsstands for our next complete *Amiga Buyer's Guide*.

—Rhett Anderson



Lycocomputer Marketing & Consultants

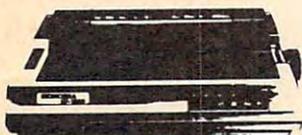
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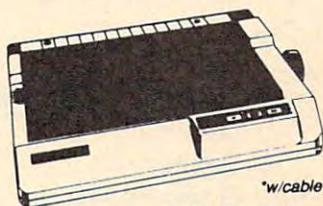
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AMIGA USER'S SURVEY

TELL US ABOUT YOURSELF

We'd like to know about you. What are your tastes and preferences? What attracted you to Amiga and this *User's Guide*? The more we know, the better our publications are able to meet your needs.

How old are you?

- Under 18
- 18 to 29
- 30 to 44
- 45 to 65
- Over 65

Which Amiga do you own?

- Amiga 500
- Amiga 1000
- Amiga 2000
- Don't own one yet

What other computers do you own? _____

Do you plan to buy another computer within the next year?

- yes
- no
- don't know

If yes, which computer do you plan to buy?

- Amiga 500
- Amiga 1000
- Amiga 2000
- Amiga 2500
- Other _____

What peripherals do you own?

- Dot-matrix printer
- Genlock/Video interface
- Hard drive
- Laser printer
- Letter-quality printer
- Memory expansion
- MIDI device
- Modem

How much is your hardware worth? _____

How much is your software worth? _____

How much do you spend on software each month? _____

What types of software have you purchased in the past year?

- Animation
- Business applications
- Desktop publishing
- Desktop video
- Games
- Graphics and paint programs
- Music
- Programming
- Telecommunications
- Utility
- Word processor
- Other _____

Which computer magazines do you read regularly?

What types of Amiga coverage do you most appreciate? Check the four most important to you.

- Business articles
- Buyer's guides
- Feature articles
- Hardware modifications and projects
- How-to articles
- New products
- Product reviews
- Programming explanations and tutorials
- Sound and music articles

How could this *User's Guide* be improved? _____

Additional comments _____

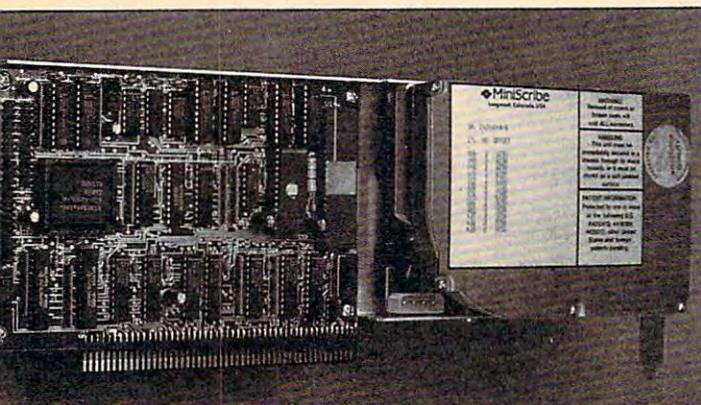
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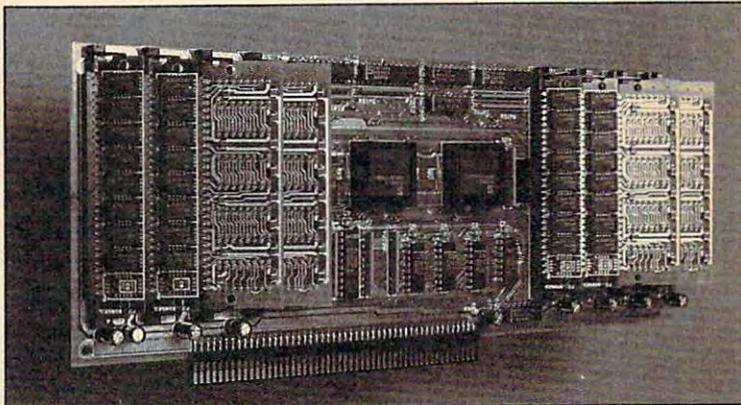
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How fast is fast? **HardFrame/2000** transfers data at Amiga bus speeds! It's actually faster than the hard disk mechanism itself! And even more important in the Amiga's multitasking environment, **HardFrame/2000** has extremely efficient DMA circuitry to get on and off the bus in almost no time at all: 280ns to get on; 200ns to get off. **HardFrame/2000** autoboots under AmigaDOS™ 1.3 and is fully compatible with the new Fast File System. The core of any DMA SCSI interface is its SCSI protocol chip and DMA chip. MicroBotics has chosen the new, high performance Adaptec AIC-6250 SCSI chip, capable of up to 5 megabytes per second raw transfer speed, and the Signetics 68430 DMA chip running at 12.5 megahertz. Then we added additional FIFO buffering and enabled 16-bit wide data transfers for maximum throughput. The sophisticated design of **HardFrame/2000** provides for automatic SCSI arbitration, selection and reselection. The hardware supports either synchronous or asynchronous data transfer. **HardFrame/2000** can function as either the SCSI bus initiator or the target and can reside in a multiple master environment. Physically, **HardFrame/2000** is optimally flexible: the compact, half-size card comes attached to a full length, plated aluminum frame. The frame has mounting holes positioned to accept standard, 3.5" SCSI hard disk units such as those manufactured by MiniScribe, Seagate, Rodime, and others (hard disk mechanisms must be supplied by the user or his dealer as a separate purchase item). Alternatively, you can cable-connect to a SCSI drive mounted in your Amiga's disk bay or in an external chassis. As many as seven hard disks may be connected to a single **HardFrame**. There is no size limit on each disk. **HardFrame/2000** includes a 50-pin SCSI cable and header connectors for either 50-pin or 25-pin cable connection. Also included is a current tap to power frame-mounted drives directly from the slot itself. **HardFrame/2000** comes complete with driver, installation, and diagnostic software. Available September 1988. Suggested list price, \$329 (hard disk not included).

The **HardFrame/2000** photo shows the product with a MiniScribe 20 megabyte hard disk installed. Hard disks are not included in the purchase price of **HardFrame**. Note that if placed in the first slot, **HardFrame** uses only one slot.

All the memory space you and your Amiga 2000 need—in a modern, highly integrated **FastRAM** expansion board. In **8-UP!**, MicroBotics went all the way to provide you with a truly Amiga-specific memory design to meet the special demands of the Amiga's high speed multitasking environment: The heart of any memory expansion is its **DRAM controller circuitry**. Rather than compromising with off-the-shelf parts, MicroBotics developed its own, custom controller design and built it into high-speed, **Programmable Macro Logic** chips (Signetics PLHS501). These new, super chips (each **8-UP!** uses two PML's) permit MicroBotics to employ **sparse refresh** technology to assure that your **8-UP!** is a truly zero wait-state/minimal-refresh-collision memory design. If you're putting eight megabytes in only one slot, that means that you probably have plans for your other A2000 slots. **8-UP!** gives you new freedom to do that planning since, unlike other ram peripherals, it is an extremely low-power memory card—a single, fully-loaded, 8-megabyte **8-UP!** draws an astoundingly efficient 800 milliamps! That's less than *two-fifths* of the power "budget" for a single slot! Low power draw also means that the card is cool-running for reliability and long life (not to mention a cooler Amiga!). **8-UP!** offers you maximum flexibility in memory configuration: it is organized into two separate **PIC's** (Amiga-speak for autoconfiguring peripherals). Each **8-UP!** PIC consists of four SIMM module sockets; these sockets accept either 256k-byte or 1 megabyte **SIMM's** (Single Inline Memory Modules). You can also purchase optional **PopSIMM** boards from MicroBotics; fill them with conventional RAM; then use **PopSIMM's** to fill your **8-UP!** The card can run with as little as 512k of memory or as much as eight megs—with many intermediate configurations possible (particularly the six megabyte configuration, most desirable for use with a **BridgeCard™**). **8-UP!** is speedy, efficient, custom memory technology for your Amiga 2000—and it's available now! **8-UP!** suggested list price is \$199 (0k installed). Optional **PopSIMM's** are \$49.95 per pair.

The **8-UP!** photo shows the card half populated with conventional SIMM modules and half with MicroBotics **PopSIMM's**. **PopSIMM's** (without DRAM installed) are available as separate purchase items.



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SOFTWARE BUYER'S GUIDE

GAMES

ARCADE GAMES

For further information, Circle Reader Service Number 201.

Amegas

DigiTek
512K
34.95

This arcade-style game contains 40 screens of bouncing, shooting, slamming, and juggling action.

Arkanoid

Discovery Software
29.95

This arcade-action game is based on a video arcade game of the same name. *Arkanoid* features 66 levels of gameplay, with a special mode that slows the action to a player's skill level. Each level has a configuration of bricks and hazards. The object is to hit a ball with a paddle against the breakable bricks, catch the powers contained in the broken capsules, and then advance to the next level. The game includes a 30-day money-back guarantee.

Awesome Arcade Action Pack

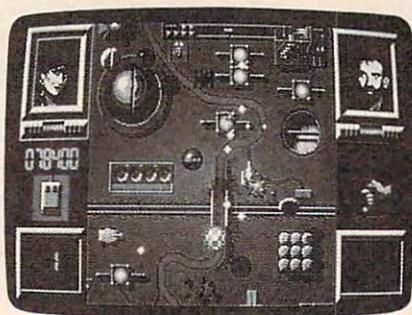
Arcadia
Distributed by Electronic Arts
49.99

Awesome Arcade Action Pack contains three arcade-style games. In *Sidewinder*, players pilot a spacecraft through 3-D, scrolling screens to reach the interior of the alien Star Killer and destroy it. Captain Zod guides the player through 16 levels of attack from vicious aliens in *Xenon*. The player must switch between a ground-based hovercraft and a jet fighter to penetrate the enemy defenses. *Blasta Ball* is the thirty-seventh century's version of hockey. Inertia controls the spaceships on a metal playing field, and homing missiles are used to move the puck. There are ten craft to control, and the player can play another person or the computer.

Better Dead than Alien

Electra
Distributed by Discovery Software
34.95

Better Dead than Alien is an arcade-style game in which the player hunts down aliens. According to the game, an alien is at its weakest when its eyes glow putrid green. The game features multilevel action, simultaneous dual-player mode, sound, and color graphics.



Two players can work simultaneously to shoot down aliens and bomb their installations in *Black Shadow*.

Black Shadow

Scorpion Software
34.95

Players attempt to destroy an asteroid by outgunning the aliens and bombing enemy installations. The game features two-player simultaneous action.

Blockbuster

Mindscape
512K
39.95

While batting the bouncing ball to knock down a barrier, the player must also avoid yellow sun bombs dropped by aliens, catch falling tokens for extra points, and watch for lighting icons to buy special weapons. There are 80 levels of gameplay, and the player can design 48 more screens and barriers with a built-in designer.

Bomb Busters

ReadySoft
29.95

In *Bomb Busters*, the player is the leader of a bomb squad whose mission is to defuse bombs planted throughout famous buildings of the world. Robot guards that protect the bombs are programmed to kill anyone who interferes.

There are 100 levels of play on two disks.

Bubble Ghost

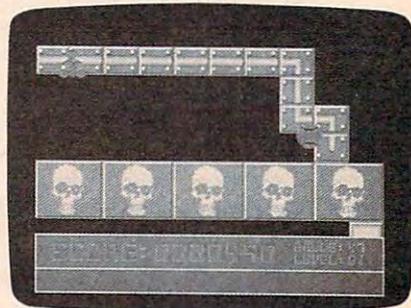
Accolade
34.95

In this arcade-action game, the player must guide a bubble-blowing ghost through 36 chambers filled with hazards and monsters. Players have to steer the bubbles away from walls, burning candles, fans, and other bubble-popping paraphernalia.

Cosmic Bouncer

ReadySoft
29.95

A freak computer mishap has turned a simple yellow tennis ball into a living object. Now that ball bounces its way through more than 20 levels of play to earn the player the title of *Cosmic Bouncer*.



A tennis ball goes haywire and bounces through 20 levels of play in *Cosmic Bouncer*.

Crystal Hammer

Constellation Software
19.95

This *Breakout*-type arcade game has 30 levels of play for one or two players.

CubeMaster

ASDG
512K, Kickstart 1.2 or later, joystick optional
24.95

In this arcade-style shoot-'em-up game, the player is the cubemaster, a combination sports celebrity and NASA astronaut. The cubemaster is strapped into a manned mobility unit with forward, retro, and attitudinal rockets and a rapid-fire particle cannon which the player uses to shoot down the cubedrones. However, the cubedrones have

both positive and negative side effects that must be anticipated if the player is to progress to the level of cubelord.

The Cyber Complex

DigiTek
512K
44.95

As troubleshooter for the Computer, the player tries to stop evil men from the subterranean city as they seek to destroy the Computer.

Diablo

Classic Image
29.95

The object of this mazelike game is to arrange a track to keep the advancing ball on a continuous course. After the ball has crossed a section of track, that section is removed, so the player has less and less track to work with. The game includes 240 sections of track, with two tracks on each of 120 movable panels.

Enlightenment

Rainbird Software
24.95

In this arcade-style game, Hasrinaxx the Druid must free the lands of Belorn from the evil wizard Acamantor and his legion of the undead. Magical powers aid Hasrinaxx in his fight through the ten lands of Belorn and a five-level dungeon. The game includes 15 levels of increasing difficulty, 32 spells, and five different characters to control.

Final Mission

DigiTek
512K
34.95

As the final mission of training, the player must work his or her way through the labyrinth of terror, the last stage of insanity. There are more than 20 levels of play.

Foundation's Waste

Scorpion Software
34.95

The player tries to escape a hostile planet in a stolen spacecraft by defeating his or her captors.

Ganymed

ReadySoft
joystick
29.95

Ganymed, the frozen moon of Jupiter, has been under the rule of the oppressive Tyrans for centuries. As leader of the outlawed star warriors, the player must defeat the giant deathbots and free the planet.

Gun Shoot

DigiTek
512K
34.95

Players try to shoot 12 different opponents, including bank robbers, without hitting any innocent bystanders. The game includes a two-player mode and digitized sound.

Kill or Be Killed

Teknoware
512K
49.95

In this multilevel, arcade-style game, the player attempts to rescue a POW from behind enemy lines. This two-disk game features graphics, sound, and animation.

Master Ninja: Shadow Warrior of Death

Paragon Software
Distributed by Electronic Arts
39.95

Players assume the identity of a ninja warrior sent on a quest to recover a magic sword stolen by an evil Japanese warlord. The ninja must fight his way through more than 25 chambers of the warlord's castle, confronting evil ninjas, samurai guards, mystic ninja priests, curses, and deadly tigers. The player uses the ninja's martial-arts skills and weapons to kill opponents, recapture the sword, and kill the warlord.

Mission Elevator

Constellation Software
19.95

In this mystery arcade game, the player must collect 16 clues to diffuse a bomb planted on the 62nd floor of a hotel. Enemy secret agents try to stifle the success of the player's mission.

Phantasm

Scorpion Software
34.95

A destitute wanderer is transported to a distant moon and given the opportunity to save the Earth. For each section of Earth saved, the player must destroy eight reconstitution installations and then redock. The player can choose which sections to rescue first.

Pinball Wizard

Accolade
34.95

Pinball Wizard brings arcade-style pinball action to the computer screen. Several pinball tables are provided, with an assortment of obstacles and targets, and players can assign the bonus values. The game will penalize the players when they try to tilt, and the stroboscope feature causes the ball to vanish occasionally. Using the built-in construction set, players can build their own tables with customized designs and colors.

Power Stix

DigiTek
512K
34.95

Joystick pros can work their way through 15 levels of obstacles.

Skyblaster

DigiTek
512K
34.95

One or two players can battle it out in this air-to-air and air-to-ground 3-D combat simulation. There are 20 degrees of difficulty, with 80 levels of play.

Spaceport

Constellation Software
19.95

As the pilot of a prototype spacecopter, the player must navigate the interior of an asteroid to rescue the spaceport and destroy the enemy. ▶

BUYER'S GUIDE

Spinworld

DigiTek
512K
34.95

Players must battle the inhabitants of Spinworld, a large object spinning toward the solar system.

Turbo

Microillusions
24.95

A part of Microillusions' One on One Series, this auto-racing arcade-action game allows one player to compete against the computer or two players to race side by side or via modem. Game features include oil slicks, spiked wheels, different road courses, a choice of cars, and police chases.

Way of the Little Dragon

Constellation Software
19.95

Way of the Little Dragon is a karate adventure game with eight levels of play and four different challengers. For one or two players.

Zoom!

Discovery Software
29.95

Zoom! is a nonviolent arcade-style game featuring Zoomer. Zoomer is chased by a gang of reckless enemies through an outer-space land, Zoomland, as he tries

to collect territories and points. However, Zoomer must watch out for the "oops" factor when he tries to advance to the next level. There are 50 levels of play. The game includes a 30-day money-back guarantee.

in the tournament play. *Battleship* contains digitized sound effects and color graphics.

Capone

Actionware
512K
39.95

Set in Chicago during the 1920s, *Capone* challenges the player to shoot down as many gangsters as possible without injuring any innocent bystanders. In addition to pedestrians, there are many obstacles such as a warehouse filled with crates of explosives. This action game features animation, color graphics, and sound effects. It is designed to be used with the Actionware Light Phaser Gun, which is available from Actionware for \$39.95. Mouse control is also accepted.

Contra

Konami
joystick optional
39.95

As the ultimate guerrilla warrior, the player must fight against the Red Falcon to save the whole world. Weapons include rapid-fire machine guns, alien cannons, and high-tech lasers. The warfare takes place in 3-D mazes with underground security systems and tropical forests with giant waterfalls.

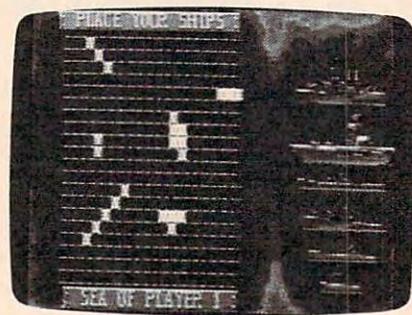
ADVENTURE GAMES

For further information, Circle Reader Service Number 202.

Autoduel

Origin Systems
joystick
39.95

In the twenty-first century, the player is assigned to carry out a courier mission for the FBI. To complete the mission, the player must build the biggest, most heavily armored vehicle possible using a variety of weapons, ammunition, and armor. This game is an adaptation of the board game Car Wars. The package includes one disk, a road map, a driver's handbook, and a tool kit.

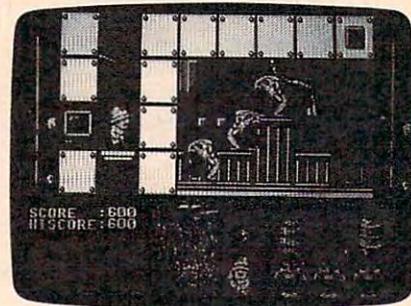


In *Battleship* from Epyx, each player tries to sink the other's battleships without being detected.

Battleship

Epyx
29.95

Based on the board game by the same name, *Battleship* pits navy against navy as players try to avoid detection of their fleet by the enemy. Shrapnel, fire, and holes in the broadside cripple the battleships until they finally sink. Using the Salvo Fire option, players can fire only four shots per remaining ship. Two or more players may also compete



Strange creatures and objects confront the player as he searches for Professor Renegade in *Cosmic Relief: Prof. Renegade to the Rescue*.

Cosmic Relief: Prof. Renegade to the Rescue

DataSoft
Distributed by Electronic Arts
39.95

Professor K. K. Renegade is the only one who can save Earth from total

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obliteration by an approaching asteroid, but he can't be found. The player chooses one from a group of internationally famous adventurers to help in the search for the professor. During the quest, the adventurers are confronted by bizarre creatures and acid storms, and they must rely on objects such as vacuum cleaners, teacups, and unicycles. After finding the professor, the group must build an anti-asteroid deflector.

First Expedition

Interstel
Distributed by Electronic Arts
49.95

Braun the Explorer ventures into the unknown ocean world of Yorland with a boat and a companion to recover three sun spheres and save his civilization. To survive, the characters must learn to manage their food and fuel resources and map their journey using a star chart, a star catalog, and ancient map fragments. Allies and enemies include pirates, traders, and natural elements.

Gold Rush

Sierra On-Line
39.95

A historically accurate adventure game, *Gold Rush* follows one man's journey from New York City to the gold fields of California as he tries to strike it rich. There are three different games in the program, one for each of the three routes from which the prospector must choose. Each trail has its own set of obstacles and perils.

Hybris

Discovery Software
39.95

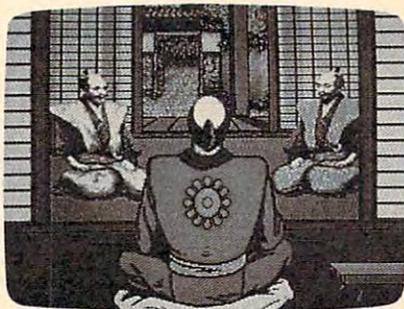
In this action-adventure game, the player is commander of a missile cruiser flying over enemy territory. There are 11 cruisers to pilot, with up to 24 ships attacking at one time. The captain must determine which targets to strike and when to use rapid fire, extra missiles, or an invincible mode.

Impossible Mission II

Epyx
39.95

Elvin, the malicious mastermind, returns with a plot to take over the world in the twenty-fifth century. Elvin is

based in a high-tech office complex filled with dark tunnels, surveillance cameras, human-seeking suicide robots, and time bombs. Players must collect secret-code numbers to access the control room and defeat Elvin. There are eight towers to search, each with a different degree of difficulty and an individual theme. Coded pieces of music and a pocket computer map can help guide the players through the fortress.



