

**WIN!**  
**Amiga 2000**  
**Treasure Hunt**  
**p. 62**

# AMIGA

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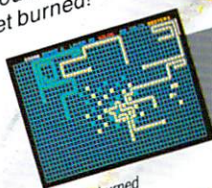


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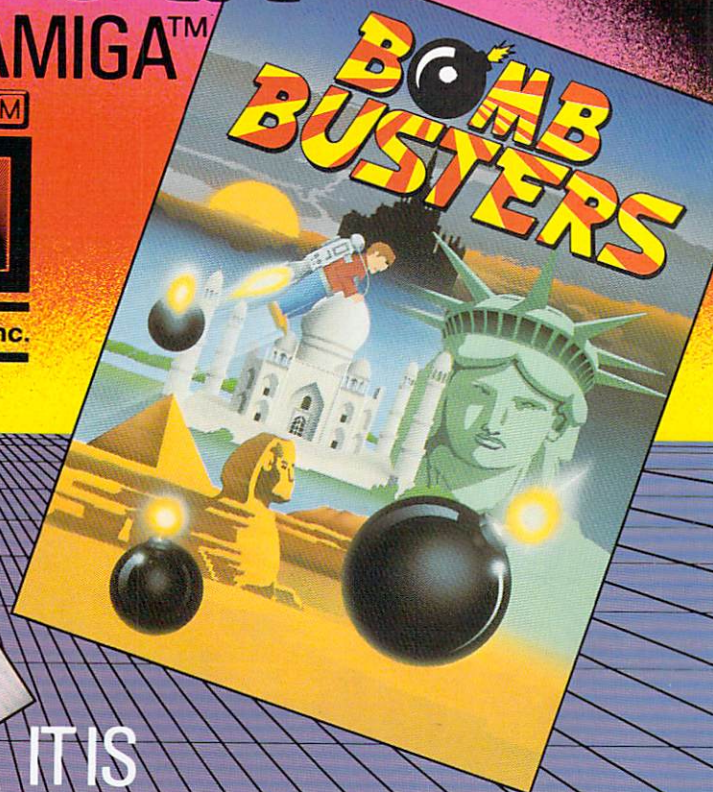
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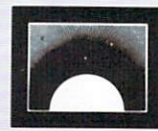
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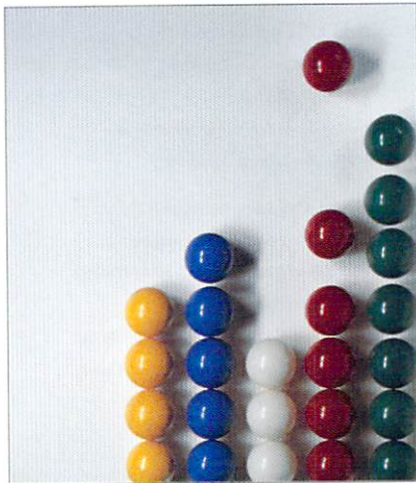
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# C O N T E N T S



No, those are not rows of ducks on the cover, but we do have some good advice this month on getting your ducks in a row when it comes to data management. Check out AmigaWorld's first "Database Roundup" if you're looking for the right program—large or small—to help you organize your data more efficiently. And be sure to get in on the last leg of AmigaWorld's Summer '88 Treasure Hunt and take your chance at the super Grand Prize drawing.

## FEATURES

### DUCKS IN A ROW: A ROUNDUP OF AMIGA DATABASES

By Guy Wright and Barbara Gefvert. . . . . 24  
If managing your data has been giving you fits, we'll help you get all your ducks in a row with our compendium of databases for the Amiga. We've got everything from simple file managers to sophisticated, fully relational data-management systems.

## ARTICLES

THE AMIGA HOME VIDEO COMPANION By Wayland W. Strickland. . . . . 40  
Learning a few basic video-tilting procedures and video-graphics techniques will help you spice up your home movies with snappy titles and deceptively simple special effects.

THE BIG PICTURE By David T. McClellan. . . . . 48  
Graphics programming in Modula-2 and C can be a great deal easier and more satisfying if you know how to use SuperBitMap windows to scroll oversize images. And this tutorial and sample program listing will show you how.

## COLUMNS

ZEITGEIST. . . . . 6  
Was the mysterious caller who recently spoke with the editor really the infamous Byte Bandit, creator of a dread new Amiga virus?

BASIC BY THE NUMBERS By Bob Ryan. . . . . 20  
Bob continues his foray into Amiga Basic animation with some more nifty collision-handling routines to help you keep the balls bouncing in the right direction.

INFO.PHILE By Bill Catchings and Mark L. Van Name. . . . . 56  
Our info.phile "mini-series" on the new 1.3 version of AmigaDOS moves on to Episode 2 for a discussion of the numerous changes to existing CLI commands.

## DEPARTMENTS

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Reach out. . . and blast someone.

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Fun and games at CES. . . Fighting back against the Byte Bandit. . . Big Video opening. . . Killer Demo Contest.

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Keep those tips and techniques coming!

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excellence! / ProNet and ProBoard / The Wedge / D-50 Parameter Editor, Caged Artist's D-50 Editor/Librarian, and The D-50 Master Editor/Librarian / Animation: Effects and Animation: Stand. Games: Emerald Mine

WHAT'S NEW? . . . . . 80  
The fall line of Amiga products is out, and while we can't tell whether hemlines are up or down, we do know that quantity and variety are on the rise.

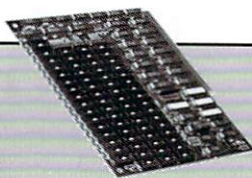
HELP KEY. . . . . 86  
Lou keeps fielding those technical questions like Ozzie Smith fields ground balls at short.

### WIN AN AMIGA 2000!

Plus a Getaway Weekend for 2. This is it—we're at the third and final part of *AmigaWorld's* Summer '88 Treasure Hunt. Your last set of clues is waiting on page 62. If you've missed one or both of the previous legs, check out the "Contest Rules" to find out how to order back issues.

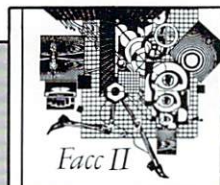


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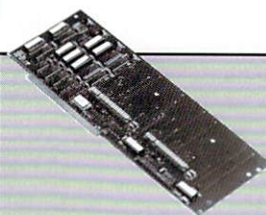
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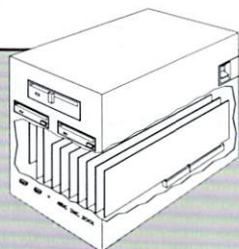
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# ZEITGEIST

## *Conversation with a virus creator.*

RETURNING FROM A meeting last week, I got a message saying that someone had called claiming to be the Byte Bandit. He would call back in exactly one hour and he would talk to no one except me. OK. I get calls from all sorts of people. At the top of the appointed hour, he called back.

He said that he had seen something in *AmigaWorld* about his virus, and he wanted to give us a temporary solution (see Notepad p. 10). It was a strange conversation for a number of reasons, and it has some strange implications. For one thing, I wasn't sure if this person really was the Byte Bandit, if his solution would really work, if he would hang up at any second, or, if he was the Byte Bandit, would his solution end up doing more harm than good? I decided that the more information I could get the better, and I might even learn something of value about viruses. We started talking about the reasons behind his creating a virus in the first place.

What was his thinking?

He said it was partly for fun. He said it was partly to see if he could do it. He said he can't stand A500 owners. He said he was angry at Commodore for coming out with the 500 and 2000 because it was a way for Commodore to cheat the original Amiga 1000 designers out of royalties.

He said that at first it was a

challenge for him to write a virus that was Install immune, but admits that it is not really a very clever piece of code. "It was never intended to get out. It was a mistake really. I wrote it for myself to see if I could do it and infected some of my own disks by accident. A friend borrowed an infected disk and it was out. I was really amazed at how fast it spread. I had no idea. Plus, I know people who export stuff to Europe. . . Oh well."

He doesn't really think that it is a true virus either, because it has a "trap door" (in this case, a way around the "crash," but in classic hacker parlance, a "trap door" is a way for the original designers of a system to bypass any and all security).

It would have been nice to convince him he should use his skills (and it didn't take long to determine that he knew the Amiga inside and out) creating virus killers or games or just about anything other than viruses, but I'm not an evangelist or a psychologist, and I'm not vain enough to think that one phone conversation with me is going to change his thinking. I also got the impression that he wasn't going to be sitting at his computer all day working on dozens of new and more devious viruses. I think this was a one-shot deal. He likes the Amiga for what it is (even with its problems) and hopes that viruses aren't going to hurt fu-

ture sales of the Amiga.

Now, there isn't any way to condone this person's actions, but it is worth noting that perhaps it was not completely intentional. The creator of this virus may not be an evil vampire, sleeping by day, dreaming of ways to terrorize by night, but more of a Dr. Frankenstein whose creation gets out of control and starts terrorizing the local villagers. Yes, the result is the same. Either way, we local villagers get the short end of the stick. A lot of people, including many here at the *AmigaWorld* offices, are all set to sharpen the stakes, light the torches and head out for the castle. I'm not convinced that this will do much good at this point. The Byte Bandit isn't the monster, the virus is, and it has come out of the lab and into the streets. We should be draping garlic on our windows, bolting the doors, and systematically destroying the viruses we encounter.

A curious question occurred to me while going over all this. Have the Byte Bandit and the other virus creators broken any laws? They don't sell their viruses. They aren't stealing data. Is it vandalism? Perhaps it is equivalent to leaving poisoned candy bars on a park bench. I'm not sure.

So, what do we do about the mad scientists out there sewing together new creatures? The death penalty is a bit extreme, and doing nothing isn't

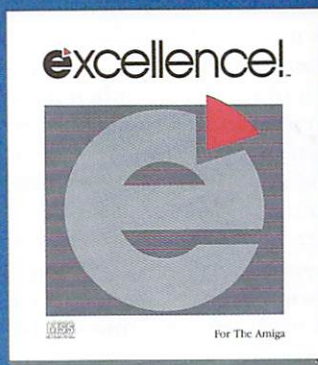
much of a deterrent either. Finding the creator of a virus is difficult, and in most cases, impossible.

If you are curious about testing your own programming skills by writing a virus of your own, how about working on a virus killer instead. Tougher challenge, better result.

On the constructive side, *AmigaWorld* is going to start compiling information about viruses and virus killers. As soon as we can, we'll publish an article about virus killers. If you have heard about a good virus killer (or have written one yourself), then let us know about it. If you have encountered a new strain of virus, then let us know about that, too. All we can do is provide information. Eventually, we will try to set up a virus information BBS (or something like it) for the exchange of programs, ideas, information, whatever. If you have other ideas or suggestions, then let me know. Send everything to *AmigaWorld* Virus Killers, 80 Elm St., Peterborough, NH 03458 (include your name, address, and phone number). If we use your material, your name will be printed in the magazine. Who knows, someday you might be mentioned in the same breath with Pasteur and Salk.

*Guy Wright*





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# REPARTEE

*Comments, complaints, and concerns*

*from AmigaWorld readers.*

## WIRE WARRIOR

IN RECENT ISSUES of *AmigaWorld*, I've been reading complaints about the difficulty of telecommunicating [see *Zeitgeist*, April '88, p. 6 and *Repartee*, June '88, p. 10]. I enjoy telecommunicating, and I don't consider myself a hacker at all!

I use a Mitac 2400BD modem and Micro Systems Software's Online! terminal program. I currently belong to CompuServe, PeopleLink, and various local boards. I use the boards approximately three hours a week, and I keep my telecommunicating bill down to \$20 a month. I was disappointed to see four letters in June's *Repartee* complaining about telecommunications, and none supporting it. Are all you people out there spoiled to the point that you can't handle a little typing (or thinking)? Are you the same people who complain about using the CLI?

*Kenneth J. Howland  
Framingham, MA*

## ANOTHER LEMON

FRED KUHLMAN'S letter in your May '88 issue sounded familiar ["Fat Agnus on the Loose," *Repartee*, May '88, p. 10]. I've been trying to get my 500 fixed since Christmas. My Fat Agnus chip burned out after six weeks of light use. I took the little monstrosity to a

repair shop and waited *four months* for Commodore to send a replacement chip. The shop had ten other Amigas hanging around waiting for the same chip. Ten! After waiting all that time, my replacement chip burned out after only six or eight hours of use.

The store where I purchased my Amiga has stopped carrying Commodore equipment because they can never get through to Commodore, or get any help from them. The shop where I'm taking it this time to get it fixed (I hope) is planning on dropping Commodore for the same reasons.

I spent over \$1500 on my Amiga setup. I have much better uses for that cash than off-white plastic sculpture. The Amiga has turned me right off home computers, and if I can unload it and recover some of my loss, I think I'll stay away from them all from now on.

If it takes them months to come through with another replacement chip, or if the new one bites the dust, or if the shop decides they can't fix this turkey, I think it will be time to talk to some consumer groups about Commodore.

*John E. Payne  
Franklin Lakes, NJ*

## ALTERED STATES

IN RESPONSE TO Fred Little's attack on Timothy Leary ["Bronx Cheers for Dr. Tim," *Repartee*, July '88, p. 8], it is

the drug laws that are responsible for more deaths than all drugs combined.

Dr. Leary's work with LSD, when it was legal, was responsible for reducing the recidivism rate of prisoners in the Massachusetts penal system by some 85%. Leary's current position in advocating altered states via computer devices shows a most enlightened approach. Dr. Leary may just be entering his "prime"!

May the Peace of the Cosmic Abide With You. I am

*Master of the Unheard of  
Brooklyn, NY*

## BRAIN DRAIN IN U.S.

REGARDING *AmigaWorld's* Summer '88 Treasure Hunt, I suggest that next time you do a contest, make it a little more worth the reader's while. In the three months that I would be wasting on your infantile little game, I could get a full-time job, earn enough money to buy an Amiga 2000 with hard drive, 2400-baud modem, IBM Bridgeboard, and a library of software, plus go on a weekend trip with my girlfriend to Hawaii, and have enough money left over to make three month's worth of payments on a new Ferrari. This contest is a cheap trick to sell a few more copies of *AmigaWorld*.

I believe you would make more money if you made the Treasure Hunt easier to win.

As it is, very few people will even bother to play the game. If you made the game open to people who are on a sub-genius level, I think you would sell more copies, if that's what you're trying to do. Clue #4 is a good example of what I mean [see Part One of the Treasure Hunt, July '88, p. 61]. If you had made the clues more clear, I think you would sell a lot more copies. No one will win this game unless he knows all the answers to all the questions, and I doubt if there is a *single mind in the entire U.S.* (or a single library, for that matter) that contains all that information. [italics ours]

Next time, make it a little more worth the reader's time. Otherwise, you'll end up with a hidden Amiga 2000 with no one to find it, and a pair of expired plane tickets. That may still happen if I am speaking for the majority of readers.

*Adam Kortepeter  
Skillman, NJ*

*Thanks, Adam, for your endorsement of our Treasure Hunt. We hope your fellow AmigaWorld readers will be inspired to take up the challenge and go further than Clue #4. By the way, we'll let you know how many correct solutions we receive at the end of the contest.*

*—Editors*

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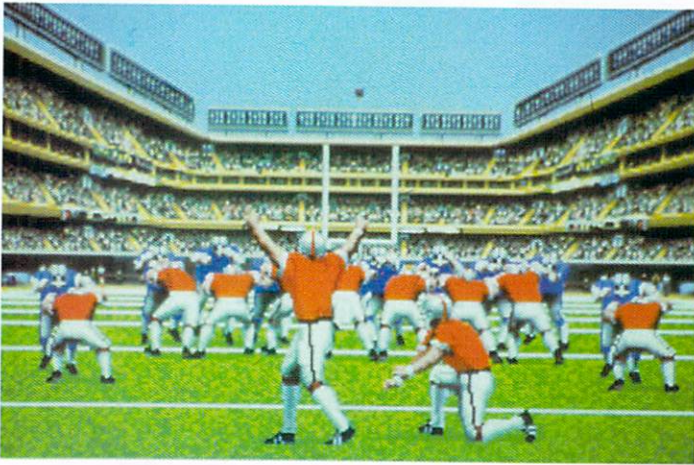
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# NOTE PAD

Compiled by Linda Barrett

## Game for the Challenge



Every-night football on the Amiga network.

FOR A FEW days this summer, Chicago became Funtown, USA. The Consumer Electronics Show was in town, chock full of new Amiga games.

Rainbird blasted off with **Star-glider 2**. The seas are thick with missiles, too, as **Carrier Command** puts you in control of a futuristic battle cruiser. Rainbird also premiered **Enlightenment**, an arcade game, **Black**

**Lamp**, a medieval romp, and the **Universal Military Simulator**.

Interplay made chess a contact sport in **Battle Chess**, which lets the pieces act out their aggressions.

MicroIllusions' booth was bursting at the seams with the long-anticipated **Music-X**, **Photon Video: Cell Animator**, and **Transport Controller**, and several new games. **Craps Academy**

gives you a list of buzz words so you can sound cool while you shoot. **Mainframe** gives you the job of destroying the crazed TriComplex III computer. In **Turbo**, you streak around in a race car avoiding and exploding obstacles.

Broderbund demonstrated the official version of **Star Wars** and its upcoming animation program, **Fantavision**.

Arcade-fans should enjoy Konami's **Contra** and **Rush N' Attack**, Capcom's **Street Fighter**, and Taito's **Bubble Bobble**, **Operation Wolf**, **Rastan**, **Renegade**, and **Sky Shark**.

Sierra unfolded new chapters in its Quest series: **King's Quest 4: The Perils of Rosella**, **Police Quest 2: The Vengeance**, and **Space Quest 2: The Pirates of Pestulon**. **Manhunter: New York** casts you as a reluctant agent for hideous aliens. In **Leisure Suit Larry 2**, the lounge lizard is still after his dream girl.

In Cinemaware's **Lords of the Rising Sun**, you try to become

the supreme ruler, the Shogun, in 12th-century Japan. Closer to home, **TV Sports Football** features individual and team statistics and plenty of action on the field.

In Psygnosis' **Aquaventura**, you jet through a dangerous underwater landscape, while **Psychopocalypse** places you in a futuristic spacecraft.

Epyx added to the pot with simulations ranging from **Street Sports Football** to **Final Assault**. **The Games: Summer Edition** continues the quest for the gold.

Virgin Games tried to tempt board-game enthusiasts with adaptations of **Risk**, **Scraples**, and **Scrabble**.

DataSoft's **Cosmic Relief** casts you as one of five detectives who must find a crazed scientist.

Paragon's **Twilight Ransom** pits you against the underworld of Liberty City.

If CES was any indication, you had better limber up your joystick. The fun has just begun.

—*Marshal M. Rosenthal*

## The Creator Is the Killer

A MAN IDENTIFYING himself as the Byte Bandit recently called *AmigaWorld* and revealed an escape hatch in his infamous Byte Bandit virus (see "Quarantine the Bandit," p. 14, in the June '88 issue of *AmigaWorld*). Although his virus appears to crash your Amiga, the machine is *not* really dead, and you can salvage its RAM.

When your system locks up, press the five keys at the bottom of your keyboard in order from the left. The exact sequence is:

LEFT-ALT, LEFT-AMIGA, SPACE BAR, RIGHT-AMIGA, RIGHT-ALT

This should bring your computer back to life for awhile. Quickly save any work in progress, close up all your activities



and turn the computer off. Reboot your system with a virus-killer program, destroy the virus on the infected disk, and then *turn your computer back off again* (otherwise the Byte Bandit virus will infect the virus-killer disk).

The five-key sequence will restore your Amiga every time the Byte Bandit virus strikes, but you should destroy the virus as soon as possible and notify whoever gave you the infected disk. Unlike the Swiss Cracking Association (SCA) virus, which you can eradicate by running INSTALL on the infected disk, the Byte Bandit virus rewrites the INSTALL command, so it is INSTALL-immune. You must destroy it with a virus-killer program, not merely a fancy INSTALL program. You will find several commercial programs and many virus killers in the public domain that should work.

Remember, this should work only on the Byte Bandit virus. As we do not have any infected disks at the offices, we could not test the cure ourselves. It may not even work at all, but anything that might save a day's work from destruction is worth a try.

—GSW

## The Honor of the BADGE

THE BAY AREA Amiga Developers GroupE (BADGE) wants you to show off for its second annual Killer Demo Contest. You can enter only one demo, so decide if your expertise lies in the custom programs or tool-based demos (Anim) class. Your program should run under the 1.3 operating system from Workbench or the CLI on all Kickstart-supported processors. Demos should return all memory and not write to disk. All entries must be freely redistributable, as BADGE will send the best submissions to Fred Fish for his public-domain library. See Fred Fish disks 112-127 for last year's winners.

Before sending a disk, you need to submit a letter of intent by September 15, 1988. BADGE must receive entries by September

29, 1988. No entry fee is required, but a five-dollar donation will buy you a floppy disk of the three best demos and a list of all entries. Final judging will take place at the October 20, 1988 meeting of the Bay area Amiga Developers GroupE. Everyone present at the meeting will be eligible to vote. BADGE will award at least nine prizes (cash, hardware, and software), but the exact prizes and their corresponding categories have yet to be announced. For a complete list of prizes, technical qualifications, suggestions, and judging procedures, send a self-addressed stamped envelope to: BADGE Killer Demo Contest, c/o Randy Spencer, PO Box 4542, Berkeley, CA 94704, or call 415/222-7595 (voice) or 415/222-9416 (BBS).

—LJB

## June Bride

THE LONG DISPARATE worlds of computers and video were united this June at the grand opening of RGB Computer and Video Creations' new store in Palm Beach Gardens, FL. Known for its Deluxe Help software series, the company has branched into the retail and post-production video businesses.

Several company representatives were on hand to help RGB celebrate and to show their wares. C Ltd demonstrated its hard drives, along with a newly released 300-dots-per-inch laser scanner and printer. Hash Enterprises showed Animation:Apprentice 3.0 and the Animation:Multiplane digital compositor, a new program that lets you layer animations created by one or more programs into a single animation. Commodore liaisons discussed the new one-megabyte Fat Agnus coprocessor under development, as well as the 1.3 versions of Kickstart and Workbench. From the video side, VideoMedia displayed its

V-LAN animation controller in a double demo with Panasonic's AG-7500 Super VHS video tape recorder.

In lieu of representatives, some companies let the products speak for themselves. From Mimetics came the AmiGen genlock and the Frame Buffer, which can grab a color freeze frame of live video and display 16.7 million colors. Sci-Tech also supplied a prototype of its Y/C Genlock. Computer System Associates (CSA) displayed the 68020 turbo board with Kickstart 1.3 in ROM. For three-dimensional fanatics, Haltex Resources sent a pair of X-Specs 3D glasses. To keep operations stable, version 3.0 of G.O.M.F. was on hand, trapping Guru Meditation errors.

RGB will add several Deluxe Help packages to their own software line, including one for AmigaDOS 1.3.

Behind the bustle of the retail store are the editing suites, with both Super VHS format and ¾-inch equipment. Via software developed by RGB



Not for sale, but available for video editing.

Computer & Video Creations, an Amiga 2000 acts as an A/B roll editing controller for the post-production service. An Amiga 500 provides character and logo generation. One of the facility's unique features is the ability to transfer single-frame animations from Amiga software to videotape.

You can send your compressed animation files by disk or modem. Send your files and questions to RGB Computer & Video Creations, 3944 Florida Blvd., Suite 102, Palm Beach Gardens, FL 33410, 407/622-0138 (BBS line, 407/622-7049).

—Wayland Strickland



# HORS D'OEUVRES

*Hints, tips, and techniques*

*from your fellow Amiga users.*

## BASIC SUBROUTINE NAMES

WHEN PROGRAMMING IN Amiga Basic, all of my subroutine names clearly define the operation of that subroutine. For example:

```
CALCULATEDIVISIONSTANDINGS:  
INPUTDIVISIONNUM:
```

Now all of my GOSUBs make sense. The only drawback I have encountered, especially in a long source, is listing by subroutine name. Typing things like "LISTCALCULATEWINLOSSRECORDS" gets very tedious with debugging and enhancing. My solution to this is to alphabetize the subroutines as I type them in and precede each group with its letter of the alphabet. Then, LIST C gets me as close as I need to be.

