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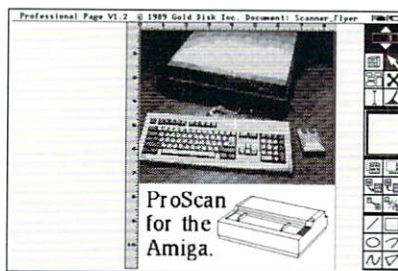
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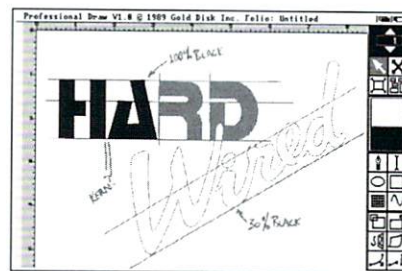
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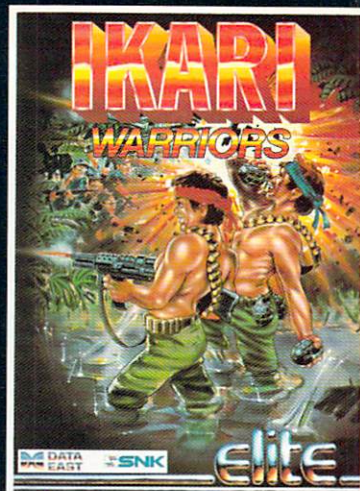
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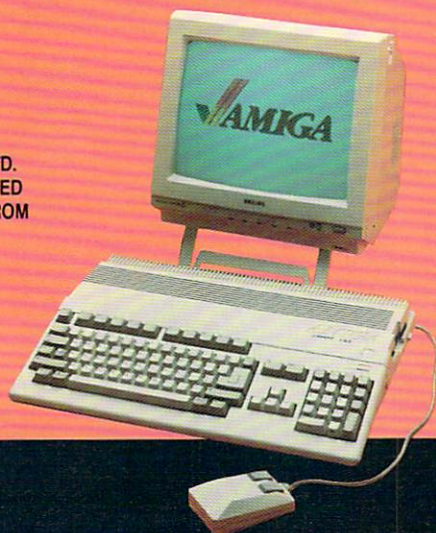
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FEATURES

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We're guaranteeing the winners in these races! A half dozen of our best tipsters have been busy handicapping six major Amiga applications areas to bring you the maximum payoff: Desktop Video, Productivity, Presentation Graphics, Word Processing, Telecommunications, and Amiga Basic.

QUICK CHANGE ARTIST

By Tim Walsh 41
Glasnost is in, so don't be a DOS-olationist. We've got some very diplomatic, quick-and-easy tips on proper file-transfer protocol between Amiga and IBM, Mac, Atari, and C64/128 formats.

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ACCENT ON GRAPHICS *By Joel Hagen* 52
If you've been avoiding DPaint's hi-res mode because of color limitations, you will be surprised to learn that with a little tweaking, you can have 136 colors available—whenever you want them.

INFO.PHILE *By Mark L. Van Name and Bill Catchings* 56
The DOS Brothers complete their two-part evaluation of AmigaDOS utilities, concluding that the latest half dozen hopefuls batted an even .500 in usefulness.

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By B.G. Hunter 64
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MYSTERY SWEEPS UPDATE

We won't know until next month's issue who the winners are in **The 1989 Amiga-World Mystery Sweepstakes** (nor can we publish the solution until then). But we can reveal one secret that we've been keeping: Turn to **page 54** and you'll learn just how the winners of those **\$25,000 worth of prizes** will be chosen—it's no ordinary lottery drawing!

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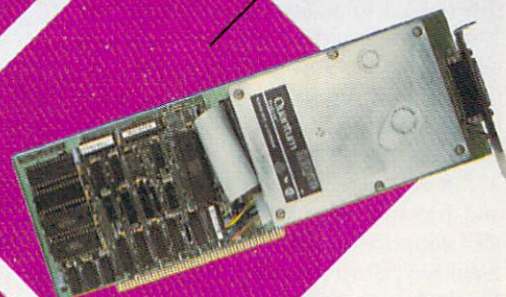
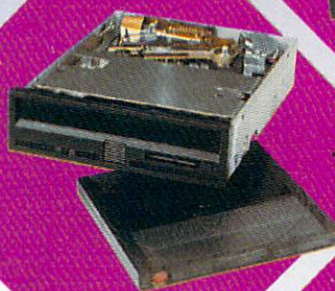


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Report: Summer Dev Con '89

Hot news from the developers' den.

NEW PRODUCTS, PROJECTS, and plans were the order of the day at June's Amiga Developers Conference in San Francisco. The bi-annual gathering gives third-party and Commodore developers the chance to share ideas, breakthroughs, setbacks, and solutions.

The biggest news this time was AmigaDOS 1.4 and the Enhanced Chip Set (the ECS, consisting of Agnus 8372-R3 and Denise 8373-R2a) for the A500 and A2000. CATS (Commodore Amiga Technical Support) distributed Alpha disks of 1.4 to all attendees and sold the ECS to interested developers. Providing better graphics and animation capabilities, the new Agnus chip gives you up to one megabyte of Chip RAM, plus the ability to create "big blits," measuring 32K × 32K pixels. The revised Denise and Kickstart 1.4 routines beef up genlock support with ChromaKey, Bit-PlaneKey, BorderBlank, and BorderNotTransparent options. You can also thank Denise for new screen resolutions—SuperHires (1280 horizontal pixels per scanline) and Productivity (four color, 640 × 480 resolution, non-interlaced). While SuperHires will work with a standard NTSC monitor, Productivity mode will require a multi- or bisync monitor. Commodore's new monochrome scan-converter 14-inch monitor, the A2024, will support both display modes and offers resolutions of 1008 × 800 pixels in NTSC and 1008 × 1024 pixels in PAL format.

Version 1.4 of the operating system offers plenty more besides new resolutions. The FastFileSystem will reside in ROM and work with floppy drives. Intuition will be expanded and the narrator device improved. Responding to popular demand, Commodore will incorporate ARexx—a hot topic for all developers—into the operating system. A small sam-

pling of other niceties you can expect includes a more professional looking Workbench screen, more meaningful messages for Guru errors, information strings instead of fuel gauges on Workbench screens, plus a pattern editor and font selectors from within Preferences for user-specified font type and size for screen icons.

On the other side of the operating system fence, CATS held a UNIX session and demonstration. The A2500UX is currently available in Europe, but U.S. users will have to wait a bit for the system with a UNIX hard drive and 68030 board.

The wait is not surprising considering the number of hardware projects keeping Commodore busy. The A590 SCSI/XT offers A500 owners a SCSI controller, a 20MB hard disk, and sockets for two megabytes of RAM. For A2000 owners, CATS discussed the A2091-40, consisting of the A2091 SCSI controller, a 40MB drive, sockets for two megabytes of RAM, and a Amiga 2000HD nameplate. If you already bought an A0290A, Commodore promises an A2090B card to add autobooting capabilities to your existing controller. More specialized Commodore products include a 256-color hi-res graphics card (the A2360), a multi-serial-port card (the A2232), and an A2000-compatible 25 MHz 68030 accelerator board (the A2630).

By far, the biggest hardware news was the Amiga 3000, with a 25 MHz 68030 chip on the motherboard. Sure to please power-hungry users, the A3000 could be a trailblazer of the first order.

To please a less technical but equally demanding audience, Commodore demonstrated its new icon-based, object-oriented authoring system. With it, you can create multimedia presentations (incorporating text, graphics, animation,

sound, and video) without relying on programming skills. Educators, business people, and anyone needing to combine the Amiga's sound, graphics, and animation capabilities with genlock displays and laser disks should welcome this user-friendly point-and-click environment.

Commodore offered plenty of encouragement for third-party developers, as well. To help subsidize their projects, Commodore is offering both technical and financial assistance. In addition, the company will organize a committee of Commodore and third-party representatives to improve communication, solve problems, and share ideas.

In the seminars, CATS made it clear it yearns to see improvements in commercial software. The group called for standardized documentation terminology geared to new users and more intuitive program interfaces. Other suggestions were to make programs fully compatible with 68020 and 68030 systems, to simplify the installation of software on hard disks, and to take advantage of the A2088 and A2286 Bridgeboards' RAM resources from the Amiga side of the system. Judging from the numerous nods in the audience, third-party developers agree with the ideas.

Commodore itself admitted to needing improvement. In his keynote address, Harry Copperman, the company's latest president, presented a five-step plan designed to bolster Commodore's image, customer support, and Amiga sales. He recognizes the Amiga is up against stiff competition and that focused marketing coupled with improved customer support could be his best weapon. His and the Commodore development team's ambitious plans bode for a lot of good news at the winter Dev Con in Paris. ■

—Tim Walsh

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REPARTEE

Comments, complaints, and concerns

from AmigaWorld readers.

PERFECT FUTURE

WORDPERFECT CORP. recently announced that it is ceasing development of all new Amiga products, and that currently existing products will be supported only by bug fixes.

I don't know about you, but this alarms me. It alarms me because the availability of WordPerfect for the Amiga is an important part of the Amiga's recent success. By ceasing development of all future products for the Amiga, WordPerfect Corp. is breaking a promise it had made to the Amiga community to continue to develop Amiga versions of its products.

I urge all people reading this letter to write and/or call WordPerfect Corp. and tell them that you would like to continue to see new WordPerfect Corp. products developed for the Amiga.

If a lot of people will call and write WordPerfect Corp. about this, they will probably reconsider their decision to cease development of Amiga products, and the future of the Amiga will be greatly enhanced.

Marc Barrett

For those who haven't already heard the good news, the folks at WordPerfect Corp. have decided to throw their hats back into the

Amiga ring. According to Rebecca Mortensen, Amiga Products Publicist for WP Corp., "reaction from a large number of Amiga users persuaded WP Corp. officials that our position regarding product development for the Amiga should be reconsidered."

The company will continue to develop WordPerfect and WordPerfect Library; a 6.0 version of WordPerfect that will include graphics support is a long-range goal. Development of PlanPerfect, a spreadsheet for the Amiga, has been dropped so that the company can concentrate its resources on the continued development of WordPerfect.

HARD DRIVE UPDATE

IN OUR JULY '89 roundup of hard drives and controllers ("Hard and Fast," p. 22) we reported the Xetec Fasttrak (A500) and FastCard (A2000) were capable of reading large contiguous chunks of data at around 700K bytes per second. Too late to change the article, we were told that the Xetec controller had a problem that made it test faster than it actually performed.

According to Xetec, the problem was the MaxTransfer default value for a FastFile-System partition. In units shipped prior to April 7, 1989, this value was set to system infinity (\$7FFFFFFF), which allows data chunks of essentially unlimited size to be sent through the controller. When

a read or write occurred that exceeded 128K in length, however, the operation was truncated or aborted, but the controller provided no error message. When the testing programs (DiskPerf 2.0 and PerfTest, which measure pure data I/O) tried to read or write files larger than 128K, they gave results that were faster than the controller actually was working. Worse, the problem could corrupt very large files. To correct the problem, you use Xetec's Partitions Utility program to change the MaxTransfer value for the FastFile partition to \$0001FE00, exit the program, and then reboot.

To correct the DiskPerf 2.0 and PerfTest results and relative rankings of the drives, I retested both Xetec's A500 and A2000 units under the same conditions used in the article. The results were significantly less than the originals, down about 200K for reads and about 100K for writes. Both the Xetec A2000 FastCard and the A500 Fasttrak Read/Write times reach a maximum of 510K/310K bytes per second (overscan Read/Write is 198K/124K). Of the seven A500 hard drives we tested, the Xetec Fasttrak remains the fastest of the group and is still my favorite. The A2000 Xetec FastCard, however, dropped to third in the speed race;

Commodore's A2090A and the MicroBotics' HardFrame are faster. The HardFrame remains the controller of choice.

Obviously, when we make these kinds of tests we strive for accuracy, which is one reason why we used two testing programs written by different programmers. Two authors, working independently, got the same results on both an A500 and an A2000 with different Xetec controllers, so we had no reason to doubt the results. As insurance, I called Commodore engineering and reported our results. They informed me they had gotten significantly higher results with some controllers in their lab, so the Xetec speed numbers were quite possible. We were wrong, however, and apologize. Xetec also wishes to express their regret for not telling us of the change before press time.

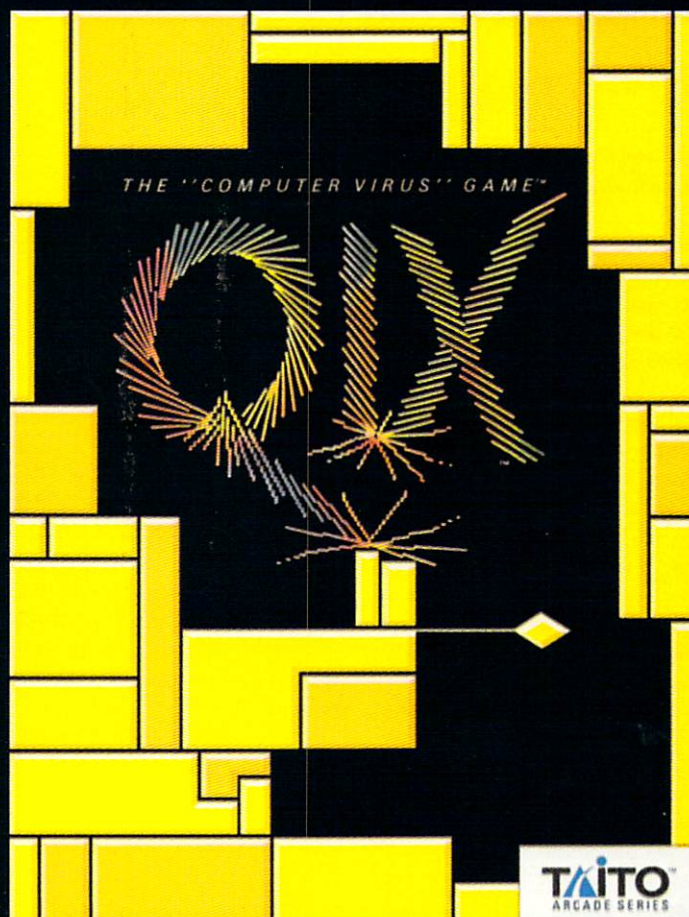
This episode shows the importance of companies notifying us of changes to their products. With up-to-date information, our reports will be accurate, and everyone—developers, the magazine and readers—will come out winners.

Louis R. Wallace
Contributing Editor

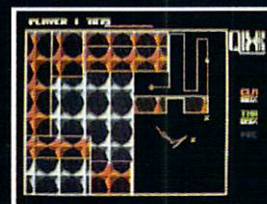
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VIRUS!

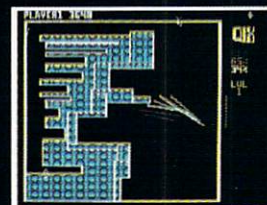
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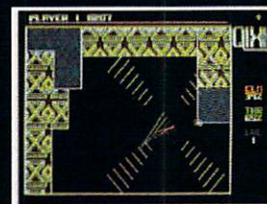
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NOTE PAD

Compiled by Linda Barrett

Help from Gramma

GRAMMA SOFTWARE, a Seattle-based Amiga software developer, has begun a public drive to furnish clean socks and underwear to homeless Seattle residents.

Michael Hugo-Loyacon, co-founder of Gramma Software, said that the charity drive began as an attempt to help Seattle's estimated 2,000 homeless residents. "We contacted the Seattle shelters to find out what their most pressing needs were for the homeless, especially in the area of clothing," said Loyacon. Shelter operators told Loyacon that they were often short of men's clothing—especially men's clean underwear.

Loyacon eventually spoke to Joe Madalay, vice chairman for Fruit of the Loom, who put him in touch with K mart Department Stores' National Contributions Office, and ultimately with Kathy Wallace, Apparel Manager of K mart's Edmonds, Washington store. Wallace arranged to sell brand new socks and men's underwear to Gramma Software at very low cost. "We still have to pay for it," says Loyacon, "but the price is right, and the shelters couldn't be happier." The clothing is currently being distributed to two Seattle shelters: the Men's Shelter at the Union Gospel Mission and the Bread of Life Mission.

Gramma Software would like to expand the program, but organizers doubt whether they can afford to continue the contributions indefinitely.

In an effort to keep the program alive, Jim Clarke, vice president of Seattle's



Puget Sound Bank (North City Branch), has just set up a fund to accept tax-deductible monetary donations to pay for and distribute more new socks and underwear to Seattle-area shelters. Checks should be made payable to "Gramma's Underwear Donation Project," Puget Sound Bank, 1519 NE 177th, Seattle, WA 98155. —SL

Summer Surprises

WHILE THE THUNDER and lightning were storming outside in Chicago last June, it was raining entertainment software inside McCormick Place at CES.

Developers flooded the show floor with computer versions of movie and TV hits. Mindscape, for instance, went where no Amiga software has gone before in **Star Trek V: The Final Frontier**. Visitors to the Taito booth got to play Stallone in **Rambo III**, while Activision's guests saw **Ghostbusters II**'s Slimer in action. In the Electronic Arts booth, Lucasfilm Games rolled

Indiana Jones and the Last Crusade. James Bond starred in the Broderbund booth, where **Licence to Kill** played on both a silver screen and a computer screen. Creature feature fans favored Cinemaware's **It Came From the Desert**, a take-off on *The Blob* and other 1950's "B" movie classics. **RoboCop** was showing at the Data East booth, as was **Batman, The Caped Crusader**. MicroIllusions, meanwhile, introduced **Jonny Quest** for nostalgic adventurers.

Board-game addicts also found their share of remakes.

Virgin Mastertronic offered previews of the classics: **Monopoly**, **Clue**, and **Risk**, as did the upstart company California Dreams with **Club Backgammon**, and a couple of games with historical roots: **Mancala** and **Triango**. **Ishido**, another ancient board game, was available for testing in the crowded Epyx booth.

For animal lovers, Konami promised the Nintendo hit **Teenage Mutant Ninja Turtles** for the Amiga, and across town at the Shedd Aquarium, Psychosis demonstrated **Beast**, an

arcade adventure with 13 levels of parallax scrolling. Two British companies, Elite Systems and System 3, both newcomers to the US Amiga market, had arcade releases on display.

Just to be different, Electronic Arts demonstrated **Deluxe-Video III**.

While the development format of choice is still MS-DOS, the Amiga format is increasing in popularity. No longer does it appear at the bottom of release-date lists... a promising omen of what the future holds.

—BGT

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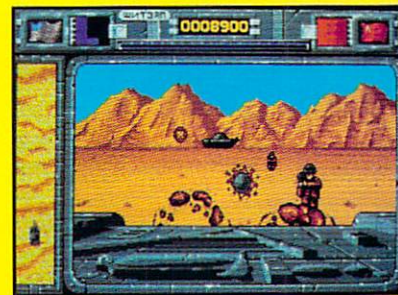
Amiga game screens.



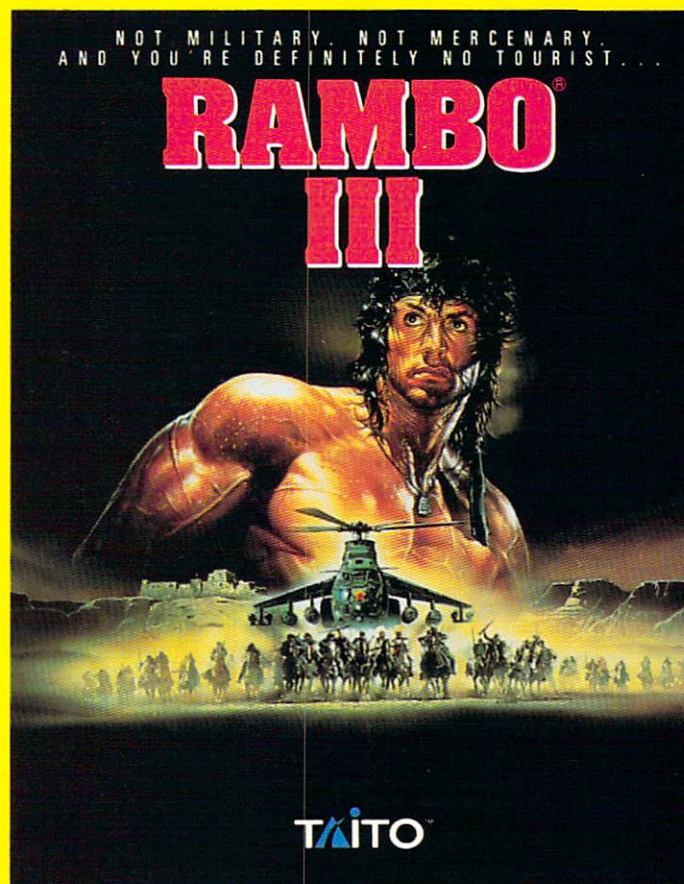
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electronic gates, cross treacherous
mine fields, and find the keys to Traut-
man's cell.*



*Ever fly one of these things? With the
enemy breathing down your back, that
Hind chopper's the best way out of this
bell hole.*



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REVIEWS

EASYLEDGERS THE ACCOUNTANT

*Two ways to find out whether
the ink is red or black.*

By Gary Ludwick

EVERY BUSINESS OWNER with an Amiga has dreamed of a program that would eliminate the receipts-in-a-shoebox approach to accounting, and better yet, the need to call a \$65-an-hour accountant every quarter to straighten out a fiscal mess.

Both EasyLedgers (Brown-Wagh Publishing) and The Accountant (KFS Software) are good business-accounting programs, but don't fire your accountant just yet; they're not for everyone. Except for the accounting rules both must follow, these packages are about as different—in looks, feel, and capabilities—as two Amiga programs can get. EasyLedgers has the slick graphic interface of a state-of-the-art animation or video program. It turns basic accounting and bookkeeping into an intuitive point-and-click procedure. The Accountant, on the other hand, is more reminiscent of the mighty word processor WordPerfect (WordPerfect Corp.). It's not pretty, it doesn't use graphics, it's not simple to learn or use, and there's almost nothing it can't do.

I won't attempt to cover every feature and intricacy of each program, but by covering their high points, I will help

you decide whether one of them is right for your business.

EasyLedgers

An import from Sybiz Software in Australia, EasyLedgers comes on a single, non copy-protected disk along with an excellent manual. The manual gives you a good rudimentary education in accounting basics, but don't expect it to answer all your questions about the complexities of double-entry bookkeeping.

EasyLedgers breaks down the accounting functions into four segments or "books": Inventory, Sales, Purchases, and General Ledger. Each book is divided into sections, and the sections are comprised of pages, each of which holds up to 36 accounts. Moving through EasyLedgers is a simple matter of pointing and clicking: Click on a section and you are there. Click on an account, and it's ready for action.

In the Sales Book, for example, which is essentially your customer catalog, you might set up the sections according to geographic areas or the types of businesses you sell to. Your pages will hold customer names under each of those sections.

Double clicking on a customer name opens a window showing the contact's name, business address, discount given, tax code, and so on. This window also contains two gadgets. Clicking on the one labeled Transactions gives you a listing of everything that customer has bought from you in the current accounting period. The other, the Outstanding gadget, summons a status report of that customer's account, including outstanding invoices.

Each of the other books works similarly. Your Inventory book would be sectioned by product type, and the pages

would contain item listings. Double clicking on a product name displays the supplier of that product, unit price, vendor terms, reorder level, and so forth.

SYSTEMATIC

EasyLedgers is an automatic bookkeeping system. It can generate invoices, subtract items from your inventory, post transactions to your accounts-receivable log, and update your general ledger with the appropriate debits and credits. The program provides an astonishing variety of printed reports—over 20 in all, including general-ledger trial balances, customer statements, liquidity ratios, and mailing labels.

Best of all, you need not remember any account numbers to use EasyLedgers. You can integrate your accountant's code numbers into your system, but while these references show up in your records and printouts, they are not required for data entry.

The Accountant

The Accountant comes on three non copy-protected disks: One contains the general ledgers and payroll program, one is for data, and the third, called Day-To-Day, provides the sales and expenses journals and transactions for maintaining your general ledger on a daily basis.

Although The Accountant bills itself as a simplified double-entry accounting system, it is not nearly as simple to use as EasyLedgers. This is true partly because it lacks a true Amiga interface (its screen is bare-bordered with pull-down menus), and partly because it is inherently a more complicated and powerful program.

The Accountant provides not only the sales, inventory, expenses and general-ledger capabilities of EasyLedgers, but also integrates your company's check-books (up to ten) and payroll into the system. The payroll function lets you maintain individual records on each employee, automate the printing of W-2 forms, and tally all federal, state, and local taxes deducted. Miscellaneous deductions—for a medical plan, for instance—are also supported, and you can automatically generate year-end contract labor and 1099 reports.

PULL AND TYPE

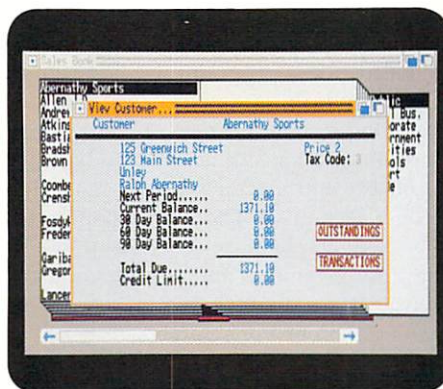
Like EasyLedgers, The Accountant can generate invoices, maintain vendor records, issue monthly account statements, and handle the aging of both payables and receivables. Instead of pointing and clicking, however, working with The Accountant involves a sometimes-tedious process of selecting pull-down menu items and typing into crude input screens.