The player fights for family honor and to save a twelfth-century Japanese empire in *Lords of the Rising Sun*.

Lords of the Rising Sun

Cinemaware
one megabyte
49.95

As the leader of a twelfth-century Japanese family, the player must confront and defeat the Taira clan, rivals who have overthrown the emperor and dishonored the player's family. To become the shogun, the player must defend against ninja assassins and armies of samurai warriors, negotiate alliances with other clans, and survive hand-to-hand combat. The loser must commit *seppuku*, the ritual of disembowelment. Action takes place in realtime on a detailed, three-screen-wide map of medieval Japan complete with clouds and ocean waves.

Manhunter: New York

Sierra On-Line
49.95

Aliens invaded New York City two years ago, and now the player must track and report human activities to the alien dictatorship. Players can choose between good—a supporter of the human underground—and evil—a manhunter loyal to the aliens. Features of the program include a map of New York City, split screens, and advanced windowing capabilities.

Mike the Magic Dragon

Anco Software
24.95

Mike, the magic dragon, is trapped in a large castle from which he must escape. Each room is guarded by ghosts and robots, and the floors are mined or have energy barriers. Mike can use his magical powers to get past the physical blockades, but he must use cunning to decipher the security codes of each room before his captors find him.

Murder on the Atlantic

Intracorp
512K
39.95

The player sets sail in the year 1938 on the luxury liner S.S. Bourgogne for a restful cruise. However, a murder on board the ship turns 40 people into suspects and the player into a detective. The detective must search the ship's 600 salons and staterooms, look for 22 clues, decode locks and messages, and interview the suspects in order to solve the mystery. Each package includes an entry form with 16 questions to answer for the \$500,000 prize-giveaway promotion by Intracorp. First prize in the contest is \$10,000. The giveaway ends December 31, 1988. ▶

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BUYER'S GUIDE

Rockford

Arcadia
Distributed by Electronic Arts
34.99

Rockford, the world's greatest archaeologist, guides the players on five expeditions to places such as the Cavern of Craymar (to look for the pharaoh's gold pieces), the seas of Tiresius off the coast of Mexico, and the kitchens of Kyssandra (in search of the Apples of Eternal Youth). Strategy and speed are required to collect the treasures and avoid obstacles such as falling rocks, monkeys, fish, and poisonous snakes. There are four levels of difficulty.

Rush 'N Attack

Konami
joystick optional
39.95

Ambushes, guerrillas, bazookas, flame-throwers, and a fleet of choppers try to stop the player from rescuing dozens of POWs hidden in an enemy camp. For one or two players.

Tanglewood

Microdeal
color monitor
39.95

The object of this graphics adventure is to help Uncle Arthur regain his mining rights to the planet of Tanglewood. The player has ten days to find stolen documents that will prove Arthur's rights to the Inter-Galactic Court. The quest takes the player through gardens, forests, rivers, swamps, underground mines, an earthquake zone, and into the Opposition Control Center. Players must gain the trust and support of the native Tanglians in order to uncover necessary clues to successfully penetrate the Opposition Center and recover the documents. The game is completely mouse-controlled, with no text entry, and contains more than 1200 locations and 700K of graphics.

Thunderboy

DigiTek
512K
34.95

Thunderboy searches for his girlfriend and the villains who have kidnapped her. Along the way he is confronted by deadly butterflies, half-man and half-ape creatures, and dragons.

Who Framed Roger Rabbit?

Bueno Vista Software, Division of Walt Disney Corporation
Distributed nationwide in retail stores
joystick optional
44.95

In this game based on the Walt Disney movie, Judge Doom tries to prevent Roger Rabbit from finding Marvin the Gag King's will and ultimately saving Toontown. The computer version is actually three games in one, each with multiple skill levels, music, digitized speech, and animated color graphics.

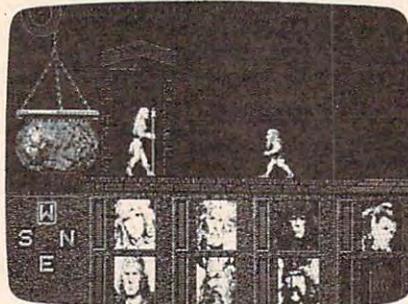
The Bard's Tale II: The Destiny Knight

Electronic Arts
59.95

A continuation of *The Bard's Tale*, this version of the dungeon fantasy game has a new story line and additional dungeons, magic, combat strategies, characters, clues, monsters, and territories. There's a new master magician, the Archmage, and seven timed puzzles titled the Snares of Death. Adventurers can explore six cities and 25 dungeon levels as they attempt to stop the evil force that threatens to destroy the realm. Players go on a quest to find each fragment of the Destiny Wand and restore it to its original form. A clue book is also available for \$12.95.

FANTASY GAMES

For further information, Circle Reader Service Number 203.



Eight companions accompany the player to the Temple Xak Tsaroth to retrieve the Disks of Mishakal in *Advanced Dungeons and Dragons: Heroes of the Lance*.

Advanced Dungeons and Dragons: Heroes of the Lance

Strategic Simulations
512K
39.95

Derived from the first dragonlance module, *Dragons of Despair*, *Heroes of the Lance* takes the player into the ruins of the temple Xak Tsaroth to recover the Disks of Mishakal. The player controls eight companions with various skills and attributes in battles against monstrous Draconians, giant spiders, skeletal undead, and Khisanth, an ancient but formidable black dragon. The only way to destroy Khisanth and save the world from evil is to find the magic key.

Black Lamp

Rainbird Software
24.95

Jolly Jack undertakes a quest to find the enchanted lamps, especially the black lamp, and win the hand of Princess Grizelda. Skull-dropping buzzards, evil eagles, spitting witches, and a fire-breathing dragon confront the player on the journey.

Dungeon Quest

Tritec
3-D glasses optional
39.95

The first in a series of adventures, *Dungeon Quest* takes the player underground and through dungeons in search of a sacred object which has been stolen from the village. The game can be played in 3-D by adding 3-D glasses such as X-Specs from Haitex.

Questron II

Strategic Simulations Inc.
512K
49.95

In this introductory-level game, players travel into the past to prevent six mad sorcerers from creating an evil book of magic.

Vampire's Empire

DigiTek
44.95

Armed with a magic light, mirrors, and garlic, Dr. Van Helsing must fight his

way through the vampire's empire to destroy the Count and stop the vampire's attacks on unsuspecting humans. The game features scrolling, high-resolution graphics and more than 240 screens.

GAMES OF LOGIC AND BOARD GAMES

For further information, Circle Reader Service Number 204.

The Art of Chess

Anco Software
34.95

This computerized chess game includes a library of opening moves, special end-game techniques, optional board coordinates, intuitive graphics, tournament-style chess clocks, and mouse control. Players can click on a piece to show the legal moves or click on a square to show how it is defended. An onscreen performance meter displays

the player's skill level, and the skill level and play style can be adjusted. A player can play the computer or another challenger, watch the computer play itself, or set up a problem for analysis. Games can be replayed, and, with a time-travel control, any number of plays can be rescinded. Help is available through voice or text commentary or cuing, the hint option, and a manual. The board can be dragged for a 3-D view, and custom chess pieces can be created using *Deluxe Paint*.

Crossword Creator

Polyglot Software
dot-matrix printer optional
49.95

Crossword puzzles can be generated with *Crossword Creator* using the pattern-matching dictionary, which contains more than 40,000 words. Completed puzzles can be printed or saved as IFF files. *Crossword Creator* uses either an interlaced or noninterlaced screen, and it supports custom fonts.

Dominoes

Polyglot Software
512K
24.95

Dominoes is the computerized version of the traditional domino game for children and adults. It contains 3-D graphics.

Quintette

Miles Computing
39.95

Derived from an ancient Chinese game, *Quintette* tests the strategies of players against each other. The object of the game is to align five stones in a row or to capture five pairs of the opponent's stones. It can be played in pairs, teams, or against the computer.

Super Puzzle

Signs Etc. by D. Knox
512K
19.95

Super Puzzle contains 90 jigsaw-type puzzles on different subjects for pre-

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school- through adult-level users. There are 18 pictures to solve, each with five difficulty levels, ranging from 4 to 256 pieces. At the lower levels, digitized sound provides the instructions, and when a puzzle is completed, it offers an explanation of the picture. The program is based on the principles of behavioral psychology. Reports show elapsed time, number of correct moves, and number of tries.

Super Puzzle Data Disk

Signs Etc. by D. Knox
Super Puzzle
15.00

Each disk in the *Super Puzzle Data Disk* package provides additional puzzles to use with *Super Puzzle*. Data Disk 1 contains 18 nursery rhyme pictures. The second disk contains pictures of animals and famous places.

SCIENCE FICTION AND SPACE GAMES

For further information, Circle
Reader Service Number 205.

Andromeda Mission

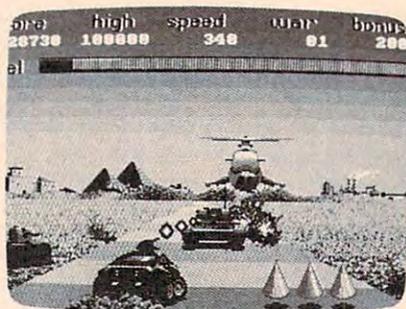
Demonware
Nationwide distribution through retail
stores only; no direct sales
39.95

In the *Andromeda Mission*, the player sets out to save the race from an evil worse than aliens.

Captain Blood

Mindscape
49.95

Fractal and vector graphics techniques are used to create the screens in this space game. Captain Blood must search for and destroy the Captain Blood clones scattered around the galaxy before they drain his energy.



The magnetic levitation unit, Thunder Cloud, assists Thunder Master, a four-wheel drive fighting machine in *Fire and Forget*.

Carrier Command

Rainbird
44.95

The time is June 2166, and the mission is to populate a series of volcanic islands in the Southern Ocean before the STANZA takes control. The player controls the aircraft carrier and its onboard weapons, a squadron of remote fighters, and an amphibious assault division. Arcade-style action takes place in 3-D graphics. The package includes an illustrated mission briefing and operations guide, an audio-cassette soundtrack, and a sticker.

Extensor

DigiTek
512K
34.95

In this space-based game, players compete in a 3-D motorcycle contest on the deserts of Mars. There are 24 levels of difficulty.

Fire and Forget

Titus Software
39.95

The Inter-Galactic Liberation Organization is threatening to destroy Earth, and it is up to the player to save the planet. As commander of Thunder Master, the world's ultimate fighting machine, the player is at the controls of a V-16 triple-turbo engine with four-wheel drive and tetranuclear propulsion missiles. A second player can command the magnetic levitation unit, Thunder Cloud. There are three levels and six conflicts ranging from guerrilla warfare to global war.

Hitchhiker's Guide to the Galaxy

Infocom
14.95

Arthur Dent's house is going to be bulldozed to make way for a highway bypass. This same fate also awaits the planet Earth. The player takes part in a series of intergalactic adventures while trying to salvage his or her home.

Obliterator

Psygnosis
Distributed by CSS
512K
39.95

Drak, the Last of the Obliterators, is a genetically enhanced fighting machine, and he has been summoned by the Federation council to protect Earth. His mission is to infiltrate an alien cruiser using a prototype matter-transporter and then to destroy the craft.



Players must protect themselves from colorful, comical aliens in *Scary Mutant Space Aliens from Mars*.

Off Shore Warriors

Titus Software
39.95

A new sport has evolved on Earth after extraterrestrial pacifists take over the planet. Powerful boats race against each other and the elements in international competition on some of the world's largest lakes. Each boat is armed with only two missiles and one captain. The winner is the one that finishes the game alive.

Pioneer Plague

Antic Publishing
512K
39.95

In this science-fiction game, the player must prevent an out-of-control robotic spaceship from entering the atmosphere. The Pioneer Probe Mark IV was designed to find suitable planets and make them habitable for humans. However, the probe has gone haywire and is destroying everything in its path. Choosing from four monitors in the LifeStar control room, the player can travel to the airship, take the LifeStar to another planet, open the drone programming simulator, or save and load drone patterns. Drones and photon missiles can be used to stop the probe from reaching any other planet. Status instruments help monitor the progress.

Reach for the Stars, Third Edition

Strategic Studies Group
Distributed by Electronic Arts
39.95

One to four players compete to colonize and rule empires in space. Empires can be built and maintained by improving the industry and environment and by building warships. There are four classes of warships, transports, and explorers. Game options include novas, natural disasters, solar debris and xenophobes. A tutorial is included.

Roadwars

Arcadia
Distributed by Electronic Arts
34.99

In the twenty-fifth century, the Galactic Federation rules, and computers and robots do all the work. Moons are connected by roadways controlled by computers. When one of those computers malfunctions, the player, commander of a battlesphere tank, is sent in to repair the roadway and clear the debris. A laser cannon helps blast barricades as well as aliens.

Scary Mutant Space Aliens from Mars

ReadySoft
39.95

Scary Mutant Space Aliens from Mars is a multitasking text-adventure game that features digitized graphics and sound.

Using animated sequences and instant maps, the player must learn to operate a Dryfon 3 Zapometer, dismantle the Ion-Beam Doomsday device, and find a way through the Maze of Neptune.

Space Quest I: The Sarien Encounter

Sierra On-Line
49.95

Roger Wilco, sanitation engineer, crash-lands on an alien planet and faces a multitude of adventures—alien brew at the Keronian Rock Palace, cruising the galaxy in a used spaceship, and finding new life forms. The game also contains arcade sequences.

Space Quest II: Vohaul's Revenge

Sierra On-Line
49.95

Vohaul's Revenge is the sequel to Sierra's Space Quest: The Sarien Encounter. In this adventure, Roger Wilco, a sanitation engineer and space hero, tries to defeat the evil scientist Sludge Vohaul. The game contains animated, cartoon-like graphics.

Space Quest III: The Pirates of Pestulon

Sierra On-Line
49.95

Roger Wilco battles Pestulon pirates to save two software authors, The Two Guys from Andromeda, from a future of writing lifeless arcade games. The player must infiltrate the Scumsoft Software Empire to free the authors. This game is the third in the Space Quest series.

SpaceSpuds

Haitex Resources
512K minimum
124.95

SpaceSpuds is a space-based arcade game designed to be played with Haitex's X-Specs 3-D Stereoscopic Vision System. In the game, the player is in the middle of an intergalactic junk-food freighter crash and must destroy as much fat debris as possible. Colliding with any debris causes the player to add calories and weight until he or she explodes. With X-Specs 3-D glasses, all the action is viewed in 3-D graphics

with accompanying stereo sound. The LCD shutter-glasses plug into the interface, which fits into the Amiga's second joystick port. Custom images can also be created to view with the X-Specs system. The SpaceSpuds package includes the game; the X-Specs 3-D glasses; Molecule3D, a stereoscopic molecular model display program; D3D, which displays static 3D images; and Cubes3D, a game in which animated 3-D cubes dance across and out of the screen.

Starglider II

Rainbird
44.95

Aliens from a multitude of planets attack colonists in this space-based game. It is up to the players to defend the colonists and destroy the aliens and their Egron patrol crafts. The game features a 3-D instrument panel, weapons systems, sound effects, digitized speech, multiple controls, game options, and animation. A novella written by James Follet and a quick-start card are included. ▶

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Star Wars

Broderbund
39.95

Based on the George Lucas movie of the same name, this arcade-style game pits Luke Skywalker in an X-Wing Fighter against the Empire's Death Star.

Tracers

Microillusions
34.95

Thieves, thugs, and terrorists have invaded the interiors of all the computers, and as a member of the Integrated Human Operations Police, Techopolis Precinct, the player must find a way to stop them. The program includes music and sound effects and accepts keyboard or joystick controls.

The Twilight Zone

First Row Software Publishing
39.95

At first, the several stories in this program may seem unrelated, but as play progresses they merge into one plot with a twist ending. Modeled after the television series, the program includes the *Twilight Zone* music and soundtrack as well as the characteristic prose style of Rod Serling.

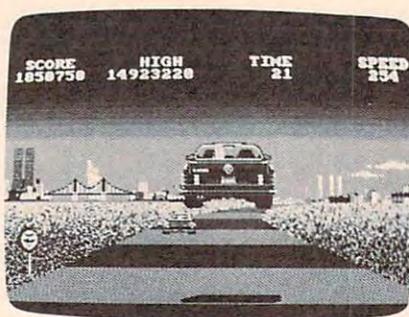
SIMULATIONS

For further information, Circle Reader Service Number 206.

Crazy Cars

Titus
39.95

Crazy Cars lets computer drivers experience the speed of some of the world's fastest cars as they race through six courses—Arizona, space shuttle, Florida, mountain, Malibu, and New York. Players start out in a Mercedes 560 SEC, and, after successfully completing all six races, they can move up to a Porsche 911 Turbo, Lamborghini Countach, and finally a Ferrari GTO. Speeds in the cars can reach up to 189 mph. There are 72 levels of play accented by sound effects and color graphics.

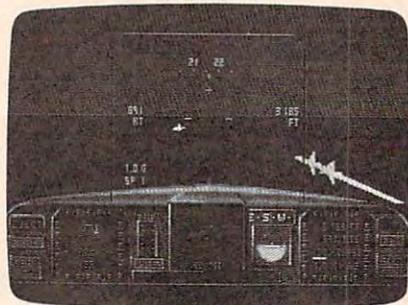


In *Crazy Cars*, players can race a Mercedes 560 SEC through New York City at 160 mph.

F/A-18 Interceptor

Electronic Arts
512K, one megabyte recommended
49.95

Amiga flyers can take control of the F/A-18 Interceptor and lead combat missions to shoot down enemy aircraft and defend Air Force One. This flight simulation contains six combat missions, free flight, and a training mission, all set in the San Francisco area. In free-flight mode, pilots can try to fly under the Golden Gate Bridge, bomb the Transamerica Pyramid, or glide over Alcatraz. In combat and training missions, players can land the F/A-18 on the USS *Enterprise* aircraft carrier or fly the land-based F-16 Falcon. By enrolling in the flight school, players can qualify for additional missions. Weapons include Sidewinder missiles, 20mm Vulcan cannon, and Sparrow missiles. Game features include 3-D graphics, realtime digital map, 360-degree first-person perspective, zoom function, ejection seat, and sound effects such as explosions, cannon fire, landing screeches, and the jet engine.



Pilots can launch sidewinder missiles against enemy targets in the flight simulator, *F/A-18 Interceptor*.

Flight Path 737

Anco Software
24.95

Computer pilots learn to fly the commercial 737 jet in this flight simulator. Players start with solo flight and gradually work their way up to international license. The flights take off from an airfield surrounded by mountains, and the pilots must navigate the aircraft to a landing in a valley on the other side.

Harrier Combat Simulator

Mindscape
512K
49.95

Developed in conjunction with the British Aerospace, this game simulates air-to-air and air-to-ground combat flight of the Harrier aircraft. Players can maneuver the jet through vertical takeoffs, barrel-roll attacks, air and ground combat, and firing heat-seeking Sidewinder missiles and 30mm cannons. The mission is to destroy the enemy's headquarters 500 miles away without being detected and shot down by a supersonic MiG-23. Onscreen instruments, aircraft response, and visual feedback help guide the player. There's a practice mode for developing flight and combat skills, and the player can choose pilot, commander, or ace level for the combat mode.

Harrier Mission

Anco Software
24.95

As a beginning pilot of the Harrier fighter, the player must learn to land on the carrier, hover, and evade incoming missiles. In the combat missions, the pilot can use sweep radar to find the enemy and then launch heat-seeking missiles or use gunnery skills to shoot down enemy aircraft. Releasing chaff can help you avoid being shot down, but as pilot, you must also keep a close eye on fuel levels to make it back to the carrier. Sea swells and cross winds could make the landing treacherous.

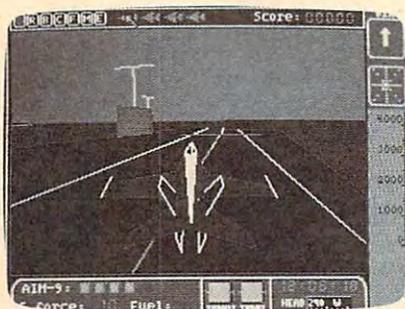
Jet

SubLogic
512K, mouse, color or monochrome monitor, joystick optional
49.95

Players can take the pilot's seat of an F-16 Fighting Falcon or F-18 Hornet jet fighter to track and shoot down MiG-

www.commodore.ca

GAMES



Players must learn to take off from and land on aircraft carriers in SubLogic's *Jet*.

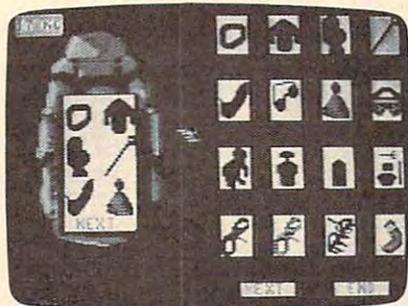
cludes 22 players, the football, and the ball's shadow. The view of the field is from the press box, and action follows the player with the ball. A 30-second clock can be implemented for more realistic play. Players' energy levels decline as the game progresses. For one or two players.

CFL
Beta Software
Gridiron
14.95 each

More than 450 fictional Computer Football League players are available on each CFL disk. These disks can be used with *Gridiron* from Bethesda Softworks to create 2-20 teams, each with a budget of \$8 million. Players' names, speed and strength ratings, salaries, and years of experience are listed for that season. However, players' attributes may change on subsequent disks, and all players eventually retire. Disks for year 1 and 2 are currently available at \$14.95 each.