*Phil Brewer  
Sacramento, CA*

## FILENOTES

I SEEM TO remember reading somewhere that if you use the CLI FILENOTE command on a file, it is there for life (unless you use COPY, in which case the comment is dropped) and can only be viewed from the CLI. Well, that ain't so. It turns out that these comments are also visible from the Workbench.

First, under the CLI: you can assign a comment to a file by using the FILENOTE command, which has this format:

```
FILENOTE FILE/A, COMMENT/A:
```

You should know what to use for FILE (note that the /A indicates that the parameter *must* be supplied). For COMMENT, use any text comment that you want. If the comment has spaces in it, then you must enclose the comment in quotes (e.g., "This is a test"). Now, to remove that comment, you have to supply

double quotes (" ") for the COMMENT/A parameter. If you simply want to change the comment, just enter the command normally using your new comment (you need not erase the previous comment).

Second, under Workbench: this method will work with any file that is represented with an icon on the Workbench. If you select the icon and use the Workbench menu option Info, you will see assorted information displayed about the file. One of these happens to be a file comment. If you put a comment on a file under the CLI, then look at that file using its icon on the Workbench as I've described, you'll see the same comment in the comment box that you saw under the CLI. Of course, you can get rid of the comment or change it here as well, although it requires several steps. Whether you change or delete the comment from the Workbench, you *must* select the Save gadget at the bottom of the Info requester to save the updated information; otherwise, it will stay the same. A quick keyboard shortcut for clearing the comment box is to press and hold the right Amiga key and press the X key. If you want to erase the comment, do this, then select the Save gadget. When you go back into the CLI and use the LIST command, the comment will be gone.

*Greg Epley  
Lexington, NC*

## PC BASIC PROGRAMS ON AMIGA

MICROSOFT BASICA AS used on the IBM PC is very similar to Amiga Basic (also written by Microsoft), so it is often possible to run BASICA programs on the Amiga with little or no modification. The problem has been transferring the programs from 5.25-inch IBM disks to the 3.5-inch Amiga disks. With the PC

Utilities on the 1.2 Extras disk, this has become much easier.

If you have a BASICA program on an MS-DOS disk, first save a copy in ASCII format on the MS-DOS disk. The BASICA command to accomplish this is SAVE "ProgName",A. Next, use the PC Utility copy program on the Extras disk to transfer the ASCII file to your Amiga disk. You can now load the file on the Amiga disk into Amiga Basic, edit it if necessary and run it.

Of course, you must have a 5.25-inch disk drive to read MS-DOS disks. Commodore's 1020 drive, sold for use with the Transformer, is ideal for the task.

*Theodore V. Brown  
Hyde Park, NY*

## MORE WORKBENCH SPACE

HERE IS A simple tip to give you more room on your Workbench disk. The directory FONTS contains numerous font description files and directories. Most users will not need more than one or two fonts. Delete the unused files (that have a .font suffix) and the corresponding directory. Be sure to retain your default font. For those who have not altered the default font from the original disk, the default is topaz, so be sure to retain topaz.font and the directory SYS:FONTS/TOPAZ, as well as the contents of SYS:FONTS/TOPAZ. Deleting all but the topaz font information will return approximately 185 blocks, or 10% of the total disk space.

*Steve Hyde  
Hawthorne, CA*

*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. ■*





# You Can't Buy Time.

You can't buy time, but you can save it if you have the right tools. WordPerfect Corporation's latest creation for the Amiga is WordPerfect Library, a collection of integrated programs to organize your appointments, notes and files. Whether you're a home manager or an office manager, Library was made for you.

*Calendar* keeps track of your daily schedule and will remind you of important appointments by sounding preset alarms. From your Calendar, you can print a daily list of appointments, notes, and things to do. Accomplishing is easier when you can chart your progress on paper, and Calendar lets you do just that.

At home, you'll want to use *Notebook* to organize important information. Addresses, phone numbers, recipes, home fix-it instructions, even decorating ideas can be easily sorted and accessed according to your instructions.

*Notebook* is every bit as practical in the business world. You can organize your telephone files in various ways: alphabetically, according to area code, or using any other factor you choose. Lists of clients and associates, too, are easily collected and categorized. All Notebook files are saved in WordPerfect format for easy transfer to WordPerfect documents.

*Calculator*, as you might guess, calculates. You can choose any of its financial, programming, and scientific functions. You might, for example, create a payment plan for a home or car

loan, or calculate the future value of a savings bond. The scientific calculator can also help students, since logarithms, exponents, and trigonometry are among its functions.

Of course, Calculator is as valuable in the office as it is at home. You can access the Calculator without exiting your document, and then save your current state in Calculator. When you flip back to your document, your calculation remains intact for easy reference.

The list of Library's features goes on and on. *File Manager* helps you arrange, mark, edit, and print your files. *Program Editor*, with powerful features like hex edit and multiple block functions, lets you see and edit the codes behind your documents.

WordPerfect Library for the Amiga is now shipping. Save yourself some time by looking into it; you'll be glad you did. You can learn more about Library by contacting your local dealer or

**WordPerfect**  
CORPORATION

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# REVIEWS

## EXCELLENCE!

*Does it live up to its name?*

AS THE SECOND heavy-weight word processor on the market, excellence! had time to learn from WordPerfect's (WordPerfect Corp.) deficiencies. It has a raft of professional features and a true "Amiga feel." With their Amiga-born champion, excellence!, Micro-Systems Software hopes to slay the giant, or at least put a dent in its armour.

Excellence! is so easy to learn and use that on the surface it does not appear to have the same power as its rival. A quick glance at the package tells you otherwise. Excellence! offers PostScript-printer support, up to eight print-and-display colors, automatic index and table of contents generation, IFF graphics support within documents, up to four text columns per page, mathematical operations on columns of numbers, multiple headers and footers, super- and subscripts, footnotes, math functions, a 70,000-word thesaurus with synonyms and antonyms, a 90,000-word spelling checker that monitors your document continuously or reads it all at once, a grammar checker, mail merge, programmable macro keys, full mouse and keyboard support, and more.

The manual is clear, well structured, and contains many illustrations. The on-disk example files help you understand the written instructions. Hard-disk owners will need help sifting through the 300-plus pages, because critical installation information is buried near the end. The documentation's remaining flaws are of omission; the index could be more extensive, and the Preview Page mode, among other things, is never described. From the manual it is a simple step to using the program.

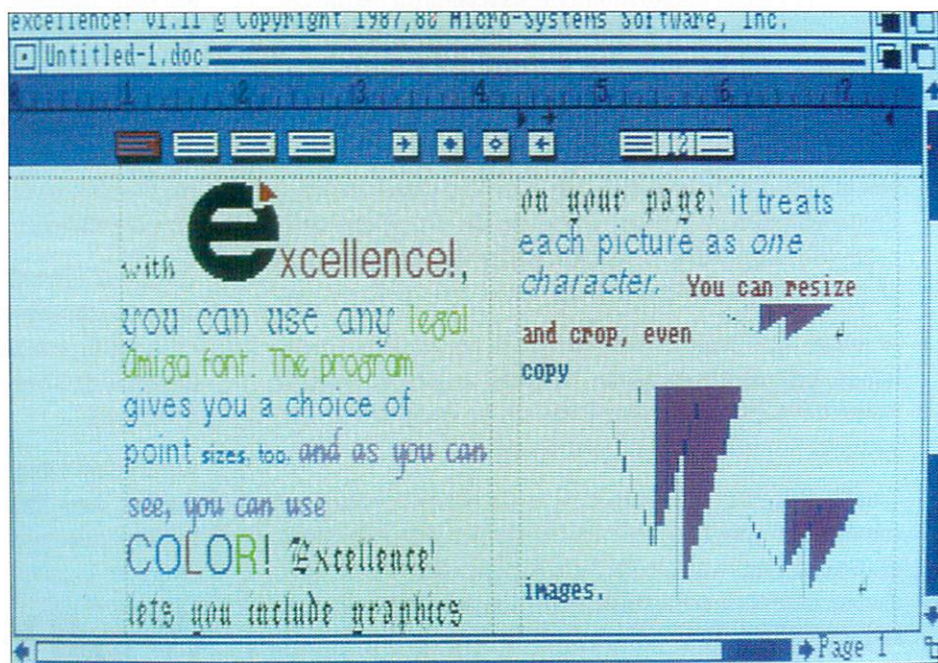
Excellence! comes with two non-copy-protected disks, a Workbench disk and a program disk. The Workbench disk contains the hard-disk installation program that works perfectly, as long as you add the omitted ASSIGN statements described in the manual. If you are using the 512K version, excellence! boots up in two-color mode; sliders let you adjust the colors. The one-megabyte version boots in four-color mode. On startup, a scrolling message gives you updates and errata. Unfortunately, it takes about five minutes to display. You can disable the message, but you must read it once for the instructions. A Read\_Me file would have been nicer.

The excellence! file requester system helps speed operations. You don't have to wait for the program to list an entire directory before you indicate a new

drive or subdirectory to search. By default the requester lists only document files, but mouse clicks instruct it to display picture files or all files. If you see a file you want before the directory is finished, just double-click and that file loads. For an accurate record of your writings, each directory listing includes the date and time the file was last saved.

## NEATNESS COUNTS

Before or after you commit your words to the screen, you can adjust the display and output. The page setup requestor lets you adjust the document's format—one to four columns, page size, pitch, header, footer, right and left margins, page numbering and more. You can adjust the default colors, choose between interlaced and non-interlaced modes, and specify whether the screen flashes as ▶



This page uses only fonts provided on the excellence! disk; you can add others.



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- You are very precise and you need flexibility, so our font point size range is from 1/50th of a point to 1.310 points in 1/50th of a point increments! And, we use scalable fonts so no jaggies!
- You can view your document in 50%, full width, full page, multiple page, actual size, or 200%, or set your own between 15 and 999%!
- We don't copy protect.
- You can open multiple windows with different documents or different pages and go from one to the other editing as you go.



## Pagemaker

- There are books written on how to use it.
- A picture tells a thousand words — so who needs words?
- They knew these functions are essential but leading only down to 1/2 a point?
- Amiga graphics?
- Hopefully you are a good speller.
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well as beeps when an error occurs. Upon startup, you can set the default drives and load predefined macro-keys (glossaries).

Carriage returns, special characters (like soft hyphens), and dotted lines for margin boundaries are hidden until you specify the proper mode. The Page Preview mode shows how an entire document will look on paper. In interlaced mode you can read the document, but in non-interlaced the mock up is just to give you the overall effect.

You can open multiple document windows, then cut and paste between documents. Text is displayed in typical Amiga word-processor fashion with the screen topped by front-to-back gadgets and a ruler that shows margins, justification, tabs, indents, and line spacing. You can even hide the ruler or copy it to other parts of the document. Line spacing and font size are measured in points; everything else is done either in inches or centimeters. The zoom gadget is a handy addition for working with multiple windows. Shrink the window and click the zoom gadget; the window opens to fill the screen. Click the gadget again and the window reduces to the smaller size.

You move around a document using drag bars, arrow keys, and mouse clicks. The pointer will disappear when you start typing and reappear when you move the mouse. Cutting, pasting, and copying are accomplished by highlighting text and using the menu items or keyboard equivalents. To revert to a previous idea, you can use the Undo Typing selection, and, if you change your mind again, Redo Typing will undo the Undo Typing changes. If you mess things up, retreat to the disk files with the Revert To Saved and Revert To Backup options.

As usual, you can customize text with underlining, bold, italics, super- and subscript, and, in addition, choose foreground and background colors. Headers and footers occupy their own windows; you can place multiple headers that show date, time, and page number, and even display different information for even- and odd-numbered pages. You can force page breaks, insert soft hyphens, or let excellence! take care of hyphenation for you. At any time, you can flag a word or sentence as an index or table-of-contents entry; when you finish the document, excellence! will generate an index or table of contents.

To make your document's presentation as slick as its contents, you can use as many as 120 fonts at a time, depending on your RAM. You choose fonts in the standard fashion with one exception. When you start excellence!, it searches the disk for fonts and then adds them to the Font menu. If it finds more than one column's worth of fonts, the program adds another column of choices to the pull-down menu. If you are working in one font and return to a previous section of the document that uses another font, excellence! reverts automatically to the proper font.

You can include low-, medium-, and high-resolution IFF graphics within your document. You can scale and clip pictures, and except for the fact that you cannot search and replace them, excellence! treats graphics like any other character.

#### SPELLING COUNTS

To polish your text, use the spelling checker. On one-megabyte Amigas you can load the 90,000-word dictionary into RAM and retain normal speed, but on 512K machines you will notice typing delays. For esoteric terms, you can build dictionaries that are limited only by disk space and memory.

The thesaurus will give you synonyms and antonyms. You can highlight a word in the synonym list, ask for synonyms for it, and so on, deeper and deeper in the levels. Both thesaurus and dictionary can be active simultaneously. Unfortunately, excellence! has no keyboard equivalents for clicking on thesaurus or dictionary options like Find and Guess.

When you finish your document, the grammar checker will search for a selection of common errors such as misused words, punctuation errors, double words, clumsy or awkward phrases, and so on. It displays the number of problems, the document's reading level, and statistics such as total sentences and words, number of sentences using passive voice, and more. To put your manuscript in some sort of perspective, the program then compares the prose to a Hemingway short story, the Gettysburg Address, and a life insurance policy: A series of graphs depict the reading levels, words per sentence, use of passive tense, and so on for the four documents. A major drawback is that the grammar checker does not work with fair-sized documents on a

512K machine. I got an out-of-memory error at four pages. Be warned: As the manual points out, the grammar checker is not an English teacher, copy editor, or a crutch to be relied upon. "It ain't got real swell smarts. If ya know what I means." The preceding quote passed the checker's tests without a hitch.

#### THE FINAL GRADE

My first impressions are that excellence! is the kind of word processor Textcraft was meant to be and WordPerfect should have been. It is very easy to use and yet has the power and flexibility to handle just about any word-processing task. After using excellence! for a while, I have a few reservations about the program. It has no glaring problems, just minor quirks that probably could have been cleaned up with a few hours more of work. The hard-disk installation routine, some incompatibilities with Textcraft files, and a few minor, yet annoying, bugs here and there make excellence! less than it could have been. The speed could also be improved, especially when you are inserting new text in a document. I kept typing ahead of the program, even at a moderate pace. You need one megabyte or more to take full advantage of all features.

While there is still room for improvement, excellence! is definitely a top-of-the-line word processor that ranks with the best. When battling with the other giant, excellence! has enough going for it to put up a good fight.

—G. Wright

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boards). Together, they can take an electronic circuit from the concept to the point where the manufacturing machinery takes over. In between, these object-oriented CAD programs semi-automate much of the documentation and electrical checks and balances necessary for a successful design.

The display is similar for both mouse-driven programs. Across the bottom of the screen are ten gadgets called "Intelligent Function Keys" whose labels and

purposes change depending on the mode you are in. Click on the gadgets with the mouse or press the corresponding function keys. Above these gadgets is a line for instructions, helpful hints, error messages, and text entry. You can display the X and Y coordinates of your pointer and set the origin's (0,0) position. The Help key provides a list of hot keys that toggle various functions. For a larger perspective, you can zoom out to an expanded view of the circuit.

The programs use color to associate and differentiate the elements of the schematic diagrams and PC boards, such as devices, lines, and signal names. The screen colors are fixed, but well chosen, and this consistency helps you to keep track of what is displayed. Both programs operate in interlaced mode only, so be prepared for flicker.

The minimum one megabyte of RAM is sufficient for a moderate-size circuit, but PC boards larger than 8x12 inches require more memory. None of the disks are copy protected, and you can install the programs on a hard disk with the included script files.

The programs will output directly to an Epson-compatible printer, Hewlett-Packard (7475A, 7570A) or Houston Instruments (695, 695A, DMP-41, 42, 51, 52, 56) plotters (A through E size), an HPGL-compatible laser printer (AST, TL, and so on), or create an ASCII file for a Gerber-compatible photo plotter. You can limit output to individual layers or any combination of a board's layers.

#### PRO-NET

Pro-Net (PROfessional NET list generator) is a schematic capture program for creating schematic diagrams of electronic circuits. Pro-Net also creates a net list (i.e., an ASCII file that lists all the connections between the devices on the diagram). You can call a large number of popular electronic components from the existing libraries of standard TTL, MTTL (military), MOS, VLSI (microprocessors, and so on), and Discrete devices (resistors, capacitors, memories). If you don't find the device you need, you can use graphic symbols or CAD-type tools to add devices to the libraries or modify existing ones. If you enter the electrical current characteristics, I/O type, and pin numbers of each pin, the program will check the entire circuit for overloads and contention between outputs. By entering the total power consumption of a device, you can calculate the size of the power supply needed to drive the board. For on-screen references that will not be printed, simply specify text and graphics as hidden.

Before you begin to draw, you must select the size of the page and scale of the template for all pages. To create a schematic diagram, type in a device name (such as 74LS138), position the symbol

*Continued on p. 64*

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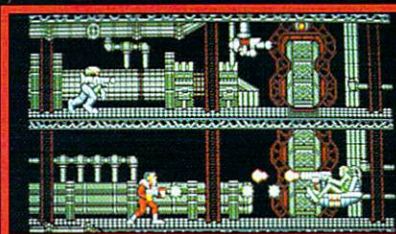
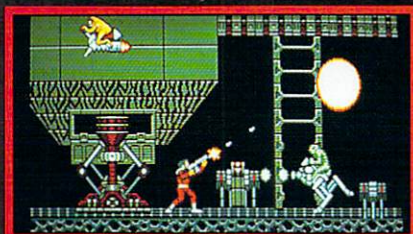
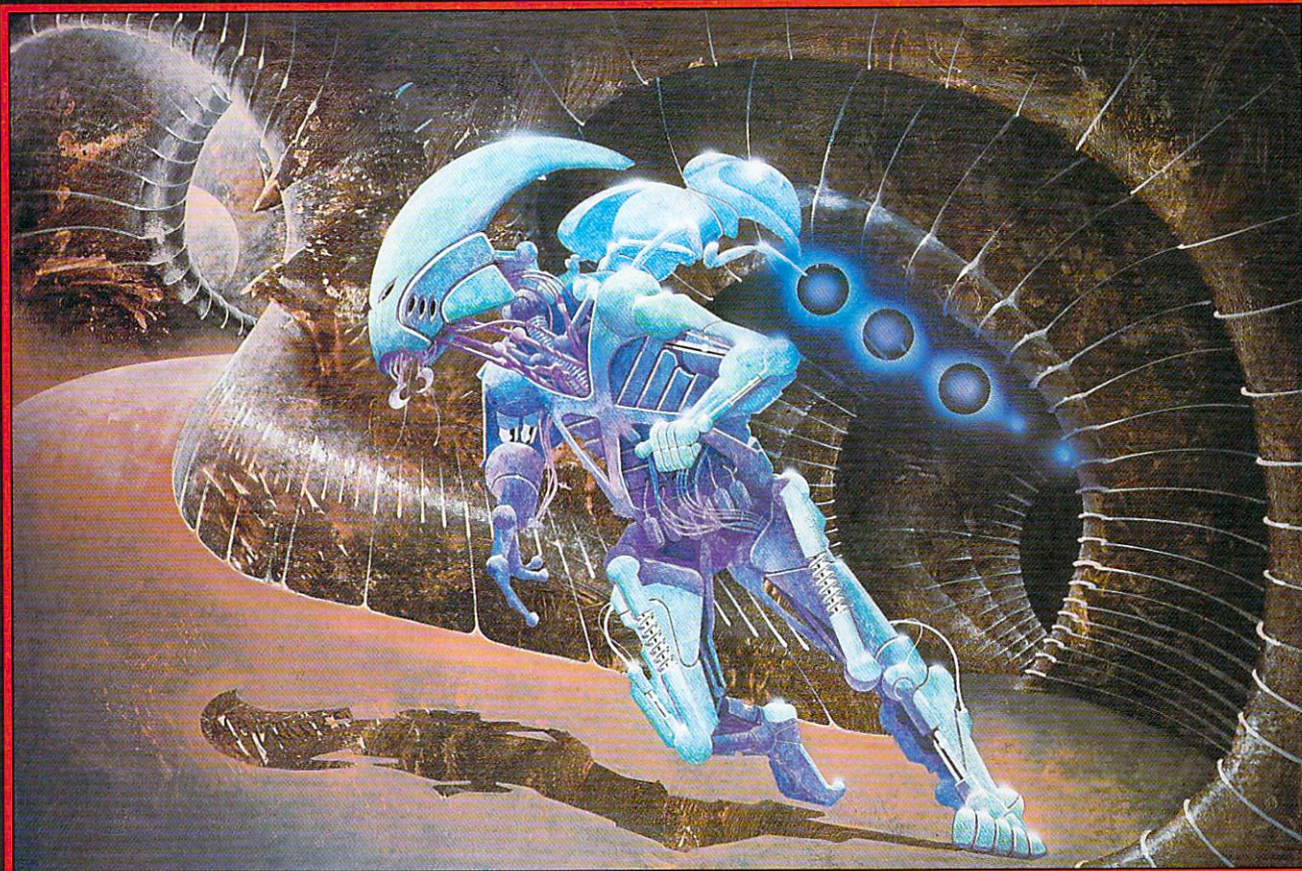
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# OBLITERATOR



## OBLITERATOR

Obliterator is a new and very exciting product from Psygnosis, which takes full advantage of the features of the Commodore Amiga and Atari ST, whilst supporting the full range of 68000, 68010 and 68020 processors.

When compared to Psygnosis's previously released animated graphic adventure - Barbarian, the player will find over 100 separate locations within the product's three-dimensional play-field. The effect of the detail and complexity of the graphics must be seen to be fully appreciated.

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# BASIC By The Numbers

*Learning to juggle GELs is simply a matter of finding the right handle.*

By Bob Ryan

## 48 TWO FOR ONE

BESIDES BEING ABLE to handle object-border collisions, Amiga Basic can also handle collisions between different objects. The following program, a modification to the one in #46, demonstrates this point. Once again, I use the Ball object from the Extras:BasicDemos drawer. This time, however, I use a variation of the OBJECT.SHAPE statement to make a duplicate of Ball and then set both objects in motion. Here's the listing:

```
CHDIR "BasicDemos"
OPEN "Ball" FOR INPUT AS #1
OBJECT.SHAPE 1, INPUT$(LOF(1),1)
CLOSE #1
OBJECT.SHAPE 2, 1

OBJECT.X 1, 30
OBJECT.Y 1, 30
OBJECT.VX 1, 40
OBJECT.VY 1, 30

OBJECT.X 2, 500
OBJECT.Y 2, 150
OBJECT.VX 2, -30
OBJECT.VY 2, -40

ON COLLISION GOSUB c_handler
COLLISION ON

OBJECT.ON
x = 1
WHILE x = 1
  OBJECT.START
```

```
SLEEP
WEND
```

```
COLLISION OFF
OBJECT.CLOSE
END
```

c\_handler:

```
REM check for correct window
wind = COLLISION(-1)
IF wind <> 1 THEN
  REM Rule 1 bad window id
  REM end program
  x = 0
  RETURN
END IF
```

```
REM check for id of object
j = COLLISION(0)
IF j <> 1 OR j <> 2 THEN
  REM Rule 2 bad object id
  REM end program
  x = 0
  RETURN
END IF
```

```
REM what did j collide with?
h = COLLISION(j)
```

```
REM hit other object
IF h = 1 OR h = 2 THEN
  REM Rule 3 reverse direction
  REM of bumped object
  OBJECT.VX h, -OBJECT.VX(h)
  OBJECT.VY h, -OBJECT.VY(h)
  count = count + 1
  IF count = 10 THEN
```

```
  REM Rule 3A quit program
  REM after ten object
  REM collisions
  x = 0
  END IF
  RETURN
END IF
```

```
REM hit one of the sides
IF h = -2 OR h = -4 THEN
  REM Rule 4 reverse x-direction
  REM of object
  OBJECT.VX j, -OBJECT.VX(j)
  RETURN
END IF
```

```
REM hit top or bottom
IF h = -1 OR h = -3 THEN
  REM Rule 5 reverse y-direction
  REM of object
  OBJECT.VY j, -OBJECT.VY(j)
  RETURN
END IF
```

```
REM hit nothing, something is weird
REM Rule 6 get out!
x = 0
RETURN
```

Line four of the program demonstrates the alternate form of the OBJECT.SHAPE statement. This form makes a copy of an already defined object (Object 1), and defines the copy as another object (Object 2). The program then gives the initial positions and veloc-

ities to the objects before setting them in motion and watching for collisions.