An exclusive feature of The Accountant is its ability to integrate with a point-of-sale cash-register system. This capability allows a small- to medium-size retail operation (with inventory of up to 5000 SKU # items) to automate its sales, returns, and inventory operations. The program accommodates up to 99 departmental classifications so you can define profit and loss categories in detail.

The Accountant matches EasyLedgers in terms of report generation, but its manual, while thorough and well written, may be confusing to those with little or no accounting background.

DEBITS AND CREDITS

Both EasyLedgers and The Accountant have drawbacks, some minor, some more serious.

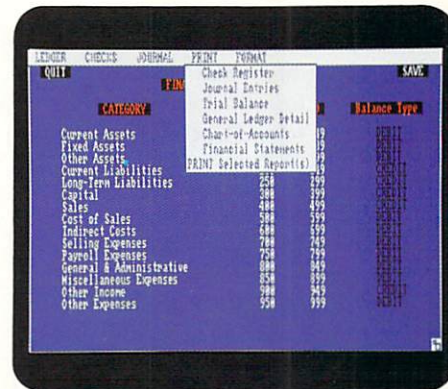


Click on a customer name in EasyLedgers, and you get details on that account.

The Accountant's biggest problem is a combination of its reliance on numbers (for accounts, vendors, customers, and so on) and lack of an on-screen help facility. You must either have a prodigious memory or keep a lot of printed lists close at hand to use the program effectively. This is a major barrier to productivity, and one that can be avoided on the Amiga. A control-key facility, such as the one Phasar (Antic's home financial package) offers to reference account lists and numbers, would be appropriate.

The Accountant is also inflexible in some areas. It accepts only three-digit accounting code numbers, for instance, so I had trouble using my accountant's four-digit codes. Similarly, its financial reports are based on a series of predefined general-ledger account titles. While the program allows you to change the account numbers and ranges themselves, it does not let you alter print parameters. As a result, when I set up the ranges to suit my accountant's system and printed a Trial Balance and Financial Statement, assets wound up under the Equity label, current liabilities were titled Fixed Assets, and so forth. KFS Software will customize The Accountant to your particular system or account numbers, but this service costs extra (provide KFS with specifics and they will give you a cost estimate) and requires that you surrender your program disks for the operation.

Because it is written in compiled BASIC (the program was originally developed for the Commodore 64), The



The Accountant is not pure Amiga, but it is pure power.

Accountant is a bit sluggish. Clicking into boxes and requesters yields a slower response than it does in EasyLedgers.

Working with The Accountant entitled me to a couple of visits to the Guru. While this is an annoyance with most programs, it is really scary when you are working with your company's financial information. I shudder to think of the potential for wiping out weeks or months of work in an instant.

EasyLedgers never crashed, but it too could use a few modifications. For instance, why can't a program this sophisticated remember my last transaction, check, or receipt number? When posting payments, other such programs present you with a clean form numbered 234 after you have finished writing check 233. Not so with EasyLedgers. When you call for a new transaction, it displays the information for check 233, which you must clear out using the backspace delete key. A minor point perhaps, but annoying. In a related vein, why doesn't EasyLedgers send a form feed after printing a report? Again, not a big deal, but a rough edge that grates when you are generating multiple reports.

Finally, there seems to be a glitch in the end-of-period book-clearing function that erases not only unneeded numbers, but also clears all of your books of their sections and pages. This happened to me twice: once when I selected the clearing option, and another time when I had looked at the menu but had not actually executed it. The first time, I spent four hours putting the categories back in. The second time, I used the reconstruct utility included with the program, which ►

promptly restored all my account titles and sections.

TRIAL BALANCE

As the owner of a small business, I eagerly looked forward to putting these programs to work. I could hardly wait to have all my company's financial data at my fingertips, and was anticipating savings on cancelled trips to the accountant.

It didn't turn out the way I planned.

There are several things every potential buyer of these programs must be aware of. First, some training in accounting is a must. If you have been routinely turning over your checkbook stubs to your accountant every month, you are not prepared to set up these programs, or make them work without an accountant's guidance. To their credit, both program manuals suggest getting an accountant's help.

Also, because both programs require a substantial number of hours to set up and maintain, you should weigh the value of your time against the fees your accountant charges. My experience suggests that you or a staff member needs

to devote time each and every day to maintaining these programs. (Depending on the size of your business, EasyLedgers may exempt you from this requirement.)

Lastly, these programs are best suited for retail businesses in an accrual accounting system. Owners of service-only businesses on a cash accounting basis will probably find use for only the general ledger sections of The Accountant and EasyLedgers, because such businesses have no inventory, and payables and receivables are not included in their financial framework.

SORTING IT OUT

EasyLedgers is the easiest to use. If you can live without integral checkbooks (which means you need another piece of software to handle checkbook chores), payroll capabilities and associated forms and reports generation, and the ability to integrate a point-of-sale cash-register function, then EasyLedgers is the one to investigate.

If you want those features, however, look at The Accountant. You will need a

good grasp of accounting principles and methodology to make it work, though, and probably an operator who can devote several hours a day to its care and feeding, too. The Accountant is a powerhouse capable of providing every business accounting function you will likely need—at a price identical to EasyLedgers. Along with it you will receive excellent telephone support, the capability for program customizing, and the offer of lifetime support (including annual tax routines) and at-cost (\$9.95) upgrades for an additional \$24.95.

Don't have a week or more to set up the system and a couple of hours a day for maintenance? Then send a bouquet to your accounting office with your next batch of check stubs and receipts. . . and pray they don't raise their rates.

EasyLedgers

Brown-Wagh Publishing

16795 Lark Ave.

Suite 210

Los Gatos, CA 95030

408/395-3838

\$295

One megabyte required.

The Accountant 1.3

KFS Software

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1301 Seminole Blvd.

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Largo, FL 34649

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M2SPRINT

Competition for the standard.

By David T. McClellan

THE MODULA-2 scene is buzzing. Seems there's a new kid on the block. This kid's not green, though; by the looks of the Jams he's wearing, he's been in the neighborhood before.

M2Sprint, a single-pass Modula-2 compiler from M2S, features an integrated editor/compiler/linker and a postmortem symbolic debugger. As I read through the libraries and documentation, I experienced déjà vu. Looking at the manual ►

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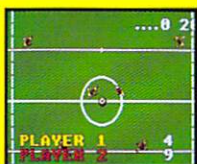
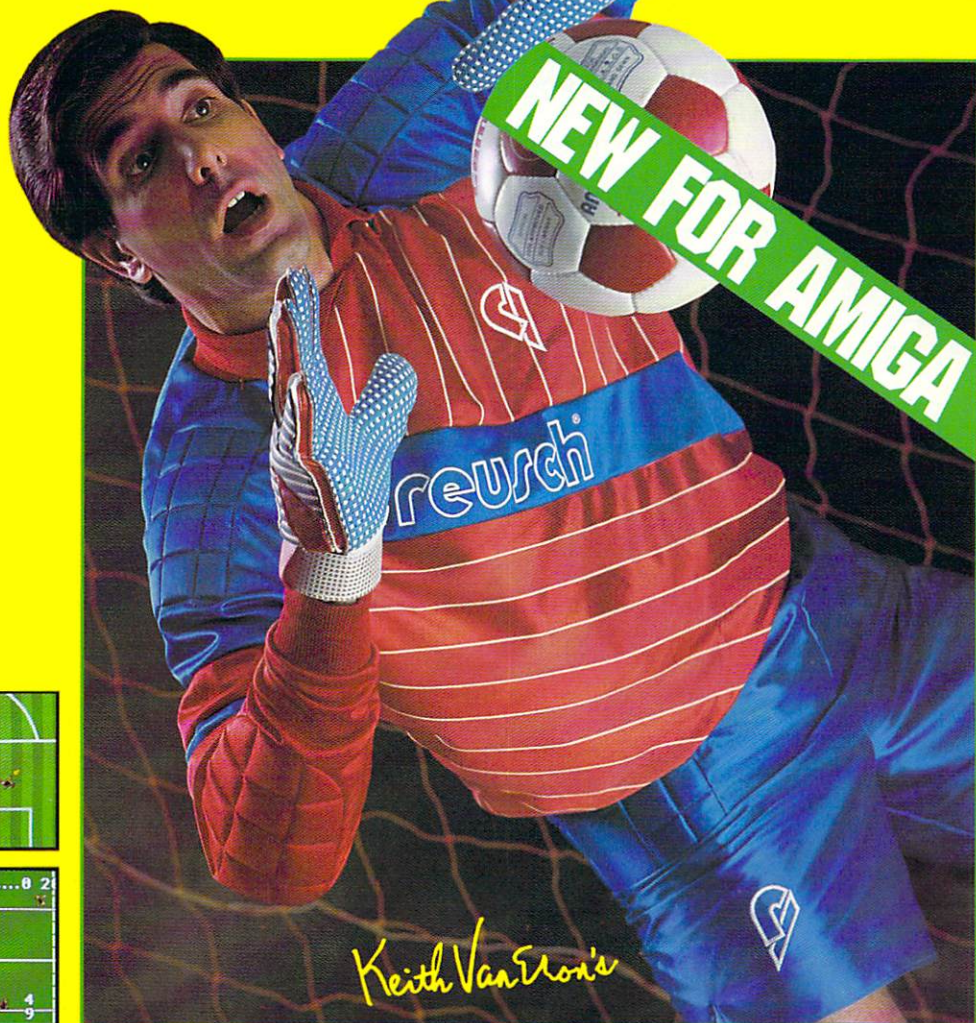
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for TDI Modula-2 (TDI Software Inc.), I found marked similarities. TDI's Easy-Gadgets library is much like the Easy libraries in M2Sprint, and of the three Modula-2 compilers I reviewed earlier (see p. 45 in the July '88 issue of *Amiga-World*), only TDI had a debugger—one very similar to M2Sprint's. But while the TDI package fell short of my standards, M2Sprint sports a fine single-pass compiler, higher quality code, better tools and libraries, and more refined documentation. Furthermore, M2Sprint offers simple interfaces to some of the Amiga Libraries, C-like string functions, and ARP (AmigaDOS Replacement Project) and ARExx interface libraries in addition to the standard Modula-2 and Amiga libraries.

CHILD'S PLAY

M2Sprint includes a profiler, a cross-referencer, a compiler-batcher (a Modula version of the "make" recompiling utility), and a hot-key tool that lets you bring up the editor from the CLI by pressing the CTRL-ALT-W key combination. From the full-screen editor, you can compile, link, and run your program. It offers all the features you expect in an editor, and distinguishes itself by intelligent employment of the mouse.

You set compiler and linker options

via a requester in the editor or using a separate tool. The editor allows you to step through your source program and match lines with any errors discovered by the compiler. This function is not fail-safe, though. In my tests, the editor sometimes missed by a line or two, and sometimes found fewer errors than the compiler reported. Once the editor has loaded the reasonably-sized compiler and linker, it keeps them in memory to speed subsequent compiles and reduce disk swapping. This feature failed me only once, when a program crashed while running from within the editor. Perhaps memory had become too fragmented. After rebooting, I ran it outside the editor and had no problems.

I became frustrated in tracing errors that the compiler should have caught. For example, I tried several times to compile, link, and run a program containing simple real (floating-point) math, but the process failed each time the program attempted to convert an integer to a real number. Searching the manuals, I discovered that linking real math requires the RTR.lnk or RTAR.lnk run-times instead of the usual RT.lnk file. The program ran to completion once I reset the configuration file and relinked, but I am confused as to why the linker did not signal an error.

M2Sprint's compiler and module definitions and libraries are sizable. Those without hard disks will appreciate M2Sprint's configuration tool. I used it to fill two floppy disks: one with the compiler and other tools, and one with the module headers and libraries. I swapped disks a lot during the first compile and link of a session. Because the M2Sprint tools use the ARP Library for some of their functions, you will need to add "arp.library" to your boot disk, along with a startup file to assign some logical names and add to your PATH.

PEST CONTROL

To use the debugger, you must first import, compile, and link a Debug module. Then, if the program encounters an error, the debugger lets you dissect programs to examine their variables and stack tracebacks. It does not let you set breakpoints or single step through the code, however, and using it, I found myself wishing for Lattice C's debugger.

In one instance, the debugger helped me find the source of repeated Guru errors: I was passing a LONGINT that was over the INTEGER range to a procedure that expected an INTEGER. I think the crashes were an overreaction, but at least the debugger located the problem.

Generally speaking, using the debugger is not a piece of cake. On another occasion, for instance, I spent a long time tracking down what turned out to be a small compiler bug. The Permutation benchmark does a sanity check by comparing a LONGINT counter it maintains to the value 43300 when it is done. In my test, the comparison always failed. At first I thought the counter might be at fault, but printing out the counter confirmed it to be 43300. It appears that M2Sprint can't handle comparisons to LONGINT literals (or CONSTs—I tried that, too). I ended up assigning 43300 to another LONGINT variable, and comparing the counter to it. That solved the problem.

I also could not get M2Sprint to convert LONGREALs or LONGINTs to REALs. I tried the FLOAT procedure and type conversion without luck, and the compiler would not let me get around it. I had to tweak the FFT benchmark—using REALs instead of LONGINTs in one routine and trusting

Continued on p. 76

FACE-OFF

M2Sprint vs. Benchmark: Modula 2

PREPARATION TIMES (in seconds)

Combined Test	M2Sprint	Benchmark: Modula 2
Compile	46*	34
Link	34*	42
Size of exec.	23.6K	42.4K

* The compile and link times for M2Sprint include an unavoidable disk swap.

EXECUTION TIMES (in seconds)

Test	M2Sprint	Benchmark: Modula 2
FFT	25.6	28.7
Permutation	5.6	5.3
Tower of Hanoi	7.1	7
Eight Queens	2.7	2.7
Int Matrix Mult	12.0	8.6
Real Matrix Mult	14.9	21.2
Puzzle	28.4	27.5
Quicksort	7.1	5.5
Bubble Sort	8.0	7.6
Tree Sort	11.0	9.9

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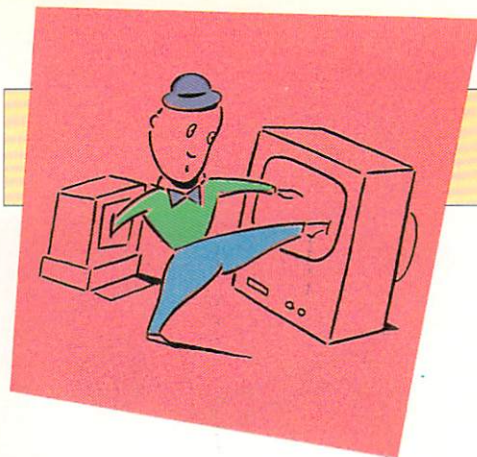


PRESENTATION GRAPHICS

TO KICK OFF our “Tips and Techniques” special, *AmigaWorld* sent its best tipsters out to scour the entire range of Amiga applications. Narrowing down the field to the six areas chosen wasn’t easy, but we decided that the compact half dozen (listed at left) represented the activities in which our readers are most heavily involved.

So grab your tip sheets, find a spot along the rail, and let’s see if our handicapping experts can put you in the winner’s circle when it comes to your favorite Amiga applications. ►





DESKTOP VIDEO

WHILE TIPS ON perfecting Amiga desktop-video techniques could easily run into the dozens, the following five items focus specifically on practical advice for transferring Amiga animations to video.

1 Use a Composite Monitor

Colors look great on your Amiga monitor, but when translated to NTSC (the color television standard), colors will have different shades and fine detail will be lost. While creating your animation, hook your Amiga up to a good color television or color composite monitor (the A500 and A2000 need an encoder). This will give you a better idea of what the final product will look like on video, and you will see why you must avoid over-saturated colors and single-pixel thick lines that look fine on the Amiga's RGB monitor. Don't use an Amiga monitor in composite mode, as it produces a poor composite image.

2 Avoid Sluggish Animation

The Anim compression format has become the standard used to play animations in real-time, but animation playback will slow down if there is too much movement from one frame to the next. This can be a real problem with complex hi-res animations. DPaint III, with its non-compressed anim option, and Photon Cel Animator, both allow you to play animations directly from memory without compressing them. This should speed things up, as well as insure that the animation will run at a uniform speed. You will need at least 2.5 megs for even very short sequences.

If complex animation at 30 frames per second is required, your only option is single-frame recording. Some 3-D animation software packages and Micro-Illusion's Transport Controller software allow single-frame recording, automatically recording each frame one at a time

onto videotape. Besides the software support, you will need an animation controller (\$2000 to \$5000), and a professional VCR that will communicate with your controller. Hardware prices are dropping, and we may soon have service bureaus that offer single-frame recording, but until then it is an expensive proposition.

Another way to get faster animation is to split 16-color animations into a foreground and a background, each with eight colors. These animations will now run considerably faster, and you can record the background and then genlock the foreground over the top of it using two VCRs or two Amigas.

3 Always Record in Interlace

Recording Amiga animations created in non-interlaced mode will probably play back fine on the machine that recorded them, but because video requires an interlaced signal for synch information, you may find that your video will have a very unstable picture when copied to another tape or played on another machine. It is best to create your animation in one of the Amiga's interlaced modes, but if you are using a lo-res animator, such as Movie-Setter or Zoetrope, get a copy of Mike Berro's public-domain utility, Lacer. It runs in the background and interlaces any image that appears on the screen. You will also find that interlaced images have a much cleaner, sharper look to them when played back on video.

4 Record With the Best

While good results can be had by hooking up a home VHS recorder to the Amiga, the picture quality will be severely degraded if you try to copy or edit your master tape. If you use the newer S-VHS and ED-BETA recorders, good quality second- and even third-generation (a copy of a copy) tapes are possible. These newer machines require a Y/C-separated signal that allows for much higher resolution and better picture quality.

Consumer-level recorders that support Y/C signals start at about \$1000, and include Sony's ED-Beta EDV-9500/7500, Hi-8 EV S-900 or CCD-V99 Camcorder, and

JVC's S-VHS HRS-5000/8000.

If you need excellent quality, you might want to rent studio time and record on Betacam (recorders sell for about \$20k). Betacam is better than the industrial 3/4-inch standard, and is almost as good as broadcast quality. There are more studios adding Amigas every day, charging from \$75 per hour and up. There are also studios with S-VHS equipment, charging as little as \$35 an hour—a real bargain for getting quality animation on tape.

5 Use a Good Encoder

To record the Amiga's RGB picture onto videotape, you need a device that translates the signal into composite (for a normal VHS recorder) or into Y/C (for ED-BETA, S-VHS and Betacam).

A good quality genlock will produce an acceptable encoded composite signal. There are also several genlocks out that will produce a Y/C signal, including Communication Specialties Gen-One, Videotech's Scanlock, Digital Creation's SuperGen 2000S, and Omnicron Video's Omni-Gen 701. Because most Y/C genlocks also produce a composite signal, it may well be worth the additional cost even if you have only composite equipment now. Someday soon, you may need the better quality that the Y/C format machines provide.

A good low-cost encoder is the CMI VI500, which provides both Y/C and composite signals for under \$80. To use it with the Amiga to record on a Y/C compatible recorder, you will also need Tony Gomez's S-View interface, which is being marketed by Software Sensations in Los Angeles for under \$100. Other Y/C encoders are selling for \$1000 and more.

A useful bit of information to know when using a Y/C encoder is that the Amiga monitor can also be used as a Y/C monitor. On the 1080, set the front-panel Video Mode switch to SEP., and plug the luminance Y/C cable into the white RCA connector on the back of the monitor, and the chroma cable into the red RCA connector. On the 1084S, set the front panel switch to CVBS, and plug the chroma into the red RCA connector, and the luminance into the yellow. □

—Geoffrey Williams ►

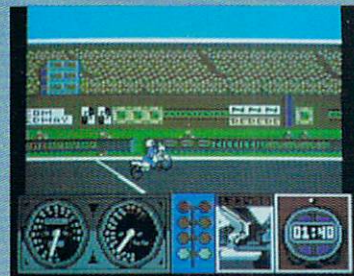
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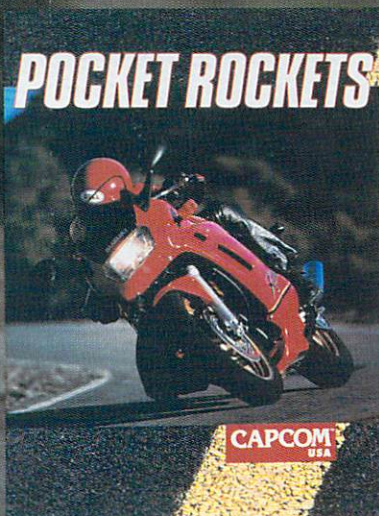
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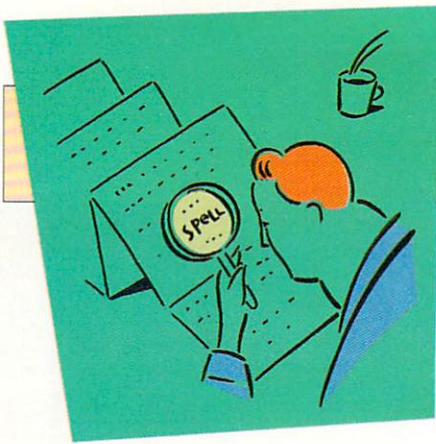
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WORD PROCESSING

NEARLY EVERYONE USES a word processor and knows the basics of getting the program to work. Yet, there are so many little things that we forget—or are not familiar with—when we use them. Here are 15 tips grouped under four major areas of WP functions.

1 Composition Do's and Don't's

The Cardinal Rule of Word Processing: Save your work often. The few seconds it takes to save your file are nothing compared to the time it would take you to rewrite it after a system crash or power failure. Some word processors, such as WordPerfect, can be configured to automatically save your work every few minutes. If you do not have this option, a good rule of thumb is to save your file after every two paragraphs typed. Also, if you save to a hard disk, be sure to back up all your work onto a floppy at the end of a session.

Corollary: Save before printing, performing a spelling check, or any other "dangerous" activity. A printing problem or disk-read error could ruin your day if you have to reboot.

Type now, edit later. By editing later you avoid losing your train of thought as you stop to fix a mistake.

Do not over-rely on a spelling checker. It will not catch all of your mistakes, such as typing "your" instead of "you're," or "Stephens" instead of "Stevens." There's no substitute for proofreading.

After proofreading your document on screen, print a draft copy and check it on paper. It is amazing how many errors will jump out at you after you print.

While a built-in thesaurus can be handy, do not let it run wild over your documents. If you do, "the potentiality of terminating with a maladroitness analogous to this one is monumental!"

If your document will be bound, do not forget to leave a wider margin (at least 1.5

inches) on the left side. If the final copy will be printed on both sides of the page, you will need to reverse the left and right margins and page-number position on every other page.

2 Learn About Layout

If your word processor does not allow style sheets (templates that describe the way certain documents are laid out, such as business letters or resumes), you can make your own. Create a new file and set the margins, fonts, page-numbering style, and other settings for the type of document you are creating a template for. Then type a single space (to alert the program that your document is not empty) and save the file with a descriptive name, such as "busletter.template." Then, each time you want to create a business letter, simply load the template like a normal document, rename it, and start typing without having to set up the page format.

You can also use the templates trick for letterheads and envelopes. Simply add your address at the top of the file.

Limit your use of fonts. While using 20 fonts in a letter is a neat way to show off your Amiga's capabilities, it makes for a hard-to-read document. So, avoid the "ransom-note" look and use different styles of one or two fonts throughout your document. A good rule of thumb is to pick a serif font for body text and a sans-serif font for headlines or letterheads. If you need to set off a certain part of your document, use different point sizes of the same font.

The same goes for styles. Using a word processor, it is tempting to emphasize words by boldfacing, italicizing, or even underlining them. But overdoing it adds more distraction than emphasis.

3 File-Transfer Tips

If you are planning to import your text to a desktop-publishing program, keep your formatting to a minimum. While most DTP software will recognize boldfacing, underlining, and italics, things like page numbers, footnotes, and headers usually will not transfer.

Unfortunately, there is no IFF standard

format for word-processor files, so you cannot directly read, say, a WordPerfect file into excellence!. Almost all word processors will save a file as plain, unformatted text. This option is often listed as "Save ASCII File." While you can load this plain text file into any word processor, you lose almost all of your formatting.

There are freely distributable file-conversion programs available for WordPerfect and ProWrite that will read some other word-processor files with formatting intact. A favorite trick of mine to get WordPerfect files into ProWrite is to save the WordPerfect file and use the freely distributable FC program to convert the text to Scribble! format. Then use ProWrite's Convert utility to convert the Scribble! file to ProWrite format.

4 Printing Payoffs

If your printout does not look right and the settings seem correct in your word processor, check your Preferences settings—sometimes they can override the word-processor controls. Margins, line spacing, and character pitch are the likely troublemakers here.

When using a font-and-graphics-based word processor, make sure you are using the Workbench 1.3 printer drivers. You will get better quality and faster printing. Note that some software was shipped with beta versions of the 1.3 drivers; these will cause problems if mixed with the release drivers or with the printer.device.

To get the best quality from your graphics-based word processor, set the Preferences Graphic 2 screen as follows:

Density: 7 This will use the highest density (darkest) graphics available on your printer. (Use density 1 for quick draft printouts.)

Scaling: INTEGER This keeps fonts from being distorted by insuring that an even number of dots are printed for each pixel in the character.