Downhill Challenge
Brøderbund
29.95

In this interactive ski-racing simulation, the players compete in downhill, slalom, giant slalom, and jumping. There are separate runs for beginning, intermediate, and advanced skiers. Action appears in 3-D animation.



Players must carefully choose the items they will carry in their backpack before beginning the climb in *Final Assault*.

Final Assault
Epyx
39.95

Thrill-seekers can practice climbing some of the world's most treacherous peaks with this mountain-climbing game. Mountain climber Eric Escoffier

21 and MiG-23 fighters. This fighter-jet simulation features full-screen heads-up display, search radar, an automatic target-tracking computer, ejection seat, multiple 3-D windows, a missile's-eye view of targets, and a multiplayer option. There's a free-flight mode for noncombat maneuvers, as well as various options for aerial dogfights or target strikes. Scenery includes clouds, 3-D ground targets, enemy aircraft, and an aircraft ground shadow.

SPORTS GAMES

For further information, Circle Reader Service Number 207.

1987 College Football Data Disk
Beta Software
Gridiron!
14.95

The *1987 College Football Data Disk* contains the speed and strength ratings for all 1987 Big Eight and 12 top-20 college football teams to use with *Gridiron!* from Bethesda Softworks. Teams include OU-Miami, USC, UCLA, Texas A & M, Michigan State, Florida State, Auburn, Notre Dame, and others.

4th and Inches
Accolade
joystick
44.95

4th and Inches features three screens—a scrolling football field, a statistical screen that shows the players' performance and personal records, and a play menu from which to choose offensive and defensive plays. The game in-

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provided design assistance into the rock faces, glaciers, crevasses, and chasms found along the trails. Players must choose which supplies to backpack from over 50 items. Onscreen variables include temperature, time, altitude, and physical state of the climber. There is a training course before the climb, and a safety guide is provided.

Grid Start

Anco Software
24.95

In this racing game, the player drives a six-gear Formula 1 race car over six circuits, competing against 23 other cars. The player must learn to master rapid gear shifts, braking, and acceleration just to stay on the course. The power-boost option is reserved for extra speed during crucial maneuvers. The game contains three categories—novice, amateur, and professional—and each has its own championship table.

Hole-in-One Miniature Golf

DigiTek
512K
39.95

Golf enthusiasts can practice their putting with this computer version of miniature golf. The two-disk set includes four courses for a total of 72 holes, with obstacles ranging from a windmill to the inside of a pinball machine. The mouse interface is used to point and click shots. Up to four players can play at one time.

Karting Grand Prix

Anco Software
24.95

In this go-cart racing game, players must choose their tires and sprocket size to suit the track conditions—dry, wet, or slippery. As players race around curves and bends, they have to keep an

eye on their opponents as well as the wear and tear on the tires.

Mini-Putt

Accolade
joystick
44.95

One to four players can play on their choice of courses with each course representing a theme, such as famous movies, sports, or countries. Players can view the action from either the golfers-view window, the overview window, or the play-screen window. Three types of obstacles are found on the course: paths, such as bridges; set-backs, consisting of pop-up barricades; and timing, such as windmills.

Street Sports Basketball

Epyx
39.95

One or two players compete in this neighborhood-style basketball game. The court is set up in the schoolyard, alleyways, or a park; and three players for each team are chosen from ten neighborhood dribblers. Much of the strategy involves how well each player has put together his or her team and how well the hoop-shooters can avoid local obstacles such as oil slicks and fences.

Superstar Ice Hockey

Mindscape
512K
49.95

One or two players can face-off against each other or the computer in this ice hockey game. In this multilevel game, the player can be the owner and general manager, trading and recruiting players or sending the team to a training camp. As head coach, the player could set and change the lines and plan the strategies. Or the player can act as goalie or center and play on the team.

This simulation allows for two-on-two, four-on-four, or six-on-six games. A team can compete against 19 other teams in four divisions for up to nine seasons.

TV Sports Football

Cinemaware
one megabyte
49.95

TV Sports Football offers more than 28 football teams and a 16-game schedule with postseason playoffs. It also contains pregame warm-up shows, broadcasters, cheerleaders, fans in the stands, and a half-time show with a marching band. The computer player can call the shots as the coach or play on the field as a quarterback, running back, or wide receiver. The player sets up the offense and the defense based on individual and team statistical records. *TV Sports Football* includes arcade action on the field, color graphics, and animation. The game is designed for one or two players competing against each other, for one player against the computer, and for computer against computer.



Cinemaware's *TV Sports Football* simulates an actual televised football game complete with cheerleaders, fans, a marching band, and sports commentators.

World Tour Golf

Electronic Arts
39.95

This version of *World Tour Golf* is designed to take advantage of the Amiga's graphics capabilities. Players can choose from over 20 well-known golf courses, or they have the option to design their own course with the golf course construction set. Up to four human or computer opponents can play, or the player can model a golfer after a favorite pro. A split screen allows players to see the overhead and golfer's-eye-view simultaneously. Weather conditions can also effect the action.

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GAMES

TEXT AND ROLE-PLAYING

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Ballyhoo

Infocom
14.95

The game is set at the circus as the player tries to find the abducted daughter of the circus boss. As the player searches, he or she explores the world of the circus by walking the tightrope and watching clowns.

Bureaucracy

Infocom
512K
14.95

The object of this game is to get the bank to acknowledge a change-of-address form. While trying to complete this seemingly simple task, the player becomes entangled in a series of bureaucratic mishaps taking place in a variety of locales—from the feeding trough of a greedy llama to the lofty branches of a tree deep in the Zalagasan jungle. The player must solve puzzles to outsmart the bureaucrats.

Cutthroats

Infocom
14.95

As an expert diver, the player agrees to help salvage the sunken treasure from one of four shipwrecks off Hard-scrabble Island. The secrets, and obstacles, to the treasure lie with a gang of cutthroats.

Enchanter

Infocom
14.95

The player becomes a novice magician sent into single-handed combat with a dark and fierce power, the Evil Warlock, who controls the kingdom. The player must defeat the Warlock by using spells acquired along the way. This game is the first in the Enchanter Trilogy.

Hollywood Hijinx

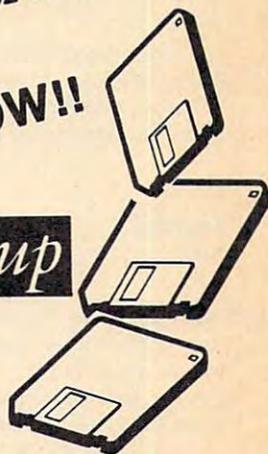
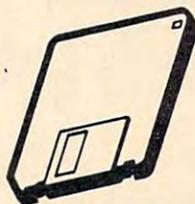
Infocom
14.95

The player's Uncle Buddy Burbank and Aunt Hildegard have passed away, but have left a Malibu mansion, filled with Hollywood memorabilia. To inherit the house and its contents, the player must find ten wacky treasures hidden throughout the house and the grounds. ▶

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The Honeymooners

First Row Software Publishing
39.95

Based on the television series, "The Honeymooners," which starred Jackie Gleason, this interactive, role-playing game continues that comic tradition.

Infidel

Infocom
9.95

The game is set in the desert of Egypt near the banks of the River Nile. The player must find the buried entrance to the last great pyramid, and once inside, seize priceless treasures.

Leather Goddesses of Phobos

Infocom
14.95

Leather Goddesses of Phobos is a spoof of 1930s pulp fiction and features both a male and female playing mode. The story begins with a regular patron of Joe's Bar in Ohio being kidnapped by minions of the Leather Goddesses of Phobos, who are plotting to take over Earth. If the player escapes, he or she will begin an interesting journey through the solar system. Materials must be collected by the player in order to defeat the Leather Goddesses and save Earth. There are three levels of play—tame, suggestive, and lewd.

A Mind Forever Voyaging

Infocom
512K
14.95

The player, as the world's first conscious intelligent computer, is given the task of traveling into a simulation in the year 2031.

Moonmist

Infocom
14.95

A ghost roams Tresyllian Castle on the misty coast of Cornwall, England. The ghost is discounted as legend until the player's friend Tamara is threatened by the White Lady. After arriving at the castle, the player encounters a strange cast of characters and must solve a mystery and find hidden treasure. The game has four variations, each with a different antagonist.

Seastalker

Infocom
9.95

Seastalker is designed for newcomers to the Infocom line of interactive fiction. The player assumes the role of a scientist whose latest invention is a Scimitar, a two-person submarine. An urgent message arrives that the Aquadome is being attacked by a sea monster. The scientist and his assistant board the Scimitar and try to save the Aquadome.

Sorcerer

Infocom
14.95

In this second game of the Enchanter Trilogy, the player has advanced to the Circle of Enchanters. Challenges in this game include rescuing the player's mentor Belboz and defeating the evil demon Jeearr.

Spellbreaker

Infocom
14.95

In the final game of the Enchanter Trilogy, the player is the leader of the Circle of Enchanters and is the most powerful magician in the land. However, the magic is failing, and the player must save the kingdom before the magic powers fade.

Starcross

Infocom
9.95

The player journeys through space, meeting various interstellar beings and finding an alien spaceship that spins so rapidly that it produces an artificial gravity. While exploring it, something discovers the player. The object of the game is to unravel the mystery of the spaceship.

Suspect

Infocom
14.95

The player attends a masquerade ball and mingles with the top society and business personalities. The evening goes well until the player is framed for murder. Observation, deduction, and interrogation must be used to come up with proof of innocence.

Suspended

Infocom
9.95

The player is in charge of a computer complex 20 miles below the surface of the planet. The computers control the weather, food production, and the transportation system on the planet's surface. The player must control robots to keep the computers running, but each robot is limited in its abilities.

Trinity

Infocom
512K
14.95

The last day of the player's vacation in London also turns out to be the first day of World War III. An H-bomb is about to vaporize the city, and the player must escape to a secret universe. Players can explore this universe and learn to control its inexorable power.

Twilight's Ransom

Paragon Software
Distributed by Electronic Arts
39.95

Maria Chavez has been kidnapped and is being held for ransom. The player must find out why she has been abducted, where she is, and how to save her. During the hunt, the player meets a variety of hustlers and night people on the streets of Liberty City. The game includes more than 175 locations in the city to explore, and there is a picture disk with more than 20 illustrated scenes. The package contains clues that can help solve the mystery, a picture disk, and documentation.

Wishbringer

Infocom
14.95

As mail clerk in a small town, the player must deliver a ransom note for a kidnapped cat. This takes the player to the outskirts of town and on a series of adventures to Wishbringer, a stone possessing magic powers.

The Witness

Infocom
9.95

In *The Witness*, a man named Freeman Linder has received threatening phone

calls and letters. Mr. Linder hires the player as a detective, but before Mr. Linder can tell all he knows, he is murdered right before the player's eyes. As the witness, the player must figure out who committed the crime, how, and why.

Wizard Wars

Paragon Software
Distributed by Electronic Arts
39.95

Wizards, elves, warriors, and other fantasy characters populate this game in which the player travels through three dimensions in an attempt to defeat the evil Wizard Aldorin. As Temeres, the player must learn up to 30 spells, mix potions, solve riddles, and defeat a wide variety of creatures—from dragons and elves to hellhounds and skeleton warriors—in battle. The journey takes place in a 3-D maze of the mind, body, and an area beyond space. There are over 50 characters in the story, ac-

cented by sound effects and scrolling graphics. The package also includes props to use with the story, a spell book, and a user's manual.

Zork I

Infocom
14.95

The player travels to the ruins of an ancient empire far underground to search for the treasures of Zork. *Zork I* is designed for beginning adventure-game players.

Zork II

Infocom
14.95

In this follow-up to *Zork I*, the player journeys to the long-hidden region of the empire dominated by the Wizard of Frobozz. Exiled years before, the Wizard is a force that needs to be reckoned with, materializing at odd moments to

cast spells. Explorations include a maze of oddly angled rooms and the garden of the unicorn.

Zork III

Infocom
14.95

In the third of the Zork series, the Dungeon Master draws the player deep into the Great Underground Empire where nothing is as it seems. In order to complete the story, the player must discover the reason for being in the empire and what needs to be accomplished there.

Zork Trilogy

Infocom
49.95

The *Trilogy* includes *Zork I*, *Zork II*, and *Zork III*. The adventure takes place in the ruins of an ancient empire far underground. ▶

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VARIETY GAMES

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Craps Academy

Microillusions
39.95

A follow-up to *Black Jack Academy*, *Craps Academy* can help players learn to play casino-style craps.

4 in One. Easy but Fun.

Polyglot Software
29.95

Just like the title says, *4 in One* contains four games on one disk. In *Slotcars*, one or two players can drive on seven different screens and try to blast their opponent. Players try to entangle each other in a mass of wires in *Circuit-Mania*. Pieces of puzzles must be rearranged to form six color pictures in *ShufflePuzzle*. And in *Follow That Tune*, the player tries to follow a boy as he jumps from pedestal to pedestal playing a tune.

SPOC Collection

S.P.O.C.
25.00

SPOC Collection contains 35 games—arcade, adventure, and educational—and puzzles to play on the Amiga. The programs are not copy-protected. A demo disk is available for \$5.

WAR GAMES

For further information, Circle Reader Service Number 210.

Blitzkrieg at the Ardennes

Command Simulations
one megabyte
59.95

The one-megabyte version of *Blitzkrieg at the Ardennes* is an enhanced version of this war-strategy game, which depicts the World War II Battle of the Bulge. New features include hidden movement by units under specified conditions, a modified attack rule in which units in cover do not have to attack adjacent enemies, aerial reconnaissance, and the ability to have reinforcements arrive late, early, or damaged according to historical accounts. Additional sound and graphics have been added. The one-megabyte version is available only from Command Simulations. An upgrade from the 512K version is available for \$10.

Gettysburg: The Turning Point

Strategic Simulations
512K
59.95

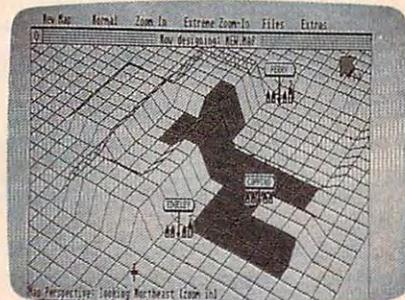
The three days of fighting at Gettysburg, Pennsylvania, in 1863 are reenacted in 42 turns with this war game. The game features a command-control system to show the effects of the com-

manders, ammunition points, fatigue rules, and variable reinforcement. Three versions—basic to advanced—are available. The computer can play either side. For one to two players.

Shiloh: Grant's Trial in the West

Strategic Simulations
512K
44.95

In April 1862, General Grant's Union forces were caught in a surprise attack at Pittsburgh Landing, on the Tennessee River, by General Johnston's Confederate Army of the Mississippi. This program recreates those two days of battle in 15 turns. The terrain of Shiloh is displayed on a 30 × 30 grid battlefield, and all the brigades and artillery are included. Play can be switched between strategic and tactical display, and a morale option is included for the untried troops. The program consists of three games—introductory, intermediate, and advanced.



A built-in editor allows players to design new battlefields with a 3-D perspective in *The Universal Military Simulator*.

The Universal Military Simulator

Rainbird
49.95

Five historical battles—Gettysburg, Arbella, Hastings, Marston Moor, and Waterloo—can be reenacted with this game. The locale, geographical features, troops, and armaments are historically accurate. With the built-in editor, new maps, order of battles, objectives, and what-if scenarios can be designed to vary the historical battles or create new ones. Battles take place on a 3-D grid system so the player can view the field from any angle or zoom in to an area. Digitized sound accompanies the play.



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AmiLink!

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AmiLink! is a software program that can be used with a system of Amigas and super-VHS video decks to control professional video editing. With the software, an Amiga can control up to 32 video-editing decks using SMPTE to perform A/B roll editing. Other functions include edit-decision-list processing for offline editing, storyboard creation, single-frame animation recording, and fully automated video editing. The system also requires V-LAN, a hardware system from VideoMedia.

Animation Effects

Hash Enterprises
one megabyte
49.95

Special effects such as flips, wipes, fades, scrolls, and spins can be added to animation programs with *Animation Effects*. This program can use any resolution of an IFF picture as a graphic over a genlocked background. The output can be lo-res, hi-res, or HAM 16-color animations that play back in realtime. Scripting of the multiple images allows a variety of spinning and moving parts to appear on the screen at the same time. The vignettes are saved to disk, and the output is overscanned for use with video.

Animation Flipper

Hash Enterprises
one megabyte
59.95

Animation Flipper enables the designer to preview, or pencil-test, the cell animations. It packs a series of pictures together onto a disk and then plays them back as an animated sequence. Playback includes mouse control of direction, single stepping, and a variable playback rate. *Flipper* can be used with any resolution of IFF pictures. When used with other *Animation* programs

from Hash, the pictures can be drawn or touched up with a paint program, digitized pictures can be imported, and screens can be packed into animated vignettes. The mouse is used to pick the order of the pictures for cycling. Files are then automatically saved to disk in a batch.

Animation Multiplane

Hash Enterprises
one megabyte
89.95

Foregrounds and backgrounds can be combined into one screen with *Animation Multiplane*. Animation screens created with Hash Enterprises programs or other programs using IFF format can be imported, and the program supports all resolutions. Animations designed with this program can also include dissolves, transparency, strobing, brightness and contrast variation, drop shadows, color filtering, and pixelation. Motion channels can be straight-line, curve-fit, or bouncing-ball.

Animation Stand

Hash Enterprises
one megabyte
49.95

Animation Stand provides the camera moves—panning, zooming, and fading—for creating animation on the Amiga. It generates overscanned, 4096-color, realtime-playback disk files that can be combined to form animated vignettes. The images can be in any resolution, including HAM, interlace, and overscanned. For zooming into the picture, an interpolation technique is used to prevent jaggies. The preview mode displays each frame individually.

Digi-View 3.0

NewTek
Digi-View hardware
199.95

The software with the *Digi-View* color video capture system has been upgraded to include a line-art mode and an overscan mode with a maximum 768 × 480 pixel resolution. This allows borderless screen images to be created. Images can be detailed with 64 colors in the half-brite mode. In the line-art mode, black-and-white art, detailed two-color images, and logos can be digitized.

Invision

Elan Design
512K, LIVE! video digitizer, VCR or
video source
129.00

Invision is video effects software that can be used with the LIVE! video digitizer to create realtime moving images and special effects. Once the effects and images are created, they can be assigned to the mouse and keys to produce animation, presentations, educational tapes, and music videos. The program can colorize, freeze frames, strobe, capture, play back, create mosaics and mirroring, and mix stills and motion from video sources. Images from other software can be imported and mixed with the frames in *Invision*.

Photon Video: Cell Animator

Microillusions
512K
149.95

Photon Video: Cell Animator enables Amiga users to create professional-style animation. All the frames are numbered, so each can be called over and over in any order. The artist selects the frame order, speed, and delays between frames. Each frame has a palette so that it can be individually edited with a built-in paint program. Digitized sound can be added to the frames or groups of frames. A continuous-play loop allows the designer to play selected frames repeatedly, and the animation can be previewed with the pencil-test function. Animation can be recorded with *Photon Video: Transport Controller*, also from Microillusions. *Cell Animator* is compatible with most third-party paint, animation, and rendering programs.

Photon Video: Transport Controller

Microillusions
external video controller interface
299.95

Photon Video: Transport Controller links animation and graphics programs with videotape machines by regulating videotape frame-by-frame controllers such as the Lyon-Lamb and Video Media's V-Lan. The *Transport Controller* can record from 1 to 300,000 frames each time an image is displayed, and it can be set to combine short realtime Amiga



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animations into longer sequences. The in and out edit points can be determined with either mouse or keyboard, and video time-lapse sequences can be created with the time-lapse utility. The program provides manual control over the tape machine, supports multitasking, and uses less than 50K of memory. *Transport Controller* has a modular software design for future upgrading. It's designed for use with *Photon Video: Cell Animator*.

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AmigaTEX

Radical Eye Software
one megabyte
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AmigaTEX, a document compiler, is more a typesetting program than a conventional desktop publishing package. It includes a screen previewer, a bibliography database program, *LaTEX*, *SliTEX*, and more than 1500 previewer fonts. The program uses ligatures, automatic hyphenation, and line-and-paragraph-breaking algorithms for the typeset-style output. It can handle complex mathematical equations and set up complex tables. *AmigaTEX* is computer-independent and programmable. With the multitasking and message-passing

capabilities, the program can be used to edit, compile, preview, and print at the same time. The package does not include a text editor and has limited graphics capabilities. It uses *ARExx* for communication between an editor and the main processes. Printer drivers are available for \$100 for printers such as the H-P LaserJet Plus; the Epson LQ, MX, and FX; the ImageWriter II; and 300-dpi PostScript printers. *AmigaTEX* consists of ten disks.

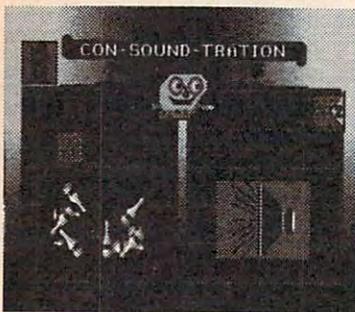
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Signs of any length with letters in eight sizes, from 3/4 inch to 6 1/2 inches, can be constructed with *The Banner Machine*. Ten letter styles, 20 backgrounds, and 30 borders are included in the program. Signs up to 14 inches high can be created, and two fonts can be printed on the banner in one pass. A version containing only five fonts is available for \$79.95, and six additional fonts can be purchased for \$79.95.