Because this program handles object-object collisions as well as object-window collisions, it has a more complex collision-handling routine than the one I used last month. You should think of a collision-handling routine as a set of rules that govern what happens when a collision occurs. I lay out my rules in the routine c\_handler. The first rule says that if the collision did not occur in my output window, then it's time to quit because something is wrong. The second rule says that if it was not one of my objects involved in the collision, then once again quit the program.

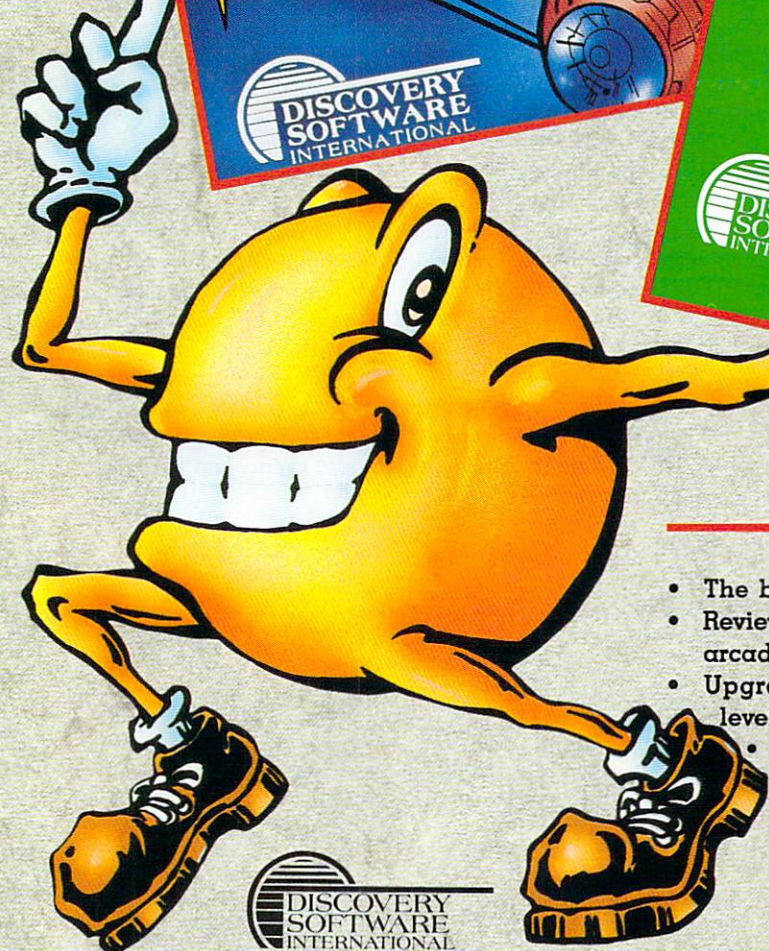
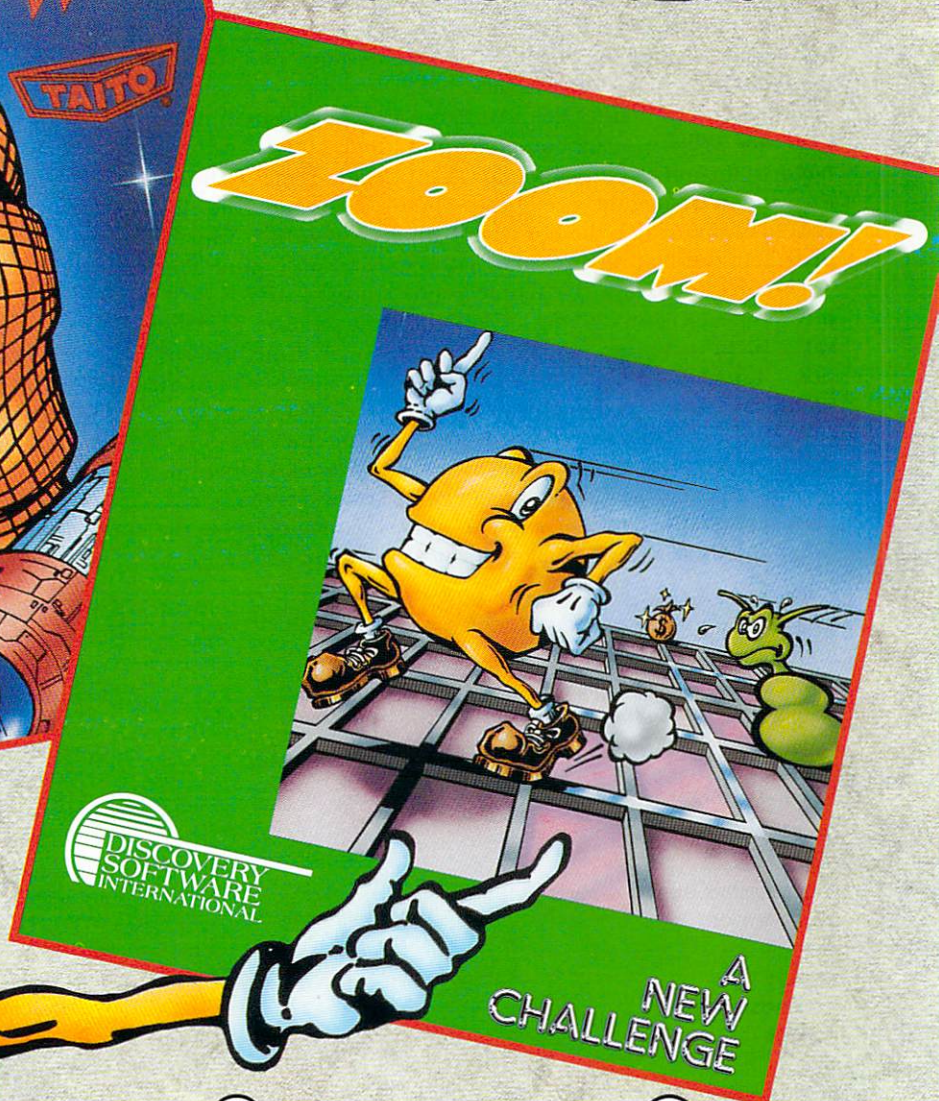
Rule 3 states that if the object collides with another object, the second object gets both its x- and y- direction reversed. Rule 3A states that after 10 object-object collisions, the program ends.

Rules 4 and 5 cover object-border collisions. Rule 4 reverses the x-direction of objects that collide with one of the sides; Rule 5 reverses the y-direction of objects that collide with the top or bottom of the window. Rule 6 is a catchall; if none of the other rules have been applied by this point, something is wrong and the program ends. ►



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WHEN YOU RESIZE the output window of the program above, you will notice that the objects don't bounce off the new borders of your window; instead, objects continue to bounce off the old borders. To change the border used for collisions, you have to use the OBJECT.CLIP statement.

OBJECT.CLIP defines the area that Amiga Basic can draw objects into. When you start an animation program, this area defaults to the entire output window. This default remains in force even if you change the size of the window. If you want the clip area to always match the borders of your window, then your program must be prepared to respond to window-sizing events.

The program below is a simple animation demo with a twist—it responds to mouse events as well as collision events. Specifically, the program monitors mouse events to see if the user has pressed the left mouse button. If so, the program waits until the button is released and then resets the clip area to reflect the current coordinates of the output window. Note that pressing and holding the left button does not necessarily mean that the window was resized. The program can make this assumption, however, because all other mouse events are meaningless to the program and nothing bad happens if the assumption is false.

```
OPEN "BasicDemos/Ball" FOR INPUT AS #1
OBJECT.SHAPE 1, INPUTS(LOF(1),1)
CLOSE #1
ON MOUSE GOSUB m_handler
MOUSE ON
OBJECT.X 1, 50
OBJECT.Y 1, 50
OBJECT.VX 1, 40
OBJECT.VY 1, 40
OBJECT.ON
ON COLLISION GOSUB c_handler
COLLISION ON
x = 1
WHILE x = 1
  OBJECT.START
  SLEEP
WEND
OBJECT.CLOSE
END
```

c\_handler:

```
REM simplified handler, assumes
REM window and object are kosher
bump = COLLISION(1)
IF bump = -2 or bump = -4 THEN
  OBJECT.VX 1, -OBJECT.VX(1)
ELSE
  OBJECT.VY 1, -OBJECT.VY(1)
END IF
count = count + 1
IF count = 20 THEN x = 0
RETURN
```

m\_handler:

```
MOUSE OFF
WHILE MOUSE(0) < 0
WEND
```

```
OBJECT.CLIP (0,0) - (WINDOW(2),WINDOW(3))
MOUSE ON
RETURN
```

The collision-handling routine used here is a simplified version of the one I've used in other animation examples. This is the first program in BASIC by The Numbers, however, that traps mouse events. Like menu- and collision-event trapping, you enable mouse-event trapping with the MOUSE ON statement and designate the mouse-handling routine with the ON MOUSE GOSUB statement.

My mouse-handling routine, m\_handler, uses just one of the MOUSE() functions. Listed on pages 8-84 and 8-85 of your Amiga Basic manual, the mouse functions return various data about the state of the mouse. In my program, I only use the MOUSE(0) function. When this function returns a negative number, it indicates that the mouse button is still being held down. The WHILE . . . WEND loop in m\_handler waits until the button is released (and the window is resized) before ending. Once out of the loop, the routine resets the clip area by calling two WINDOW() functions that indicate the current size of the window. The routine then reenables mouse events and returns to the main program.

*STILL LEFT IN our discussion of Amiga Basic animation are OBJECT.HIT, OBJECT.PLANES, and OBJECT.PRIORITY. I won't cover these statements until the November issue, however, because next month's column is devoted to an examination of many of the programming utilities available to BASIC programmers. Until then, send questions and comments to BASIC By The Numbers, AmigaWorld, 80 Elm St., Peterborough, NH 03458. ■*



# The puck stops here!



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Designed by Ed Ringler



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# DUCKS IN A ROW:

## A ROUNDUP OF AMIGA DATABASES

Whether it's recipes for cheesecake, duckling production figures for the third quarter of '88, or worldwide sales records for a giant multinational—our roundup of Amiga databases will help you find the program to fill your data-management needs.

By Guy Wright and Barbara Gefvert


LIKE DISNEY'S PRUNELLA and Griselda to Cinderella, or Shakespeare's Goneril and Regan to Cordelia, file managers and databases are the grim sisters of computer applications (compared with the beauty of all the more snazzy and exciting things you can do with your Amiga). But sometimes it's simply an unpleasant necessity to get all your ugly data ducklings in a row. So put aside your graphics and animation programs, your sound digitizers, your Earl Weaver Baseball, and your nifty C routines for just a moment. We're going to sort, search, sift, sniff, and systematize all your data management concerns in *AmigaWorld's* first "database roundup."

Over a number of back issues, we've reviewed quite a few database programs. Everything from simple file managers to full-fledged relational data-management systems. Return with us now to those thrilling... while we take a look back to some of those reviews, update them, and add a few new titles that have come

our way since. What we've put together is an even dozen capsule presentations of the best-selling Amiga databases. These snapshots summarize the major points of each program without placing any real judgements on them. In the case of programs reviewed previously in *AmigaWorld*, we include a citation of the original review at the end of the snapshot, should you wish to see how our reviewer felt about the program.

We will start with the simple and work up to the more complicated and comprehensive. Most programs excel in performing particular tasks. Keep in mind that bigger and more complicated is not always better. If you have a limited number of things to keep track of but need to refer to them often, then a small file manager might be your best choice. If you are going to be adding records every day, then a batch-entry program might best serve your needs. If you need to manipulate the data in various ways, search ►





and report-generating features are what you should look for.

You should consider not only your present needs, but also what you might want to do with your data in the future. Imagine finding, after you've just entered a hundred records with five-digit zip codes, that you need to add seven-character Canadian zip codes, but your zip code field cannot accommodate you.

Each capsule description is headed by the name of the program, followed by the name of the manufacturer and the suggested retail price. For further information about the product, contact the manufacturer or distributor (see the "Company List" for addresses and telephone numbers).

A chart, "Amiga Database Roundup: Comparative Features and Functions," also accompanies this article, as well as a "Glossary of Database Terms."

## The Computer Black Book

Meggido Enterprises / \$35.95. The Computer Black Book is a simple program that keeps lists of names, addresses, and phone numbers. It will also dial the telephone for you, recite a message, and print lists.

The program employs an Intuition-style interface. You need at least four records to build a file; each record is limited to a first and last name (23 characters each), a title, a three-line address, an eight-digit zip code, telephone number, and a 59-space comment line. You are not limited as to character types.

The Computer Black Book allows you to keep one file open at a time. You can display one entire record on screen, or scroll through the names and phone numbers in your file (eight file entries are shown at once). Click on any line and select dial, and the program emulates touch tones to dial the corresponding number. You can also use the Amiga to dial numbers not in the database simply by pointing and clicking on the numerals in the keypad window. The program keeps one phone number in a buffer, so redialing takes only one click.

The program will sort your file by name, zip code, or phone number. You can print any file, complete or partial, and determine which lines of the records are to be printed. You can specify the order in which names are printed, whether the title will be used, and select one of three print styles in two sizes.

## Rolobase + Plus

Equal Plus Inc. / \$89.99. Rolobase + Plus, from Equal Plus, is designed to replace the name-and-address file that sits on your desk. This program is covered by a 90-day defect-in-workmanship warranty. The non-Amiga specific manual guides you through the features, function "help" keys display keyboard layout for your computer, and an on-screen tutorial familiarizes you with the system.

You can define your entries by personal and business classifications. In addition to name, title, address,

city, state, zip code, country, and phone number, Rolobase + Plus will hold up to 255 80-column lines of information per entry in a text extension. You can set entry and printing defaults, and configure the system to skip the country field for input.

You can add, change, or delete records at any time. The program can select data by distinguishing between personal and business records, and you can further qualify data using the Match Keywords option (yes or no to match) and ranges (name, country, and zip code). Unlike some programs, this one distinguishes between uppercase and lowercase letters—it locates capital letters first.

Pressing certain letter keys in the Rolobase + Plus menu takes you to various windows within which you can perform specific functions. For example, the A key allows you to print addresses on labels, postcards, or envelopes, while the F key sets up to print information on file cards. You can send reports to the screen or printer in four formats: complete, with address and phone number, phone number only, and text extension information. The program lets you choose, line-by-line from a list of options, the way you want to output the data. You can store multiple printer configurations.

A particularly useful feature of this database is its ability to accept files from the Financial Plus integrated accounting package (also from Equal Plus, at \$295). Simply select categories within files, and the program transfers the information automatically.

## Microfiche Filer

Software Visions Inc. / \$99. Microfiche Filer, one of the first file managers for the Amiga, is one of the simplest and most elegant. Unlike any other database program, it displays almost everything on the screen at one time. Like traditional microfiche machines used in schools and libraries (where information is stored in reduced format on thin plastic sheets and then viewed in single, magnified sections), Microfiche Filer allows you to scroll through the entire file to find and then view information.

Microfiche Filer stores information in boxes that are reduced on the Amiga's screen (the number is limited only by memory). You scroll with the mouse to find the record you need, and then click on the box to "magnify" it. The program offers few sorting options, but once you have things organized, roving through the information is highly intuitive and fast.

Moving, cutting, pasting, adding, and copying sections of the database are accomplished with the mouse, and nearly every function has keyboard equivalents. You can generate reports easily by using pre-designated formats. Search options include equal to, greater than, less than, chaining, and character position (first or last in a field), but sophisticated logical operators are not available. While you can search only one field at a time, you can use multi-pass searches to zero in on the information you need.



Microfiche Filer accepts IFF graphics of up to 32 colors, but translates them into four colors (an editor lets you modify the process). An option lets you see graphics in their original palette and resolution in a separate window.

Microfiche Filer may be limited in options, but it can't be beat for ease of use. It's fast, non-copy-protected, works well on a hard disk, and ideal for simple applications. (*Microfiche Filer was reviewed by Ted Salamone on p. 86 in the November '87 issue of AmigaWorld.*)

*Note: V, a professional database in the style of Microfiche Filer, is due out this fall.*

## Info +

Eastern Telecom Inc. / \$49.95. With Info +, a simple list manager, creating and updating files is simple. A field can contain up to 80 characters, and each file will hold 32,765 records. Info + works in either 60- or 80-character-per-line mode, and you can modify the display colors. You must use the mouse for most operations, but some commands have keyboard options.

To create a new file, simply modify the generic template. Only two field types are available: numeric, which is permanently set with a dollar sign and two decimal places, and alpha. Once you have designed your file format, you can customize the display (and hence the data-entry order) by click-and-drag mouse action. You can change the names, types, and sizes of fields, and add or remove fields at any time.

Info + can sort—low to high only—one field at a time. The program searches for matches anywhere in a field (you specify greater than, less than, or NOT) and will follow the last sort criteria. You can also direct the results of a search to a new file.

Report generation is limited to printing one record, a range of records, or all records. You can vary the order in which the fields are printed, and temporarily replace the field names with column headers. There is also an option for sending the results of a search to a new file, which should enable you to customize reports, but this is not Info + 's strong suit.

Info + is ideal for simple file keeping that does not require much data manipulation or report generating. Because you can use the files in RAM or on disk, short files such as personal address books should work fairly fast. There aren't too many bells or whistles here, but an address book doesn't need them.

## SoftWood File IIsg

SoftWood Company / \$99.95. SoftWood File IIsg, formerly MiAmiga File, is not quite a full database, but it is more than a simple file manager. Information is stored in fields or boxes of ten types: text, amount, date, time, yes/no, phone, alpha, alphanumeric (numbers and letters in ASCII format), picture, and sound. These definitions serve as error checkers during data entry; they are not functional for sorts and searches. Data entry is simple and, unlike

some programs, does not rely on the mouse.

SoftWood File allows you to display data as a list or a form. In List mode, the data is laid out like a spreadsheet; each record occupies one line. You can move horizontally through the fields and vertically through the records with scroll bars. In Form mode, one record appears on the screen at a time. In either mode, you can resize and transpose boxes with the mouse. If a box is too small, simply stretch it; if you want the last name first instead of second, merely rearrange the boxes on the screen. You can save each layout to disk with its own name.

Low to high or high to low, you can sort fields one at a time. The "progressive" mode, which remembers the last sort, is available for multiple-level sorting. Once you define search parameters by example or range, you can ask the program to either include or exclude matching information. SoftWood File does not let you specify logical operators, but it gives you the basics (greater than, less than, and so on). Because all information is memory-resident, it is fast. Report generation is a bit limited but does include a number of useful features: variable date formats; 17 currency symbols; headers; page numbering; totaling of amount columns; left, right, and center justification; and some degree of printer control (not present in the original version).

The program also allows you to do quick screen dumps. Label printing is a simple matter of moving the boxes you want printed to the top five lines of the form-mode screen. Another feature handy for generating reports is the ability to hide fields; a "hidden" field is simply not printed or displayed.

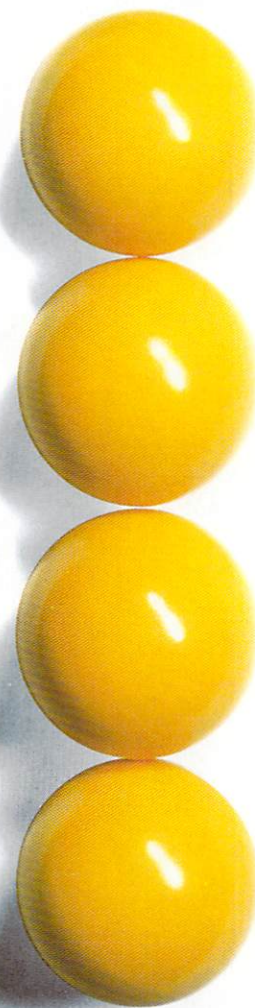
The "sg" in SoftWood File IIsg stands for sound and graphics. You can store names of graphic and sound files in the database and display or play them simply by clicking on them. There are also slide- and sound-show capabilities, and a "movie" option for playing series of sounds and graphics. Another feature will "dial" the telephone for you. Simply hold your telephone receiver to the Amiga's speaker and click on the Phone box, and the program plays the appropriate touch tones to dial that number.

SoftWood File IIsg has been improved a great deal since our original review. The SoftWood Company has added many disk commands, including SAVE-AS and import, as well as ASCII-save and mail-merge capabilities. The program lacks sophisticated sort, search, and report-generation features, but it does a good job and it's outstanding in the way it lets you manipulate forms and files. (*SoftWood File IIsg was reviewed under the name MiAmiga File by Bob Ryan on p. 108 in the November/December '86 issue of AmigaWorld.*)

*Note: A relational database compatible with SoftWood File IIsg will be released this fall.*

## Organize!

Micro-Systems Software / \$79.95. Organize! is a medium-size, medium-feature database with a strong ►





# Amiga Database Roundup:

## Comparative Features and Functions

	COMPUTER BLACK BOOK	ROLOBASE + PLUS	MICROFICHE FILER	INFO +	SOFTWOOD FILE II SG
<b>Manufacturer</b>	Meggido Enterprises	Equal + Plus	Software Visions	Eastern Telecom	SoftWood Company
<b>Price</b>	\$35.95	\$39.95	\$99.00	\$49.99	\$99.95
<b>Memory Required</b>	512K	512K	512K	256K	512K
<b>Copy Protected</b>	N	N	N	N	N
<b>Programming Language</b>	N	N	N	N	N
<b>Programmable Macros</b>	N	N	N	N	N
<b>FIELDS</b>					
max. length (chars)	fixed	unlim.	unlim.	80	64
types	fixed	fixed	3	2	10
type formats	N	N	N	N	N
graphics	N	N	Y	N	Y
sound	Y	N	N	N	Y
indexed	Y	Y	N	N	N
editable	N	N	Y	Y	Y
editable w/mouse	N	N	Y	N	Y
<b>RECORDS</b>					
fields per record	12	12	unlim.	5120	32
max. length	fixed	fixed	unlim.	5120	unlim.
<b>FILES</b>					
records per file	unlim.	14MB	unlim.	32,765	unlim.
open multiple files	N	N	N	N	N
exchange between files	N	N	N	N	N
relational	N	N	N	N	N
import/export files	N	Y	Y	N	Y
save as any format	N	N	Y	Y	Y
mail merge	N	N	Y	N	Y
<b>SCREEN</b>					
edit display	N	N	Y	Y	Y
save custom display	N	N	Y	Y	Y
edit display w/mouse	N	N	Y	Y	Y
<b>SORTS/SEARCHES</b>					
Boolean	N	N	Y	N	N
multiple fields	N	Y	Y	N	Y
range	N	Y	Y	Y	Y
case-sensitive	N	Y	Y	N	N
wild cards	N	N	Y	N	Y
search records	N	N	Y	N	N
save search output	N	N	Y	Y	N
save search forms	N	N	N	N	Y
search and replace	N	N	Y	N	N
<b>REPORTS</b>					
custom forms	N	Y	Y	N	Y
save custom forms	N	Y	Y	N	Y
printer control	Y	Y	Y	N	Y
headers/footers	N	N	Y	N	N
sorts/searches	Y	Y	Y	Y	Y
ranges	Y	Y	Y	Y	Y
math	N	N	Y	N	Y
add text	N	Y	Y	N	N
date/currency options	N	N	Y	N	Y



ORGANIZE!	OMEGA FILE	DATA RETRIEVE	SUPERBASE PERSONAL	DBMAN	ACQUISITION	SUPERBASE PROFESSIONAL
Micro-Systems	The Other Guys	Abacus	Precision	VersaSoft	Taurus-Impex	Precision
\$79.95	\$79.99	\$79.95	\$149.95	\$199.95	\$299.95	\$349.95
512K	512K	512K	512K	512K	512K	512K
N	N	Y	Y	N	N	Y
N	Y	N	N	Y	Y	Y
N	N	Y	N	N	Y	Y
254	200	unlim.	255	254	unlim.	255
4	3	6	4	4	6	5
N	N	Y	Y	N	Y	Y
N	N	Y	Y	N	Y	Y
N	N	N	N	N	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
N	N	Y	N	N	Y	N
128	256	unlim.	unlim.	128	unlim.	unlim.
4096 bytes	5000	unlim.	unlim.	4000	unlim.	unlim.
unlim.	32,000	unlim.	unlim.	unlim.	unlim.	unlim.
N	Y	Y	Y	Y	Y	Y
N	Y	Y	Y	Y	Y	Y
N	N	N	N	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	N	Y	Y	Y
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N	Y	Y	Y	Y	Y	Y
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Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	Y	Y	Y	Y
Y	Y	Y	N	Y	Y	Y
N	N	Y	Y	Y	Y	Y



math basis. It is compatible with the Scribble! word processor and Analyze! spreadsheet, also by Micro-Systems Software. (You can purchase it alone, or in a three-part package called The Works! at \$199.95.)