Smoothing: ON This will reduce the "jaggies" in both fonts and graphics. □

—Denny Atkin ►

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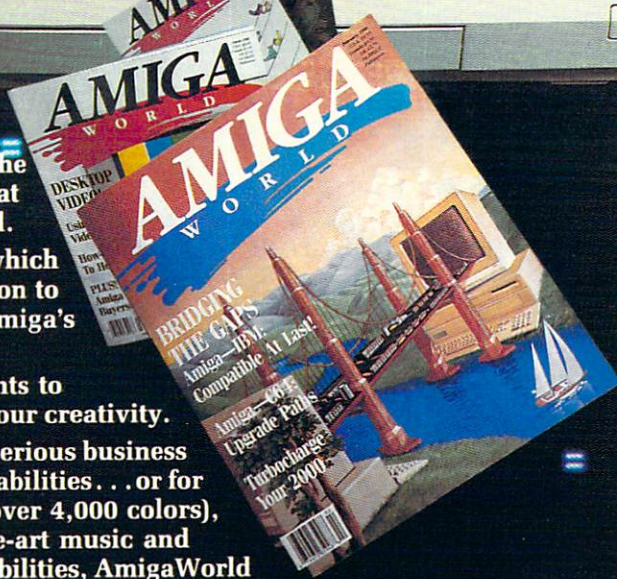
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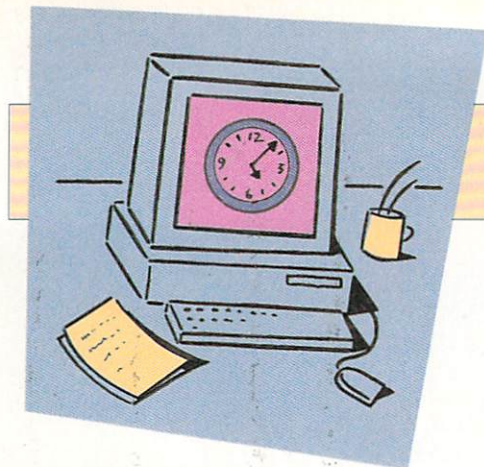
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PRODUCTIVITY

TO GET THE most out of productivity tools for your Amiga, the most important qualities you need to develop are patience, a willingness to learn and to practice, and an eye for perfecting intuitive techniques that will help you master some fairly sophisticated software.

1 Patience Makes Perfect

One of the most common mistakes Amiga productivity users make is that they tend to "jump in headfirst without first checking the depth." Spoiled by the intuitive interfaces that have become common in creativity packages, we often fail to invest the proper amount of study and practice it takes to make the most of the sophisticated productivity software. This is unfortunate because in almost every case, taking the time to read a program's documentation and making an effort to work with the practice tutorials that come with most productivity packages really can make a difference.

No matter how convincing a manufacturer's claims may be, never assume you will be an "expert in minutes." When your ultimate goal is working with important data, develop your usage strategies and habits while working on smaller, less crucial practice data. This will allow you to determine what features of a particular program are best suited for your application. You can then experiment with software combinations to ascertain which programs you may wish to multitask when working with your data. Finally, you will be able to hone your Amiga's configuration to best suit your total needs. This is called developing an "application environment."

2 Save the Environment!

When creating an applications environment, it is important to identify as many items as possible that you can automate in

order to increase speed and accuracy when you are manipulating your data. One method for doing this is through the use of script files. Although a lot has been written about AmigaDOS script files in terms of executing AmigaDOS operations and creating your startup-sequence, few authors discuss them as tools for enhancing individual applications. The basic idea is to create an ASCII text file of commands designed to "launch" all of the programs you might want to run, make all the necessary assignments, and fully configure your environment automatically for you upon execution. Once you have created such a script file, you can use it to run your programs and configure your system by typing the AmigaDOS command:

execute scriptfilename

If you are using AmigaDOS 1.3 or ARP 1.3, you also can set the "s" and the "e" protection bits on in order to make your files autoexecute simply by typing the name of your script file without having to type the EXECUTE command.

There are a number of reasons why adopting this approach is helpful. As an example, let's take a look at the script file I used to begin this writing session (in this example, I have changed the names of my actual files for the sake of clarity):

```
ASSIGN spell: dh1:spell
ASSIGN typecheckdict: dh1:typecheck
ASSIGN editors: dh1:editors
ASSIGN articles: dh1:docs/articles
CD articles: RUN spell:spell_checker
-userdict1
STACK 10000
RUN typecheckdict:type_checker
RUN editors:text_editor
```

The above script launches the three programs I normally use when writing on my Amiga, namely, a stand-alone spell checker, an "as-you-type" or interactive spell checker, and a text editor. The ASSIGN commands in the first three lines allow these applications to refer to a specific file path as a device/volume name. As a result, they are able to retrieve the data they need to function from my hard drive rather than from the original floppy disks they came on.

At this point, I am sure that some of you

are wondering, Why not simply make these assignments as part of my startup-sequence? The main reason is speed. I like my machine to boot as quickly as possible, and I like my startup-sequence to be as simple as possible. Each assign slows this process, especially if you are working from a floppy disk and do not have a lot of RAM to sacrifice. In addition, it is not uncommon to want to reassign generic assignments to another destination for specific programs. A common example of this is programs that accept only a limited number of fonts within their menus. In such cases, if you have a large number of fonts in your FONTS: directory, you may want to reassign FONTS: to a directory containing only those fonts you are likely to use with this application. Throughout the remainder of my script file I use these assigned names to refer to their drive path when running the programs.

The ASSIGN command in the fourth line simply gives the system a shorter name to refer to when referring to the directory where I store my articles. The changed-directory command in the fifth line then sets the current directory as my articles directory. This is attractive because many productivity applications, including my text editor, make their default directories the directory that was current when the application was initially run. By making my articles directory the current directory, the file requesters in both my text editor and my stand-alone spell checker will be ready to access data immediately from my articles directory without first having to be told where to look for the data. This is doubly important when working with such applications as WordPerfect, which always seems obliged to return to the default directory path containing the system disk.

The remaining lines of the script load the programs in a manner customized to my application. For instance, it loads my user dictionary—containing such computer jargon as "AmigaDOS," "multitask," and "vaporware"—at the same time as my spell checker. My spell checker requires a large stack, so I use the AmigaDOS STACK command to give it a wide berth. Finally, my text editor is loaded and my writing environment is in place. □

—Loren Lovhaug ►

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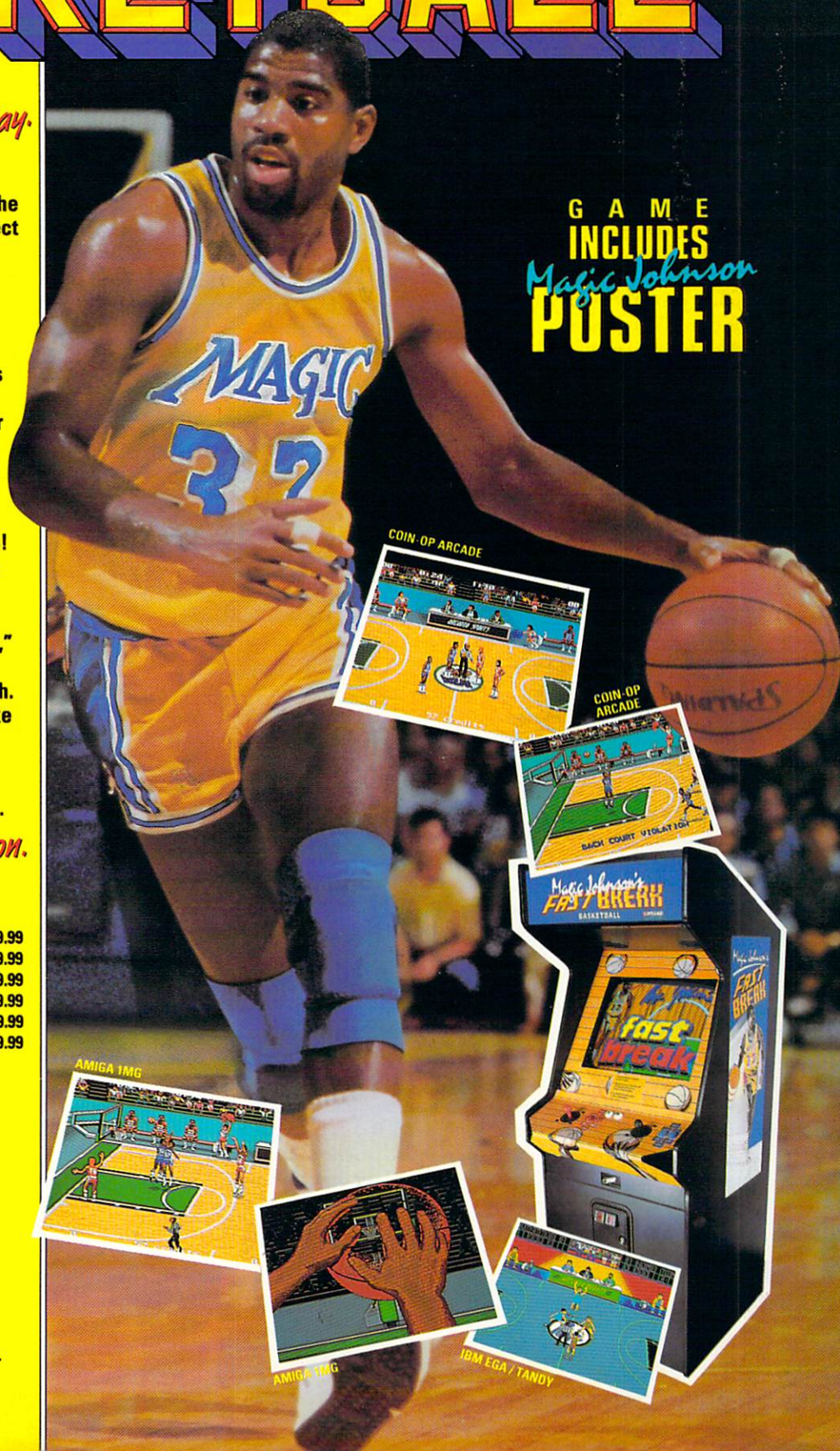
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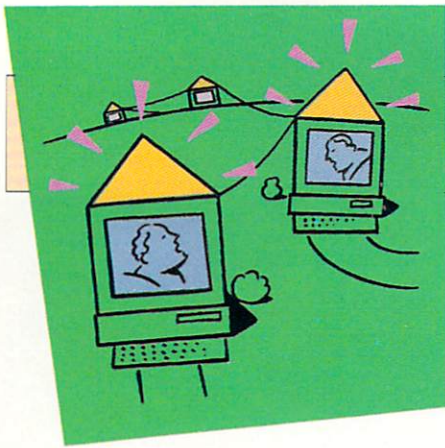
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TELECOMMUNICATIONS

WHAT CAN YOU do with a modem? A modem puts you in direct contact with thousands of other Amiga users, all ready to lend you a hand. You can talk with experts to help with hardware or software problems, or solicit product recommendations. The tips below will also help prevent your modem from consuming the available balance on your credit card.

1 Buying a Modem

If you do not have a modem, now is the time to get one. Prices are lower than ever before. New 2400-baud modems (transmitting data at 240 characters per second) are selling for about \$150. New 1200-baud modems (120 cps) are about \$100, or about \$50 used. With the extra throughput they deliver, 2400-baud modems are the best value. Key features to look for in the fine print: Hayes command compatibility and a speaker so you can hear what's happening.

Modems are common computer equipment these days, so they do not need to be Amiga-specific. If the modem connects to a computer via a serial port, it can be used with either an Amiga or an IBM PC. Supra sells an internal 2400-baud modem card for the Amiga 2000 that leaves the standard serial port free for other devices.

2 Know Your Networks

National computer networks charge between \$5 and \$15 an hour. To sign up, they often require a credit card. Networks popular with Amiga users are CompuServe, BIX, American PeopleLink, and GENie. Local bulletin-board services (BBSs) are usually free, but the quality and quantity is often lower than that of a national network. If you can find the number of any local BBS, call it and ask for a list of other BBSs in the area. Even in a small city, there may be dozens of them.

Also, know exactly what you are paying

for when you subscribe to a network. Some have an extra hourly charge for the data link between the local number you called and the service's main computer. Data link companies include Tymnet and Telenet. Flashy data, such as stock reports and weather maps, usually have an extra charge, too. Each network should allow you to view your current charges at any time.

Some networks have a "practice area" where you can learn to use the system without charge. Make use of this option because it can save you a great deal of money over your first few weeks on line. Also, learn to use the on-line help functions. If you get lost on any system, entering HELP or ? should lead to an answer.

3 On-Line "Moves"

After you become familiar with a network's menu interface, learn to use the "expert modes" to save more time. Instead of menus, you get short prompts. You enter the same commands for the same menus, except you do not see a list of your choices. Each system has a menu for custom settings, such as for turning on the expert mode or for pagination, and once you are used to them you should ignore the "Press RETURN for more. . ." prompts. If you are capturing the on-line session to a file, you should not be reading the messages as they scroll across your screen. Simply capture your on-line session to disk and save the messages for later reading.

Don't type messages by hand, either. Compose your replies in a text editor before you connect, and then let the communications program send them. Most programs do this with an "ASCII Send" or "Text File Send" feature. The program sends the file to the host computer a character at a time, as if you were typing it. To reduce charges even further, make sure your telecommunications software uses automated features (most commercial programs do). This will spare you the dreary details of sending and receiving files.

4 Compress Those Files!

In order to save time, groups of related program and data files are bundled to-

gether and reduced in size with special archiving, or "file-compression," programs such as ARC, ZOO and Warp. Available in the public domain, these can shrink a file's size by half. ARC and ZOO work on groups of files, and Warp can compress the contents of an entire disk. After you download the archive file from the network, you must use the compression program to expand the files back to their original size. To prevent chicken-and-egg problems, the ARC and ZOO programs are not compressed when stored on a network. Fred Fish disk #70 has ARC, while ZOO is on disk #164.

Plan a downloading spree in advance. Using file capture, look over a list of available files. Local, no-charge BBSs might have the same files as the commercial networks, or perhaps your user group can make the program available on disk for only a few dollars. At full-tilt boogie with a 2400-baud modem, it takes more than an hour of downloading to fill a disk with software—plus you will spend extra time in the CLI to de-ARC and install the programs. Restrict yourself to grabbing only the "latest-and-greatest" files, instead of things you can get elsewhere for little or no cash.

5 Friendly Encounters

Here's a tip on how to connect to a friend across town. Both of you start your communications programs and turn on your modems. To convince yourself that everything is ready to go, type ATH and press Return. The modem should answer OK. One person enters ATD [the telephone number] to dial the other's number. When the other person sees RING on the screen, he or she types ATA and presses Return. Both friends should see a CONNECT message, meaning that you are now free to type to each other. (Turn on the "half-duplex" setting in your communications program to see what you are typing.) To exchange a file, one person selects Xmodem Send, while the other selects Xmodem Receive. Don't forget to use ARC to compress the file to save time. When you are finished with your session, turn off the modem to disconnect. □

—John Foust ►

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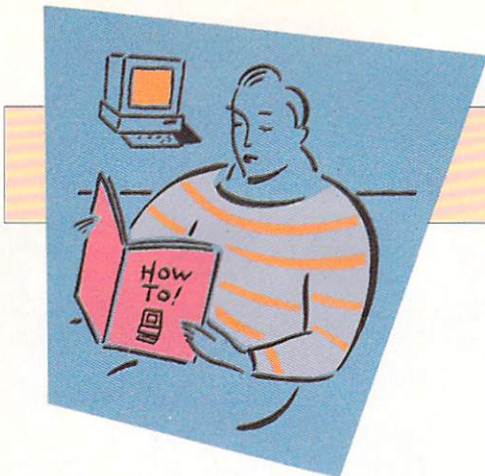
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AMIGA BASIC

IF YOU FOLLOW these Amiga Basic tips and techniques, they should help make your programming efforts more productive and, as a result, a lot more fun!

1 Fast Mouse

When using the result of function `MOUSE(0)` to determine the number of clicks the user has made on the left button, the manual implies the values 1, 2, or 3 should be used. In fact, because of the speed of the Amiga, especially when used with an accelerator card, Amiga Basic will rarely be able to detect these values, but it will be able to detect -1, -2, or -3 without trouble. While on the subject of the mouse, were you aware that the contents of `MOUSE(1)` and `MOUSE(2)` always reflect the current position of the pointer, even when neither button is being pressed? This feature can allow for some very creative programming.

2 Delay the Execution!

Many times it is desirable to provide a delay in program execution. In BASIC, this has traditionally been provided for with something similar to `FOR x=1 TO 1000: NEXT`. This is not the way to do it in Amiga Basic! Not only is it bad manners when using a multitasking computer, but it is also inconsistent, and if you later choose to compile your program with one of the available Amiga Basic compilers, the `FOR/NEXT` loop will no longer provide the proper timing delay because of the increased speed in execution time.

A much better idea is to use the Amiga's built-in clock. Use the following code fragment as an example:

```
delay%=TIMER: WHILE TIMER
< delay%+seconds: WEND
```

where it is assumed you have already set "seconds" to the number of seconds you

wish to delay. (Remember to include &.) Better still, you could make this a small subprogram, and pass the number of seconds as a parameter. For example:

```
Delay 5 ' Wait five seconds
...
SUB Delay (secs%) STATIC
delay%=TIMER
WHILE TIMER < delay%+secs%:
WEND
END SUB
```

3 Empty the Buffer, Check the Keys

When you use `INKEY$` to accept keyboard input, you may find the keyboard buffer is not always empty. The result is that you end up retrieving some unexpected characters. You can insure that the buffer is cleared by including `WHILE INKEY$ < > " ": WEND` just prior to prompting for input. On a similar topic, you will probably want to check for key presses of some of the special-purpose keys. But which values should you check for? Easy, just run the following small program. For each key you press, it will display a graphic image and a numeric value. To check for this key press in your program, just include the numeric value in a `CHR$(n)` statement. For example: `x$=INKEY$: IF x$=CHR$(n) THEN ...`

```
GetKey:
x$=INKEY$
IF x$=" " THEN GetKey
PRINT x$; " "; ASC(x$)
GOTO GetKey
```

Use `CTRL-C` or the `STOP` menu item to terminate the program.

4 Take 'em to the Library

If you write programs that make use of the `LIBRARY` statement, you already know the pain caused by the necessary .bmap files. Where do you put them? They can go in the same directory as the program itself, or they can go in their own directory on the same disk. The former clutters up the disk, but does not require any `CHDIR` statements in the program. The latter is tidier, but does require a

`CHDIR` statement in the program. The solution is to copy them to the `LIBS` directory of your Workbench disk. This neither clutters up your Amiga Basic disk, nor requires a `CHDIR` statement in the program. Just remember to copy the data files, and not the .info files. (Some .bmap files are already available in the Basic Demos drawer of your Extras disk, but if you wish, you can use the `ConvertFD` program, in the same drawer, to create a full set of them. Documentation can be found on the same disk.)

5 Close the Window

Amiga Basic allows you to define a window with a "close" gadget, but provides no ready means of detecting when it has been used. One way around this is to use the `WINDOW(7)` function, which usually returns a pointer to the internal window structure. If the window has already been closed, however, it returns a zero. This means that you can place your main processing within a `WHILE/WEND` loop of the form:

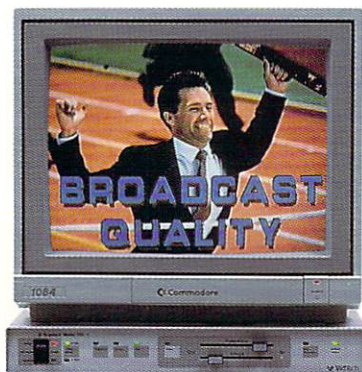
```
WHILE WINDOW(7) < > 0
...
main processing
...
WEND
```

Just remember that you must complete each loop before `WINDOW(7)` is tested. It may also be appropriate to add a second "AND" test to the `WHILE` statement for a flag that is set when the user terminates processing from within the loop, but without using the close gadget.

6 Fast Starts

Would you like to see an "instant" start-up screen when you run your Amiga Basic programs? Are you tired of watching that first screen being drawn, oh so slowly? The solution is easy: First, set all your palettes to black and clear the screen; next, draw your start-up screen as usual (it will remain black to the user); finally, reset the palettes to their proper colors. Presto, instant start-up screen! □

—Bryan D. Catley ►



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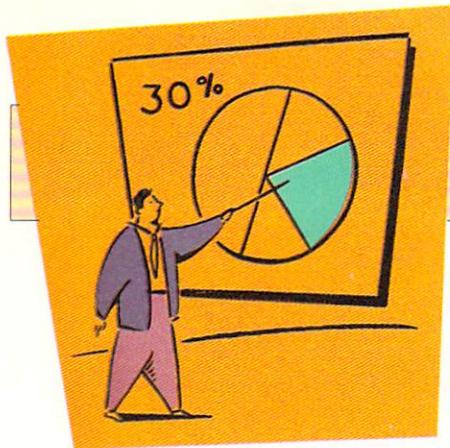
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PRESENTATION GRAPHICS

YOUR AMIGA IS a powerful aid in getting the most out of the visuals that accompany your verbal presentations. Presentation Graphics vary widely in form—from 35mm slides to overhead transparencies, from prepared flip charts to handouts, and from prerecorded videotaped and filmed segments to the direct interfacing with information on a computer screen. While your choices depend on both the type of presentation best suited to your audience and the level of your own technical expertise and equipment, the following advice embodies some basic tips that everyone can benefit from in producing presentational graphics on the Amiga.

1 Avoid Visual Overkill

The first rule of thumb to follow is to keep your visual information at a minimum. Never attempt to display visually everything that will be presented verbally. The rule for 35mm slides has always been that you should be able to read all of the information clearly by holding the slide up to the light. Always use clean, readable typefaces (sans-serif fonts such as Helvetica are usually the best, especially for the body of your text). Like elements (headlines, repetitive data, comparative numerical in-

formation, and so forth) should be rendered in the same color throughout all pieces in a series, so that the audience can visually group like items even before they understand them intellectually. Repetitive graphic elements, whether drawings or photos, help to tie presentational material together, and can spice up otherwise long boring lists of cold information. For instance, a small painting in the corner of all of your data slides can keep the attention of your audience so that they will be receptive enough to retain the information you hope to communicate. For the non-artistic, numerous clip-art disks are available and offer a wide range of choices.

2 Top-Drawer Titling

When developing titling segments (see Figure 1), take advantage of multicolored graphics, perspective brushes, and all of the optional design elements that will allow your introductory message to invite the audience into the display of information that will follow. This is the place to humanize an otherwise cold, monotone visual message. You can include digitized material and ColorFonts (which will still come across effectively in hi-res when you reduce your text as a brush in your paint program—even as much as 50%).

3 Textual Clarity

With textual material (see Figure 2), the first and last rule is clarity. Glitz is not called for here, although color selection can greatly enhance the message. Choose wise-

ly from the 4096 at your disposal. I prefer to work only in hi-res overscan, using a sharp, clean Helvetica-like Font most of the time. Text slides also work best for slide projection if they are rendered in reverse colors—meaning light on a dark background. The research tells us that words rendered in this way seem to expand to an audience's vision. The research also suggests that the best two-color combination is yellow on a dark blue background. Make your text as large as the amount of data permits.

4 Data Into Graphics

Data-translation visuals (see Figure 3), probably represent the bulk of presentational graphics. Numbers translated into pictorial data are far more effective in convincing audiences of your message than running lists of numbers. Here again, a well-planned creative approach can enhance the informational content. Learn to work with 3-D to achieve depth in your presentations—data slides and video segments created with Amiga 3-D rendering packages are enormously successful.

The sample shown in Figure 3 was rendered with Caligari, then imported into DPaint for the text and numerical call-outs. When you render data graphics (bar and pie charts of every kind) in a 3-D program, you can "fly" around until you achieve the best angle to accentuate your point. Then it can be saved as an IFF file and manipulated further in a paint program (adding text, varying colors, dithering, and so forth). Typestyles are just as important ▶

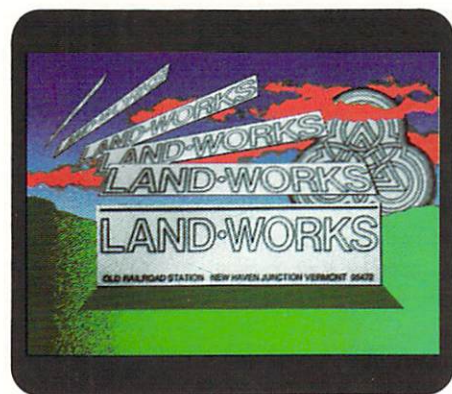


Figure 1. Use all available resources in your titling.

College	1975	1984	Change, 75-'84	
			N	%
Private	34	48	+14	+41%
Public	11	72	+61	+555%
2yr. Colleges	45	120	+75	+167%
2 & 4 Year Public & Private Totals	148	286		

In 1975, 30% of the total women presidents were in two-year public and private colleges.
In 1984, 42% of the total women presidents were in two-year public and private colleges.

Figure 2. Clarity is the key to presenting text.

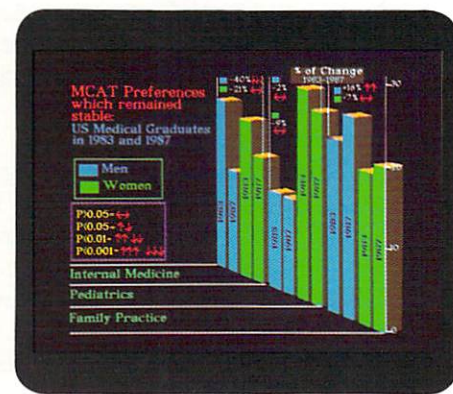


Figure 3. An effective translation of data into graphics.