City Desk 2.0

Microsearch
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199.95

Version 1.1 of *City Desk*, a desktop publishing package, has been upgraded with several new features. The new version includes text flow around irregular graphics, automatic hyphenation, a full-screen text editor, a new graphics editor, additional PostScript and H-P

Series II font support, and ruler and x,y -coordinate displays. The gray scale offers 4 shades on the screen and up to 16 for printed output. Registered users of *City Desk* 1.0 and 1.1 can upgrade to 2.0 for \$35.

ComicArt

Gold Disk
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ComicArt modules contain additional backgrounds and characters to use with *ComicSetter*. Each module includes two disks and covers a specific theme—super heroes, science fiction, or funny figures. Each module is sold separately.

ComicSetter

Gold Disk
one megabyte
99.95

Amateurs and professionals can create comic strips with the *ComicSetter*. Any number and size of panels can be placed on a page along with balloons,

speech, characters, and backgrounds. The package includes a library of characters and backgrounds, and custom scenes can be created with the built-in design and drawing tools. Amiga fonts are supported, and there are also comic-style fonts. Completed comics can be printed on a variety of printers. *ComicArt* disks containing additional backgrounds and characters are also available.

Professional Page 1.1

Gold Disk
one megabyte
395.00

Professional Page 1.1 is a desktop publishing package that includes full-color and mechanical separations, color-printer support, CAD, and WYSIWYG word processing. Word processing features include flush and left-, right-, and center-justify modes; user-definable tabs; cut, paste, copy, style, and color of text blocks; search and replace; hyphenation; font sizes as large as 127 points; and a variety of text styles. Text

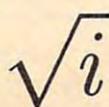
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For information about AmigaTeX, go down to your local college bookstore and look at a copy of *The TeXbook* by Don Knuth, and *LaTeX: A Document Preparation System* by Leslie Lamport. These are the handbooks for AmigaTeX; since they were typeset in TeX, they also provide an example of the capabilities of AmigaTeX. Then, write to the address below for your free demo disk.

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can be imported from other word processors, and graphics can be imported from any package using IFF format. There are five levels of magnification, page-composition tools, boxes, and draft and thumbnail printing. Dot-matrix printers with graphics capabilities and PostScript page output are supported.

Shakespeare Version 1.1

Infinity Software

512K (one megabyte recommended)

225.00

Shakespeare has been upgraded with several new features. Version 1.1 includes automatic column creation, new printer drivers, and alignment guides to help place text and graphics. With the new memory-management functions, data can be sent automatically or manually to fastRAM. Documents can be designed using page-processing and graphics tools such as lines, borders, stretching, and cropping. The program supports both color and black-and-

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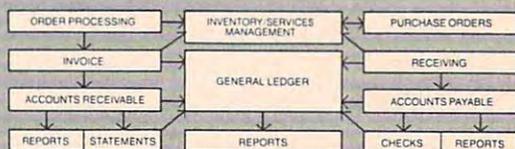
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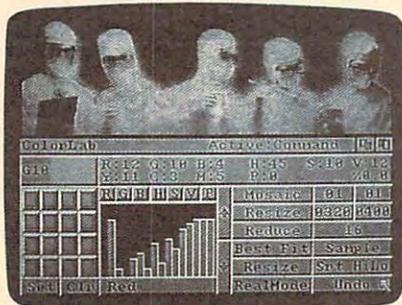
GRAPHICS PROGRAMS

For further information, Circle Reader Service Number 214.

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Baudville
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Deluxe Photo Lab combines the features of a paint program, poster maker, and color processor into one package.

Deluxe PhotoLab

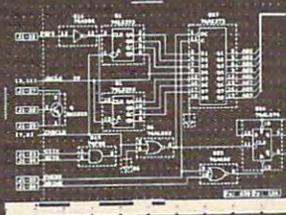
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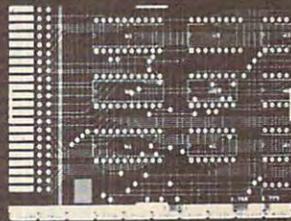
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maps, pictures can be created as large as the memory permits. There are 18 drawing modes such as blend, mix, shade, add, and subtract; and there are four fill modes. The paint program includes standard paint and draw tools, custom brushes, and split-screen magnification with variable zoom. The color processor can be used to enhance art and digitized pictures, resize the pictures, analyze color usage with a built-in histogram function, and convert images from one resolution to another. The color palette can be sorted, separated, and processed by any of the seven parameters, and color registers can be merged or averaged. With the print program, pictures up to 10 × 10 feet can be printed on an Amiga-supported printer. Any number of copies can be printed, the printout can be restarted at any point, and the poster can be previewed before printing.

Express Paint Version 2.0

PAR Software

512K (one megabyte recommended),
Kickstart 1.2 or higher
99.95

Version 2.0 adds several new features to the original *Express Paint*. This paint program includes a 64-color extra-half-brite mode, support for PAL/NTSC video standards and overscan, and PostScript compatibility for printing. It also contains special-effects tools such as rotating, distorting, stretching, mirroring, double-arc curves, loops, arrowheads, and spray tools. Text can be imported from other word processors, and additional fonts can be selected. Version 2.0 retains the paint features of the original version.

Interchange

Synthesis

3-D graphics program
49.95

Interchange can be used to convert an image created with a 3-D graphics program to another 3-D program. Color and texture information can also be converted. The master program includes conversion modules for *Sculpt 3D* from Byte by Byte and Aegis Development's *VideoScape 3D*. Additional conversion modules are available for *Forms in Flight* and *Turbo Silver* for \$19.95 each.

IntroCAD 2.0

Progressive Peripherals and Software
79.95

Several new features have been added to *IntroCAD*, an introductory CAD system. Version 2.0 now includes a thick-line function, angle degrees, the ability to store CAD-drawing files in *Aegis Draw* format, support for single-level gray scales, and expanded printer support. This drawing program can be used for report illustrations, flow charts, floor plans, time lines, brochures, advertising graphics, and interior design. Standard features include lines, boxes, circles, arcs, adjustable text size, isometric and projection gridding, snap-to-grid or drawing, user-selectable *x*- and *y*-axis, and pop-up rulers. A user-defined parts library allows parts to be grouped and ungrouped. The program uses *Intuition*, the Amiga's user interface.

The MindLight

Visual Aural Animation

512K
169.00

The MindLight combines graphics animation with audio input to produce a musically animated show. A MIDI sequencer plugs into the joystick port of the Amiga to accept input from external sound sources and a microphone. The animation software, *Visual Aurals I*, supports IFF-standard pictures and brushes and includes 84 visuals. The graphics can be cued to the sound input through a variety of onscreen controls so that the animation responds to the sound impulses. *The MindLight* can be used to create music and graphics shows for presentations, entertainment, and video. The package includes the hardware interface and software.

3-Demon

Mimetics

one megabyte
99.95

3-Demon is a 3-D object editor that can be used to create and edit 3-D objects. Solid 3-D objects can be formed in a single 3-D window by using the mouse to spin, flip, stretch, slice, merge, divide, multiply, and build the objects. The object editor is a superjet of sculpting tools to read, write, translate, and modify images from *VideoScape 3D*,

Sculpt, *Silver*, and *Forms in Flight*.

Objects can have an unlimited number of surfaces, with one of 4096 colors per surface. The program also features WYSIWYG, zoom, fish-eye perspective, hierarchical objects, and movable grid and axis objects. Completed objects can be printed or saved as IFF-standard pictures.

PageRender 3D

Mindware International

159.95

PageRender 3D is an object-modeling, 3-D rendering, and ray-tracing program for the Amiga. It supports 3-D stereo vision and both Script and icon/mouse interfaces. When used with *PageFlipper Plus F/X*, the system can generate 3-D animation.

PRO-BOARD

Prolific

one megabyte
475.00

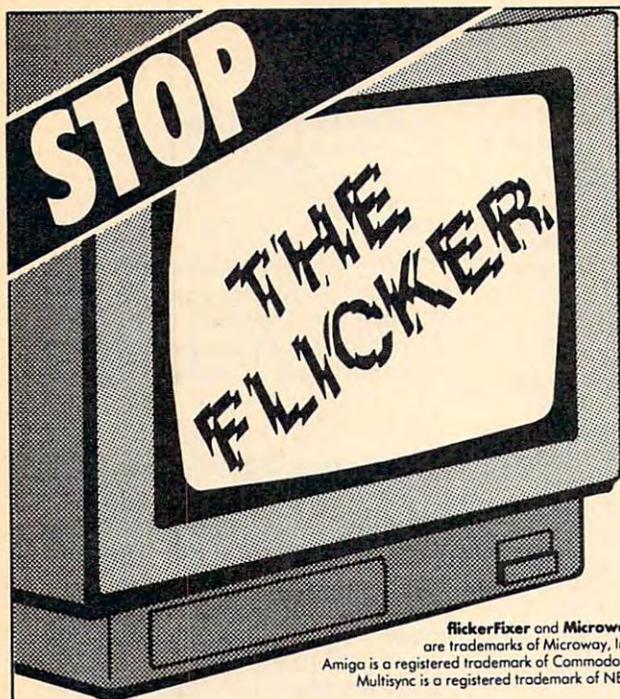
PRO-BOARD is a printed circuit board (PCB) program that supports a four-layer PCB. It is a single-line, autoroute program that uses a 0.025-inch grid on the PCB with up to 0.001-inch accuracy for library parts. Features include a guide line to help the user finish routing a PCB, automatic layer flipping when a via is added, automatic layer selection, and automatic generation of power, ground plane, and *x,y* coordinates. The program uses intelligent function keys and hot keys. Function keys can be activated by pressing the keys or clicking on the icon at the bottom of the screen. A demo disk is available for \$15.

PRO-NET

Prolific

one megabyte
475.00

PRO-NET is a schematic capture, CAD program for designing printed circuit boards (PCB). It offers automatic device-number assignment and automatic generation and insertion of the page reference for signals. Device numbers are generated according to three different zones selected. In addition to standard commands such as copy, move, and repeat, the program also features variable template sizes, DeMorgan Equiva-



flickerFixer eliminates your Amiga 2000's interlace flicker and visible scan lines. The result: **superior quality color or monochrome graphics and text** — for a full range of demanding applications, including CAD, desktop publishing, graphics, animation, and video.

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lence, orthogonal rubber-banding, optimized autopan for automatic scrolling, an intelligent zoom, and a library of 1000 parts. A demo disk is available for \$15.

CLIP ART AND FONTS

For further information, Circle Reader Service Number 215.

Architectural Design Disk

*Antic Publishing
VideoScape 3D, Sculpt 3D,
or Interchange*
34.95

The *Architectural Design Disk* includes blueprints, models, design tips, and components such as doors, windows, arches, roofs, walls, stairways, and other architectural accoutrements to add to 3-D programs. *Human Design* figures can also be added to the drawings.

Clip Art Disks

*Magnetic Images
graphics software*
19.95 each

Magnetic Images offers eight disks of clip art to use with Amiga graphics programs in high and medium resolutions. Images on Disk 1 feature subjects such as computers, the office, music, school, travel, and transportation. Disk 2 covers business, sports, animals, parties, and religion. Disk 3 has graphics relating to food, borders, medicine, the Old West, and newsletters. Hands, seasons, pirates, tools, personal, and American objects are the categories for Disk 4. Disk 5 features theater, corners, zoo, menu, and outdoor items. Disk 6 is the ad man's special for computer products. Disk 7 contains nautical, gambling, sea

life, outdoor, and knight images. Christmas graphics are found on Disk 8. Each disk is sold separately for \$19.95.

Fancy 3D Fonts

*Byte by Byte
3-D graphics program*
79.95

Fancy 3D Fonts provides three proportionally sized font sets to use with *Sculpt 3D* and *Animate 3D* to create titles and visuals. Bold emulates Helvetica Bold, Ital represents Bookman Italic, and Fanc portrays Clarendon Medium.

FontSet 1

*Gold Disk
word processor or desktop
publishing system*
34.95

This disk contains eight typefaces in four sizes for a total of 32 fonts. The fonts are in the standard Amiga font format, and most of the fonts support the international character set. Available fonts are Times, Helvetica, Courier, Symbol, Alexandra, Hamilton, Freeform, and Ashwell. With the included utility, Amiga fonts can be resized.

Future Design Disk

*Antic Publishing
VideoScape 3D, Sculpt 3D,
or Interchange*
34.95

Futuristic designs for space objects such as spacecraft, stations, bases, vehicles, robots, and androids are included on this disk to use with 3-D programs. It also includes blueprints, models, component parts, and construction tips. The space-style drawings can be detailed with paint programs.

Human Design Disk

*Antic Publishing
VideoScape 3D, Sculpt 3D,
or Interchange*
34.95

This disk contains modular male and female skeletal-anatomy forms to use with 3-D programs. The forms can be posed or detailed with a paint program. Details of the heads and hands are included.

Interchange Object Disk #1

*Syndesis
Interchange*
19.95

Object Disk #1 contains 3-D objects for use with *Sculpt 3D* and *VideoScape 3D*. Images include a full font of block letters, the Amiga logo, a space shuttle, office equipment, and more.

Interfont

*Syndesis
Interchange*
79.95

Fonts for use in 3-D animation and modeling, logos, and video titles can be created with *Interfont*. The fonts can be designed with or without an Amiga bit-map font and then converted to formats such as *Sculpt 3D*, *VideoScape 3D*, *Forms in Flight*, and *Turbo Silver*. Tools include 15 colors, a hole color, zoom, and sliders. Ready-made fonts are also available. A version of *Interfont* that includes *Interchange* is available for \$119.95.

Kara Fonts—Headlines

*Kara Computer Graphics
graphics software*
79.95

This three-disk set includes ten dimensional color fonts. Four of the fonts can be dragged to create 3-D effects. The uppercase typefaces are in two sizes and include chrome, marble, brick, granite, wood, cast, column, chisel, chisel serif, and bevel. The fonts can be used with graphics programs for video, animation, desktop publishing, and other applications.

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SOUND AND MUSIC

Macrobot Design

Antic Publishing
VideoScape 3D, Sculpt 3D,
or Interchange
34.95

Macrobot Design contains 3-D images to use with 3-D programs. Designs include detailed surrealistic modules to use in creating humanoid and alien cyborgs.

Space Photos II

Signs Etc. by D. Knox
512K
29.95

This two-disk set contains 170 digitized color pictures from the NASA archives. The pictures trace the history of the space program from the first Explorer launch to the Apollo missions to the space probes *Mariner* and *Voyager*. There are also pictures of the planets and their moons as far out as Uranus. The program includes a speed user option. The pictures can be converted to IFF format or loaded into other graphics programs.

Video Visions Disk 1

CV Designs
one megabyte, video graphics program
24.95

Disk 1 contains artwork to use with Mindware International's *Pageflipper*. The images are produced in 384 × 480 overscan resolution, with as many as 32 colors. The main subject is cable stations; graphics for sports, maps, logos, and business are included.

Video Visions Disk 2

CV Designs
one megabyte, Sculpt 3D
24.95

Images and parts in Disk 2 are designed to be used with Byte by Byte's *Sculpt 3D* and cartoons in *Pageflipper*. The artwork is produced in 384 × 480 overscan resolution, with up to 32 colors.

SOUND & MUSIC

MUSIC CONSTRUCTION

For further information, Circle Reader Service Number 216.

Adrum

Haitex Resources
MIDI interface optional
79.95

Adrum is a four-voice drum machine and rhythm maker. It can produce stereo output by using sound samples loaded from disk in IFF format. It stores 26 sounds in memory to create a kit, and each sound in the kit may be individually altered. The sequencer can contain as many as 64 different measures with 0-64 beats per measure. Rhythms can be created in live-write mode or step-write mode with a mouse. Editing features include selective removal, replacement, measure copy, and delete and insert commands.

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With a MIDI interface, songs created with *Adrum* can be replayed and controlled by other musical instruments on the MIDI system.

C-ZAR

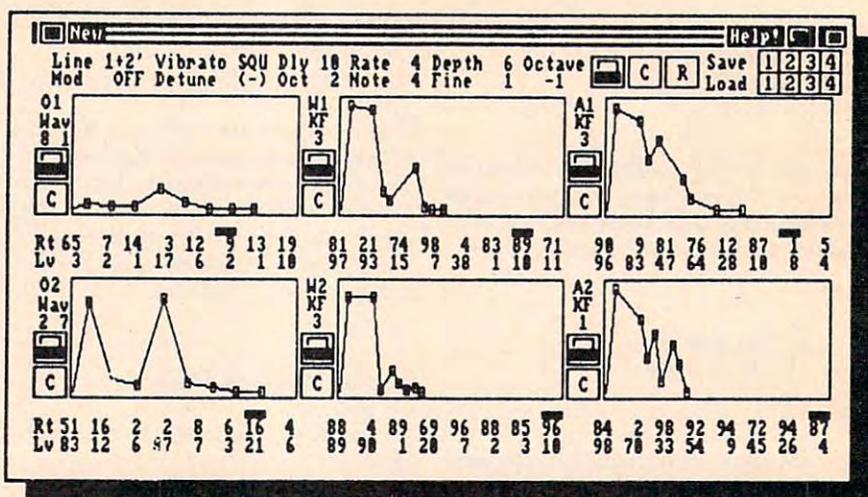
Diemer Development
MIDI interface and Casio synthesizer
195.00

C-ZAR helps owners of an Amiga and a Casio CZ-101 or CZ-1000 keyboard to create music and sound effects. This mouse-controlled editor and librarian can fine-tune the Casio's six 8-step envelopes and display the pitch, tone, and loudness envelopes in eight colors on a 1024 x 200 pixel area. The editor includes features such as cut and paste, line copying and detuning, key transposition, pitch bend, vibrato, modulation, portamento, and waveform selection. The librarian can organize and save up to 6000 sounds on a disk, and it supports disk and RAM-cartridge transfers, bank creation, sound naming, and multiple disk directories. The mouse can be used to scroll numeric rate and level readouts up or down and drag segments of an envelope around the screen. The sequence recorder has automatic playback, and the time axis is calibrated from 4 milliseconds to 1000 seconds. The package includes a manual and over 200 preprogrammed instruments and sound effects. It is not copy-protected. An Amiga-to-MIDI interface is also available for \$55.

C-ZAR-1

Diemer Development
Casio CZ-1 Keyboard
195.00

C-ZAR-1 is an extended version of Diemer Development's C-ZAR, an editor and librarian for Casio CZ-1 keyboards. C-ZAR-1 supports the 64 operation memories of the CZ-1 and can store many more on the disk. It uses the split-keyboard mode to define split points and divide sounds into upper and lower keyboards. Two sounds can be played at once with the tone-mix mode. When the operation memories are being created, the preferences are displayed logically on the screen at one time. The mouse can be used to drag in new sounds or to point and click on the performance controls. In the keyboard-velocity mode, the on-screen sliders can control the amount of strike velocity sent to each of the six



CZ Master, one of the editor/librarians from Sound Quest, displays sound parameters in graphic format.

envelopes. C-ZAR-1 can maintain a directory of operation memory files and automatically load *Sound Bank* files. Sounds created by C-ZAR and C-ZAR-1 can be used interchangeably.

DX/TX Editor

Mimetics
music program
79.95

This editor can be used to edit patches for the Yamaha DX7, TX7, and TX816 synthesizers. Parameters and graphic envelopes are displayed onscreen.

Emul-8

Mimetics
SoundScape
49.95

Using onscreen algorithms, operators, and envelopes, programmers can design sound samples based on FM-synthesis technology. Sounds can be created and scaled for each octave, and they can be saved to disk.

FB01 Editor

Mimetics
music program
79.95

Programmers can use this utility to edit patches for the Yamaha FB0-1. Envelopes and other parameters are displayed on the screen.

GeoMusic

Mimetics
music program
49.95

GeoMusic is a module that graphically displays note, channel, controller, and velocity information. Light envelopes can be used to monitor color-cycling and graphic fades. This program can transform MIDI information into a kaleidoscope-like display.

Librarians 1

Mimetics
music program
79.95

Librarians 1 contains three library programs to store, retrieve, and arrange system-exclusive patches. Each library can hold two banks of synthesizer programs. The patches can be modified individually or as a bank. Onscreen templates aid in assembling custom sets. The three programs are DX/TX Librarian, FB01 Librarian, and CZ-101 Librarian.

Master Editor/Librarian

Sound Quest
125.00

Master Editor/Librarian is a collection of sound editors and librarians to use with various synthesizers. The programs feature global editing of combinations of similar parameters, simultaneous editing of multiple synthesizers, keyboard-equivalent controls for key functions, help screens, patch variations, random voices, three ways to mix voices, MIDI setup transmission, eight bank-editing

functions, and grab-and-move graphic envelope and numeric editing. Available editors and librarians include DXII Master, DX Master, TX81Z Master, D-50 Master, MT-32 Master, SQ-80 Master, CZ Master, and the Generic Master. Retail prices for these editors vary between \$125 and \$175 each.

The MindLight

Visual Aural Animation
512K
169.00

The *MindLight* combines graphics animation with audio input to produce a musically animated show. A MIDI sequencer plugs into the joystick port of the Amiga to accept input from external sound sources and a microphone. The animation software, *Visual Aurals I*, supports IFF-standard pictures and brushes and includes 84 visuals. The graphics can be cued to the sound input through a variety of onscreen controls so that the animation responds to the sound impulses. The *MindLight* can be used to create music and graphics shows for presentations, entertainment, and video. The package includes the hardware interface and software.

Music Visions

Digital Wizards
Perfect Sound or FutureSound digitizer
29.95

Music Visions can sample and analyze music as it is played, producing a light show in realtime. The pictures can be created using a drawing program that supports IFF files, and then they can be stored as music files. The program features three display modes, an adjustable color palette, variable frequency analysis, and bidirectional, variable-speed color cycling. Documentation is included.