Organize! can handle 4.2 billion records containing 128 fields, each with up to 254 characters. You cannot keep more than one file open at a time, however. Program utilities let you merge Organize! files.

There are four field types—text, numeric, date, and yes/no—and a variety of formats available. The

program normally displays information in list format, but by using “forms” (custom screens used for data entry and reports) you can create a wide variety of displays and printer output.

Organize! employs another type of form to sort and calculate. While you can save multiple forms on disk, sorts and calculations do not change or rearrange the data itself, but rather the way it is displayed. The program sorts on an index basis, and while you can create multiple indexes, they will not work si- ▶

## Glossary of Database Terms

**batch entry** a method of entering data into a database. All new data is stored in a file and then merged with the existing data in programs that employ batch entry.

**boilerplating** a method of integrating data from different files to produce customized output in a standard format. Mailmerge is a type of boilerplating wherein names and addresses from a list are substituted for specified variables in a form letter.

**data types** the type of data a field can hold. Most databases allow you to specify data types. Common types are text fields, amount fields, date fields, and numeric fields. For example, in an inventory database, you would specify a name field to type text and a price field to type amount.

**field** the fundamental building block of a data file or a database. A field contains one discrete piece of information, such as a name, zip code, or phone number.

**file** a grouping of records that share identical field definitions. For example, a student file would be a grouping of student records, each containing the same types of fields about each student.

**index** a table that contains a pointer to each record in a file. Indexes are normally ordered according to an index or key field. Often, a file itself is not searched or sorted; rather, these operations are performed on the index to the file. Operations performed on an index are faster than operations performed on an entire file.

**range** a criteria you choose for extracting information from a database. For example, if you want to extract white-collar crime statistics for the 1980's from a police database, you would specify a range where date is greater than December 31, 1979 and crime-type equals white-collar.

**record** a grouping of fields that contain related information. For example, a client record might contain a name field, an address field, and a phone-number field.

**relational database** a database where fields can be shared by two or more files. If your inventory and income files share an amount field, for instance, a sale posted to either file can change the other one. Shared fields define the relationship between the files that make up the database.

**report** a listing of information from a database. Normally, information reports fit an indicated form or criteria.

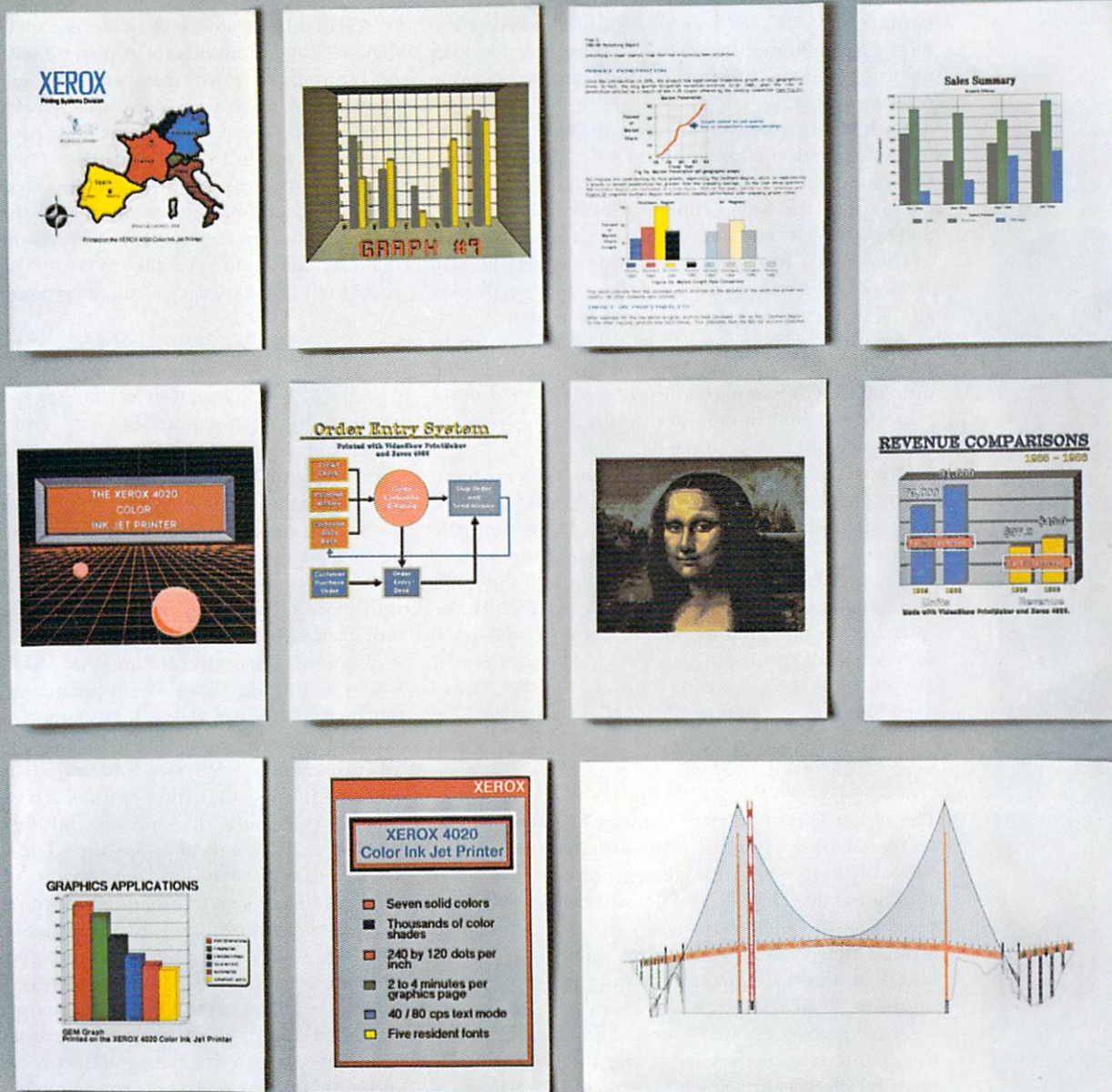
**search** a means of retrieving specific information from a database. When you instigate a search, you supply the conditions or range of the data you want to locate. For example, you could have the database search and retrieve all information concerning Michael Dukakis. You can further refine the information you're searching for by specifying compound range criteria.

**sort** a process by which the order of records in a file is changed. Normally, you select one field as a key field. The sort routine then orders the records based upon the contents of the key field in each record. For example, an alphabetical sort on the last-name field in a student file will reorder the records in the file based upon the last name of the students. Most databases allow multiple-key sorts, allowing you, for example, to sort an address file by state and then by last name inside each state.

**view** an application-specific way to look at data in a database. Oftentimes, you only want to see part of the data in a large database. Most database programs allow you to specify different views for working with the same data. Each view uses a subset of the fields that make up a database.







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multaneously. Searches can be quite detailed; a criteria filter holds up to 254 characters and Boolean operators, but as with indexes, you can use only one filter at a time.

Math is Organize!'s main strength. You can choose from five math operators, thirty-two math functions, five date functions, three financial functions, eight comparison and logical operators, conditional logic, date arithmetic, and summary calculations.

The simple forms for generating reports let you arrange fields in any order, or choose not to display any if you wish. You can add text to a form screen and temporarily change field titles for output to screen, printer, or disk. You can save a sorted file with any ASCII-compatible word processor for more complicated mail merge and boilerplating reports. Labels are quite easy to create.

Organize! can read ASCII and dBase III files (except memo fields or dBase indexes). While you can have only one index or search filter active at any time, the filter criteria are extensive, the method for entering, displaying, and sorting data is flexible, and the math and calculation functions are impressive. Finally, the capacity for integration with other Micro-Systems software adds value. (*Organize! was reviewed as part of The Works! by Bob Ryan on p. 64 in the May '88 issue of AmigaWorld.*)

## Omega File

The Other Guys / \$79.99. Omega File is a full-featured database program. You can create up to 256 fields of three types (text, integer, or number), each containing 200 characters. Files can consist of 32,000 records with 5000 characters each. You can move around the database with either the mouse or keyboard, and perform ascending and descending sorts on up to 20 fields.

Once you have created your database, you can alter the characteristics only by saving the data as a sequential file, creating a new format, and then reading the data back in. You can also clone a database structure without the data. You can keep multiple databases open at the same time, and with cut- and paste-like options, you can move data easily from one to another.

Omega File offers complex search parameters such as NOT, AT, IN, and the use of parentheses. You can save searches and even delete information based on a search. Because Omega File lets you sort and select information before saving it as a sequential file, it is ideal for creating reports.

Omega File's unique math functions and report-generating features make it an ideal candidate for scientific applications. The math features extend to exponential functions, logical operators, trigonometric functions, and more.

The program includes a mini-text editor with boilerplate commands and options, although you can employ any text editor or word processor that saves

in ASCII format and still make use of Omega's numerous dot commands for report generation. These dot commands encompass even rudimentary programming-like structure features similar to nested FOR/NEXT loops; while a bit confusing, they give you near-complete output control.

The ability to cut and paste between databases, extensive data manipulation based on sorts and searches, custom sequential file creation, exhaustive math functions, and completely customizable reports combine to make Omega File very powerful.

## DataRetrieve

Abacus / \$79.95. DataRetrieve features a high degree of flexibility, tremendous capacity, and an icon interface. Most of the entering, searching, sorting, and printing features rely on a "mask" (template) concept. The maximum field length is 32,000 characters, records can contain 64,000 characters, and a file holds up to 2,000,000,000 records. You can have up to eight databases open at the same time and cut and paste information between them. DataRetrieve is disk based, and while that attribute can cause some delays, it also allows larger files than RAM-based programs.

Setting up a database is a simple matter of creating fields of any of six types: text, date, time, number, IFF, and "choice" (where the data entered must match a set of criteria, such as yes or no, male or female, and so on). You can further define each type as input, repeat, verify, auto, or required, and the formats are variable and customizable (as with a date field). There are two levels of password protection.

DataRetrieve's math functions are impressive; they include the basics plus logical operators, geometry, and trigonometry (modulo division and current record count are especially unique features).

Once you have set up the record template, you can customize the mask to a great extent with a paint-program-like icon interface that lets you adjust color and fonts, enclose fields in boxes or circles, and create lines of various thicknesses or even patterns. You can add text to the display for quick screen-dump reports.

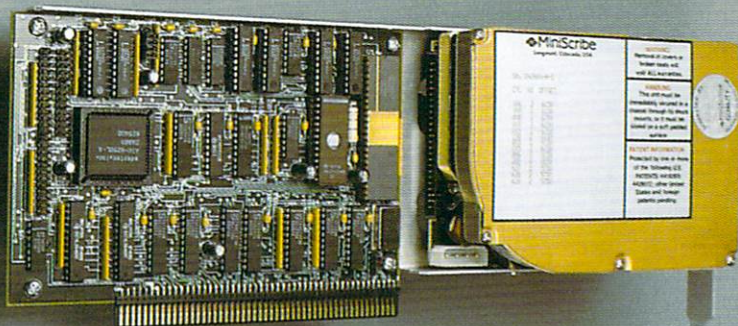
DataRetrieve will sort any field or combination of fields (high to low or low to high), and you can specify any level of precision, from one character to 999. Search options include wild cards, range searches, and alternative matches, all of which can be performed anywhere in a field or record. There is no limit on simultaneous multiple-field searching.

Report generation is a matter of defining another mask. Your report mask can include headers, text, and footers (with numbering), auto subtotals, and a trigger to induce form-feeds for printing information categories within fields on separate sheets. You can perform sorts, searches, and reports on blocks of data, and save information as a sequential file for use with word processors or other database programs (you can even specify field separators). Although not relational, DataRetrieve is very flexible and custom-►



# HardFrame/2000

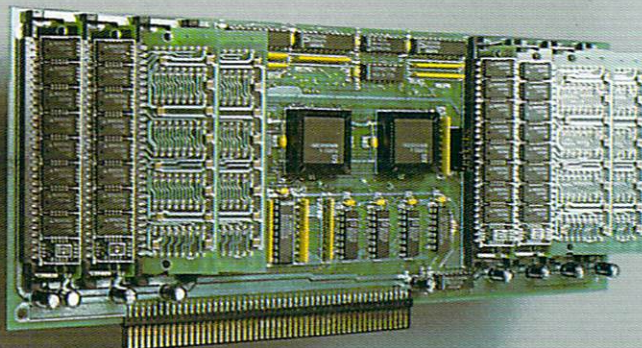
The Super-speed, DMA, SCSI Hard Disk Interface with 1.3 Autobooting



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

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

# 8-UP! The Eight Megabyte Memory Card with Amiga™-specific DRAM Controller Logic



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



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izable. (*DataRetrieve* was reviewed by Al Willen on p. 74 in the June '88 issue of *AmigaWorld*.)

*Note: DataRetrieve Professional, with advanced features, is scheduled for release later this fall.*

## Superbase Personal

Precision Software Ltd. / \$149.95. Superbase Personal combines highly powerful features and simple mouse and menu operation. The size of a Superbase Personal file is limited only by available RAM and disk space, as is the number of files you can keep open simultaneously.

When creating a file, you must specify field types (including "external" for picture files) and formats (a wide variety of numeric, date, and monetary formats are available); you can even specify that data must fall within a range. The program allows you to assign required status to any field, and index status to as many as 999 fields. You can also set up fields to perform calculations based on values in previous fields; numeric, Boolean, and 29 other functions are built in.

Entering data, editing, and formatting the screen is all done with mouse and icons. Moving around a Superbase Personal file is like operating a VCR with 12 control buttons: You can fast forward, rewind, and so on. File-display options are table, form, or record formats. In form mode, you simply click and drag the fields on the screen to customize your output.

Templates called queries are the vehicles for sorting and searching. These templates, which you can save to disk for later use, are highly flexible, allowing you to specify which fields to search, the search order, any filters or limitations, and what types of file calculations are to be performed. The program uses queries to structure reports and labels as well, and while they offer many options, boilerplate features are not available.

Superbase Personal's ease of use and sophisticated search and calculation routines make it one of the best for data manipulation and structuring. (*Superbase Personal* was reviewed by Al Willen on p. 66 in the July/August '87 issue of *AmigaWorld*.)

## dBMAN

VersaSoft Corporation / \$199.95. dBMAN is a relational database program that allows an infinite number of files and virtually limitless file and record sizes. The program offers three functions: information management, program development, and report and label printing. The disk contains a tutorial and a point-and-click guide to using the software, as well as a simple checkbook manager.

dBMAN accepts four data types: character, numeric, logical (yes/no and true/false), and date. You can retrieve and relate data from ten files simultaneously. Your display options are wide ranging: You can display an entire file (or the portion that fits on

screen) and type in commands to scroll through it; you can also display selected records (using ALL and FOR commands) or fields within records, or simply the file structure (size and number of fields).

Communicating with the program involves entering commands on a CLI-like line. The EDIT command lets you change data within records singly, while the REPLACE command can change the specifics of many records at once. Changing your database structure involves making a temporary copy of your file, restructuring (inserting or erasing fields, or changing field name, type, or size), and then refilling the file with the stored information.

To move through files, use the SKIP and GOTO commands. You can sort or index files in multiple levels by any category, in ascending or descending order. Two different commands let you search and display occurrences; one works on indexed fields within files, the other in unindexed files.

The COUNT command will yield a total number of records meeting a specified criterion, and the SUM command performs addition on numeric fields. You can selectively copy files, records, or record structures, using scope modifiers and the FOR expression. The APPEND command can read data from another dBMAN file, a DIF file, or a delineated ASCII text file, and tack it to the end of your current file. The UPDATE command will make changes to specified records based on information contained in another file. You can also convert dBase II and III files to dBMAN by making some minor program changes.

To format printer output, define top, bottom, and left margins, lines per page, and headers and footers including page numbers. You can format up to 20 columns and generate detailed or summary reports. Text can be underlined or set in bold, and you can change the type size. (*dBMAN* was reviewed by Ted Salamone on p. 85 in the September/October '87 issue of *AmigaWorld*.)

*Note: dBMAN version 5 is due out in early autumn.*

## Acquisition

Taurus-Impex / \$299.95. Acquisition is a relational database with capacities beyond most Amiga configurations in the home. It boasts field capacities of 10 megabytes, a maximum of 10 million fields per record, and 100 million records per file for a total file size of one gigabyte. Files may contain IFF graphics.

The two-disk system offers an impressive assortment of utilities, which are separated into modules. At the heart of Acquisition is a user-interface language called Acom, a combination of BASIC and C that is similar to dBase III's Prism programming language, or Paradox's PAL. Using Acom and the 300-page manual, you should be able to customize almost every aspect of file creation, data entry, data manipulation, and reporting.

When building a database with the creating, pasting, and bridging editors, you can specify field names, ►







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Austin, TX 78746  
512/327-5484

**Meggido Enterprises**

PO Box 3020-191  
Riverside, CA 92519  
714/683-5666

**Micro-Systems Software**

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Los Gatos, CA 95030  
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800/451-0900

**The Other Guys**

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801/753-7620

**Precision Software Ltd.**

*distributed by Progressive Peripherals and Software*  
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408/723-9044

length, type, and field streams (auto-exec files activated when the field is accessed), how information is to be shared among up to 16 files, and more complex system and relational pathways between files.

One module lets you customize data entry and editing formats, and simple one-file report generation formats. Another program handles more sophisticated report generation using text files. There is even a decimal/hex calculator module.

You can design macros and larger Acom programs to perform just about any type of search, sort, or manipulation imaginable, including 16 relational paths per file. Because the programs in the Acquisition system are not needed after they complete their functions, mathematical and Boolean searches and sorts are performed in RAM with great speed.

Report generation is done through a linking program using a text file. You can establish a tracing routine that determines which parts of the filing system are used in the report. Acquisition offers a nearly unlimited number of ways to access data. You can write your own data-manipulation and reporting

programs using Acom, or you can access the database with the built-in reporting interface or your own BASIC and C programs.

Acquisition is highly sophisticated. To use it effectively, you must have not only programming experience, but also a good idea of exactly what you want your database to do. This is not a take-it-out-of-the-box-and-pop-it-in program for keeping the family holiday list. Acquisition is for the serious database programmer who needs raw horsepower and refined tools. (*Acquisition was reviewed by Al Willen on p. 82 in the November '87 issue of AmigaWorld.*)

## Superbase Professional

Precision Software Ltd. / \$349.95. Superbase Professional is a step beyond Superbase Personal. The limits of Superbase Professional are roughly the same as that of its older sibling, but there are differences. The Pro version has a forms editor and an integrated programming language called DML (Database Management Language). ►



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You create files as you would with Personal, except that there is an added "external" field type for graphics, sound, and text files. You can display IFF graphics on separate screens, play IFF sound files (speed controls let you adjust digitized sound files), and display text files with Superbase Pro's mini-text editor.

The program displays data in three ways: record, table, and form views. You can enter data in batch mode (which saves writing to disk until you are finished), and use queries (search criteria files that can be saved to disk) to select a range of records to update or even edit automatically.

Sorts are done on an indexing system as file records are loaded. Using an icon-based requester window or DML, you can create complex, multilevel search criteria and filters. DML is a very powerful addition to Superbase. Similar to BASIC, with functions such as DIM, REM, FOR/NEXT, and GOSUB, DML will execute single command lines immediately (like command mode in BASIC) or allow you to write entire programs. There are 120 DML statements and functions; you can do anything in the program that could be done from a menu. In addition, you can customize menus, requesters, and dialog boxes. Programs written in DML can be saved in Superbase format, ASCII, or encrypted files.

A simple report-writer utility will "compile" your form into DML, but you can design specific reports yourself, too. A special editor allows you to create

custom forms of up to three pages, 66 lines each, 80 characters per line. You can combine graphics, colors, patterns, boxes, lines, text, and, of course, filtered data on a single page. Creating a form is a click-and-drag process with a hierarchical layout logic (text supercedes patterned background, data supercedes text, and so forth).

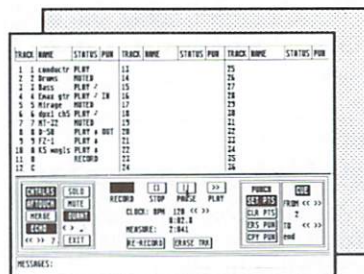
Superbase Pro allows you to share information from one file to another while modifying other files automatically. With the addition of a forms editor and DML, Superbase Professional is one of the most powerful databases available. While easy to learn, it is a sophisticated program and database language that takes a bit of study. (*Superbase Professional was reviewed by Mark L. Van Name and Bill Catchings on p. 56 in the June '88 issue of AmigaWorld.*)

The terra cognita of database software extends across a wide range, both in terms of functionality and in terms of price. If you need to interrelate numerous and lengthy files for a complex business, you'll surely want a relational database manager to make your life easier. For simple home use, however, such a program would likely be a waste of money. Yet even among the more simple database programs and file managers, there is great disparity: Do you just want to keep your phone list on disk, or would you like to catalog your assets and have room to grow, too? ■

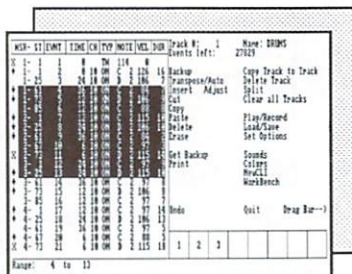


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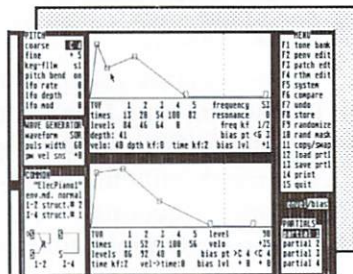
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# THE AMIGA HOME VIDEO COMPANION

**A step-by-step, how-to guide for using your Amiga to spice up your home movies with snappy titling and some simple, yet impressive video effects.**

WHEN WAS THE last time you viewed your home movies and wondered which relatives these were in the footage or what the name of the place you visited was on that vacation you took four years ago? Wouldn't it be nice to be able to go back and put that information on the videotape permanently? Learning some basic video-titling procedures can solve your problem and, in the future, allow you to create titles as you complete your home video productions.

In addition, mastering some equally basic video-graphics techniques can open up a host of creative home movie-making opportunities. Adding special effects—such as “transporting” people in and out of scenes, setting up “force fields” to separate things from their environments, or even landing spaceships in otherwise ordinary scenes—will give you the kind of cinematographical options you thought only people like Steven Spielberg could enjoy.

All that is required are a video camera, a VCR, your Amiga (with a genlock), and the appropriate software.