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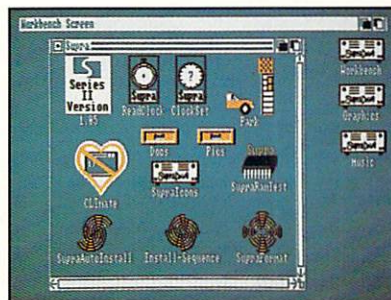
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here as they are in textual pieces. Choose Fonts that do not interfere with the clarity of the data.

5 Raw Materials

While there are many good programs that handle the titling, text, and data-translation requirements described in Tips # 2, 3, and 4 above, these are some of the ones I use in my own work:

- Broadcast Titler (Invision Technology)—video titling
- Caligari (Octree)—3-D rendering and animation
- DeluxePaint III (Electronic Arts)—paint and animation
- Express Paint 3.0 (PAR / Brown-Wagh)—paint
- Kara Fonts Headlines (Kara)—titles
- Kara Fonts Subheads (Kara)—for 50% reduced text
- Video Effects 3D (Invision Technology)—for slick effects screens
- Video Titler (Aegis)—video titling
- Zuma Fonts (Zuma / Brown-Wagh)—text and titles

6 Asides on Slides

For some time now the Polaroid Palette

(Polaroid) / Imprint (Liquid Light) combination has been handling 35mm-slide making that is more than adequate for most presentational needs. There are some things you should know, however, about the interface and the software. The first is that when given the option to turn the "Raster Scan" on or off, you should definitely turn it off. Some scan lines will show up on your slide, but the piece will be sharper and clearer, allowing you to use smaller fonts when the need arises. Be aware, also, that if you have upgraded from Imprint 2.0 to 3.0, you will have to readjust the focus on your system. In addition, you will need to install an RCA 75-ohm terminator plug (available from most electronics stores) in the Video Out at the back of the Palette. Also, be aware that the new software comes with a screen setting that must be readjusted in Preferences; if you don't, your slides will be far off the mark. Simply use the screen settings that you meticulously set in 2.0 as a guide. Stay at least five scan lines away from the borders if your camera has a magnification lens.

7 Don't Underrate the Overheads

Overhead transparencies work best when used with smaller audiences (no more than fifty) in a lighted room. What differentiates them from slides is that the

technique of presentation is meant to be more conversational. With overheads, eye-to-eye debates between the presenter and members of the audience are encouraged by the medium itself. Even more interactive techniques are possible, as well, including progressive disclosure (revealing information a section at a time), using a pointer device to call attention to selected areas of information, and writing on an overlay taped to the transparency. As with slides, do not overload a transparency with too much data—pace your presentation by using several in succession.

If you already have the information stored on a disk for a 35mm-slide format, use your paint program to make the background white before printing the overhead. This will keep you from overtaxing your printer. You can print in black-and-white and then dump the material to a laser or dot-matrix printer. You can then make the actual overhead on an office copier. This procedure is particularly effective if your original work was created with a desktop-publishing program. You can also put a piece of overhead material specific to the needs of your printer into a color printer, and print the overhead directly. If your color printer has rather washed out blacks (like the Canon PJ1080A), you can print two copies and sandwich them together in a transparency frame. ■

—R. Shamms Mortier

About the Tipsters

GEOFFREY WILLIAMS (Desktop Video) is Executive Producer for Creative Business Communication and head of the Amiga Video-Graphics Guild, a non-profit group that meets monthly to provide information on, and encourage the use of, the Amiga as a video and graphics machine.

DENNY ATKIN (Word Processing) has been a writer, reviewer, and technical editor on several Amiga publications. Freelance writing and desktop publishing, newspaper work, and a Master's thesis have given him plenty of word-processing experience.

LOREN LOVHAUG (Productivity) is a frequent contributor to Amiga and C-64/128

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JOHN FOUST (Telecommunications) is certainly no stranger to the telecommunications networks and Amiga bulletin-board scene. He currently maintains the Syndesis section in CompuServe's Amiga Vendor support forum, and he is a former co-SYSOP of American PeopleLink's Amiga Zone.

BRYAN D. CATLEY (Amiga Basic) is a professional software engineer with 20 years' experience with IBM mainframes and a little

less with Amigas. He has followed BASIC throughout its many incarnations over the past two decades.

R. SHAMMS MORTIER (Presentation Graphics) manages the Graphics Service of the University of Vermont, where his responsibilities include design and production of instructional material. Dr. Mortier teaches creativity/transpersonal psychology at Burlington College and graphic design at UVM. The Amiga also plays a big part in his home business venture, Eyeful Tower Communications.

You can write to any of these authors c/o AmigaWorld, Editorial Dept., 80 Elm St., Peterborough, NH 03458.

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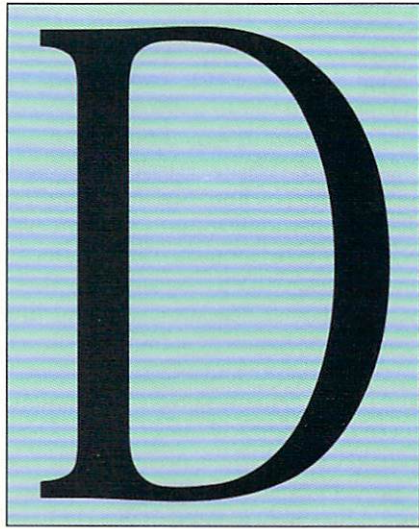
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Digitizing ilemma

Tired of shopping in the dark for video digitizers? This comparative review will shed some light on which one is right for you.

EVER TRY TO record a movie with oil paints? Chances are the results would be a blurry mess. You can expect the same disappointment if you use the wrong type of video digitizer for your computer art. Like oil paints, slow-scan digitizers require a motionless object and several seconds to capture the picture. Real-time digitizers, however, capture the incoming image in a fraction of a second, effectively freezing the object in motion. For grabbing graphics from an active source (a TV, VCR, or live camera), use a real-time digitizer. If your application requires you to convert only motionless images (photographs, drawings, line art, and so on) to the screen, save some money and buy a slow-scan digitizer. To help you decide which of the available units to buy, I put each through its paces. For a head-to-head comparison of their output, see the sidebar "Suitable for Framing."

DIGI-VIEW GOLD

The only slow-scan digitizer for the Amiga, Digi-View Gold (NewTek, \$199.95) is a box about the size of a deck of cards that plugs into an A500's or A2000's parallel port (A1000s need a gender changer) and accepts a composite video signal through a single RCA-style connector. The typical Digi-View setup also includes a black-and-white camera and a lighted copy stand (NewTek's retails for \$74.95). If you already own a color camcorder, you can save some money; Digi-View works fine with most models.

The accompanying software lets you specify any standard screen resolution, the number of colors Digi-View uses (including 64-color Extra-Halfbrite and 4096-color Hold-and-Modify (HAM) modes), plus a true overscan (borderless) display. Digi-View produces exceptionally fine black-and-white pictures, but the results are even more impressive in color.

When working in color, Digi-View Gold digitizes an object three times, once each through the supplied red, green, and blue filters. From these three monochrome images, the software creates an extremely accurate color picture. Digi-View's 4096-color HAM images equal, and some- ►

By Louis R. Wallace

times surpass, those made with the more expensive real-time digitizers.

If you do not need to capture images in motion, but only to transfer pictures and drawings or still objects to the Amiga, Digi-View Gold does an excellent job at a very reasonable price.

PERFECT VISION

Somewhat larger than a paperback book, Perfect Vision (SunRize Industries, \$249.95) is a real-time digitizer that connects to the parallel port. (You provide the cable.) The unit comes with a power supply, rather than drawing on the Amiga's internal power.

All images captured with Perfect Vision are low resolution (320 pixels wide). It does support interlaced mode, which doubles the vertical resolution from 200 to 400 lines. You can choose among color modes: 32-color, HAM, or a 16-shade gray scale.

Perfect Vision does a fairly good job capturing moving images as black-and-white pictures. Lo-res images digitize in $\frac{1}{60}$ of a second; interlaced images take $\frac{1}{30}$ of a second. The software's CYCLE option constantly digitizes the incoming images, allowing you to see what is happening and what your black-and-white picture will look like. Click an on-screen button to select the frame you want to keep. If you cannot decide, the program lets you record a continuous sequence of frames in memory, then store them to disk. You can select the ones you want, or use the whole sequence in an animation.

When you want to digitize in color, Perfect Vision ceases to be a real-time digitizer. Like Digi-View, it requires you to digitize the same image three times through color filters, then it combines them to create a color picture. If you are using a video camera, you must keep your subject totally still, or the resulting color picture will be poor. You can also use a copy stand for digitizing pictures and photographs. A drawback to the filter technique is that the pictures cannot come directly from a canned video source (VCR or TV), because you cannot place filters in the line to separate the color.

As a solution, SunRize Industries offers its Color Splitter (\$99.95), which accepts a color video signal from any source (color camera, VCR, and so on) and automatically separates it into its RGB components, feeding each to the digitizer. The color splitter works best with a VCR that has a good pause feature. Pause on the scene you want to digitize, then capture the three pictures needed by flipping a switch on the splitter (the latest Perfect Vision software has an Auto feature to do the switching).

Perfect Vision is not perfect. While it does grab a decent black-and-white image in real time, its color pictures are not as easy to produce, nor are they of as high a quality as Digi-View's. Other drawbacks to Perfect Vision are its failure to support high-resolution displays and its inability to support high speed; it does not work with the A2500 or a 68020-accelerated A2000. (In this case, switch to 68000 mode.)

Nevertheless, Perfect Vision does offer real-time digitizing at a reasonable price.

LIVE!

The first Amiga digitizer, LIVE! (A-Squared, \$450) comes in models for all three machines. I tested the A2000 version—a board designed for one of the internal 100-pin slots. A500 and A1000 models attach to the expansion bus. The four BNC-type connectors on the back of the card allow up to two cameras or other video sources to be connected at the same time.

A real-time digitizer, LIVE! captures simple color images in $\frac{1}{12}$ of a second, black-and-white pictures a little faster, and HAM images somewhat slower. It supports lo-res, interlaced, and overscan screens. The HAM images LIVE! generated were not as good as those produced by FrameGrabber or VD-1. The simple-color and black-and-white mode pictures were reasonably good, but FrameGrabber's were better. If clear, photographic-quality, digitized images are what you need, I cannot recommend LIVE!.

The digitizer does have a few unique features that make it interesting to those with specialized needs. LIVE! is the only digitizer that accepts input from two video cameras simultaneously and to use the mouse for color control instead of a standard palette requester. In addition, it lets you capture a sequence of images, save them to disk, then play them as an animation using the supplied PLAYRIFF utility.

FRAMEGRABBER

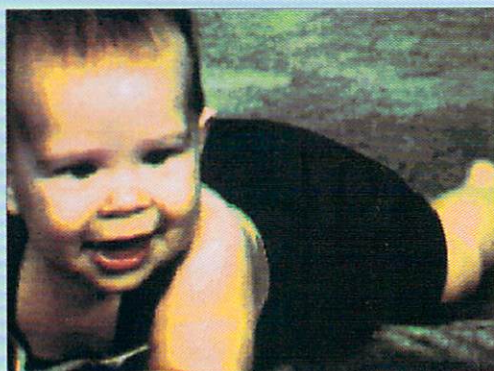
A versatile real-time digitizer, FrameGrabber (Progressive Peripherals & Software, \$699) is about the size of a textbook (not including the power supply). You connect it to the parallel port and the RGBA monitor connector. It supports lo-res, hi-res, interlace, and overscan (lo-res only) in black-and-white and 2, 4, 8, 16, 32, 64, or 4096 colors.

While capture times are fast ($\frac{1}{60}$ of a second for normal screens; $\frac{1}{30}$ for interlace), FrameGrabber takes several seconds to transfer the image from its internal RAM buffer to the Amiga. More important is the quality of FrameGrabber's captured images; you will not be disappointed. It produces high-quality images consistently, from the simplest black-and-white to full overscan HAM pictures.

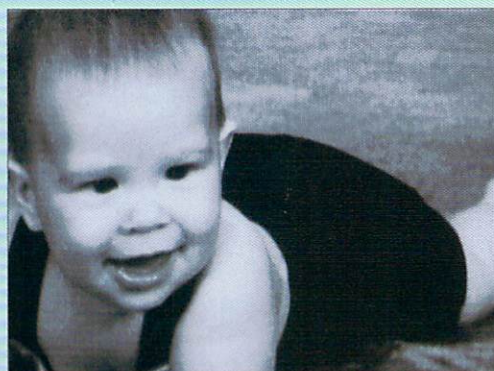
Beyond merely selecting the display mode and capturing the images, FrameGrabber's easy-to-use software offers several powerful options. For example, once a picture has been captured, you can save the entire image to disk or save only part of it as a brush for use in a paint program. If you want to digitize photographs or pre-printed material, the software lets you capture separate red, green, and blue images using filters (not provided) and a black-and-white camera, then it combines them into a finished picture. One of my favorite features was the time-lapse option, which captures images from one second to one hundred hours apart. FrameGrabber can compress these images in Anim format. ►



Digi-View Gold: HAM 320×400 pixels.



Perfect Vision: HAM 320×400 pixels.



Digi-View Gold: 640×400 pixels.



Perfect Vision: 320×400 pixels.

Suitable for Framing

THE PICTURES shown here indicate the relative merits of each digitizer. I digitized a scene from a commercially recorded VHS tape of *Ghoules* (Taryn Productions Inc., distributed by Empire Pictures Inc.) using Perfect Vision, LIVE!, FrameGrabber, and VD-1. If you look closely, I think you will agree that VD-1 is just a bit better than FrameGrabber. Using the same lighting and filters with Panasonic's WV-1410 camera, I digitized a photograph to contrast the slow-scan abilities of Digi-View Gold and Perfect Vision.

—LRW



VD-1: HAM 320×400 pixels.



FrameGrabber: HAM 320×400 pixels.



LIVE!: HAM 320×400 pixels.



Perfect Vision: HAM 320×400 pixels.



To switch between the frozen digitized image and the incoming video, press the space bar. When working with a camera, you can focus it without switching the input to a composite monitor, as Digi-View and Perfect Vision require. You also have the option of displaying your images over the entire screen or just over one quarter of it.

Progressive Peripherals hopes to make a good thing better with its forthcoming FrameGrabber 256, which promises to display up to 16 images simultaneously in a 256-shade gray scale. The new unit should also be able to digitize still images in 16.7 million colors.

Even in its present state, FrameGrabber is hard to beat. It's a good combination of hardware and software that produces great results.

VD-1

VD-1 (Impulse Inc., \$1000) heats up the competition. Connecting to the parallel port of the Amiga, this real-time digitizer is a large box (about 14 × 14 × 2 inches) with an internal power supply. You connect the video source to VD-1, then string a cable to a composite NTSC-compatible monitor, where you can view the image directly.

VD-1 is somewhat of an enigma because its only documentation is a small Read_Me file on disk that discusses the latest changes to the software. Impulse does offer a toll-free customer service line. While a desirable service, it operates only during business hours. A manual would be much appreciated for answering evening and weekend questions.

The software is easy to master, however, so you should not have many questions. To capture a screen, just press the space bar. The program freezes the image on the composite monitor to an absolutely perfect picture, then stores it in VD-1's internal 24-bit frame buffer. You must instruct the software to send it to the Amiga by pressing the Return key. The program will then convert the image to the only resolution VD-1 supports, 320 × 400 HAM.

Once the image is displayed on the Amiga screen, you can refine it with the Cleanup option. You can also change the amount of red, green, and blue in the picture, and vary the brightness and the degree of dithering used in mixing the colors. Unlike using

other digitizers, you need not recapture the image to see the results of your adjustments. Because the digitized image resides in the VD-1's frame buffer, just press Return to transfer the picture to the Amiga with your new settings and see the results.

Like FrameGrabber, VD-1 will perform time-lapse photography. Instead of creating an animation from the files, however, it saves them to disk as a sequence of individual pictures that you can later combine in an animation.

In addition to the main digitizing program (Digi), Impulse supplies a painting program (called Diamond). Although it works in all graphics modes, it is intended primarily for use in HAM mode. With Diamond, you can convert your VD-1 digitized images to other display formats (with some loss of quality) or touch up your pictures.

Of all the units tested, VD-1 generated the best images of animated subjects from a videotape or a camera. It excelled at digitizing from a VCR, eliminating such problems as capturing the picture when only part of the frame is visible.

RING IT UP

For my money, the best buys are Digi-View Gold and FrameGrabber. For slow-scan digitizing, Digi-View is the standard to beat. For real-time work, greater versatility at a lower price provides FrameGrabber with a slight edge over VD-1. If you work only with 320 × 400 HAM screens, however, VD-1 is worth the extra money.

When you bring your new toy home from the store, keep in mind that even the best digitizer cannot promise perfect results. You must use good techniques. For camera work, make sure you have the proper lighting. A poorly illuminated subject or scene will digitize poorly. To get the best black-and-white results, you should use a high-resolution, black-and-white camera, such as the Panasonic WV-1410 (\$300). If a VCR is providing the pictures, use good-quality, first-generation recording whenever possible. ■

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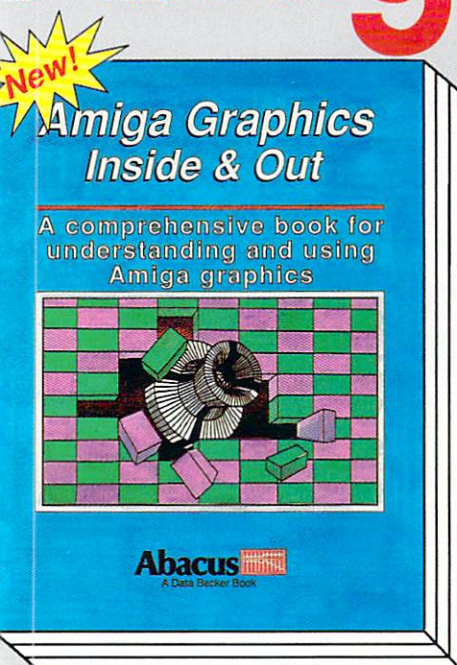
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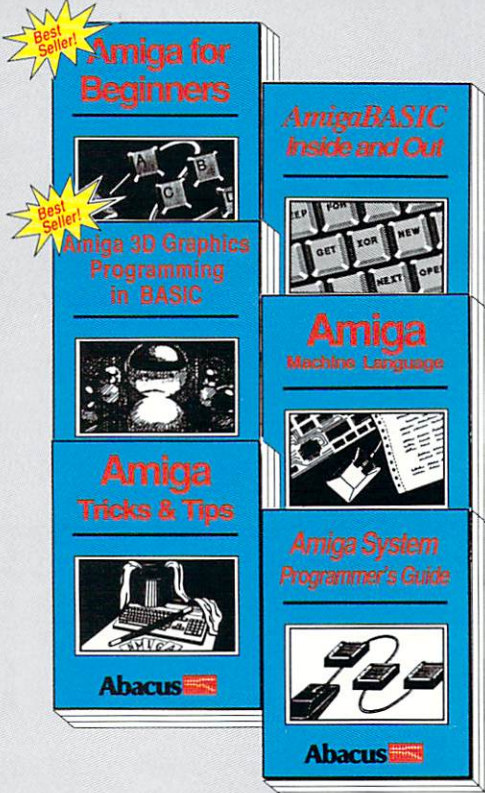


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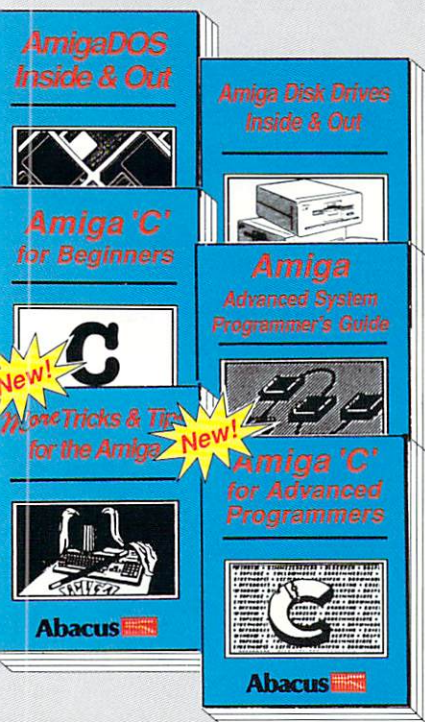
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Quick Change Artist



AMIGAS ARE FOREIGNERS in the PC world, unable to communicate without a good translator. If you want to use files from an IBM, Macintosh, Atari, or C-64 or 128 on your Amiga (or vice versa) you have two choices. You could invest in an emulator (a hardware and software combination that lets the Amiga run programs designed for other computers), such as Commodore's Bridgeboards for the IBM PC/XT (A2088: \$699.95) and PC/AT (A2286: \$1599) or ReadySoft's A-Max (\$199.95) for the Mac. Not only is this alternative expensive, it solves the file-transfer problem for only one type of machine at a time. A more accessible solution is to use low-level file-conversion methods and programs to transfer text or graphics among your Amiga and other computers at home or the office. With the following simple telecommunications techniques and file-conversion programs, you can translate data files, such as ASCII (American Standard Code for Information Interchange, the standard set of nu-

meric equivalents for keyboard characters and control codes) text and IFF graphics from AmigaDOS disks to other formats and back again.

Be warned: Like slang phrases, some aspects of a file (such as program-specific codes) may be garbled in translation. Often the new document file on the destination disk will need minor cleaning up—insertion or removal of hard returns, deletion of foreign characters, and so on. Data files from spreadsheets and databases create special problems. Unless your program has a save-as-ASCII option, you will have to use program-specific conversion techniques, because the data must adhere to the format of the program as well as the disk.

WIRE SERVICE

If you have a modem and telecommunications software, you can save the cost of a special conversion program and just use your on-line expertise to transfer files. My favorite technique relies ►

*Learn how to
transform your
Amiga files to
IBM, Macintosh,
Atari, or C64/128
formats,
and back again.*



B Y T I M W A L S H

on a computer bulletin board system (BBS). You can upload ASCII files to a BBS from your Amiga, then download them to another computer system later. Always be sure to specify text or binary file types in your telecommunications program. While you can download IFF graphics and machine language object code to another machine, you will have to run them through a conversion program on the new machine before the files are compatible with the system and can be manipulated. A more direct route is to bypass the BBS and call another computer; just make sure the destination system can auto-answer or someone is available to man the software. Between Amigas, you can send anything—text, graphics, programs, and so on. Between unlike systems, the same restrictions apply as for BBS transfers.

A variation of this technique is the null-modem process, in which you run a phone wire from one computer's modem to another's and use a simple file-transfer program. Currently, On-Line Platinum (Micro-Systems Software, \$99.95) and A-Talk III (Oxxi, \$99) both support null-modem transfers. The null-modem method is easy to use, but is intended for ASCII files; other file formats must be converted before being compatible.

A rather obscure technique involves the Amiga 1020 5 $\frac{1}{4}$ -inch drive, which allows all Amiga models to read MS-DOS formatted disks. Because the A1020 uses a standard MFM (Modulated Frequency Modulation) data-recording process shared by MS-DOS compatible disk drives, the Amiga operating system can read and write ASCII files from and to MS-DOS formatted 5 $\frac{1}{4}$ -inch disks. The 1.3 Extras disk offers a PCUtil drawer containing PCCopy, ToPCCopy and PCFormat commands for the A1020. Simply double click the appropriate icon: PCCopy to copy files from MS-DOS to AmigaDOS, ToPCCopy to transfer from AmigaDOS to MS-DOS, PCFormat to format a 5 $\frac{1}{4}$ -inch MS-DOS disk. While no longer manufactured, the A1020 is still available by back order through some mail-order firms that carry Amiga hardware.

FILTERED THROUGH

For the modemless, several commercial programs that will convert data files to other system formats are available. Central Coast Software makes two of the handiest transfer packages (and is working on a third for Mac formats). DOS-2-DOS (\$55) converts binary and ASCII files from the Amiga to MS-DOS or GEM (Atari ST) formats and vice versa. Just put the DOS-2-DOS disk in one drive, and the source disk in another, double click the DOS-2-DOS icons, and you are in business. Both 3 $\frac{1}{2}$ -inch and 5 $\frac{1}{4}$ -inch MS-DOS disks are supported, although you will need a 5 $\frac{1}{4}$ -inch external drive for the latter.

The intelligently-designed interface makes DOS-2-DOS easy to use. Basically, it's simply a matter of selecting the easy-to-follow menu prompts and letting

the program do its work. A 16-page documentation booklet complements the package; type ? for on-line help.

About the only limitations of DOS-2-DOS is that it does not support MS-DOS to MS-DOS disk copying on the Amiga, nor will it copy the quad-density (80 track-per-inch 3 $\frac{1}{2}$ -inch disks) format used by IBM PC/AT computers. Regardless, it is probably the most useful program that you can get for reliable, trouble-free PC-to-Amiga conversions and the only commercial program for Atari ST conversions.

Disk-2-Disk (\$49.95) permits the A1020 or compatible external 5 $\frac{1}{4}$ -inch drives to read C-64 and C-128 sequential-text and ASCII files from a Commodore 1541 or Commodore 1571-formatted disk, then save them to an Amiga disk, and the reverse. To help convert BASIC programs, the included utility, BASDIF, flags the lines of Commodore BASIC that are incompatible with Amiga Basic. The program works wonderfully. I transferred files rapidly in either direction with a minimum of cleaning up. My biggest gripe is that it does not work with file transfers from 3 $\frac{1}{2}$ -inch Commodore 1581-formatted disks.