PatternSplatter

Mimetics
SoundScape
49.95

PatternSplatter can be used to randomize *SoundScape* parameters such as pitch, duration, and velocity. It also includes arpeggios, chord hold, pattern cycling, timing offsets, and multiple effects.

Quantize

Mimetics
SoundScape
79.95

Parameters such as pitch, timing, and velocity in *SoundScape's* Tape Deck can be quantized and scaled with this utility. The effects are displayed on the screen and can be applied to the whole composition or individual passages.

Sound Oasis

New Wave Software
512K
99.95

Sound Oasis enables the Amiga to read the 2500 digital instrument samples that are available on disk for the Mirage Digital Sampling Keyboard. The sounds can be loaded into the Amiga and played from the computer keyboard or an external MIDI keyboard, or they can be saved to an IFF file. The samples can be remapped to different locations on the keyboard and edited on the screen using a graphic display of the sample's waveforms. The Mirage ▶

June, 1987 (Byte Magazine):

"Although the (CSA) Turbo-Amiga upgrade is somewhat high priced for a microcomputer, its performance is in the range of a much more expensive mini-computer".

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BUYER'S GUIDE

disks can be purchased in libraries of ten from most dealers who carry the Mirage keyboard.

Studio Version 2.0

New Wave Software
one megabyte
199.95

Version 2.0 of *Studio* contains a sequencer, a drum machine, and an event editor. The sequencer supports 16 tracks and 64 individual sequences with timing up to 1/192 note resolution. The user can define the time signature for each track. There is a built-in, system-exclusive librarian as well as three types of quantizing, controller scaling, echo, time shift, merge, and randomizing functions. The velocity-sensitive drum machine can eliminate the need for an external drum machine. It offers 200 digital drum samples or accepts any IFF samples in one-shot format. Drum patterns can be edited, and the tuning and volume ranges can be modified. The event editor offers both text and graphics editing, including insert, delete, and modifications. The programs are not copy-protected.

3-D SoundSynth

Mimetics
music program
79.95

3-D *SoundSynth* can be used to create sound samples for use with *SoundScape Sound Sampler*, *Deluxe Music Construction Set*, or other music composition programs. Any 16 frequencies can be specified for each of ten octaves along with the tunings and a choice of sine, triangle, square, sawtooth, and noise waveforms. Each variable has multi-stage envelopes for pitch and amplitude with as many as 256 user-definable points. The synthesis program also features looping, 3-D plotting of harmonic amplitudes, FFT analysis, and display of sound samples.

Utilities 1

Mimetics
SoundScape
49.95

Utilities 1 contains eight modules to use with *SoundScape*. *MouseBender* allows the mouse to be used as a MIDI input device. *Mapper/Splitter* maps input and can split keyboards into different zones. Programmers can select a ratio

of incoming clock pulses to outgoing clock pulses with *ClockScaler*. *FrameCounter* analyzes *SoundScape* compositions and creates a file of seconds and frames for composing with film. The *SystemX* can save and retrieve system-exclusive information from external MIDI devices. *FuelGauge* displays the total internal memory, the system memory, the largest block of contiguous internal memory, and the largest block of contiguous system memory. *SmoothClocker* is a MIDI clock that replaces the MIDI Clock in the Patch Panel. The modules can be permanently installed into the Patch Panel with *Install Modules*.

Utilities 2

Mimetics
SoundScape Patch Panel
49.95

Utilities 2 contains eight modules to add to the *SoundScape* Patch Panel. *Echo* delays MIDI signals by a user-specified number of clock pulses and repeats them a selected number of times. The *VelocityBlender* can take input from a controller and use it to change the velocity in a destination module. With *Viewer*, multiple IFF pictures and titles can be loaded into memory to create a slide show. Incoming MIDI data is captured and displayed with *Scope*. Incoming timing values can be quantized with *Slicer*. *Beats/Measures* provides a counter to use with *SoundScape's* Tape Deck. Commonly used controls from various *SoundScape* modules can be centralized with *FastTracker*. *Install Modules* can be used to permanently install the modules into the Patch Panel.

Xpress Edit FB-01

Digitools
512K, Kickstart 1.2, MIDI interface
44.95

With this FB-01 voice and configuration editor, programmers can edit one FB-01 voice and one FB-01 configuration per program and print a copy of the parameters. A voice for an FB-01 configuration instrument can be edited on a MIDI channel. The program loads from the Amiga Workbench, and the voices and configurations can be loaded from or saved to floppy disks. The send and receive operations are mouse driven. *Mimetics' SoundScape* is recommended.

Xpress Patch-FM, 1.1

Digitools
512K, Kickstart 1.2, MIDI interface
44.95

This patch utility can be used to customize voice, configuration, and performance banks as well as copy or swap voices, configurations, and performances. *Xpress Patch-FM* contains a generic system-exclusive handler for nonhandshaking MIDI data dumps. There is also an option to build custom MIDI system-exclusive programs. The program loads from Workbench and can load and save to floppy disks. *Xpress Patch FM* supports Yamaha DX7, TX7, FB-01, and X81Z; and it's compatible with *Mimetics' SoundScape* MIDI port.

MUSIC AND SOUND COLLECTIONS

For further information, Circle Reader Service Number 217.

Bach Songbook

Dr. T's Music Software
29.00

This disk is a collection of Bach compositions—15 two-part inventions, 3 three-part sinfonia, and 2 four-part fugues.

Dr. Drums Pattern Disk

Dr. T's Music Software
29.00

The *Dr. Drums Pattern Disk* is a collection of rock, funk, jazz, and other MIDI4 drum patterns and solos.

Dr. Keys Pattern Disk

Dr. T's Music Software
29.00

Dr. Keys Pattern Disk contains patterns, riffs, and public domain music in rock, jazz, blues, and classical styles. Patterns can be combined or altered.

E.C.T. SampleWare

E.C.T. SampleWare
24.95 each

E.C.T. SampleWare offers four volumes of studio-recorded sounds to add to Amiga programs. The sounds are available in either IFF or *SoundScape* format

PRODUCTIVITY

and range from acoustic to computer-generated sounds. The Rock Disk contains 18 sounds for rock-'n'-roll, including two drum kits, five guitars, bass, organ, and synthesizer. Seventeen sounds are available on the Orchestral Disk. Most of these sounds are multi-sampled. The Grab Bag Disk is a collection of 26 odd and ethnic musical sounds such as Bali flutes, dog bark, and "cowbellaphone." The Digital Synthesizer Disk contains 26 sounds that were generated by synthesis software. Each disk is sold separately for \$24.95; the set of four is available for \$70.95.

Sampled Sound Libraries

WaveTable Technologies
19.95 each

Sampled Sound Libraries is a series of disks containing real and synthesized sounds to use with music programs. Some of the disks are available in Mimetics-exclusive or IFF-portable formats. The Composer disks, volumes I-VI, each include at least 30 samples of real instruments and synthesized samples. Real Brass consists of trumpet, tuba, French horn, trombone, bass trombone, and baritone samples. Mello-tron contains samples of the flute, cello, and violin. Big Dollar Synth is a collection of synthesizer sounds including Prophet, Fairlight, Emulator, and Roland. More than 45 nonlooping sound effects are available on the Animation disk. Modern Percussives offers more than 60 sample percussive sounds. The WaveBuilder program can be used to develop sound waves by mixing waves together and modifying the amplitude, phase shift, and frequency. It can be used with Amiga Basic or saved to IFF format. Each disk is available separately for \$19.95. Three disks can be purchased together for \$50.

Sound Effects Library

Karl R. Denton Associates
512K, music construction program
79.95

The *Sound Effects Library* is a six-disk collection of 290 sounds such as baby cries, jets, footsteps, and breaking glass. The sounds can be used with music programs including *Deluxe Video*, *Instant Music*, *Deluxe Music*, *SoundScape*, or any other program that accepts IFF-format sound samples. The package contains six disks, a manual, and a pocket-pac carrying case.

PRODUCTIVITY

PRODUCTIVITY APPLICATIONS

For further information, Circle Reader Service Number 218.

A-Talk III Communications Program

Oxxi
99.00

A-Talk III Communications is an expanded version of *A-Talk Plus*, originally developed by Felsina Software. This version includes an expanded script language with learn mode, expanded keypad support for the Amiga 500 and 2000, setmaps for accessing foreign character sets, interlaced and non-interlaced terminal emulations, global settings of all parameters for each host system, an ASCII capture with a resizable and scrollable buffer, and protocol support including YMODEM-1K, YMODEM Batch, ZMODEM, Kermit, XMODEM Checksum, and XMODEM CRC. The program also offers selectable redial time and number of redials, IFF graphics file export, and a voice option.



IF-THEN statements are used to build the knowledge base in the artificial intelligence program, *Magellan*.

Magellan
Emerald Intelligence
512K minimum
195.00

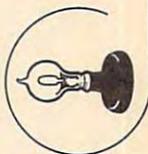
Magellan is an artificial-intelligence and expert system-building tool. It features

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a rule-based user interface that creates knowledge bases from If-Then statements. Expert systems can be built, corrected, and changed interactively and intuitively. The program takes advantage of the Amiga's desktop video, desktop publishing, audio and voice synthesis, extended memory, networking, and graphics capabilities.

MaxiComm

MaxiSoft
49.95

MaxiComm is a telecommunications program that supports up to 7200-baud true throughput. It offers an unlimited dialing and settings directory, ANSI control codes, text and XMODEM transfers, auto redial, send true break, script files, and a manual. Data can be printed during receiving.

MaxiShare

MaxiSoft
29.95

Two Amigas can be connected directly or through a modem with *MaxiShare*. It allows the computers to share data and programs such as *Deluxe Paint*, *Graphi-Craft*, and *TextCraft*. Modes can be set for party line or token passing so that the user can control which machine is moving the mouse.

PROGRAMMING TOOLS

For further information, Circle
Reader Service Number 219.

AC/BASIC Compiler V1.3

Absoft
195.00

Absoft's *AC/BASIC Compiler* for the Amiga has been upgraded to version 1.3. This new version is 100-percent compatible with Amiga Basic statements and functions and includes new examples, such as one showing how to access HAM graphics from BASIC. Several of the known bugs have been fixed, and parts of the runtime library have been rewritten. Version 1.3 also includes a spreadsheet to demonstrate how to write application programs. *AC/BASIC Compiler V1.3* can be run on Amigas using 68020 processors. Registered users whose cards were received by July 16, 1988, can receive an upgrade at no charge. Other upgrades are available for \$50. A technical-support line is also available.

AmigaFFT C Package

ACDA
152.00

With *AmigaFFT*, programmers can perform detailed frequency analysis with a complete set of FFT routines. The package includes C source code for deriving the power spectrum, phase amplitude spectrum, inverse FFT, and hamming window and user-interface functions.

AmigaView

ACDA
79.95

AmigaView is an object-oriented, intuition front-end interface. It provides more than 100 routines and macros to reduce programming time and code in professional applications. The interface works with *Manx C* and *Lattice C*.

ARexx

William S. Hawes
49.95

ARexx is a multitasking implementation of the REXX language to use for macro processing and general programming

tasks. It defines a command interface to allow it to communicate with other software. Language features include interactive and interpreted operation, string-handling capabilities, a built-in library with more than 75 functions, and a source-level debugger. The code requires 32K.

Aztec SDB

Manx
125.00

Aztec SDB is a source-level debugger that offers standard debugging functions as well as new techniques. Backtracing is used to display the active function names and the values of passed parameters, while active frame context switching enables the programmer to examine the variables that are visible from an active function. The debugger also contains reusable command macros and procedures to repeat a series of commands and to customize the debugging environment. Separate color windows are used for source, data, and command display, and tracing can be line-by-line or by function. Other features include examination and modification of global, local, and static variables, structures, or expressions by name; printout capabilities; C expression evaluation; and conditional breakpoints on lines, functions, or variables. *SDB* is included in version 3.6 of *Aztec C68K*; it can also be purchased separately.

Benchmark Modula-2

Avant-Garde Software
512K
199.95

Benchmark Modula-2 is a software construction set comprised of an editor, a compiler, and a linker. Based on an EMACS editor, the editor contains more than 125 commands for use with windows, multiple files, and buffers. The compiler uses the Modula-2 language and can compile programs at an average speed of 10,000 lines per minute. After the program is compiled, the editor displays an error message whenever errors are found. The linker can then be used to link the program into a stand-alone executable file. Both the linker and the compiler can be accessed



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PRODUCTIVITY

from the editor, and the program can be run from the editor, Workbench, or the CLI. *Benchmark* also includes support libraries such as Intuition, the ROM Kernel, and AmigaDOS; Modula-2 libraries such as FileSystem, InOut, Storage, and Terminal; demonstration programs; a CLI-based compiler, error lister, and linker; an assembly language interface; and more than 800 pages of documentation. The program is ready to use and does not require special installation. Additional add-on products are also available.

CAPE 68K

Inovatronics
512K
89.95

CAPE 64K, the complete assembler programming environment, is an assembler for use on the Amiga. It is both MetaComCo- and ARexx-compatible. The assembler includes an integrated editor.

C Language Library

Avant-Garde Software
Benchmark Modula-2
99.95

Designed to be used with *Benchmark Modula-2*, this program employs many of the functions available in the C language library so that C programs can be moved into the Modula-2 programming environment. These functions include formatted output, formatted input, buffered I/O, unbuffered I/O, and memory-management functions.

Compiler Companion

Lattice
512K
100.00

Compiler Companion is a collection of ten utilities that can be used with any programming language on the Amiga. The utilities are EXTRACT, BUILD, CXREF, DIFF, FILES, GREP, LMK, SPLAT, TOUCH, and WC. All the utilities except CXREF can be used with BASIC, Modula-2, FORTRAN, Pascal, and assembly language as well as with C. These utilities replace the CXREF, LMK, and Text Management utilities previously offered by Lattice. The package includes a manual.

CygnusEd Professional

ASDG
512K, KickStart 1.2 or higher
99.95

An editor for programmers, *CygnusEd Professional* offers editing, speed, and special functions. Editing features include delete and undelete of characters, words, lines, and blocks; a layout mode for tables and diagrams; search and replace with wildcards; vertical as well as horizontal block cut and paste; programmer-oriented functions such as find-matching-bracket and autoindenting; and the ability to edit multiple files on the screen at the same time. Binary files can be edited, and macro functions are available. The editor can recover an edit in progress if another program crashes the Amiga. It supports screen resolutions of up to 1000 X 800. There is also an ARexx-compatible interface. An autosave function will automatically save the work after a user-defined time period, and bookmarks can be defined for moving between sections of a file. The text search performs at 100,000 characters per second, and horizontal and vertical scrolling is blitter-based to adjust from slow to fast. Up to ten files can be edited at one time.

DigiScope

ACDA
parallel-port digitizer
139.95

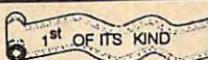
DigiScope is a digital-storage oscilloscope emulator that works with ACDA's Proto-5K or other parallel-port digitizers. It contains 16 independent buffers, waveform scrolling routines, archival functions, signal statistics, and capabilities for digital signal processing. A fast Fourier transform (FFT) package is also included.

DSM Version 1.0d

OTG Software
67.50

DSM Version 1.0d is an MC68000 disassembler that can generate assembly language source code for executable Amiga programs that do not use overlays. It offers symbolic disassembly using Wack-readable symbol information, text detection, and Assem-compatible source code. The package includes a 55-page user's manual.

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Delphi Noetic Systems
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F-BASIC is an enhanced, compiled BASIC language for programming the Amiga. Features include local and glob-

al variables, pattern-matching support, recursive subroutines and functions, direct ROM Kernel access, access to 68000 registers, and bitwise operations. The system is modeled after BASIC and includes *FastCom*, a single-pass compiler written in F-BASIC. The package contains a user's manual and a sample program disk.

gets, knob gadgets, file requesters, palette editor, and list handler, plus 30 more routines in linkable C code and system library format.

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FTD Pilot

Flight Training Devices
512K minimum, expanded memory recommended, Kickstart 1.2 or higher
39.95

FTD Pilot is an implementation of the Pilot authoring language. It supports IFF graphics and allows graphics created with paint programs to be imported to presentations controlled by Pilot. Features include an answer input for keyboard or mouse, IFF and turtle graphics, sound such as speech and tones, and laser video-disc control. The disk contains sample programs such as text-only applications and graphics overlaid on video from a laser video disc. Version 1.0 is designed for computer users interested in computer-based instruction or interactive video. Version 1.3 is designed to be used with KickStart 1.3 and offers expanded tutorials and additional sample programs. Upgrades are available. Experience using a text editor, the icon editor, and the CLI is necessary.

Lattice C++ Compiler

Lattice
two megabytes, Lattice AmigaDOS C Compiler
500.00

Lattice C++ Compiler is a superset of the C language designed for object-oriented programming. The system can create and manipulate objects so that programmers can concentrate on design rather than detail. It provides constructor and destructor functions to allocate and initialize variables only when they are needed and to free memory automatically. Users can define new types and specify type conversion, and there is additional type checking. Lattice C++ uses the AT & T translator kit to convert C++ language into C code to be compiled by Lattice C Compiler. The package includes the C++ preprocessor, a C++-to-C language translator, header files, and C++ library functions. The documentation includes a manual on object-oriented programming and C++, C++ example programs, and a bibliography.

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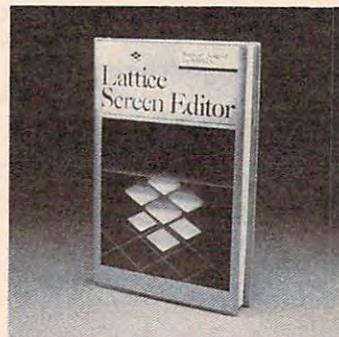
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IFF and Image Resource Library

Avant-Garde Software
Benchmark Modula-2
99.95

The IFF and Image Resource Library contains two main parts—a set of libraries to use with IFF files and a library and utility program to integrate bitmapped images into Modula-2 programs. The utility reads the IFF images and converts them into Intuition or BOB, simple sprite, or virtual sprite format so that the images can be added to a Modula-2 program. Documentation is also included.



Keystrokes, menus, prompts, and help messages can be customized with the *Lattice Screen Editor* from Lattice.

Lattice dBC III for Amiga

Lattice
128K
150.00

dBC III is a complete indexed sequential access method (ISAM) package that allows a programmer to create, access, and update files that are compatible with *dBase III*, from Ashton-Tate. *dBase* is not required in order to use these libraries, and features of many of the C

InovaTools 1

Inovatronics
79.95

InovaTools 1 offers function definitions that can be added to Amiga programs and *PowerWindows 2.5* interfaces. Routines include pop-up menus, drag gad-

libraries can be used. Up to ten data files, ten index files, and ten memo files can be opened and processed simultaneously. The source code is also available for \$250.00.

Lattice MacLibrary

Lattice
512K
100.00

Similar to those in the Apple Macintosh's QuickDraw, this set of functions is designed to take advantage of the graphics and sound capabilities of the Amiga. Functions include opening and closing screens and windows, pen and line drawings, calculation with points and rectangles, graphics operations, gadget routines, music routines, and other data- and file-handling routines. Source code is available for \$250.

Lattice Screen Editor (LSE) for Amiga

Lattice
128K
100.00

This editor can be used to customize keystrokes, menus, help messages, and prompts. It features a multiwindow environment to let you edit two files at one time, a regular expression search command, keyboard macros, multilevel command design, and two levels of on-line help. Modes include three assembly language input modes, word-wrap mode, and a C error-tracking mode. The editor contains LSE, for handling files shorter than 40,000 bytes, and LSED, which is limited only by available memory.

MetaComCo Pascal Version 2

MetaComCo
Version 1.2 of the operating system
129.95

Version 2 is an upgraded version of MetaComCo's original Pascal compiler.

New optional extensions include separate compilation, random access, and dynamic strings. Other features are single- and double-floating-point routines, full 32-bit pointers, bitwise integer operation, OTHERWISE in CASE statement, enhanced I/O error handling, and binary, decimal, octal, and hexadecimal integer and character constants. The manual has been increased to 330 pages and provides information for converting Turbo Pascal programs to MetaComCo Pascal Version 2. Registered users of version 1 can upgrade through MetaComCo.

MetaScope: The Debugger

Metadigm
128K of memory in addition to program memory
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MetaScope: The Debugger offers multiple windows, breakpoint and trace capabilities, symbolic support, and a direct-to-memory assembler. Using the memory window, a programmer can browse through memory, position to a specific

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start address, and display data and disassembled code, including symbols. Status windows show register contents and program-execution status. Symbols can be read, defined, and added to instruction-statement lines with a click of the mouse. Breakpoints can be defined by the user, and trace execution can be both single-step and continuous-step. Debugging information can be attached to an output log file for future use. The program executes as a CLI command, so only the initial process of a multi-tasking program can be debugged.

M2Amiga

Interface Technologies
512K
199.00

M2Amiga is a Modula-2 language-development system. It contains a single-pass compiler integrated into the Amiga Workbench, an editor, a linker, and library modules—both standard and Amiga. The system supports documented functions and double-precision numeric types. The package includes a manual and Modula-2 book.

PowerWindows 2.5

Inovatronics
89.95

PowerWindows 2.5 can be used to design user-interface screens with standard Intuition constructs and the constructs available in InovaTools 1. When the screen is completed, the program generates source code so it can be installed in another program. PowerWindows supports any 68000 assembler, Manx C, Lattice C, CSI Multi-FORTH, TDI Modula-2, and True BASIC.