## VIDEO TITLING

A first step in spicing up your home movies is to provide titling by means of a character generator (CG)—a device that creates text and places it in the form of titling (and other information) onto video. You can transform your Amiga into a character generator with a number of excellent programs, such as

Pro Video CG1 and Pro Video Plus (PVS Publishing), Video Titler (Aegis Development), TV\*Text and TV\*Show (Brown-Wagh Publishing), and, for sophisticated 3-D titling, VideoScape 3-D (Aegis). These represent only a small selection of what's available. (For a more complete listing, see “Videot's Delight,” p. 23, in the March '88 issue of *AmigaWorld*.)

## CASTING YOUR CHARACTERS

Here are some tips on using a character generator for the first time:

- Watch your home-produced videotape all of the way through and make notes on what you want your titling to “say” and where on the screen it should be placed with respect to spacing and readability.
- Do not choose a font that is difficult to read.
- Do not choose a font color that clashes with videotaped subjects and/or material.
- Do not clutter the screen with CG information.
- When you display your information, do not leave it on screen longer than it takes for you to read it twice.

Because videotape, unlike film, does not permit multiple exposures, you cannot simply reexpose the film in the camera to produce titles. You must add the titles while you are copying from one VCR to another. To achieve this, you must connect the composite video output of the first VCR to the composite ►

**By Wayland W. Strickland**



video input of a genlock, and then connect the composite video output of the genlock to the composite video input of the second VCR. Finally, connect your monitor, or television, to the second VCR's composite video output (if using a monitor) or RF output (if using a television). (This may seem complicated, but if you consult Figure 1, you will see that this scheme of connecting the components is not as difficult as it sounds.)

Before we move on, a brief discussion of the genlock component mentioned above is in order. In addition, we will try to explain the differences in capabilities and features among genlocks, as well as the specialized "video loop-through" feature found only in select models of genlocks.

A genlock synchronizes the video signals between a VCR or camera and the Amiga, permitting video created on the Amiga to be overlaid on top of video coming from the VCR or camera. Thus, the background video (color 0 in the Amiga palette) always originates from your external source (the VCR or camera), while your Amiga always generates the foreground video.

Genlocks come in two basic configurations. The less expensive units, such as Mimetics' AmiGen and Commodore's A1300, do not allow the Amiga's graphics to be "faded in" or "faded out." The graphics are simply "full up" or "full on" all the time. More expensive genlocks, such as Digital Creations' SuperGen and GlennLoc's RM-2, do allow you to "dissolve" computer-generated graphics over external video. SciTech's GenKey, although priced comparably with SuperGen, also does not allow for fade-ins and fade-outs.

Both GenKey and SuperGen do, however, have what is known as a "video loop-through." This permits another monitor or TV display to use the same video source as the genlock. Thus, you can observe your source video on one display while watching, on another monitor (connected to VCR #2), your source

video with graphics overlaid. In this way you can separate the two images in your mind, stopping to adjust and fine tune your productions as you go.

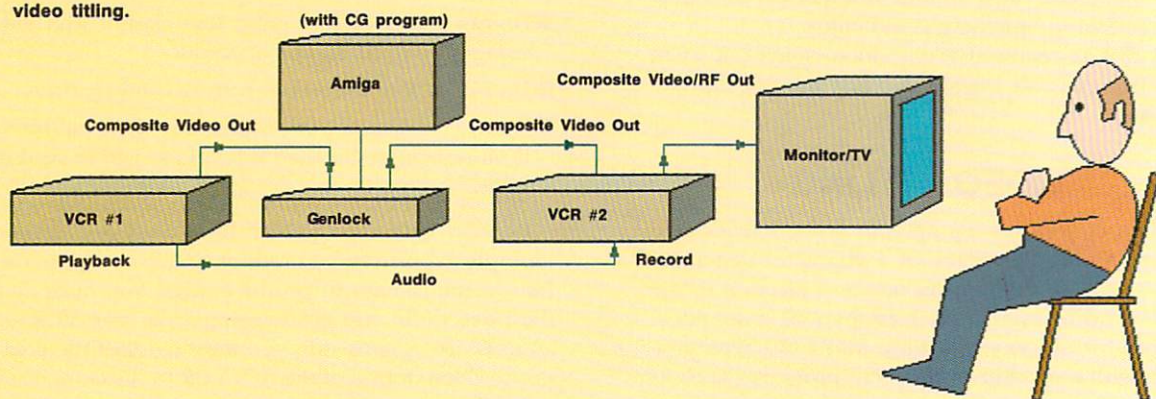
If you do not have another monitor to attach to this video loop-through connector, then your video may look too "hot" (contrast and brightness are too high, resulting in a "bright" picture). To solve this problem, first check your genlock manual to see if the genlock has a built-in switch that will correct for this brightness problem. If not, visit your local electronics store and purchase a 75-ohm video terminating resistor and connect it to the video loop-through connector.

## ROLL THOSE CREDITS

The next step is to power up your computer and load the CG program of your choice. Select a font, font size, and color, and size and direction of the drop shadow. Then compose your pages in the order in which you are going to record them onto your videotape. Many of the character-generator programs permit fancy ways of displaying the information on the screen, such as slides, wipes, checkerboard patterns, and so forth. Select any special screen transitions desired and, depending on the program, save the information for use when you copy the "home movie."

Insert the master videotape (the one you want to add titling to) into VCR #1 and insert a blank videotape into VCR #2. You should note that when copying a videotape, there will always be a slight loss in picture and sound quality. This loss, however, can be minimized by recording the original and the duplicate in the fastest speed on your VCR (SP for VHS, BII for BETA). A good habit to get into with your initial productions is to make a test recording before dubbing the entire videotape. Place VCR #1 (source machine) into play mode while simultaneously placing VCR #2 (record machine) into record mode. Clear the computer screen in your CG program or go to a

**Figure 1. Component setup for video titling.**





blank page and try your test recording. If the test recording turned out favorably, you are ready to begin dubbing. If it did not record properly, check to see that the cables are firmly connected, the genlock is plugged in, and your computer is on.

Using the notes you made from an earlier screening, watch the monitor (or television) as the part of the videotape you wish to add titling over is shown. Depending on your CG program, initiate the proper command sequence to display the titling information. Repeat this operation until you finish adding all of the titling you wish to your videotape.

## ADVANCED VIDEO EFFECTS

With the same set of components used for titling, you can put your Amiga to work creating a repertoire of special effects for your home video productions. For instance, you can transport yourself and a friend to faraway places or planets, create a force field (to keep away monsters, in-laws, or presidential aspirants), or land a spaceship in your backyard. No longer are these well-known special effects limited to professionals. How, you say, can all these be simulated? We'll try to provide some explanations, and advice, concerning the creation of a few of your favorite effects.

### GETTING AWAY FROM IT ALL: THE TRANSPORTER EFFECT

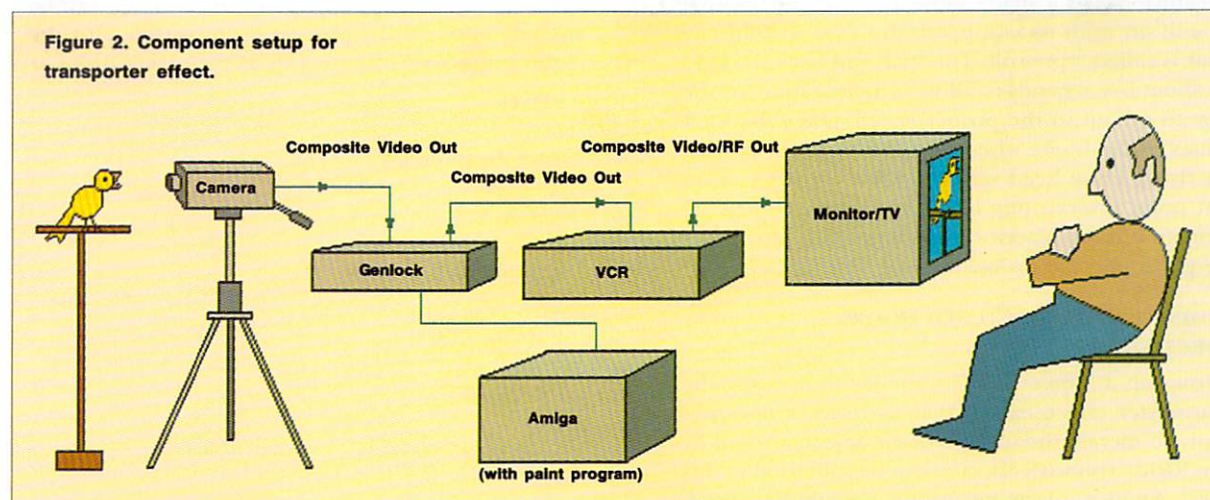
The transporter effect has been used in a number of television programs over the years. Its original method of creation involved dropping aluminum dust through the beam of a high-intensity light as the subject was being photographed. An optical printer was then used to matte the effect on top of the person or object to be "transported." You can accomplish this effect more simply by using almost any paint program with the ability to cycle colors (such as DeluxePaint II), a video camera, a VCR, and a monitor.

Choose an object (or person) to "transport" and set up your video camera so that your object is aligned in the center of the screen. Connect your video camera's composite video output to the composite video input of the genlock. (Note that because some older home video cameras and camcorders are not equipped with a composite video output, you may need to purchase a power supply for your specific model of camera that will furnish you with such an output.) Connect the composite video output of the genlock to the composite video input of the VCR. (See Figure 2 for a diagram of the setup described above.)

Turn on the power to your Amiga and load the paint program (DeluxePaint II, in this example). When the prompt appears, select interlace mode and then select palette from the project menu. The best colors for the transporter effect are blue or yellow-gold. (In our example, we will use gold.)

Select the lightest color of gold in the palette and copy it to the top of the third column and the bottom of the fourth column, proceeding from left to right. Select the darkest color of gold and copy it to the bottom of the third column and the top of the fourth column. Use the pointer to select the light gold at the top of the third column. Select the "spread" icon and touch the dark gold at the bottom of the third column. Repeat this step for the fourth column. You should now have a range of gold that begins with a light shade, gradually darkens, and then lightens again.

To make the transporter effect look real, you must cycle the complete range of gold shades. To accomplish this, touch the light-gold shade at the top of the third column, select the "range" icon, and touch the light-gold shade at the bottom of the fourth column. Now select the cycle speed—normally about one-half to three-quarters on is fast enough to appear real. Exit the palette menu and then trace the outline of the object that you will be transporting. When you ►





finish tracing the outline, turn on the dithering mode by pressing the right button on your mouse and select the paint can. There are three dithering types you can select. The first is identified by an icon box that is an up/down arrow; this is the icon we will use. (For more complex and interesting effects, you might experiment with the other two icons.) Move the slider all the way to the right so that the individual colors are thoroughly mixed.

The next step is to outline the object you wish to make disappear with one of the colors in the range. Using the paint can, fill in the outline completely (which may take a few moments). Now press the tab key to begin the cycling effect. Depending on your genlock, you can either dissolve the effect over the object or "cut" the effect (for a sudden appearance) on the object. To "cut" back and forth between the effect and the object, use the J key. This will swap the current page in DeluxePaint II with the background page. If your genlock will perform a dissolve, this is the best way to achieve this effect.

Finally, you are ready to "transport" your object. Insert a blank video cassette into your VCR and record the object without the effect, then record the effect overlaid on the object. While the effect is still being displayed, pause the VCR. Move the object out of the camera's frame of view, press PAUSE to begin recording again, and remove the effect (either by dissolving or cutting, as discussed above). Rewind the videotape, play it back, and see how easy it is to make an object transport to any imagined destination.

If you've used your VCR for any length of time, you are no doubt aware of the "glitch" that occurs every time you pause the VCR or perform an edit. This happens because the tape is not at the proper speed to start recording and the video head did not erase part of the old recording before starting with the new. To avoid this and other problems, VCR manufacturers began incorporating into recent units a feature called a flying erase head. When making an edit on units so equipped, the VCR will initiate what is called a pre-roll. The VCR will back the tape up about five seconds to allow sufficient time for the tape to get up to the proper speed. Once the VCR comes to the frame where the new video is to start, the flying erase head will erase the old video from that point on, creating blank space for the new information to be placed on the tape. This eliminates the glitch and the problem.

#### **BEHIND PARTIALLY-CLOSED DOORS: FORCE FIELDS**

Setting up a "force field" is similar to creating the transporter effect, except that the former does not apply to merely the outline of an object; a room or any "field" you wish affected can be subjected to this effect. An ideal place, for instance, would be a doorway where you would have someone stand behind

the area in which the force field will exist. (For the sake of continuity, we will use the doorway example throughout the explanation.) Position the video camera directly in front of the door so that the camera sits approximately eight to ten feet from the physical doorway.

Set up your color palette as described earlier for the transporter effect and outline the interior of the doorway with one or more of the colors in the range. Use the airbrush to fill in the outline, leaving some space for the camera to "see through" in order to permit the viewing of persons present behind the effect (as if, for instance, you are in a type of holding cell with the force field keeping you imprisoned while a "guard" is outside the cell door). Again, depending on your genlock, you can either dissolve this effect in and out (fade in about half way—a "ghost effect" is most effective), or use the J key to cut the effect on and off.

#### **CLOSE ENCOUNTERS: THE SPACESHIP LANDING EFFECT**

This effect requires a bit of preproduction planning and also requires a two-dimensional animation program, such as Aegis Animator or DeluxeVideo Construction Set, or a solid-object animation program, such as VideoScape 3-D (which we will use for our example) or Animate 3-D. If you use a 3-D program, you need not worry about creating your spacecraft; with VideoScape 3-D, for example, simply use the "infinite loop ship" (denoted in the file listing as "InfLoopShip") on the program's object disk. You must plot the course of the spacecraft—how the ship enters, lands, and exits the scene—and set the camera angle and the position of the light source before creating the effect.

The spacecraft will enter from the upper-right corner of the screen, move to the center, then land. After a slight pause, the craft will rise, turn away, and rocket off into the distance. The following text file can be entered into a word processor and saved into the motion directory of a backup of the object disk:

```
3DM1
6
40 8 25 190 0 0
0
5 8 20 270 0 0
23
0 0 20 270 0 0
22
0 0 20 270 0 0
-10
0 5 25 300 0 0
20
-40 10 35 300 0 0
20
```

The camera will be positioned at the origin. The ►



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# Product Information

## AmiGen

### *Mimetics Corporation*

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## Animate 3-D

### *Byte by Byte*

Arboretum Plaza II  
9442 Capitol of Texas Hwy. N.  
Suite 150  
Austin, TX 78759  
512/343-4357  
\$150  
*One megabyte required*

## Commodore 1300 Genlock

### *Commodore Business Machines*

1200 Wilson Dr.  
West Chester, PA 19380  
215/431-9100  
\$299.95

## DeluxePaint II

### *Electronic Arts*

1820 Gateway Dr.  
San Mateo, CA 94404  
415/571-7171  
\$129.95  
*512K required*

## DeluxeVideo Construction Set

### *Electronic Arts*

(see address above)  
\$129.95  
*512K required*

## GenKey

### *SciTech Corporation*

1450 Northwest 78th Ave.  
Miami, FL 33126  
305/591-1620  
\$760

## Pro Video CGI

### *PVS Publishing*

3800 Botticelli, Suite 40  
Lake Oswego, OR 97035  
503/636-8677  
\$199.95  
*512K required*

## Pro Video Plus

### *PVS Publishing*

(see address above)  
\$299.95  
*Two megabytes required*

## RM-2

### *GlennLoc Corporation*

distributed by Wollner Assoc.  
3306 Horseman Lane  
Falls Church, VA 22042  
703/533-1236  
\$2500

## SuperGen

### *Digital Creations*

1333 Howe Ave., Suite 208  
Sacramento, CA 95825  
916/344-4825  
\$749.95

## TV\*Show

### *Brown-Wagh Publishing*

16795 Lark Ave., Suite 210  
Los Gatos, CA 95030  
408/395-3838  
\$99.95  
*One megabyte required*

## TV\*Text

### *Brown-Wagh Publishing*

(see address above)  
\$99.95  
*512K required*

## VideoScape 3-D

### *Aegis Development*

2210 Wilshire Blvd., Suite 277  
Santa Monica, CA 90403  
213/392-9972  
\$199.95  
*512K required*

## VideoTitler

### *Aegis Development*

(see address above)  
\$149.95  
*512K required*

script file for these movements should be saved into the camera directory as follows:

```
3DC1
2
0 0 0 0 0
0
0 0 0 0 0
95
```

After loading the information into the word processor, load VideoScape 3-D—the object, motion, and camera files. The light source defaults to the position of “shining” straight down onto the scene. Insert a blank, formatted disk into one of your drives and select “Begin Anim Recording” from the record menu. A requester will display asking you to select the drive in which you wish to save the anim, along with a file name. Select the drive that you inserted the disk into and press the “Begin Animation” button. (Note that the compilation will take about 25 minutes to conclude.)

After the animation has been compiled, the control window will reappear, at which time you should turn off the anim recording. Exit VideoScape 3-D and then load the CLI from the window and type “play-anim [file.name].” After the animation loads from the disk, type “2” to designate the speed of the animation, and then type “2” again to represent the number of replications of the action.

Once you are satisfied with the presentation of your animation, position your video camera at the scene (your backyard in this case) and connect the composite video output of the camera to the composite video input of the genlock. Connect the composite video output of the genlock to the composite video input of your VCR. Set your VCR in record mode and press Return on the computer keyboard to initiate the animation. Once the animation has played through completely, press Return twice more to repeat the action. Stop the recording of the videotape and view your masterpiece. Now you have documented proof of a “close encounter” that took place in your own backyard! If you wish, you can add sound effects to further enhance the realism of the scene.

These examples demonstrate only a minute sampling of the astounding array of video effects you can create with just a video camera, VCR, genlock, and your Amiga (with appropriate software). Your genlock and your software define the range of possibilities open to you; your imagination takes over from there. ■

Wayland W. Strickland is a producer, director, writer, and graphic designer of television presentations for Chameleon Video Productions in Orlando, Florida. Write to him c/o AmigaWorld Editorial Department, 80 Elm Street, Peterborough, NH 03458.



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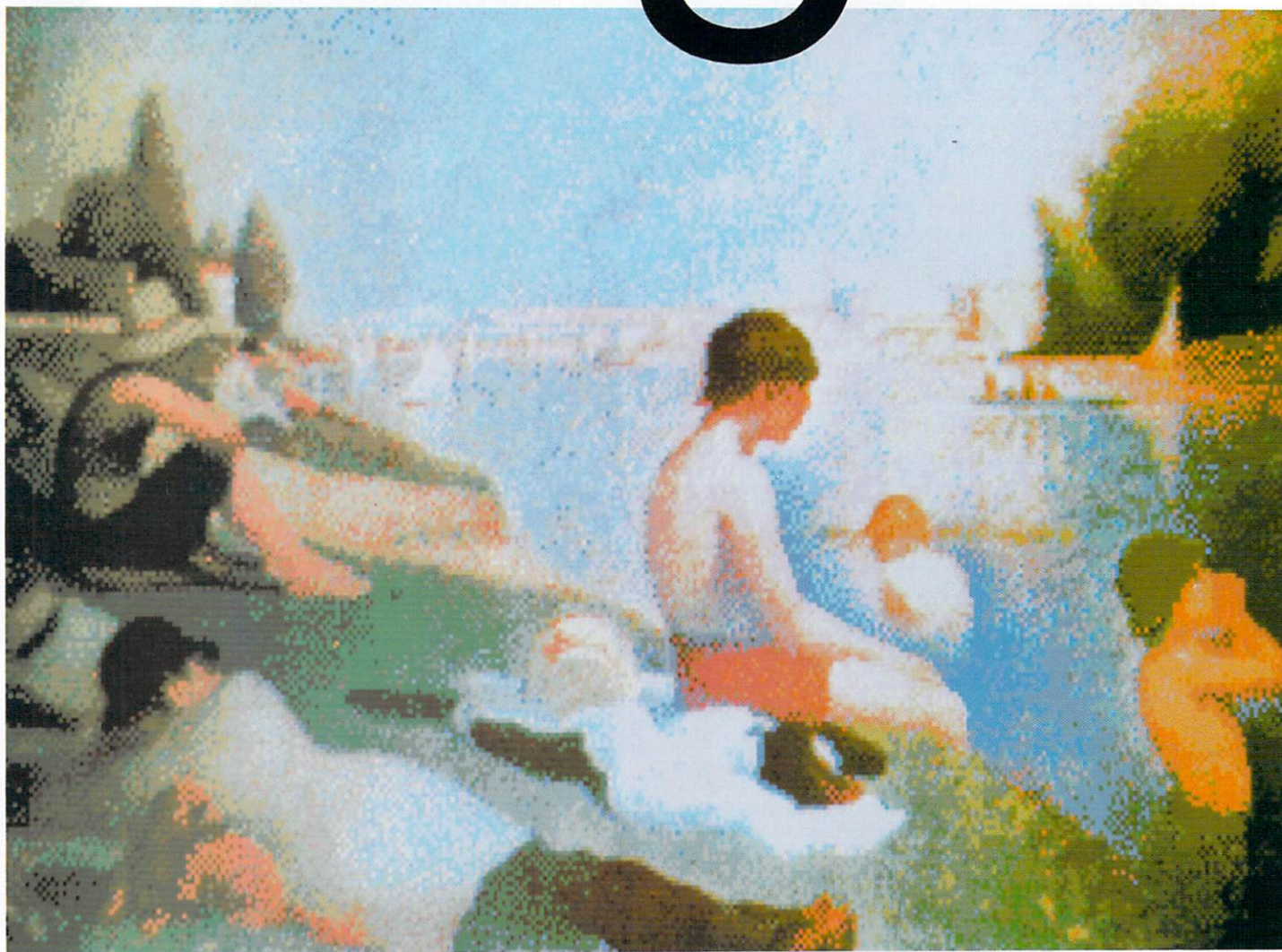
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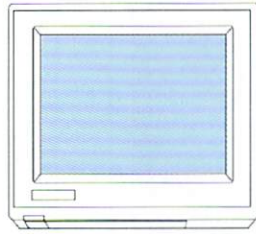
# The Big Picture



By David T. McClellan



## Using SuperBitMap windows to scroll oversized images can cut some major graphics programming problems down to size.



KEEPING TRACK OF all the code needed to display oversized graphics in simple windows turns you into a juggler instead of a programmer. SuperBitMap windows condense the many image-related variables into a manageable ball, tossing the work of monitoring and refreshing the display to Intuition. With an understanding of Intuition structures and SuperBitMap windows, you can easily write code that lets you scroll an oversized image up, down, and all around so you can see the hidden parts.

While you still have to allocate and initialize the bitmaps for your windows and screens, with SuperBitMaps, Intuition remembers which sections of an image are obscured by other windows, which sections are beyond the screen's boundaries, and the pieces of the image that must be copied back to the screen should the user shift the image. The accompanying program listing, BigPict (see Listing 1), demonstrates these techniques. An IFF/ILBM reader, BigPict displays and scrolls larger-than-screen-size images from paint programs. I wrote the program in Benchmark Modula-2, but, if you are more comfortable speaking C, translating it should not be too difficult.

### IN AND OUT THE WINDOWS

To keep track of the images and system requirements of your screens and windows while displaying a picture, your program must call several data structures from the ROM Kernel drawing routines. Each window and screen has a bitmap, a large area of memory that Intuition and your program modify when drawing. The height and width of the bitmap limit the dimensions of the picture. The number of bitplanes (also called rasters) deep the bit-

map is determines how many colors are in your picture. (For more on how bitplanes determine color, see "How the Amiga Creates a Display," p. 30, in the March/April '86 issue of *AmigaWorld*.) Your program's Window and Screen structures use the system structure RastPorts to keep information about the bitmap—current pen position and draw color, fill pattern, sprite list, and so on. They also call the ViewPort structure for a description of the portion of the bitmap that the screen can show. The ViewPort is always as wide as the screen (320 or 640 pixels), but you can set the vertical size. The Layer structure describes the portions of the bitmap visible in the window and determines which parts of the bitmap you can draw in (some sections may be obscured by other windows). All of these structures must reside in chip memory, a precious resource when you work with large pictures. A 1024 × 1024 eight-color picture consumes over 384K.