Less helpful was Fruit 2 Friend (Top Disk Software, \$59.95). Designed to let the A1020 drive read Apple 5 $\frac{1}{4}$ -inch disks, Fruit 2 Friend was very unreliable when first tested. Its only documentation is a Read Me file. After a long series of false starts and an even longer series of telephone calls to technical support, I received a modified copy of the program that actually works. The company blamed the problems on a lack of error trapping in determining the number of tracks used by Apple ProDOS disks, and promises the bugs will be fixed in the next release.

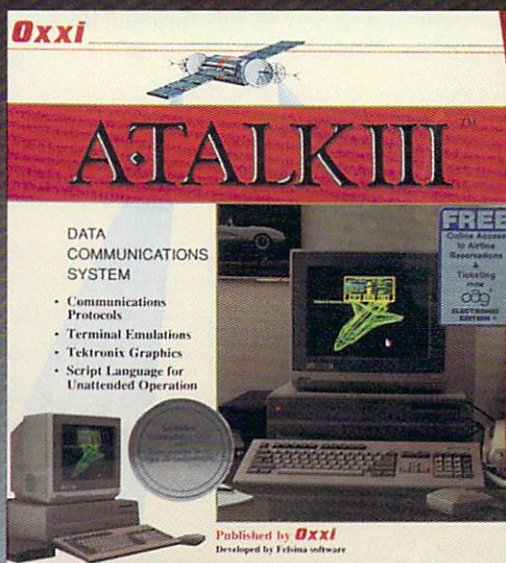
INTERNATIONAL SYMBOLS

If you have access to an MS-DOS machine or Bridge-board and need to transfer graphics, two IBM-to-Amiga transfer programs could come in handy: Graphics Transformer (previously known as Reflection, from IMSI, \$99) and HiJaak (Inset Systems, \$149). HiJaak also lets you transfer IFF graphics to Mac format and vice versa.

In addition, public-domain software distributors, networks (Genie, CompuServe, PeopleLink and BIX), and bulletin boards offer a wealth of graphics conversion programs for the Amiga. Chiron Concepts offers disks CC-304 (Graphics Utilities #1), which provides MacPaint-to-IFF conversion utilities; CC-628 (Graphics Utilities #2), which provides 64 Converter to translate C-64 Doodle, Koala and PrintShop graphics into IFF format; and CC-630 (GIF Pictures), which offers GIF (Graphics Interchange Format) to let you share graphic screens among IBMs, Atari STs, Macintoshes, and Amigas. Similarly, MacView (DevWare DevDisk 0014) reads MacPaint files and converts them to Amiga IFF. The Fred Fish collection offers MacFont (disk #138) for converting Macintosh ►

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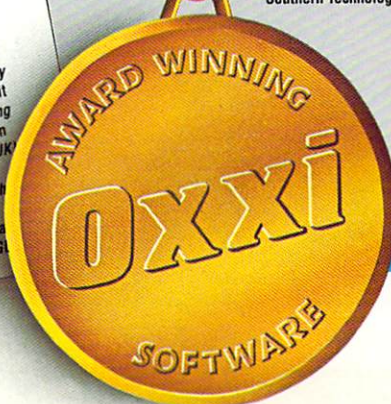
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fonts to Amiga fonts; MSDOS (disk #158), which lists MS-DOS and Atari ST format files and saves them to the RAM disk; and PcView (disk #164), which converts DeluxePaint (Electronic Arts) images created on the IBM-PC and Apple IIGS computers to IFF format.

After exploring the fertile territory of file transfers, I have discovered that plenty of excellent opportunities exist for anyone ambitious enough to develop a well-rounded conversion package. Until then, there is no "right" way to transfer files. Just find the method that suits you best and stick with it. ■

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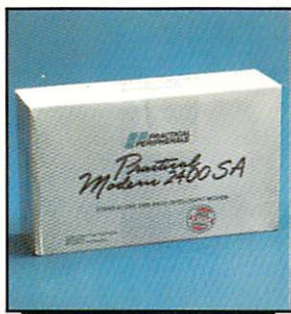
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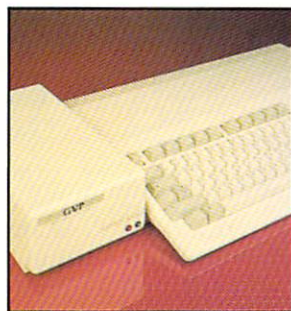
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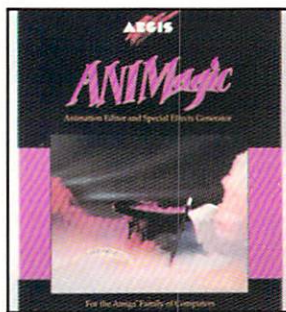
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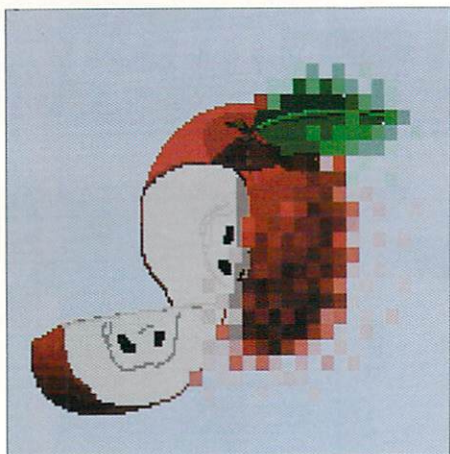
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Install check df<disk drive>:

If it says that it's a normal boot block, you're O.K.; if not, you can kill it by typing:

Install df<disk drive>:

It's that easy. So far it's worked for me, but I'm not 100 percent sure that it kills all viruses. Also, you should write protect Workbench (and Kickstart if you have a 1000) whenever working with disks that you suspect are infected.

John P. Findlay
New York, NY

SCREECHING STARTS

IN THE LAST several issues of *Amiga-World*, I have noticed several tips describing how you can speed up your startup-sequence. What I have not seen is the use of the RUN command. I use it so that I can have both disk drives working at the same time. To make this technique even more effective, it helps to

divide the files that you want to access between the two disks. I use this technique on all my disks; it is used to best effect on the startup-sequence to my Manx systems disk. Without using RUN, it takes around three minutes to finish. Using RUN, it takes about a minute and a half. Another useful tip is to copy into RAM: the commands that you use the most. Then they can be referenced by RAM:foo to further speed up the process.

Dan Drake
Pittsburg, PA

IF YOU HAVE an A500 with only one floppy drive and are tired of swapping disks to satisfy system requests, try the following. Go out and buy Workbench 1.3 (if you haven't already), make a copy of it, boot with your copy (put the master away), and run FASTMEMFIRST. Once you get up to the Workbench screen, open the CLI and type:

copy df0: ram: all
assign sys: ram:

then assign everything to RAM:

assign c: sys:c
assign libs: sys:libs
assign system: sys:system
assign s: sys:s
assign devs: sys:devs
assign fonts: sys:fonts
assign l: sys:l

Now you can load whatever you want without that annoying "Please insert Workbench" request. Note: You must have at least 1.5MB RAM to do this.

Wolf Noble
Canoga Park, CA

HERE IS A simple program I wrote using ED. It is especially useful to those of us with a single-drive system. It is good

for doing work with the CLI, on disks other than the one you booted up with. It avoids constant disk swapping. EXECUTE it to use it.

Makedir Ram:c
Copy c to Ram:c
Path Ram:c
Echo "Insert disk to be used in df0:
and type <CD DF0:>"

This program uses much of your RAM if you only have 512K, so after you're finished with it and you want to regain your RAM space, just type Delete Ram:c all quiet.

Kenny Young
Bronx, NY

TO RAD OR NOT TO RAD

I WAS READING "Exploring AmigaDOS 1.3" in your December '88 issue [info.phile, p. 94] and an idea struck me. AmigaDOS' new ASK command would work perfectly with RAD:. Why not add a set of statements to your startup-sequence to ask whether you want to MOUNT RAD: or not. This way, if RAD: is already mounted you will not wipe it out with the FORMAT command. (I also ask if I want to install Workbench in the same fashion, eliminating CTRL-D). I recommend that if you are a very good friend of the Guru when programming, but you also like to turn your Amiga off after you are finished with it, that you add this to the end of your startup-sequence:

ASK "Mount RAD (Y or N return) : "
IF WARN
MOUNT RAD:
FORMAT DRIVE RAD: NAME "Re-
coverable RAM Disk" NOICONS

O E U V R E S

```
; COPY the files you want to RAD:
; etc.
ENDIF
ASK "Load Workbench (Y or N
    return) : "
IF WARN
LOADWB DELAY
ENDCLI >NIL:
ELSE
NEWSHELL "NEWCON:0/0/640/200/
    AmigaShell"
ENDIF
```

*Stephen R.G. Fraser
Whitby, Ontario, Canada*

RUNNING AWAY

MANY AMIGA USERS don't seem to know about the RUN command, and end up going through strange procedures to try to do the same thing! The RUN command sets up a separate task that is independent of the CLI from which it was invoked, freeing the CLI for other uses. For example:

```
run copy "My Paper" to PRT:
run ed "My Next Paper"
dir
.info                My Paper
My Next Paper        Nothing
```

In this example, the printer is printing "My Paper" while the computer is editing "My Next Paper." There was a need to see the directory while editing the document, but since RUN was used to start ED, there is no need to exit the editor to use the CLI. After the DIR command, the ED window can be brought forward again to continue editing the document.

Moral: Multitasking is useful. Use it! The RUN command makes this much easier.

*Greg Searle
Lowell, MA*

TINY COPY

SOMETIMES THE COPY command is just too big. It uses around 100K for some unknown reason, which tends to stop you from squeezing the last possible bit of space out of your RAM: disk. There is another command that performs the same function, but only uses about 1K. This is the JOIN command, which takes up a measly 1K in the C: directory. Use it as follows:

```
Join <file> as ram:<file>
```

This is a little slower than COPY, but saves lots of memory.

*Greg Searle
Lowell, MA*

RAM TO THE RESCUE

HERE'S A TIP for users of multi-font word processors (such as ProWrite, excellence!, etc.) who have a one-drive system. While retrieving a file from a data disk, the word processor automatically asks for your system disk (usually your Workbench disk) every time it finds a new font in the document. If your document contains many fonts, you spend a lot of time swapping disks, because the Amiga will always stop loading to look for the new font on Workbench. In some cases, retrieving a file can take longer than typing it from scratch.

This problem can be easily overcome. If you know what file you're going to retrieve in advance, then, from Workbench, copy the file from your data disk to your RAM disk (RAM:). Load your word processor, and in the selection bar, precede your document name with "RAM:". The document will load in seconds, with no dreaded disk-swapping in-

volved. If you are already in your word processor before loading your file, flip your window to the Workbench screen, and repeat the above steps.

*Arto Oltaci
Mount-Royal, Quebec, Canada*

USING AN ALIAS

THE ALIAS COMMAND, one of AmigaDOS 1.3's new commands, lets you add a second (or third) name to any command (or string of commands) recognized by the AmigaDOS CLI/Shell. For those unfortunates among us who work on those "other" operating systems (like me), you'll never have to try to remember if it's "DELETE," "ERASE," "SCRATCH" or "DEL" if you include the following in the S:Shell-Startup file on your Workbench disk:

```
ALIAS DEL DELETE [ ]
ALIAS ERASE DELETE [ ]
ALIAS SCRATCH DELETE [ ]
```

ALIAS has a great deal more utility than just allowing commands to have additional names, though. The following example allows you to start any text file printing in the background from a CLI by typing "PRINT <filename>". The file will print, and you will be able to continue with your CLI/Shell commands uninterrupted:

```
ALIAS Print Run Copy [ ] PRT:
```

Typing ALIAS from the CLI/Shell will list those aliases already set up for you by CBM. Additional aliases can be added at any time from the CLI/Shell, or added permanently by using a text editor to edit the file "Shell-Startup" in the S: subdirectory.

*Ted Roche
Brockton, MA ►*

BIGGER CLI WINDOW

THE CLI WINDOW that opens from the Workbench often needed to be enlarged to suit my needs. However, an inspection of the CLI file using the command

type opt h CLI

revealed the following ASCII sequence near memory locations 0870-0880:

Workbench CON:0/50/640/80/new CLI Window

This sequence determines the size and location of the window. You can alter it very easily with an editor; here's how to do it with TxEt Plus. From the CLI, enter the command

CLI

adding path information as needed. Then, find the proper line by selecting the Search option within TxEt and entering:

0/50

and make the change at line 813 with:

CON: 0/0/556/400

Notice that the length of the CLI file has not been altered, so memory locations are undisturbed. (The x-coordinate 556 was chosen to allow disk icons to remain visible at the right edge of the screen.) Finally, save the new CLI as CLI1 using TxEt's Save As option. Before trying the new file CLI1, use LIST to verify that it is the same length as the CLI (no lines have been truncated, for example). A simple way to try CLI1 is to

enter its name from the CLI. If you approve of the new window, delete the former CLI file and rename the new one.

Bob Anderson
Albuquerque, NM

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an AmigaWorld surprise gift. ■

OLD FAVORITES

The following are some of the best hints and tips that have appeared in Hors d'oeuvres during the past year:

TITLE	ISSUE	PAGE
PC BASIC Programs on Amiga	Sept. '88	12
Cheating with Arkanoid	Nov. '88	12
2000 Genlock	Dec. '88	12
Empty File Deletion	March '89	104
BASIC Color Fades	March '89	104
Rocket Ranger Tip	April '89	88
Recoverable RAD Disk	April '89	88
Amiga Graphics to MS-DOS	May '89	84
CLI Programs from Workbench	June '89	102

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7

A continuing series
of tips, techniques,
and tricks for
creating more
imaginative Amiga
graphics.

By Joel Hagen

Hi-Res: A Mode Of Many Colors



BECAUSE MANY AMIGA artists do not want to be limited to only 16 colors, they avoid the 640 × 400 hi-res interlace mode in DeluxePaint. There are, however, simple techniques by which DPaint users can have 136 colors at their disposal *and*, at the same time, keep all the benefits of working in hi-res mode.

The key to this lies in the resolution itself. At 640 by 400 pixels, a checkerboard pattern of two colors blends to the eye into a third color. Thus, 16 actual colors can yield an additional 120 virtual colors ($16 \times 15 \div 2 = 120$ individual two-color combinations). Some paint programs, such as Paintbrush for the IBM, are limited to only this method of color mixing to get beyond the 16 "canned" system colors. If you are skeptical about the clarity of "virtual" colors, try the techniques outlined here and I guarantee you will be pleasantly surprised. There is a certain irony here in that at lower resolution the pixels are too large for the eye to blend. Thus, the very resolution people avoid because of color limitation is actually the only resolution capable of giving them 136 colors.

STENCIL: KEY TO 136-COLOR PAINTING

One of the most powerful features of DPaint, yet perhaps one of the least understood, the Stencil function is central to all painting operations in this "136 mode." You will find Stencil in the Effects menu, and you can make a Stencil by locking colors in the Make Stencil requester. Any areas of those locked colors within your current image become part of a single shape that Stencil recognizes as a mask. By turning Stencil on, you protect the masked area so that it cannot be painted over. Turning Stencil off removes the mask, allowing you to paint in the previously protected area.

(Stencil can be toggled on and off with the " " key, located just below ESC.) What often confuses people is that instead of saving color information to keep you from painting over certain colors, Stencil saves a shape that you define by whatever colors you lock at the time you create the Stencil. You save and load Stencils in the same way you save and load pictures, brushes, and anims.

To set yourself up for "136 mode" painting, open a high-res, 640 × 400, 16-color screen and then create a full-screen checkerboard Stencil. The easiest way to do this is to clear the screen to the background color by hitting SHIFT-K on the keyboard. (Try to become familiar with the keyboard equivalents to mouse selections; they will make your work easier and more spontaneous.) Now magnify the area under the cursor by hitting the M key. Hit the "." key for a single-pixel brush and the S key for dotted-line free-hand. In the magnified area on the right side of the screen, place a single-pixel dot, then place another dot next to it at a diagonal. In other words, make the second dot over one and down one. Hit the B key for the Brush tool. Position the cross hairs exactly on top of one dot and drag the brush exactly on top of the other dot to pick up a brush two pixels wide and two high. Hit the M key again to toggle magnify off, and clear the screen.

Now, bring up the Fill requester with SHIFT-F on the keyboard. Click in the From Brush box and you will see the pattern box in the requester fill with a checkerboard of the background and foreground colors. Click OK and exit to the screen. Hit F10 to turn off all menus

Far from limiting your color selection, Hi-res mode is actually the key to broadening extensively the range of colors available to you.

so that you are looking at a full screen. Hit F to use the Fill tool and fill the screen with the pattern you just created. Now bring up the Make Stencil requester by hitting SHIFT-~ (the "~" key is also located below ESC). Click on the foreground color you used in the pattern to lock it, and then click the Make box. This returns you to the screen and you will see an "S" in the menu bar telling you that a Stencil is active. Save it to disk at this point for future use. Toggle the Stencil off by hitting the "`" key (again, located below ESC). Clear the screen and you are ready to paint in "136."

WORKING IN "136 MODE"

To try out the new mode, size up a half-inch brush from the tool menu with your right button. (Stencil is still toggled off.) Choose a foreground color and scribble on the screen. Do this with several colors. Now toggle Stencil on with the "`" key. When you scribble on the screen, you will see the brush behaving as though it were a transparent glaze, affecting other colors without obscuring them. With Stencil on, a red brush painted over a solid blue area creates purple, and so on. A black brush with Stencil on acts like a hi-res Halfbrite mode, shading any color down to a darker equivalent. White (or light gray) highlights a color, creating a pastel. Keep painting, toggling back and forth between Stencil on and Stencil off, and you will see complex colors emerge.

Now, let's take things a step further. Go to the Stencil submenu and select Reverse (unfortunately, here there is no keyboard equivalent). This locks only the negative space of your Stencil shape, allowing another level of complexity. If



It is possible to paint with 136 colors in hi-res interlace mode—as this multicolored abstract demonstrates. (Note the Palette settings, lower left.)

you have created an image with combinations of Stencil on and Stencil off, the structure of that image will be preserved when you add new color with Stencil reversed. A little experimentation will clarify this. A further level of color control is available by switching to the Tint painting mode while using Stencil operations. This also preserves underlying image structure.

Building a good palette is critical to getting the most out of this "136 mode." You will find it best to create a fairly broad spectrum, rather than ranges of several subtle shades of similar colors. Keep a solid black and one or two very light colors for shading and highlighting. Smear, Blend, and Smooth can behave in interesting but less predictable ways,

as they can disrupt the checkerboard pattern of an image, destroying virtual colors. Try all the tools in "136 mode" to see how they operate. Gradient filled shapes are particularly interesting, especially when interlocked by reversing Stencil. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope.



ALTHOUGH THIS IS the "September" issue, it is still a bit too early to reveal the solution to our mystery. Many subscribers to *AmigaWorld* may be reading this *before* the August 15 entry deadline. (See next month's issue for the solution and Finalist prize winners.)

We can, however, clean up one of the "mysteries" surrounding our contest that we didn't want to reveal earlier—namely, how the Grand Prize winner, Runner-up winners, and other finalists will be chosen. As this is a "horse-racing whodunit," we thought that an actual horse race, this year's *real* Travers Stakes—to be run on Saturday, August 19—should be the "trigger" to spring our contest winners.

Borrowing a page from the old "Irish Sweeps" we will randomly assign each one of our finalists a horse in the Travers Stakes when entries are drawn for the race on Thursday morning, August 17. The finalist whose horse wins the race will win the Grand Prize. The second-place finisher wins the Second Prize, and so on right through the complete order of finish. If there are fewer than 12 horses in the race (say, for instance, only eight are entered), then the ninth finalist selected automatically receives the Ninth Prize specified in our prize list, and so on through the Twelfth Prize.

Although we will be notifying all 12 of our finalists by telephone on Thursday, August 17, they (and everyone else alike) won't have to sit back and wait for further notification from us to see if they've won. You can watch the Travers Stakes live on national TV (ABC) on Saturday afternoon, August 19, and find out for yourself. As you can see, we've left *everything* to chance!

Saratoga Live

IF YOU HAVE been following "Murder at Saratoga" over the past two issues, you may have been wondering what the *real* Saratoga is like and whether it bears any resemblance to what happens in our mystery. While the characters and the murder story are fictional, much of the description of places and events is indeed based on fact.

MURDER AT SARATOGA—UPDATE

Saratoga Race Course (pictured below), has been in operation every August for over 125 years, ever since John "Old Smoke" Morrissey—a native-born Irishman, former American Heavyweight boxing champion, politician, and gambling entrepreneur—built the track in 1863. America's oldest and most beautiful racetrack also hosts the country's oldest major stakes race, the Travers, first run in 1864—11 years before the inaugural running of the Kentucky Derby.

Although Saratoga has witnessed the success of many of the legends of American racing—including Travers winners Man O'War (1920), Native Dancer (1953), Buckpasser (1966), and Damascus (1967)—it has also seen some of the most stunning upsets in the history of the sport. A year before his Travers' victory, Man O'War suffered the only defeat in his illustrious 21-race career when he was beaten by a horse by the name of, yes, Upset! And like our story's Rambling Boy, 1930 Triple Crown winner Gallant Fox lost the Travers to a 100 to 1 shot called Jim Dandy. And the shock waves have not quite receded yet from the mighty Secretariat's defeat in 1973 at the hands of the ingloriously named Onion.

Scene of the "Silverspoon Costume Ball" in our mystery, the Canfield Casino is actually the site of a very famous annual celebrity shindig held on the first Friday night of August.

Morrissey opened the establishment as the "Club House" in 1870 to immediate success. Richard Canfield, the "King of the Gamblers," pur-

chased the Club House in 1894 and renamed it "The Casino." Refurbishing it in the most elegant European fashion, Canfield made millions (about 13 to be precise) at his trade, as some of the biggest high-rollers of the time won and lost fortunes at his tables. (It is reported that William C. Whitney dropped \$385,000 early one evening while waiting for his wife to dress for dinner.)

Sensing the wave of anti-gambling sweeping early 20th century America, Canfield cashed in his chips and sold the Casino to the city of Saratoga Springs in 1911. The Casino's upper floors now house museums of historical interest, while some of the more risqué flavor of old Saratoga still lingers downstairs in the ornate ballroom.

August headquarters of our fictional Buford Langtry, the Gideon Putnam Hotel is an elegant grand hotel in the European tradition set among the tree-lined paths and sweeping green lawns of the 2000-acre Saratoga Spa State Park. The original hotel, built by its namesake in 1803, was the first to cater to the increasing number of visitors who came to "take the cure" at Saratoga's highly touted mineral springs.

And finally, let us not forget Madigan's. Unfortunately, there is no *real* Madigan's. There are, however, several notable watering holes in Saratoga known to the writer, and from a composite of these and some others no longer doing business, he concocted "The Bar Shoe Inn." You'll probably recognize a few of them if you ever visit Saratoga. ■
—Daniel Sullivan



Horses thunder into the far turn at Saratoga Race Course—just like they have since 1863.

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AmigaDOS Utilities Part 2

In the wrap-up of its two-part look at programs to aid AmigaDOS users, Team info.phile rates the competitors as batting an even .500.

By Bill Catchings and Mark L. Van Name

WINDING UP OUR survey of AmigaDOS utilities begun last month, we encountered another mixed bag of programs. Our second half dozen varied in both function—CLI replacement, archiving, tutorial, disk-operation speed up, all-purpose toolbox, and Guru buster—and usefulness. While you need not hurry out and buy any of these programs before sunset today, at least three out of the six are handy utilities at competitive prices.

CLIMATE AND DISKMASTER

Like Meridian's Zing! and DMH Technologies' Disk Magic (both covered last month in Part 1), our first two programs are CLI-replacement utilities, both from Progressive Peripherals. CLIMATE, the simpler and less expensive (\$39.95) of the two, is the better value. It lets you maintain disks, directories, and files without using the Workbench or the CLI, and it performs its small number of tasks very well.

Its main screen displays two ten-line boxes. The left box shows the contents of a source directory, while the right con-

tains a destination directory. You can format disks and create new directories at any time. CLIMATE's main tools, however, are its Rename, Display, Showpic, and Batch functions.

When you select one of these functions, a set of corresponding buttons appears on the bottom of the screen, and the behavior of the left mouse button changes appropriately.

Rename and Display do what their names imply; you can give a file a new name or view the contents of a file as either ASCII text or strings of HEX digits. Showpic allows you to display any IFF-compatible picture, including HAM images.

The heart of CLIMATE, however, is Batch, which lets you work on groups of files. You can select and highlight multiple files either by clicking on them or by entering an AmigaDOS wildcard specification. You can then copy, delete, move, or print that group. You can even copy and delete entire directory trees.

CLIMATE delivers on what it purports to be, and if you do not like using the CLI but still need to do a great deal of file manipulation, it will be a useful investment. It is sufficiently easy to learn

and to use, and its seven-page manual is perfectly adequate for the job.

Unfortunately, we cannot say the same for PP&S's other offering, DiskMaster. At \$49.95, it is a more complex program than CLIMATE, providing several additional features (including mouse control of the popular public-domain archiving program ARC—not included with DiskMaster—that allows you to compress and decompress files for faster, more economical on-line transfer). With DiskMaster, however, it is a case of trying to offer more, but doing it less well. Like CLIMATE, DiskMaster has a brief manual, only six pages, but here small is not a virtue. Too many functions are neglected or inadequately explained.

DiskMaster essentially stays in CLIMATE's Batch mode—although the two directory boxes run almost the full height of the screen, and the Rename and Showpic functions are always available.