PRO-ASM

Prolific
85.00

PRO-ASM can generate relocatable object-code modules that can be linked to an execution address. The assembler can be run from the CLI or Workbench's ICon, and operations can be specified using a script file or an interactively guiding screen. Labels in the assembler can be up to 127 characters in length, with the first 19 characters

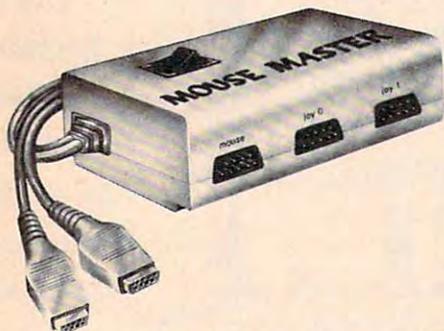
distinguishable. Source code size and the symbol table size are limited only by the amount of memory. The assembler contains nested macros and nested include files. A linker can join the object modules into single executable modules and relocate code to the desired execution address. It can also generate code in binary format. The assembler is available for Z80 and 6809.

Simplified Amiga Library

Avant-Garde Software
Benchmark Modula-2
99.95

Beginning and experienced programmers alike can use this collection of libraries designed to work with Benchmark Modula-2. The libraries include SimpleScreens, SimpleWindows, SimpleGadgets, SimpleMenus, SimpleConsole, SimpleSpeech, and others.

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PRODUCTIVITY

The ToolCaddy V2.00

The ToolCaddy Works
49.95

The *ToolCaddy V2.00* contains more than 870K bytes of information for learning assembly language programming. The package includes 21 executable utilities to add to programs and 18 source files that provide examples in assembly language. There are also seven step-by-step lessons covering AmigaDOS, the Exec, Intuition, graphics, system structures, and the binary file structure. The files are cross-referenced and can be run from the CLI or Workbench.

True BASIC Advanced String Library

True BASIC
True BASIC Language System
69.95

The *Advanced String Library* contains routines and tools to use with *True BASIC's Language System*. The library features pattern-matching routines, expression scanning, associative memories, text manipulation to fill and justify lines of text, character-set manipulation, conversion for English text and Roman numerals, and other low-level string routines. A 38,000-word dictionary of English is also included.

True BASIC Language System

True BASIC
99.95

The *True BASIC* programming language includes a compiler, an editor, and debugging tools. It supports multiline functions, floating-point math, local and global variables, dynamic arrays, and built-in syntax for matrix algebra. Libraries can be compiled separately in BASIC, C, or assembly language. Programs can be debugged with breakpoints and in immediate mode. The full-screen, mouse-based editor offers global search and replace, online help, and block copy, move, and delete. It can be controlled by menu, function keys, or the CLI, and it accepts keyboard macros. This structured language can be used to create graphics with custom coordinate schemes and color palettes.

True BASIC Sorting and Searching

True BASIC
True BASIC Language System
69.95

True BASIC Sorting and Searching contains 14 optimized subroutines for string and numeric sorting. Sorts can be case-blind, multikey, bubble, selection, heap sorts, and other customized comparison routines. The utility includes an in-place quick sort and binary search routines. The source code is included. ▶

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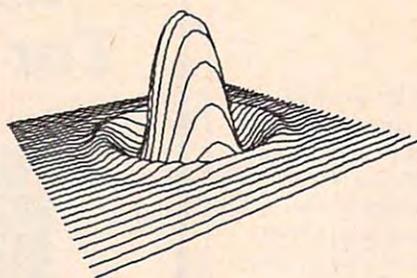
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3-Dimensional Graphics from True BASIC supports circles, rectangles, contour plots, and polygons in both the perspective and parallel views to create 3-D images.

True BASIC 3-Dimensional Graphics

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True BASIC Language System
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Three-dimensional graphics can be created using this library along with True BASIC's *Language System*. The library supports perspective and parallel views, cabinet and cavalier projections, arbitrary oblique projections, circles, rectangles, grids, polygons, areas, text plotting, and contour plots. It also provides tools for developing animation.

True Developer's Toolkit

True BASIC
True BASIC Language System
69.95

The *Developer's Toolkit* can be used with the programming language to launch sprites and bobs. By adding pull-down menus, programmers can access many of the Intuition and kernel features of the Amiga. Other features of this tool kit include high-level DOS access, low-level utilities, resizable windows, and Workbench interface routines.

TxEd Plus

Microsmiths
79.95

TxEd Plus is a text editor to use with *ARexx*. It has fully configurable menus and keyboard and uses the *ARexx* macro processor. The package also includes a disk accelerator, a hot-key program, and a text-speedup program.

WShell

William S. Hawes
50.00

WShell is a command shell that replaces the CLI. It features line editing, command history, aliases, resident commands, window title variables, and concurrent piping. The program can be used as a companion to *ARexx*.

ZLI

Zoxso
49.95

The Zoxso line interpreter, or *ZLI*, is designed to replace the CLI that comes with the Amiga. It features versatile line editing, command history, definable function keys, command search paths, keyboard macros, and built-in commands. The interpreter contains many user-definable functions and is compatible with the standard CLI.

UTILITIES

For further information, Circle
Reader Service Number 220.

Amiga Companion

Omega Star Software
29.95

The *Amiga Companion* series is a collection of help sets that provide information on Amiga topics such as programming and the ROM Kernel. Each help set runs in the background and is accessed by pressing or clicking on the Help key or icon. Information is provided on one or more screens with text and graphics. Each help set is available separately.

DeluxeHelp

RGB Computer and Video Creations
software package
34.95 each

DeluxeHelp is a set of tutorial programs designed to help users learn to use a master program, such as *Deluxe Paint II* from Electronic Arts. The tutorial runs simultaneously with the main program and uses pull-down menus to lead the user through the lesson. *DeluxeHelp* uses brief text descriptions along with a narrated, visual demonstration to explain the main program's features. An

invisible tutorial shows the needed mouse and keyboard actions. *Deluxe-Help* tutorials are available for *Deluxe Paint II*, *DigiPaint*, and *PhotonPaint* for \$34.95 each. A tutorial for *Calligrapher* is available for \$44.95.

Disk Library

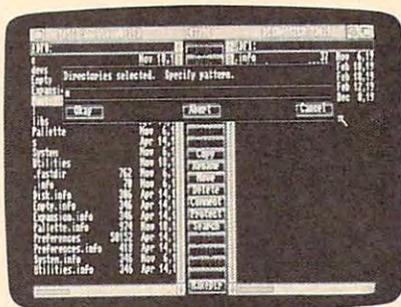
Classic Image
49.95

The *Disk Library* contains utilities to help file, categorize, and cross-reference each disk, folder, and file in a library. The program can also update disks, folders, and files as they are added to the library. Users can add their own comments to the program.

The Disk Mechanic

Lake Forest Logic
512K, DOS 1.2 or higher
89.95

A collection of AmigaDOS utilities, *The Disk Mechanic* can be used to recover files that have been deleted, salvage



More than 70 filenames can be viewed at one time with *DiskMaster*, a file-management utility from Progressive Peripherals.

files from corrupted disks, and repair damaged files. The collection includes an optimizing program that can increase the speed of hard or floppy disk access, a hard disk-backup program, and a full-featured disk block editor. Version 2.0 also offers support of the Amiga's fast-filing system.

DiskMaster

Progressive Peripherals and Software
49.95

DiskMaster enables the user to implement many file-management commands directly, bypassing the CLI and Workbench. There are two directory windows that can display more than 70 files at one time. Up to 12 physical or logical devices can be defined and up to six external c: directory commands can be configured. The program supports archive utilities, IFF-formatted pictures, and IFF sound and instrument files. Displays can be in one of three resolutions, including half-height and high resolution. *DiskMaster* does not write files to the disk unless commanded to do so, and the reversible file reader is mouse-controlled. The program can print text files.

Diskwik 2.0

Tigress
256K
49.95

Diskwik 2.0 is a collection of utilities designed to repair errors, restore de-

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leted files, recover data from damaged files, edit in HEX or ASCII, search and scan for errors, and create hardcopies. Other utilities help document disks, search for files, and compare disk and file routines.

Extend

Sunsmile Software
39.95

Extend is an extension program that adds 50 commands to Amiga Basic. It can load and save IFF pictures, load HAM images, move screens for presentations, scroll around bitmaps that are larger than the screen, and enhance file input and output with a file requester. *Extend* also supports Boolean and string gadgets. It is written in assembly language and can be called with a library extend statement.

EZ-Backup

EZ-Soft
49.95

EZ-Backup is a hard drive-backup utility that also manages the space on the backup disks. Features include an optional backup reminder screen, volume-label checking, and recovery of individual files. The program works with AmigaDOS-compatible hard drives and standard utilities.

Facc II

ASDG
512K minimum
34.95

Facc II is a buffer cache that can speed up access to floppy disk drives. It supports fast memory and allows dynamic control over the buffers. *Facc II* treats all buffers as a pool and automatically adjusts the buffer counts to prevent the Amiga from running out of memory. The utility is divided into two programs—*FaccII* and *Faction*—so the working part is kept hidden from the user. *Facc II* has both a CLI and a programming interface.

Grabbit

Discovery Software
29.95

With *Grabbit*, programmers can save and print almost any screen. The screen images are saved on disk in standard

IFF format and can be printed to any Amiga-compatible printer. The package includes *Anytime*, a program that allows the user to modify the color palette of visible screens. Both of the programs are invisible in memory unless accessed by a hot key.

Hard n Fast

Don's ComputerWorks
49.95

Hard n Fast is a hard disk-backup program that can back up ten megabytes in less than 30 minutes. It includes an error-correction routine and ten screens of help. The program runs from the CLI or Workbench. The package contains a manual, and a hint file is available on the disk.

MaxiCache

MaxiSoft
29.95

Floppy disk access speed can be increased with *MaxiCache*, a RAM-buffering utility. The programmer can select the size of the buffer. There is also a write-thru guarantee so that data will not be lost. *MaxiCache* works with any Amiga program that uses Intuition and supports 1-4 floppy disks. The program is not copy-protected.

MaxiKey

MaxiSoft
29.95

Word processing and programming can be speeded up by using abbreviations created with *MaxiKey*. The user defines the abbreviations and expansions online or in a file. When the abbreviation is typed, the user presses SHIFT-space, and the abbreviation is replaced with the extension.

MaxiMizer

MaxiSoft
29.95

MaxiMizer can be used to generate mouse and keyboard macros. It supports up to 128 hot keys and multiple-macro files. Speech, sound, and pauses can be added to the files during playback. When *MaxiMizer* is used with *Deluxe Paint* or *Graphicraft*, simple animation and shadowing can be created.

MaxiPower

MaxiSoft
100.00

MaxiPower is a collection of four utilities—*MaxiMizer*, *MaxiCache*, *MaxiShare*, and *MaxiKey*—sold as one package. Each program is also available individually for \$29.95.

SysFont

Eraware
34.95

SysFont provides ten options for replacing the Topaz font in the CLI mode. Text and background colors can also be redefined as any of the four Preferences colors. The utility works with *ED*, *MicroEMACS 1.2*, and *TxED*. It is available directly from Eraware for \$24.95.

The ToolCaddy Docs

The ToolCaddy Works
39.95 each

The ToolCaddy Docs is a set of utilities that provide online help for function calls and structures in the Amiga system libraries and MC680XX mnemonics. Each file contains example assembly source code that can be cut and pasted to programs. The program runs in the background, and the files remain on the disk during runtime. The viewing routine is resident in RAM, and an index cross-references all the files and their directories. These help utilities are designed for assembly language programming but can be used with C also. Each utility can stand alone and is sold separately for \$39.95.

Virus Infection Protection (V.I.P.)

Discovery Software
49.95

V.I.P. is an Intuition-based, multitasking interface to use in combating the effect of a virus on Amiga software. It features high-density data storage. The program operates in six languages—English, German, Danish, French, Italian, and Spanish.

HOME

HOME APPLICATIONS

For further information, Circle Reader Service Number 221.

Computer Black Book

Meggido Enterprises
512K, Kickstart and Workbench 1.2
35.95

Phone numbers and addresses can be stored in this computerized phone directory, which can also dial numbers with a click of the mouse. Three dial tones—touch, pulse, or musical—are available for dialing, and the keypad can be used for manual dialing. Three phone numbers are always displayed on the screen, and the complete list can be printed. The program also supports redial, letters (as in 555-TALK), and speech. *Computer Black Book* is multi-tasking and is not copy-protected. ▶

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dynamic
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Transform your Amiga into a professional-quality drum machine with this software package. Easier to use than hardware-based drum machines because everything is displayed graphically on screen. Enter drum patterns quickly and easily in real time with visual feedback and editing. Create realistic drum tracks with any of the 100 drum and percussion samples that are included or use your own unique IFF one-shot samples. Dynamic Drums also has full MIDI implementation and even becomes velocity sensitive when triggered from a MIDI keyboard.

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Nutri-Fax

Meggido Enterprises

512K, Kickstart and Workbench 1.2
59.95

Nutri-Fax can be used along with other recipe filers, such as *Recipe-Fax*, to determine the nutritional content of a meal. The database contains nutritional data for 13 nutrients from *USDA Handbook 8* and additional information can be added to the list. The program includes 150 recipes, and more recipes can be entered with a word processor. Recipes can be stored and printed out.

Pha\$ar 3.0

Antic Publishing

89.95

Pha\$ar 3.0 is a single-entry home financial-management program. Version 3.0 features batch printing of window addresses on checks, user-definable screen colors, fiscal year accounting, sorting by name and by amount, and an enhanced calculator. The program allows as many as 130 expense and income categories with 40 separate accounts. As many as 500 transactions can be entered each month. The date and address organizer can store 250 names, addresses, and phone numbers. The tax function can be used to project and calculate the tax liability. Printed reports include custom checks, account summaries, net worth statements, and tax calculations.

PowerMaster

Complications

X-10 Home Computer Interface
22.00

The *PowerMaster* can be used with X-10 modules for home remote control of lights and electric appliances. The program uses menus, requesters, and gadgets to define the module names and locations and then program the interface. It can control the interface with up to 128 on, off, and dim commands for up to 256 modules. Electric appliances are plugged into the modules, which are then plugged into the wall socket. The wiring is controlled by the interface. After programming, the X-10 interface can be unplugged from the Amiga and maintained by battery. The X-10 modules are available commercially. *PowerMaster* and the X-10 can be purchased together for \$55.

Recipe Disks

Meggido Enterprises

Recipe-Fax or *Nutri-Fax*
14.95 each

The *Recipe Disks* contain additional recipes to use with *Recipe-Fax* and *Nutri-Fax*. The *Variety* disk includes 150 miscellaneous recipes. *Desserts* offers dessert recipes varying in appeal, from simple to gourmet. *Entrees* is a mixture of main dishes for breakfast, lunch, or dinner. *Vegetarian* contains vegetable and main dishes for lacto-ova vegetarians. *Modified Recipes* is for individuals on a restricted diet. The recipe disks are available in a home version for 6-8 servings or in a quantity version with servings for 50 people. Each disk is sold separately.

Recipe-Fax

Meggido Enterprises

512K, Kickstart and Workbench 1.2 or higher
39.95

Recipe-Fax is a recipe-management program that can help cooks modify and keep track of recipes. It can adjust recipes according to the number of servings needed and convert units to U.S. standard or metric equivalents. Measurements are accepted in either decimal or fractional format. Recipes can be entered through a word processor and then be saved or printed. The program includes 150 recipes and can be used with *Nutri-Fax*. *Recipe-Fax* is multitasking, runs from Workbench or the CLI, and works with extended memory systems.

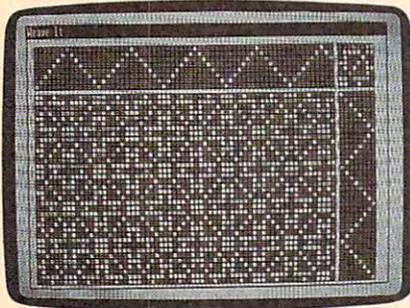
2+2 Home Management System

Arborsoft

512K, double-sided floppy disk drive
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The *2+2 Home Management System* is a database system consisting of four modules for use in managing personal finances and data. *2+2 Financial Management* can be used to keep track of tax records, up to 12 checking accounts and 30 credit cards, checkbooks and bank statements, expenses, payments, and budgets. The *mailing-list* module can be used for lists of birthdays, bill payments, or clients. The names and addresses can be printed on labels or envelopes. Daily or monthly schedules

can be printed with the 2+2 Personal Calendar. This module can look up and record appointments, major holidays, recurring holidays, and consulting times for clients. It also has list and search options. The telephone directory can be used to maintain a telephone list, and it can select the name and telephone number based on user-defined parameters.



Weaving designs can be created and modified with *Weave-It* and *Weave-It Plus* from Joyce I. Peck.

Weave-It

Joyce I. Peck
512K, graphics printer supported by
Amiga Preferences
69.95

Weave-It is a desktop weaving program that can be used to create and modify weaving diagrams. It supports up to 12 harnesses and 14 treadles and offers six grid sizes. Warp and weft stripes can be designed in up to 6 colors, and diagrams can use any 8 of the 4096 available colors. Threading, tie-up, and treadling can be changed at any time. Pictures are created in 640 × 200 format. The program is compatible with other Amiga graphics software, *Superbase*, *PageSetter*, and *ProWrite*. It uses the Amiga interface and saves designs in IFF format.

Weave-It Plus

Joyce I. Peck
512K, printer supported by *Preferences*
84.95

Weave-It Plus is a full-featured desktop weaving program that includes all the

features of *Weave-It* plus two more utility programs. *Fibre-Facts* is a database of yarn counts and setts. It covers cotton, linen, silk, woolen, and worsted yarns and counts from 1/1 to 72/3, as well as setts for 18 weaves, from warp-face to weft-face. Standard measurements can be converted to metric. *Calculate-It* can be used to determine the amount of warp or weft yarn need for any project up to 144 inches wide × 40 yards long. It can convert standard measurements to metric and save the calculations on disk. This utility covers setts from 1 to 144 threads per inch and counts from 100 to 16,000 yards per pound.

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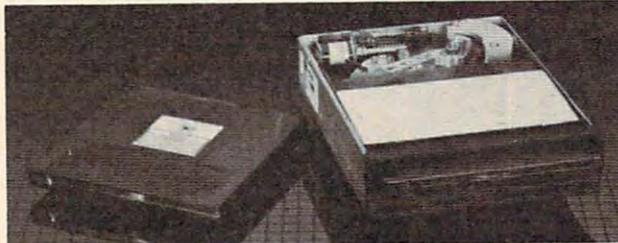
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Your Family Tree

MicroMaster

512K, hard disk drive and printer recommended
49.95

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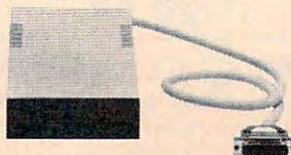
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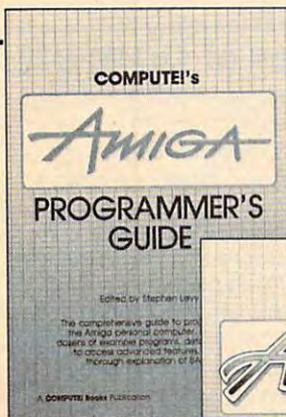
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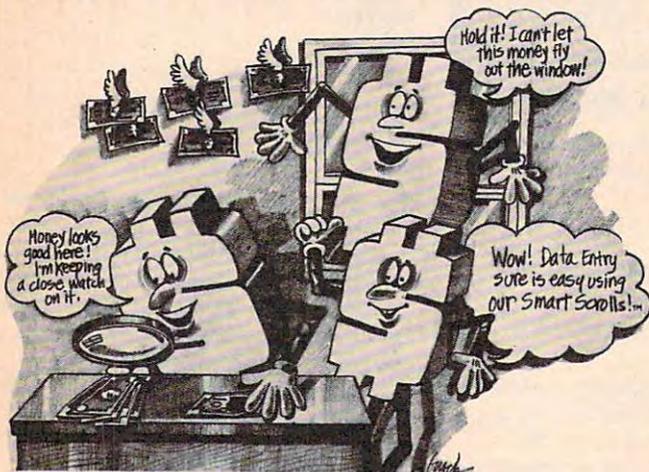
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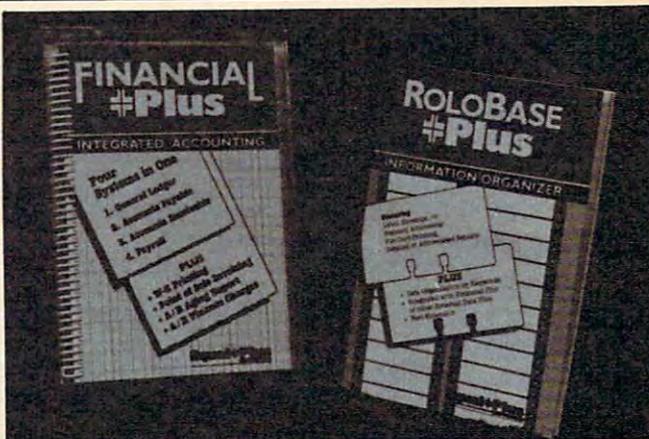
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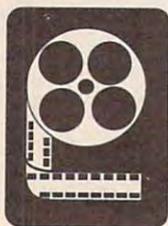
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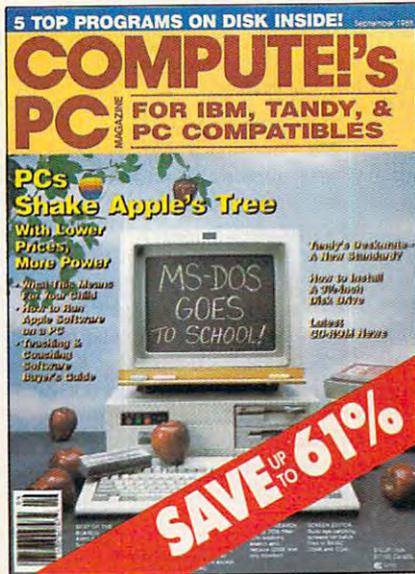
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Learning English as a Second Language

MicroEd
89.95 each

Learning English as a Second Language is designed to introduce American English

to students who do not know English. Narration is provided through the Amiga, and the lessons are illustrated with digitized pictures. The series consists of two packages, each containing five disks. Each package is sold separately for \$89.95.