If you draw images smaller than the window, your program needs to pass the RastPort's pointer to the drawing primitives, the operating system's lowest-level drawing routines. Images larger than your display need a little more monitoring. To change the portion of the graphic the program shows, you have to tell the drawing routines what to display through the Layer and the ViewPort structures. Remember, as you draw, Intuition keeps a copy of the artwork on display, but it does not know when the underlying bitmap has been changed or shifted; you have to tell it.

### LAYERED REFRESHMENT

To make some of what the demo does easier to program, I used Intuition functions to build my ►



screens and windows (which automatically set up the ViewPorts, RastPorts, and Layer structures for me). Intuition supplies noninterlaced (200 pixels high) and interlaced (400 high) screens in lo-res (320 pixels wide) and hi-res (640 wide). The windows you render on a screen, from very small to as large as the screen, inherit the screen's type. Each program running under Intuition may have one or more windows tied to it. Because windows can overlap, Intuition uses the ROM Kernel Layers routines



and the Window type to delimit the areas of a window in which you can draw.

The amount of work Intuition and your program have to do to fix the imagery if a previously obscured area is revealed determines the window's type. For Simple Refresh windows, Intuition clears the uncovered rectangle and tells your program what needs fixing. For Smart Refresh windows, Intuition keeps a copy of covered areas and replaces newly revealed pieces as needed. In both cases, your program cannot draw into the covered areas until they are displayed again. For the SuperBitMap window used in the demo, your program must allocate and initialize the bitmaps for the window and screen, but it can draw anywhere on the bitmap and never has to worry about refreshing it. Intuition will copy whatever pieces it needs from your bitmap to its display.

In addition to keeping track of windows and overlaying areas, the Layers library routines and the Layer structure control the part of the bitmap that is visible if the bitmap is larger than the

screen. You can use the ScrollLayer function to move the window around over that bitmap to display different chunks of it, similar to viewing a microfiche.

Intuition also provides an input medium for the program, via the mouse and keyboard. The mouse indicates positions and clicks gadgets and menu items; the keyboard sends either raw or vanilla keystrokes. Each input, whether click or keystroke, is sent to the program as a message via the window's IDCMP port. When you set up the Window structure in your program, you specify message flags, telling Intuition the kinds of messages to which the program will listen.

RawKey events send a message to the program when a key is pressed and another when the key is released. The messages consist of an escape code signaling the position of the key and a number identifying the key. These key numbers are assigned to each key based on the System Default Console Key Mapping table, while vanilla keys give you simply the ASCII value corresponding to the key. I used RawKeys in BigPic because their dual message system is the best way for the program to recognize cursor keys and shift-key combinations.

Each window can have gadgets. The most familiar gadget, the only one BigPic uses, is the button-like close gadget in the upper-left corner of a window. When you click on the close gadget, Intuition sends a close message to the program, and it shuts down, allowing you to exit.

With Simple Refresh, Smart Refresh, and SuperBitMap windows, Intuition draws its gadgets right on the bitmap, positioning a drag bar and close buttons at the top, the resizing gadget at the bottom, and so on. If you want only the title bar displayed, you can set the Borderless flag in the Window structure (about 10 pixels high across the top of the screen). So, if your program wants to use the close gadget and title bar, it has to leave space in the image for Intuition to display them. If you scroll the image, the title bar and close gadget will disappear. Calling RefreshWindowFrame will draw the new bar into the scrolled image, but will leave the new title bar in the middle of the picture when you scroll back to the top. To solve the problem, set the GimmeZeroZero window flag, which tells Intuition to allocate another separate layer for its window accompaniments. With GimmeZeroZero, the title bar sits on the image like a plastic overlay, letting the bitmap scroll underneath it. You pay for the solution with memory. A 1024×1024 by eight-color picture with a 320×200-pixel display is a tight fit.

## GRAPHIC LANGUAGE

IFF ILBM files are the InterLeaved BitMap form of the Interchange File Format, the standard for ►



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Amiga graphics. An IFF ILBM file contains an encoded form of the bitmap on which the picture was originally drawn (including the color palette and size), so that any IFF-compatible program can reconstruct the image. An option for the Benchmark Modula-2 compiler, the IFF and Image Resource Library (\$99) includes a procedure that accepts pointers to an IFF file, then checks the file, allocates the bitplanes for the bitmap, and reads in the image and its header (color information and such). Because incorporating the routine was easier than writing my own code, I used the routine in my demo program.

BigPict loads an IFF ILBM picture that is larger than the screen, and lets you scroll around with the arrow keys. The main program, BigPict, handles user interaction and the details of scrolling. It calls two procedures: DrawIt, to put an image on the



screen, and DrawCleanup, to close up and deallocate resources when it's time to quit.

#### BIGPICT IN ACTION

The main program, BigPict, starts up by calling DrawIt (see the listing's DrawItIFF module), which checks for errors, opens the IFF file, allocates a BitMap descriptor (but not the memory needed) and then calls ReadPicture to load the image. A Benchmark library routine, ReadPicture, scans the IFF ILBM header to determine the height, width, and depth of the image, allocates the number of rasters it will occupy, and loads it into memory. To inform DrawIt of the image's size and the colors it

uses, ReadPicture stores some of the header information in the IBLMFrame structure provided by DrawIt. When ReadPicture returns, DrawIt allocates a 320×200 screen. DrawIt takes the depth (number of bitplanes) from the ILBM header derived by ReadPicture, reads the color set from the IBLMFrame struct, and loads the values into the Screen structure's color set. At that point it initializes a NewScreen structure and creates a screen by calling OpenScreen(). BigPict then initializes the NewWindow structure for the display window. Setting the Flags field to WindowClose, Borderless, Activate, GimmeZeroZero, and SuperBitMap gives you a borderless window (title bar only) with a close gadget. The window becomes active as soon as you open it. Set the IDCMPFlags (the flags telling Intuition what kinds of messages the program will recognize) to CloseWindow and RawKey. As the code trundles along, it remembers what it has done so that it can call the cleanup routine (DrawCleanup) to deallocate all the assigned resources and exit the program at several critical points.

When DrawIt finishes, it returns control to BigPict's main program. BigPict sets the initial position-tracker variables (specifying the position of the window's upper-left corner) that it shares with its TryMove procedure, then waits for messages from Intuition. Messages come along the normal route—the Amiga message system sends message events to a port set up by the main program. In this case, when you create the new window, Intuition attaches the message port UserPort to it. Each message port you create has a signal bit allocated to it. Through the Wait call, BigPict tells AmigaDOS it will not continue to another task until it gets a signal with the specified bit.

Once the program receives the signal that there is at least one message waiting, BigPict captures the message using GetMsg(). BigPict extracts the message class and associated message code from each Intuition message, then uses ReplyMsg to inform Intuition it is done with its message. Next the program checks for a Closewindow message. If BigPict receives one, the program calls DrawCleanup and quits; otherwise it looks for keystrokes.

The type of keystroke (arrow-key presses, shift-key presses and releases, and the Help-key press) determines the program's action. The arrow keys signal that the user is attempting to move the image in the direction of the key's arrow. The arrow key alone calls for a one-pixel move; an arrow-key and shift-key combination signals a jump of ten pixels. When the user press a shift key, BigPict increments a shift counter; when the key is released, the shift counter is decremented. The Help key provides a quick way to move the image back to its upper-left corner. ►





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## Listing 1. BigPict

```

MODULE BigPict;
(*-----*)
(* BigPict - A Modula-2 Demo which imports a *)
(* larger-than-screen-size image and lets the *)
(* user scroll around in it using the arrow *)
(* keys. Demonstrates use large images, *)
(* scrolling, and intercepting raw keystrokes *)
(* as Intuition events. *)
(* David T. McClellan March/April 1988. *)
(* For September 1988 AmigaWorld. *)
(* Written in Benchmark Modula-2. *)
(*-----*)
FROM SYSTEM IMPORT
  ADR, TSIZE, BYTE, ADDRESS;
FROM InOut IMPORT
  WriteString, WriteLn;
FROM System IMPORT
  argc, argv;
FROM Intuition IMPORT
  ScreenPtr, ScreenFlags, ScreenFlagsSet,
  NewScreen, NewScreenPtr, CustomScreen,
  Window, WindowPtr, NewWindow,
  NewWindowPtr, WindowFlags, WindowFlagsSet,
  SuperBitMap, IDCMPFlags, IDCMPFlagsSet,
  IntuiMessage, IntuiMessagePtr,
  OpenScreen, CloseScreen, RethinkDisplay,
  MakeScreen, OpenWindow, CloseWindow,
  RefreshWindowFrame, OpenWorkBench,
  ViewAddress, ViewPortAddress, CursorUp,
  CursorDown, CursorLeft, CursorRight;
FROM Clipping IMPORT
  Layer, LayerPtr;
FROM Layers IMPORT
  ScrollLayer;
FROM Memory IMPORT
  AllocMem, FreeMem, MemPublic, MemChip,
  MemClear, MemReqSet;
FROM Ports IMPORT
  GetMsg, ReplyMsg;
FROM Tasks IMPORT
  Wait, SignalSet;
FROM Rasters IMPORT
  RastPort, RastPortPtr;
FROM Views IMPORT
  ViewModes, ViewModesSet,
  ViewPort, ViewPortPtr;
FROM DrawItIFF IMPORT (* Our own module *)
  DrawIt, DrawCleanup;
CONST
  (* Keyboard constants *)
  RtShiftOn = 97; RtShiftOff = 225;
  LfShiftOn = 96; LfShiftOff = 224;
  HelpKey = 95; (* Use for "Go to the Top" *)
VAR
  Xmax, Ymax : INTEGER; (*maxima of screen *)
  CurX, CurY : INTEGER; (* Current Upper
                          (* Left Corner Coords *)
PROCEDURE TryMove (awin : WindowPtr;
                  newx, newy: INTEGER);
VAR
  boundedX, boundedY : INTEGER;
  vwidth, vheight : INTEGER;
  dx, dy : INTEGER; (* For ScrollLayer *)
  winvport : ViewPortPtr;
  (* awin's Viewport *)
BEGIN
  winvport := ViewPortAddress (awin^);
  vwidth := winvport^.DWidth;
  vheight := winvport^.DHeight;
  IF (newx < 0) THEN
    boundedX := 0;
  ELSIF ((newx + vwidth-1) > Xmax) THEN
    boundedX := Xmax - vwidth;
  ELSE

```

Listing continued on p. 88

To shift the image, BigPict decides on the direction of the attempted move and calls TryMove. TryMove limits the move to keep you from scrolling outside of the image. Once the program decides on the proper distance to move, it calls ScrollLayer (from the Layers library) to move the window over the bitmap. Once the window is repositioned, BigPict tells Intuition to redraw the display by calling the functions MakeScreen and RethinkDisplay.

After TryMove is done, BigPict waits for more input. If it receives another arrow or Help-key



message, it scrolls; if it gets a shift press or release, the program alters the shift counter. If BigPict gets a Close message, it calls DrawCleanup to free the memory and quits. The logic follows one simple path—get a key, try a move, and do a ScrollLayer, or quit.

To see the BigPict in action, compile it and then type:

BigPict IFFfilename

Whether you are writing a custom drawing program or simply a slide viewer, SuperBitMap window scrolling techniques let you spend more time admiring the results of your labors and less time laboring. ■

David T. McClellan is a contributing editor to AmigaWorld. Write to him at 104 Chevron Circle, Cary, NC 27511.



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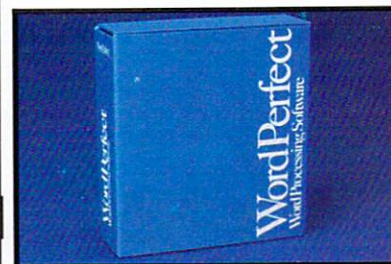
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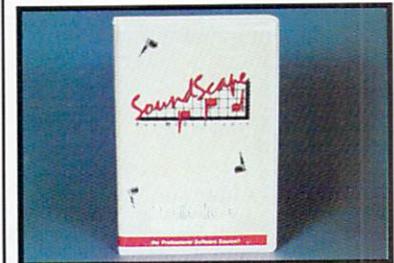


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# Exploring AmigaDOS 1.3\* Part II

*In the second episode of info.phile's "mini-series" on the new version of the Amiga's operating system, our columnists are singing the praises of the ch-ch-ch-changes to CLI commands.*

**By Bill Catchings and Mark L. Van Name**

*\*Editor's Note: To get the information on version 1.3 to you as quickly as possible, the authors have had to use a "gamma" version of AmigaDOS 1.3. A gamma version is one that Commodore circulates to developers and a few other groups so that those groups can see what's coming and help shake out any bugs. It is the last unofficial release before the software hits your dealer's shelves.*

*It is very likely that the final version will have the same new CLI commands as this gamma version, but Commodore still could make some changes before it releases the final version. To be safe, when you buy a copy of version 1.3, plan to spend a few minutes verifying that everything works as it is described here.*

AMIGADOS 1.3 INCLUDES changes to over 20 commands—far more than space permits us to cover here. So, we'll hit as

many of the more interesting changes as we can. One of the most important things that we gain from 1.3 is its new FastFileSystem, FFS. FFS makes hard-disk accesses much faster, although it does not currently help those of us with only floppy-disk drives. (Be patient, it will probably work with floppy drives in future versions of AmigaDOS.) Several commands have changed in subtle ways to work better with FFS.

ADDBUFFERS, for example, will help the performance of an FFS disk. With the standard file system, adding extra buffers did not always improve your disk's speed. If you have extra memory, ADDBUFFERS is now a much more useful command.

FORMAT also has a few new wrinkles that make it work better with hard disks in general, and with those that run FFS ►



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in particular. The new QUICK option lets you save a lot of time when you are formatting a hard disk. If you use this option, FORMAT creates and formats only the root block, the boot block, and the bitmap blocks that it uses to control disk usage.

You can also decide whether the hard disk or hard-disk partition you are formatting should run under FFS or the standard file system. You can do so in either of two ways. Commodore would prefer you to state your preference in the MountList entry for that disk or partition. To make it an FFS partition, use a DosType entry that says FFS. To make the disk use the standard file system, omit that line.

Messing around with the MountList can be intimidating. It is full of technical lines that most of us care little about. To avoid ever seeing it, when you format your partition, use the FFS option or the NOFFS (standard file system) option to indicate which file system you want the partition to use. Be sure you mean what you say here, because these options will override the disk's MountList entry.

One other disk-related command, DISK-DOCTOR, will work a bit better under 1.3. It will not work a great deal better, but even a small improvement is nice when you are talking about a command that helps you save files from crashed disks.

## A BIT OF REAL PROTECTION

AmigaDOS has offered the PROTECT command from the beginning, but it's never been very useful. Its one claim to fame is that you can use it to protect a file from deletion by removing its delete option (bit). For example:

```
PROTECT myfile rwe
```

Version 1.3 represents another step forward for this command, but, unfortunately, not enough of a step to make it worth using frequently. In addition to the existing four options (RWED), you can set four new protection options:

- A—archive
- H—hidden
- P—pure
- S—script

The A option lets you mark files for archiving. While 1.3 does not do anything with the H option now, it seems a logical choice for a means to make a file

“invisible” to the CLI. Many other operating systems, including MS-DOS, support hidden files. The P option indicates a file whose code is “pure” (more on that term next month). Finally, the S option denotes a script, or command, file, another topic for a future column.

Rather than simply stating all of a file's options, as you must do with 1.2, you can add new options to a file or subtract existing ones. To do this you use the ADD (or +) and SUB (–) keywords. For example:

```
PROTECT myfile ADD S
```

or the synonymous:

```
PROTECT myfile +S
```

will turn on the S option of myfile. Similarly:

```
PROTECT myfile SUB S
```

will remove that option, as will:

```
PROTECT myfile –S
```

Just as PROTECT has been updated to take into account the new protection bits, other commands, such as COPY, have been changed as well. COPY gives you much better control over the attributes of a duplicate file. By default, AmigaDOS copies the protection bits of the source file to the resulting destination file. The date and the comment are not copied. New options enable you to override these defaults. NOPRO specifies that the protection bits should not be copied. DATE and COM copy the source file's date and comment, respectively. CLONE causes all the attributes—the date, protection bits, and comment—to be copied.

To further simplify the duplication of files, COPY will now create a new directory if the TO parameter's destination is a directory that does not exist.

## A LIST OF LIST

The LIST command also has been changed to support the new protection bits and to add new functions. The new protection bits are now displayed along with the old ones in a file listing. In addition, LIST will handle file patterns rather than just directories. For example, you can now type:

```
LIST S:S#?
```

to list all the files in the S directory starting with the letter S.

New or changed options permit you to tailor the output of a LIST command. QUICK now eliminates the extra spaces after file names. BLOCK lists the size of files in blocks, instead of in the usual bytes. With the FILES or DIRS options, you can restrict the output of a listing to files only or directories only.

More complex, the LFORMAT option can be used to quickly create scripts to operate on a set of files. To use the option, include a LFORMAT = “<output format>” clause in a LIST command. For each file found, LIST outputs a line using that format string. The output format string can include any characters plus the following special meanings. If a %S is found, LIST will substitute a file name. A second %S is replaced with the same file name. If you use four of them, LIST replaces them with the file name, the path name, the file name again and the path name again. For example, the command:

```
LIST > RAM:movec #?.c LFORMAT =  
“RENAME %S /CDIR/%S”
```

will put one line for each file ending in .c in a file called RAM:movec. Each line will be set up like this:

```
RENAME FOO.C /CDIR/FOO.C
```

You can execute the resulting file to move each of the files matching the template to the CDIR directory. While this example is not too earth-shattering, you can use the LFORMAT option to create scripts very quickly and easily.

SEARCH also has been improved for better use with scripts. It now sets the condition flag to indicate whether the requested string was found. You can use the new QUIET option so that the matching line will not be displayed. Two other new SEARCH options allow you to have more control. NONUM turns off the outputting of line numbers. The FILE option searches for a file name rather than a string within a file. This permits you to use SEARCH in the same way you would use the UNIX FIND command.

Along with all the improvements to the file-manipulating commands, Commodore made enhancements to some of the process-handling commands. NEW-CLI now uses a startup file. If you use a FROM option, the commands in the specified file are executed at CLI startup. If the FROM option is not pres- ▶



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ent, the default file, S:CLI-Startup, is executed. This allows you to customize your CLI before you use it.

STATUS now can check for the existence of a process running a given command with the `COMMAND=<cmd>` option. For example, the commands:

```
STATUS > tempfile
COMMAND = testprogram
BREAK < tempfile > NIL:
```

will attempt to find and interrupt a pro-

cess running a command named testprogram.

#### GRAB BAG OF GOODIES

AmigaDOS version 1.3 has not only added improvements, it has eliminated a lot of the problems of previous releases. One such quirk was the DATE command's requirement that the month field must be two digits. Months such as September had to be entered with a leading zero. This problem has been fixed. SET-

DATE, used to set the date and, optionally, the time of a file, has been modified similarly.

DELETE has been changed to continue deleting files even if a file deletion fails. This will prevent DELETE from stopping completely if you type the name of one file incorrectly in a long list. AmigaDOS will not delete the misnamed file, but will delete all the files following it.

Commodore removed another annoyance by permitting the INFO command to accept the name of a device as an argument. Now you can obtain information on an individual device, instead of always seeing all the devices listed.

In previous releases, the options for DIR were single letters. Now there are more descriptive synonyms: ALL, for A, to list the contents of all subdirectories; DIRS, for D, to list only directory names; and INTER, for I, to enter interactive mode.

For its temporary files, EXECUTE now uses a directory named by the logical name T:, if it exists, rather than the :T directory. EXECUTE uses temporary files when doing argument substitution. A new copy of a script is created with the correct arguments filled in from the command line. This script is then executed. You can speed up such scripts by assigning a directory on the RAM disk to T:.

Commodore also has changed the way the INSTALL command operates. These modifications will provide a little bit of help in the war against viruses. Viruses on the Amiga typically infect disks by means of the boot block. To help make this task more difficult, INSTALL clears the memory it uses to build the boot block. The CHECK option compares the boot block on a disk against valid Commodore-Amiga boot code. INSTALL returns a warning if the boot code is considered to be nonstandard. Another option, NOBOOT, makes the disk no longer bootable. It will then be a regular AmigaDOS disk.

Next time we will discuss the new RESIDENT command and how it can make your life more pleasant. Until then, experiment with the new tricks Commodore taught these "old" commands. ■

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

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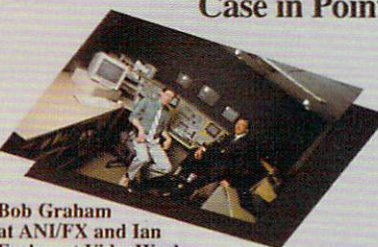
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# '88 Treasure Hunt

## A Getaway Weekend for 2

### THE CLUES—PART THREE

31. Leave town by a *route* whose number is the first half of a famous rallying cry of Pacific Northwest expansionists in the 19th century.

32. Travel accidentally, passing through a town whose name is the same as a great naval battle. Shortly afterwards look for a town whose namesake, a home-run-hitting slugger, might be deduced from the title of a novel based on the life of Louisiana demagogue Huey Long.

33. Continue on the same route in the same direction, crossing three state lines, until you join an *interstate*.

34. Proceed in "Mae's" direction on the interstate. Your *next route* will be revealed when you stop to take a poll as to what road to take.

35. Follow the sign in a boreal direction, crossing two state lines, to the end of the route at "Tom's" place.

36. Continue in the same direction from "Tom's" on a route whose individual digits add up to the number of winners of the Triple Crown in American horse racing. Join the first *interstate* you encounter.

37. Stop in a *diner* and order an omelette made with green peppers, diced ham, and

onions. Proceed on the interstate in an appropriate direction to a *place* where you could get a real sugar high.

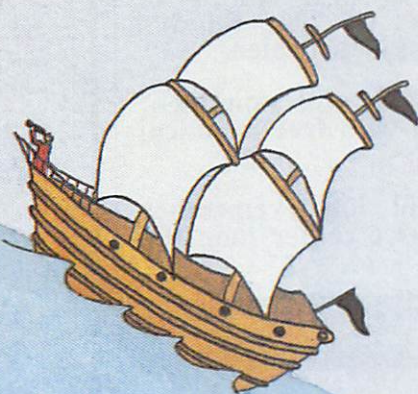
38. Return to the interstate on which you've been traveling. Proceed in the same direction until you reach another interstate. Set your sights on Polaris and proceed accordingly until you reach a *city* whose name suggests that of the man who wrote "Bankers Are Just Like Anybody Else, Except Richer" and "Cat Naps Are Too Good for Cats."

39. In this city, another interstate joins the one on which you've been traveling. Proceed in the same direction on this junction. When the roads divide, take the new interstate and cross the first *state* line.

40. Proceed on the interstate in the same direction, crossing another state line, until you arrive at a *town* whose name is the same as that of a man famous for playing "the pipes."

41. Here you will find your *new route*, whose number can be found through some NBA basketball statistics. Subtract the value of a shot made 40 feet from the basket from the highest number of points ever scored by one individual in an official game.

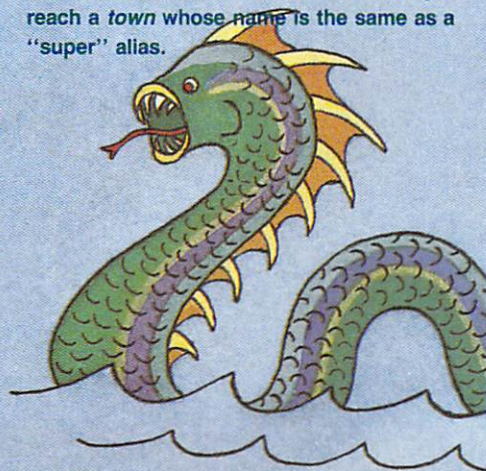
42. Proceed in an austral direction until you reach a *town* whose name is the same as a "super" alias.