DiskMaster is an odd mix of additional features and omissions. With it you can ►

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THE BEST OF THE REST

BUSINESS/HOME

- **#116 Business II** - VC-Spreadsheet, HP-10c calculator, and more
- **#117 Business III** - DataBase, a bunch of great new fonts, RSLClock-great clock utility, AmigaSpell.
- **#152 Mail Manager** - Store names and addresses of friends, clients, members, etc. Has sorting and printing functions.

LANGUAGES/COMMUNICATIONS

- **#9 FORTH** - Two versions of the FORTH programming language.
- **#90 Modem Madness!** - Terminals include StarTerm, ATerm, and Kermit. Telecommunication utilities such as Archive are also here. Other types of programs and utilities are also included in the price of admission.

UTILITIES

- **#60 AmigaBasic** - Two programs that are truly of commercial quality. Cell-Animate and Graphit. Some Deluxe Paint picture files are also included.
- **#97 Tutorial Disk1** - A disk full of information and programs to instruct Amiga Programmers and users. Several C & ASM source files are included.
- **#98 Tutorial Disk2** - More of the best of Amiga Information.
- **#129 Amiga Utilities II** - A hard disk backup; Target-sounds a gunshot whenever the left mouse button is pressed; Dpaint Tutor; WinSize-change window size from CLI easily, and lots more.
- **#132 Videomaker Utilities** - This disk is packed with utilities to make your desktop videos easier to produce and more professional looking.
- **#133 DOS Helper** - Designed to help you with the AmigaDOS commands. Supports multitasking.

APPLICATIONS

- **#135 Applications II** - Long Movie-plays several lff pictures, creating animation. QuickBase-a mail manager DBase. Persmail-a DataBase for keeping records.

SOUND/MUSIC

- **#18 Future Sound Demo** - Another great sound demo of digitized sound. Includes the wicked witch of OZ, breaking dishes, sea gulls, car crash, ducks, others.

SLIDE SHOWS

- **#1 Norman Rockwell** - 17 beautiful digitized Rockwell paintings in this self-running slideshow presentation.
- **#108B Juggler** - Famous demo that shows the beautiful graphics of the Amiga
- **#120 Pictures6** - Great lff and Ham pictures that can be displayed from Workbench with their own icons.

GAMES

- **#38 Basic GrabBag2** - Around 25 programs of various types. Many of these are must-haves. At less than \$.20 each, you can't go wrong!
- **#44 Games3** - More great games including Life, Vegas Slot Machine, Reversi, others.
- **#52 Basic Games** - Tons of ABasic games - discover some treasures!
- **#61 ABasic GrabBag** - Only about 100 of all types!!!!
- **#102 Sinking Island** - Return to Sinking Island is an excellent adventure game. Well worth the price - hours of enjoyment!!! (By Terry Fike)
- **#114 Potpourri X** - Othello, A key-shortcut program for AmigaDOS. Various new tools, automatic printer-driver generator, much more.
- **#118 Great Graphic Games** - Includes Missile Command, 3-D Triclops, Cosmo-asteroids clone, BrakeOut, Yatzee, Hack and more.
- **#121 Backgammon** - A great game from David Addison.
- **#122 Solitaire** - Two versions by David Addison.
- **#123 Cribbage** - Take on the computer.
- **#124 Milestone** - A great computer version of Miles Bourne by the author of Monopoly for the Amiga, David Addison.
- **#125 Othello** - A great 3-D version of this popular game.
- **#127 Wheel of Fortune** - Everythingbut Vanna! Great graphics and sound (even speech).
- **#137 Blackjack** - A full-featured game which allows pair-splitting, double-down, etc.
- **#148 Boulder Dash** - Very popular game with excellent graphics and has several challenging levels.
- **#153 Tunnel Vision** - A fantastic 3-D game with excellent sound, speech, and graphics.
- **#154 MAXIT** - A fun strategy game that you can play against a human or computer opponent.
- **#155 Battleship** - Play against the computer. Has great sounds like missiles and explosions.

GRAPHICS

- **#119 mCAD** - A full-featured computer-aided design program.
- **#136 Graphics2** - Border Set-useful for desktop publishing and video, making cards, coupons or menus, and your own artwork.

ANIMATIONS

- **#144 Christmas Animations** - 10 beautiful scenes and graphics with Fantastic sound.
- **#145 Animations 3** - More Great Animations. 3 very good demos plus 3 workbench pictures and Blobs.

THE TOP 10

- **#23 Monopoly** - Excellent color and graphics in this adaption of the famous board game. Play against computer opponents. This program is definitely of commercial quality - a must! Requires 512K.
- **#27 Amoeba Invaders** - This fantastic game plays just like the original arcade classic, Space Invaders, but with enhanced color and digitized sound. You'll find more great games on this disk.
- **#128 Space Games** - Cosmoroids (like asteroids) and Gravity Wars highlight this disk just full of games.
- **#131 PacMan '87** - Better than the original. Great graphics, sound, and options. Keeps a top-10 list. May be our most popular disk.
- **#139 Bull Run** - Great Civil War strategy game. Disk also includes a small Data Base, Reminder, Grocery Construction Set, Will Kit, Label Maker programs.
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- **#77 Instruments** - Turn your keyboard into 25 different musical instruments.
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- **#140 Virus Killer** - End the worry of having the virus on your disks. Excellent utility program.
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NEW ADDITIONS

- **#158 Sinking Island II (Two Disk Set!) By Terry Fike** - Great text graphic adventure. 4 map scenes, underground chambers and much more.
- **#160 Pilot** - Learn all you need to know about Alaska with this pilot demo.
- **#161 Sorry** - Like the board game. Also includes bully and amazing.
- **#162 Video Poker** - All the fun of Vegas without the risk!
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- **#164 Bank'in** - By Hal Carter, Keep your account in perfect balance.
- **#165 Wheel with Vanna** - Play against two computer opponents. The game with everything, including Vanna.
- **#166 HEdit** - A text editor. Try this one, you'll never use Ed again.
- **#167 Public Domain Catalog** - By Hal Carter, Keep track of all your disks.
- **#168 Grocery List** - Complete itemized printout of all your grocery items.
- **#169 Ledger** - Track income and expenditures. Great for small businesses and clubs.
- **#171 Escape from Jovi** - Escape from underground cave system of Jupiter.
- **#173 Mastermind** - Break the hidden code. A game for people who like a challenge.
- **#174 1 or 5 Stay Alive** - A dice game for the daring. Don't get too greedy or you'll lose it all.
- **#175 ART** - Another great graphic disk. Volcano with burning lava. Ocean scene (sunrise to sunset)
- **#176 Galactic Worm** - Great arcade maze like game. Also super Brickout.
- **#177 Kamikazi Chess** - Lose all your pieces to win!

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change a file's protection and comment fields, but you cannot display a file in HEX. It supports wildcards, but rather than the familiar AmigaDOS #? characters, it uses instead an asterisk (*) as its wildcard character.

DiskMaster was also less robust than CLImate. In our brief time with the product, we found ourselves losing control of it—the mouse moved and the foreground/background gadget worked, but the rest of the program was hung.

Although we can recommend CLImate to those who need it, we cannot do the same for DiskMaster.

DOS LAB

Rather than trying to replace or augment the CLI and Workbench, Jumpdisk's DOS Lab (\$25) tries to help you, according to its documentation, "learn AmigaDOS 1.3 the interactive way."

The tutorial comes on two floppies with a one-page, dot-matrix-printed instruction sheet. You can boot with both disks, but if you do not have one of the disks in DF0: the examples will not work.

DOS Lab uses the Amiga's multitasking abilities nicely; you type CLI commands in a CLI window on the bottom third of the screen, while the tutorial text remains in another window in the rest of the screen. Some graphics would have been helpful in providing examples, but unfortunately the program is entirely text-based.

The content and flow of the tutorial itself, however, poses a more significant problem. It starts with the CLI instead of the Workbench—a sure way to alienate novices. Commands are covered in a less-than-logical, less-than-intuitive fashion. For instance, after presenting DIR, LIST, and TYPE (so far, so good), it then moves on to EVAL. Why not stick to the more basic, frequently used commands first—say, CD or ENDCLI—before going on to more esoteric ones?

While DOS Lab may be of some value in presenting the fundamentals of AmigaDOS, it does not strike us as a particularly good way to learn about and use an Amiga.

FACC II

If you are looking for a utility to speed up floppy-disk operations, then ASDG's

FACC II (\$34.95) may fit the bill. Like the AmigaDOS AddBuffers command, FACC II achieves such speed increases by caching file blocks in memory buffers. FACC II, however, offers a few improvements over AddBuffers.

For one thing, FACC II is faster. Also, because it keeps all of its buffers in a single pool (AddBuffers assigns buffers to individual drives), FACC II can employ its buffers where you need them most. FACC II also handles memory shortages gracefully by detecting when you are short on memory and then surrendering some of its buffers before you run out.

The biggest drawback of FACC II is that it does not work with all software. Bard's Tale II, for instance, was among the programs that would not work with it—despite the fact that we talked with both ASDG and Electronic Arts. A lesser problem is that FACC II lacks printed instructions, relying solely on an on-line manual.

Despite these complaints, we recommend FACC II as a useful, if not absolutely essential, utility.

AMIGADOS TOOLBOX

Abacus' AmigaDOS Toolbox (\$59.95) offers a whole range of potentially useful tools. The price struck us as a bit high, but we were willing to overlook it if the product lived up to its documentation's claims as a "collection of essential, powerful, and easy-to-use tools." While many of the tools worked properly, those which seemed to offer the most promise did not deliver the goods.

Deepcopy, perhaps the most interesting and potentially useful of the lot, supposedly copies disks faster than AmigaDOS, and also lets you duplicate copy-protected disks and disks in MS-DOS format. Sounds good; since the demise of the late, great Marauder II, we've been looking for a good alternative.

The manual claims that "this program is not very attractive, but it is fast and accurate." That's two-thirds right; it has an ugly, cryptic interface, and it is fast. Unfortunately, we could neither duplicate any of our copy-protected Amiga games, nor copy disks in MS-DOS format. We tried a whole slew of options, including those the manual suggested, but none worked.

The Toolbox's Speeder Trackdisk device accelerator also did not work. It took us quite a while to get it to even

install successfully. The first disk read we tried caused a read/write error.

The BTSnap utility fared much better. Like Grabbit (Discovery Software), BTSnap captures a screen image and saves it in IFF format.

The Toolbox also includes a few fonts and some CLI tools. The CLI tools all work, but their appeal may be limited. With them you can edit disk blocks, display IFF pictures, disable the ability to reboot with the CTRL-Amiga-Amiga key sequence, replace characters and strings in files, and display text from a batch file with highlighting.

Another set of tools allows you to manipulate tasks. You can display the current tasks and their priorities, and then either freeze your current task or slow it down. The TaskPri utility, unlike AmigaDOS' ChangeTaskPri, lets you change the priority of any task, not just the CLI.

Like the program itself, Toolbox documentation draws a mixed review. The 19-page manual fails to describe adequately the often complex tools. Abacus does, however, include a well-conceived, 114-page paperback AmigaDOS Quick Reference guide that covers the 1.3 CLI. Despite the usefulness of the latter, however, we cannot recommend AmigaDOS Toolbox.

GOMF!

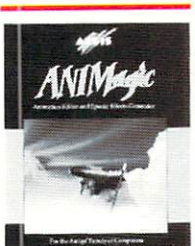
A few of the tools in the AmigaDOS Toolbox were so unreliable that we were glad we had installed our final AmigaDOS utility, version 3.0 of GOMF! (\$34.95) from Hypertek/Silicon Springs Development Corp. GOMF!, which stands for "Get Outta' My Face!," helps you recover from software failures by keeping the Guru at bay.

GOMF!'s underlying idea is that the failure of one Amiga task should not stop the others. AmigaDOS itself should provide this feature, but it does not. The GOMF! software helps remedy the problem; used in conjunction with GOMF!'s hardware option (\$35), the combined package goes a long way towards eradicating the problem entirely.

The hardware, however, is a bit tricky to install. You have to open your Amiga, remove its Paula chip, and then put GOMF!'s small daughter-card between the Paula chip's socket and the Paula chip itself. A wire runs from the card to ►

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a button used to trigger the device. To get to the button you have to drill a small hole in your Amiga's case and mount the button through the hole.

Once GOMF! is in place, you can start dealing with those awful unrecoverable task errors. The GOMF! hardware also lets you step past the part of a program that summoned the Guru. You can sometimes even regain control of your Amiga when it seems to be totally hung.

GOMF! also includes a program, Nuke, that allows you to kill any program. Nuke can be quite useful when a program hangs and you still have control of your Amiga.

The biggest drawback of both GOMF! and Nuke is that neither works in all cases—which, while understandable, can be frustrating. Even when they do work, these tools often cannot free all of the resources of the offending program. They usually work well enough, however, that you can save your other work and recover from an apparently hopeless situation.

If you are concerned about Guru visitations, then we recommend you buy the GOMF! software. If you are a developer,

or if you do not mind the the extra \$35 investment, go for the hardware, too.

While some of the utilities covered in this two-part series proved less than satisfactory or only of limited appeal, a few of the others were genuinely helpful and demonstrated that there is a real market

for such programs. Taken together, all the programs reflect signs of the Amiga's growing maturity. ■

Bill Catchings and Mark L. Van Name are contributing editors to AmigaWorld. Write to them at 10024 Sycamore Rd., Durham, NC 27703.

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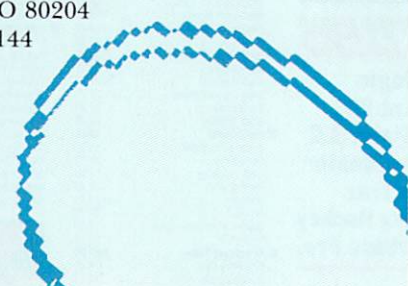
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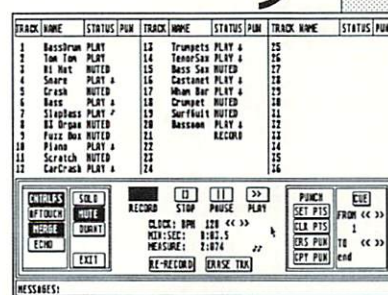
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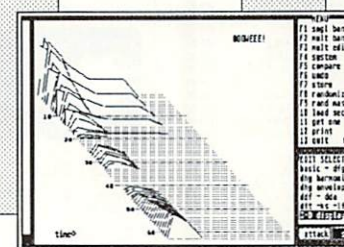
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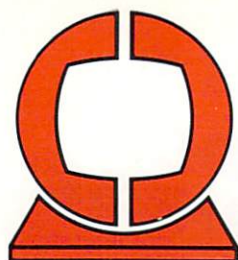


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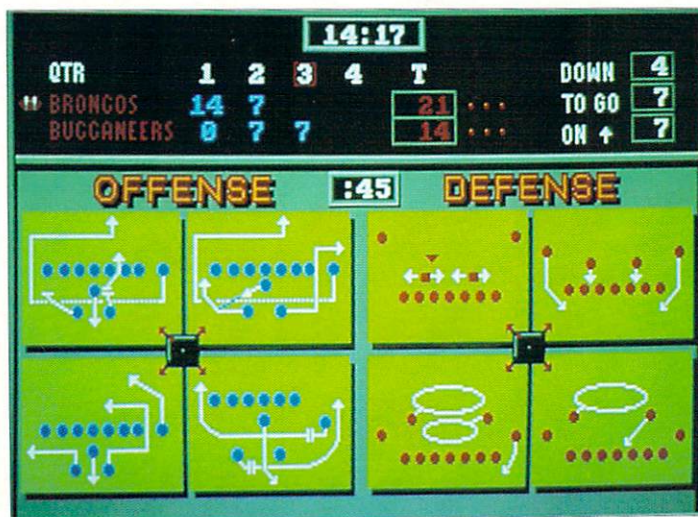
AH, FALL: LEAVES exploding with color and stadiums exploding with football action. While others just watch the sport and toss back beer, I play it...and toss back beer. . .one of the advantages of computer simulations. As a veteran of several seasons (all played in the last few months), I've amassed quite a playbook. First, let's take a look at the scouting reports.

Of the three Amiga football games (4th & Inches, TV Sports: Football, and Gridiron), I liked **4th & Inches** (Accolade, \$44.95) the least. Its graphics are pretty bad, more suited to a Nintendo machine or

an IBM. The playing field doesn't even scroll. You see about 20 yards of the field as if you were sitting a few rows up in the stands. When the ball leaves this area, the game blanks the screen and then displays the next 20 yards. In the process, it sometimes even changes the player you're controlling! Losing all visual continuity is bad enough, but to find yourself suddenly controlling a new player? Awful idea. As a result, you never feel completely in control of the game. The sparse documentation is little help. That's sad, because the game has enough features that it might be interesting.

Gridiron (Bethesda Softworks, \$39.95) has much more attractive, although less realistic, graphics. Instead of seeing men on the field, you view little circles from above. You can, however, see over 50 yards at once, and the screen scrolls nicely when play moves off the current viewing area.

Gridiron's strength is its highly realistic play. The game even calls real penalties—try bumping a receiver before he gets the ball. You can pick from 19 basic plays or design your own. Unlike the other two games, Gridiron lets you handicap the computer, a nice feature when you're just learning the game. You can adjust the computer's handicap as you go, so that you always face a reasonable challenge. (Of course, ►



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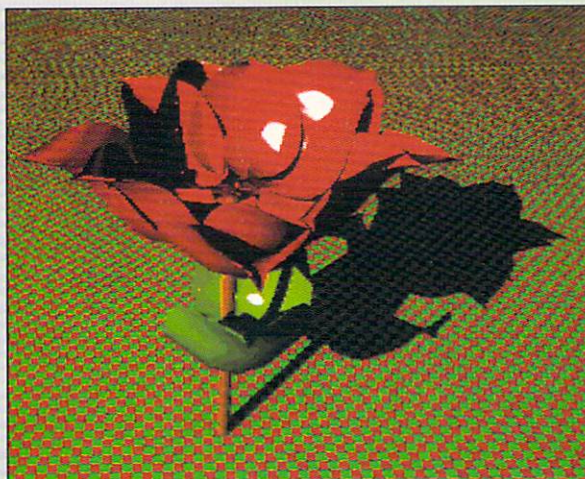
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you can leave the handicap low if you feel the need to kick some butt.)

By far the most visually impressive of the pack is **TV Sports: Football** (Cinemaware, \$44.95, joystick required). Its players look realistic as they run from the bottom of your screen to the top, and the screen scrolls as play moves off the edges.

TV Sports also has many small touches. It's great, for example, that your player will go on without you if you decide to stop controlling him—particularly when you want to run a play that you haven't mastered. I've had a good time just watching the computer play both sides for the better part of a game. Of course, sometimes the nice touches can be too much. Sure, I've stepped offsidés once or twice just to see the ref throw a flag, but does the coach have to show up periodically and spit tobacco?

The biggest flaw of TV Sports: Football is that you can't pause it. When those transatlantic safari calls come in I have to take them, which means burning a precious time-out. Still, the game is so visually stunning that you have to buy it.

TEAM MEETING

All right, it's time to play. My cardinal rule is simple: Don't go for the big play. If you're like me, it's hard to resist the 30-yard bomb; resist it anyway. A screen pass is more likely to succeed. Also, skip the really difficult plays. I started out loving to thread the needle on passes, and I was rewarded with as many as ten interceptions in a game of TV Sports. Similarly, resist the temptation to go for the fake punt, unless it's fourth and short, late in the fourth quarter. The same goes for defense. Don't constantly go for the interception or the sack, unless, of course, you like watching the computer score on you. The other players on your team assume that you're covering your area, and when you leave that area you'll often pay the price.

When you're tempted by the flying tackle in TV Sports, remember: Hard flying tackles might well get you more fumbles, but you'll also miss more tackles.

Give up the short yardage to protect yourself from the really big gains.

Speaking of fumbles, you'd better be quick with them in TV Sports. The player who clicks the joystick fastest recovers the fumble. If you wait for the announcer to say "fumble" before you start clicking, you'll never recover one. I click a couple of times after every tackle, just to be safe.

The right overall approach in all of these games is to mix your plays. Don't neglect the run; the Oklahoma Sooners have made a lot of yardage with it, and you can, too. Try steady drives, with a few end runs, a few runs up the middle, some short passes, and the occasional longer pass. Also, go for something unusual every now and then. A simple pass on third and short, or a run on third and long, can often yield great results.

Practice, of course, is crucial. Pick a few plays and run them often enough to get good with them. Gridiron and TV Sports: Football will even let you run through plays in practice.

My personal favorites for Gridiron are the 31 pass (play #10) and the flood pass (#14). I alternate sides of the field with these two to get plenty of running room. With #10, I hit the tight end on the short and out. Then I run #14 as a screen pass, hitting the fullback in the backfield as he runs toward the opposite side of the field. Play #14 works especially well as a screen pass against human opponents: You frequently end up facing a lone defender that the player is controlling. Beating one defender for the long yards is usually a piece of cake. Intersperse these two plays with a few runs and you have the makings of a good drive.

Plays that offer both pass and run options are also good; you can size up the defense before you decide what to do. In TV Sports I usually work from the pro set. My favorite play is the one TV Sports: Football displays in the upper right corner when you're in the pro set. If the defense lines up a three-man front, I hand off and run wide left. Against a run defense I either hit the wide receiver cutting across the field from right to left, or toss it to the back running straight up the middle. All three of these options are usually good for at least four yards. I use the Gridiron halfback option play (#11) similarly. In fact, I liked that play so much that I designed a complementary fullback option that goes in the opposite direction on the field.

Enough already; it's time to sink into the Barcoulounger and face the fall football challenge. Hut one, hut two, hike! ▶

Although not the type to be caged in an office, B. G. Hunter does skulk in occasionally to pick up his mail. Write to him c/o AmigaWorld, Editorial Dept., 80 Elm St., Peterborough, NH 03458.

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HOSTAGE

By Peter Olafson

IN HOSTAGE, YOU must get the terrorist-occupied embassy under your guns, break inside, and rescue the hostages (stocky guys in blue suits) without loss of life—except to the terrorists. You can go absolutely berserk on the terrorists.

The first segment finds you directing three marksmen to sniper nests past a roving searchlight and enemy gun-sights. The animation and ricochet sounds are quite nice. I especially liked the fluid way snipers dive over walls and through windows.

Once on the roof (a well-done animated segue here), you choose among nine positions, and rappel down the side of the building. This takes some delicate joystick manipulation. The button governs the push off the wall; the motion of the stick tightens or loosens the climber's grip on the rope. If he hits the window with enough pressure, it shatters

and he's in. If terrorists are at the window, the climber is a stain on the pavement. Have your snipers check out the targeted windows in advance.

Inside the three-story embassy the fun really begins. The scenery is all distractingly realistic. Happily, the terrorists on the upper floors are foolhardy; they'll come racing towards you at the sound of gunfire. If you stay alert, you can easily clear most of a floor standing in place. Your machine-gun leaves respectable pockmarks on the walls and doors. As you head deeper into the building, however, your foes develop the nasty habits of dodging bullets and standing close to hostages.

Plan your attacks carefully. Teamwork is the key, but I've yet to get through a game without wasting at least one hostage. The situation only gets worse on the two advanced levels, which are reached by codes received



The fate of the embassy rests on you.

upon completion of the previous level. While you cannot save a game, you can restart at the rappelling sequence.

The intuitive interface and realism make a couple of minor glitches stand out. For instance, special forces members going through broken windows must rebreak the win-

dows each time. Self-repairing glass aside, I haven't received such a swift, agreeable kick from a computer game in a long time. (\$44.95, Infogames, distributed in the US by Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667, 800/221-9884. Joystick required.)

SHOGUN

By Dodson Yaple

CARRYING THE BANNER of Infocom's new illustrated-text-adventure format, Shogun casts you as the sixteenth-century pilot John Blackthorne, the first English sailor to reach Japan. Marooned in the middle of an emerging civil war, you must survive, try to repair your ship, and sail home. Fans of James Clavell's epic will enjoy participating in this com-

puterized version of the novel, complete with bowing, politeness, and head-chopping.

The game unfolds as a series of disconnected scenes, each of which you complete in sequence by doing things that advance the plot. You cannot return to a scene after you complete it, and you cannot carry objects from one scene to the next. The game downplays puzzle-solving in favor of pace and action, resulting in a product that is less clever, con-

templative, and amusing than older Infocom adventures, but is faster and more exciting.

New features replace the old. Most welcome is the online hint section. To resist the tendency to peek, you can turn the hints off. Among other improvements, Infocom's legendary parser is better than ever (though a little slower), you can save up to nine positions on the unprotected program disk, and the

inevitable maze—now drawn on screen—is much more fun.

As for the graphics, most of which are done in the mannered style of Ukiyo-e, they are unlikely to overwhelm you. Similar products with sound and animation have rendered this approach to graphic adventuring largely obsolete. Moreover, the drawings unwisely insist on depict-



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Mariko escapes. Will you?

ing the story's main characters; Blackthorne, for example, looks like David Letterman's sidekick Chris Elliot. It's best not to know these things.

Fortunately, nothing interferes with the quality of the story, which is outstanding as always. The text, like the format, differs in tone from previous Infocom adventures, as evidenced in Shogun's attitude

toward sex and violence. Infocom games used to wait for you to try something unmentionable, then skewered you with a smart remark. In Shogun you must seduce the heroine or lose points. Not bad work if you can get it. (\$49.95, Infocom, 125 CambridgePark Dr., Cambridge, MA 02140, 617/492-6000. No special requirements.)