Punctuation

MicroEd
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Students can learn to punctuate sentences correctly with this program.

Spellbound

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Spellbound combines animation, graphics, music, and digitized speech to help children learn to spell. The program contains three games that help reinforce memory recognition of the words.

Spelling

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Speech is combined with onscreen text to help students in grades 2-6 learn 360 spelling words. Each grade level contains 18 programs and employs the mastery-learning teaching strategy. Each grade level is sold separately.

Spelling Detective Game

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Students play the part of a detective to learn to spell 100 commonly misspelled words. Phonemes are explained and used to demonstrate how the Amiga is programmed to "speak."

Vocabulary Series (High Level)

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This higher-level vocabulary program deals with words found in publications such as the *New York Times*, *Atlantic Monthly*, *Newsweek*, and *Time*. The lessons are learner-controlled and are based on the mastery-learning strategy.

Word Demons (Usage)

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Homonyms and problem verbs are covered in this program. Groupings include words such as *to, too, two; there, their, they're; its, it's; sit, set; and lay, lie.*

MATHEMATICS

For further information, Circle Reader Service Number 228.

Algebra

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Algebra covers beginning to more advanced algebraic topics such as finding roots, solving quadratic equations, graphing, functions, geometric measurement, radicals, systems of linear equations, prime factoring, repeating decimals, and complex-number arithmetic.

Calculus

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The routines in *Calculus* can perform symbolic differentiation on any function $y = f(x)$ entered, display the formulas for multiple derivatives, and plot the function and its derivatives on a single graph. Additional topics include limits, tangents to a curve, minima and maxima, area under a curve, L'Hospital's rule, parametric equations, Taylor series, and solutions of differential equations.

Discrete Math

True BASIC
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Discrete Math can be used to introduce computer science and to construct truth tables and Venn diagrams. Graph theories include weighted and unweighted directed graphs, minimal path, Hamilton and Euler circuits, and spanning trees. Students can build binary trees, perform binary searches, and compare sorting algorithms under different conditions. True BASIC source code is included for many of the algorithms, but the language is not required to use the program.

Early Math

MicroEd
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Four lessons can help young students learn basic math concepts. Lesson titles include Count 'Em, What Number Is Missing?, Adding with Objects, and Subtracting with Objects.

E.T.A.

MicroEd
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Players use an equation to calculate the estimated time of arrival at each stop of their plane on a seven-leg, cross-country flight. A calculator may be needed.

Medal Winner

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High scorers in this program win computer medals. The object of the lessons is to arrange the digits of two numbers to create a multiplication problem that will generate the greatest product. For grades 4-8.

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Pre-Calculus

True BASIC
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Pre-Calculus covers the concepts of precalculus and elementary functions. Topics include how functions look, manipulating parameters, finding the equation of a line, conic sections, polar coordinates, inverse functions, logarithms, triangle solving, and root finding.

Probability

True BASIC
49.95

Probability covers probability topics such as coin tosses, dice tosses, and random walks. It includes information on normal and Poisson distributions, the central limit theorem, Bayes' probabilities, Markov chains, and tools for Venn diagrams and simple combinatorics.

Statistics

True BASIC
49.95

Statistical analysis is introduced in this education program. A built-in editor can be used to create, edit, and run statistical problems, and the program can switch between graphic and tabular output. Statistical topics include least squares, mean and standard deviation, median, quartiles and extremes, histograms, confidence intervals, t-test, residuals, and graphic options such as scatterplots, lines, and fitted normal curves.

Sum-It Mountain

MicroEd
29.95

Students try to carry a flag to the top of the mountain in the fastest possible time by adding nine numbers in cumulative exercises. If a mistake is made, the player must start over again at the bottom.

Trigonometry

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With this program, students can learn to plot functions and compare them with tables of values. *Trigonometry* also offers practice in overlaying several functions in one graph, manipulating the range, and solving triangles using



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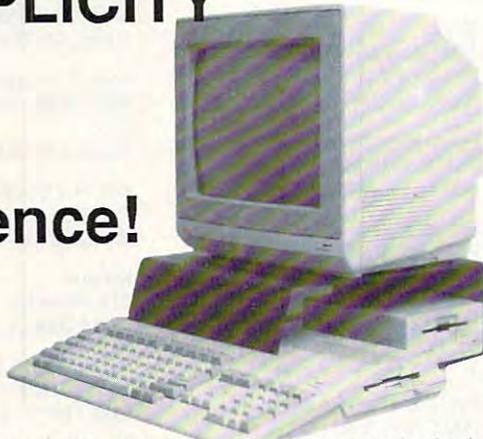
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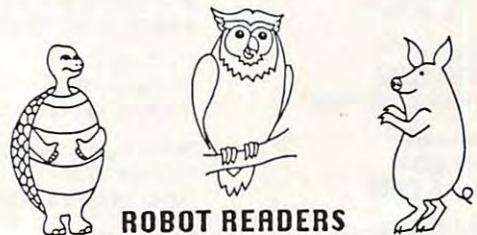
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The Three Stooges

Cinemaware's Interactive Movie series has attracted strong attention ever since the release a couple of years ago of *Defender of the Crown*. Originating on the Amiga, Interactive Movies made full and immediate use of the machine's graphics and sound capabilities. The problem was that gameplay often suffered because of such enormous concentration on these features. Thus, playing *Defender of the Crown* grew somewhat tedious. With the release of *Sinbad and the Throne of the Falcon*, Cinemaware seemed ready to concentrate on the game itself; with *Three Stooges*, it comes close to breaking the barrier.

Undergoing something of a renaissance in today's nostalgia-crazed television market, the Three Stooges are naturals for a Cinemaware game. First, they're instantly recognizable. Second, their comedy revolves around doing things (albeit ineptly) rather than relying on verbal humor. Third, fashioning a simple good-vs.-evil plot for them shouldn't be too difficult, especially since the Stooges were often involved in trying to perform some good deed.

Stooge Quest

Even with a plot and a famous cast of characters, making a game is far from easy. What Cinemaware has done is to establish the Stooges' quest and then have the players of the game fulfill the quest through a series of mostly interesting subgames. The quest is simple: The Stooges have 30 days to come up with \$5,000 dollars to save Ma's Orphanage from repossession by the Evil Banker. If they earn \$10,000, they pay off the mortgage and have enough to make some repairs. For an unspecified amount above \$10,000, each can marry one of Ma's beautiful daughters.

So far, I've paid the debts twice. I've come close to repairing the orphanage once. And, really, the daughters aren't my type.

Gameplay is slick, hampered only by excessive but inevitable disk access. After the beautifully executed introductory screens, the Hand screen appears. Here, the Stooges watch as Moe's hand moves randomly across a series of icons on the screen. Pressing the fire button stops the hand; if you wait too long, it stops by itself. Where it stops determines what happens next.

If you land on a mousetrap, you lose a day. Five mousetraps, and the game is over. If the hand stops on the Evil Banker, you lose the day plus what-

ever money the Banker demands. Choosing a dollar sign takes you to a wallet or bag of money; this is easy, but not usually substantial, income. Trivia takes you to a series of questions about the Stooges, answerable from an enclosed booklet that details their history. Here you earn money for each correct answer.



All Cinemaware scenes are taken from specific Three Stooges productions, and all emphasize the nonstop slapstick nature of their comedy.

Beyond these relatively passive possibilities are five subgames, four of which earn money. In the Hospital game, you race the Stooges toward the operating table, collecting dropped items as you go. Each item earns income, as does the distance you manage to go. The Cracker-Eating game has you move Curly's spoon over a cracker in a bowl of soup. Push the fire button to scoop it up. Remember, these are the Stooges, so there's something in the soup guarding the crackers. Money in this subgame comes from the number of crackers you eat and the number of bowls of soup you access.

In the Boxing game, Larry runs an obstacle course to get a new violin, with which he keeps an evil fighter from winning. The sidewalk here is divided into two lanes, and Larry must change lanes and jump to avoid ladders, doors, and objects on the ground. Finally, the Pie Fight game has all three Stooges serving a bunch of pies to guests at the Hoiti Toiti Club. Serving, of course, means throwing, and the object is hitting the guests in the face. The secret here is to throw as many pies as possible before the Stooges get hit five times in their own faces.

Slap Happy

The fifth game is the Slapping game. Here, Moe tries to knock some sense into Curly and Larry with a series of stomach punches, ear pulls, eye pokes, and face slaps. Built into the game are

the famous fakes, in which Moe threatens one move and then executes another. Each time Moe hits one of his partners, the speed of the Hand on the Hand screen slows down. This makes it easier to control the Stooges' progress. Each time he misses, the Hand speeds up.

None of the subgames constitutes a game on its own. Impressive, though, is the way each is true to the Stooges' television and movie antics. Moe did poke the eyes, slap the heads, and pull the ears of his buddies; and pie fights were a part of the genre. All Cinemaware scenes are taken from specific *Three Stooges* productions, and all emphasize the exclusively slapstick nature of their comedy. Given that, plus a defined quest, this game has a considerable amount going for it. If you liked the *Three Stooges*, Cinemaware's effort should bring back a number of pleasant memories.

— Neil Randall

Cinemaware

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\$49.95

Deluxe Photo Lab

In establishing the *Deluxe* designation for a series of Amiga productivity programs, Electronic Arts hoped to create a prefix that says "This is our best," much in the way the *Ektia*-prefix was for years used by the Eastman Kodak Company. The photographic simile is especially appropriate now that the name has been applied in *Deluxe Photo Lab*.

Although it really has nothing to do with photos—save those captured and saved by other programs such as *Digi-View*—the naming is an attempt to root the program in the familiar. The program's output is the same as that of standard Amiga paint and draw programs, but the manipulations that can be performed most resemble those performed in custom photofinishing labs. In this, *Photo Lab* goes beyond other painting programs and beyond photography labs to put you on the cutting edge of computer image processing. But *Deluxe Computer Image Processing* just doesn't have the same ring.

All fo One, One for All

Comprised of three separate programs called Paint, Posters, and Colors, *Deluxe Photo Lab* allows you to run the three singly or together. This last mode, with its ability to hold several full-page

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images in memory, makes the minimum one megabyte of RAM a requirement. The program disk is installed on Workbench 1.3, giving you access to better printer drivers and a more finely tuned printing control.

Paint gives you all the standard tools expected in a good painting program—though there are some *Deluxe Paint II* tools not included—and then adds some new wrinkles.

For starters, it allows you to load and work with pictures in any of eight resolutions: lo res, hi res, Extra Half-Brite, and HAM (Hold and Modify). In addition, each of these four can be used in interlaced mode as desired. Even more, should you need to work on more than one picture at once, several pictures can be held in memory regardless of each picture's resolution.

At the top of the screen is a menu bar and a toolbox. The toolbox shows the palette in use as well as various tools with which to create a painting or drawing. The number of colors in the menu is determined by the display mode selected as well as by the number of bit planes desired. An added feature is the ability to select colors from the screen. Should you wish to repeat a color previously used, you can pick it directly from your painting, making color matching much easier.

Most of us were delighted when *Deluxe Paint II* finally allowed us to draw pictures that would fill an 8½ × 11 sheet of paper. With *Photo Lab*, picture size is determined by your screen resolution and by the total amount of RAM.

Pages and Palettes

Besides the working "page," another page offered is the palette screen, which allows custom mixing of colors from the 4096 available on the Amiga. Though most of the resolutions support much less color, the HAM modes allow the use of all 4096, providing you have the patience and the need to work with so many.

The Colors program is similar to the palette page of Paint in that its purpose is to refine colors, but even here more features bring the total program closer to a true photographic laboratory.

From pull-down menus, you can elect to display your picture in black-and-white. The scale of gray tones created by this option results in a screen image that looks remarkably like a black-and-white photo. For those who may have learned negative retouching in a real photo lab, there is also a "nega-

tive" option that makes the image appear just as the name implies.

Color separation is also possible, allowing you to display a picture in red, green, blue, or the complementary colors of cyan, magenta, or yellow. With a single-color printer, it should be possible to create full-color pictures by making four passes through the printer with a different-colored ribbon on each pass. In practice, however, proper registration may be difficult.



In bringing to painting programs so many new options and operations, Deluxe Photo Lab brings to the computer many of the manipulative options of a custom photo lab.

Match Palette allows you to refine one picture by matching its palette to that of another picture in memory. The program does this while still trying to retain the color quality of the original. The result is that two disparate pictures can be more easily combined—or a composite or montage built—by cutting and pasting the brushes from one to the other while staying within the boundaries of like colors.

To ensure even more compatibility, Colors allows you to change the display mode of your picture. Hi-res or lo-res pictures can be changed to HAM mode, and vice versa, and a color-reduction sensitivity control helps keep the new product looking good.

Color Content

The Colors work screen displays a bar chart showing the relative content of each selected component color. Up/down arrows allow you to heighten or diminish the value of any color while watching the changes in the displayed picture.

Resizing of the picture may also be done by increasing or decreasing the horizontal or vertical pixel count. Similarly, the Mosaic button allows you to resize pixels in either aspect to create mosaic effects. One of my favorite features is the setting of the test register,

which makes it possible to conduct most of the above operations on a trial basis.

While the Paint section of *Deluxe Photo Lab* is most like a camera, Colors takes us into the darkroom. Here we're performing computer equivalents of developing, retouching, additive color printing, and enlarging. The analogy breaks down because of overlapping functions between the two programs, and there is a further overlap between Colors and Posters—the latter best considered an enlarger.

In Posters, your working screen is a matrix of rectangles, each representing a sheet of printer paper. The idea here is that pictures measuring up to 10 × 10 feet can be created and then taped into poster-size prints.

Well, not everybody wants to do that and probably few people need to do it often, so what's the point?

By giving you the ability to manipulate a painting and magnify it a hundred or more times, Posters also allows you to work with smaller scales. In this, it is somewhat like moving the head of a photographic enlarger up or down. You can print the entire picture on poster-size paper or print a detail of the picture on standard-size paper.

Suppose you're fascinated by the eyes of the girl in the famous *Digi-View* "lollipop" picture, and that in this poster-size setup, they occupy page 18. Go to the print menu and elect to print only that page and you've performed the computer equivalent of an extremely tight crop.

Detail Work

In another instance, perhaps you don't want to wait all night for a color printer to finish a large poster, but you do need a single-page picture showing maximum detail. Use the tools at the right side of the screen to alter your page size and dispense with margins. With the automatic Aspect setting disabled, it is possible with some printers to print pictures that go to the very edges of your paper. Further, if you wish, you can print a narrow vertical picture that will continue over the perforations for several pages.

When you do create a poster of any great size, you'll be pleased to note that the enlargement is not accomplished by FatBits. Though I found no explanation of how *Photo Lab* works, it seems to handle pictures as objects rather than as bitmapped images, in much the same way that they are handled by computer-aided design (CAD) programs.

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The print requester window not only allows you to select specific pages to print, but also gives you a choice of printing the background or not. In this respect it is dumb, and if the background color (color 0—black—which is the default color) is duplicated in any of the pictures' subjects, that part will not be printed. In making this choice, the main idea is to speed printing.

Another printing option is Smooth. When invoked, it uses antialiasing techniques to produce pictures with a minimum of the jagged lines associated with computer printouts. Use this judiciously, for while it does produce pictures with less of the computer look, sharpness and fine details suffer.

As always with programs in the Deluxe series, documentation is very good. Each of the three sections of this book begins with an overview—a tour that compels you to use most of the features while working with the pictures on the enclosed data disk. Each concludes with a long reference section that examines each feature in closer detail. In addition, there are useful appendices and an index, the whole being spiral-bound so that it will lie flat on your desk.

In bringing to painting programs so many new options and operations, *Deluxe Photo Lab* brings to the computer many of the manipulative options of a custom photo lab. Unlike a lab, it lets you preview everything without the time and expense of making a final print, and this should encourage even more experimentation.

—Ervin Bobo

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WordPerfect Library

WordPerfect Library is a collection of five productivity tools, a kind of computer version of the office desk set. It includes an appointment calendar, a simple database, a trio of calculators, a disk-management program, and a text editor. Some might consider these to be minor applications, the kinds of programs that often turn up in the public domain. But a brief glance at the documentation makes it clear that WordPerfect doesn't regard these programs

as minor in any sense of the word. There are at least 100 pages of instructions for most of these programs, more than 200 pages for the database alone.

The attention to detail and the number of features included in each program make the *WordPerfect Library* applications stand head and shoulders above the crowd of common desk accessories and pop-ups.

The appointment-calendar program features four separate windows. The calendar window is formatted like a page from a wall calendar. It defaults to the current month, but the display can be changed to any month in any year, either manually or by searching for a particular date. One of the days on the calendar display is always highlighted, and the other three windows display the appointment list, to-do list, and memo pad for this date. An appointment may be set by clicking on the window and entering a time and a description. There's also a facility for duplicating recurring appointments.



The attention to detail and the number of features included in each program make the WordPerfect Library applications stand head and shoulders above the crowd of common desk accessories and pop-ups.

The program allows you to save and load multiple appointment files, and it even allows you to merge several appointment books to find a time when everybody is free for a meeting. Any or all appointments may be marked for use by the Alarm program. This is a stand-alone program which may be run separately to remind you of your appointments. A few minutes before the appointment, the program displays a message on the screen, speaks its text, sounds a buzzer, or does all three. The third calendar window holds a list of things to do, in order of their priority. As you complete a task, you mark it; the program checks it off and moves it to the bottom of the list. There's also a carry-over feature that may be used to move unfinished tasks to the next day.

Finally, each day has a memo-pad window where you can write reminders about birthdays, anniversaries, or holidays. Part of the memo text may be displayed on the calendar, if there's room. You may also search through the text of the memo, to-do, and appointment windows to find the date for which an event has been entered.

Take Note

The Notebook program is what the manual refers to as a mini-database, intended for use as an address book or for keeping track of small mailing lists, client lists, and the like. As with all database programs, Notebook allows you to create a record format that contains various fields such as name, address, city, state, and zip code. You may then enter the information for each record, save it, and later retrieve, edit, or delete the information. All information is recorded.

The Programmer's calculator performs calculations in binary, octal, hexadecimal, and decimal numbering systems. It will also perform logical operations like AND, OR, XOR, and NOT, as well as bit shifting. All of the calculators can either operate in algebraic-entry mode (with parentheses for ed as alphanumeric text; there's no provision for special numeric or calculated fields. You can, however, designate a phone-number field, which can be used to dial a number in your address book provided you have an autodial modem attached.

Notebook provides simple search and sort facilities for finding particular entries and for displaying your list in a certain order. Records can be displayed one at a time or in a list format in which each record takes up one line. There are no report-formatting facilities, and printing is restricted to the list format. But database files are saved in the *WordPerfect* word processor's merge format, which allows you to merge your data into form letters, invoices, and other fancy formats.

The Calculator program isn't just a simple four-banger that comes on the Workbench disk. It's actually three sophisticated calculators in one. The Scientific calculator offers trigonometric functions, logarithms, exponents, roots, and factorials. It also works in units of degrees, radians, and gradians. The Financial calculator has keys for Present Value, Future Value, Payment, Number of Periods, and Amortization—in short, everything you need to calculate annuities, compound interest, yields, and loan amortizations.

grouping) or use Reverse Polish Notation. All of them have access to 100 memory registers, which can be saved to disk. About the only major feature these calculators lack is a print option.

File Management

The File Manager program is similar to the many directory utility programs available for the Amiga in the way it helps you organize and manipulate disk files. It consists of a scrolling directory window with a number of buttons that allow you to move through directory structures to delete, copy, rename, and examine files. Most of its functions are similar to those found in the List Files option of *WordPerfect*.

The features that have been added here include scrolling buttons that allow you to select either physical drives (df0:, dh0:, ram:, and so on) or logical drive names (such as sys:, workbench:, and wp:). In addition to a feature that allows you to search a directory for files containing a certain word or phrase, there's a Find File option that lets you search for a filename in every directory of a disk—a really helpful feature for hard disk owners. This program would have just about everything if it included a Move (copy and delete) option and the means to copy a file from one disk to another on a single-drive system without multiple disk swaps.

The final program in the package, Program Editor, is like a customized version of the *WordPerfect* word processor. It has less in the way of print-formatting features (no margin settings, type styles, and so on), and more in the way of editing options (move and clone, for example, for faster cut-and-paste operations).

Other important differences are that the editor doesn't perform word-wrap at the end of the line, and it saves all files in plain ASCII text format. Some additions—such as autoindent and a hexadecimal edit window—have been made to accommodate the needs of programmers. In most other respects, however, this program is very similar to *WordPerfect's* namesake product. In addition to their individual features, these programs share a number of common traits both with each other and with the *WordPerfect* word processor.

All of the programs that print do so through the same stand-alone print program used by the original *WordPerfect* program. Some contain the same keyboard macro facility used in

WordPerfect. Most will export to a *WordPerfect* document file. And, despite the fact that *WordPerfect* writes for a variety of operating systems, these products have been carefully tailored for the Amiga, right down to the inclusion of an option to specify your own IFF digitized sound file for the alarm. Looking at the *Library*, it's easy to see how *WordPerfect* earned its reputation for quality software and support. Each of the programs is a polished product in its own right, and together they present a winning combination.

—Sheldon Leemon

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ProWrite 2.0.1

ProWrite is my favorite word processor. I've had several favorites since I bought my Amiga—*Scribble!*, the beta version of *TextCraft Plus*, and, more recently, *KindWords*—but for now, *ProWrite* is number 1.