43. Continue on the same route in the same direction, crossing the next state line, until you reach an interstate. Proceed on the interstate in the same direction until you reach a two-word *town*, the first word of which might describe the face of a poker player caught trying to do the second word.

44. Continue on the same route in the same direction until you reach another interstate, whose number is the same as the maximum filename length in AmigaDOS. Proceed in the Santa Maria's direction on the new interstate to the *city* where it ends.

45. You have reached the city where the Treasure Hunt ends. The city, however, is not the solution to the contest. You must find the place in this city where the treasure is "buried." To do so, go to the nearest phone and dial a *telephone number* whose digits you can learn from the following answers to previous clues:  
Area Code: #34, first digit; #23, second digit; #22, first digit  
Exchange: #17, first digit; #25, first digit; #7, first digit  
Number: #8, first digit; #36, first digit; #31, second digit; #33, first digit.  
When you call, have a pencil and pad handy.



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from p. 18

on the screen with the mouse and click. Clicking again will place an identical device. For the perfect position, you can rotate devices by 90° increments. The negative logic or DeMorgan equivalents of most devices are available. To set things straight, you can display a variable size grid of colored dots. Devices will optionally snap into position on the grid so that the pins of connecting devices will line up. You can also snap signal lines to the grid, making alignments quick and easy. Among other things, the repeat function will duplicate a line for consecutive pin placement.

Signal names tie the signals to the connector pins. You can place signal names above or below lines with automatic page reference generation, which labels every signal with the page numbers where it occurs again. Bundles of signals (busses) can be routed together to help avoid clutter. Pro-Net will generate device numbers (U1, U2, and so on), properly handling packages with multiple gates.

To make the most efficient use of space, you can edit your schematic. So that devices from the same package will not be placed too far apart, you can define zones. Text, non-electrical lines and arcs, and filled or hollow boxes and circles can be placed anywhere on the schematic diagram. You can adjust signal lines after placement. You can also move one device at a time while retaining connections, but line routing may suffer.

Two special features address the problem of later needing devices with sections tied to the power or ground plane. You can tie these pins to surface power or surface ground which will route a trace on the surface from the power or ground plane to the pin. You can later cut the trace and connect a jumper.

Post-processing functions include creating a net list, bill of materials, page references, error list and component map. You even can type in a supplementary net list that Pro-Board will combine with the main list.

### PRO-BOARD

Pro-Board (PROfessional pc BOARD generator) is a PC board layout program that uses Pro-Net's net list to guide you in making the connections on the PC board and verifying that the board design agrees with the Pro-Net schematic. If you purchase the programs indepen-

dently, you can create a board without a net list or enter your own list.

Pro-Board adds small color-coded gadgets to the text line above the Intelligent Function Keys. The gadgets let you select the layers of the PC board that are displayed (each in a corresponding color) and to designate the working layer that your mouse affects. The auto-layer gadget activates automatic selection of the working layer based on your actions. If graphic features of one layer overlap another, you can display them in a color derived from the overlapping colors, for a translucent effect.

Choose your templates from a library of various-sized integrated circuit (IC) solder pad patterns, connector patterns with or without pin numbers, and miscellaneous component patterns. You start your PC board by drawing the exact size and shape of the board, and placing the components (pad patterns) and mounting or clearance holes. The program then checks the components against the net list. Similar to Pro-Net, Pro-Board's editing features let you create or modify library parts to .001-inch accuracy. After you correct any errors, the program will do a "rat's nest," straight lines showing all of the connections in the net list. By studying this maze, you can discover where you need to rearrange components to minimize the length and crossing of traces.

When final placement is complete, Pro-Board leads you, one trace at a time, indicating which pads you must connect. On a .025-inch grid, you route the traces (.012-inch trace and .013-inch space minimums) by clicking the beginning and end points. Pro-Board will find the shortest route and place the trace. To place a via (a conducting hole through the board), just position the pointer, click, and press the via gadget. When auto-layer is on, the program puts near-vertical traces on a different side of the board from near-horizontal traces. Before starting the board, you can specify the sides used for vertical and horizontal.

You can add text and graphics to any layer: component side, solder side, power layer, ground layer and silk screen (label) layer. Pro-Board creates the silk screen layer and solder mask automatically. If you wish, the program will generate power and ground planes, mark X and Y coordinates of all components,



and create a file cross-referencing the X and Y coordinates with the device numbers.

#### WIRED FOR POWER

Pro-Net and Pro-Board are extremely fast and powerful professional-quality programs. They create well-documented, verified designs, automating normally time-consuming and error-prone tasks. The programs are easy to use, but only once you learn them. The small, poorly-written manuals are not much help. Fortunately, Prolific's customer support is excellent. Updates to both products, released as we go to print, promise PAL support in addition to other improvements.

#### Pro-Net

#### Pro-Board

#### Prolific Inc.

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## THE WEDGE

*Drive the bridge to a low-cost hard disk.*

By Carl Mann

WHILE 20 MEGABYTES of Amiga hard-disk storage is now less than half the price of early Amiga hard-drive systems, it still costs at least twice as much as a 30-meg IBM storage kit. Imagine being able to connect your Amiga with an ST506 hard disk!

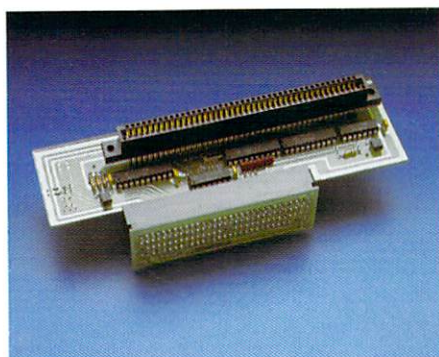
There's no need to daydream any more. The Wedge, a hardware/software combination, lets you run a standard IBM-type controller and hard drive on your A500 or A1000. It's fast, and it's less expensive than the SCSI-bus systems by a large margin. There's a price for this savings, of course, but one you may be better able to afford than cash.

The Wedge may not perform properly if your Amiga has internal expansion RAM, but it works fine with external units offering bus pass-through (I did not test it with a card cage). By itself, The Wedge is not a hard-disk system; you can't plug an ST506 drive directly into

it. Instead, The Wedge attaches to the bus and accepts an XT-style controller.

#### BUILDING BRIDGES

The total cost of my construction project was about \$419: \$100 or so for a good controller, \$75 for a cheap, 10-meg drive, \$75 for a hard-drive power supply and case, \$10 for cables, and The Wedge (\$159). To that you can add assembly time (the amount will depend on the components' pedigrees, plus your technical skills and resources). My initial assemblage was complete in four hours, but it looked like something from



Careful... the exposed Wedge is fragile.

a bad science-fiction movie. Another six hours produced a neat, presentable package.

I rated The Wedge's various characteristics on a scale of one to ten. In the categories of materials quality, reliability (once you get it to work the first time), and performance, The Wedge gets perfect scores. In the assembly division, considering both ease and quality, it gets a seven. Software and documentation score six and five respectively.

The quality-of-assembly rating would improve if the unit were encased so that cats, stray elbows, and gravity could not separate The Wedge's components. The edge connectors don't lock, and separation is an ever-present possibility in the current "naked" design. I accidentally nudged the unit during a disk-write operation with disastrous results; an elaborate web of rubber bands now holds my system together.

The low score for software quality would be higher if the "verify disk" function of The Wedge's low-level formatting program (FMT) would perform properly, and if AmigaDOS were able to find Bill-disk.device in the DEVS/ directory, as it should. At present, FMT counts the cyl- ▶

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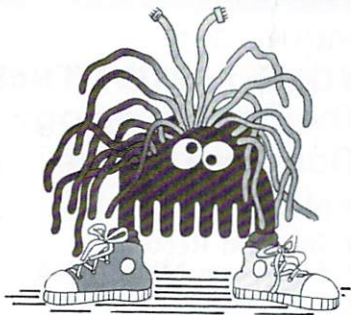
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inders but neglects to move the read/write head from track to track on the actual drive, and AmigaDOS can locate the device only in the C/ directory.

The product designers wrote the documentation. They're too close to the subject, and as a consequence, some vital matters are obscured (the section on how to configure a mountlist is confusing) while others are omitted (there is no discussion of building a startup-sequence for fast booting). Although disk files attempt to explain it all, the authors made too many assumptions about the users' technical proficiency.

### STEEL-ARCH SUPPORT

RSI Systems, maker of The Wedge, attempts to compensate for the documentation deficiencies by providing excellent telephone support and access to their MindLink bulletin-board system (where you can reportedly find answers to many technical questions). Unfortunately, a call to British Columbia is expensive for many of us.

In dealing with RSI Systems, two things became obvious. The RSI team is anxious to please; they return calls, dig up esoteric drive statistics, produce custom-configured system files without being asked, and generally knock themselves out. Secondly, the software and manual are still somewhat under development. Officially, The Wedge now falls under FCC rules for "experimental apparatus" (it does not contribute noticeably to my system's RF-interference characteristics, though). You must be prepared to work closely with RSI Systems to resolve any bugs in your configuration.

RSI also sells assembled Wedge-based hard-drive systems. If you're a hacker at heart, though, you'll probably like the do-it-yourself package despite its idiosyncrasies.

Not everybody needs a SCSI port and full networking capabilities. A Wedge-based hard-drive system costs much less than the SCSI subsystems, and it supplies the essentials.

### The Wedge

#### RSI Systems

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*ST506 hard drive and controller required.*

## D-50 PARAMETER EDITOR CAGED ARTIST'S D-50 EDITOR/LIBRARIAN THE D-50 MASTER EDITOR/ LIBRARIAN

*Three-part harmony.*

**By Bob Lindstrom**

ALTHOUGH THE Roland D-50 is easier to program than most FM synthesis keyboards, the fact remains that a few hundred values may be altered in the creation of just one D-50 voice. Each individual voice consists of two tones of two partials, and those two tones are combined with a full array of additional patch data. Whew. . . can the Amiga help out?

It can! There are at least three editor/librarians on the market to help you program the D-50 (and D-550 rackmount module) through your Amiga: Go Software's D-50 Parameter Editor, The D-50 Master by Sound Quest, and the Caged Artist's D-50 Editor/Librarian from Dr. T's Music Software.

### D-50 PARAMETER EDITOR

Musicians who blew the bank account to buy their D-50/550 may admire the Go Software package by Brian Gontowski. It provides no-frills patch editing at a low price. It also commits itself fully to the analog control panel ideal. Instead of numbers and values, buttons and sliders imitate the tweak-tempting interfaces that appeared on early analog synthesizers. These are matched with envelope graphs to access the D-50's many sound possibilities.

In addition to the basic ability to receive and transmit patches to the Roland, this editor allows you to save patches to disk. Without a librarian screen, however, the D-50 Parameter Editor is not as capable as the competition when it comes to mixing and matching individual patches into banks.

The program includes one module for printing patch parameters; another provides an on-screen keyboard with slider-adjustable key velocity that can "play" the synthesizer (a great way to test patches).

The main drawback of this editor is that it has leaned too far in favor of the analog panel. The screen does not dis- ►



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play the numerical values of your adjustments. Therefore, while the Parameter Editor provides the means to creatively manipulate patches, it produces little in the way of specific feedback. If you want to enter patch values printed in books or magazines, you'll have to set aside this program and use the front panel of the D-50/550.

#### THE D-50 MASTER EDITOR/LIBRARIAN

If you're using the Texture sequencing software (Sound Quest), look no further. The Master editor is the only way to go, as it supports Texture's use of the parallel port for MIDI output. This deluxe editor/librarian boasts a wealth of other superb features, too.

The miracle of the Sound Quest editor is that it shows so much patch information on a single screen without crowding or obscuring the display. You can find virtually everything at a glance.

To enter data, simply click and hold the left mouse button on a value. Then edit with left-right mouse movement or the up-and-down cursor control keys. Mouse response is very efficient and sensitive (sometimes too sensitive), yet direct

keyboard entry would have been a convenient alternate means of changing values.

Pitch, filter, and amplitude parameters are displayed as envelope graphs. Just click a point on the graph and move it to your desired position. As in all other editing operations, the change is sent to the D-50/550 instantly so you can immediately hear the results.

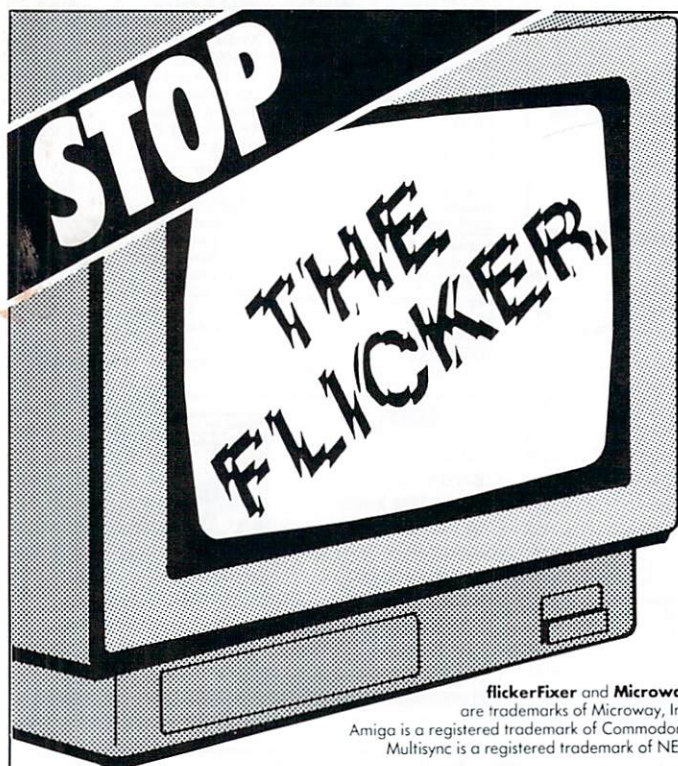
Sound Quest has provided a superior librarian in this package. You can cut, paste, and delete patches from a sound bank and save or load them to or from disk. Better yet, you can keep more than one sound bank window open simultaneously (available RAM is the limit) and cut and paste between them.

Such basics, however, are only the beginning. During editing, you can lock together several parameters; then, changing one will alter the others by the same amount. You can mix and match portions of various sizes (tone, partial, and patch data to those fluent in Rolandese) among patches. All altered values in a patch are highlighted so you can easily see which numbers have changed during an editing session.

The D-50 Master's several random patch generators help you create new sounds. You can combine two patches in various ways to produce an entirely new bank of sounds. If you prefer, you can go to the Variations screen containing a bank of sliders that determine how the program will randomly generate new patches. Considering the intricacies of programming the D-50/550, it may prove effective to let the computer randomize new voices and then choose or fine-tune the best of the bunch.

One weakness concerns the playback options. Menu selections allow you to play a single note, a chord, or a preset sequence at the touch of a mouse button. The program doesn't let you play the synthesizer from your keyboard controller, however, a feature that would be a real asset for matching music to timbre. You can easily remedy the problem with the appropriate MIDI hook-up or by multitasking a MIDI merge utility. Still, Sound Quest might have added the option and saved us the trouble.

With its many other features and the help screens throughout (a necessary addition to the technically high-level man-



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ual), Sound Quest's D-50 Master is an excellent example of how much muscle and creativity an editor/librarian can contribute.

#### CAGED ARTIST'S D-50 EDITOR/LIBRARIAN

The Caged Artist program has a "right tool for the job" feel. Without the glamour or exotic add-ons of the Sound Quest editor, this product stresses speed of operation and the kind of editing convenience that will appeal to a no-nonsense professional.

Instead of showing all parameters and envelope graphs on the screen at once, this editor moves between several independent screens to alter the D-50's partials, tones, and patches. The advantage over Sound Quest's approach is larger, more readable displays; the disadvantage is an inability to get the whole picture at a single glance.

Dr. T's data entry method is the best of the three editors, providing both mouse-slider control and direct keyboard entry (very handy when entering patch parameters from magazines). Altered values are highlighted and remain so until

changed back to the original value. You can edit envelopes by selecting a point on the graph and moving it. All alterations are sent immediately to the synthesizer.

By holding a mouse button and moving the cursor across the screen, you can play strings of notes to test a patch, changing both pitch and velocity. In keeping with its professional performance orientation, this editor also offers integral MIDI merge, which allows you to play new patches from a controlling keyboard. If you're playing music through a multitasking sequencer while editing, the MIDI implementation lets you filter program changes from the sequence (it saves a lot of confusion, believe me).

The patch librarian can hold two complete 64-patch voice banks in memory at once. You can swap patches between them to generate new patch banks. You can also save individual tones and complete voices to disk for later mixing and matching in new patches.

The Caged Artist provides patch randomizing capabilities comparable to Sound Quest's Variations screen. A mask

screen determines how much each aspect of a patch will be effected. After randomization, an undo function can restore the original. It works well, but because this editor is divided into several screens for each portion of a patch, you must run the process seven inconvenient times to alter every part of the voice.

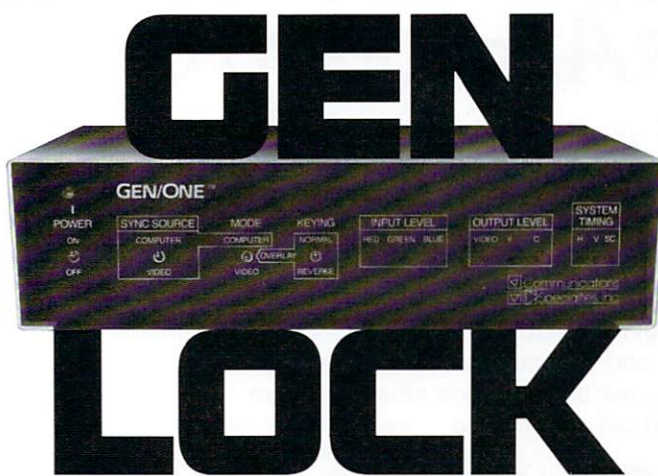
MIDI merge and type-in data entry are the outstanding merits of the Caged Artist editor. Like the other Dr. T products, the D-50 editor/librarian is not pretty, but it does a great job.

#### ONLY AMIGA MAKES IT PATCHABLE

The Amiga beats all other MIDI-controlling computers because it lets you mix and match software—you're not locked in to any particular combination. I effectively multitasked all three editors with two different sequencers.

If you're on a tight budget, Go Software's editor will get you started. If you can afford it, though, I recommend one of the others. Which is better? It's a matter of taste. The Caged Artist editor offers more efficient note entry and good live performance features, while Sound Quest's randomizing is excellent and its ▶

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interface takes advantage of the Amiga's Intuition. None will teach you how to program the Roland D-50/550, but all will streamline the job.

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#### **Caged Artist's D-50 Editor/Librarian**

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512K and MIDI interface required.

## **ANIMATION: EFFECTS ANIMATION: STAND**

*Build a video-effects studio*

*on a budget.*

**By Wayland Strickland**

WHILE THE 3-D modelling programs are quite flashy, with the right special effects, two dimensions can look equally professional. Hash Enterprises offers two ways to get your IFF and Hold-and-Modify (HAM) files moving—Animation: Effects and Animation: Stand.

#### **ANIMATION: EFFECTS**

Comprised of three separate programs—Wipe, Scroll, and Flip—Animation: Effects enhances your video presentations. For example, you can use Wipe to make the transition from a digitized picture to video input from a genlock, or use Scroll to roll the credits for your creations.

Wipe loads an IFF or HAM image in overscan and displays it over live video.

You can wipe (move a new image over the current screen display) from left to right, right to left, top to bottom, or bottom to top. If you want to be fancy, you can perform a box wipe from the center out to the edges of the screen; the image begins as a small rectangle in the middle of the screen, then expands in all directions. The box wipe works best with lores, non-interlaced images; the higher the resolution of the image, the slower and rougher the wipe appears. The other wipes perform smoothly in all resolutions. Another transition option is to fade in or fade out the image. You will fade in and out to black, however, not to the background color; color zero, that a genlock uses. To load your image and select a wipe, you use the function keys and the arrow keys.

If wipes are not your style, you can try Scroll. The mouse-driven program loads any IFF text file or IFF image file (except in HAM and overscan) and scrolls the text or picture up and down the screen. The up arrow scrolls your image from top to bottom; the down arrow moves graphics from bottom to top; the space bar pauses the scroll. You cannot,

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however, adjust the scrolling speed. The information and images move at a moderate speed suitable for reading. After using Scroll in both low and interlaced resolutions, I did not notice any speed degradation. The text and pictures scrolled up and down the screen smoothly.

Scroll does have some quirks. You can load five lo-res images into memory at once, but can only load two interlaced images at a time. I could understand this curious limitation on a low-memory machine, but I tested the program on an Amiga with four megabytes of RAM. Be sure that all information you wish to scroll has the same number of palette colors and the same resolution. If not, the program terminates, dropping you back to the Workbench screen without any warning. Even more annoying is that the program will not completely scroll the last page of text or graphics off the screen; the scroll stops about mid-way, leaving half the image on the screen.

The final and most complex member of the triumvirate is Flip, which lets you animate an IFF or HAM image. First, you must load the image and block off

the section you wish to flip, making a matte. Although you can use any resolution to obtain the matte, the program's output is in low resolution (352x240) or hi-res (704x480) overscan only. Mattes



ADO-type maneuvers are easy with Effects.

from interlaced images appear to be stretched from top to bottom when generated in lo-res and squashed from left to right when in hi-res. Until Hash Enterprises releases an update to correct this, you can easily compensate by rescaling the matte.

After saving the matte to disk, you must create a choreography or motion file, a relatively painless process compared to similar programs. You use icons to represent the matte's position on screen and the direction the matte is facing, similar to the method used in Hash's Animator Apprentice. To roll, tilt, and swivel your image, you rotate it along the x-, y-, and z-axes. At each key frame you can control the number of frames the program generates between the present frame and the next key frame, as well as designate how many frames to use to eliminate choppy movement. All of this information is stored in a key frame list, permitting minute changes to the key frames. You can also adjust the size and scale of the matte at each key frame.

Besides letting you control the matte's movements, Flip allows you to adjust light intensity, the position of the single light source, the camera's perspective, shading, and the matte's pivot point. You can take a last look at any frame in your choreography file before you record. When you are ready to record, you have a choice of three modes. IFF lets you ►

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store frames in the IFF format for use with paint or page-flipping programs. Pack compresses the images so that you can play them back in pseudo-real time and keeps them compatible with other Hash products. A tightly compressed storage format, Anim is compatible with player programs written for VideoScape 3D (Aegis). With the companion program, Display, you can play back the compressed images from Pack and Anim formats at speeds ranging from 4 frames per second (fps) to 60 fps. Anim files play back somewhat faster than files in the Pack format. Flip adds an extension to each file's name to help you identify its contents. The extension, such as .PAC32L, reminds you of the method of storage (PAC), the number of colors (32), and the resolution (L).

The only drawback to Flip is its slow compilation time for animations. To compile each frame, Flip apparently re-reads the matte image for each frame it generates, instead of keeping the information in memory. Storing the choreography file and the animation in a RAM disk did not speed things up much. Relatively slow times, however, are inherent

in compiling compressed animations. The program is 68020/68881 compatible, for those who don't mind an expensive acceleration solution.

#### ANIMATION: STAND

Designed to simulate an animator's camera stand, Animation: Stand offers effects such as distortion, which lets you stretch an image in various directions. You can also perform repetitive background cycling, called a pan; the seemingly endless living room Fred Flintstone runs through is an example. You can zoom into and out of any part of an IFF or HAM image. Through interpolation, Animation: Stand maintains picture integrity when zooming in and out. Of course, the higher the resolution you use, the more realistic and detailed the zoom appears.

Animation: Stand does not offer full overscan, but merely 352 x 480 and 704 x 480. The program records images in much the same manner as Flip does, but currently does not support the Anim format. Rendering full-screen images is time-consuming, so Animation: Stand will scale down and draw your image to

75, 50, or 25 percent for a quick look in a fraction of the time.