LORDS OF THE RISING SUN

By **Dodson Yapple**

A **DIFFICULT WAR** game set in twelfth-century Japan, **Lords of the Rising Sun** casts you as one of two brothers seeking to avenge their father. You must devise a campaign to capture all the country's castles, thus becoming Shogun. Your ascendancy is vigorously disputed by opposing clans, and if you cannot prevail, you might have to commit seppuku. Enlivening this contest of strategy and tactics are mighty battles and sieges, a ninja raid or two, and the heroic rescue of another over-endowed Cinemaware princess.

Most of the action takes place on a scrolling map of

Japan that features changing weather, passing seasons, and a soundtrack. The screen's uncluttered elegance is a big plus once you've gotten your bearings, but its reliance on tiny symbols contributes to a hard-to-learn user interface. Castles fall, generals clash, and battles rage, while you flip through the confusing manuals trying to locate the castles, size up the generals, and join the battles. There is no intuitive entry into the scenario, and early play is frustrating.

Too bad, because once you figure out what's going on, **Lords of the Rising Sun** is

deep and addictive, with enough substance to keep you interested over the long term. Its demanding arcade sequences are strongly involv-

included script file to install the game on your hard drive. Less considerate are the uncopyable master disk and the peculiar save function, which



Fancy sword work will keep you alive.

ing; if they put you above the action rather than in the middle of it, this reflects the largely strategic concerns of the scenario. The game values judgment and leadership above battle skills. To win, you'll need to plan and organize more often than fight.

The program is generally well-behaved. When you boot, it considerably checks your computer's available memory and locates as much of itself as possible in RAM. Execute the

preserves only one position at a time, requires a reboot to restore it, and erases it if your character gets killed.

While Lords of the Rising Sun lacks the roller-coaster excitement, showy graphics, and intuitive controls needed to rank with the top sellers, it offers patient players a rewarding experience. (\$49.95, Cinemaware Corp., 4165 Thousand Oaks Blvd., Westlake Village, CA 91362, 805/495-6515. No special requirements.)

MANHUNTER: NEW YORK

By Peter Olafson

THE YEAR IS 2004 in the world of Manhunter: New York. The Orbs (big eyeballs with Shiner tassels) have taken over, and you are employed by them as a human tracker in Manhattan and Brooklyn. Your principal tool, in addition to whatever you

find along the way, is the Manhunter Assignment Device (MAD), which doubles as a tracker and a computer link.

The game is almost entirely mouse controlled; the pokey cursor becomes an arrow or flying saucer to set direction, a hand to pick things up or push buttons, and a magnifying glass to examine scenery more closely. Getting around ►

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You can also easily die in splendidly grisly ways (be prepared for some unappetizing scenes) but will have trouble staying dead long. The grinning game designers turn up in Manhunter robes to suggest what you did wrong and send you back to the scene of your most recent mistake—a nice nod towards built-in hints.

That's about as friendly as the game gets. If you are not an arcade fan, skip Manhunter. This program contains maze games, ducking and jumping games, climbing and dodging games, and throwing games, all a little rough-edged.

The hard ones will drive you to distraction. The easy ones offer the game's only red hering. The game is extremely, and perhaps prohibitively, difficult to complete.

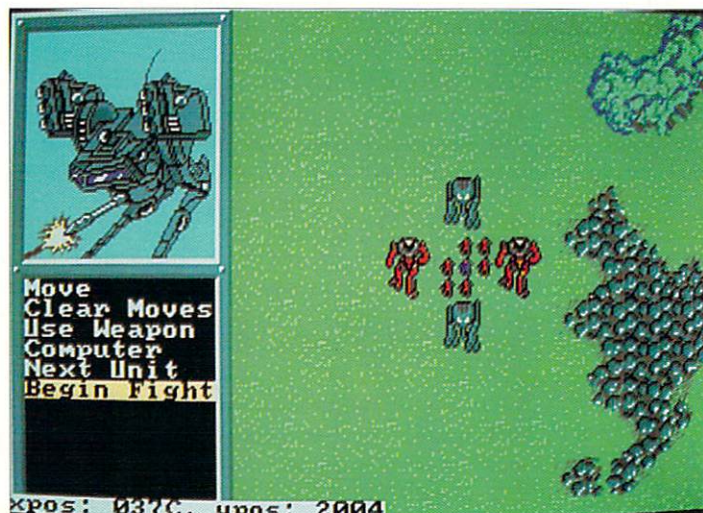
The game environment is cold, more as a result of the design than atmosphere. The graphics tend to be static; the things you can examine more closely are things you need to examine more closely. It's a clean approach, but it suppresses the illusion of a deeper, manipulable world. (\$49.95, Sierra On-Line, PO Box 485, Coarsegold, CA 93614, 209/683-4468. No special requirements.)

BATTLETECH: THE CRESCENT HAWK'S INCEPTION

By Denny Atkin

COMBINING role-playing elements, combat strategy, classic Infocom puzzles, and Japanese cartoon graphics, BattleTech: The Crescent

Youngblood, a rookie cadet learning to pilot a BattleMech: a lumbering, 50-ton robot that's armed to the teeth. Between lessons, you get to play



Tanks are toys compared to BattleMechs.

Hawk's Inception is a graphic adventure that you'll want to play in one sitting.

You start the game as Jason

the stock market and try to make a few bucks for outside classes. Drop by the weapons shop and check out the new selection of submachine guns and missile launchers.

After the training school is destroyed by the rival faction from House Kurita, you must put together a group of believers in your cause and go on a quest to discover the fate of your father.

Fans of the BattleTech role-playing game won't be disappointed in this game. Infocom

worked with FASA, the original game's creators, in duplicating the first version's combat system. Add the strategy of Mech combat to the puzzle solving needed during your quest and you have a game that will please just about any adventure fan.

The interface is also well

done. Using the mouse or keypad to move and select options is less distracting than typing commands.

My complaints are few. While there are several buildings on the training grounds, you cannot enter many. You spend a lot of time walking from one side of the facility to

the other. Perhaps the biggest problem with BattleTech is that it ends too quickly. Like an engrossing movie, BattleTech will leave you asking, "Is it over already?" (\$49.95, Infocom, 125 CambridgePark Dr., Cambridge, MA 02140, 617/492-6000. No special requirements.)

GOLD OF THE REALM

By Denny Atkin

BORROWING ELEMENTS from arcade and adventure games, Gold of the Realm includes the challenge of neither. The game is more an exercise in maze exploration.

Maneuvering a joystick-controlled character through over 300 screens of countryside and corridors, you must collect objects and solve puzzles that will eventually lead you to the gold

hidden deep within the heart of the castle. Incredibly long periods are spent just wandering through passageways looking for the correct key to pass further into the maze. To get past an obstacle, you must simply be carrying the correct object. There are no real puzzles to solve here.

To avoid the various creatures you'll encounter, you

must be carrying the proper object to repel them. If you don't have it: run away.

The sole unique feature of Gold of the Realm is its background music. The music plays through an attached MIDI synthesizer. While this is a neat touch for those with MIDI interfaces, it leaves most Amiga users listening to nothing but the sound of footsteps

and creaking doors.

Somewhere within the twisted corridors and dark passages of a huge castle lies the gold of the realm. If you have the patience of Job, you may actually play the game long enough to find it.

(\$39.95, Magnetic Images Company, PO Box 17422, Phoenix, AZ 85011, 602/265-7849. Joystick required.) ■

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from p. 16

God in another—to get it to compile and run. I don't know whether the support is missing from the compiler and libraries or is undocumented.

THE CHALLENGE

The accompanying chart compares M2Sprint with Benchmark: Modula-2 (Avant Garde Software), the package that has come to represent the standard in Modula-2. You will see the compiling, linking, and running times listed for both the composite and FFT benchmark programs. I had to change the composite only slightly (mainly the routine that gets timestamps to time the benchmarks), and changed the FFT a little more (this probably slowed it down a bit because of the LONGREAL problem. I clocked compilation and link times running from the CLI (running from the editor is faster but requires more RAM).

Although it has a few holes, M2Sprint is a good compiler. It makes the edit/compile/link process easy; debugging was the only painful part. I'll keep using Benchmark for now because I am more familiar with it, and because it is a bit more solid. Had I not started with Benchmark, though, I would be tempted by M2Sprint. The ARP and ARexx interfaces are a plus, and late-breaking news of version 1.1 with compiler and libraries improvement promises stiffer competition. Look out, Benchmark. . .the new kid is winding up.

M2Sprint

M2S Inc.

PO Box 550279

Dallas, TX 75355

214/340-5256

\$385

No special requirements.

DESIGN 3D SCULPT-ANIMATE 4D JR.

*Experience the third dimension
on a budget.*

By Wayland Strickland

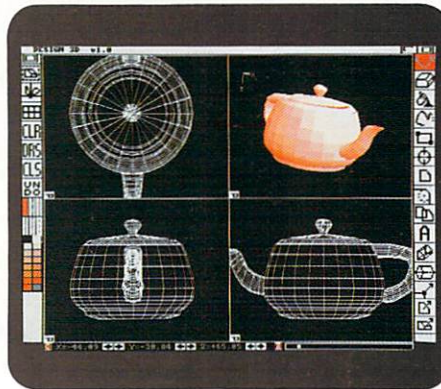
3-D OBJECT DESIGN and animation has traditionally been a fairly expensive hobby. The latest 3-D modeling pro-

grams cater to those who are intrigued by the possibilities this medium affords, but hesitate to take the plunge with a \$200 to \$500 package. With two recent releases, Design 3D (Gold Disk) and Sculpt-Animate 4D Jr. (Byte by Byte), you can test the waters of the next dimension while keeping your wallet afloat.

Design 3D

Design 3D's interface consists of four windows, each of which you can enlarge to full-screen size for detailed work. Three windows display top, left, and front views of your object in wireframe. The fourth, the Perspective window, allows you to see the object in a multitude of forms, which you can control via gadgets.

Design 3D tracks your mouse in real time, and at the bottom of the screen, X, Y, and Z coordinates indicate the pointer's current location. Next to the coordi-



You can enlarge any of the four windows for a closer look.

nates are arrow gadgets for moving the objects in the windows, and a slider control for toggling between Perspective and Zoom modes.

The gadgets along either side of the screen represent a wide assortment of object-creation and -manipulation tools. On the left are a 16-color customizable palette (which can be graded for more efficient shading) and six line styles (one solid and five broken) that you can draw with. There are gadgets for creating grids, consolidating two nearby points into one, and more. An Undo feature

lets you remove the last polygon entered.

The right side of the display contains the more powerful tools. The Point Select gadget gives you control over any single point in a polygon, Polygon Select affords control over whole polygons, and Object Select lets you manipulate complete objects. Using the Rotate option, you can turn an object on any of the three axes: The left mouse button rotates the object, while the right button summons a wireframe display (which the program can draw more quickly). The Solid Model gadget creates a solid representation of the object, complete with 3-D lighting, in the Perspective window. Various polygon tools let you form arcs, rectangles, ellipses, and free-form shapes. There are gadgets for cloning polygons, connecting two shapes to simulate extrusion, placing the edge of a 2-D polygon on a y-axis and sweeping it around 360 degrees to form a contoured 3-D surface, and more.

A FINE TUNER

Design 3D's Parameters screen, accessible from the Preferences pull-down menu, lets you adjust default values (the default of 16 sections for a Spin operation can be increased to give a smoother appearance, for instance) and determine program settings (such as grid spacing). For a system of measurement, you can choose millimeters, centimeters, meters, kilometers, inches, or feet. Here you can set the viewing angle for the Perspective window, as well as the number of light sources and their locations. You can also determine how many points (up to 90) the program will use to make a circle. The Scale function lets you proportion imported objects to those created in Design 3D.

The Options menu gives you further work-environment choices. The Perspective window's compass (which is helpful for rotation) can be toggled on or off via the Axis selection, while choosing Cross calls up screen-wide cross hairs in each work window (this is useful for lining up points without a grid). Dimensions forces Design 3D to use the last point entered as a reference (in place of the origin, for instance) and counts the relative coordinates from that point to the cross hairs'

current location. Full Screen removes all gadgets and such from the display—a useful option for animation and printing.

Design 3D generates three-dimensional text objects from characters typed into the text requester. The program offers just one font, but you can modify it with the built-in font editor. You can also specify each character's height, width, and depth, so you can space them proportionally with ease.

All objects can be rendered in either solid, wireframe, or solid with wireframe overlay. Design 3D's Fast option speeds the rendering process, although it sometimes produces inaccurate results due to polygon overlapping.

Design 3D's standard screen display is 640 × 200; the alternate is 640 × 400. Surprisingly, the speed of operation does not slow noticeably in high resolution.

You can save your Design 3D objects in three formats: the program's proprietary format, that of VideoScape 3-D and Draw 2000 (Aegis), or the Professional Draw and Professional Page (Gold Disk) format. For hardcopy output, Design 3D gives you access to HPGL-compatible plotters in addition to all Workbench-supported printers. Before the program prints your creation, it will ask you to specify the size of your intended output on paper in terms of an aspect ratio.

NOTIONS IN MOTION

Design 3D's limited animation function permits movement of the camera only. Several sample motion scripts are included and can be used as a guide for creating new ones. You can render animations in either solid or wireframe mode and play them back either in real time as Design 3D creates the frames, or record them in Anim format. An Anim playback program is included on the Design 3D disk.

While pictures, diagrams, and a helpful tutorial are included in the manual, hard-drive installation instructions are not. According to the program's Read—Me file, you must copy the complete program and tools disks to the hard disk. All my attempts to copy Design 3D's C directory into the system's C directory, however, were fruitless. A more minor concern is that many of the program's C directory files duplicate system directory files, which wastes valuable hard-disk space. Finally, using Design

3D from a hard disk requires that you add two commands to the system's startup-sequence to correct software directory calls. Design 3D's copy-protection scheme calls for you to enter a word from the manual every time you boot.

While I do not care for the icons Design 3D uses to represent its functions, I do like the program overall. It performs well, and the text-entry function is a bonus.

Sculpt-Animate 4D Jr.

Sculpt-Animate 4D Jr. is a slimmed-down version of Byte by Byte's granddaddy 3-D design and animation package Sculpt-Animate 4D. While the professional 4D sells for nearly \$500, Jr. retails for just \$150—\$100 less than the original Sculpt-Animate 3D combination. (For a review of Sculpt-Animate 4D, see p. 16 in the April '89 issue of *Amiga-World*; for information on Sculpt-Animate 3D, see p. 39 in the May '88 issue.) Jr. makes affordable many of the basics that Sculpt-Animate enthusiasts have

come to expect, leaves out some of the more advanced features like ray-tracing and motion blur, and adds a few surprises.

Jr. inherited Sculpt-Animate 4D's improved file requesters and its familiar tri-view window interface, multiple light sources, and sky and ground capabilities. It does not support the light-to-dark background gradation found in other Sculpt versions, though, and the absence of ray-tracing negates the need for surface textures like glass, mirror, and so on. The program operates in all Amiga display modes except HAM (Hold and Modify), and the anti-aliasing capability has been removed. The limited overscan (lo-res 352 × 220; interlace 352 × 440; and hi-res 704 × 440) modes produce a black border along the sides and bottom of the screen. While this makes the program unfit for professional applications, Jr.'s intended audience is amateur.

In place of the Painting, Snapshot, and Photo features of Sculpt-Animate 3D, Jr. offers three modes for rendering: Sketch, Scanline, and Wireframe. Sketch ►

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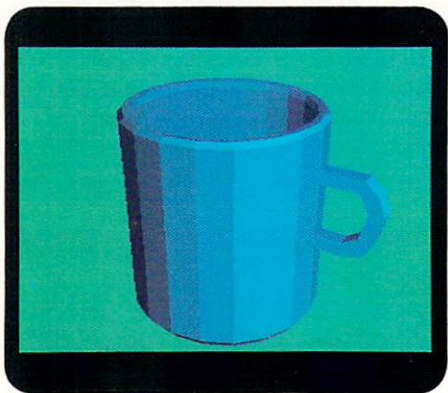
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draws solid objects quickly, but produces imprecise polygons that often overlap. Scanline takes more time, but renders objects accurately. As in other Sculpt products, the Wireframe option delivers a 3-D outline of your object.

Among the features that are new to the Sculpt family are a status bar that updates you on the availability of both chip and fast RAM, and indicates the number of vertices, edges, faces, and lamps that are in use. As the program renders a scene, the bar also tells you approximately how much drawing time remains.

Sculpt-Animate 4D Jr. was designed to operate with a minimum of memory and offers two RAM-conservation features: an ability to shut off the Workbench screen and a facility for automatically deleting parts of the program from memory



Even in medium resolution, Jr. does not support HAM.

when they are not in use. The drawback here is that when the deleted code is required, the system must pause to reload.

Animations can be recorded onto disk in the Anim-5 format (the latest Anim version) in such a way as to permit both forward and backward oscillation. The oscillation must be played back using the supplied movie-playback program, in addition to the Anim-5 format.

Like Design 3D, Sculpt-Animate Jr. is key-word copy-protected. Byte by Byte has handled hard-disk access intelligently: Once you install Jr., you need enter a password only the first time you load it from the drive. For subsequent uses, no password is requested.

The excellent program manual includes sections on getting started, building objects, using tools, creating

animations, and advanced techniques, plus a full reference guide, glossary, and comprehensive index. A reference card is also included.

CHOOSE YOUR WEAPON

While these two programs are similar, they will appeal to different audiences. Design 3D is directly compatible with Professional Page, Professional Draw, Draw 2000, and VideoScape 3D. To achieve such compatibility through Sculpt-Animate 4D Jr., you must incur an additional cost by purchasing Inter-Change from Syndesis. Design 3D's base price is lower, too. Both programs are good for getting your feet wet in 3-D object creation and animation. Byte by Byte, however, offers the best path for growth. If you take to 3-D design like a duck to water, you will be interested in Byte by Byte's upgrade policy, which credits the price of Jr. toward a later purchase of Sculpt-Animate 3D or Sculpt-Animate 4D. Before you buy one of these introductory programs, consider your future plans. Either way, you won't come up all wet.

Design 3D

Gold Disk Inc.

PO Box 789
Streetsville
Mississauga, Ontario
Canada L5M 2C2
416/828-0913
\$99.95

No special requirements.

Sculpt-Animate 4D Jr.

Byte by Byte

Arboretum Plaza II
9442 Capitol of Texas Hwy. N.
Suite 150
Austin, Texas 78759
512/343-4357
\$149.95

No special requirements.

PHOTON PAINT 2.0

A tempting touch-up.

By Roger Goode

IN THE SMALL universe of HAM (Hold and Modify—or 4096-color) paint programs for the Amiga, Photon Paint

stands out as one of the best. Now Photon Paint 2.0 is here, with more power, more tools, and more appeal than ever before.

At first glance, Photon 2.0 looks the same as the debut version—same palette, same toolbox, same interface. Sure, there are some new menu items, but...hey, wait! These are some major-league additions! (For a review of the original Photon Paint, see p. 20 of the August '88 issue of *AmigaWorld*).

MODES MODIFICATIONS

The first change I noticed is in the Modes menu. Where there had been a single menu for setting your brush mode (including Normal, Blend, Add, and Subtract options) there are now two: the FgMode (foreground) and BgMode (background) menus. For some people, this change alone may justify an upgrade to 2.0. The two menus are distinguished only by their ability to set independent options for the foreground (triggered by the left mouse button) and background (which you call by pressing the right mouse button). This allows you to develop an uninterrupted work flow, and can cut in half the time required to create or modify an image. You could, for example, set one button to create part of a painting and the other to blend or colorize the same section.

The Modes menu includes some powerful new paint tools as well, including Add, Subtract, Maximum, Minimum, Use H (hue), Use H & S (hue and saturation), And, Or, and Xor. Each of these tools modifies the pixels beneath the current brush or colorfill area in a different way, allowing you to create all sorts of colorizing effects. My favorite, Use H & S, lets you colorize black-and-white photographs by modifying hue and saturation without changing the light-to-dark value.

Also under the Modes menu, a section called Source lets you choose the source—Color, Pattern, Pantograph, or Under—from which an operation will be taken. Color, the default, refers to the current palette selection. Pattern lets you create repetitive patterns using the most-

recently selected Pic-brush. Pantograph, which lets you trace one area of a painting—pixel by pixel—directly to another, is great for copying complicated areas that are too difficult to pick up as a brush. It is also handy for retouching photographs, as you can trace part of the adjacent background into the area you want to hide. (Retouching using the brush method invariably creates an unnatural, repetitive pattern, and if you have ever tried it, you will appreciate the Pantograph option.) Under is similar to Digi-Paint's (NewTek) Rub-through tool. It allows you to rub through sections of a painting from a screen situated behind the current one.

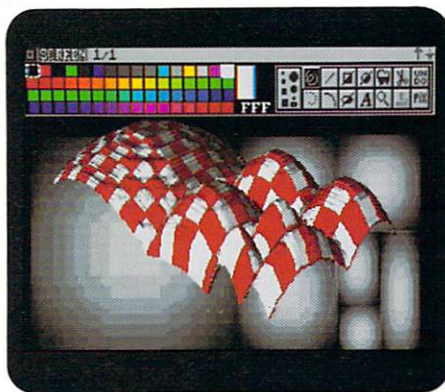
All the Source options can be used in combination with any of the other Mode options, allowing for some terrific effects and almost limitless creative potential: watercolor and soft-focus effects, double exposures, and more. Plus, you can create weird characters by mixing and matching features from different faces!

BRUSH WITH SUCCESS

Under the Brush menu you will find all the original brush options and more. One newcomer is Stretch, which lets you grab any corner of a brush and pull it out for interesting results.

The most notable addition is the Wrap-on submenu's Contour Mapping command. While it is one of the more difficult tools to master, Contour Mapping is bound to be one of the most pop-

ular and exciting features of any paint program because of the impressive 3-D effects it generates. You begin by creating a gray-scale topographical map: The lighter spots, which represent the high points, fade into shaded areas, the lower points, and finally into dark valleys.



Contour Mapping: The checkerboard's peaks and valleys are defined by light and dark areas on the monochrome plan underneath.

Then you grab a pic-brush and lay it over the map. After performing some quick calculations, the program presents you with a 3-D wireframe model of your "landscape." You can now move the frame around in three dimensions using the Tilt operation controls (much as a brush is moved in DeluxePaint III's—Electronic Arts—Perspective mode). You can also adjust the relative height and depth of your peaks and valleys by pressing 2 (up) and 1 (down) on the key-

pad. When you are happy with your wireframe map, press the space bar and take a short break. The program calculates for several minutes, and then displays your contoured pic-brush.

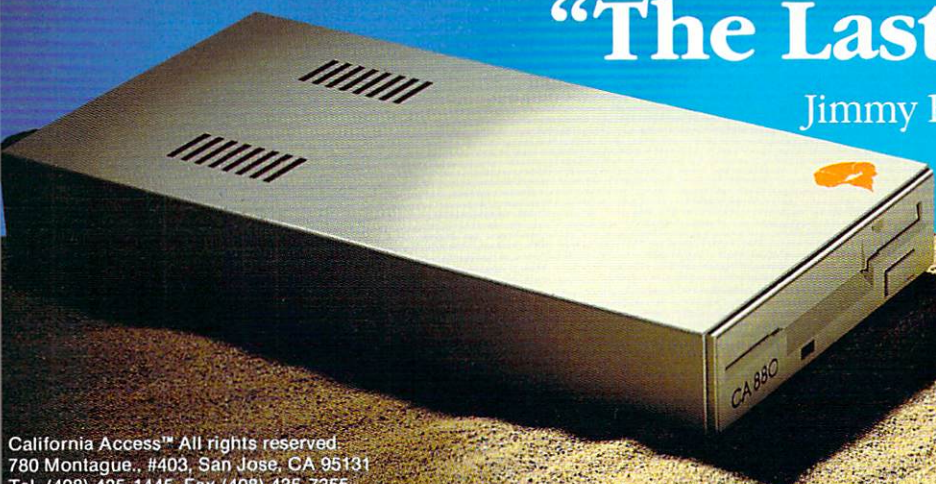
I recommend you use simple pic-brushes for your first experiments, as much of the brush will be wrapped onto the backs of the hills and thus obscured from sight. Also, the Luminosity function (which works with all Wrap-on commands) greatly enhances your contour maps when carefully implemented.

LATE PROJECTIONS

An important addition to the Project menu is the Alternate submenu and its set of tools for working with animations—for adding backgrounds, blending animated objects into a background, creating special effects, and refining works in progress. The Alternate submenu holds such commands as Next Page, Previous Page, Insert Page, Append Page, and Delete Page. These give you the flexibility to add as many pages to your animation as memory will allow, and to flip through them easily, making adjustments with any of the paint tools in Photon's bag of tricks. The Copy to Next and Merge to Next commands let you copy backgrounds created in Photon Paint to every cell of your animation, and merge animated objects into the background, respectively. The Animate command, with its definable rate settings, allows you to view your work for- ▶

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ward, backward, or in a loop—just perfect for fine-tuning.

These selections do not add up to a full-featured animation package, and you will need such a dedicated program for serious animation work. I found that working with Photon Paint's animation tools can be tedious and time consuming, as some operations involve repetitive steps. Also, Photon Paint recognizes only Anim files created in specific formats (standard Amiga screen size HAM). Still, I appreciate the option of bringing Photon Paints' sophisticated paint tools and all 4096 HAM colors into an animation.

SOMETHING SPECIAL

The first two entries on the Special menu are nearly identical to their namesake options in DeluxePaint III. Cycle Draw paints with continuously changing colors from a preset range on the color palette; you can use it in combination with most other paint operations and modes. Of a more practical nature is Grid: Define the size of a single grid block and select this option to confine your current brush or painting operation to drawing on the vertices.