ProWrite is a true Amiga application, with pull-down menus, windows, scroll bars, mouse control—everything you bought your Amiga for. It's a WYSIWYG (What You See Is What You Get) word processor that supports multiple fonts and graphics. Compared to similar Amiga word processors, such as *VizaWrite* and *KindWords*, *ProWrite* is faster, more flexible, and bug-free. And, unlike *WordPerfect* (which makes you think you're writing on an IBM PC), *ProWrite* respects the printer driver that you've selected via Preferences.

Two versions of *ProWrite* come on the program disk: an interlace version and a medium-resolution version. The interlace version shows twice as much text on the screen vertically, but the screen flickers (this is because of a limitation with the Amiga's hardware, not the word processor). Medium resolution is the most usable version, even with its decreased window size. But if you use one of the many flicker-fixer products available (such as sunglasses), you may appreciate *ProWrite's* interlace mode.

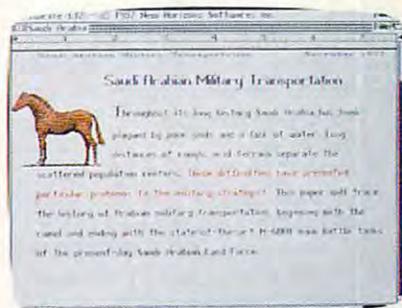
Powerful and Multitasking

ProWrite is a powerful, self-multitasking word processor. You can edit several *ProWrite* documents at the same time. Each file opens up in a separate window on the *ProWrite* screen. With the

click of the mouse, you cruise from document to document. With a few extra mouse maneuvers, text and pictures are copied from one file to another.

While not a desktop publishing program, *ProWrite* is capable of producing quality flyers, pamphlets, and user-group newsletters. IFF pictures from programs such as *Deluxe Paint II* or even *DigiPaint* can be loaded from disk and placed anywhere on the page—even on top of text. Pictures may also be moved, resized, erased, cut, or copied at any time. By manipulating the document's margin settings, you can make text flow around your graphics.

ProWrite converts all IFF pictures to seven colors. If the picture was drawn with more than seven colors, the computer uses a dithering technique to produce the extra hues—dark red is converted to alternating red and black dots, for example. Before loading a picture, you have the choice of three dithering options: Full, Partial, or None. You may also load pictures in black-and-white.



I would recommend *ProWrite* to anyone who is looking for a useful and flexible word processor.

More than pictures, however, I like *ProWrite's* ability to use fonts. *ProWrite* supports all Amiga-compatible fonts. The system disk that comes with the program contains several standard fonts, plus a few extra, such as Serpentine, Granite, and Marble. With a little extra work, you can add your own fonts by placing them in the fonts directory of the Workbench disk that you boot with.

ProWrite is a uniquely colorful word processor. If you like, every character can be one of seven adjustable colors.

Printing Strength

ProWrite's printing capabilities are impressive, too. The standard printing option produces clear, well-defined characters, much better looking than

REVIEWS

the chunky letters output by Notepad, the Amiga's first multifont text editor. In order to use your printer's built-in font or letter-quality mode, you must convert all your text to Topaz 11. Otherwise, your printout becomes a mess of awkwardly placed words.

To set tabs, margin settings, and paragraph indentions, use a ruler that appears at the top of the document window. You can have a different format for every paragraph. Unfortunately, you can't get rid of the ruler. It looms permanently at the top of the window, wasting approximately two lines of text space.

Text Editing

What really impresses me about *ProWrite* are the many ways I can select and edit text. Using the mouse, you can shift-click, double-click, and triple-click text. Shift-clicking selects text from the current cursor position to the position of the arrow pointer, saving you the time of dragging the cursor across the screen. I find it hard to use a word processor without this feature. Double-clicking selects a word, while triple-clicking highlights an entire line. Once selected, text can be erased, cut, copied, or replaced simply by entering new text from the keyboard—another feature I've grown to rely on.

You must be careful when selecting large amounts of text, however. *ProWrite*'s almost-unforgivable lack of an Undo function makes it difficult to reverse unintentional editing changes. If the mistake is severe enough, you can return to the last-saved version of a document by selecting Revert from the program's Project menu.

Keyboard support is equally impressive. If you like, you can cruise through a document without ever reaching for the mouse. Most of the word processor's functions can be accessed from a pull-down menu or the keyboard.

ProWrite contains many advanced features, including search and replace, print merging, spell checking, and the ability to sort lists of words. The program's spelling checker allows you to add words to its already-hefty 95,000-word dictionary. In fact, you can actually load the dictionary into memory and edit it.

A Couple of Quibbles

There are a couple of things, however, that really irk me about *ProWrite*. First of all, its spelling checker is extremely slow. I wouldn't mind the

spelling checker's lack of speed if it checked the entire document in one pass, so I could watch TV or something while it tracked down spelling errors. Instead, it checks each word one by one, forcing you to sit by and listen to the disk drive gronk. By copying the dictionary into RAM (assuming you have 250K to spare) or by using the program's small dictionary, this process *can* be sped up. Even with its slow response, though, I do appreciate the convenience of a built-in spelling checker.

My second complaint is that *ProWrite* will not load text files that don't have a corresponding info file. In other words, the file must be visible from the Workbench screen. Text files downloaded from telecommunications services can't be accessed via *ProWrite*. Often I find myself loading files into *KindWords* just so I can save them with info files; then I load them into *ProWrite* for editing.

Even with its problems, *ProWrite* is still my favorite word processor, and I would recommend it to anyone who is looking for a useful and flexible word processor.

—Randy Thompson

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Terrorpods

In a distant region of outer space, on the edge of System 7, lies the asteroid Colian. This dismal little rock features sizzling days and bitter subzero nights. It may not be Disney World, but it does draw a lot of attention. Colian holds the richest supply of natural resources found anywhere in the galaxy. Some of the precious minerals mined there include Detonite, a powerful explosive; Quaza, a molecular regeneration crystal; Zenite, a metallic ore that stores powerful magnetic fields; and Aluma, the hardest metal known to man. With rare material like this lying around, trouble is never far away.

A hostile group of galactic invaders, called the Evil Empire, decided Colian would make a great place to build their latest fighting machines, the *terrorpods*. They sent an Empire mother ship to the asteroid that destroyed its defense systems and left the mining colonies helpless. The Colian miners

were then enslaved, and the colonies were taken over. In opposition, the Federation sends you to Colian in an armed D.S.V. (Defense Strategy Vehicle) to collect six terrorpod components, construct your own terrorpod, and rid the asteroid of the Empire threat.

You arrive in a fully equipped D.S.V. stocked with an ample supply of minerals and a trading drover. In addition to supplies, your vehicle is armed with Detonite-powered missiles and cannons, Zenite defense shields, and a Quaza beam for repairing damaged factories and shuttles.



Terrorpods supplies fast-action gameplay coupled with possibly the best computer graphics available.

Fair Trade

You begin your mission by trading for Aluma and supplying it to the factories. The factories use the Aluma to construct the terrorpod components that you need. When you have supplied enough Aluma, a component can be constructed and then collected. This part of the game requires patience, because it takes time for the factories to complete a component. When acquiring Aluma, you must be a smart trader and learn to maximize your resources. Playing carelessly will only result in your early demise.

As you travel to the various colonies, you encounter a number of alien hazards. Spoilers are annoying little ships that hinder your mission. They hover directly above the mines and stores to siphon out the valuables. One cannon blast will destroy them, but you must be very careful: Since they fly erratically and close to buildings, you can easily miss them and destroy part of a colony.

You must constantly track the roaming terrorpods, or they'll put the squeeze on your plans. They will often destroy the factories just to keep you from collecting the components. A little strategy comes into play when you face a terror-

pod. You may elect to conserve Detonite and use your cannon to temporarily cripple it, or you can prime a missile with 1000 units of Detonite and permanently disable the beast. Since your supplies are limited, you may just want to avoid terrorpods whenever possible.

After collecting the six terrorpod components, you get to construct your own terrorpod—this is where the fun begins. The final confrontation is a timed shootout between you and the deadly terrorpods. You have eight minutes to destroy them all or you're history. Fuel consumption is a big factor at this stage of the game. Since the terrorpods are dispersed throughout the colonies, you must always be aware of the nearest fuel dump. Use missiles sparingly and accurately. Remember, you only have 18 missiles, and there are 15 terrorpods to destroy.

If you manage to survive the final ordeal, you'll be honored as a Federation hero. If you fail, the *terrorpods* will pick through your remains.

Futuristic Vision

Terrorpods supplies fast-action gameplay coupled with possibly the best computer graphics available. Finely detailed graphics are very striking and colorful, especially the cockpit view. It flashes with futuristic controls and produces a realistic view of the scrolling metallic landscape. The missile-launching sequence is especially fun to watch. As you prepare for launch, a target window actually slides out of a panel into view.

Many player options are also available, including one that changes the language of the text. The game can be controlled with a mouse, joystick, or keyboard. It includes a save-game feature, a pause feature, and multiple difficulty levels; plus, it saves high scores to disk.

Terrorpods redefines the term videogame in a refreshing new way. It sports flexibility, beautiful graphics, and dynamite sound effects, along with many options and features that are sure to appeal to a wide audience of game players. People who enjoy strategy, adventure, or arcade games will have a lot of fun with *Terrorpods*.

—Troy Tucker

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The Awesome Arcade Action Pack, Volume 1

The high price of software got you down? Looking for some *real* arcade action? If your answer to either of these questions is *yes*, then *The Awesome Arcade Action Pack, Volume 1* is for you. This latest offering from Arcadia features three action-packed games: *Xenon*, *SideWinder*, and *Blastaball*.

All three games are computer conversions of Arcadia coin-operated games. Arcadia, whose games are distributed by Electronic Arts, is a division of Mastertronic. The games feature true arcade graphics and sounds, digitized features that make this package state-of-the-art.

Xenon

Xenon, the most elegant of the three, has the most complex music and the cleanest and sharpest graphics. The game is a vertically scrolling shoot-'em-up, and it's simply beautiful. Unfortunately, I can't seem to get the hang of it.

My first few tries at *Xenon* were truly embarrassing. It's a good thing no one was watching me play. In the end, I had to read the manual, and I learned a lot. I found I could switch between ground-fighting and air-fighting crafts. I could pick up friendly robots that echoed my movements and firing patterns. I could pick up fuel and new weapons.

I played again, and I was great! With my homing shots, robot warriors, and lasers, I was unstoppable. I promptly found the sentinel. According to the manual, at the end of every level you must face a sentinel. Sentinels are intelligent, and each one is different. In all my tries, I've never found a way to kill even the first sentinel, so every game I play looks the same. I should videotape one and save myself the trouble. Someday, though, I'll destroy my enemy and move on.

Sidewinder

SideWinder is another vertically scrolling shoot-'em-up. There's nothing like a sentinel in this one though, so every time that I play (well, almost every time), I progress a little further.

The first time I played this game I was underwhelmed. The player's spaceship blinked (there's no excuse for blinking graphics on the Amiga). Also, when I fired my guns, there was garbage in the shots. That was on my Amiga 500. At work, the game looks just fine. No flick-

er. No garbage. My guess is that there's some sort of timing variation in the hardware between my one-megabyte Amiga 500 at home and my 512K (non-EHB) Amiga 1000 at work. I hope this problem will be fixed soon.

The graphics are great. The idea behind *SideWinder* is that you're flying through various levels of an alien spaceship. You're not there for negotiations; you just want to blow up everything. With each level of the ship comes new challenges and, best of all, new graphics. Admittedly, *SideWinder* is on the mindless side, but I enjoy it. In my opinion, there's nothing better than shooting aliens after a hard session of word processing or spreadsheeting.

Blastaball

The third game is the odd-man-out in the group. It *isn't* a vertically scrolling shoot-'em-up. Instead, *Blastaball* is a variation of hockey. You select one of ten ships, ranging from the lightweight Tai Dart to the heavy-hitting Carnivore.

You can play *Blastaball* against a human or computer opponent, using either mice or joysticks. If you want to play the one-player game, you must remove the mouse from port 1 and plug in a joystick—no easy feat on the Amiga 500.

There are two ways to score. First, push or shoot the puck into your opponent's box. This nets you two points. Push the puck against the opponent's wall for one point.

The game ends when a player passes nine points or after three minutes have elapsed. The graphics and sound of *Blastaball* aren't as impressive as those of the other two games, but I thought it was more fun (at least, the two-player version).

While each of these games probably would have trouble making its own way, the combination makes a dynamite package. There's something here for every arcade fan.

—Rhett Anderson

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Hands On: About Our Cover

Rhett Anderson

The Amiga is an artist's dream computer. It has the best standard-issue graphics capability of any personal computer. There are many excellent paint programs and many inexpensive input devices available for use with the Amiga. And, best of all, the computer is inexpensive.

I started with a photograph of two hands resting on the keyboard of an Amiga 1000. I shot a whole roll of 35mm film to get the photo I wanted.

If you're taking photos that you plan to digitize, set up your shots carefully. From experience, I knew that isolating the foreground (the hands and the keyboard, in this case) from the background is sometimes the most difficult chore in making a cover. To solve the problem, I placed the subjects on a piece of black poster board and shot the photos outdoors in the bright North Carolina sunlight, creating a situation that provided plenty of contrast. I've found that high contrast in source photos leads to more readily identifiable objects in the digitized photo.

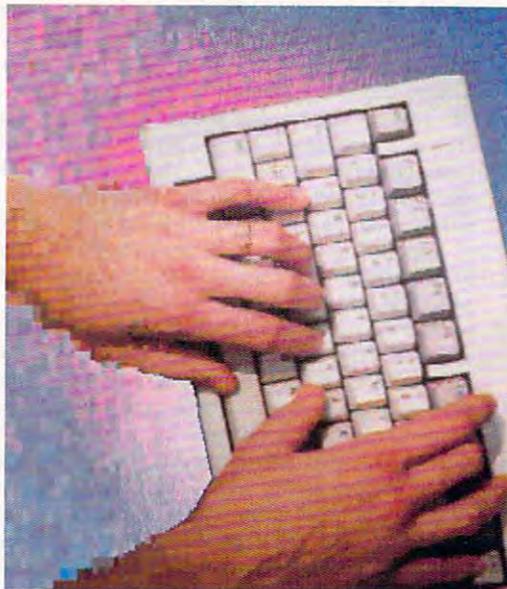
For developing, I took the roll of film to MasterColor, a professional film printer. For maximum sharpness, I had 5 × 7 inch glossy prints made. Looking back, this seems silly: The resolution of the final screen was about 250 × 400, obviously much lower than that of any photograph. In the end, the image probably would have looked no worse if I had taken the film to a drugstore for processing.

Pictures into Pixels

Armed with 24 shots of keyboards and hands, I set up *Digi-View*, a hardware and software system that consists of an interface, a video camera, a light stand, and cables. This is the most inexpensive system for getting real-world images into an Amiga. The only higher-quality images I've seen on the Amiga were captured by a very expensive scan-

ner. A scanner works better than a digitizer because there is no light falloff around the edges when you use a scanner. There's no way around the problem of falloff in a camera—it's a matter of optics.

I set up the *Digi-View* software to use the 320 × 400 interlaced color mode. To minimize falloff, I aimed two lights at the edges of the picture chosen and set the *Digi-View* software at its slowest scan rate, which I always use for my final image. Using the filters sup-



plied with *Digi-View*, I captured the red, green, and blue components of the photo. I then turned off the lamps (they get hot quickly) and put the lens cap back on the lens (images can burn into a video camera even if it's turned off).

The resulting image was crisp and clear. Since the background was a solid color, *Digi-View* did not waste its palette colors on the background. I used Hold And Modify, a mode that allows only 16 palette colors. If half of those colors are wasted on the background, the image looks much less sharp.

Video Painting

I used three paint programs to alter the image. First, I used Electronic

Arts' *Deluxe Photo Lab* to isolate the foreground from the background. To do this, I used the fill option to make the entire background a pure black. *Deluxe Photo Lab* makes this particular task very easy because you can adjust the fill to fill in pixels that are similar to the color you click on. When I had removed all the extraneous pixels in the background, I saved the foreground as a brush (when you do this, make sure the transparency flag is turned on).

NewTek's *Digi-View* creates pleasing gradient fills, so I used that program to create the blue-and-purple background. Back in *Deluxe Photo Lab*, I pasted the hands and keyboard onto the new background. Next, in another program—Microillusions' *Photon Paint*—I pixelized the part of the cover that would hold the cover copy (that is, the words down the left side of the cover). *Pixelization* is the process of averaging the color of a neighborhood of pixels and placing that color into each pixel in the neighborhood, which makes the picture look blocky. *Photon Paint* allows you to choose different sizes of pixelization. I used the sizes 8, 6, and 4.

After showing the picture to Janice Fary, COMPUTE!'s art director, I removed the model's watch, which would have obscured some of the text. I also cleaned up some color fringes and altered the model's ring so that it would be less obtrusive. Finally, I used *Photon Paint* to shrink the image to the correct size ratio for the cover of the magazine.

I sent a copy of the disk to Philadelphia Video to have a transparency made. Philadelphia Video uses a video process to convert the Amiga's video format onto a slide or transparencies. The alternative to this method, taking a photo of the screen, yields a much poorer image.

The results? Judge for yourself—and drop us a line to let us know what you think. □

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- | | | | |
|--------------|------------------------------|------|------------------------------|
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| Amiga 3000 | <input type="checkbox"/> 211 | | <input type="checkbox"/> 212 |

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 Music/sound 249
 Programming/development 250
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 Other _____ 255

2. Where do you usually use your Amiga computer?
- At home/home office 214
 At a business office 215
 Both home and office 216
 In the classroom 217
 Other _____ 218

8. Approximately how much do you plan to spend on your computer or computer-related items in the next 12 months?
- Under \$100 256
 100-499 257
 500-999 258
 1000-1499 259
- 1500-2000 260
 Over \$2000 261
 Don't know 262

3. Do you plan to purchase a personal computer in the next 12 months?
- Yes 219
 No 220
 Don't know 221

9. Please indicate your age group.
- Under 18 263
 18-25 264
 26-30 265
 31-35 266
- 36-40 267
 41-50 268
 51-60 269
 Over 60 270

4. Which of the following peripherals do you own or use? (check all that apply)
- Genlock/video digitizer 222
 Hard Drive 223
 Joystick or game peripheral 224
 Memory Expansion 225
 MIDI device 226
 Modem 227
 Printer 228
 Sound digitizer 229
 Other _____ 230

10. What is the highest level you completed in school?
- Some high school or less 271
 High school graduate 272
 Attended college 1-3 years 273
 College graduate 274
 Post-graduate study without degree 275
 Master's degree 276
 Doctoral degree 277

5. Which of the following peripherals do you plan to purchase in the next 12 months? (check all that apply)
- Genlock/video digitizer 231
 Hard Drive 232
 Joystick (or game peripheral) 233
 Memory Expansion 234
 MIDI device 235
 Modem 236
 Printer 237
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11. Would you describe your present occupation as
- Clerical/technical 278
 Educator 279
 Homemaker 280
 Manufacturing/service 281
 Professional 282
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 No 241
 Don't know 242
7. What types of software do you plan to purchase in the next 12 months? (check all that apply)
- Business applications 243

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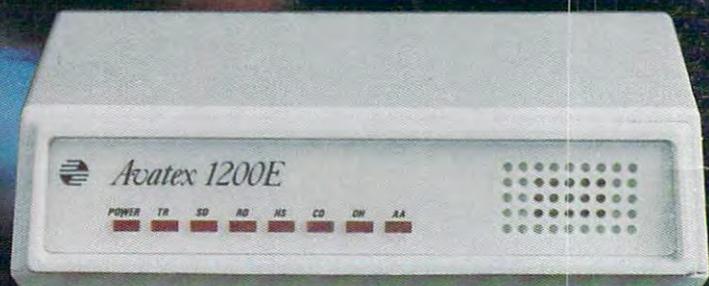
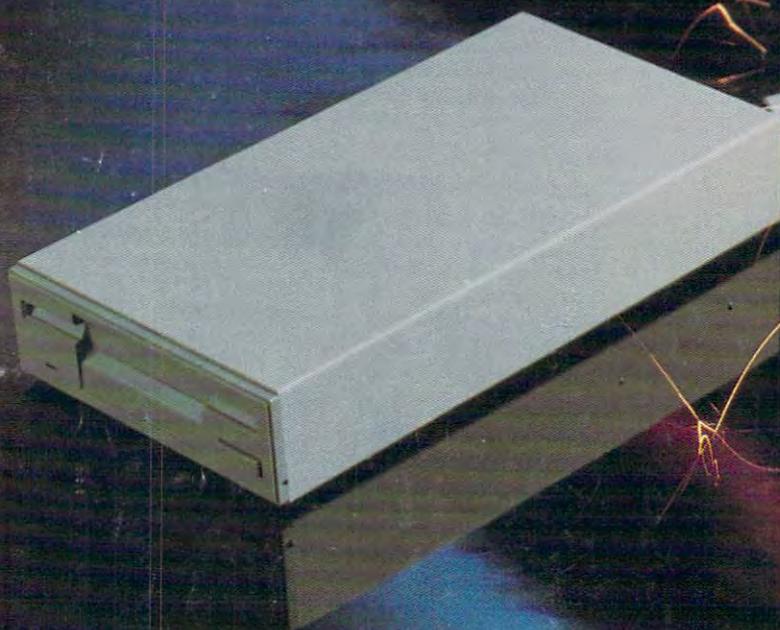
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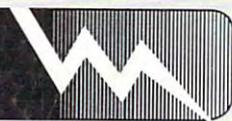


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