Animation: Effects and Animation: Stand will run from either Workbench or the CLI, and both support the European PAL standard. The manuals for the two programs are informative and pertinent; both Flip and Animation: Stand have well written tutorials. The packages require at least one megabyte of RAM, but, considering that animation is quite memory intensive, you may want another megabyte. If you have room left over to run other programs, only Flip is capable of multitasking.

After putting them through rigorous tests, I recommend Animation: Effects and Animation: Stand for video amateurs and professionals who are on tight budgets.

#### Animation: Effects

#### Animation: Stand

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# GAME SHORTIES

## EMERALD MINE

THE CLASSIC ARCADE games—Space Invaders, Pac Man, and Donkey Kong—are those you want to play even after the novelty has worn off. Emerald Mine holds your interest in the same way.

Emerald Mine is not unusual in that it is a series of puzzles you must solve in sequence. This game, however, contains over 100 levels! I must take that number on faith, as I have only made it to level 22 so far. The levels are often difficult to master; you must learn the rules of each, maneuver around obstacles, and avoid the merciless creatures.

In each level, your objective is to gather all the emeralds in the allotted time. Besides emeralds, you will find: diamonds, which carry three times the point value of emeralds; rocks, which you can topple onto creatures (watch out—they can fall on you if you're not careful); explosives; keys to locked rooms; wheels that attract enemy bugs;



Collecting jewels is the easy part!

and more. Robots will chase you through one level. On other levels, "eater" mouths try to gobble you, pots overflow with boiling acid, and amoeba-like creatures spread deadly green slime. Some strategy is involved—you must keep an eye on the creatures and plot your path—but for the most part, you just need to explore.

A smooth-scrolling view screen displays part of the large playing area. The sound effects add to the game without distracting you, and the graphics are adequate.

Emerald Mine is fast paced, but it doesn't require the reflexes of Superman. You control your miner with a joystick; movement is smooth and responsive. One or two people can play; two-player mode lets you and a friend play simultaneously as a team. The game saves 30 high scores for each level on the copy-protected disk. It also has an unusual feature for saving eight players' names, total scores, and the number of levels each has mastered.

I'm addicted. My children love Emerald Mine. Even my jaded friends are hooked. If you want a game you will not quickly tire of, dig in! (\$19.95, KingSoft, distributed by Constellation Software, 17 Saint Mary's Ct., Brookline, MA 02146, 617/731-8187. 512K and joystick required.)

—Louis Wallace ■

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# THE READERS' CHOICE



"HOW COULD HE be so positive/negative about such an awful/outstanding program? I could rate it better than that!" Go ahead, now's your chance to tell us what you think. For the past two years, we editors have applauded our favorite products with the Editors' Choice Awards. This year we leave the voting up to you. On the supplied coupon (or a postcard), rate your hardware and software over a scale of one (the lowest) to 10 for each of the three criteria (A, B and C) listed in the appropriate category. Send your votes to: The Readers' Choice, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458.

In the December issue, we'll present the 1st Annual Reader's Choice Awards with all the pomp and glitter they deserve. However, unlike the Academy Awards who employ the prestigious accounting firm of Price & Waterhouse for their tabulations, *AmigaWorld's* results are entrusted to the firm of Cutrate & Watergate, infamous for their security leaks. While they can count accurately, they can't keep secrets. In upcoming issues, watch for pre-ceremony peeks inside the envelopes.

**CREATIVITY** (graphics, video, music, desktop publishing)

A) ease of use

B) flexibility (special equipment needed, integrates with other programs)

C) professional features (Can you use it in your business/studio?)

## GAMES

A) playability

B) presentation (graphics, sound)

C) longevity (How long does it hold your interest?)

**HARDWARE** (memory expansion, hard drives, digitizers, genlocks)

A) ease of installation

B) ease of use

C) technical support

**HOME** (educational, finance)

A) ease of use

B) documentation (complete reference, examples, tutorials)

C) flexibility (Does it have a variety of uses or will you grow out of it?)

**PRODUCTIVITY** (spreadsheets, databases, accounting, telecommunications, word processors)

A) ease of use

B) flexibility (import files from other programs, a variety of applications)

C) advanced features (Can you grow into the program?)

**PROGRAMMING** (languages, utilities)

A) documentation (complete reference, examples, tutorials)

B) flexibility (integrates with other libraries, routines)

C) advanced features (Will it support more complicated applications?)

**MISCELLANEOUS** (whatever is left)

A) ease of use

B) documentation (complete reference, examples, tutorials)

C) performance (Does it do what was promised?)

## PRODUCTS

## RATING

A

B

C


## COMMENTS


## PRODUCTS YOU WOULD LIKE TO SEE REVIEWED



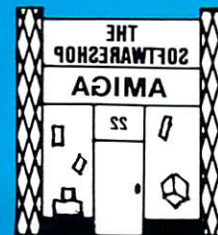

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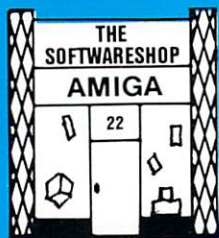
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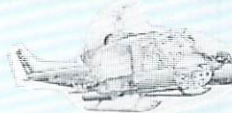


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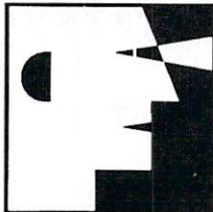
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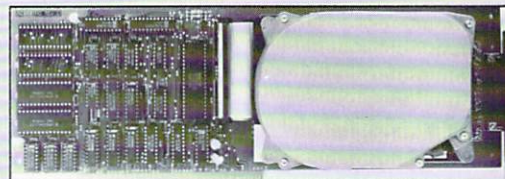
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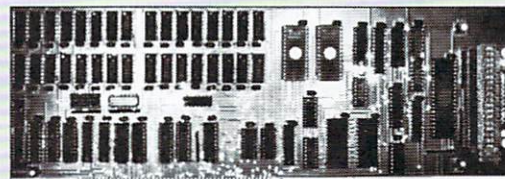


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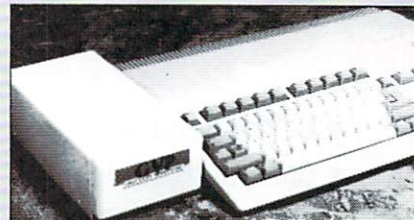


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# HELP KEY

*If you're behind the eight ball, take a cue from Lou  
and pocket your troubles.*

By Louis R. Wallace

## BAD BOBS

**Q:** I read your comments about flickering Amiga Basic BOBs in the April '88 Help Key ("Safety First," p. 85) with distress! I had planned on using BASIC for animation. What should I use instead—C, PASCAL, Modula-2? Will I need a hard drive to use these languages? Do they support sound, speech, mouse, and joystick? I also need to generate a white noise sound. What would the wave array look like?

**D. Lecompte**  
Boucherville, Quebec

**A:** Sorry to be the bearer of bad news, but Amiga Basic does not handle BOBs properly. In most cases, C and Modula-2 compilers can access all of the Amiga's features far better than Amiga Basic. Benchmark Modula-2 from Avant Garde (2213 Woodburn, Plano TX, 75075, 214/964-0260) would fill your needs nicely, as would a C compiler from Manx (One Industrial Way West, Eatontown, NJ 10541, 800/221-0440) or Lattice (2500 S. Highland Ave., Lombard, IL 60148, 800/533-3577).

On the bright side, Commodore has requested that Microsoft correct some problems with Amiga Basic, including the flickering BOBs. The update will not be available until sometime next year when Commodore releases version 1.4 of the operating system.

As for the noise waveform, it has no shape or pattern and

consists of random values. In Amiga Basic, the values fall between -128 and +127. Use the RND function to define the waveform.

## READ MORE ABOUT IT

**Q:** Could you recommend a good Amiga-specific book on 68000 assembly programming?

**W. White**  
Las Vegas, NV

**A:** As of this writing, I have seen *Amiga Assembly Language Programming* (\$13.95) by Jake Commander, published by TAB Books Inc. (13311 Monterey Lane, Blue Ridge Summit, PA 17294-0850, 717/794-2191), and ads for *Amiga Machine Language* (\$19.95), published by Abacus Software (2201 Kalamazoo SE, PO Box 7219, Grand Rapids, MI 49510, 616/241-5510).

## SAY, SON

**Q:** I want to use the SAY command to write talking letters to my son. Could you tell me how to use the SAY command from the CLI?

**T. Mitchell**  
Horseheads, NY

**A:** Open a CLI window, and type SAY HELLO THERE SON. After loading the translator device, the Amiga repeats aloud what you typed. As you know, the Amiga will recite the contents of an ASCII file; type SAY -x filename. Here's

a complete list of SAY prefixes and their meanings:

- m male voice
- f female voice
- r robot voice
- n natural voice
- s## speed 40-400; 150 sounds best
- p## pitch 65-320; 110 sounds best
- x filename recite contents of filename

Another way to practice from the CLI is to type SAY and press Return. Two windows will open: one accepts your typed input and the other shows you the translated phoneme representation of what you typed. To quit, just press Return and you will return to the CLI.

## PASSING PARAMETERS

**Q:** How do I pass parameters (such as file names or data) to my AmigaDOS batch files when I execute them?

**J. Wine**  
Akron, OH

**A:** Passing parameters to AmigaDOS is not difficult. You use a technique called parameter substitution, which requires you to pass information along with the EXECUTE command and the batch file's name. Start off the batch file with the argument template using the .KEY directive, which defines a variable name for the incoming parameter. For

example, to send a text file to the printer and the narrator, you could use the following batch file, SpeakPrint:

```
.KEY filename
RUN SAY -X <filename>
RUN TYPE <filename> TO
PRT:
```

The .KEY directive indicates that the parameter information passed to this file will be used wherever the word "filename" is found. The file uses this information in the second line to speak the file, and in the third to type it to the PRT: device. If you have a text file called mailinglist, you could use SpeakPrint by typing:

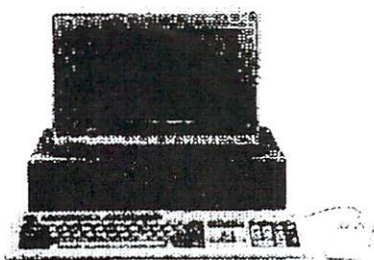
```
EXECUTE SPEAKPRINT
MAILINGLIST
```

By the same method, you can pass multiple parameters. If you wanted to print four files with one command, for example, you would use the .KEY directive with the four variable names separated by commas.

```
.KEY FILE1,FILE2,
FILE3,FILE4
```

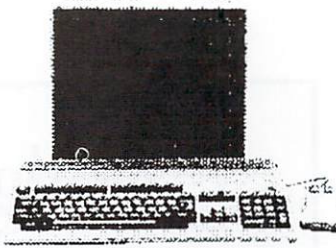
You would then pass four file names to the batch file. You can use parameter substitution with a variety of AmigaDOS commands, such as IF/ELSE/ENDIF, ECHO, COPY. For more information, see *The AmigaDOS Manual* (Bantam Computer Books, 666 Fifth Ave., New York, NY 10103, 212/765-6500). ■





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Interview with Andy Warhol, Artists and the Amiga, Personal art, wizard of Wishbringer, programming Cambridge Lisp, intro to TLC-Logo, list of Amiga regional representatives.

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from p. 54

```

boundedX := newX;
END;
IF (newY < 0) THEN
boundedY := 0;
ELSIF ((newY + vheight-1) > Ymax) THEN
boundedY := Ymax - vheight;
ELSE
boundedY := newY;
END;
(* Calc. dx, dy, and scroll the image *)
dx := boundedX - CurX;
dy := boundedY - CurY;
CurX := boundedX;
CurY := boundedY;
ScrollLayer (awin^.WLayer^, dx, dy);
(* Tell Intuition to rebuild screen *)
MakeScreen (awin^.WScreen^);
RethinkDisplay;
END TryMove;
(*-----*)
(* Main Program *)
(*-----*)
VAR
drawwin : WindowPtr;
(* Window from DrawIt *)
shiftcount : INTEGER; (* Shift key count *)
message : IntuiMessagePtr;
msgclass : IDCMPFlagsSet;
msgcode : CARDINAL;
sigset : SignalSet;
filearg : ADDRESS; (* For argv *)
BEGIN (* main program *)
IF (argc < 2) THEN
(* Run from Workbench, or from CLI w/out args *)
filearg := NIL;
ELSE
filearg := argv[1];
END;
shiftcount := 0;
DrawIt (filearg, drawwin, Xmax, Ymax);
(* Init position trackers. *)
CurX := 0;
CurY := 0;
LOOP (* Do this forever, or until user *)
(* gets bored. *)
sigset := Wait (SignalSet {CARDINAL
(drawwin^.UserPort^.mpSigBit)});
message := GetMsg(drawwin^.UserPort^);
WHILE (message # NIL) DO
msgclass := message^.Class;
msgcode := message^.Code;
ReplyMsg(message);
IF (Closewindow IN msgclass) THEN
DrawCleanup;
HALT;
ELSIF (RawKey IN msgclass) THEN
CASE msgcode OF
CursorUp:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX, CurY-10);
ELSE
TryMove (drawwin,
CurX, CurY-1);
END;
|
CursorDown:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX, CurY+10);
ELSE
TryMove (drawwin,
CurX, CurY+1);
END;
|
CursorRight:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX+10, CurY);

```



```

ELSE
TryMove (drawwin,
CurX+1, CurY);
END;
|
CursorLeft:
IF (shiftcount > 0) THEN
TryMove (drawwin,
CurX-10, CurY);
ELSE
TryMove (drawwin,
CurX-1, CurY);
END;
|
HelpKey:
TryMove (drawwin, 0, 0);
|
RtShiftOn,
LfShiftOn:
INC(shiftcount);
|
RtShiftOff,
LfShiftOff:
DEC(shiftcount);
|
ELSE
(* Ignore other Keys *) ;
END; (* Switch *)
END; (* RawKey Case *)
message := GetMsg(drawwin^.UserPort^);
END; (* While messages available *)
END; (* Event LOOP *)
END BigPict.
IMPLEMENTATION MODULE DrawItIFF;
(*-----*)
(* DrawItIFF - A Modula-2 Demo which loads a *)
(* larger-than-screen-size IFF image. *)
(* Requires Benchmark IFF Library *)
(* David T. McClellan March/April 1988. *)
(* Written in Benchmark Modula-2. *)
(*-----*)
FROM SYSTEM IMPORT
ADR, TSIZE, BYTE, ADDRESS;
FROM InOut IMPORT
WriteString, WriteLn;
FROM Intuition IMPORT
ScreenPtr, ScreenFlags, ScreenFlagsSet,
NewScreen, NewScreenPtr, CustomScreen,
Window, WindowPtr, NewWindow, NewWindowPtr,
WindowFlags, WindowFlagsSet, SuperBitMap,
IDCMPFlags, IDCMPFlagsSet,
IntuiMessage, IntuiMessagePtr,
OpenScreen, CloseScreen, RethinkDisplay,
MakeScreen, OpenWindow, CloseWindow,
RefreshWindowFrame, OpenWorkBench,
ViewAddress, ViewPortAddress,
Image, DrawImage;
FROM Memory IMPORT
AllocMem, FreeMem, MemPublic, MemChip,
MemClear, MemReqSet;
FROM Ports IMPORT
GetMsg, ReplyMsg;
FROM Tasks IMPORT
Wait, SignalSet;
FROM AmigaDos IMPORT
ModeOldFile, FileHandle, Open, Close;
FROM System IMPORT
argc, argv;
FROM IFF IMPORT
IFFP, IFFDone;
FROM ILBM IMPORT
BitMapHeader;
FROM ReadPict IMPORT
ILBMFrame, ReadPicture;
FROM RemAlloc IMPORT
ChipAlloc, RemFree;
FROM Rasters IMPORT
RastPort, RastPortPtr, RasInfo, RasInfoPtr;
FROM Graphics IMPORT
BitMap, BitMapPtr; ▶

```

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```

FROM Views IMPORT
ViewModes, ViewModesSet, View, ViewPtr,
LoadView, ViewPort, ViewPortPtr, MakeVPort,
MrgCop, LoadRGB4;
CONST
(* Screen, scene constants *)
SCRWIDTH = 320; (* LORES *)
SCRHEIGHT = 200; (* Noninterlaced *)
TYPE
(*-----+
| Close-up-shop Bits |
+-----*)
CloseMaskBits = (CL_SCREEN,
                  (* Close the screen *)
                  CL_IFF,
                  (* Deallocate IFF Memory *)
                  CL_WINDOW);
                  (* Close window *)
CloseMaskSet = SET OF CloseMaskBits;
VAR
closemask : CloseMaskSet;
newscr : NewScreen;
newwin : NewWindow;
win : WindowPtr; (* Window from DrawIt *)
scr : ScreenPtr; (* Screen from DrawIt *)
rp : RastPortPtr;
bitm : BitMapPtr; (* ILBM's bitmap *)
winvport : ViewPortPtr; (* win Viewport *)
(* DrawCleanUp - Cleanup code for the DrawIt *)
PROCEDURE DrawCleanUp;
VAR
j : INTEGER;
wscr : ScreenPtr;
BEGIN
IF (CL_WINDOW IN closemask) THEN
CloseWindow (win^);
END;
IF (CL_SCREEN IN closemask) THEN
CloseScreen (scr^);
END;
wscr := OpenWorkBench ();
IF (CL_IFF IN closemask) THEN
RemFree (bitm^.Planes[0]);
FreeMem (bitm, TSIZE(BitMap));
END;
END DrawCleanUp;
(*-----+
(* DrawIt - load and draw the image which *)
(* BigPic will let the user scroll around. *)
+-----*)
PROCEDURE DrawIt(filename : ADDRESS;
VAR awin : WindowPtr;
VAR xmax, ymax : INTEGER);
VAR
i, j : INTEGER;
xoff, yoff : INTEGER;
rastbytes : LONGCARD;
(* Bytes in rasters *)
iffid : FileHandle; (* IFF file *)
iffret : IFFP;
(* Return value from ReadPicture *)
frame : ILBMFrame;
(* Filled by ReadPicture *)
iffimage : Image; (* For DrawImage's use *)
BEGIN
IF (filename = NIL) THEN
WriteString('Need name of IFF file!');
WriteLn;
WriteString('1) BigPic <filename>');
WriteLn;
HALT;
END;
iffid := Open (filename, ModeOldFile);
IF (iffid = NIL) THEN
WriteString('Cannot open file');
WriteLn;
HALT;
END;
closemask := CloseMaskSet {};

```

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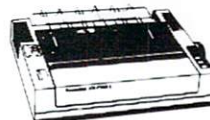
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```
(* Allocate BitMaps first *)
bitm := AllocMem (TSIZE(BitMap),
                  MemReqSet {MemChip});

IF (bitm = NIL) THEN
  WriteString('Cant allocate bitmap descriptor');
  WriteLn;
  DrawCleanup;
  HALT;
END;

(* Load Image *)
iffret := ReadPicture (iffid, bitm^,
                      frame, ChipAlloc);

Close (iffid);
IF (iffret # IFFDone) THEN
  WriteString ('Error reading file');
  WriteLn;
  FreeMem (bitm, TSIZE(BitMap));
  HALT;
END;

closemask := closemask + CloseMaskSet {CL_IFF};
WITH newscr DO
  LeftEdge := 0; TopEdge := 0;
  Width := SCRWIDTH;
  Height := SCRHEIGHT;
  Depth := INTEGER(frame.bmHdr.nPlanes);
  DetailPen := BYTE(-1);
  BlockPen := BYTE(-1);
  ViewModes := ViewModesSet {};
  Type := CustomScreen;
  CustomBitMap := NIL;
  Font := NIL; Gadgets := NIL;
  DefaultTitle := ADR('DrawItIFF Screen');
END;

scr := OpenScreen (newscr);
IF (scr = NIL) THEN
  DrawCleanup;
  WriteString('Could not open screen');
  WriteLn;
  HALT;
END;

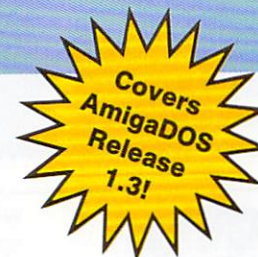
closemask := closemask +
              CloseMaskSet {CL_SCREEN};
LoadRGB4 (scr^.Viewport, ADR(frame.colorMap),
          INTEGER(frame.nColorRegs));
WITH newwin DO
  LeftEdge := 0; TopEdge := 0;
  Width := SCRWIDTH;
  Height := SCRHEIGHT;
  DetailPen := BYTE(1);
  BlockPen := BYTE(0);
  IDCMPFlags := IDCMPFlagsSet
                {CloseWindow, RawKey};
  Flags := WindowFlagsSet {WindowClose,
  Borderless, GimmeZeroZero,
  Activate} + SuperBitMap;
  FirstGadget := NIL;
  CheckMark := NIL;
  Title := ADR('DrawItIFF Window');
  Screen := scr; BitMap := bitm;
  MinHeight := SCRHEIGHT;
  MinWidth := SCRWIDTH;
  MaxHeight := SCRHEIGHT;
  MaxWidth := SCRWIDTH;
  Type := CustomScreen;
END; (* WITH *)
win := OpenWindow(newwin);
IF (win = NIL) THEN
  WriteString('could not open the window');
  WriteLn;
  DrawCleanup;
  HALT;
END;

closemask := closemask +
              CloseMaskSet {CL_WINDOW};

awin := win;
xmax := frame.bmHdr.w;
ymax := frame.bmHdr.h;
END DrawIt;
END DrawItIFF. ■
```



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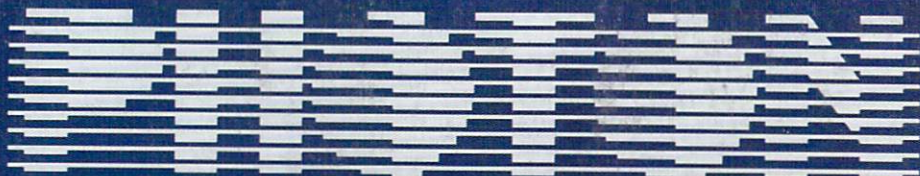
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The program can also replay your sequence of frames in a continuous loop, so you can sit back and review the action repeatedly without having to rewind and play a video tape over and over again, or without ever having to wait for film to be shot, processed, and edited.

### SOUND SYNCHRONIZATION—

Cell Animator allows you to digitize your pre-recorded sound track (dialogue, music or effects), and replay them frame by frame; or select any group of frames to replay, enabling you to locate and identify sounds according to frame number prior to doing your animation drawings. Then, review your pose test or completed animation synchronized with your digitized sound track, and you can then print an exposure sheet, vowels and consonants paired with frame numbers.

### INTRODUCE COLOR! —

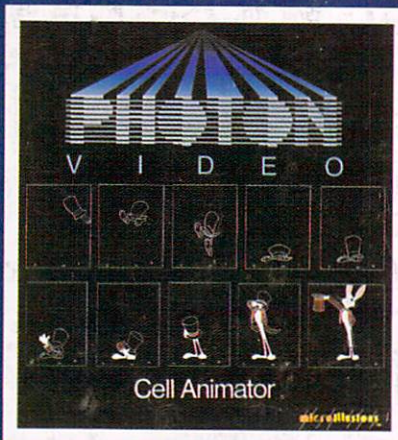
Finally, if you own one of the many paint programs available such as Photon Paint, you can paint your pencil drawings right on your computer, and use Cell Animator to replay them in full color, over any background you create. It is also possible to send your completed color scenes to video tape; thus producing a full color animated sequence right in your own home on your VCR or you can use Photon Video's Transport Controller software.

### COMPATIBILITY —

Photon Video Products are fully compatible with most third party art, animation and rendering software systems.

### TRANSPORT CONTROLLER —

This module allows you to take your animations frame by frame to video tape, by way of popular frame by frame controllers such as Lyon Lamb.™



### OTHER PHOTON VIDEO PRODUCTS —

- EDIT 3D, Photon's powerful solid object Editor.
- RENDER 3D, Photon's amazing solid object rendering system.
- Photon Paint, this immense paint system gives you all you are accustomed to in a professional paint box, plus many advanced features like surface mapping and light source control!