Once you have used the Stencil tool a few times, you will wonder how you got along without it. By drawing a freehand line around a given area of a painting, you can create a transparent mask that protects it from subsequent paint operations. The function can be inverted so that operations affect only the outlined area and not the rest of the painting.

Finally, the Shadow option creates a drop shadow under any shape or brush placed on the screen. You can define the angle and depth of the shadow, and, by using the mode setup of the background brush (which paints the shadow), you can carefully control the shadow's color and composition.

PREFERENTIAL TREATMENT

Through the Preferences menu you can choose your working format (NTSC, PAL, Interlaced, or Overscan), and set a number of parameters such as Coordinates, Keep Undo, and Keep Brush, which gives you access to a little extra

memory by letting you toggle off a buffer space that holds the last screen and pic-brush. The Clear to First option saves you from having to stop and change your background color setting every time you clear the screen. When you clear, this feature resets the screen to the first color on your palette. Nicest of all in the Preferences menu is the Save Prefs option, which lets you save favorite settings and parameters to disk to be reloaded each time you boot up the program.

THAT'S NOT ALL

A few other points of special interest include ColorFonts support on the fonts menu, a new Fill Polygon tool, and a polygonal brush-grabbing tool.

Photon Paint 2.0 is not copy protected, and while it will run on just 512K, I recommend at least one megabyte plus a second disk drive. The manual is well written, and assumes no prior knowledge of the machine. It would benefit, though, from screen photos or diagrams to illustrate requesters and setup windows. Also, the tutorials section neglects or glosses over a couple of items (including Contour Mapping) that I feel need further explanation.

Nonetheless, Photon Paint 2.0 is a winner. It's easy and fun to learn, has loads of options—including minor touches that make working more pleasant—and is probably the best single tool on the market for creating special graphics effects.

Photon Paint 2.0

MicroIllusions

17408 Chatsworth St.
Granada Hills, CA 91344
818/360-3715
800/522-2041
\$149.95

One megabyte required.

LATTICE 5.02

Another step up.

By David T. McClellan

EVEN THOUGH THE first few versions produced large executables and were a bit rocky, Lattice C was the C compiler in the

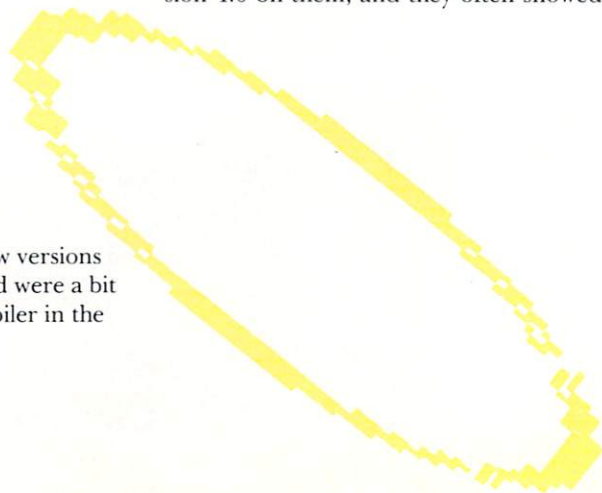
early days of the Amiga. Later, Manx gave Lattice some competition with Aztec C, which compiled faster and smaller programs. Lattice's latest response is version 5.02, a package containing a better compiler and linker, more tools, and the ability to create smaller executables. I like to see free enterprise work to the benefit of the consumer!

In this release, Lattice has improved the code generator and global optimizer, added some minor features to the language for Amiga tailoring, tossed in an assortment of tools formerly available only under separate cover (the \$100 Compiler Companion package), and greatly improved their manual set. The company has also added a source-level debugger that is so good it is almost worth the price of admission by itself.

WORDS ARE KEY

In the language arena, several new keywords help Amiga programmers simplify their coding (although you sacrifice portability by using them). The keywords near, far, and huge describe pointer types (16 or 32 bit), while the keyword chip indicates a data object that must reside in the Amiga's chip memory. Keywords `__regargs`, `__stdargs`, and `__asm` describe parameter-passing mechanisms to subroutines, while `__saveds` and `__interrupt` provide extra information about the subroutine's runtime requirements. I recommend you use these with care. The double underscore prefix, which you can also use on near, far, and so on, provides for conformance with ANSI C's language-extension mechanisms.

When used with the -O optimization option, the compiler generally produces faster code than normal compiles; programs I linked with 5.02 turned out somewhat smaller than when I used version 4.0 on them, and they often showed

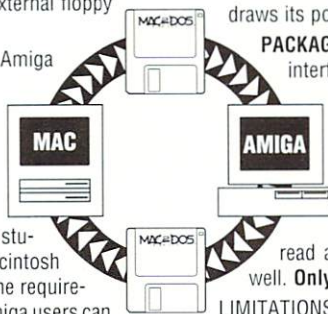


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better performance in long loops. Lattice also allows you to tailor your math libraries and code around IEEE, Motorola FFP, or 68881 floating-point processors, so you have the option of making speed and accuracy tradeoffs in your Fast Fourier transform. The compiler churns out code quickly, and rarely cascades error messages. My only complaint is that it is noisy; I get tired of seeing Lattice copyright and version notices and information messages for every file I compile or link, particularly when I do so via makefile, as this exaggerates the problem.

TOOLING AROUND

The Compiler Companion toolkit, which is now standard equipment, contains a full-screen editor, a C cross-referencer, Unix-derived tools (such as diff to compare two versions of a file, grep to look for text patterns in files, splat to seek patterns and modify them quickly), and a few other implements. Best of all is lmk—Lattice's version of the make tool—which uses a simple programmer-created text database (a makefile) to rebuild programs. Your makefile lists dependencies between files, such as: "program X is made from source files A.c and B.c," along with rules for regenerating those files when source variables change. To save myself from writing reminders of what to do when I finish editing, I create a makefile for every project I work on, and let lmk direct the recompilation and linkage of the pieces it needs.

As in version 4.0, the compiler also comes with an assembler, disassembler, librarian, and the Blink linker, as well as a profiler, listing generator, and a few other assorted tools.

PROBING THE DEPTHS

My favorite part of this release is the CodeProbe debugger. Unix's sdb and dbx debuggers suffer from having to be generic in their machine views and user interfaces. CodeProbe, on the other hand, can afford the luxury of making

the most of the Amiga's multi-window Intuition interface and its 68000-AmigaDOS combination. It gives you several resizable views of the program: a source window (showing C source, assembly source, or mixed-mode), a register window, a watch window (displaying the variables CodeProbe is checking for modification), and a dialog window (wherein you enter commands and read responses). It displays variables, pointers, arrays, and structs in C source mode, hexadecimal, or string, and lets you set their values (simple scalar values only, not full-struct assignment). You can set multiple breakpoints with or without counts, conditions, or attendant commands attached, single-step through the code and over or into subroutine calls, all at C or assembly level. You can have the program monitor several variables and tell you when their values change and why (this function is necessarily slow). It even has some support for debugging multiple-task applications. CodeProbe does have a few limits—a minor problem in setting a variable to a floating point value, for example—but it is an excellent debugger.

FINAL CODE

You will need a good bit of scratch space on your project disks when compiling large programs with the "include debugging info" switch to the compiler. The symbol information included in the object files and executable can expand them to two to four times the size of non-debugging versions. You don't need more memory to run them, however, except to load CodeProbe alongside the program. I have 1.5 megabytes (with half a meg reserved for RAD:), and had no problem with debugging some sizable programs. CodeProbe can debug programs that have not been compiled with the -d debugging switch as well, but here you are stuck at the assembly-language level.

Version 5.02 is a good deal for the money—especially if you are upgrading from 4.0 as I did for \$75. The addition of the Compiler Companion tools and CodeProbe debugger alone were worth the upgrade fee. Lattice 5.02 does eat more disk space than 4.0, and you cannot fit all the compile/link/debug cycle tools on a single floppy disk, but even on

a floppy-only system the disk juggling is not too bad. I recommend 5.02 heartily.

Lattice 5.02

Lattice

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CLAS

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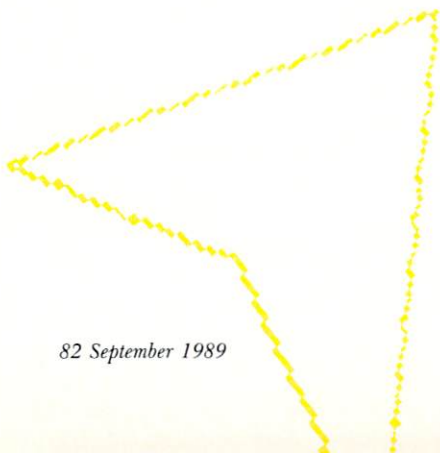
By Neil Randall

WHILE MICROED'S CLAS (Computerized Lesson Authoring System) will never take the place of your own painstakingly-developed-over-the-years Lesson Planner, it can serve as a valuable addition to that old standby. Factual, objective information from your lesson plans can be incorporated into CLAS lessons, presented to students at their own pace, and reinforced through test questions or exercises that the students can initiate themselves.

CLAS makes no attempt to provide assistance in planning the subject matter for a lesson; it is meant to help you organize the presentation of your material and select the methods of testing. If you make no larger assumptions about what CLAS can do, the program succeeds in its overall design—although it has some limitations that you will need to take into account in judging its worth to you.

CRASH COURSE IN CLAS

Apart from a single standard-size sheet of paper largely dedicated to brief descriptions of CLAS commands, no written documentation accompanies the three-disk package. To learn how the program works, simply boot up the CLAS Tutorial disk and select Tutorial from among the sample lessons. This



course leads you to several examples, each demonstrating another aspect of the authoring system; it covers such items as starting your courses and lessons, and writing multiple-choice or fill-in-the-blank exercises and tests. After you have completed these tutorials, the program urges you to try writing a lesson on your own, advice that is wise to take.

To write a lesson, you load the CLAS Author program, type in \$COURSE and then your class title (this tells CLAS that you are starting a new course). If you wish, you can use the \$AUTHOR command to include your name on the next line, followed by any copyright information (using the \$COPYRIGHT command). You tell CLAS you are starting a new lesson by typing \$LESSON and another title. Now you can begin typing in your actual lesson.

Let's say, for example, that you are writing a lesson about initializing disks with Workbench and the Amiga 500. You might begin with a screen of information to the student, a simple text passage explaining why you format disks:

When you buy a box of disks, you can't just put one of them into your Amiga's disk drive and expect it to work. First, you must initialize it. When you initialize a disk, it will have room to store 880K worth of Amiga files, and it will work with any Amiga program.

Now type \$PAGE to get CLAS to clear the screen so that you can test the student's recall of that information with an exercise or question in whatever format you wish. For example, you might type:

In order to use a new disk you've just taken out of the box, you must use the Amiga to <initialize> it. Doing so prepares the disk with <880>K of storage space for your Amiga files.

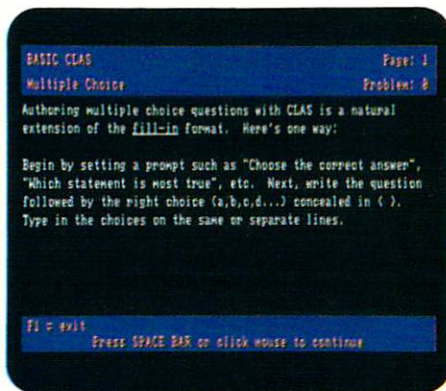
When the student actually runs your lesson, he or she will read:

In order to use a new disk you've just taken out of the box, you must use the Amiga to ____ it. Doing so prepares the disk with ____K of storage space for your Amiga files.

The cursor will appear on the first blank, prompting the student to type in an an-

swer. If he or she makes a mistake, even if it's only a typographical error, the screen will flash and beep; if the student fills in the blank correctly, the Amiga's voice will respond with the reinforcement you have chosen—"Good," "Excellent," or whatever.

This example represents only one way of constructing a lesson. You could follow the blanks with several choices in parentheses, thereby letting the student



Get educated on lesson-making options with the CLAS tutorial.

select rather than remember the correct answer, as in:

You must use the Amiga to ____ (melt, amplify, initialize, prepare) the disk.

You could also structure the responses as multiple choices:

Doing so prepares the disk with ____K of storage space.

- (a) 720
- (b) 880
- (c) 64
- (d) 1040ST

In this case, as author you would have typed immediately before the K. Then as soon as the student pressed the B key, the answer would be accepted.

The program is structured so that the student can get the correct answer by pressing the Help key. You can tailor the ▶

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Help response by using the \$HINT command to provide the student with a series of increasingly specific hints before the actual correct answer appears. But in all cases, CLAS keeps track of the number of right and wrong answers your student gives.

THE FINER POINTS

Those are the basics—the very basics—for putting together a CLAS lesson. Many other options are available, allowing you to design and control the presentation of your lessons. With the \$STYLE command you can select text styles (italic, boldface, underline, and so forth) and text color (blue, white, or yellow with appropriately contrasting backgrounds) and any combination of these styles (for example, \$STYLE YELLOW BOLD ITALIC). \$FONT provides you with access to all Amiga fonts. \$JUSTIFY, followed by CENTER, RIGHT, or LEFT, places text where you want it on the screen. There is a bug in the \$JUSTIFY CENTER command, however, that causes different screen colors to be displayed before and after text is inserted. Thankfully, this does not seem to affect

the commands in any operational way.

\$PICTURE lets you load any IFF (Interchange File Format) file smaller than 640×400 pixels into your lesson; you can incorporate small pictures as part of a combined text-picture screen.

You can add speech with the \$SPEECH and \$SAY commands, and music with the \$PLAY command. In the latter case, though, you must enter individual notes somewhat cryptically (using text, not music notation). \$CHORD expands the musical capabilities.

Finally, you can add IFF 8SVX (a standard format used for storing digitized sound) files as well.

The many other options that are available in CLAS—a number of them having to do with scoring answers or working with variables—emphasize the point that MicroEd has built a considerable amount of flexibility into the program. With its large variety of commands, you should be able to create almost exactly the kind of quiz-style lessons you need. Versions of CLAS are available even in Spanish, French, and German.

Although CLAS has a good deal to offer, I feel the program needs a further

revision. Currently you cannot move the cursor with the mouse, and this is extremely annoying when you are trying to create your lessons. Also, basing the student's right or wrong answers on individual keystrokes is inappropriate, because it is too difficult to come up with options in many cases. The Test command needs improvement as well; you can test your lessons as you design them, but if CLAS finds an error, it kicks you out of Test mode, forcing you to reload the CLAS Student program.

If these flaws are addressed in a new release, and if you are not expecting the program to prepare your lessons for you, CLAS could be a useful aid for teachers on the elementary and junior-high levels, or even for parents who want to put together special-subject lessons for their children at home.

CLAS 1.2

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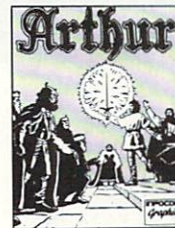
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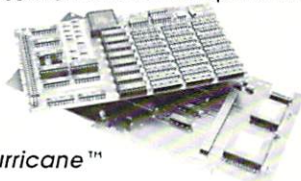


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WHAT'S NEW?

This month you can play god in hog heaven!

Compiled by Jan Jackson

DRIVING HARD

IMTRONICS WANTS TO put A500 and A2000 owners in the driver's seat. The company's new line of **autobooting hard disks** includes some models with memory options. For the budget minded, the HD500 (external unit with pass-through for the A500) and HD2000 (internal A2000 hard card) are available in 33 (\$698) and 45 (\$898) megabyte configurations complete with controller.

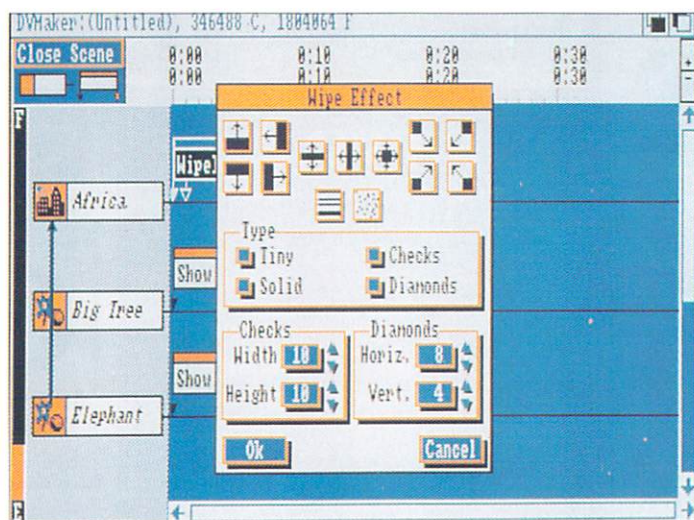
The HD 4000 is similar to the HD500: It comes in the same capacities (\$898 and \$998, respectively), but also provides sockets for two or four megabytes of RAM. Still not enough? Then add the optional HD 4000 RAM module (\$149). This piggyback board fits inside the drive case, and accepts up to four more megabytes.

The HD 8000 is IMtronics' disk and memory solution for the A2000. It is identical to the HD2000 but lets you add two, four, six, or eight megabytes of RAM. It too is available in 33 (\$898) and 45 (\$998) megabyte capacities. Not to ignore A2000 owners who want just memory, IMtronics' line includes an 8MB RAM card for \$249 (unpopulated). Contact IMtronics Inc., 12301 S.W. 132 Court, Miami, FL 33186. *Reader service number 525.*

VISUALIZING HOLLYWOOD

DELUXEVIDEO III, THE latest incarnation of Electronic Arts' professional desktop video program, sports an intuitive graphics interface that gives you more control for creating video presentations. You can integrate a full range of graphics, animation, and sound (DeluxeVideo III supports Amiga resolution modes, super bitmaps, high-speed animation, MIDI output, and IFF

sound files) and then record your works on videotape or play them back through your Amiga. The program (\$149.95) controls external devices such as MIDI equipment, genlocks, and single-frame VCRs. Upgrade prices for current owners and further details are available from Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171. *Reader service number 514.*



A view through Amiga's "lens."

IN THE WIND

KICK OVER YOUR hog and ride to a major rally in **Harley-Davidson: The Road to Sturgis** (\$49.95). Experience biker lifestyle on the open road and compete with your bros in drag races, slow-ride

contests, and hill climbs. Put on your boots and leathers and call Mindscape Inc., 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667. *Reader service number 521.*

ON THE HORIZON

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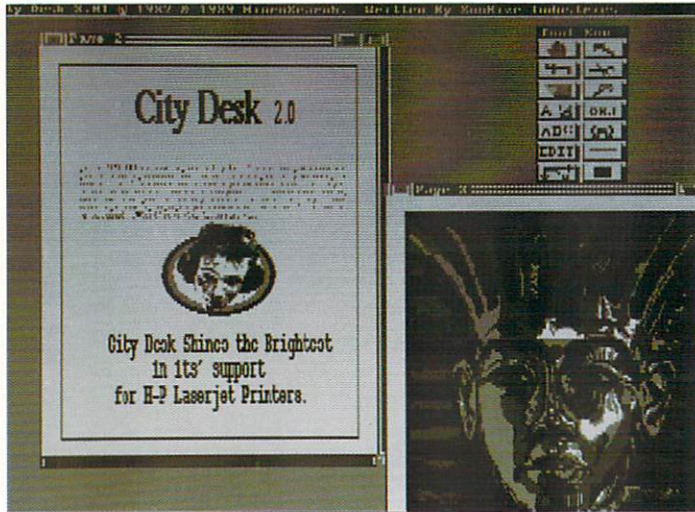


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City Desk 2.0 lets you view multiple pages simultaneously.

TAKE NOTE

MUSIC-X OWNERS, if you suffer from disruptive MIDI traffic jams, try **MIDI-X**. Designed for use with Music-X (both are from MicroIllusions), this interface box offers two switchable inputs and six outputs that you can switch on, disable, or designate as a thru port for passing data between external devices. An LED gauge lets you monitor these activities.

Your system can produce synchronized graphics, sound and MIDI events with **TCRG-**

102 (\$799), a time-code reader and generator. This hardware-and-software combination features a flexible reader/generator that works with SMPTE or EBU longitudinal time code in 24, 25, 30 and DF modes, window dubbing, an on-screen control panel, and a continuity tester. You can hear the details of both MIDI-X and TCRG-102 from MicroIllusions, PO Box 3475, Granada Hills, CA 91394, 800/522-2041 or 818/360-3715 (in California). *Reader service number 515.*

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LOCATE AND APPREHEND a gang of thieves targeting the world's priceless treasures and landmarks in **Where in the World is Carmen Sandiego?** The educational game

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PART THE CLOUDS

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TAKE SHAPE

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The **Madrigal Architectural Libraries** will help you design a house from foundation plans to furniture arrangement.

Each library of clip-art pieces (Floor Plan, Interior Design, or Framing and Foundation Details) is available in IFF (\$59.95 each) and CAD (\$89.95 each) formats.

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HELP KEY

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By Louis R. Wallace

GETTING AT THE SHELL

Q: *How does one call up the Shell from the CLI? I tried using SHELL, RUN SHELL, and RUNBACK SHELL, but none of these worked. From Workbench, clicking on the Shell icon works fine.*

R.G. Radys
Santa Monica, CA

A: It's easy. Just type NEWSHELL (1.3 only) and the Shell window will appear. To get rid of it, just type ENDSHELL. With the Shell CLI window, you have a lot of features the old CLI lacked, with command history and memory-resident commands being some of the most useful. But for these commands to work, make sure your startup-sequence has a line that mounts the NewCon device, like this:

MOUNT NewCon:

Without this, the Shell will work in much the same manner as the older CLI, but many of the new features will be lacking.

NINE PLUS

Q: *I already know that the Amiga 2000 and 500 can have a maximum of nine megabytes of RAM, and the A1000 can have 8.5 megabytes. With the new 68020 and 68030 accelerator boards becoming more and more available, is it*

yet possible to exceed those memory limits? This would be very important to me, as I am working with large ray-traced animations, and currently must divide my animations into smaller segments, videotape them, and then piece them together. I could really use more RAM.

E. Harvey
Tampa, FL

A: Anyone who has ever tried to create a large ray-traced animation can well appreciate the need for more RAM. During the recent San Francisco Amiga Developers Conference, one of Commodore's Amiga engineers who is developing the CBM 68030 accelerator card (the A2630) mentioned the possibility of more than nine megabytes of RAM on that board. However, at this writing the A2630 hasn't yet been released, so I can't be sure if it will allow more than nine megs when it is available. My best guess is that one or more Amiga 68030 products will be out within a year that will support more than nine megabytes of RAM.

FAT AGNUS

Q: *I keep hearing about a Fat Agnus chip for the Amiga, but I am not sure what it is or where I can get it. Have you heard of it?*

L. Wilmut
Salt Lake City, UT

A: The chip you have heard of is properly referred to as the

"one-meg Agnus" chip, and with it installed in an A500 or A2000, your Amiga will have access to one meg of Chip RAM (used for graphics and sound) instead of 512K, assuming you have at least one megabyte of RAM in the computer. This extra chip memory will help you run more and bigger graphic and sound applications, which often cause the Amiga to run out of valuable Chip RAM even if other RAM is available. The one-meg Agnus chip is part of the upcoming Enhanced Chip Set (which also includes a new Denise chip) that is due to be released with the new 1.4 operating system. The combination of 1.4 and the ECS promises to be a wonderful upgrade to the Amiga, and you can be sure that *AmigaWorld* will be covering it in detail when it is released.

GONE DRY

Q: *Help! I have the Canon PJ 1080A Color Inkjet printer, but I recently ran out of ink. I can't find replacement ink cartridges anywhere. Am I going to have to get a new printer because I am out of ink?*

F. Esteban
Los Angeles, CA

A: You just got lucky, because I also own a PJ 1080A and

had the same problem. I found out that Radio Shack's discontinued CPG-220 Color Inkjet printer uses the same ink cartridges as the PJ 1080A, and they can be purchased at almost any Radio Shack store that carries computer supplies. The part numbers are 26-1282 for the color cartridge, and 26-1281 for the black-ink cartridge.

TWO FOR ONE

Q: *I like the icon editor, but it doesn't allow me the option of a second image appearing when the icon is selected. Is there any such editor available, and if not how are they created?*

A. Asencio
Mayaguez, Puerto Rico

A: There are several good icon editors available in the public domain, some of which allow you to create an alternate image. You can find them on telecommunications networks such as PeopleLink, GENIE and CompuServe, as well as local BBSs. There is also probably one or more available in the vast Amiga PD software collections such as the Fred Fish collection. And, one of the best is on the first issue of *AmigaWorld*'s disk-based Tool Chest. It's called Icon Meister Version 1.6, and besides having several different drawing tools, it supports multiple icon images, interlace, and up to eight colors. ■

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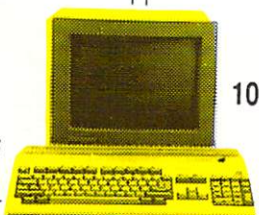
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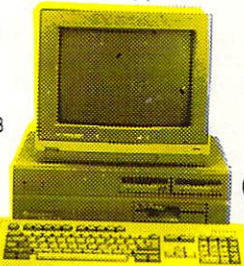
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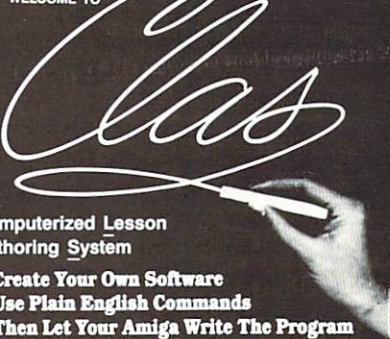
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